

Ashcourt

**Proposed Mixed-Use Development
Land to the South of Raich Carter
Way, Dunswell
Transport Assessment**

October 2024

Armstrong House,
The Flemingate Centre,
Beverley,
HU17 0NW

📞 01482 679 911

✉️ info@ltp.co.uk

🌐 www.local-transport-projects.co.uk

Registered No. 5295328

Ashcourt

Proposed Mixed-Use Development Land to the South of Raich Carter Way, Dunswell Transport Assessment

October 2024

Client Commission

Client: Ashcourt Date Commissioned: August 2024

LTP Quality Control

Job No:	LTP/24/5913	File Ref:	Dunswell P&R TA Final Issue 1		
Issue	Revision	Description	Author	Checked	Date
1	-	Final Issue	AC/TF	SW/MR	30/10/2024
Authorised for Issue:				SW	

LTP PROJECT TEAM

As part of our commitment to quality the following team of transport professionals was assembled specifically for the delivery of this project. Relevant qualifications are shown and CVs are available upon request to demonstrate our experience and credentials.

Team Member	LTP Designation	Qualifications
Steven Windass	Technical Director	BSc(Hons) MSc(Eng) CEng FIHE MCIHT
Mike Raynor	Associate	BA(Hons) MIHE
Annabel Carrick	Senior Transport Planner	BSc(Hons) EngTech MIHE MCIHT
Tom Farniss	Graduate Transport Planner	BSc (Hons)

The contents of this document must not be copied or reproduced, in whole or in part, without the written consent of Local Transport Projects Ltd.

Document Control

www.local-transport-projects.co.uk

PROPOSED MIXED-USE DEVELOPMENT LAND TO THE SOUTH OF RAICH CARTER WAY, DUNSWELL TRANSPORT ASSESSMENT

CONTENTS

EXECUTIVE SUMMARY	4
1. INTRODUCTION	5
1.1 Background	5
1.2 Pre-Application Feedback	5
1.3 Scope	5
2. SITE BACKGROUND.....	8
2.1 Site Location & Existing Use.....	8
2.2 Development Proposals.....	8
2.3 Access Arrangements	10
2.4 Parking Requirements.....	11
2.5 Allocation Status & Planning History	12
3. SITE ASSESSMENT.....	13
3.1 Local Highway Network	13
3.2 Pedestrian Provision	14
3.3 Cycling Provision	17
3.4 Public Transport Provision	18
4. ROAD CASUALTY APPRAISAL	20
4.1 Collision Record	20
4.2 Collision Conditions	20
4.3 Collision Times	21
4.4 Collision Locations	21
4.5 Casualties.....	22
4.6 Road Safety Impact.....	22
4.7 2023 Update	23
5. TRIP GENERATION	24
5.1 Methodology	24
5.2 Proposed Traffic Generation – PFS	24
5.3 Proposed Traffic Generation – Drive-Thru Coffee Shop	26
5.4 Proposed Traffic Generation – Drive-Thru Fast-Food Units.....	26
5.5 Go Ahead Bus Depot.....	27
5.6 Dunswell P&R	30
5.7 Total Traffic Generation.....	31
5.8 Trip Types	32
6. TRAFFIC IMPACT	35
6.1 Study Junctions	35
6.2 Baseline Network Traffic Flows.....	35
6.3 Peak Hours.....	36
6.4 Committed Developments.....	36
6.5 Assessment Scenarios.....	39
6.6 Traffic Distribution & Assignment.....	39
6.7 Impact on Local Junctions.....	41
6.8 J1 Capacity Assessment	42
6.9 J2 Capacity Assessment	43
6.10 J3 Capacity Assessment	44
6.11 J4 Capacity Assessment	47

6.12	Impact on the Local Highway Network	49
7.	CONCLUSIONS	50
8.	REFERENCES	52

APPENDICES

Appendix 1 – Site Layout Plan
Appendix 2 – ERYC Highways Feedback
Appendix 3 – Collision Plot
Appendix 4 – TRICS Output – PFS
Appendix 5 – TRICS Output – Coffee Drive-Thru
Appendix 6 – TRICS Output – Fast-Food Drive-Thrus
Appendix 7 – Bus Depot Dataset
Appendix 8 – Priory Park P&R Dataset
Appendix 9 – Network Diagrams
Appendix 10 – Traffic Growthing
Appendix 11 –J1 Capacity Assessment
Appendix 12 – J2 Capacity Assessment
Appendix 13 – J3 Capacity Assessment
Appendix 14 – J4 Capacity Assessment
Appendix 15 – J4 Capacity Assessment – Improvement Scheme

TABLES

Table 1: Local Bus Services	19
Table 2: Collision History	20
Table 3: Collision Conditions	20
Table 4: Collisions by Time of Year	21
Table 5: Collisions by Time and Day	21
Table 6: Casualty Road User Groups	22
Table 7: Projected Vehicle Trip Generation – PFS.....	25
Table 8: Projected Vehicle Trip Generation – Drive-Thru Coffee Shop.....	26
Table 9: Projected Vehicle Trip Generation – Drive-Thru Fast-Food Units	27
Table 10: Shift Arrival & Departure Periods.....	29
Table 11: Projected Modal Split – Bus Depot Staff	29
Table 12: P&R Services	30
Table 13: Projected Vehicle Trip Generation – Dunswell P&R.....	31
Table 14: Proposed Development – Total Vehicle Trips	31
Table 15: Total, Pass-by/Diverted & New Development Trips.....	34
Table 16: List of Study Junctions	35
Table 17: Wawne View Housing Parcels Build-Out.....	38
Table 18: Predicted Traffic Impact at Key Local Junctions	42
Table 19: J1 Capacity Assessment	43
Table 20: J2 Capacity Assessment	44
Table 21: J3 Capacity Assessment	45
Table 22: J4 Capacity Assessment – Existing Layout	47
Table 23: J4 Capacity Assessment – Improvement Scheme	48

FIGURES

Figure 1: Site Location	8
Figure 2: Extract of Local Plan Policies Map.....	12
Figure 3: 2km Walking Isochrone	15
Figure 4: Local Public Rights of Way Map	16
Figure 5: 8km Cycle Isochrone	17
Figure 6: Local Cycle Routes	18
Figure 7: Study Area Locations	35
Figure 8: Kingswood Housing Allocation Sites	38
Figure 9: Improvement Scheme Drawing.....	46

PHOTOS

Photo 1: A1079 Beverley Road.....	13
Photo 2: Raich Carter Way	14
Photo 3: Segregated Foot/Cycleway Along the A1079 Beverley Road	16

EXECUTIVE SUMMARY

This Transport Assessment (TA) provides a detailed appraisal of the transport impact of proposals for a proposed mixed-use development on land to the south of Raich Carter Way in Dunswell, East Riding of Yorkshire. The key findings of this TA are summarised below:

- The development is for a mixed-use development consisting of a Petrol Filling Station (PFS) with convenience store, a drive-thru coffee shop, two drive-thru fast-food units, a Park & Ride (P&R) and a bus depot. The development will be accessed via four new Left-In Left-Out (LILLO) junctions, with two connecting with the A1079 Beverley Road and Raich Carter Way.
- The site is located within a 2km walking distance of Dunswell, the western extents of Kingswood including Kingswood Retail Park, and residential estates accessed via the A1079 Beverley Road. The site is located within a reasonable cycle ride (circa 8km) of the majority of Beverley and Hull, and a range of additional settlements. Bus stops are located on the A1079 Beverley Road within the vicinity of the site, providing access to a number of services. Hull Interchange is situated approximately 6.7km to the south of the site, providing regular services to a number of destinations.
- Analysis of the 59 Personal Injury Collisions (PICs) has not revealed any identifiable existing collision issues associated with the expected movements generated by the proposed development. Therefore, it is considered that there are not any existing road safety issues pertinent to the development of the site.
- The proposed development is expected to generate up to 531 two-way vehicle trips during the AM peak hour (08:00-09:00), 563 during the PM peak hour (17:00-18:00) and 653 during the Saturday peak hour (12:00-13:00). A significant proportion of vehicle trips generated by the proposed development are expected to form pass-by, diverted, linked, or transferred trips rather than 'new' trips on the local highway network.
- The distribution of traffic associated with the proposed development has been predicted utilising a combination of the existing vehicle flows on the local highway network and information provided by the Applicant. Capacity assessments using the industry-standard Junctions 9 modelling software demonstrate that the proposed development is not expected to have a detrimental impact on the operation of the local highway network.
- Based on the traffic flow forecasts and capacity assessments of this TA, it is considered that the proposed development would not be expected to have a detrimental impact on the operation of the local highway network, and as such the proposals are in accordance with local and national planning policy.

This TA demonstrates that the proposed development would not be expected to have a significant impact in terms of sustainable travel, traffic impact and road safety. As the impact of the proposals is not expected to be severe, the proposals are therefore considered to be in accordance with the National Planning Policy Framework (NPPF).

I. INTRODUCTION

I.1 Background

- 1.1.1 Local Transport Projects Ltd (LTP) has been commissioned to produce a Transport Assessment (TA) in support of a planning application for a proposed mixed-use development on land to the south of Raich Carter Way in Dunswell, East Riding of Yorkshire. This TA provides a detailed appraisal of the expected transport impacts and road safety implications of the proposals. A plan of the proposed site layout is attached as Appendix 1. The proposals include a Petrol Filling Station (PFS) with convenience store, a drive-thru coffee shop, two drive-thru fast-food units, a Park & Ride (P&R), and a bus depot.
- 1.1.2 The local planning and highway authority for the site is East Riding of Yorkshire Council (ERYC). The local planning and highway authority immediately to the east and south of the site is Hull City Council (HCC), therefore HCC Highways will be a key consultee on the scheme.
- 1.1.3 LTP has also prepared a Travel Plan (TP) (LTP, 2024) in support of the proposed development, which outlines the approach to encouraging travel by sustainable modes at the site. Although the TP has been prepared as a standalone document, both the TA and TP are linked and should be read in conjunction with each other.

I.2 Pre-Application Feedback

- 1.2.1 Pre-application feedback has been obtained from ERYC Highways, however the feedback relates to the Park and Ride (P&R) element of the site only, and not the other proposed uses (although it is noted that the Applicant is understood to have presented the full proposals as part of the pre-application enquiry). ERYC Highways' response is attached in full as Appendix 2.
- 1.2.2 Engagement has also taken place between the Applicant team and HCC Highways through a pre-application meeting held on Tuesday 3rd September 2024.
- 1.2.3 This TA has been produced to address the written feedback received by ERYC Highways and the verbal feedback received by HCC Highways.

I.3 Scope

- 1.3.1 This report is written in accordance with the Government's '*National Planning Policy Framework*' (MHCLG, 2023) and '*Planning Practice Guidance*' (MHCLG, 2014), with the scope outlined below:
 - **Executive Summary:** A non-technical summary of the report outlining the key outcomes of the assessment.
 - **Introduction & Description of Proposals:**
 - Description of the development site, including location and any existing access arrangements;
 - Summary of relevant planning and allocation history for the site;

- Description of the proposed development including site layout, pedestrian/cycle facilities and proposed access arrangements.
- **Site Assessment:**
 - Site assessments to determine existing traffic conditions, such as posted speed limits, road restrictions, highway geometry, on-street parking restrictions and any other relevant features of the local area;
 - Assessment of the sustainable transport infrastructure (pedestrian, cycle and public transport) local to the site.
- **Road Casualty Appraisal:** Examination of road collision records (5-year study period) and assessment of the road safety impact of the proposed development on the local highway network.
- **Traffic Impact:**
 - Calculation of the projected trip generation for the proposed development;
 - Consideration of the trip types associated with the proposals, particularly pass-by and diverted trips associated with the P&R, PFS and drive-thrus;
 - Consideration of any relevant consented developments within the local area and any committed changes to the surrounding highway network;
 - Prediction of the distribution of the vehicle trips generated by the site onto the local highway network;
 - Junction capacity modelling of the weekday AM and PM and Saturday peak hour impact of the scheme utilising the industry-standard modelling software (PICADY/ARCADY) at the following junctions:
 - Raich Carter Way site accesses;
 - Beverley Road site accesses;
 - Dunswell Roundabout; and
 - Raich Carter Way/Barnes Way/Gibraltar Road roundabout.
 - Assessment of the likely traffic impact of the proposed development on the operation of the local highway network.
- **Access, Parking & Internal Layout:** Consideration of the proposed access arrangements and internal layout of the site, including the proposed parking provision and access/servicing arrangements.
- **Conclusions:** Conclusions summarising the outcomes of the TA, including a commentary on the suitability of the proposals in terms of sustainable travel, traffic impact and road safety.

1.3.2 This TA report has been prepared in accordance with the above scope and reference has been made to the following documents where appropriate:

- National Planning Policy Framework (MHCLG, 2023);
- ERYC Local Plan Update 2020-2039: Draft Allocations Document Update (ERYC, 2021a);
- East Riding Local Plan Update: Draft Policies Map Update (May 2021) (ERYC, 2021b);
- East Riding Local Plan Update: Draft Strategy Document Update (ERYC, 2021c);

- ERYC Local Transport Plan 2021-2039 (ERYC, 2021d);
- Hull Local Plan 2016 to 2032 (HCC, 2017);
- Kingswood Area Action Plan (HCC, 2016);
- ERYC Sustainable Transport SPD (Supplementary Planning Document) (ERYC, 2016a);
- ERYC Local Plan: Allocations Document (ERYC, 2016b);
- ERYC Local Plan: Policies Map (ERYC, 2016c);
- Planning Practice Guidance (MHCLG, 2014);
- HCC LTP3 (3rd Local Transport Plan) (HCC, 2011);
- Manual for Streets 2: Wider Application of the Principles (CIHT, 2010);
- Guidance on Transport Assessment (DfT, 2007a); and
- Manual for Streets (DfT, 2007b).

2. SITE BACKGROUND

2.1 Site Location & Existing Use

2.1.1 The proposed development site is located on agricultural land to the south of Raich Carter Way near Dunswell in the East Riding of Yorkshire. The site is bound by Raich Carter Way to the north, the River Hull to the east, dwellings served via Evergreen Drive, Fieldside Garth and Meadow Garth to the south, and the A1079 Beverley Road to the west. The approximate location and boundary of the development site is shown in red in Figure 1 below.

Figure 1: Site Location



Source Imagery: Copyright Google Earth Pro (License Key-JCPMR5M58LXF2GE)

2.2 Development Proposals

2.2.1 This report is based upon the proposals outlined on the site layout plan attached as Appendix 1. The proposals involve the development of the site to accommodate the following:

- Dunswell Park & Ride (P&R);
- Go Ahead (formerly known as East Yorkshire Motor Services (EYMS)) Bus Depot;
- Petrol Filling Station (PFS), with 8 bays, with an associated convenience store (Gross Floor Area (GFA) of 444m²);

- Drive-Thru Coffee Unit – circa 184² GFA store with a drive-thru lane;
- Drive-Thru Fast Food Unit #1 – circa 260m² GFA store with a drive-thru lane; and
- Drive-Thru Fast Food Unit #2 – circa 260m² GFA store with a drive-thru lane.

2.2.2 The expected operators, staffing numbers and opening hours of the PFS and drive-thru units are currently unknown, however they are expected to be consistent with similar facilities (including those nearby on Kingswood Retail Park).

Dunswell P&R

- 2.2.3 As shown on the site layout plan attached as Appendix 1, the P&R facility will provide circa 500 parking spaces. It is intended that the primary use of the P&R will be to enable residents from Beverley, York and other surrounding settlements to the north of Hull to park at the site and travel to/from Hull city centre on the P&R buses. This would reduce the requirement for driving to/from the city centre and reduce parking demand in and around the city centre too. It is expected that the facility will be primarily used by commuters who work in Hull city centre on weekdays.
- 2.2.4 Information provided by the Applicant suggests that a number of existing bus routes, #23, #121, #X46 and #X47, currently run past the proposed development site and would be expected to re-route via the P&R facility. The frequency of the services to/from the site would be circa every 15 minutes in each direction, with an average journey time of circa 20-30 minutes to/from the P&R and Hull city centre.
- 2.2.5 The re-routing of the bus services listed above would also provide the opportunity for visitors to park within the P&R site and travel on the bus to/from Beverley town centre, although for robustness, these potential movements have not been considered within the traffic projections, with only movements between the proposed site and Hull city centre considered. This would reduce the requirement for driving to/from the town centre and reduce parking demand in and around the town centre too.
- 2.2.6 It is understood that there is the potential to re-route additional services through the proposed development site which would be expected to increase the frequency of P&R services to/from the site and Hull city centre. In addition, the Applicant could potentially provide additional P&R services, subject to commercial viability.
- 2.2.7 Bus service #11 currently operates along Beverley Road past the proposed development site, routing between Hull Interchange and Castle Hill Hospital. The route, which operates an hourly service in each direction, could be re-routed via the proposed development site. This would result in the opportunity for the site to also operate as a P&R for staff and visitors of Castle Hill Hospital, resulting in less demand for parking at the hospital site.

Bus Depot

- 2.2.8 The proposed Go Ahead bus depot will provide a new centralised hub, replacing the existing depots in Elloughton and Hull (Anlaby Road). It is understood that the new depot will provide a modern facility that will allow for the introduction of an electric bus fleet from 2025. The facility will include a maintenance section and will also provide an area for training and development.
- 2.2.9 Information provided by the Applicant suggests that the new depot will operate between 04:00-02:00, 7-days a week. The 345 staff currently split across the two existing sites will relocate to work at the proposed development site. It is understood that there will be three shifts at the site: 04:00-12:00, 12:00-20:00 and 20:00-04:00. Information provided by the Applicant suggests that engineers/maintenance staff will work the night shift, and bus drivers will be split across the shifts.

2.3 Access Arrangements

- 2.3.1 Vehicular access to the site will be provided via four new Left-In Left-Out (LILO) junctions, as shown on the site layout plan attached as Appendix 1 and outlined below:

Raich Carter Way

- A LILO junction is proposed to connect with Raich Carter Way within the north-eastern extents of the site. This access will provide access/egress for buses only and will connect directly to the P&R facility, as requested by HCC Highways.
- A LILO junction is proposed to connect with Raich Carter Way approximately central on the northern site boundary. This access will provide access/egress for all vehicles.

A1079 Beverley Road

- A LILO junction is proposed to connect with the A1079 Beverley Road within the south-western extents of the site. This access will provide access/egress for buses only, as requested by HCC Highways.
 - A LILO junction is proposed to connect with the A1079 Beverley Road within the approximate north-western extents of the site. This access will provide access/egress for all vehicles.
- 2.3.2 Visibility splays of 2.4m x 120m, based on the 40mph speed limit along Raich Carter Way and the A1079 Beverley Road, are expected to be required at each of the respective site access points, which appears to be achievable at the four access locations.
- 2.3.3 A system of internal access roads are proposed which will be connected via a number of priority junctions and a mini-roundabout, which will connect each element of the site.
- 2.3.4 Footways are also proposed to be provided throughout the development, providing pedestrian access between the different uses, and to tie in with the pedestrian facilities on Raich Carter Road and the A1079 Beverley Road respectively.

2.4 Parking Requirements

- 2.4.1 The following section outlines the parking requirements and proposed parking provision associated with each element of the development.

Drive-Thru Coffee Unit

- 2.4.2 ERYC's '*Sustainable Transport SPD*' (ERYC, 2016a) does not contain parking standards for drive-thru coffee units. It is therefore considered that the 'food retail' use is the closest comparable match, and this has been utilised to calculate the required parking provision.
- 2.4.3 The document outlines that for food retail units, 1 space per 14-25m² should be provided, with 5% or at least 1 space of the general spaces to be accessible bays for disabled users. Therefore, there is the requirement for circa 7 to 13 spaces to be provided at the drive-thru coffee unit (184m² GFA), of which 1 should be a disabled bay. A total of 19 standard bays and 2 disabled bays are proposed to be provided within the vicinity of the unit, which is considered to be suitable.

Drive-Thru Fast-Food Units

- 2.4.4 As previously mentioned, two fast-food drive-thru units are proposed, to be situated within close proximity to one another. ERYC's '*Sustainable Transport SPD*' (ERYC, 2016a) outlines that for food retail units, 1 space per 14-25m² should be provided, with 5% or at least 1 space of the general spaces provision to be disabled provision. Given the proximity of the two fast-food drive-thru units, it is reasonable to expect that the proposed parking provision within the vicinity of the buildings will be shared. Therefore, with a total GFA of 520m² (260m² GFA per unit), there is the requirement for circa 20 to 38 spaces to be provided, of which 2 should be disabled bays.
- 2.4.5 Within the immediate vicinity of the two fast-food drive-thru units, there will be a total of 17 standard bays and 4 disabled bays, so 21 in total. To the south-east of the drive-thru units, an additional car park is proposed which is expected to be primarily used by visitors and staff of the drive-thru units, which will provide 39 standard parking spaces. Across the car parks there will be a total of 56 standard bays and 4 disabled bays, therefore there is expected to be suitable parking provision.

PFS with Convenience Store

- 2.4.6 ERYC's '*Sustainable Transport SPD*' (ERYC, 2016a) outlines that for food retail units, 1 space per 14-25m² should be provided, with 5% or at least 1 space of the general spaces provision to be disabled provision. Therefore, there is the requirement for circa 18 to 32 spaces to be provided at the PFS (444m² GFA of convenience store), of which 2 should be disabled bays. A total of 16 standard bays and 2 disabled bays are proposed, so 18 bays in total, which is considered to be suitable.

Electric Vehicle (EV) Charging

- 2.4.7 Within the vicinity of the PFS, EV charging for 8 vehicles (including one disabled bay) is proposed to be provided.

P&R Facility

- 2.4.8 As previously outlined, the proposed P&R facility will provide parking for 500 vehicles. There are no prescribed standards for the size of such a facility, however it is expected that the proposed size is suitable as it is comparable to nearby existing (Hull Priory Park P&R – circa 650 spaces) and approved (Beverley P&R – circa 500 spaces) facilities.

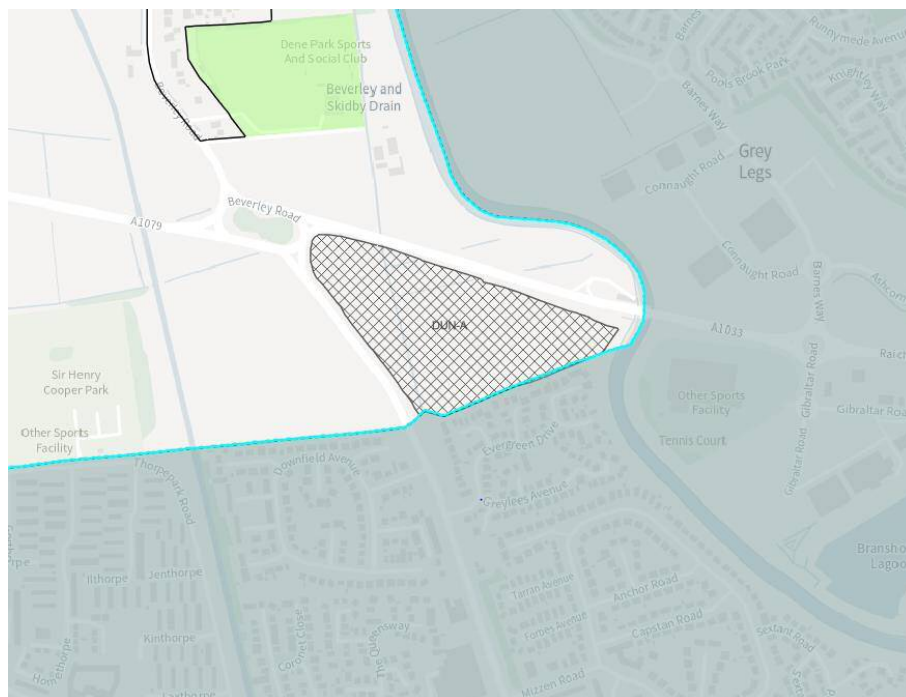
Bus Depot

- 2.4.9 Given the unique nature of the proposed bus depot, there are no directly applicable parking standards, so with the parking requirements instead based on the operational need of the operator.
- 2.4.10 The proposed bus depot would provide circa 75 standard bays, 4 disabled bays of which 2 would provide EV charging, a delivery bay and 16 EV charging bays. In addition to the staff parking, the facility will provide 12 bus maintenance bays, and 212 bus parking spaces.

2.5 Allocation Status & Planning History

- 2.5.1 The application site is allocated for a Park & Ride facility (ref: DUN-A), including ancillary uses, within the adopted ERYC Local Plan 2012-2029 (ERYC, 2016b), as shown on the ‘Policies Map’ (ERYC, 2016c) extracted in Figure 2 below.

Figure 2: Extract of Local Plan Policies Map



Source: ERYC, 2016c

- 2.5.2 The allocation is also retained in ERYC’s draft Local Plan Update 2020-2039 (ERYC, 2021a), with no update or change to the requirements or details of the site.
- 2.5.3 There have been no recent or pertinent planning applications relating to the proposed development site.

3. SITE ASSESSMENT

3.1 Local Highway Network

- 3.1.1 Within the vicinity of the site, the A1079 Beverley Road is a two-way dual carriageway measuring approximately 19.4m in width (including a circa 3.9m wide grassed central reserve) and is subject to a 40mph speed limit. Existing clearway restrictions prohibit stopping on either side of the A1079 Beverley Road within the vicinity of the site.

Photo 1: A1079 Beverley Road



- 3.1.2 The A1079 Beverley Road continues to the south providing access to a number of residential streets including Evergreen Drive and Mizzen Road before connecting with Hall Road via a signalised T-junction circa 630m to the south of the site. Hall Road continues to the west, providing access to a wider residential area and amenities. The A1079 Beverley Road continues further south, connecting with the wider highway network via a series of signalised junctions before connecting with the A165, the A1079 Ferensway and Spring Bank via a signalised junction within Hull city centre approximately 5.2km south of the site.
- 3.1.3 Ferensway continues to the south for circa 900m before connecting with the A63 via a signalised junction. The A63 forms part of the Strategic Road Network (SRN) managed by National Highways (NH).
- 3.1.4 Within the north-western extents of the site, Beverley Road connects with the A1174, Raich Carter Way and the A1079 at Dunswell Roundabout. The A1174 continues to the north through Dunswell and Woodmansey before connecting with the A164 on the south-eastern outskirts of Beverley. The A1079 continues to the west of Dunswell Roundabout, connecting with the A164 via Jock's Lodge junction providing access to Beverley, and also continuing further north-east providing a link to the wider highway network including to York and surrounding villages.

- 3.1.5 Raich Carter Way forms the northern site boundary and is a two-way dual carriageway which measures approximately 15.3m in width (including a kerbed central reservation) and is subject to a 40mph speed limit. Existing clearway restrictions prohibit stopping on either side of Raich Carter Way within the vicinity of the site.

Photo 2: Raich Carter Way

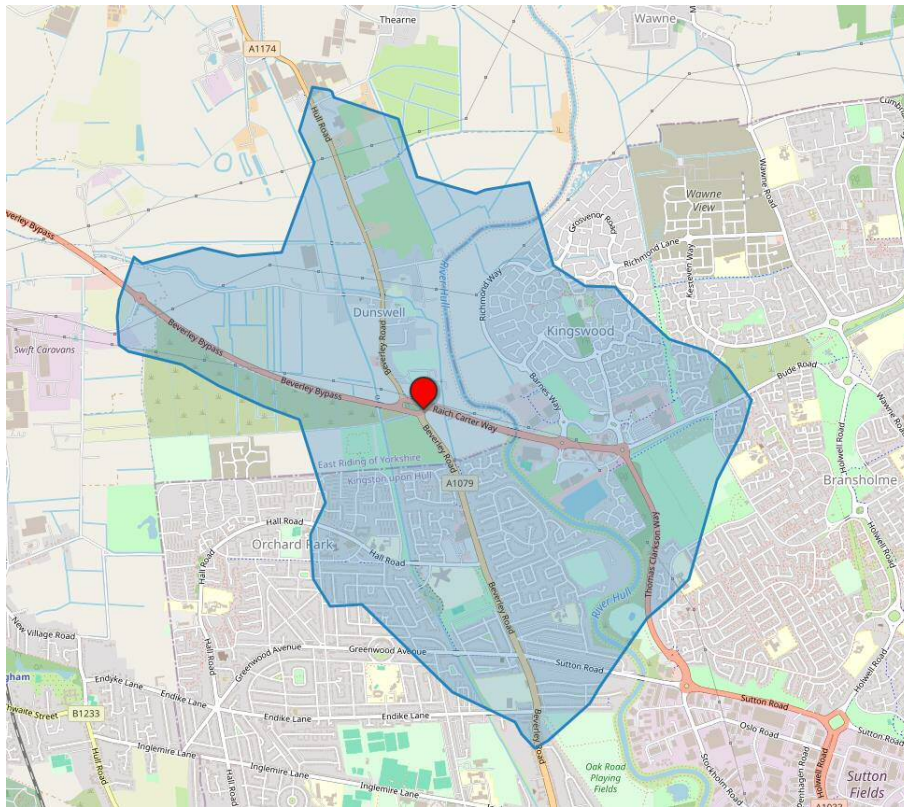


- 3.1.6 Raich Carter Way forms part of the A1033 and continues to the east of the site for approximately 280m before connecting with Barnes Way and Gibraltar Road via a four-arm priority-controlled roundabout. Barnes Way continues to the north, connecting with a series of further roundabouts that serve Kingswood Retail Park and housing within the wider Kingswood area of Hull. Gibraltar Road continues to the south, connecting with a further roundabout which in turn provides access to leisure and retail facilities.
- 3.1.7 Raich Carter Way continues to the east of Dunswell roundabout for approximately 310m before connecting with Runnymede Way, John Newton Way, the A1033 Thomas Clarkson Way and Gibraltar Road via Roebank Roundabout. It provides access to Kingswood Retail Park, as well as providing connections to residential and industrial estates.

3.2 Pedestrian Provision

- 3.2.1 Guidance from the Chartered Institution of Highways & Transportation (CIHT) suggests a preferred maximum walking distance of 2km for a number of trips, including commuting and school trips (IHT, 2000). The site is located within a 2km walking distance of Dunswell, the western extents of Kingswood including Kingswood Retail Park, and residential estates accessed via the A1079 Beverley Road, as shown within Figure 3.

Figure 3: 2km Walking Isochrone



Source: ORS, 2024

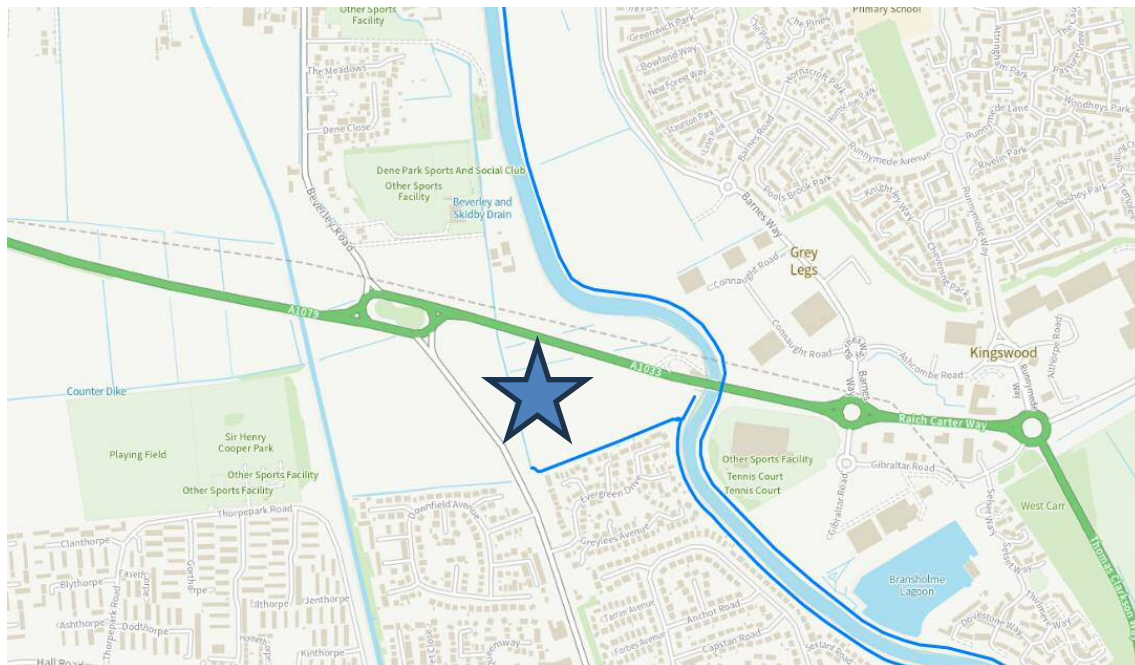
- 3.2.2 A segregated foot/cycleway is provided on both sides of Raich Carter Way within the vicinity of the site, measuring approximately 3.1m in width. The facility on both sides of the carriageway continues to the east along Raich Carter Way, connecting with segregated facilities on a number of local roads including John Newton Way and the A1033 Thomas Clarkson Way. The segregated foot/cycleway on the northern side of Raich Carter Way also continues to the north-west, providing pedestrian and cycle permeability along the A1174.
- 3.2.3 The segregated foot/cycleway on the southern side of Raich Carter Way continues to the south along the eastern side of the A1079 Beverley Road for circa 140m before it becomes a shared foot/cycleway, also with an on-road cycle lane.

Photo 3: Segregated Foot/Cycleway Along the A1079 Beverley Road



3.2.4 Figure 4 demonstrates the Public Rights of Way (PRoW) within the vicinity of the site, with the site location shown by the blue star and public footpaths shown in blue.

Figure 4: Local Public Rights of Way Map



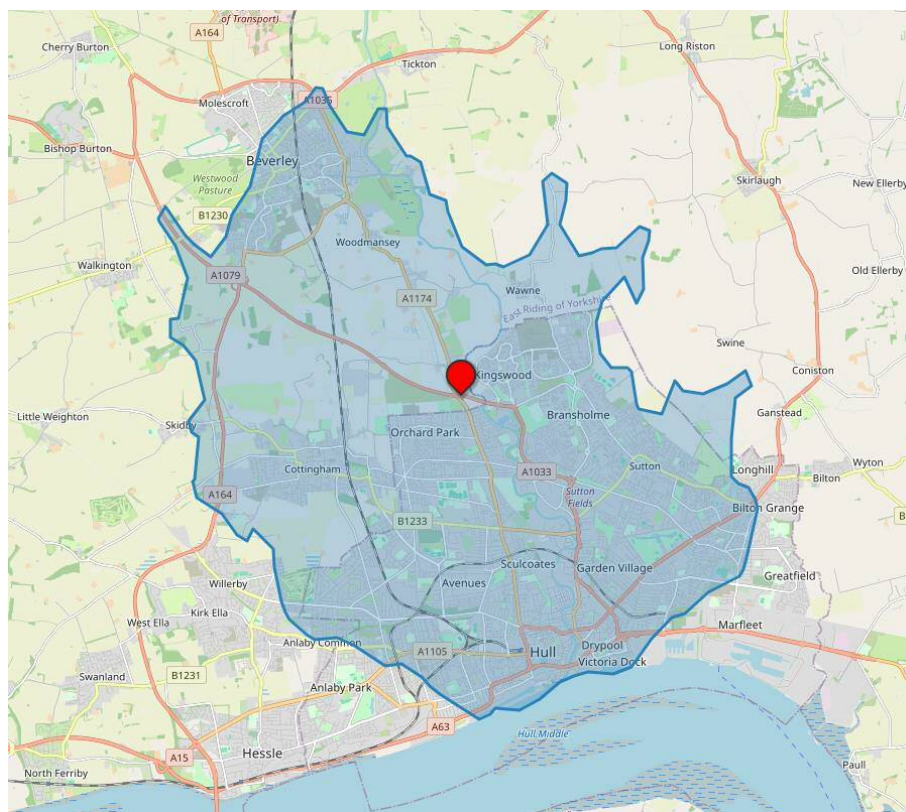
Source: HCC, 2024a

- 3.2.5 Figure 4 highlights that there are a number of public footpaths within the vicinity of the site, including along the eastern and southern boundaries of the site, with a public footpath also traversing the site between Raich Carter Way and the River Hull. Public footpaths are also provided along both sides of the River Hull. It is understood that the public footpaths will be retained as part of the proposed development.
- 3.2.6 The pedestrian infrastructure within the vicinity of the site appears to generally be sufficient to facilitate the movements of mobility and visually impaired people, with the provision of dropped kerbs at local junctions. The footways are generally of sufficient width and surface quality to accommodate the passage of wheelchairs (DfT, 2021).
- 3.2.7 A number of measures to promote walking trips to and from the site are outlined within the Travel Plan (LTP, 2024).

3.3 Cycling Provision

- 3.3.1 Cycling is a low cost and healthy alternative to car use, which can substitute for short car trips, or can form part of a longer journey by public transport. The Department for Transport (DfT) state that journeys up to five miles (circa 8km) are “an achievable distance to cycle for most people” (DfT, 2020). The site is located within a reasonable cycle ride, up to 8km, of the majority of Beverley and Hull, and surrounding settlements, as shown in Figure 5 below.

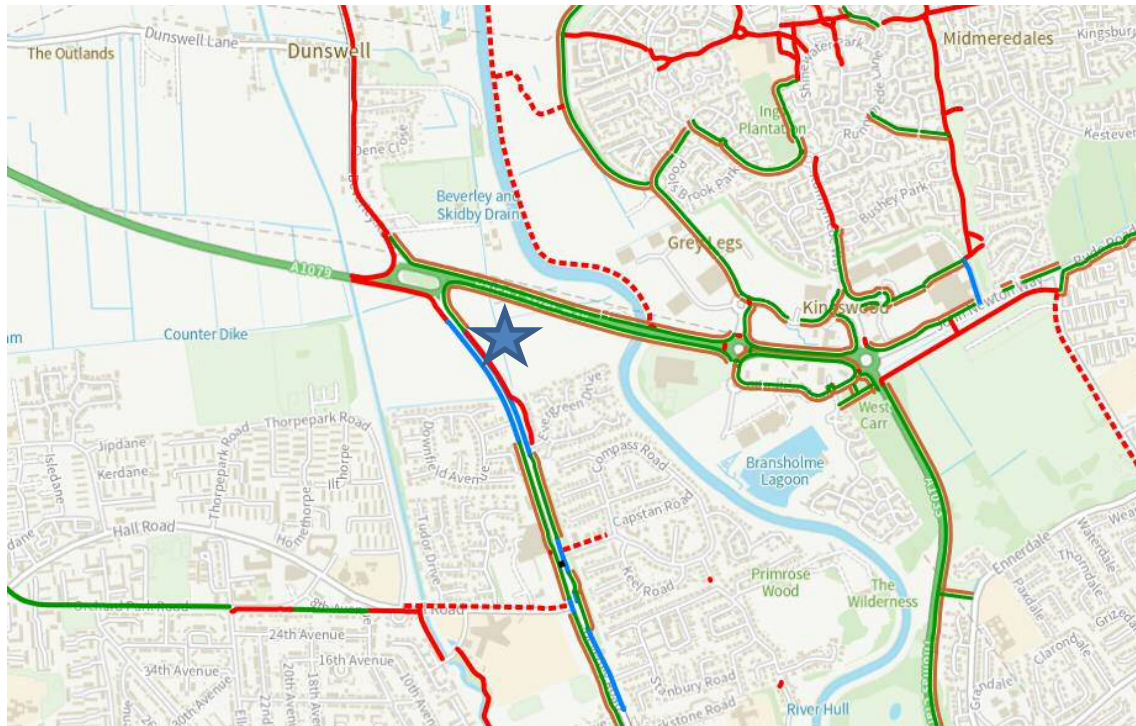
Figure 5: 8km Cycle Isochrone



Source: ORS, 2024

- 3.3.2 An extract of Hull City Council’s Cycle Map (HCC, 2024) is provided within Figure 6, which shows there are a number of cycling facilities within the vicinity of the site, with the site shown by the blue star. As previously mentioned, there are segregated/shared foot/cycleways along Raich Carter Way and the A1079 Beverley Road within the vicinity of the site. Figure 6 also demonstrates that there are cycle lanes on both sides of the A1079 Beverley Road.

Figure 6: Local Cycle Routes



Source: HCC, 2024b

- 3.3.3 National Cycle Network (NCN) Route 66 is accessible via Greenwood Avenue approximately 1.3km to the south of the site. NCN Route 66 connects Manchester and Spurn Head via Bradford, Leeds, York, Beverley and Hull.
- 3.3.4 Given the availability of local cycling infrastructure within the vicinity of the site, it is considered that the local environment within the vicinity of the site is generally conducive to encouraging cycling trips.
- 3.3.5 A number of measures to promote cycling trips to and from the site are outlined within the Travel Plan (LTP, 2024).

3.4 Public Transport Provision

- 3.4.1 Advice outlined within ‘Guidelines for Public Transport in Development’ (IHT, 1999) states that the generally acceptable maximum walking distance that a bus stop should be located from a development site is 400m, although it is acknowledged that actual walking distances can be notably longer.

- 3.4.2 The nearest existing bus stop to the site is situated on western side of the A1079 Beverley Road within the vicinity of the southern site extents, providing travel in a northbound direction. A southbound bus stop is provided on the A1079 Beverley Road to the south of the Evergreen Drive priority T-junction, approximately 250m to the south of the site.
- 3.4.3 It is acknowledged that a number of the existing services will be re-routed via the P&R facility, as outlined in Section 2.2.
- 3.4.4 Details of the bus services that operate from these bus stops are outlined within Table 1 below.

Table 1: Local Bus Services

Service	Route	Weekday Frequency*	Weekend Frequency
5	Hull Interchange – Newland Avenue – Beverley Road – ASDA Kingswood	Every 10 to 15 minutes	Saturday – Every 15 minutes Sunday – Every 30 minutes
6	Hull Interchange – Newland – Beverley Road – Kingswood Retail Park – ASDA Kingswood – Kingswood Parks School – North Bransholme – North Bransholme	Every 30 minutes	Saturday – Every 30 minutes Sunday – Hourly
11	Hull Interchange – Sutton Ings – Bransholme Centre – ASDA Kingswood – Beverley Road – Cottingham – Castle Hill Hospital	Hourly	Saturday – Hourly Sunday – 6/7 services per day in each direction
23	Hull Interchange – Newland – Beverley Road – Woodmansey – Beverley Rail Station – Beverley Bus Station – Beverley	Hourly	Saturday – Hourly Sunday – No services
80	Hull Interchange – Sutton Ings – Bransholme Centre – ASDA Kingswood – Beverley Road – North Hull Estate – Cottingham – Castle Hill Hospital	One service per day in each direction	Saturday/Sunday – No services
X46/X47	Hull Interchange – Beverley Road – Beverley Bus Station – Bishop Burton – Market Weighton – Pocklington – Wilberfoss – York Rail Station	Every 30 minutes	Saturday – Every 30 minutes Sunday – Hourly
121	Hull Interchange – Beverley Road – Woodmansey – Beverley Bus Station – Leconfield – Driffild – Nafferton – Carnaby – Bridlington Bus Station – Bridlington	Hourly	Saturday – Hourly Sunday – Hourly

*Refers to the general daytime service between 08:00-17:00.

- 3.4.5 The nearest rail station to the site is Cottingham Rail Station, which is located approximately 5.6km to the south-west of the site. However, Hull Interchange is situated slightly further away, approximately 6.7km to the south of the site, but it is accessible via all of the bus services listed in Table 1 above. Hull Interchange provides access to services to a range of regional and national destinations, including to London King's Cross, Leeds and Manchester Piccadilly.
- 3.4.6 A number of measures to promote trips by public transport to and from the site are outlined within the Travel Plan (LTP, 2024).

4. ROAD CASUALTY APPRAISAL

4.1 Collision Record

- 4.1.1 Personal Injury Collision (PIC) data for the highway network local to the site for the most recent available five-year study period (01/01/2018 to 31/12/2022) was obtained via a search of the Department for Transport's (DfT) road safety data (DfT, 2023).
- 4.1.2 It is noted that 2023 PIC data from DfT has recently been released, indicating that 9 PICs occurred in the study area, which is attached as Appendix 3.
- 4.1.3 A total of 50 collisions occurred within the study area, which includes the A1079 Beverley Road, Raich Carter Way, the A1079, the A1174, and a number of local junctions. The study area and extents of the location of the collisions are shown on the plan attached as Appendix 3. Table 2 below outlines the collision details.

Table 2: Collision History

Year	2018	2019	2020	2021	2022	Total
Fatal	-	-	-	1	-	1
Serious	3	2	-	-	3	8
Slight	10	10	6	6	9	41
Total	13	12	6	7	12	50

- 4.1.4 The collision records show that the number of collisions peaked in 2018 whereby 13 collisions were recorded. There were nine Killed or Seriously Injured (KSI) collisions, resulting in a severity ratio of 18%.

4.2 Collision Conditions

- 4.2.1 Table 3 below summarises the collisions by road surface, weather and lighting conditions:

Table 3: Collision Conditions

Road Surface	Collisions	%
Dry	39	78%
Wet or Damp	11	22%
Weather		
Fine	45	90%
Rain	4	8%
Other	1	2%
Lighting		
Daylight	38	76%
Darkness	12	24%

- 4.2.2 As illustrated in Table 3, the majority of the collisions occurred without adverse road surface, weather or lighting conditions.

4.3 Collision Times

4.3.1 Table 4 below summarises the collisions by time of year:

Table 4: Collisions by Time of Year

Time of Year	Collisions	%
Winter (Dec-Feb)	8	16%
Spring (Mar-May)	12	24%
Summer (Jun-Aug)	16	32%
Autumn (Sep-Nov)	14	28%

4.3.2 Table 4 indicates that almost a third (32%) of the collisions occurred during summer months.

4.3.3 Table 5 below summarises the collisions by day of week and time of day:

Table 5: Collisions by Time and Day

Day	Morning (06:00- 11:00)	Lunch (11:00- 14:00)	Afternoon (14:00- 19:00)	Evening (19:00- 01:00)	Night (01:00- 06:00)	Total	%
Monday	3	-	4	-	-	7	14%
Tuesday	3	2	4	-	-	9	18%
Wednesday	2	2	4	1	-	9	18%
Thursday	1	-	4	1	1	7	14%
Friday	4	2	1	1	1	9	18%
Saturday	1	1	2	-	-	4	8%
Sunday	2	2	-	1	-	5	10%
Total	16	9	19	4	2	50	
%	32%	18%	38%	8%	4%		

4.3.4 Table 5 shows that over a third (38%) of the collisions occurred during the afternoon period, with the fewest collisions (4%) occurring during the night period. The collisions were relatively spread out across the week, with a slight peak in collisions occurring on a Tuesday, Wednesday and Friday.

4.4 Collision Locations

4.4.1 The locations of the 50 collisions (shown on the plot attached as Appendix 3) are summarised as follows:

- 22 PICs occurred at Dunswell Roundabout;
- 7 PICs occurred at the A1079 Beverley Road/Mizzen Road junction;
- 6 PICs occurred at the Raich Carter Way/Barnes Way/Gibraltar Road roundabout;
- 5 PICs occurred on Raich Carter Way (not at a junction);
- 4 PICs occurred on the A1174 (not at a junction);
- 2 PICs occurred on the A1079 (not at a junction);
- 2 PICs occurred on the A1079 Beverley Road (not at a junction);

- 1 PIC occurred at the A1174/The Meadows junction; and
- 1 PIC occurred at the A1079 Beverley Road/Downfield Avenue junction.

4.5 Casualties

- 4.5.1 A total of 70 casualties occurred as a result of the 50 recorded injury collisions during the study period. Table 6 below provides a breakdown of the casualties according to the mode of travel and age group:

Table 6: Casualty Road User Groups

Road User Group	Age (years)							Total	%
	0 to 15	16 to 20	21 to 25	26 to 45	46 to 65	66 +	Unknown		
Pedestrian	-	-	-	1	-	1	-	2	2.9%
Cyclist	1	1	1	4	6	-	-	13	18.6%
Powered Two-Wheeler (PTW)	-	1	-	3	2	-	-	6	8.6%
Car Driver	-	5	2	16	7	1	1	32	45.7%
Car Passenger	1	2	1	6	2	1	-	13	18.6%
Minibus/Bus Passenger	-	-	-	-	1	-	-	1	1.4%
Goods Vehicle Occupant	-	-	-	1	1	-	-	2	2.9%
Taxi Occupant	-	-	-	-	1	-	-	1	1.4%
Total	2	9	4	31	20	3	1	70	
%	2.9%	12.9%	5.7%	44.3%	28.6%	4.3%	1.4%		

- 4.5.2 Table 6 shows that almost two-thirds (64.3%) of the casualties were car occupants. Almost half (44.3%) of the casualties were aged between 26 and 45 years.

4.6 Road Safety Impact

- 4.6.1 A total of 50 collisions, resulting in 70 casualties, have occurred within the study area during the five-year study period. It is acknowledged that a large number of collisions have occurred at locations such as Dunswell Roundabout, although the relative impact on traffic flows associated with the proposals is expected to be small at these heavily-trafficked locations (see Appendix 9). Analysis of the study collisions has not revealed any identifiable existing collision issues associated with the expected movements of the proposed development, therefore it is considered that there are no existing road safety issues pertinent to the development of the site.
- 4.6.2 If the proposed accesses and internal roads are designed with due consideration to road safety, with appropriate highway design features incorporated into the detailed design, then the proposals should not have a detrimental road safety impact on the local transport network and should not adversely affect the safety of other road users.

4.7 2023 Update

- 4.7.1 The DfT has released full year 2023 collision data covering the period 01/01/2023 to 31/12/2023. As shown in Appendix 3, five slight and four serious collisions occurred within the study area within this period, with two on the A1174 (not at a junction), two at Dunswell Roundabout, three on Raich Carter Way (not at a junction), one on Beverley Road (not at a junction), and one at the Raich Carter Way/Barnes Way/Gibraltar Road roundabout. Given that the number of additional collisions is consistent with the other collision rates per year, it is considered that the findings of the above appraisal are unchanged.

5. TRIP GENERATION

5.1 Methodology

- 5.1.1 As a mixed-use development, it has not been possible to forecast the trip generation of the proposed development using a single comparable site. The trip generation of each element of the development has therefore been considered separately. This is considered to be robust and will represent an over-estimate of total traffic generation for the site as there may be some linked trips between the different proposed uses on the site, as discussed further in Section 5.7.
- 5.1.2 The industry-standard TRICS database, a collection of traffic counts and trip generation statistics for calculating trip rates at development sites, has been used to project the trip generation of the following elements of the site:
- Drive-thru coffee shop;
 - Drive-thru fast-food units; and
 - PFS with convenience store.
- 5.1.3 Given the unique nature of the P&R and bus depot elements of the site, the trip generation for these uses has been built-up from a first-principles approach through input from the Applicant. The use of a first principles approach accords with previous DfT guidance which recommended that *“unless there is a clear valid comparable situation, the assessment trips should be constructed from first principles based on a detailed analysis of the daily operation on the proposed development”* (DfT, 2007a).
- 5.1.4 The trip projection methodology applied in this TA for each of the proposed elements is consistent with that approved by ERYC Highways on other planning applications in recent years and is therefore considered to be appropriate (e.g. Killingwoldgraves approved PFS/coffee drive-thru ref: 20/00541/OUT).

5.2 Proposed Traffic Generation – PFS

- 5.2.1 In order to calculate the vehicle trip generation for the proposed PFS, trip generation statistics within the ‘Petrol Filling Stations – PFS with Retail’ category (13-B) of the TRICS database have been interrogated. To ensure that only trip generation statistics for comparable sites were used in calculations, the TRICS sites were filtered to the following criteria:
- Database version: 7.11.2;
 - Survey type: All survey types;
 - Size: All sizes (4 to 16 filling bays);
 - TRICS location type: All location types;
 - Regions: UK only, excluding Greater London and Ireland sites;
 - Recent survey data only (exclusion of surveys undertaken prior to 01/01/2016); and
 - Any surveys undertaken during COVID-19 restrictions have been manually removed.

- 5.2.2 A total of 21 weekday and 5 Saturday comparable sites were in the database after filtering, and these sites have been interrogated further in order to identify any notable patterns or trends. The available trip rate parameters for this category are either site area or number of filling bays, however analysis of each of the sites has identified that neither of these factors appear to have a large impact on the overall trip generation.
- 5.2.3 The majority of comparable sites within the database have 8 filling bays, however when the sites are rank ordered by total traffic generation, the sites with a higher number of filling bays are just as likely to appear at the top of the rank order list as they are at the bottom. For example, for the weekday AM and PM peak hours, TRICS sites ST-13-B-01 and NG-13-B-02, which have 10 and 16 filling bays respectively both appear near the bottom of the trip generation rank order lists, whilst site FI-13-B-01, which has 13 filling bays, appears near the top of the rank order list. Similarly, sites with 8 filling bays are just as likely to appear near the top of the rank order list as they are towards the bottom.
- 5.2.4 The filtering of the TRICS sites included all location types, with the vast majority located in 'Edge of Town' or 'Suburban' areas. Analysis of the site rank order list indicates no significant trend between the TRICS location type and the trip generation of the PFS site, with sites from all location types appearing in various positions in the rank order list. It is therefore considered that the inclusion of all location types is suitable.
- 5.2.5 The trip generation of the proposed PFS has been estimated by calculating the mean of the overall trip generation (rather than trip rates) of the 21 comparable sites within the TRICS database for the development weekday AM peak hour (08:00-09:00) and weekday PM peak hour (17:00-18:00), and the 5 sites for the development Saturday peak hour (12:00-13:00).
- 5.2.6 Details of the site selection and trip rates taken from the TRICS database are attached in full within Appendix 4. The projected vehicle trip rates and generation for the weekday and Saturday peak hours are shown in Table 7.

Table 7: Projected Vehicle Trip Generation – PFS

	Weekday AM Peak (08:00-09:00)		Weekday PM Peak (17:00-18:00)		Saturday Peak (12:00-13:00)	
	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures
PFS (13-B)						
Mean Vehicle Trip Generation	62	60	70	71	52	48

- 5.2.7 Table 7 indicates that the trip generation of the proposed PFS is expected to be 122 two-way vehicle trips during the weekday AM peak hour (08:00-09:00) and 141 during the weekday PM peak hour (17:00-18:00). It also indicates that the trip generation of the proposed PFS is expected to be 100 two-way vehicle trips during the Saturday peak (12:00-13:00).

5.3 Proposed Traffic Generation – Drive-Thru Coffee Shop

5.3.1 In order to derive reflective trip rates for the proposed drive-thru coffee shop, vehicle trip generation statistics within the ‘Hotel, Food and Drink – Drive-Thru Coffee Shop’ category (06-J) of the TRICS database have been interrogated. To ensure that only trip generation statistics for comparable sites were used in calculations, the TRICS sites were filtered to the following criteria:

- Database version: 7.11.2;
- Survey type: All survey types;
- Size: All sizes;
- TRICS location type: ‘Edge of Town’ & ‘Suburban Area’ (& ‘Neighbourhood Centre’ for Saturday sites due to limited comparable Saturday sites);
- Regions: UK only, excluding Greater London and Ireland sites;
- Recent survey data only (exclusion of surveys undertaken prior to 01/01/2016); and
- Any surveys undertaken during COVID-19 restrictions have been manually removed.

5.3.2 As there were less than 20 comparable sites in the database after filtering (4 weekday and 2 Saturday survey sites), mean trip rates (as weighted and calculated by the TRICS software) have been used to project the vehicle trip generation of the proposed drive-thru coffee shop, in accordance with good practice guidelines (TCL, 2023). Details of the site selection and trip rates taken from the TRICS database are attached in full within Appendix 5, with the projected vehicle trip rates and generation for the weekday and Saturday peak hours shown in Table 8.

Table 8: Projected Vehicle Trip Generation – Drive-Thru Coffee Shop

Drive-Through Coffee Shop (06-J)	Weekday AM Peak (08:00-09:00)		Weekday PM Peak (17:00-18:00)		Saturday Peak (12:00-13:00)	
	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures
Mean Vehicle Trip Rates (per 100m ²)	24.449	21.691	9.926	12.316	20.460	20.460
Vehicle Trips (184m ² GFA)	45	40	18	23	38	38

5.3.3 Table 8 indicates that the proposed drive-thru coffee shop would be expected to generate up to 85 two-way vehicle trips in the weekday AM peak hour (08:00-09:00) and 41 in the weekday PM peak hour (17:00-18:00). It also indicates that the proposed coffee drive-thru unit would be expected to generate up to 76 two-way vehicle trips during the Saturday peak (12:00-13:00).

5.4 Proposed Traffic Generation – Drive-Thru Fast-Food Units

5.4.1 In order to derive reflective trip rates for the proposed drive-thru fast-food units, vehicle trip generation statistics within the ‘Hotel, Food and Drink – Drive-Thru Fast-Food’ category (06-D) of the TRICS database have been interrogated. To ensure that only trip generation statistics for comparable sites were used in calculations, the TRICS sites were filtered to the following criteria:

- Database version: 7.11.2;
- Survey type: All survey types;
- Size: All sizes;
- TRICS location type: 'Edge of Town' & 'Suburban Area';
- Regions: UK only, excluding Greater London and Ireland sites;
- Recent survey data only (exclusion of surveys undertaken prior to 01/01/2016 for weekday sites and 01/01/2015 for Saturday sites due to limited comparable Saturday sites); and
- Any surveys undertaken during COVID-19 restrictions have been manually removed.

5.4.2 As there were less than 20 comparable sites in the database after filtering (9 weekday and 2 Saturday survey sites), mean trip rates (as weighted and calculated by the TRICS software) have been used to project the vehicle trip generation of the proposed drive-thru fast-food units, in accordance with good practice guidelines (TCL, 2023). Details of the site selection and trip rates taken from the TRICS database are attached in full within Appendix 6, with the projected vehicle trip rates and generation for the weekday and Saturday peak hours shown in Table 9.

Table 9: Projected Vehicle Trip Generation – Drive-Thru Fast-Food Units

	Weekday AM Peak (08:00-09:00)		Weekday PM Peak (17:00-18:00)		Saturday Peak (12:00-13:00)	
Drive-Through Fast-Food Units (06-D)	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures
Mean Vehicle Trip Rates (per 100m ²)	6.527	6.387	13.401	13.314	39.021	36.512
Vehicle Trips (520m² GFA)	34	33	70	69	203	190

5.4.3 Table 9 indicates that the proposed drive-thru fast-food units would be expected to generate up to 67 two-way vehicle trips in the weekday AM peak hour (08:00-09:00) and 139 in the weekday PM peak hour (17:00-18:00). It also indicates that the proposed drive-thru fast-food units would be expected to generate up to 393 two-way vehicle trips during the Saturday peak (12:00-13:00).

5.5 Go Ahead Bus Depot

Buses

- 5.5.1 As previously mentioned, the proposed bus depot would be a centralised hub, replacing the existing depots in Elloughton and Hull (Anlaby Road). The Applicant has provided a full dataset of the daily bus movements associated with the existing depots, which are expected to continue at the new facility. The weekday AM and PM and Saturday peak hour trips have been extracted from the full dataset, see Appendix 7.
- 5.5.2 The data indicates that the existing Hull depot currently generates up to 2 two-way bus trips (all departures) during the weekday AM peak hour (08:00-09:00), 11 (all arrivals) during the weekday PM peak hour (17:00-18:00), and none during the Saturday peak hour (12:00-13:00).

5.5.3 The data suggests that the existing Elloughton depot currently generates up to 1 two-way bus trips (departure) during the weekday AM peak hour (08:00-09:00), 4 (all arrivals) during the weekday PM peak hour (17:00-18:00), and none during the Saturday peak hour (12:00-13:00).

5.5.4 Therefore, the proposed facility could be expected to generate up to 3 two-way bus trips (all departures) during the weekday AM peak hour (08:00-09:00), 15 (all arrivals) during the weekend PM peak hour (17:00-18:00), and none during the Saturday peak hour (12:00-13:00).

Staff

5.5.5 As previously mentioned, the 345 staff that currently work across the two existing depots will relocate to the proposed site, with no additional staff to be employed at the depot as a result of the proposals. As highlighted, there will be three shifts at the site: 04:00-12:00, 12:00-20:00 and 20:00-04:00. Information provided by the Applicant suggests that engineers/maintenance staff will work the night shift, and bus drivers will be split across the shifts.

5.5.6 In the absence of detailed data, reasonable assumptions have been made regarding the number of staff expected to be on site per day and per shift. It is reasonable to assume that staff will work 5 days a week on average (i.e. with 2 days off each week), therefore there is expected to be circa 247 staff on site per day (51 maintenance/engineering staff and 196 bus drivers).

5.5.7 The Applicant has provided information on the expected shifts at the site, as outlined below:

- 04:00-12:00;
- 12:00-20:00; and
- 20:00-04:00

5.5.8 The Applicant has confirmed that maintenance/engineering staff would work the 20:00-04:00 nightshift, with bus drivers to be split across the shifts. Based on expected bus movements, it is reasonable to assume that there would not be an even split of bus drivers working each shift. It is estimated that circa 35% would be expected to work the 04:00-12:00 shift, 50% the 12:00-20:00 shift and 15% on the 20:00-04:00 shift. Therefore, there is expected to be the following number of staff on shift:

- 04:00-12:00: 68 staff (all bus drivers);
- 12:00-20:00: 98 staff (all bus drivers); and
- 20:00-04:00: 80 staff (29 bus drivers and 51 engineers/maintenance staff).

5.5.9 Staff would typically be expected to arrive at the site in the hour prior to their shift start time and depart in the hour following their shift finish time. The expected arrival and departure periods for each shift is outlined in Table 10 below.

Table 10: Shift Arrival & Departure Periods

Shift Time	Arrival Period	Departure Period
04:00-12:00	03:00-04:00	12:00-13:00
12:00-20:00	11:00-12:00	20:00-21:00
20:00-04:00	19:00-20:00	04:00-05:00

- 5.5.10 Table 10 indicates that no staff would be expected to arrive or depart the site during the weekday AM (08:00-09:00) and PM (17:00-18:00) peak hours.
- 5.5.11 Table 10 shows that staff working the 04:00-12:00 shift would be expected to depart the site during the Saturday peak hour (12:00-13:00). As highlighted above, 98 staff (all bus drivers) could be expected to work this shift, therefore it is reasonable to expect that there would be 98 movements associated with bus depot staff (all departures) during the Saturday peak (12:00-13:00).
- 5.5.12 In order to predict the modal split of the staff trips generated by the bus depot, existing local travel patterns have been interrogated using the 'Method of Travel to Work' data from the 2021 National Census (ONS, 2023). The modal split has been predicted based on the average for the workplace population of the Middle-Layer Super Output Area (MSOA) 'Kingston Upon Hull 035', as shown within Table 11. It is acknowledged that the site is located in MSOA 'East Riding of Yorkshire 023', however the employment sites in this MSOA generally are not located near the wider Kingswood area, therefore the accessibility and modal split is not expected to be representative of the site, and as such the adjacent MSOA which includes Kingswood Retail Park has been utilised.

Table 11: Projected Modal Split – Bus Depot Staff

Mode of Travel	Modal Split	Person Trips
Car Driver	68.1%	67
Powered Two-Wheeler	0.5%	1
Taxi	1.3%	1
Vehicle Trip Generating	69.9%	68
Car Passenger	6.0%	6
Pedestrian	9.3%	9
Pedal-cycle	5.1%	5
Public Transport	8.6%	8
Other	1.2%	1
TOTAL	100%	98

*Total may not represent sum of its parts due to rounding.

- 5.5.13 Table 11 indicates that, of the 98 bus depot staff expected to depart the site during the Saturday peak (12:00-13:00), 68 are expected to travel via a vehicle trip generating mode (car driver, powered two-wheeler or taxi). Therefore, the bus depot staff could be expected to generate up to 68 two-way vehicle trips (all departures) during the Saturday peak (12:00-13:00).

Total

- 5.5.14 Therefore, the bus depot would be expected to generate up to 3 two-way vehicle trips during the weekday AM peak hour (08:00-09:00), 15 during the weekday PM peak hour (17:00-18:00) and 68 during the Saturday peak hour (12:00-13:00).

5.6 Dunswell P&R

Bus Services

- 5.6.1 As previously highlighted, information provided by the Applicant highlights that a number of existing bus routes (#23, #121, #X46 and #X47) currently run past the proposed development site and would be expected to re-route via the P&R facility, with the potential for additional services to be re-routed and generated as part of the development.
- 5.6.2 The existing bus timetables of the services which have been confirmed will be re-routed through the site have been interrogated to establish the number of services that take place on the bus stops on the A1079 Beverley Road within the vicinity of the site, that will additionally call at the proposed P&R facility, as shown in Table 12.

Table 12: P&R Services

Route	Weekday AM Peak (08:00-09:00) Services	Weekday PM Peak (17:00-18:00) Services	Saturday Peak (12:00-13:00) Services
23	2	2	2
121	2	2	2
X46	3	2	2
X47	2	2	2
TOTAL	9	8	8

- 5.6.3 Table 12 indicates that the P&R facility is expected to accommodate 9 bus services in the weekday AM peak (08:00-09:00), with 8 in the weekday PM peak (17:00-18:00) and the Saturday peak (12:00-13:00) respectively.
- 5.6.4 Each service would generate a vehicle arrival and departure, therefore the P&R facility would be expected to generate up to 18 two-way vehicle trips in the weekday AM peak (08:00-09:00), with 16 in the weekday PM peak (17:00-18:00) and Saturday peak (12:00-13:00) respectively. It is acknowledged that all of these movements would occur via the dedicated bus entry/exit points to the wider site, so separate to the other vehicular movements at the primary access points.

Staff

- 5.6.5 As the P&R services are existing bus services that will be rerouted via the P&R facility, with the new depot for these services/buses to be provided within the site, it is reasonable to expect that the staff at the proposed P&R facility will be accommodated for in the bus depot staff figures, as detailed in Section 5.5.

Visitors

- 5.6.6 Information has been provided by HCC Highways detailing the recent usage of the Priory Park P&R site, which is included as Appendix 8. The information has been interrogated to establish the temporal split of arrivals and departures during the AM and PM peak periods respectively. Assuming 100% of visitors arrive in the AM peak period (06:00-10:00), up to 47% could be expected to arrive in the AM peak hour (08:00-09:00). Similarly, assuming 100% of visitors depart in the PM peak period (15:00-18:00), up to 42% could be expected to depart in the PM peak hour (17:00-18:00).
- 5.6.7 Table 13 below outlines the projected vehicle trip generation of the P&R visitors, based on the above assumptions.

Table 13: Projected Vehicle Trip Generation – Dunswell P&R

	Weekday AM Peak (08:00-09:00)		Weekday PM Peak (17:00-18:00)	
Park & Ride Facility (500 spaces)	Arrivals	Departures	Arrivals	Departures
Park & Ride Vehicle Trips (500 spaces)	235	-	-	210
Two-Way Vehicle Trips (500 spaces)	235		210	

- 5.6.8 Table 13 indicates that the Dunswell P&R would generate up to 235 two-way vehicle trips (all arrivals) in the weekday AM peak hour (08:00-09:00) and 210 (all departures) in the weekday PM peak hour (17:00-18:00).

Total

- 5.6.9 Therefore, Dunswell P&R would be expected to generate up to 253 two-way vehicle trips during the weekday AM peak hour (08:00-09:00), 226 in the PM peak hour (17:00-18:00) respectively, and 16 in the Saturday peak hour (12:00-13:00).

5.7 Total Traffic Generation

- 5.7.1 Table 14 below outlines the total number of vehicle trips expected to be generated by the proposed development site.

Table 14: Proposed Development – Total Vehicle Trips

	Weekday AM Peak (08:00-09:00)		Weekday PM Peak (17:00-18:00)		Saturday Peak (12:00-13:00)	
Land Use	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures
PFS	62	60	70	71	52	48
Drive-Thru Coffee Shop	45	40	18	23	38	38
Drive-Thru Fast-Food Units	34	33	70	69	203	190
Bus Depot	0	3	15	0	0	68
Dunswell P&R	244	9	8	218	8	8
TOTAL TRIPS	385	145	181	381	301	352

- 5.7.2 Table 14 indicates that the proposed development would be expected to generate up to 531 two-way vehicle trips during the AM peak hour (08:00-09:00), 563 during the PM peak hour (17:00-18:00) and 653 during the Saturday peak hour (12:00-13:00).

5.8 Trip Types

- 5.8.1 It is acknowledged that a significant proportion of the vehicle trips generated by the proposed development will not be 'new' to the local highway network, with several other trip types generated by the site, with further details outlined below:

- **PFS with Convenience Store**

- Given the site's location adjacent to the primary 'A' road network (A1079/A1174), it would be expected that all of the vehicle trips attracted by the proposed PFS would already be present on the highway network adjacent to the site, currently travelling on these routes for other purposes. By its nature, the proposed PFS would be expected to generate non-primary trips, either pass-by or diverted trips, as motorists are likely to visit a PFS as part of a wider journey, rather than making a new journey for this sole purpose.
- Trips that currently take place on the A1079 Beverley Road (south of Dunswell Roundabout) and Raich Carter Way (east of Dunswell Roundabout) would therefore directly access the site without any detour and classified as 'pass-by' trips, with trips taking place on the A1079 (west of Dunswell Roundabout) and the A1174 (north of Dunswell Roundabout) requiring a short detour (via the access junctions onto the A1079 Beverley Road or Raich Carter Way) and classified as 'diverted' trips.
- It is therefore reasonable to assume that all vehicle trips generated by the proposed PFS would either be pass-by or diverted trips that are already on the local highway network within the vicinity of the site, with this approach having been agreed on other similar developments by ERYC (e.g. Killingwoldgraves PFS development, ref: 20/00541/OUT).

- **Drive-Thru Fast-Food and Coffee Shops/Units**

- Based on similar sites across the UK and accepted research, it is acknowledged that this type of facility typically attracts a significant proportion of pass-by/diverted trips, also with a notable proportion of trips likely to be transferred from other similar facilities in the local area. Therefore, it has been assumed that 50% of the trips expected to be generated by the proposed drive-thru fast-food and coffee shops will be pass-by/diverted, and 50% will be new to the local highway network, with this approach having been agreed on other similar developments (e.g. Killingwoldgraves PFS development, ref: 20/00541/OUT).

- **Bus Depot**

- It is recognised that the proposed bus depot would represent a new centralised hub, replacing the existing facilities in Elloughton and Hull. As such, the staff and bus trips associated with the facility are already on the highway network, spread out across the two existing sites. However, it is acknowledged that the existing facilities are not within the direct vicinity of the proposed development site, and therefore staff and bus vehicles will likely have to utilise new routes to access/egress the site. Therefore, for robustness, it has been considered reasonable to assume that all bus depot traffic (generated by buses and staff) would be new to the local highway network surrounding the development site, with no pass-by/diverted trips.

- **P&R Facility**

- It is recognised that the proposed P&R facility is not expected to generate 'new' vehicle trips on the highway network, and instead would represent a redistribution of existing trips that currently access city centre car parks. It is therefore acknowledged that the proposed facility should reduce the number of trips to/from/in Hull city centre and also the total vehicle distance travelled across the highway network.
- Therefore, it has been assumed that 100% of the trips expected to be generated by the P&R facility would be pass-by/diverted trips, but only southbound arrivals from the A1174 or A1079 (west), reflecting commuters travelling towards Hull city centre in the weekday AM peak from areas of the East Riding to the north of the site, such as Beverley and Driffield.

5.8.2 It is acknowledged that, given the mix of uses on the proposed development site, there is likely to be a considerable number of linked trips between different elements of the site. For example, visitors using the P&R could be likely to visit the drive-thru coffee shop prior to their commute into the city centre. However, for robustness no linked vehicular trips have been accounted for within the assessments.

5.8.3 Table 15 below shows the total, pass-by/diverted and new trips expected to be generated by the proposed development.

Table 15: Total, Pass-by/Diverted & New Development Trips

Trip Type	Weekday AM Peak (08:00-09:00)		Weekday PM Peak (17:00-18:00)		Saturday Peak (12:00-13:00)	
	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures
PFS – Total Trips	62	60	70	71	52	48
PFS – Pass-by/Diverted Trips (100%)	62	60	70	71	52	48
PFS – New Trips	0	0	0	0	0	0
Drive-Thru Coffee Shop – Total Trips	45	40	18	23	38	38
Drive-Thru Coffee Shop – Pass-by/Diverted Trips (50%)	23	20	9	12	19	19
Drive-Thru Coffee Shop – New Trips (50%)	23	20	9	12	19	19
Drive-Thru Fast-Food Units – Total Trips	34	33	70	69	203	190
Drive-Thru Fast-Food Units – Pass-by/Diverted Trips (50%)	17	17	35	35	102	95
Drive-Thru Fast-Food Units – New Trips (50%)	17	17	35	35	102	95
Bus Depot – Total Trips	0	3	15	0	0	68
Bus Depot – Pass-by/Diverted Trips	0	0	0	0	0	0
Bus Depot – New Trips (100%)	0	3	15	0	0	68
Dunswell P&R – Total Trips	244	9	8	218	8	8
Dunswell P&R – Pass-by/Diverted Trips (100%)	244	9	8	218	8	8
Dunswell P&R – New Trips	0	0	0	0	0	0
TOTAL TRIPS	385	145	181	381	301	352
TOTAL PASS-BY/DIVERTED TRIPS (100%)	346	106	122	335	181	170
TOTAL NEW TRIPS	40	40	59	46	121	182
% PASS-BY/DIVERTED TRIPS	90%	73%	67%	88%	60%	48%
% NEW TRIPS	10%	27%	33%	12%	40%	52%

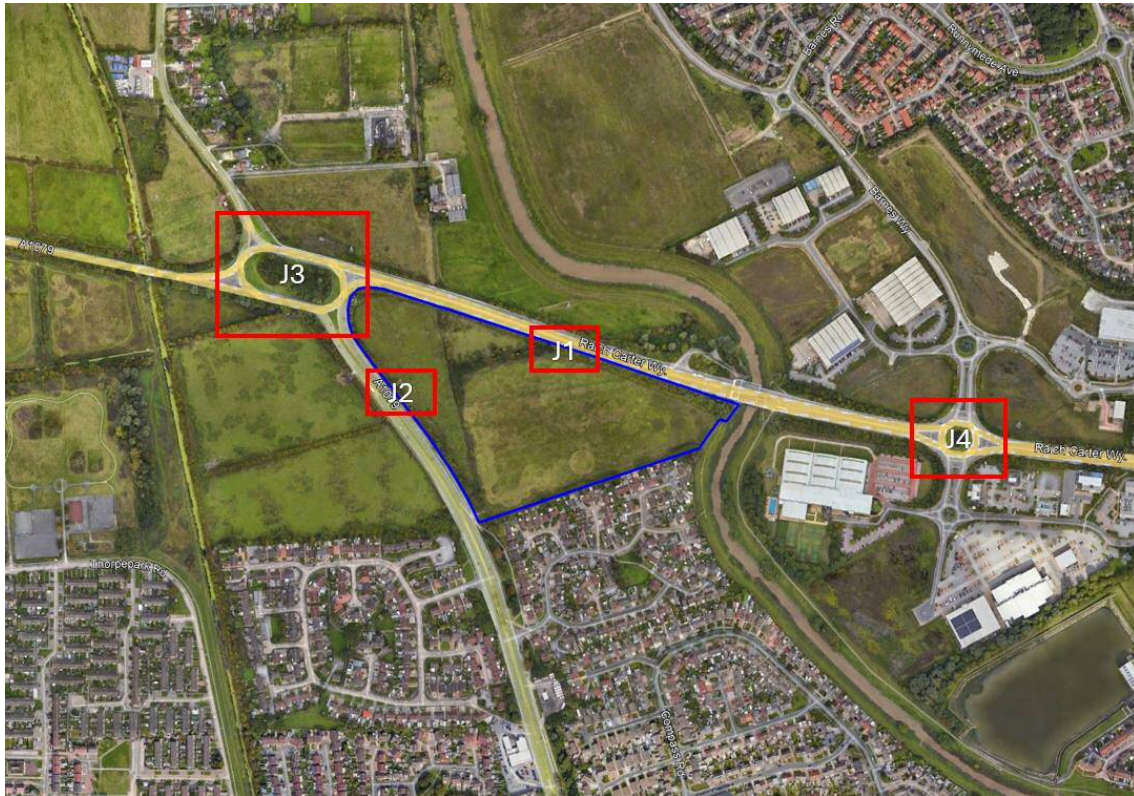
5.8.4 Table 15 indicates that the proposed development is expected to generate up to 80 new two-way vehicle trips during the weekday AM peak hour (08:00-09:00), 105 during the weekday PM peak hour (17:00-18:00) and 303 during the Saturday peak hour (12:00-13:00).

6. TRAFFIC IMPACT

6.1 Study Junctions

6.1.1 The location of the study junctions is shown in Figure 7 and are listed in Table 16 below.

Figure 7: Study Area Locations



Source Imagery: Copyright Google Earth Pro (License Key-JCPMR5M58LXF2GE)

Table 16: List of Study Junctions

Ref	Study Junction
J1	Site Access/Raich Carter Way LILO Junction
J2	Site Access/Beverley Road LILO Junction
J3	Dunswell Roundabout
J4	Raich Carter Way/Barnes Way/Gibraltar Road Roundabout

6.2 Baseline Network Traffic Flows

6.2.1 A hybrid planning application (ref: 19/01511/FULL) was submitted in December 2019 and is pending consideration for the full development of 214 homes and outline permission for up to 236 homes on Richmond Way in Kingswood (also known as the 'Riverside' development). A TA (LTP, 2023a) was submitted in support of the application.

- 6.2.2 The TA outlines the details of 12-hour (07:00-19:00) fully classified turning count surveys that were undertaken by a specialist traffic survey company at a number of local junctions, including at J5 and J6 in Table 16 above. The surveys were undertaken on a neutral weekday (Tuesday 21st February 2023) and Saturday (Saturday 25th February 2023) during school term-time.
- 6.2.3 The traffic flows across the study area are illustrated in the network diagrams attached as Appendix 9.

6.3 Peak Hours

- 6.3.1 The TA (LTP, 2023a) outlines that in order to establish baseline peak hours, the total volume of traffic flow at the survey junctions in 2023 was analysed, with the results disaggregated to 15-minute accuracy in accordance with standard industry-practice. The results of the surveys indicated that the network weekday peak hours across the study junctions were 07:30-08:30 weekday AM and 16:30-17:30 weekday PM. The Saturday peak hour was identified as 12:15-13:15. These peak hours reflect the largest total number of traffic movements, in terms of Passenger Car Units (PCUs), recorded across a wider Kingswood study area. The weekday and Saturday peak hours for the local highway network reflect the 'worst-case' scenario in terms of network traffic flows, therefore this TA considers the operation of the junctions against these peak periods.
- 6.3.2 The weekday and Saturday development peaks are broadly consistent with the network peaks, therefore in order to ensure a worst-case assessment, the development peak hour vehicle trips have been applied to the network peak hour flows.
- 6.3.3 It is acknowledged that either 07:00-08:00 or 08:00-09:00 development flows could be utilised for the weekday AM peak hour, however given the development flows are generally higher during 08:00-09:00, these flows have been applied to the network peak to form a robust, worst-case assessment. Furthermore, it is acknowledged that either 16:00-17:00 or 17:00-18:00 development flows could be utilised for the weekday PM peak hour, however given that the development flows are generally higher during 17:00-18:00, these flows have been applied to the network peak to form a robust, worse-case assessment.

6.4 Committed Developments

- 6.4.1 There are several committed developments in the vicinity of the site, as outlined below. The future year vehicle trip projections and assignment associated with the committed developments is illustrated in the network diagrams attached as Appendix 9, using the information presented in the corresponding TAs for each application, as compiled and presented in the network diagrams (that were approved by HCC Highways) for the recent 'Riverside' scheme TA (LTP, 2023a).

Barnes Way Residential Development (Ref: 21/01691/FULL)

- 6.4.2 A full planning application (ref: 21/01691/FULL) was submitted in December 2021 and was subsequently approved at HCC's planning committee in May 2022, with the decision notice issued in September 2022 for the '*1) Erection of 157 dwellings, open space and associated work 2) Change of use of the ground floor of an office E(g)(i) to a flexible E(g)(i), public worship F1(f) and community facility F2 Use Kingswood House*'.
- 6.4.3 The application was supported by a TA (LTP, 2021a) and TP (LTP, 2021b). It is understood that the development is currently under construction.

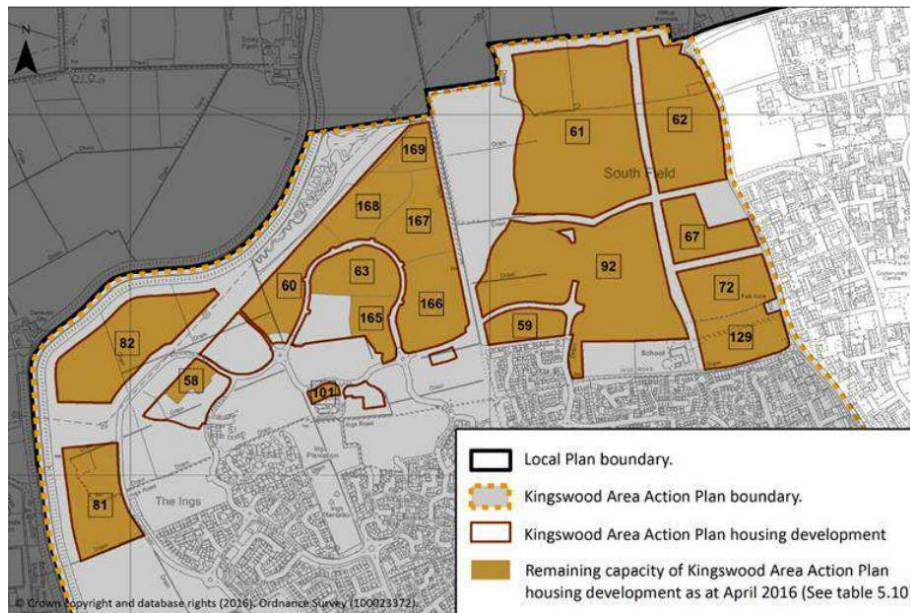
Lidl Supermarket, Connaught Road (Ref: 22/00134/FULL)

- 6.4.4 A full planning application (ref: 22/00134/FULL) was submitted in February 2022 and was subsequently approved at HCC's planning committee in September 2022, with the decision notice issued in November 2022 for the '*erection of a Foodstore (Use Class E) with associated access, parking, servicing area and landscaping (Details Revised)*'.
- 6.4.5 The application was supported by a TA (BGH, 2022a), a TP (BGH, 2022b) and a TA Addendum (BGH, 2022c). It is understood that the supermarket is currently under construction.

Riverside Residential Development (Ref: 19/01511/FULL)

- 6.4.6 A hybrid planning application (ref: 19/01511/FULL) was submitted in December 2019 and is currently pending consideration for '*Full planning permission: - residential development of Zone A for 214 homes; - engineering works in respect of the aquagreen serving Riverside; - engineering works and provision of public amenity access to the east bank of the River Hull; - Landscaping and place shaping in respect of the aquagreen and country park (in part); - two points of access from Richmond Way to Development Zone A. Outline planning permission with all matters reserved: - residential development of Zone B for up to 236 homes; - landscaping and place shaping surrounding Development Zone B. (revised description November 2023)*'.
- 6.4.7 The application is supported by a TA (LTP, 2023a), TP (LTP, 2023b), Technical Note (TN) (LTP, 2023c) considering an initial 60 dwellings, and a second TN (LTP, 2024c) to address HCC Highways comments. Although the application is still pending consideration and is therefore not directly considered a committed development, it has been assessed as a committed development for robustness.
- 6.4.8 The TA (LTP, 2023a) submitted in support of the Riverside development outlines that information from the HCC Planning team was obtained to understand the updated build-out status of Kingswood Parks North and Wawne View residential land allocations. An overview of the housing allocation sites associated with both areas is provided in Figure 8.

Figure 8: Kingswood Housing Allocation Sites



Source: HCC, 2016

Kingswood Parks North:

6.4.9 At the time of the 2023 traffic surveys, the majority of the site was built-out, with one remaining parcel under construction (ref: 168), which comprises approximately 143 dwellings, of which HCC stated that approximately 42 were occupied. Notwithstanding the above, to ensure a robust worst-case assessment, a total of 100 dwellings to be occupied/constructed has been considered as part of this TA, with the distribution of these trips based on the approved trip distribution and assignment within the adopted Kingswood AAP Highways Evidence Base Report (WYG, 2015).

Wawne View:

6.4.10 Unlike the Kingswood Parks North site, the Wawne View site is still a number of years from completion. Table 17 provides a summary of the current build-out of the Wawne View parcels, provided by HCC in November 2022.

Table 17: Wawne View Housing Parcels Build-Out

Housing Allocation Ref:	Number of Plots	Houses Constructed/Occupied	Houses Remaining
59	65	65	-
61	520	-	520
62	245	-	245
67, 72, 129	320	173	147
92	500	344	156
Total	1,650	582	1,068

6.4.11 Based on the information provided in Table 17, a total of 1,068 dwellings were still to be constructed on the remaining development parcels at the time of the traffic surveys, and therefore this number of dwellings has been specifically considered as part of the assessments presented in this TA.

- 6.4.12 The distribution of the vehicle trips generated by Wawne View is based on the approved trip distribution and assignment within the adopted Kingswood AAP Highways Evidence Base Report (WYG, 2015). However, the routeing to/from some of the zones has been updated to better reflect the likelihood of vehicles utilising some of the key local routes, in particular Richmond Way, Barnes Way and Runnymede Way given that no Wawne View vehicle trips were assigned to Barnes Way within the approved trip distribution and assignment projections.

6.5 Assessment Scenarios

- 6.5.1 The proposals have been tested against the following weekday AM, PM, and Saturday peak hour traffic flow scenarios:
- **2023 Base** – Traffic flows recorded and observed during the February 2023 traffic surveys;
 - **2030 Do Nothing** – ‘2023 Base’ network traffic flows, growthed to 2030 with the addition of traffic associated with the committed developments; and
 - **2030 With Development** – ‘2030 Do Nothing’ flows with the addition of traffic associated with the proposed development.
- 6.5.2 The traffic impact of the proposals has been assessed against the predicted traffic flows five years from expected registration of the planning application (2025), in accordance with guidance from the Department for Transport (DfT) with respect to the local highway network (DfT, 2007a).
- 6.5.3 The network traffic flows at 2030 have been predicted using the DfT’s ‘*National Traffic Model*’ (NTM) and ‘*National Trip End Model*’ (NTEM). The growth factor obtained from the NTM has been adjusted to reflect local circumstances from the NTEM, using TEMPro software (ref: Yorkshire and Humber Dataset Version 8.1), see Appendix 10.
- 6.5.4 In accordance with the DfT’s ‘*Transport Analysis Guidance*’ (TAG) (DfT, 2022b), the underlying NTEM growth includes for households and jobs have also been adjusted to reflect the local development traffic that has been explicitly incorporated into the traffic projections of this TA, in order to avoid double counting the associated traffic flows.

6.6 Traffic Distribution & Assignment

- 6.6.1 The traffic distribution and assignment has been considered for each element of the proposed development, as detailed below.

PFS

- 6.6.2 As previously outlined, all vehicle trips generated by the proposed PFS are expected to be pass-by or diverted trips which are already on the highway network. The redistribution effect of the pass-by and diverted trips has been considered as part of the assessments of this TA, as shown on the network diagrams included as Appendix 9.

- 6.6.3 The distribution of projected traffic associated with the proposed PFS has been predicted utilising the existing proportions of approach and exit traffic at Dunswell Roundabout and the Raich Carter Way/Barnes Way/Gibraltar Road roundabout for the respective weekday AM and PM and Saturday peak hours. This is considered to be a robust approach as the demand generated by the proposed PFS is expected to be commensurate with the demand for vehicle trip movements on the local highway network, with the heaviest demand expected to be where the highest proportions of existing trips occur.

Drive-Thru Coffee and Fast-Food Units

- 6.6.4 As previously outlined, 50% of the vehicle trips generated by the proposed drive-thru coffee and fast-food units are expected to be pass-by or diverted trips which are already on the highway network, and 50% are expected to be new trips.
- 6.6.5 As with the proposed PFS, the distribution of projected traffic (new and pass-by/diverted trips) associated with the proposed drive-thru coffee and fast-food units has been predicted utilising the existing proportions of approach and exit traffic at Dunswell Roundabout and the Raich Carter Way/Barnes Way/Gibraltar Road roundabout for the respective weekday AM and PM and Saturday peak hours.
- 6.6.6 Also consistent with the methodology for the proposed PFS, the redistribution effect of the pass-by and diverted trips has been considered as part of the assessments of this TA, as well as the distribution of new trips, as shown on the network diagrams included as Appendix 9.

Bus Depot

- 6.6.7 As previously outlined, the movements associated with buses at the proposed bus depot are expected to be new to the local highway network surrounding the site. In the absence of detailed data, it has been assumed that all bus arrivals to the depot would arrive via the Beverley Road 'bus only' site access. Prior to reaching the Beverley Road bus only site access, it has been assumed that there would be an even split of bus arrivals from the various existing bus routes; the A1174, the A1079 and the A1079 Beverley Road. Furthermore, it has been assumed that all bus departures from the bus depot would take place from the Beverley Road bus only site access, with vehicles continuing southbound.
- 6.6.8 As previously outlined, it has been considered reasonable to assume that all bus depot staff trips would be new to the local highway network surrounding the development site, with no pass-by/diverted trips.

6.6.9 Home postcode information of the existing Hull and Elloughton bus depot staff has been provided by the Applicant, and can be provided to officers upon request. The data has been interrogated to estimate the expected trip distribution of these staff, who will relocate their place of work from the existing depots to the proposed site. It is reasonable to assume that staff departing the bus depot to the south would do so via the Beverley Road site access, with those travelling to the north, east and south to depart from the Raich Carter Way site access and utilise Dunswell Roundabout. No staff vehicle arrivals are expected to take place during the weekday AM and PM and Saturday peak hours.

6.6.10 The distribution of bus depot trips is shown on the network diagrams attached as Appendix 9.

P&R Facility

6.6.11 As previously outlined, the proposed P&R facility is not expected to generate 'new' vehicle trips on the highway network, and instead would represent a redistribution of existing trips that currently access city centre car parks. It has been assumed that the services are for a catchment travelling to Hull city centre, therefore visitor trips are expected to travel to/from the A1174 or the A1079, to the north and west of Dunswell Roundabout respectively. Therefore, the redistribution of projected traffic has been predicted utilising the existing proportions of approach and exit traffic on these arms of Dunswell Roundabout for the respective weekday AM and PM and Saturday peak hours.

6.6.12 The redistribution effect of the pass-by and diverted trips has been considered as part of the assessments of this TA, as shown on the network diagrams included as Appendix 9.

6.6.13 Furthermore, the proposed P&R would be expected to generate up to 18 two-way vehicle trips in the weekday AM peak (08:00-09:00), with 16 in the weekday PM peak (17:00-18:00) and Saturday peak (12:00-13:00) respectively. These movements already take place on the local highway network within the vicinity of the site and are therefore already accounted for within the 2023 baseline traffic flows. Given the low number of bus trips, and as the diversion of these into the proposed site is not considered to be significant, the impact of these movements is low and has therefore not been considered further.

6.7 Impact on Local Junctions

6.7.1 The predicted increase in traffic across the key local junctions as a result of the development is summarised in Table 18.

Table 18: Predicted Traffic Impact at Key Local Junctions

Junction	2023 Base	2030 Do Nothing	2030 With Development	Development Impact	
AM PEAK					
J1: Site Access/Raich Carter Way LILO Junction	-	-	4003	-	-
J2: Site Access/Beverley Road LILO Junction	-	-	2793	-	-
J3: Dunswell Roundabout	4638	5380	5512	+132	+2.5%
J4: Raich Carter Way/Barnes Way/Gibraltar Road Roundabout	3702	4501	4586	+85	+1.9%
PM PEAK					
J1: Site Access/Raich Carter Way LILO Junction	-	-	4695	-	-
J2: Site Access/Beverley Road LILO Junction	-	-	2912	-	-
J3: Dunswell Roundabout	4832	5608	5797	+189	+3.4%
J4: Raich Carter Way/Barnes Way/Gibraltar Road Roundabout	3952	4844	4971	+127	+2.6%
SAT PEAK					
J1: Site Access/Raich Carter Way LILO Junction	-	-	3805	-	-
J2: Site Access/Beverley Road LILO Junction	-	-	2547	-	-
J3: Dunswell Roundabout	3773	4475	4809	+334	+7.5%
J4: Raich Carter Way/Barnes Way/Gibraltar Road Roundabout	3102	3895	4105	+209	+5.4%

6.7.2 The traffic projections summarised in Table 18 indicate that the development is expected to result in a relatively low proportionate increase (4% or less) at Dunswell Roundabout and the Raich Carter Way/Barnes Way/Gibraltar Road roundabout in the '2030 With Development' scenario compared to the '2030 Do Nothing' scenario. It is noted that the proportionate increase at Dunswell Roundabout and the Raich Carter Way/Barnes Way/Gibraltar Road roundabout is slightly higher (+7.5% and +5.4% respectively) during the Saturday peak, however this is expected to be due to lower '2030 Do Nothing' flows and staff changeover times for the proposed bus depot.

6.7.3 The following section of the report considers the impact of the proposed mixed-use development on each study junction.

6.8 JI Capacity Assessment

6.8.1 In order to assess the ability of the proposed site access/Raich Carter Way LILO junction to accommodate the projected future traffic flows, a junction capacity assessment has been undertaken using Junctions 9 modelling software (PICADY module), which is a software package produced by Transport Research Laboratory (TRL) that provides an industry-standard method for assessing capacity, queuing and delay at priority junctions (PICADY) and roundabouts (ARCADY).

6.8.2 The geometry of the junction has been based on a combination of the proposed site plan (see Appendix 1) and scaled aerial imagery. The results are summarised in Table 19 and the complete modelling output is attached as Appendix 11.

Table 19: J1 Capacity Assessment

Peak	Arm	2030 With Development	
		Max. RFC	Max. End Q
AM	Site Access	46%	0.8
	Raich Carter Way	0%	0.0
	TOTAL	46%	0.8
PM	Site Access	113%	28.4
	Raich Carter Way	0%	0.0
	TOTAL	113%	28.4
SAT	Site Access	74%	2.6
	Raich Carter Way	0%	0.0
	TOTAL	74%	2.6

- 6.8.3 The capacity assessment results shown in Table 19 indicate that the proposed site access/Raich Carter Way LILLO junction would be expected to operate within capacity during the weekday AM peak and Saturday peak, with a maximum Ratio of Flow to Capacity (RFC) of 74% (Saturday peak), which is below the typical target level of 85%, and comfortable below the 100% RFC level of full capacity.
- 6.8.4 Whilst the proposed site access/Raich Carter Way LILLO junction would be expected to operate at 113% RFC during the weekday PM peak hour, the queueing would be internal to the site, off the adopted highway network and therefore not affecting flows on Raich Carter Way. Furthermore, bus movements would not be affected by any resultant queueing as these movements would take place via the separate bus only junctions. It is also acknowledged that the primary traffic generation at this junction during the weekday PM peak hour is vehicles departing the P&R site, with a very conservative estimate adopted in this TA that the P&R car park is fully occupied, which is unlikely to occur in reality, particularly in terms of only commuting trips.
- 6.8.5 It is therefore considered that the junction has been suitably designed to accommodate movements associated with the proposed development.

6.9 J2 Capacity Assessment

- 6.9.1 In order to assess the ability of the proposed site access/A1079 Beverley Road LILLO junction to accommodate the projected future traffic flows, a junction capacity assessment has been undertaken using Junctions 9 modelling software (PICADY module).
- 6.9.2 The geometry of the junction has been based on a combination of the proposed site plan (see Appendix 1) and scaled aerial imagery. The results are summarised in Table 20 and the complete modelling output is attached as Appendix 12.

Table 20: J2 Capacity Assessment

Peak	Arm	2030 With Development	
		Max. RFC	Max. End Q
AM	Site Access	10%	0.1
	A1079 Beverley Road	0%	0.0
	TOTAL	10%	0.0
PM	Site Access	9%	0.1
	A1079 Beverley Road	0%	0.0
	TOTAL	9%	0.1
SAT	Site Access	22%	0.3
	A1079 Beverley Road	0%	0.0
	TOTAL	22%	0.3

6.9.3 The capacity assessment results shown in Table 20 indicate that the proposed site access/A1079 Beverley Road junction would be expected to operate well within capacity in all scenarios with the proposed development in place, with a maximum RFC of 22% (Saturday peak), which is significantly below the typical target level of 85%.

6.9.4 It is therefore considered that the junction has been suitably designed to accommodate movements associated with the proposed development.

6.10 J3 Capacity Assessment

6.10.1 In order to assess the ability of Dunswell Roundabout to accommodate the projected baseline and future traffic flows, a junction capacity assessment has been undertaken using Junctions 9 modelling software (ARCADY module).

6.10.2 As previously mentioned, a TN (LTP, 2024) was produced in support of the Riverside application (ref: 19/01511/FULL) to address HCC Highways comments. The TN includes a capacity assessment of Dunswell Roundabout.

6.10.3 In order to address the comments from HCC Highways regarding the multiple lane approaches, the roundabout was modelled using lane simulation mode in Junctions 9 in the Riverside TN (LTP, 2024) which is an advanced mode within the software that utilises the geometries in the underlying standard model with added modelling of the impact of lane allocation.

6.10.4 The baseline and future peak hour traffic flows have been assessed against the existing junction layout, the results of which are summarised in Table 21 and the complete modelling output is attached as Appendix 13.

Table 21: J3 Capacity Assessment

Peak	Arm	2023 Existing		2030 Do Nothing		2030 With Development		Development Impact	
		Max. RFC	Max. End Q	Max. RFC	Max. End Q	Max. RFC	Max. End Q	Max. RFC	Max. End Q
AM	A1174	75.2%	11.0	80.5%	17.2	89.9%	20.6	+9.4%	+3.4
	Raich Carter Way	93.6%	36.3	90.6%	200.1	92.1%	350.5	+1.5%	+150.4
	A1079 Beverley Road	71.5%	5.7	76.6%	8.0	78.4%	7.0	+1.8%	-1.0
	A1079	99.0%	27.9	104.1%	124.4	101.8%	180.9	-2.3%	+56.5
	TOTAL	99.0%	36.3	104.1%	200.1	101.8%	350.5	-2.3%	+150.4
PM	A1174	91.3%	30.6	95.7%	62.6	94.1%	53.5	-1.6%	-9.1
	Raich Carter Way	85.5%	13.8	89.8%	55.5	91.3%	97.1	+1.5%	+41.6
	A1079 Beverley Road	95.7%	19.6	100.6%	176.7	102.1%	237.8	+1.5%	+61.1
	A1079	101.5%	43.1	102.0%	152.5	102.3%	213.0	+0.3%	+60.5
	TOTAL	101.5%	43.1	102.0%	176.7	102.3%	237.8	+0.3%	+61.1
SAT	A1174	86.2%	7.9	97.7%	36.0	95.6%	31.7	-2.1%	-4.3
	Raich Carter Way	61.2%	4.8	77.9%	19.5	87.2%	80.4	+9.3%	+60.9
	A1079 Beverley Road	86.0%	7.7	100.0%	61.4	101.2%	143.7	+1.2%	+82.3
	A1079	86.1%	6.8	103.6%	50.4	105.0%	107.1	+1.4%	+56.7
	TOTAL	86.2%	7.9	103.6%	61.4	105.0%	143.7	+1.4%	+82.3

6.10.5 The capacity assessment results shown in Table 21 indicates that there is expected to be queuing on Raich Carter Way during the weekday AM peak and on the A1079 Beverley Road arm in the weekday PM peak in the '2030 Do Nothing' scenario. Despite the results of the '2030 With Development' assessment indicating that the queuing would be exacerbated on these arms, the relative impact of added traffic is expected to be minimal, with an additional 108 vehicles on the Raich Carter Way approach during the weekday AM peak hour (<5% increase) and an additional 16 vehicles on the A1079 Beverley Road approach during the weekday PM peak (<1% increase).

6.10.6 The capacity assessment results indicate that the RFC is expected to reduce on some arms of Dunswell Roundabout as a result of the proposed development, with a minimal overall increase of the RFC across the roundabout during the weekday PM and Saturday peak periods, and a reduction during the weekday AM peak.

6.10.7 It is understood that a major improvement scheme is proposed to signalise Dunswell Roundabout to alleviate existing/future congestion issues and is expected to be delivered by ERYC as it falls within their local authority area, however no timescales have been indicated in terms of implementation from ERYC. It is expected that external grant funding would be sought to deliver the improvement scheme. The improvement scheme identified as part of the East Riding Strategic Junction Study (WSP, 2023) comprises partial signalisation of the roundabout, with the Beverley Road (A1079) remaining unsignalised, with left turn bypass lanes provided on the A1174 and A1033 (Raich Carter Way) arms. An extract of the scheme drawing considered within the East Riding Strategic Junction Study (WSP, 2023) is shown in Figure 9.

Figure 9: Improvement Scheme Drawing



Source: WSP, 2023

6.10.8 There are no modelling outputs included as part of the East Riding Strategic Junction Study (WSP, 2023) associated with the preferred improvement scheme, however the results of the modelling within the East Riding Strategic Junction Study (WSP, 2023) indicate that the scheme would be expected to address existing and future congestion/delay at the roundabout and therefore we would expect that the additional vehicle trips generated by the site could be adequately accommodated at the roundabout.

6.11 J4 Capacity Assessment

- 6.11.1 In order to assess the ability of Raich Carter Way/Barnes Way/Gibraltar Road roundabout to accommodate the projected baseline and future traffic flows, a junction capacity assessment has been undertaken using Junctions 9 modelling software (ARCADY module).
- 6.11.2 An interim improvement scheme at the Raich Carter Way/Barnes Way/Gibraltar Road roundabout has recently been implemented, which comprises improvements to the Barnes Way approach to the roundabout by providing a three-lane entry (previously two-lane entry) through amendments to the existing lane markings.
- 6.11.3 As previously mentioned, a TN (LTP, 2023c) was produced in support of the Riverside planning application (ref: 19/01511/FULL). The TN includes a capacity assessment of the Raich Carter Way/Barnes Way/Gibraltar Road roundabout. The geometric modelling parameters within the junction model, are understood to have been extracted from the model utilised as part of the original Riverside TA (WYG, 2019a).
- 6.11.4 The results are summarised in Table 22 and the complete modelling output is attached as Appendix 14.

Table 22: J4 Capacity Assessment – Existing Layout

Peak	Arm	2023 Existing		2030 Do Nothing		2030 With Development		Development Impact	
		Max. RFC	Max. End Q	Max. RFC	Max. End Q	Max. RFC	Max. End Q	Max. RFC	Max. End Q
AM	Barnes Way	65%	1.9	96%	14.9	99%	24.4	+3%	+9.5
	Raich Carter Way (E)	82%	4.6	114%	97.3	115%	101.3	+1%	+4.0
	Gibraltar Road	55%	1.3	195%	58.4	196%	60.5	+1%	+2.1
	Raich Cater Way (W)	53%	1.1	59%	1.5	62%	1.6	+3%	+0.1
	TOTAL	82%	4.6	195%	97.3	196%	101.3	+1%	+4.0
PM	Barnes Way	49%	1.0	79%	3.6	83%	4.4	+4%	+0.8
	Raich Carter Way (E)	88%	6.7	111%	92.0	113%	104.2	+2%	+12.2
	Gibraltar Road	60%	1.5	122%	22.2	125%	24.3	+3%	+2.1
	Raich Cater Way (W)	78%	3.5	98%	25.5	102%	54.1	+4%	+28.6
	TOTAL	88%	6.7	122%	92.0	125%	104.2	+3%	+12.2
SAT	Barnes Way	49%	1.0	82%	4.2	91%	8.6	+9%	+4.4
	Raich Carter Way (E)	73%	2.7	102%	30.9	107%	47.5	+5%	+16.6
	Gibraltar Road	62%	1.6	143%	49.5	148%	56.2	+5%	+6.7
	Raich Cater Way (W)	63%	1.7	77%	3.3	84%	5.1	+7%	+1.8
	TOTAL	73%	2.7	143%	49.5	148%	56.2	+5%	+6.7

- 6.11.5 The capacity assessments shown in Table 22 indicate that the Raich Carter Way/Barnes Way/Gibraltar Road roundabout would be expected to operate over capacity in the '2030 Do Nothing' scenario. The proposed development would be expected to increase the worst-case RFC 5% (Saturday peak), which is not considered to be significant.

- 6.11.6 A full improvement scheme at the Raich Carter Way/Barnes Way/Gibraltar Road roundabout is proposed as part of the adopted Kingswood Area Action Plan (AAP) (HCC, 2016a) and is required prior to first occupation of the Riverside scheme, with the improvement to be delivered by HCC.
- 6.11.7 The full improvement scheme comprises three lane entries on the Raich Carter Way (A1033) approaches to compliment the three-lane entry on Barnes Way. A capacity has been undertaken to assess the ability of improved roundabout to accommodate the projected future traffic flows, with the geometries taken from the Kingswood AAP Highways Evidence Base Report (WYG, 2015).
- 6.11.8 The results are summarised in Table 23 and the complete modelling output is attached as Appendix 15.

Table 23: J4 Capacity Assessment – Improvement Scheme

Arm	2030 Do Nothing		2030 With Development		Development Impact	
	Max. RFC	Max. End Q	Max. RFC	Max. End Q	Max. RFC	Max. End Q
Barnes Way	95%	13.3	98%	21.1	+3%	+7.8
Raich Carter Way (E)	77%	3.5	78%	3.6	+1%	+0.1
Raich Carter Way (W)	44%	0.8	46%	0.9	+2%	+0.1
TOTAL	95%	13.3	98%	21.1	+3%	+7.8
Barnes Way	79%	3.6	85%	5.1	+6%	+1.5
Raich Carter Way (E)	78%	3.5	79%	3.7	+1%	+0.2
Raich Carter Way (W)	71%	2.4	74%	2.8	+3%	+0.4
TOTAL	79%	3.6	85%	5.1	+6%	+1.5
Barnes Way	82%	4.2	91%	8.5	+9%	+4.3
Raich Carter Way (E)	66%	1.9	68%	2.1	+2%	+0.2
Raich Carter Way (W)	54%	1.2	59%	1.4	+5%	+0.2
TOTAL	82%	4.2	91%	8.5	+9%	+4.3

*Gibraltar Road arm removed from the summary table due to unrepresentative RFCs and queueing results.

- 6.11.9 The capacity results shown in Table 23 indicates that the Raich Carter Way/Barnes Way/Gibraltar Road roundabout with addition of the improvement scheme and the proposed development would be expected to operate within capacity, with a maximum RFC of 98% (weekday AM peak), which is below 100% full capacity.

- 6.11.10 The results of the modelling on the Gibraltar Road arm have not been presented as they are considered to not be representative, with RFCs exceeding 1,310%.
- 6.11.11 The results of the modelling on the Gibraltar Road arm have not been presented as they are considered to not be representative. The proposed development would be expected to generate an additional 4 two-way vehicle trips at the roundabout during the weekday AM peak, 7 during the weekday PM peak and 23 during the Saturday peak, which is not considered to be significant.

6.12 Impact on the Local Highway Network

- 6.12.1 The DfT has previously issued guidance that transport assessment of development impacts could be based on a threshold of “30 two-way peak hour vehicle trips” (DfT, 2007a). This guidance acknowledged that this threshold was not to be applied rigidly, but rather that it provided “a useful point of reference from which to commence discussions”.
- 6.12.2 This national DfT guidance has now been superseded and replaced with the ‘National Planning Policy Framework’ (NPPF) (MHCLG, 2023) and its accompanying ‘Planning Practice Guidance’ (PPG) (MHCLG, 2014). NPPF and PPG require that transport assessment is undertaken for “developments that generate significant amounts of movement”, although this is not defined. It is therefore acknowledged that there is no set threshold for assessment within the current national planning policy.
- 6.12.3 As detailed in Section 5.8, the development proposals are expected to generate up to 80 new two-way vehicle trips during the weekday AM peak hour, 105 during the weekday PM peak hour and 303 during the Saturday peak hour.
- 6.12.4 Based on the assessments presented in this TA, and subject to the implementation of the identified improvement schemes that are to be delivered by HCC/ERYC at the key roundabouts, it is considered that the proposed development will not have a severe impact on the operation of the local highway network.
- 6.12.5 Therefore, as the impact of the development is not expected to be severe, the proposals are considered to be in accordance with the ‘National Planning Policy Framework’, which states that “development should only be prevented or refused on highways grounds if there would be an unacceptable impact on highway safety, or the residual cumulative impacts on the road network would be severe” (MHCLG, 2023).

7. CONCLUSIONS

- 7.1.1 This TA provides a detailed appraisal of the transport impact of proposals for a proposed mixed-use development on land to the south of Raich Carter Way in Dunswell, East Riding of Yorkshire. The proposals involve the development of the site to accommodate the following:
- Dunswell Park & Ride (P&R);
 - Go Ahead (formerly known as East Yorkshire Motor Services (EYMS)) Bus Depot;
 - Petrol Filling Station (PFS), with 8 bays, with an associated convenience store (Gross Floor Area (GFA) of 444m²);
 - Drive-Thru Coffee Unit – circa 184² GFA store with a drive-thru lane;
 - Drive-Thru Fast Food Unit #1 – circa 260m² GFA store with a drive-thru lane; and
 - Drive-Thru Fast Food Unit #2 – circa 260m² GFA store with a drive-thru lane.
- 7.1.2 The development will be accessed via four new Left-In Left-Out (LILO) junctions, with two connecting with the A1079 Beverley Road and Raich Carter Way, with two of the accesses (one on each connecting links) to be bus only.
- 7.1.3 The site is located within a 2km walking distance of Dunswell, the western extents of Kingswood including Kingswood Retail Park, and residential estates accessed via the A1079 Beverley Road. The site is located within a reasonable cycle ride (circa 8km) of the majority of Beverley and Hull, and a range of additional settlements. Bus stops are located on the A1079 Beverley Road within the vicinity of the site, providing access to a number of services. Hull Interchange is situated approximately 6.7km to the south of the site, providing regular services to a number of destinations.
- 7.1.4 A road casualty study showed that 59 PICs occurred within the study area around the proposed development site during the 5-year study period. Analysis of the study collisions has not revealed any identifiable existing collision issues associated with the expected movements of the proposed development. Therefore, it is considered that there are not any existing road safety issues pertinent to the development of the site.
- 7.1.5 The proposed development is expected to generate up to 531 two-way vehicle trips during the AM peak hour (08:00-09:00), 563 during the PM peak hour (17:00-18:00) and 653 during the Saturday peak hour (12:00-13:00). A significant proportion of vehicle trips generated by the proposed development are expected to form pass-by, diverted, linked, or transferred trips rather than 'new' trips on the local highway network.
- 7.1.6 The baseline weekday AM, weekday PM and Saturday peak hour traffic flows at local junctions have been established through fully classified turning count surveys undertaken in 2023.
- 7.1.7 The traffic flow impact of the proposed development has been projected utilising traffic growth forecasts to 2030, with the distribution predicted utilising a combination of the existing vehicle flows on the local highway network and information provided by the Applicant.

- 7.1.8 In order to assess the ability of key local junctions to accommodate the traffic associated with the proposed development, junction capacity assessments have been undertaken using the industry-standard Junctions 9 (ARCADY and PICADY modules) modelling software. The results of these assessments demonstrate that the proposed development will not have a detrimental impact on the operation of the local highway network.
- 7.1.9 Based on the assessments within this TA, it is considered that the proposed development would not be expected to have a significant impact on the operation of the local highway network. Therefore, as the impact of the proposals at the site is not expected to be severe, the proposals are considered to be in accordance with the 'National Planning Policy Framework' (NPPF) which states that *"development should only be prevented or refused on highways grounds if there would be an unacceptable impact on highway safety, or the residual cumulative impacts on the road network would be severe"* (MHCLG, 2023).
- 7.1.10 It is concluded from the assessments within this TA that the proposed development would not be expected to have a significant impact in terms of sustainable travel, traffic impact and road safety.

8. REFERENCES

- BGH (Bryan G Hall), 2022a. Proposed Lidl Foodstore, Connaught Road, Kingswood. Transport Assessment. January 2022.
- BGH, 2022b. Proposed Lidl Foodstore, Connaught Road, Kingswood. Travel Plan. January 2022.
- BGH, 2022c. Proposed Lidl Foodstore, Connaught Road, Kingswood. Transport Assessment Addendum. June 2022.
- CIHT (Chartered Institution of Highways and Transportation), 2010. Manual for Streets 2: Wider Application of the Principles.
- DfT (Department for Transport), 2023. Road Safety Data [online: <http://data.gov.uk/dataset/road-accidents-safety-data>].
- DfT, 2021. Inclusive Mobility.
- DfT, 2020. LTN 1/20 - Cycle Infrastructure Design.
- DfT, 2007a. Guidance on Transport Assessment.
- DfT, 2007b. Manual for Streets.
- ERYC (East Riding of Yorkshire Council), 2021a. ERYC Local Plan Update 2020-2039: Draft Allocations Document Update.
- ERYC, 2021b. East Riding Local Plan Update: Draft Policies Map Update (May 2021).
- ERYC, 2021c. East Riding Local Plan Update: Draft Strategy Document Update.
- ERYC, 2021d. ERYC Local Transport Plan 2021-2039.
- ERYC, 2016a. ERYC Sustainable Transport SPD (Supplementary Planning Document).
- ERYC, 2016b. ERYC Local Plan: Allocations Document.
- ERYC, 2016c. ERYC Local Plan: Policies Map
- HCC (Hull City Council), 2024a. Public Rights of Way Map.
- HCC, 2024. Hull Cycle Map.
- HCC, 2017. Hull Local Plan 2016 to 2032.
- HCC, 2016. Kingswood Area Action Plan.
- HCC, 2011. HCC LTP3 (3rd Local Transport Plan).
- IHT (Institution of Highways and Transportation), 2000. Guidelines for Providing for Journeys on Foot.
- IHT, 1999. Guidelines for Public Transport in Development.
- LTP (Local Transport Projects Ltd), 2024a. Proposed Mixed-Use Development, Land to the South of Raich Carter Way, Dunswell – Travel Plan.
- LTP, 2024b. Proposed Mixed-Use Development, Land to the South of Raich Carter Way, Dunswell – Construction Traffic Management Plan.
- LTP, 2024c. Proposed Residential Development, Riverside, Kingswood, Hull – Technical Note.
- LTP, 2023a. Proposed Residential Development, Riverside, Kingswood, Hull – Transport Assessment.
- LTP, 2023b. Proposed Residential Development, Riverside, Kingswood, Hull – Travel Plan.
- LTP, 2023c. Proposed Residential Development, Riverside, Kingswood, Hull – Technical Note.
- LTP, 2021a. Proposed Residential Development, Barnes Way, Kingswood, Hull – Transport Assessment.

LTP, 2021b. Proposed Residential Development, Barnes Way, Kingswood, Hull – Travel Plan.

MHCLG (Ministry of Housing, Communities and Local Government), 2023. National Planning Policy Framework.

MHCLG, 2014. Travel Plans, Transport Assessments and Statements in Decision-Taking (ID: 42-06/03/2014) [online: <http://planningguidance.planningportal.gov.uk>].

ONS (Office for National Statistics), 2023. England & Wales National Census 2021.

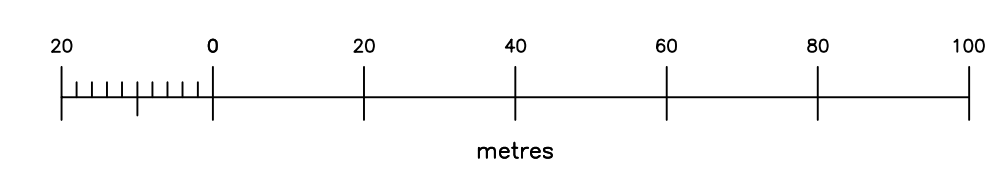
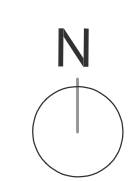
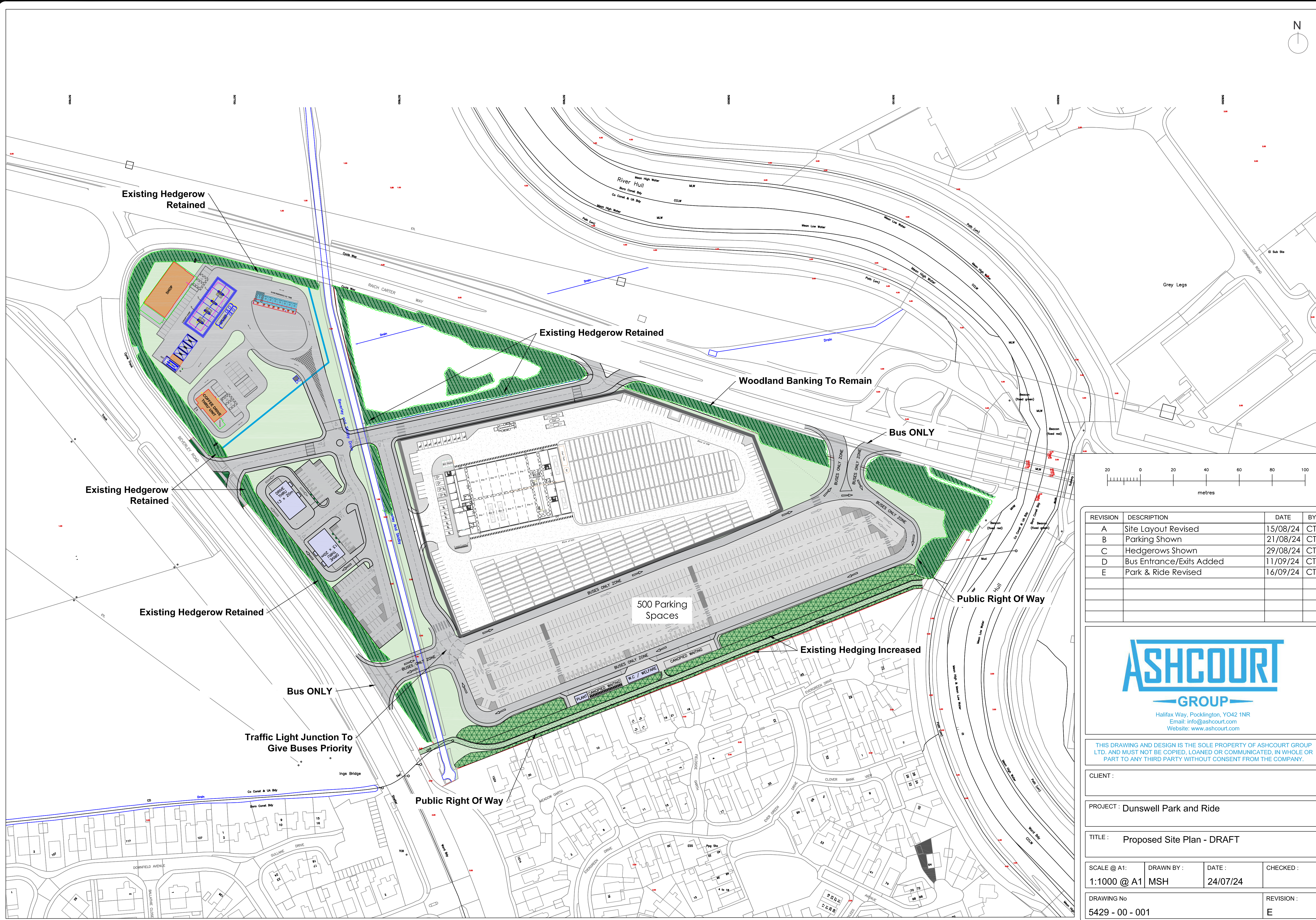
ORS (Open Route Service), 2024. [online: <https://maps.openrouteservice.org/#/>].

TCL (TRICS Consortium Ltd), 2023. TRICS Good Practice Guide 2024.

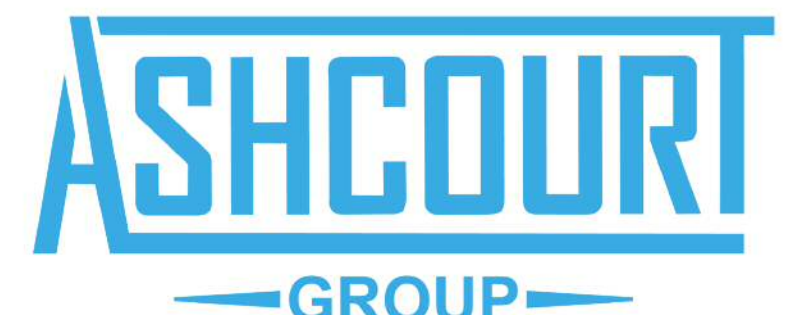
WYG, 2020a. Riverside, Kingswood, Hull. Highway Note 2 - Highways Technical Response.

WYG, 2015. Kingswood Area Action Plan. Highways Evidence Base Report (June 2015).

Appendix I – Site Layout Plan



REVISION	DESCRIPTION	DATE	BY
A	Site Layout Revised	15/08/24	CT
B	Parking Shown	21/08/24	CT
C	Hedgerows Shown	29/08/24	CT
D	Bus Entrance/Exits Added	11/09/24	CT
E	Park & Ride Revised	16/09/24	CT



Halifax Way, Pocklington, YO42 1NR
Email: info@ashcourt.com
Website: www.ashcourt.com

THIS DRAWING AND DESIGN IS THE SOLE PROPERTY OF ASHCOURT GROUP LTD. AND MUST NOT BE COPIED, LOANED OR COMMUNICATED, IN WHOLE OR PART TO ANY THIRD PARTY WITHOUT CONSENT FROM THE COMPANY.

CLIENT :

PROJECT : Dunswell Park and Ride

TITLE : Proposed Site Plan - DRAFT

SCALE @ A1:	DRAWN BY:	DATE :	CHECKED :
1:1000 @ A1	MSH	24/07/24	

DRAWING No	REVISION :
5429 - 00 - 001	E

Appendix 2 – ERYC Highways Feedback



EAST RIDING

OF YORKSHIRE COUNCIL

PLANNING & DEVELOPMENT MANAGEMENT STRATEGIC DEVELOPMENT MANAGEMENT

HIGHWAYS CONSULTATION RESPONSE

To:- DC Case Officer
Development Management

App Ref:- 24/00868/STPREP: Land south
of Raich Carter Way, Dunswell, East Riding
of Yorkshire, HU6 7YJ

From:- Strategic Highway
Development Management

Response Date:- 22nd May 2024

Highway Summary:

Application Number: 24/00868/STPREP

This strategic pre-application enquiry is for a proposed development of park and ride facility only.

The proposed facility would be accessed from the public highway of Raich Carter Way and Beverley Road which are 3a main distributor principal roads.

Raich Carter Way and Beverley Road or both dual carriageways (with a central reserve) and subject to a 40mph speed limit.

Visibility along Raich Carter Way and Beverley Road when leaving the site is likely to meet the requirements set out by Manual for Streets (MfS).

There have been no personal injury collisions located in proximity of both proposed accesses within the previous five years (2018-2022) of record available to ERYC.

Parking should comply with the Council's Local Plan Supplementary Planning Document, Sustainable Transport.

The following documents/information would be required to support a full planning application:

- Parking layout and dimensions for all parking places
- Details of secure cycle and powered two-wheeler parking
- Design and Access Statement
- Transport Assessment (including junction modelling of existing key junctions)

- Travel Plan
- Swept Path Analysis for the largest vehicle expected to visit the site

A Construction Traffic Management Plan (CTMP) will need to be submitted with any subsequent planning application.

The CTMP shall provide for:

- i. the parking of vehicles of site operatives and visitors
- ii. loading and unloading of plant and materials
- iii. storage of plant and materials used in constructing the development
- iv. the erection and maintenance of security hoarding including decorative displays and facilities for public viewing, where appropriate
- v. measures to control the emission of dust and dirt during construction including wheel washing
- vi. a scheme for recycling/disposing of waste resulting from demolition and construction works
- vii. measures for the protection of the natural environment
- viii. Abnormal Load information if applicable
- ix. Haulage Route, pre-construction and post construction dilapidation surveys
- x. hours of construction, including deliveries
- xi. Proposed trip generation for the construction phase.

The CTMP will need to be adhered to throughout the construction period.

Highway Management are unable to make a recommendation at this stage as information relating to the impact on the local network in terms of trip generation has not been provided. However, the two roads which the proposed facility are served off, are both principal roads and are both dual carriageways and these would seen acceptable access roads to serve a park and ride facility.

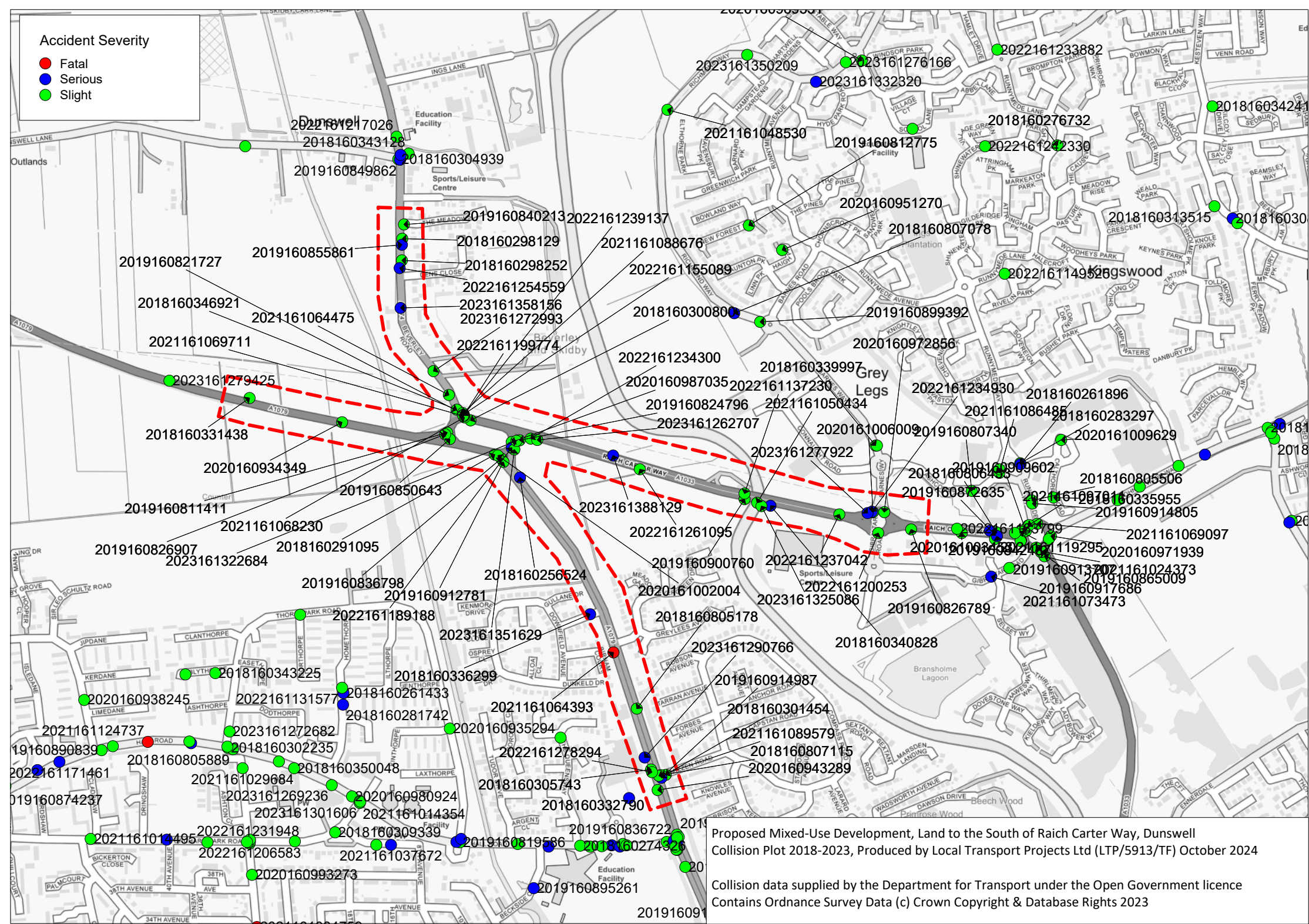
JS

Strategic Development Management

Appendix 3 – Collision Plot

Accident Severity

- Fatal
- Serious
- Slight



Appendix 4 – TRICS Output – PFS

TRICS v7.11.2

Trip Rate Parameter: Filling Bays

13 - Petrol Filling Station / B - PFS - With Retail

Weekday AM Peak (08:00-09:00)

v7.11.2, All surveys, 13-B, All Sizes (4 to 16 bays), UK (exc. GL & Ireland), All location types, exc. Sat/Sun, 2016+ (21 (24 but 3 removed due to Covid-19))

Site Ref	Description	Town/City	Area	Location	BAYS	Day	Date
AS-13-B-01	CO-OP PFS	STONEHAVEN	ABERDEENSHIRE	Suburban Area	8	THURSDAY	21/04/2022
BR-13-B-02	TESCO ETRA PFS	BRISTOL	BRISTOL CITY	Suburban Area	12	TUESDAY	09/11/2021
CU-13-B-01	ESSO & SPAR	NEAR CARLISLE	CUMBERLAND	Free Standing	8	FRIDAY	15/10/2021
FI-13-B-01	BP & M&S SIMPLY FOOD	DALGETY BAY	FIFE	Edge of Town	13	WEDNESDAY	23/03/2016
LC-13-B-03	TEXACO & MORRISONS	PRESTON	LANCASHIRE	Suburban Area	8	TUESDAY	06/11/2018
LE-13-B-03	CO-OP PFS	MARKET HARBOROUGH	LEICESTERSHIRE	Edge of Town Centre	6	WEDNESDAY	20/10/2021
LN-13-B-01	GULF & CO-OP	LINCOLN	LINCOLNSHIRE	Edge of Town	8	WEDNESDAY	04/10/2017
MM-13-B-01	BP & M&S SIMPLY FOOD	NEWPORT	MOMMOUTHSHIRE	Neighbourhood Centre	8	FRIDAY	27/09/2019
NG-13-B-02	SAINSBURY'S PFS	NOTTINGHAM	NOTTINGHAM	Suburban Area	16	FRIDAY	25/11/2016
NP-13-B-01	ESSO & TESCO EXPRESS	GLYNNEATH	NEATH & PORT TALBOT	Edge of Town	6	WEDNESDAY	19/10/2022
NW-13-B-02	ESSO & TESCO EXPRESS	NEWPORT	NEWPORT	Edge of Town	8	WEDNESDAY	12/10/2022
NY-13-B-03	ESSO & COOP	KNARESBOROUGH	NORTH YORKSHIRE	Suburban Area	8	FRIDAY	30/09/2016
NY-13-B-04	HARVEST ENERGY & NISA	RICHMOND	NORTH YORKSHIRE	Edge of Town Centre	8	WEDNESDAY	13/03/2019
ST-13-B-01	BP & HURSTS	STAFFORD	STAFFORDSHIRE	Edge of Town Centre	10	WEDNESDAY	22/11/2017
TB-13-B-01	BP & COSTCUTTER	PAIGNTON	TORBAY	Edge of Town	8	TUESDAY	18/07/2017
TW-13-B-05	SHELL & SPAR	SUNDERLAND	TYNE & WEAR	Suburban Area	6	FRIDAY	24/05/2019
TW-13-B-06	ESSO & TESCO EXPRESS	NORTH SHEILDS	TYNE & WEAR	Suburban Area	8	MONDAY	16/05/2022
WM-13-B-07	ESSO & TESCO EXPRESS	WOLVERHAMPTON	WEST MIDLANDS	Neighbourhood Centre	8	TUESDAY	13/06/2023
WO-13-B-03	TEXACO & LONDIS	MALVERN	WORCESTERSHIRE	Edge of Town Centre	8	FRIDAY	12/11/2021
WO-13-B-04	ESSO & LONDIS	MALVERN	WORCESTERSHIRE	Town Centre	8	FRIDAY	19/11/2021
YO-13-B-02	SHELL & SPAR	NEAR YORK	YORK	Neighbourhood Centre	8	WEDNESDAY	22/09/2021
MEAN							

Weekday PM Peak (17:00-18:00)

v7.11.2, All surveys, 13-B, All Sizes (4 to 16 bays), UK (exc. GL & Ireland), All location types, exc. Sat/Sun, 2016+ (21 (24 but 3 removed due to Covid-19))

Site Ref	Description	Town/City	Area	Location	BAYS	Day	Date
AS-13-B-01	CO-OP PFS	STONEHAVEN	ABERDEENSHIRE	Suburban Area	8	THURSDAY	21/04/2022
BR-13-B-02	TESCO ETRA PFS	BRISTOL	BRISTOL CITY	Suburban Area	12	TUESDAY	09/11/2021
CU-13-B-01	ESSO & SPAR	NEAR CARLISLE	CUMBERLAND	Free Standing	8	FRIDAY	15/10/2021
FI-13-B-01	BP & M&S SIMPLY FOOD	DALGETY BAY	FIFE	Edge of Town	13	WEDNESDAY	23/03/2016
LC-13-B-03	TEXACO & MORRISONS	PRESTON	LANCASHIRE	Suburban Area	8	TUESDAY	06/11/2018
LE-13-B-03	CO-OP PFS	MARKET HARBOROUGH	LEICESTERSHIRE	Edge of Town Centre	6	WEDNESDAY	20/10/2021
LN-13-B-01	GULF & CO-OP	LINCOLN	LINCOLNSHIRE	Edge of Town	8	WEDNESDAY	04/10/2017
MM-13-B-01	BP & M&S SIMPLY FOOD	NEWPORT	MOMMOUTHSHIRE	Neighbourhood Centre	8	FRIDAY	27/09/2019
NG-13-B-02	SAINSBURY'S PFS	NOTTINGHAM	NOTTINGHAM	Suburban Area	16	FRIDAY	25/11/2016
NP-13-B-01	ESSO & TESCO EXPRESS	GLYNNEATH	NEATH & PORT TALBOT	Edge of Town	6	WEDNESDAY	19/10/2022
NW-13-B-02	ESSO & TESCO EXPRESS	NEWPORT	NEWPORT	Edge of Town	8	WEDNESDAY	12/10/2022
NY-13-B-03	ESSO & COOP	KNARESBOROUGH	NORTH YORKSHIRE	Suburban Area	8	FRIDAY	30/09/2016
NY-13-B-04	HARVEST ENERGY & NISA	RICHMOND	NORTH YORKSHIRE	Edge of Town Centre	8	WEDNESDAY	13/03/2019
ST-13-B-01	BP & HURSTS	STAFFORD	STAFFORDSHIRE	Edge of Town Centre	10	WEDNESDAY	22/11/2017
TB-13-B-01	BP & COSTCUTTER	PAIGNTON	TORBAY	Edge of Town	8	TUESDAY	18/07/2017
TW-13-B-05	SHELL & SPAR	SUNDERLAND	TYNE & WEAR	Suburban Area	6	FRIDAY	24/05/2019
TW-13-B-06	ESSO & TESCO EXPRESS	NORTH SHEILDS	TYNE & WEAR	Suburban Area	8	MONDAY	16/05/2022
WM-13-B-07	ESSO & TESCO EXPRESS	WOLVERHAMPTON	WEST MIDLANDS	Neighbourhood Centre	8	TUESDAY	13/06/2023
WO-13-B-03	TEXACO & LONDIS	MALVERN	WORCESTERSHIRE	Edge of Town Centre	8	FRIDAY	12/11/2021
WO-13-B-04	ESSO & LONDIS	MALVERN	WORCESTERSHIRE	Town Centre	8	FRIDAY	19/11/2021
YO-13-B-02	SHELL & SPAR	NEAR YORK	YORK	Neighbourhood Centre	8	WEDNESDAY	22/09/2021
MEAN							

Saturday Peak (12:00-13:00)

v7.11.2, All surveys, 13-B, All Sizes (4 to 16 bays), UK (exc. GL & Ireland), All location types, Saturday only, 2016+ (5 (9 but 4 removed due to Covid-19))

Site Ref	Description	Town/City	Area	Location	BAYS	Day	Date
DC-13-B-03	BP & SPAR	DORCHESTER	DORSET	Edge of Town	9	SATURDAY	17/09/2016
EB-13-B-03	BP & M&S SIMPLY FOOD	NEAR EDINBURGH	CITY OF EDINBURGH	Free Standing	8	SATURDAY	28/04/2018
EC-13-B-01	ESO & SPAR	MACCLESFIELD	CHESHIRE EAST	Edge of Town Centre	8	SATURDAY	17/09/2016
TB-13-B-02	SHELL & LONDIS	PAIGNTON	TORBAY	Neighbourhood Centre	8	SATURDAY	30/03/2019
TW-13-B-03	SAINSBURY'S PFS	SUNDERLAND	TYNE & WEAR	Suburban Area	12	SATURDAY	08/04/2017
MEAN							

Vehicle Trip Rates

Arrivals	Departures	Totals
4.375	4.375	8.750
2.917	2.833	5.750
7.250	7.125	14.375
6.923	7.385	14.308
7.125	6.875	14.000
11.500	10.667	22.167
9.375	9.125	18.500
10.750	11.500	22.250
1.813	1.625	3.438
13.500	11.000	24.500
14.000	14.125	28.125
9.500	9.000	18.500
6.625	6.125	12.750
1.700	1.400	3.100
8.250	7.625	15.875
8.500	8.000	16.500
6.250	6.375	12.625
11.500	11.125	22.625
6.750	6.625	13.375
3.500	3.500	7.000
12.125	11.125	23.250
7.820	7.502	15.322

Vehicle Trip Generation

Arrivals	Departures	Totals
35	35	70
35	34	69
58	57	115
90	96	186
57	55	112
69	64	133
75	73	148
86	92	178
29	26	55
81	66	147
112	113	225
76	72	148
53	49	102
17	14	31
66	61	127
51	48	99
50	51	101
92	89	181
54	53	107
28	28	56
97	89	186
62	60	123

Vehicle Trip Rates

Arrivals	Departures	Totals
7.625	8.375	16.000
4.667	4.500	9.167
7.625	8.500	16.125
9.538	9.462	19.000
7.375	7.375	14.750
10.500	10.167	20.667
9.875	9.625	19.500
10.375	10.250	20.625
2.125	2.188	4.313
16.333	16.500	32.833
17.000	16.750	33.750
8.500	8.625	17.125
5.375	5.875	11.250
4.200	4.200	8.400
6.375	6.250	12.625
7.333	7.500	14.833
8.625	9.000	17.625
12.875	12.875	25.750
6.125	6.375	12.500
6.250	6.500	12.750
13.250	13.375	26.625
8.664	8.775	17.439

Vehicle Trip Generation

Arrivals	Departures	Totals
61	67	128
56	54	110
61	68	129
124	123	247
59	59	118
63	61	124
79	77	156
83	82	165
34	35	69
98	99	197
136	134	270
68	69	137
43	47	90
42	42	84
51	50	101
44	45	89
69	72	141
103	103	206
49	51	100
50	52	102
106	107	213
70	71	142

Vehicle Trip Rates

Arrivals	Departures	Totals
11.222	10.889	22.111
1.750	1.625	3.375
8.875	8.125	17.000
7.000	6.125	13.125
1.500	1.250	2.750
6.069	5.603	11.672

Vehicle Trip Generation

Arrivals	Departures	Totals
101	98	199
14	13	27
71	65	136
56	49	105
18	15	33
52	48	100

Appendix 5 – TRICS Output – Coffee Drive-Thru

TRIP RATE CALCULATION SELECTION PARAMETERS:

Calculation Reference: AUDIT-342901-240923-0952

Land Use : 06 - HOTEL, FOOD & DRINK

Category : J - DRIVE THROUGH COFFEE SHOP

TOTAL VEHICLES

Selected regions and areas:

02	SOUTH EAST	
	HC HAMPSHIRE	1 days
05	EAST MIDLANDS	
	NM WEST NORTHAMPTONSHIRE	1 days
11	SCOTLAND	
	PK PERTH & KINROSS	1 days

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

Primary Filtering selection:

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

Parameter: Gross floor area
 Actual Range: 140 to 219 (units: sqm)
 Range Selected by User: 125 to 420 (units: sqm)

Parking Spaces Range: All Surveys Included

Public Transport Provision:

Selection by: Include all surveys

Date Range: 01/01/16 to 26/11/23

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
 Wednesday 1 days
 Friday 1 days

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

Selected survey types:

Manual count 3 days
 Directional ATC Count 0 days

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

Selected Locations:

Suburban Area (PPS6 Out of Centre) 1
 Edge of Town 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:

Industrial Zone 2
 Retail Zone 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.

Inclusion of Servicing Vehicles Counts:

Servicing vehicles Included X days - Selected
 Servicing vehicles Excluded 7 days - Selected

Secondary Filtering selection:

Use Class:

Not Known 3 days

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

Population within 500m Range:

All Surveys Included

Secondary Filtering selection (Cont.):

Population within 1 mile:

1,001 to 5,000	1 days
20,001 to 25,000	1 days
25,001 to 50,000	1 days

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

Population within 5 miles:

25,001 to 50,000	1 days
125,001 to 250,000	1 days
250,001 to 500,000	1 days

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

Car ownership within 5 miles:

0.6 to 1.0	1 days
1.1 to 1.5	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	3 days
----	--------

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

PTAL Rating:

No PTAL Present	3 days
-----------------	--------

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

LIST OF SITES relevant to selection parameters

1	HC-06-J-01	COSTA COFFEE	HAMPSHIRE
	COTSWORTH ROAD		
	GOSPORT		
	Suburban Area (PPS6 Out of Centre)		
	Retail Zone		
	Total Gross floor area:	185 sqm	
	Survey date: MONDAY	27/09/21	Survey Type: MANUAL
2	NM-06-J-01	BEWICHD COFFEE	WEST NORTHAMPTONSHIRE
	DARNELL WAY		
	NORTHAMPTON		
	Edge of Town		
	Industrial Zone		
	Total Gross floor area:	140 sqm	
	Survey date: FRIDAY	15/10/21	Survey Type: MANUAL
3	PK-06-J-01	STARBUCKS	PERTH & KINROSS
	THE TRIANGLE		
	PERTH		
	INVERALMOND		
	Edge of Town		
	Industrial Zone		
	Total Gross floor area:	219 sqm	
	Survey date: WEDNESDAY	20/04/22	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.

MANUALLY DESELECTED SITES

Site Ref	Reason for Deselection
HE-06-J-01	Covid-19
NN-06-J-01	Covid-19
SF-06-J-01	Covid-19
WO-06-J-01	Covid-19

Local Transport Projects Beverley East Yorkshire

Licence No: 342901

TRIP RATE for Land Use 06 - HOTEL, FOOD & DRINK/J - DRIVE THROUGH COFFEE SHOP

TOTAL VEHICLES

Calculation factor: 100 sqm

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00	1	140	1.429	1	140	0.000	1	140	1.429
06:00 - 07:00	3	181	5.882	3	181	5.882	3	181	11.764
07:00 - 08:00	3	181	17.463	3	181	16.360	3	181	33.823
08:00 - 09:00	3	181	24.449	3	181	21.691	3	181	46.140
09:00 - 10:00	3	181	29.044	3	181	28.125	3	181	57.169
10:00 - 11:00	3	181	19.853	3	181	20.772	3	181	40.625
11:00 - 12:00	3	181	18.750	3	181	20.221	3	181	38.971
12:00 - 13:00	3	181	23.162	3	181	21.507	3	181	44.669
13:00 - 14:00	3	181	15.809	3	181	17.096	3	181	32.905
14:00 - 15:00	3	181	14.706	3	181	13.235	3	181	27.941
15:00 - 16:00	3	181	11.213	3	181	11.397	3	181	22.610
16:00 - 17:00	3	181	11.581	3	181	12.684	3	181	24.265
17:00 - 18:00	3	181	9.926	3	181	12.316	3	181	22.242
18:00 - 19:00	3	181	8.640	3	181	8.456	3	181	17.096
19:00 - 20:00	3	181	6.985	3	181	6.985	3	181	13.970
20:00 - 21:00	3	181	4.596	3	181	5.515	3	181	10.111
21:00 - 22:00	3	181	1.654	3	181	2.206	3	181	3.860
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			225.142			224.448			449.590

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.

The survey data, graphs and all associated supporting information, contained within the TRICS Database are published by TRICS Consortium Limited ("the Company") and the Company claims copyright and database rights in this published work. The Company authorises those who possess a current TRICS licence to access the TRICS Database and copy the data contained within the TRICS Database for the licence holders' use only. Any resulting copy must retain all copyrights and other proprietary notices, and any disclaimer contained thereon.

The Company accepts no responsibility for loss which may arise from reliance on data contained in the TRICS Database. [No warranty of any kind, express or implied, is made as to the data contained in the TRICS Database.]

Parameter summary

Trip rate parameter range selected:	140 - 219 (units: sqm)
Survey date range:	01/01/16 - 26/11/23
Number of weekdays (Monday-Friday):	3
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	4

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 shown. 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 CALCULATION SELECTION PARAMETERS:

Land Use : 06 – HOTEL, FOOD & DRINK
Category : J – DRIVE THROUGH COFFEE SHOP
TOTAL VEHICLES

Selected regions and areas:

09	NORTH	
	CU CUMBERLAND	1 days
10	WALES	
	NW NEWPORT	1 days

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

Primary Filtering selection:

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

Parameter: Gross floor area
 Actual Range: 210 to 225 (units: sqm)
 Range Selected by User: 125 to 420 (units: sqm)

Parking Spaces Range: All Surveys Included

Public Transport Provision:

Selection by: Include all surveys

Date Range: 01/01/16 to 26/11/23

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:

Saturday 2 days

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

Selected survey types:

Manual count 2 days
 Directional ATC Count 0 days

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

Selected Locations:

Edge of Town 1
 Neighbourhood Centre (PPS6 Local Centre) 1

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

Selected Location Sub Categories:

Village 1
 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.

Inclusion of Servicing Vehicles Counts:

Servicing vehicles Included X days - Selected
 Servicing vehicles Excluded 5 days - Selected

Secondary Filtering selection:

Use Class:

Not Known 2 days

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

Population within 500m Range:

All Surveys Included

Population within 1 mile:

1,001 to 5,000 1 days
 5,001 to 10,000 1 days

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

Secondary Filtering selection (Cont.):

Population within 5 miles:

75,001 to 100,000	1 days
125,001 to 250,000	1 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	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	2 days
----	--------

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

PTAL Rating:

No PTAL Present	2 days
-----------------	--------

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

LIST OF SITES relevant to selection parameters

1	CU-06-J-01	COSTA COFFEE	CUMBERLAND
	PARKHOUSE ROAD		
	CARLISLE		
	GATEWAY 44		
	Edge of Town		
	No Sub Category		
	Total Gross floor area:	210 sqm	
	Survey date: SATURDAY	16/10/21	Survey Type: MANUAL
2	NW-06-J-01	COSTA COFFEE	NEWPORT
	CHEPSTOW ROAD		
	NEAR NEWPORT		
	LANGSTONE		
	Neighbourhood Centre (PPS6 Local Centre)		
	Village		
	Total Gross floor area:	225 sqm	
	Survey date: SATURDAY	25/11/23	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.

MANUALLY DESELECTED SITES

Site Ref	Reason for Deselection
BO-06-J-01	Covid-19
GM-06-J-01	Covid-19
GS-06-J-01	Covid-19

Local Transport Projects Beverley East Yorkshire

Licence No: 342901

TRIP RATE for Land Use 06 - HOTEL, FOOD & DRINK/J - DRIVE THROUGH COFFEE SHOP

TOTAL VEHICLES

Calculation factor: 100 sqm

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00	1	225	0.000	1	225	0.000	1	225	0.000
06:00 - 07:00	2	218	3.678	2	218	2.989	2	218	6.667
07:00 - 08:00	2	218	4.828	2	218	4.598	2	218	9.426
08:00 - 09:00	2	218	11.494	2	218	9.195	2	218	20.689
09:00 - 10:00	2	218	17.011	2	218	16.092	2	218	33.103
10:00 - 11:00	2	218	18.851	2	218	15.862	2	218	34.713
11:00 - 12:00	2	218	19.310	2	218	20.000	2	218	39.310
12:00 - 13:00	2	218	20.460	2	218	20.460	2	218	40.920
13:00 - 14:00	2	218	19.310	2	218	20.000	2	218	39.310
14:00 - 15:00	2	218	17.241	2	218	16.782	2	218	34.023
15:00 - 16:00	2	218	14.253	2	218	16.322	2	218	30.575
16:00 - 17:00	2	218	10.115	2	218	9.425	2	218	19.540
17:00 - 18:00	2	218	9.195	2	218	11.954	2	218	21.149
18:00 - 19:00	2	218	3.448	2	218	3.908	2	218	7.356
19:00 - 20:00	2	218	0.460	2	218	2.069	2	218	2.529
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			169.654			169.656			339.310

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.

The survey data, graphs and all associated supporting information, contained within the TRICS Database are published by TRICS Consortium Limited ("the Company") and the Company claims copyright and database rights in this published work. The Company authorises those who possess a current TRICS licence to access the TRICS Database and copy the data contained within the TRICS Database for the licence holders' use only. Any resulting copy must retain all copyrights and other proprietary notices, and any disclaimer contained thereon.

The Company accepts no responsibility for loss which may arise from reliance on data contained in the TRICS Database. [No warranty of any kind, express or implied, is made as to the data contained in the TRICS Database.]

Parameter summary

Trip rate parameter range selected:	210 - 225 (units: sqm)
Survey date range:	01/01/16 - 26/11/23
Number of weekdays (Monday-Friday):	0
Number of Saturdays:	2
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	3

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 shown. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

Projected Traffic Generation - Drive-Thru Coffee Unit
Weekday Vehicle Trip Rates (per 100sq.m GFA)

Time	IN	OUT	TOTAL
05:00-06:00	1.429	0.000	1.429
06:00-07:00	5.882	5.882	11.764
07:00-08:00	17.463	16.360	33.823
08:00-09:00	24.449	21.691	46.140
09:00-10:00	29.044	28.125	57.169
10:00-11:00	19.853	20.772	40.625
11:00-12:00	18.750	20.221	38.971
12:00-13:00	23.162	21.507	44.669
13:00-14:00	15.809	17.096	32.905
14:00-15:00	14.706	13.235	27.941
15:00-16:00	11.213	11.397	22.610
16:00-17:00	11.581	12.684	24.265
17:00-18:00	9.926	12.316	22.242
18:00-19:00	8.640	8.456	17.096
19:00-20:00	6.985	6.985	13.970
20:00-21:00	4.596	5.515	10.111
21:00-22:00	1.654	2.206	3.860

TOTAL	225.142	224.448	449.590
-------	---------	---------	---------

v7.11.2, All surveys, 06-J, All Sizes UK (exc. GL & Ireland), 'Edge of Town' & 'Suburban Area', exc. Sat/Sun, 2016+ (3 (7 but 4 removed due to Covid-19))

184 sq.m GFA
Vehicle Trips

IN	OUT	TOTAL
3	0	3
11	11	22
32	30	62
45	40	85
53	52	105
37	38	75
35	37	72
43	40	83
29	31	60
27	24	51
21	21	42
21	23	44
18	23	41
16	16	32
13	13	26
8	10	18
3	4	7

PM Peak

415	413	828
-----	-----	-----

Saturday Vehicle Trip Rates (per 100sq.m GFA)

Time	IN	OUT	TOTAL
05:00-06:00	0.000	0.000	0.000
06:00-07:00	3.678	2.989	6.667
07:00-08:00	4.828	4.598	9.426
08:00-09:00	11.494	9.195	20.689
09:00-10:00	17.011	16.092	33.103
10:00-11:00	18.851	15.862	34.713
11:00-12:00	19.310	20.000	39.310
12:00-13:00	20.460	20.460	40.920
13:00-14:00	19.310	20.000	39.310
14:00-15:00	17.241	16.782	34.023
15:00-16:00	14.253	16.322	30.575
16:00-17:00	10.115	9.425	19.540
17:00-18:00	9.195	11.954	21.149
18:00-19:00	3.448	3.908	7.356
19:00-20:00	0.460	2.069	2.529
20:00-21:00			
21:00-22:00			

TOTAL	169.654	169.656	339.310
-------	---------	---------	---------

v7.11.2, All surveys, 06-J, All Sizes UK (exc. GL & Ireland), 'Edge of Town', 'Suburban Area' & 'Neighbourhood Centre', exc. Saturday only, 2016+ (2 (5 but 3 removed due to Covid-19))

Vehicle Trips

IN	OUT	TOTAL
0	0	0
7	5	12
9	8	17
21	17	38
31	30	61
35	29	64
36	37	73
38	38	76
36	37	73
32	31	63
26	30	56
19	17	36
17	22	39
6	7	13
1	4	5

314	312	626
-----	-----	-----

Appendix 6 – TRICS Output – Fast-Food Drive-Thrus

Calculation Reference: AUDIT-342901-240923-0928

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 06 - HOTEL, FOOD & DRINK
Category : D - FAST FOOD - DRIVE THROUGH
TOTAL VEHICLES

<u>Selected regions and areas:</u>		
02	SOUTH EAST	
	HC HAMPSHIRE	1 days
	WS WEST SUSSEX	1 days
03	SOUTH WEST	
	NS NORTH SOMERSET	1 days
04	EAST ANGLIA	
	CA CAMBRIDGESHIRE	1 days
05	EAST MIDLANDS	
	LN LINCOLNSHIRE	1 days
	NN NORTH NORTHAMPTONSHIRE	1 days
06	WEST MIDLANDS	
	WM WEST MIDLANDS	1 days
11	SCOTLAND	
	AD ABERDEEN CITY	1 days
	FI FIFE	1 days

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

Primary Filtering selection:

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

Parameter:

Gross floor area

Actual Range:

230 to 690 (units: sqm)

Range Selected by User:

182 to 800 (units: sqm)

Parking Spaces Range: All Surveys Included

Public Transport Provision:

Selection by: Include all surveys

Date Range: 01/01/16 to 25/05/23

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

3 days

Wednesday

2 days

Thursday

3 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)

3

Edge of Town

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:

Industrial Zone

1

Development Zone

2

Residential Zone

1

Retail Zone

3

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.

Inclusion of Servicing Vehicles Counts:

Servicing vehicles Included

5 days - Selected

Servicing vehicles Excluded

7 days - Selected

Secondary Filtering selection:

Use Class:

Not Known 9 days

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

Population within 500m Range:

All Surveys Included

Secondary Filtering selection (Cont.):

Population within 1 mile:

5,001 to 10,000	2 days
10,001 to 15,000	3 days
15,001 to 20,000	1 days
25,001 to 50,000	3 days

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

Population within 5 miles:

50,001 to 75,000	1 days
100,001 to 125,000	4 days
125,001 to 250,000	2 days
250,001 to 500,000	1 days
500,001 or More	1 days

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

Car ownership within 5 miles:

0.6 to 1.0	3 days
1.1 to 1.5	6 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	9 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	AD-06-D-02	BURGER KING		ABERDEEN CITY
	WELLINGTON ROAD			
	ABERDEEN			
	ALTENS			
	Edge of Town			
	No Sub Category			
	Total Gross floor area:	300 sqm		
	Survey date: FRIDAY	22/11/19	Survey Type: MANUAL	
2	CA-06-D-02	MCDONALD'S		CAMBRIDGESHIRE
	NEWMARKET ROAD			
	CAMBRIDGE			
	Suburban Area (PPS6 Out of Centre)			
	Residential Zone			
	Total Gross floor area:	435 sqm		
	Survey date: TUESDAY	19/09/17	Survey Type: MANUAL	
3	FI-06-D-02	KFC		FIFE
	WHIMBREL PLACE			
	DUNFERMLINE			
	HALBEATH			
	Edge of Town			
	Development Zone			
	Total Gross floor area:	275 sqm		
	Survey date: TUESDAY	22/03/16	Survey Type: MANUAL	
4	HC-06-D-03	KFC		HAMPSHIRE
	LARCHWOOD AVENUE			
	HAVANT			
	BEDHAMPTON			
	Edge of Town			
	Retail Zone			
	Total Gross floor area:	315 sqm		
	Survey date: TUESDAY	23/05/23	Survey Type: MANUAL	
5	LN-06-D-02	MCDONALD'S		LINCOLNSHIRE
	RYHALL ROAD			
	STAMFORD			
	Edge of Town			
	Retail Zone			
	Total Gross floor area:	490 sqm		
	Survey date: WEDNESDAY	13/10/21	Survey Type: MANUAL	
6	NN-06-D-01	MCDONALD'S		NORTH NORTHAMPTONSHIRE
	LITTLE COLLIERS FIELD			
	CORBY			
	GREAT OAKLEY			
	Edge of Town			
	Development Zone			
	Total Gross floor area:	690 sqm		
	Survey date: THURSDAY	16/06/22	Survey Type: MANUAL	
7	NS-06-D-01	KFC		NORTH SOMERSET
	MARCHFIELDS WAY			
	WESTON-SUPER-MARE			
	Suburban Area (PPS6 Out of Centre)			
	No Sub Category			
	Total Gross floor area:	230 sqm		
	Survey date: THURSDAY	15/09/22	Survey Type: MANUAL	
8	WM-06-D-04	BIG JOHN'S		WEST MIDLANDS
	LANGDON STREET			
	BIRMINGHAM			
	BORDESLEY GREEN			
	Suburban Area (PPS6 Out of Centre)			
	Industrial Zone			
	Total Gross floor area:	360 sqm		
	Survey date: WEDNESDAY	19/10/22	Survey Type: MANUAL	

LIST OF SITES relevant to selection parameters (Cont.)

9

WS-06-D-02
ROWAN WAY
BOGNOR REGIS

KFC

WEST SUSSEX

Edge of Town
Retail Zone
Total Gross floor area: 330 sqm
Survey date: THURSDAY 25/05/23 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.

MANUALLY DESELECTED SITES

Site Ref	Reason for Deselection
MS-06-D-01	Covid-19
VG-06-D-01	Covid-19
WO-06-D-01	Covid-19

Local Transport Projects Beverley East Yorkshire

Licence No: 342901

TRIP RATE for Land Use 06 – HOTEL, FOOD & DRINK/D – FAST FOOD – DRIVE THROUGH

TOTAL VEHICLES

Calculation factor: 100 sqm

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 – 01:00									
01:00 – 02:00									
02:00 – 03:00									
03:00 – 04:00									
04:00 – 05:00									
05:00 – 06:00	1	490	0.204	1	490	0.000	1	490	0.204
06:00 – 07:00	3	470	2.908	3	470	2.766	3	470	5.674
07:00 – 08:00	5	429	5.361	5	429	4.755	5	429	10.116
08:00 – 09:00	5	429	6.527	5	429	6.387	5	429	12.914
09:00 – 10:00	5	429	7.925	5	429	7.133	5	429	15.058
10:00 – 11:00	9	381	6.599	9	381	5.810	9	381	12.409
11:00 – 12:00	9	381	10.073	9	381	8.818	9	381	18.891
12:00 – 13:00	9	381	14.540	9	381	14.102	9	381	28.642
13:00 – 14:00	9	381	14.657	9	381	15.708	9	381	30.365
14:00 – 15:00	9	381	11.124	9	381	10.978	9	381	22.102
15:00 – 16:00	9	381	10.453	9	381	10.540	9	381	20.993
16:00 – 17:00	9	381	11.883	9	381	11.854	9	381	23.737
17:00 – 18:00	9	381	13.401	9	381	13.314	9	381	26.715
18:00 – 19:00	9	381	16.088	9	381	16.029	9	381	32.117
19:00 – 20:00	9	381	12.234	9	381	12.759	9	381	24.993
20:00 – 21:00	9	381	10.569	9	381	11.241	9	381	21.810
21:00 – 22:00	9	381	7.533	9	381	8.146	9	381	15.679
22:00 – 23:00	8	374	4.816	8	374	5.184	8	374	10.000
23:00 – 24:00	6	403	2.567	6	403	3.188	6	403	5.755
Total Rates:			169.462			168.712			338.174

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.

The survey data, graphs and all associated supporting information, contained within the TRICS Database are published by TRICS Consortium Limited ("the Company") and the Company claims copyright and database rights in this published work. The Company authorises those who possess a current TRICS licence to access the TRICS Database and copy the data contained within the TRICS Database for the licence holders' use only. Any resulting copy must retain all copyrights and other proprietary notices, and any disclaimer contained thereon.

The Company accepts no responsibility for loss which may arise from reliance on data contained in the TRICS Database. [No warranty of any kind, express or implied, is made as to the data contained in the TRICS Database.]

Parameter summary

Trip rate parameter range selected:	230 – 690 (units: sqm)
Survey date range:	01/01/16 – 25/05/23
Number of weekdays (Monday-Friday):	9
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	3

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 shown. 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 CALCULATION SELECTION PARAMETERS:

Land Use : 06 - HOTEL, FOOD & DRINK

Category : D - FAST FOOD - DRIVE THROUGH

TOTAL VEHICLES

Calculation Reference: AUDIT-342901-240923-0947

Selected regions and areas:

03	SOUTH WEST	
	TB TORBAY	1 days
10	WALES	
	CE CEREDIGION	1 days

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

Primary Filtering selection:

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

Parameter: Gross floor area
 Actual Range: 350 to 447 (units: sqm)
 Range Selected by User: 182 to 800 (units: sqm)

Parking Spaces Range: All Surveys Included

Public Transport Provision:

Selection by: Include all surveys

Date Range: 01/01/15 to 25/05/23

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:

Saturday 2 days

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

Selected survey types:

Manual count 2 days
 Directional ATC Count 0 days

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

Selected Locations:

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

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

Selected Location Sub Categories:

Retail Zone 2

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

Inclusion of Servicing Vehicles Counts:

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

Secondary Filtering selection:

Use Class:

Not Known 2 days

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

Population within 500m Range:

All Surveys Included

Population within 1 mile:

10,001 to 15,000 1 days
 20,001 to 25,000 1 days

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

Secondary Filtering selection (Cont.):

Population within 5 miles:

25,001 to 50,000	1 days
125,001 to 250,000	1 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	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	2 days
----	--------

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

PTAL Rating:

No PTAL Present	2 days
-----------------	--------

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

LIST OF SITES relevant to selection parameters

- 1
CE-06-D-01
MCDONALD'S
FFORDD PARC Y LLYN
ABERYSTWYTH

CEREDIGION
- Edge of Town
Retail Zone
Total Gross floor area: 350 sqm
Survey date: SATURDAY 09/05/15

Survey Type: MANUAL
- 2
TB-06-D-01
MCDONALD'S
HELE ROAD
TORQUAY

TORBAY
- Suburban Area (PPS6 Out of Centre)
Retail Zone
Total Gross floor area: 447 sqm
Survey date: SATURDAY 30/03/19

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.

MANUALLY DESELECTED SITES

Site Ref	Reason for Deselection
GS-06-D-01	Covid-19

Local Transport Projects Beverley East Yorkshire

Licence No: 342901

TRIP RATE for Land Use 06 - HOTEL, FOOD & DRINK/D - FAST FOOD - DRIVE THROUGH

TOTAL VEHICLES

Calculation factor: 100 sqm

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00	1	350	1.429	1	350	0.857	1	350	2.286
06:00 - 07:00	1	350	7.714	1	350	5.143	1	350	12.857
07:00 - 08:00	2	399	14.680	2	399	13.174	2	399	27.854
08:00 - 09:00	2	399	19.322	2	399	18.821	2	399	38.143
09:00 - 10:00	2	399	28.105	2	399	24.592	2	399	52.697
10:00 - 11:00	2	399	23.212	2	399	25.721	2	399	48.933
11:00 - 12:00	2	399	29.360	2	399	25.972	2	399	55.332
12:00 - 13:00	2	399	39.021	2	399	36.512	2	399	75.533
13:00 - 14:00	2	399	34.630	2	399	37.390	2	399	72.020
14:00 - 15:00	2	399	31.493	2	399	30.364	2	399	61.857
15:00 - 16:00	2	399	24.843	2	399	27.227	2	399	52.070
16:00 - 17:00	2	399	28.105	2	399	28.105	2	399	56.210
17:00 - 18:00	2	399	26.600	2	399	27.604	2	399	54.204
18:00 - 19:00	2	399	29.862	2	399	28.733	2	399	58.595
19:00 - 20:00	2	399	26.474	2	399	28.607	2	399	55.081
20:00 - 21:00	2	399	19.448	2	399	20.075	2	399	39.523
21:00 - 22:00	2	399	18.319	2	399	17.942	2	399	36.261
22:00 - 23:00	2	399	12.296	2	399	14.178	2	399	26.474
23:00 - 24:00	2	399	12.171	2	399	12.296	2	399	24.467
Total Rates:			427.084			423.313			850.397

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.

The survey data, graphs and all associated supporting information, contained within the TRICS Database are published by TRICS Consortium Limited ("the Company") and the Company claims copyright and database rights in this published work. The Company authorises those who possess a current TRICS licence to access the TRICS Database and copy the data contained within the TRICS Database for the licence holders' use only. Any resulting copy must retain all copyrights and other proprietary notices, and any disclaimer contained thereon.

The Company accepts no responsibility for loss which may arise from reliance on data contained in the TRICS Database. [No warranty of any kind, express or implied, is made as to the data contained in the TRICS Database.]

Parameter summary

Trip rate parameter range selected:	350 - 447 (units: sqm)
Survey date range:	01/01/15 - 25/05/23
Number of weekdays (Monday-Friday):	0
Number of Saturdays:	2
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	1

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 shown. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

Projected Traffic Generation - Drive-Thru Fast Food Units

Weekday Vehicle Trip Rates (per 100sq.m GFA)

Time	IN	OUT	TOTAL
05:00-06:00	0.204	0.000	0.204
06:00-07:00	2.908	2.766	5.674
07:00-08:00	5.361	4.755	10.116
08:00-09:00	6.527	6.387	12.914
09:00-10:00	7.925	7.133	15.058
10:00-11:00	6.599	5.810	12.409
11:00-12:00	10.073	8.818	18.891
12:00-13:00	14.540	14.102	28.642
13:00-14:00	14.657	15.708	30.365
14:00-15:00	11.124	10.978	22.102
15:00-16:00	10.453	10.540	20.993
16:00-17:00	11.883	11.854	23.737
17:00-18:00	13.401	13.314	26.715
18:00-19:00	16.088	16.029	32.117
19:00-20:00	12.234	12.759	24.993
20:00-21:00	10.569	11.241	21.810
21:00-22:00	7.533	8.146	15.679
22:00-23:00	4.816	5.184	10.000
23:00-24:00	2.567	3.188	5.755

TOTAL	169.462	168.712	338.174
-------	---------	---------	---------

v7.11.2, All Surveys, 06-D, All sizes, UK (exc. GL & Ireland), 'Edge of Town' & 'Suburban Area', exc. Sat/Sun, 2016+ (9 sites (12 but 3 removed due to Covid-19))

520 sq.m GFA

Vehicle Trips

IN	OUT	TOTAL
1	0	1
15	14	29
28	25	53
34	33	67
41	37	78
34	30	64
52	46	98
76	73	149
76	82	158
58	57	115
54	55	109
62	62	124
70	69	139
84	83	167
64	66	130
55	58	113
39	42	81
25	27	52
13	17	30

AM Peak

PM Peak

881	876	1757
-----	-----	------

Saturday Vehicle Trip Rates (per 100sq.m GFA)

Time	IN	OUT	TOTAL
05:00-06:00	1.429	0.857	2.286
06:00-07:00	7.714	5.143	12.857
07:00-08:00	14.680	13.174	27.854
08:00-09:00	19.322	18.821	38.143
09:00-10:00	28.105	24.592	52.697
10:00-11:00	23.212	25.721	48.933
11:00-12:00	29.360	25.972	55.332
12:00-13:00	39.021	36.512	75.533
13:00-14:00	34.630	37.390	72.020
14:00-15:00	31.493	30.364	61.857
15:00-16:00	24.843	27.227	52.070
16:00-17:00	28.105	28.105	56.210
17:00-18:00	26.600	27.604	54.204
18:00-19:00	29.862	28.733	58.595
19:00-20:00	26.474	28.607	55.081
20:00-21:00	19.448	20.075	39.523
21:00-22:00	18.319	17.942	36.261
22:00-23:00	12.296	14.178	26.474
23:00-24:00	12.171	12.296	24.467

TOTAL	427.084	423.313	850.397
-------	---------	---------	---------

v7.11.21, All Surveys, 06-D, All sizes, UK (exc. GL & Ireland), 'Edge of Town' & 'Suburban Area', Saturday only, 2015+ (2 sites (3 but 1 removed due to Covid-19))

Vehicle Trips

IN	OUT	TOTAL
7	4	11
40	27	67
76	69	145
100	98	198
146	128	274
121	134	255
153	135	288
203	190	393
180	194	374
164	158	322
129	142	271
146	146	292
138	144	282
155	149	304
138	149	287
101	104	205
95	93	188
64	74	138
63	64	127

2219	2202	4421
------	------	------

Appendix 7 – Bus Depot Dataset

DEPOT RUN OUT SHEET

DAY _____

DATE ____ / ____ / ____

Board No	Bus Type	Duty No	Time Out	Time In	Fleet No	1st C/O	2nd C/O	3rd C/O
04601	X46B	5161	0700	1956				
06601	DD	5101	0702	1915				
15401	DDCC	5103	0705	2340				
12102	121D	5163	0725	0014				
05601	DD	5105	0727	0013				
05401	DD	5107	0742	2325				
05602	DD	5109	0745	2334				
04602	X46B	5169	0755	1835				
02401	DD	5165	0805	2005				
05603	DD	5141	0809	0005				
02402	DD	5171	0810	2000				
12101	121D	5167	0810	1916				
05604	DD	5142	0815	1910				
12103	121D	5172	0815	2010				
35001	S396	5173	0820	2130				
15402	DDCC	5144	0850	2318				
15403	DDCC	5143	0853	0100				
06602	DD	5145	0854	2135				
04603	X46B	5174	0855	1935				
15404	DDCC	5146	0855	2052				
05501	DD	5551	0900	1855				
15405	DDCC	5111	0904	2358				
15406	DDCC	5147	0910	2324				
12104	121D	5175	0915	1941				
15407	DDCC	5148	0915	0037				
05605	DD	5150	0920	2034				
20277	B5	5176	0925	1835				
04604	X46B	5177	0950	2030				
15408	DDCC	5151	0950	0006				
04606	X46B	5163	1050	2130				
04605	X46B	5173	1250	1815				
COAC		5190	2015	2337				

Go East Yorkshire

Days: Sunday & Bank Holidays

Commence: 01/09/2024 Ref: A28

Depot: HU

DEPOT RUN OUT SHEET

DAY _____

DATE ____ / ____ / ____

Board No	Bus Type	Duty No	Time Out	Time In	Fleet No	1st C/O	2nd C/O	3rd C/O
-------------	-------------	------------	-------------	------------	-------------	---------	---------	---------

Go East Yorkshire

Days: MON,TUE,THU

Commence: 02/09/2024 Ref: A28

Depot: HU

Schooldays

DEPOT RUN OUT SHEET

DAY _____

DATE ____ / ____ / ____

Board No	Bus Type	Duty No	Time Out	Time In	Fleet No	1st C/O	2nd C/O	3rd C/O
06301	DD	5521	0320	2320				
05601	HYB	5201	0438	1903				
04611	X46B	5301	0447	1907				
06601	SD	5203	0455	2015				
05602	HYB	5205	0458	1814				
05603	HYB	5207	0500	1901				
04601	X46B	5303	0505	1958				
15401	DDCC	5211	0505	1906				
15403	DDCC	5209	0508	2027				
02301	SDER	5307	0510	2210				
04701	X46	5305	0510	2307				
15402	DDCC	5241	0515	2333				
15405	DDCC	5242	0515	2001				
05604	HYB	5213	0518	1915				
02302	SDER	5309	0520	2108				
05605	HYB	5243	0521	2115				
05606	SD	5244	0524	0004				
06602	DD	5245	0525	2002				
04702	X46	5311	0530	2015				
15404	DDCC	5215	0530	2358				
05615	SD	5246	0536	1920				
04604	X46B	5313	0537	0014				
02401	DD	5315	0540	1955				
06302	DD	5247	0540	2325				
15406	DDCC	5248	0540	1928				
15201	SD10	5249	0550	2135				
05607	SD	5250	0551	1816				
15407	DDCC	5251	0555	1943				
06303	DD	5217	0558	1852				
02402	SDER	5341	0600	2115				
04602	X46B	5342	0600	2052				
05614	SD	5219	0600	1737				

Go East Yorkshire

Days: MON,TUE,THU

Commence: 02/09/2024 Ref: A28

Depot: HU

Schooldays

DEPOT RUN OUT SHEET

DAY _____

DATE ____ / ____ / ____

Board No	Bus Type	Duty No	Time Out	Time In	Fleet No	1st C/O	2nd C/O	3rd C/O
06304	DD	5223	0605	1958				
06305	DD	5252	0605	0100				
15408	DDCC	5221	0605	0031				
02501	SDER	5501	0610	1944				
12101	121D	5317	0615	2025				
05608	HYB	5253	0620	1852				
94001	DDSC	5602	0620	1823				
07801	DB5S	5343	0625	1901				
15202	SD10	5254	0625	2105				
05609	SD	5255	0627	2034				
92601	DDSC	5604	0627	1818				
94201	DDSC	5603	0627	1813				
04703	X46	5319	0630	2122				
94101	DDSC	5601	0630	1811				
06306	DD	5256	0632	2352				
06307	DD	5258	0635	1830				
15203	SD10	5257	0635	1830				
06308	DD	5225	0636	1925				
06605	DD	5401	0645	2035				
05610	SD	5402	0650	2334				
06603	SD	5403	0655	1834				
93301	DDSC	5605	0655	1756				
04603	X46B	5416	0700	2147				
05611	SD	5405	0700	1943				
06606	SD	5404	0700	2354				
90003	DDSC	5614	0700	1900				
92501	DDSC	5606	0700	1755				
02502	SDER	5502	0705	1856				
93001	DDSC	5607	0705	1745				
05613	HYB	5406	0708	1845				
02503	SDER	5503	0710	1914				
92801	DDSC	5608	0710	1730				

Go East Yorkshire

Days: MON,TUE,THU

Schooldays

DEPOT RUN OUT SHEET

Commence: 02/09/2024 Ref: A28

Depot: HU

DAY _____

DATE ____ / ____ / ____

Board No	Bus Type	Duty No	Time Out	Time In	Fleet No	1st C/O	2nd C/O	3rd C/O
94601	DDSC	5612	0710	1735				
05612	HYB	5407	0715	0013				
12102	121D	5418	0715	1928				
35001	S396	5417	0715	1940				
93201	DDSC	5408	0720	1913				
92401	DDSC	5615	0725	1717				
92701	DDSC	5613	0725	1727				
04704	X46	5419	0730	1945				
24201	DDSC	5505	0730	1805				
90000	DDSC	5609	0730	1833				
90004	DDSC	5409	0730	1849				
93901	DDSC	5610	0730	1715				
00101	MBBL	5504	0735	1800				
93801	DDSC	5611	0735	1720				
94701	DDSC	5410	0735	1932				
06604	DD	5411	0740	2025				
94211	DDSC	5412	0744	1933				
15001	DDSC	5506	0745	1835				
07802	DD	5413	0747	1850				
04705	X46	5414	0800	2032				
90005	DD	5507	0805	1710				

Go East Yorkshire

Days: WED

Commence: 02/09/2024 Ref: A28

Depot: HU

Schooldays

DEPOT RUN OUT SHEET

DAY _____

DATE ____ / ____ / ____

Board No	Bus Type	Duty No	Time Out	Time In	Fleet No	1st C/O	2nd C/O	3rd C/O
06301	DD	5521	0320	2320				
05601	HYB	5201	0438	1903				
04611	X46B	5301	0447	1907				
06601	SD	5203	0455	2015				
05602	HYB	5205	0458	1814				
05603	HYB	5207	0500	1901				
04601	X46B	5303	0505	1958				
15401	DDCC	5211	0505	1906				
15403	DDCC	5209	0508	2027				
02301	SDER	5307	0510	2210				
04701	X46	5305	0510	2307				
15402	DDCC	5241	0515	2333				
15405	DDCC	5242	0515	2001				
05604	HYB	5213	0518	1915				
02302	SDER	5309	0520	2108				
05605	HYB	5243	0521	2115				
05606	SD	5244	0524	0004				
06602	DD	5245	0525	2002				
04702	X46	5311	0530	2015				
15404	DDCC	5215	0530	2358				
05615	SD	5246	0536	1920				
04604	X46B	5313	0537	0014				
02401	DD	5315	0540	1955				
06302	DD	5247	0540	2325				
15406	DDCC	5248	0540	1928				
15201	SD10	5249	0550	2135				
05607	SD	5250	0551	1816				
15407	DDCC	5251	0555	1943				
06303	DD	5217	0558	1852				
02402	SDER	5341	0600	2115				
04602	X46B	5342	0600	2052				
05614	SD	5219	0600	1737				

Go East Yorkshire

Days: WED

Commence: 02/09/2024 Ref: A28

Depot: HU

Schooldays

DEPOT RUN OUT SHEET

DAY _____

DATE ____ / ____ / ____

Board No	Bus Type	Duty No	Time Out	Time In	Fleet No	1st C/O	2nd C/O	3rd C/O
06304	DD	5223	0605	1958				
06305	DD	5252	0605	0100				
15408	DDCC	5221	0605	0031				
02501	SDER	5501	0610	1944				
12101	121D	5317	0615	2025				
05608	HYB	5253	0620	1852				
94001	DDSC	5602	0620	1823				
07801	DB5S	5343	0625	1901				
15202	SD10	5254	0625	2105				
05609	SD	5255	0627	2034				
92601	DDSC	5604	0627	1818				
94201	DDSC	5603	0627	1813				
04703	X46	5319	0630	2122				
94101	DDSC	5601	0630	1811				
06306	DD	5256	0632	2352				
06307	DD	5258	0635	1830				
15203	SD10	5257	0635	1830				
06308	DD	5225	0636	1925				
06605	DD	5401	0645	2035				
05610	SD	5402	0650	2334				
06603	SD	5403	0655	1834				
93301	DDSC	5605	0655	1756				
04603	X46B	5416	0700	2147				
05611	SD	5405	0700	1943				
06606	SD	5404	0700	2354				
90003	DDSC	5614	0700	1900				
92501	DDSC	5606	0700	1755				
02502	SDER	5502	0705	1856				
93001	DDSC	5607	0705	1745				
05613	HYB	5406	0708	1845				
02503	SDER	5503	0710	1914				
92801	DDSC	5608	0710	1730				

Go East Yorkshire
Days: WED
Schooldays
DEPOT RUN OUT SHEET

Commence: 02/09/2024 Ref: A28 Depot: HU

DAY _____ DATE ____ / ____ / ____

Board No	Bus Type	Duty No	Time Out	Time In	Fleet No	1st C/O	2nd C/O	3rd C/O
94601	DDSC	5612	0710	1735				
05612	HYB	5407	0715	0013				
12102	121D	5418	0715	1928				
35001	S396	5417	0715	1940				
93201	DDSC	5408	0720	1913				
92401	DDSC	5615	0725	1717				
92701	DDSC	5613	0725	1727				
04704	X46	5419	0730	1945				
24201	DDSC	5505	0730	1805				
90000	DDSC	5609	0730	1833				
90004	DDSC	5409	0730	1849				
93901	DDSC	5610	0730	1715				
00101	MBBL	5504	0735	1800				
93801	DDSC	5611	0735	1720				
94701	DDSC	5410	0735	1932				
06604	DD	5411	0740	2025				
94211	DDSC	5412	0744	1933				
15001	DDSC	5506	0745	1835				
07802	DD	5413	0747	1850				
04705	X46	5414	0800	2032				
90005	DD	5507	0805	1710				
18301	MB	5508	0915	1510				

Go East Yorkshire

Days: FRI

Commence: 02/09/2024 Ref: A28

Depot: HU

Schooldays

DEPOT RUN OUT SHEET

DAY _____

DATE ____ / ____ / ____

Board No	Bus Type	Duty No	Time Out	Time In	Fleet No	1st C/O	2nd C/O	3rd C/O
06301	DD	5521	0320	0021				
05601	HYB	5201	0438	1903				
04611	X46B	5351	0447	1907				
06601	SD	5203	0455	2015				
05602	HYB	5205	0458	1814				
05603	HYB	5207	0500	1942				
04601	X46B	5353	0505	1958				
15401	DDCC	5211	0505	1906				
15403	DDCC	5209	0508	2027				
02301	SDER	5357	0510	2108				
04701	X46	5355	0510	2307				
15402	DDCC	5241	0515	2333				
15405	DDCC	5242	0515	2001				
05604	HYB	5213	0518	1915				
02302	SDER	5359	0520	0107				
05605	HYB	5243	0521	2115				
05606	SD	5244	0524	0004				
06602	DD	5245	0525	2002				
04702	X46	5361	0530	0007				
15404	DDCC	5215	0530	2358				
05615	SD	5246	0536	1920				
04604	X46B	5363	0537	0035				
02401	DD	5365	0540	1955				
06302	DD	5247	0540	0002				
15406	DDCC	5248	0540	1928				
15201	SD10	5249	0550	2135				
05607	SD	5250	0551	1816				
15407	DDCC	5251	0555	1943				
06303	DD	5217	0558	1852				
02402	SDER	5381	0600	2115				
04602	X46B	5382	0600	2052				
05614	SD	5219	0600	1737				

Go East Yorkshire

Days: FRI

Commence: 02/09/2024 Ref: A28

Depot: HU

Schooldays

DEPOT RUN OUT SHEET

DAY _____

DATE ____ / ____ / ____

Board No	Bus Type	Duty No	Time Out	Time In	Fleet No	1st C/O	2nd C/O	3rd C/O
06304	DD	5223	0605	1958				
06305	DD	5252	0605	0100				
15408	DDCC	5221	0605	0031				
02501	SDER	5501	0610	1944				
12101	121D	5367	0615	0200				
05608	HYB	5253	0620	1943				
94001	DDSC	5602	0620	1823				
07801	DB5S	5383	0625	1901				
15202	SD10	5254	0625	2105				
05609	SD	5255	0627	2034				
92601	DDSC	5604	0627	1818				
94201	DDSC	5603	0627	1813				
04703	X46	5369	0630	0046				
94101	DDSC	5601	0630	1811				
06306	DD	5256	0632	2352				
06307	DD	5258	0635	1830				
15203	SD10	5257	0635	1830				
06308	DD	5225	0636	1925				
06605	DD	5401	0645	2035				
05610	SD	5402	0650	2334				
06603	SD	5403	0655	1834				
93301	DDSC	5605	0655	1756				
04603	X46B	5371	0700	2147				
05611	SD	5405	0700	1943				
06606	SD	5404	0700	2354				
90003	DDSC	5614	0700	1900				
92501	DDSC	5606	0700	1755				
02502	SDER	5502	0705	1856				
93001	DDSC	5607	0705	1745				
05613	HYB	5406	0708	1845				
02503	SDER	5503	0710	1914				
92801	DDSC	5608	0710	1730				

Go East Yorkshire
Days: FRI
Schooldays
DEPOT RUN OUT SHEET

Commence: 02/09/2024 Ref: A28 Depot: HU

DAY _____ DATE ____ / ____ / ____

Board No	Bus Type	Duty No	Time Out	Time In	Fleet No	1st C/O	2nd C/O	3rd C/O
94601	DDSC	5612	0710	1735				
05612	HYB	5407	0715	0013				
12102	121D	5451	0715	0034				
35001	S396	5452	0715	1940				
93201	DDSC	5408	0720	1913				
92401	DDSC	5615	0725	1717				
92701	DDSC	5613	0725	1727				
04704	X46	5453	0730	1945				
24201	DDSC	5505	0730	1805				
90000	DDSC	5609	0730	1833				
90004	DDSC	5409	0730	1849				
93901	DDSC	5610	0730	1715				
00101	MBBL	5504	0735	1800				
93801	DDSC	5611	0735	1720				
94701	DDSC	5410	0735	1932				
06604	DD	5411	0740	2025				
94211	DDSC	5412	0744	1933				
15001	DDSC	5506	0745	2400				
07802	DD	5413	0747	1850				
04705	X46	5414	0800	2032				
90005	DD	5507	0805	1710				

DEPOT RUN OUT SHEET

DAY _____

DATE ____ / ____ / ____

Board No	Bus Type	Duty No	Time Out	Time In	Fleet No	1st C/O	2nd C/O	3rd C/O
00101	MBB	5700	0400	1655				
04601	X46B	5783	0520	2311				
04602	X46B	5781	0521	1959				
06301	DD	5741	0600	1827				
02401	DD	5841	0610	2115				
02501	SDER	5901	0610	2020				
05601	DD	5701	0610	1947				
15201	DD	5742	0615	2102				
02402	DD	5842	0620	1955				
04603	X46B	5843	0625	0200				
15401	DDCC	5744	0625	1925				
15402	DDCC	5743	0625	0027				
01211	121D	5785	0630	1943				
05602	DD	5745	0630	1850				
05603	DD	5746	0630	2334				
05605	DD	5703	0636	1652				
05604	DD	5747	0640	2034				
06601	DD	5748	0650	1831				
15404	DDCC	5709	0650	2400				
04701	X47	5844	0655	0046				
06304	DD	5750	0658	1800				
06302		5749	0700	2018				
06303	DD	5705	0700	1914				
15403	DDCC	5707	0700	2344				
15405	DDCC	5711	0705	0039				
02502	SDER	5902	0710	2400				
02503	SDER	5903	0715	1932				
35001	S396	5787	0715	1940				
04604	X46B	5845	0720	0230				
15202	DD	5713	0722	2135				
01212	121D	5789	0730	0037				
15406	DDSC	5715	0730	2056				

DEPOT RUN OUT SHEET

DAY _____

DATE ____ / ____ / ____

Board No	Bus Type	Duty No	Time Out	Time In	Fleet No	1st C/O	2nd C/O	3rd C/O
04702	X47	5791	0745	1729				
15407	DDCC	5751	0745	0007				
02301	SDER	5846	0750	2108				
06305	DD	5700	0802	2011				
04606	X46B	5847	0807	0035				
05606	DD	5753	0819	0005				
05607	DD	5717	0820	2125				
05608	DD	5719	0825	1727				
04703	X47	5848	0830	1825				
05609	DD	5755	0834	1847				
14201	MB	5905	0835	1735				
04605	X46B	5849	0840	0159				
02302	SDER	5851	0845	0107				
07801	DDB5	5850	0845	1849				
06602	DD	5759	0850	1856				
24201	DD	5906	0905	1720				
07802	DDB5	5852	0912	1857				
06306	DD	5761	0920	1840				
06603	DD	5762	0920	2107				
04704	X47	5853	0930	0007				
06604	DD	5763	0930	1622				
15203	DD	5764	0930	2104				
05610	DD	5765	0935	1946				
07803	DDB5	5854	0945	2137				
06307		5767	0950	2034				
15408	DDCC	5766	0950	1949				
05611	DD	5768	0955	1702				
05612	DD	5769	0955	0100				
06605	DD	5771	1000	1652				
15409	DDCC	5770	1000	2145				
05613	DD	5774	1025	1833				
06606	DD	5775	1030	1717				

DEPOT RUN OUT SHEET

DAY _____

DATE ____ / ____ / ____

Board No	Bus Type	Duty No	Time Out	Time In	Fleet No	1st C/O	2nd C/O	3rd C/O
05614	DD	5776	1036	1614				
05401	DD	5777	1040	2227				
01213	121D	5856	1115	0057				
05615	DD	5778	1115	2042				

DEPOT RUN OUT SHEET

DAY _____

DATE ____ / ____ / ____

Board No	Bus Type	Duty No	Time Out	Time In	Fleet No	1st C/O	2nd C/O	3rd C/O
3306	SD	3701	0605	1619				
3301	55	3703	0705	0012				
3201	GTS	3751	0725	2354				
3302	55	3705	0750	2027				
3307	DD	3707	0815	1750				
3303	55	3709	0830	1611				
3305	DD	3711	0835	1821				
3202	GTS	3752	0840	1645				
3304	55	3713	0855	1709				
3101	MB	3715	0940	1408				
3308	DD	3703	1145	1420				

Go East Yorkshire

Days: MON

Commence: 02/09/2024 Ref: E20

Depot: EL

Schooldays

DEPOT RUN OUT SHEET

DAY _____

DATE ____ / ____ / ____

Board No	Bus Type	Duty No	Time Out	Time In	Fleet No	1st C/O	2nd C/O	3rd C/O
3301	55	3201	0520	2026				
3201	GTS	3251	0555	1630				
3302	55	3203	0610	2114				
3311	DD	3221	0707	1746				
3305	55	3209	0710	1720				
3309	DD	3207	0710	1735				
3307	DD	3250	0718	1610				
3202	GTS	3252	0725	1858				
3312	DD	3253	0725	1719				
3306	55	3211	0730	1620				
3310	DD	3217	0734	1824				
3101	MB	3254	0745	1620				
3308	DD	3213	0800	1605				

Go East Yorkshire

Days: TUE,THU
Schooldays

Commence: 02/09/2024 Ref: E20

Depot: EL

DEPOT RUN OUT SHEET

DAY _____

DATE ____ / ____ / ____

Board No	Bus Type	Duty No	Time Out	Time In	Fleet No	1st C/O	2nd C/O	3rd C/O
3301	55	3201	0520	2026				
3201	GTS	3251	0555	1630				
3302	55	3203	0610	2114				
3311	DD	3221	0707	1746				
3305	55	3209	0710	1720				
3309	DD	3207	0710	1735				
3308	DD	3213	0718	1605				
3202	GTS	3252	0725	1858				
3312	DD	3253	0725	1719				
3306	55	3211	0730	1620				
3310	DD	3217	0734	1824				
3101	MB	3254	0745	1620				
3307	DD	3250	0800	1610				

Go East Yorkshire

Days: WED

Commence: 02/09/2024 Ref: E20

Depot: EL

Schooldays

DEPOT RUN OUT SHEET

DAY _____

DATE ____ / ____ / ____

Board No	Bus Type	Duty No	Time Out	Time In	Fleet No	1st C/O	2nd C/O	3rd C/O
3301	55	3201	0520	2026				
3201	GTS	3251	0555	1821				
3302	55	3203	0610	2114				
3311	DD	3221	0707	1746				
3305	55	3209	0710	1720				
3309	DD	3207	0710	1635				
3307	DD	3250	0718	1610				
3202	GTS	3252	0725	1858				
3312	DD	3253	0725	1719				
3306	55	3211	0730	1620				
3310	DD	3217	0734	1824				
3101	MB	3254	0745	1620				
3308	DD	3213	0800	1605				

Go East Yorkshire

Days: FRI

Commence: 02/09/2024 Ref: E20

Depot: EL

Schooldays

DEPOT RUN OUT SHEET

DAY _____

DATE ____ / ____ / ____

Board No	Bus Type	Duty No	Time Out	Time In	Fleet No	1st C/O	2nd C/O	3rd C/O
3301	55	3201	0520	2026				
3201	GTS	3251	0555	2354				
3302	55	3203	0610	0006				
3311	DD	3221	0707	1746				
3305	55	3209	0710	1720				
3309	DD	3207	0710	1635				
3307	DD	3250	0718	1610				
3202	GTS	3252	0725	1858				
3312	DD	3213	0725	1720				
3306	55	3211	0730	1620				
3310	DD	3217	0734	1824				
3101	MB	3254	0745	1620				
3308	DD	3205	0800	1605				
18301	MD	3213	0920	1505				

Go East Yorkshire

Days: Saturday

Commence: 07/09/2024 Ref: E20

Depot: EL

DEPOT RUN OUT SHEET

DAY _____

DATE ____ / ____ / ____

Board No	Bus Type	Duty No	Time Out	Time In	Fleet No	1st C/O	2nd C/O	3rd C/O
3306	SD	3701	0605	1619				
3301	55	3703	0705	0012				
3201	GTS	3751	0725	2354				
3302	55	3705	0750	2027				
3307	DD	3707	0815	1750				
3303	55	3709	0830	1611				
3305	DD	3711	0835	1821				
3202	GTS	3752	0840	1645				
3304	55	3713	0855	1709				
3101	MB	3715	0940	1408				
3308	DD	3703	1145	1420				

HULL - EXISTING DEPOT

Board No	Bus Type	Duty No	Time Out	Time In
MON/TUES/THURS				
05614	SD	5219		17:37
93301	DDSC	5605		17:56
92501	DDSC	5606		17:55
93001	DDSC	5607		17:45
92801	DDSC	5608		17:30
94601	DDSC	5612		17:35
92401	DDSC	5615		17:17
92701	DDSC	5613		17:27
93901	DDSC	5610		17:15
93801	DDSC	5611		17:20
04705	X46	5414	08:00	
90005	DD	5507	08:05	17:10
WEDS				
05614	SD	5219		17:37
93301	DDSC	5605		17:56
92501	DDSC	5606		17:55
93001	DDSC	5607		17:45
92801	DDSC	5608		17:30
94601	DDSC	5612		17:35
92401	DDSC	5615		17:17
92701	DDSC	5613		17:27
93901	DDSC	5610		17:15
93801	DDSC	5611		17:20
04705	X46	5414	08:00	
90005	DD	5507		17:10
FRI				
05614	SD	5219		17:37
93301	DDSC	5605		17:56
92501	DDSC	5606		17:55
93001	DDSC	5607		17:45
92801	DDSC	5608		17:30
94601	DDSC	5612		17:35
92401	DDSC	5615		17:17
92701	DSC	5613		17:27
93901	DDSC	5610		17:15
93801	DDSC	5611		17:20
4705	X46	5414	08:00	
90005	DD	5507	08:05	17:10

Saturday - none during peak hour

ELLOUGHTON - EXISTING DEPOT

Board No	Bus Type	Duty No	Time Out	Time In
MON				
3311	DD	3221		17:46
3305	55	3209		17:20
3309	DD	3207		17:35
3312	DD	3253		17:19
3308	DD	3213	08:00	
TUES/THURS				
3311	DD	3221		17:46
3305	55	3209		17:20
3309	DD	3207		17:35
3312	DD	3253		17:19
3307	DD	3250	08:00	
WEDS				
3311	DD	3221		17:46
3305	55	3209		17:20
3312	DD	3253		17:19
3308	DD	3213	08:00	
FRI				
311	DD	3221		17:46
3305	55	3209		17:20
3312	DD	3213		17:20
3308	DD	3205	08:00	

Saturday - none during peak hour

Appendix 8 – Priory Park P&R Dataset

Priory Park Passengers

Week Commencing	Time Zone	Mon	Tue	Wed	Thu	Fri	Grand Total
28/04/2024	06:00 - 06:59	6	6	8	6	5	31
	07:00 - 07:59	13	13	14	12	10	62
	08:00 - 08:59	14	10	8	11	29	72
	09:00 - 09:59	26	26	50	17	12	131
	15:00 - 15:59	3	6	4	1	5	19
	16:00 - 16:59	9	9	8	20	15	61
	17:00 - 17:59	8	7	12	6	3	36
05/05/2024	06:00 - 06:59	0	9	5	5	4	23
	07:00 - 07:59	0	13	9	10	9	41
	08:00 - 08:59	0	19	10	16	8	53
	09:00 - 09:59	0	24	30	27	41	122
	15:00 - 15:59	0	2	5	2	5	14
	16:00 - 16:59	0	19	8	8	5	40
	17:00 - 17:59	0	0	9	15	8	32
12/05/2024	06:00 - 06:59	5	9	6	4	5	29
	07:00 - 07:59	11	10	12	12	16	61
	08:00 - 08:59	8	5	17	9	27	66
	09:00 - 09:59	30	36	24	25	28	143
	15:00 - 15:59	2	5	5	3	2	17
	16:00 - 16:59	7	8	8	11	9	43
	17:00 - 17:59	15	9	15	15	9	63
19/05/2024	06:00 - 06:59	4	4	7	5	3	23
	07:00 - 07:59	15	8	12	10	10	55
	08:00 - 08:59	16	12	10	15	63	63
	09:00 - 09:59	25	27	21	20	18	111
	15:00 - 15:59	3	7	4	7	2	23
	16:00 - 16:59	9	11	16	5	10	51
	17:00 - 17:59	15	14	7	21	7	64
26/05/2024	06:00 - 06:59	0	6	6	4	2	18
	07:00 - 07:59	0	10	9	13	12	44
	08:00 - 08:59	0	24	13	11	13	61
	09:00 - 09:59	0	19	30	32	26	107
	15:00 - 15:59	0	8	7	4	8	27
	16:00 - 16:59	0	14	10	13	1	38
	17:00 - 17:59	0	6	16	8	16	46
02/06/2024	06:00 - 06:59	6	6	7	5	3	27
	07:00 - 07:59	8	17	13	11	5	54
	08:00 - 08:59	18	16	22	9	14	79
	09:00 - 09:59	11	15	28	29	25	108
	15:00 - 15:59	2	2	6	6	6	22
	16:00 - 16:59	19	11	20	11	7	68
	17:00 - 17:59	6	12	4	18	5	45
09/06/2024	06:00 - 06:59	5	4	7	3	2	21
	07:00 - 07:59	13	12	19	19	12	75
	08:00 - 08:59	14	18	12	11	11	66
	09:00 - 09:59	25	45	30	32	19	151
	15:00 - 15:59	4	3	5	4	5	21
	16:00 - 16:59	10	5	23	4	11	53
	17:00 - 17:59	13	18	7	15	4	57
16/06/2024	06:00 - 06:59	4	4	10	2	6	26
	07:00 - 07:59	10	8	15	12	14	59
	08:00 - 08:59	12	6	6	9	12	45
	09:00 - 09:59	32	36	21	26	21	136
	15:00 - 15:59	10	5	7	6	5	33
	16:00 - 16:59	13	12	10	12	11	58
	17:00 - 17:59	12	11	10	11	6	50
23/06/2024	06:00 - 06:59	8	6	6	5	3	28
	07:00 - 07:59	11	16	15	13	7	62
	08:00 - 08:59	8	10	7	11	6	42
	09:00 - 09:59	18	35	25	23	17	118
	15:00 - 15:59	4	3	3	7	2	19
	16:00 - 16:59	11	11	6	11	12	51
	17:00 - 17:59	5	14	11	9	9	48
30/06/2024	06:00 - 06:59	9	7	1	5	4	26
	07:00 - 07:59	10	10	12	14	12	58
	08:00 - 08:59	13	12	13	14	14	66
	09:00 - 09:59	19	27	23	15	26	110
	15:00 - 15:59	4	2	2	2	2	10
	16:00 - 16:59	10	9	18	15	8	60
	17:00 - 17:59	10	14	11	9	12	56
07/07/2024	06:00 - 06:59	6	4	4	3	3	20
	07:00 - 07:59	12	13	14	13	12	64
	08:00 - 08:59	13	8	7	8	14	50
	09:00 - 09:59	28	17	35	24	23	127
	15:00 - 15:59	2	2	6	7	3	20
	16:00 - 16:59	10	11	14	10	12	57
	17:00 - 17:59	12	7	11	15	4	49
14/07/2024	06:00 - 06:59	7	6	4	4	5	26
	07:00 - 07:59	8	14	16	14	11	63
	08:00 - 08:59	15	9	14	19	12	69
	09:00 - 09:59	30	24	32	20	20	126
	15:00 - 15:59	4	5	7	2	8	26
	16:00 - 16:59	16	13	6	9	4	48
	17:00 - 17:59	5	7	11	13	7	43
21/07/2024	06:00 - 06:59	2	3	3	4	2	14
	07:00 - 07:59	8	13	10	11	12	54
	08:00 - 08:59	28	15	16	15	16	90
	09:00 - 09:59	31	19	34	30	23	137
	15:00 - 15:59	6	9	6	4	2	27
	16:00 - 16:59	13	9	13	6	13	54
	17:00 - 17:59	8	11	5	7	9	40
28/07/2024	06:00 - 06:59	5	5	6	4	5	25
	07:00 - 07:59	12	10	15	11	14	62
	08:00 - 08:59	14	19	11	11	13	68
	09:00 - 09:59	32	42	21	12	23	130
	15:00 - 15:59	4	5	5	1	7	22
	16:00 - 16:59	11	9	8	9	12	49
	17:00 - 17:59	8	4	6	14	14	46
04/08/2024	06:00 - 06:59	7	6	1	6	2	22
	07:00 - 07:59	10	12	15	10	7	54
	08:00 - 08:59	16	18	10	14	10	68
	09:00 - 09:59	26	27	25	23	43	144
	15:00 - 15:59	2	6	4	2	6	20
	16:00 - 16:59	9	7	8	14	9	47
	17:00 - 17:59	6	10	5	4	4	29
11/08/2024	06:00 - 06:59	5	7	8	5	5	30
	07:00 - 07:59	12	13	21	8	5	59
	08:00 - 08:59	23	12	6	6	10	57
	09:00 - 09:59	27	18	25	31	33	134
	15:00 - 15:59	6	9	10	5	7	37
	16:00 - 16:59	13	9	8	7	10	47
	17:00 - 17:59	5	7	24	15	1	52

Priory Park Passengers

Week Commencing	Time Zone	Mon	Tue	Wed	Thu	Fri	Grand Total	
28/04/2024	06:00 - 06:59	6	6	8	6	5	31	31
	07:00 - 07:59	13	13	14	12	10	62	62
	08:00 - 08:59	14	10	8	11	29	72	72
	09:00 - 09:59	26	26	50	17	12	131	131
	15:00 - 15:59	3	6	4	1	5	19	19
	16:00 - 16:59	9	9	8	20	15	61	61
	17:00 - 17:59	8	7	12	6	3	36	36
05/05/2024	06:00 - 06:59	0	9	5	5	4	23	23
	07:00 - 07:59	0	13	9	10	9	41	41
	08:00 - 08:59	0	19	10	16	8	53	53
	09:00 - 09:59	0	24	30	27	41	122	122
	15:00 - 15:59	0	2	5	2	5	14	14
	16:00 - 16:59	0	19	8	8	5	40	40
	17:00 - 17:59	0	0	9	15	8	32	32
12/05/2024	06:00 - 06:59	5	9	6	4	5	29	29
	07:00 - 07:59	11	10	12	12	16	61	61
	08:00 - 08:59	8	5	17	9	27	66	66
	09:00 - 09:59	30	36	24	25	28	143	143
	15:00 - 15:59	2	5	5	3	2	17	17
	16:00 - 16:59	7	8	8	11	9	43	43
	17:00 - 17:59	15	9	15	15	9	63	63
19/05/2024	06:00 - 06:59	4	4	7	5	3	23	23
	07:00 - 07:59	15	8	12	10	10	55	55
	08:00 - 08:59	16	12	10	10	15	63	63
	09:00 - 09:59	25	27	21	20	18	111	111
	15:00 - 15:59	3	7	4	7	2	23	23
	16:00 - 16:59	9	11	16	5	10	51	51
	17:00 - 17:59	15	14	7	21	7	64	64
26/05/2024	06:00 - 06:59	0	6	6	4	2	18	18
	07:00 - 07:59	0	10	9	13	12	44	44
	08:00 - 08:59	0	24	13	11	13	61	61
	09:00 - 09:59	0	19	30	32	26	107	107
	15:00 - 15:59	0	8	7	4	8	27	27
	16:00 - 16:59	0	14	10	13	1	38	38
	17:00 - 17:59	0	6	16	8	16	46	46
02/06/2024	06:00 - 06:59	6	6	7	5	3	27	27
	07:00 - 07:59	8	17	13	11	5	54	54
	08:00 - 08:59	18	16	22	9	14	79	79
	09:00 - 09:59	11	15	28	29	25	108	108
	15:00 - 15:59	2	2	6	6	6	22	22
	16:00 - 16:59	19	11	20	11	7	68	68
	17:00 - 17:59	6	12	4	18	5	45	45
09/06/2024	06:00 - 06:59	5	4	7	3	2	21	21
	07:00 - 07:59	13	12	19	19	12	75	75
	08:00 - 08:59	14	18	12	11	11	66	66
	09:00 - 09:59	25	45	30	32	19	151	151
	15:00 - 15:59	4	3	5	4	5	21	21
	16:00 - 16:59	10	5	23	4	11	53	53
	17:00 - 17:59	13	18	7	15	4	57	57
16/06/2024	06:00 - 06:59	4	4	10	2	6	26	26
	07:00 - 07:59	10	8	15	12	14	59	59
	08:00 - 08:59	12	6	6	9	12	45	45
	09:00 - 09:59	32	36	21	26	21	136	136
	15:00 - 15:59	10	5	7	6	5	33	33
	16:00 - 16:59	13	12	10	12	11	58	58
	17:00 - 17:59	12	11	10	11	6	50	50

OFFICIAL

23/06/2024	06:00 - 06:59	8	6	6	5	3	28	28
	07:00 - 07:59	11	16	15	13	7	62	62
	08:00 - 08:59	8	10	7	11	6	42	42
	09:00 - 09:59	18	35	25	23	17	118	118
	15:00 - 15:59	4	3	3	7	2	19	19
	16:00 - 16:59	11	11	6	11	12	51	51
	17:00 - 17:59	5	14	11	9	9	48	48
30/06/2024	06:00 - 06:59	9	7	1	5	4	26	26
	07:00 - 07:59	10	10	12	14	12	58	58
	08:00 - 08:59	13	12	13	14	14	66	66
	09:00 - 09:59	19	27	23	15	26	110	110
	15:00 - 15:59	4	2	2		2	10	10
	16:00 - 16:59	10	9	18	15	8	60	60
	17:00 - 17:59	10	14	11	9	12	56	56
07/07/2024	06:00 - 06:59	6	4	4	3	3	20	20
	07:00 - 07:59	12	13	14	13	12	64	64
	08:00 - 08:59	13	8	7	8	14	50	50
	09:00 - 09:59	28	17	35	24	23	127	127
	15:00 - 15:59	2	2	6	7	3	20	20
	16:00 - 16:59	10	11	14	10	12	57	57
	17:00 - 17:59	12	7	11	15	4	49	49
14/07/2024	06:00 - 06:59	7	6	4	4	5	26	26
	07:00 - 07:59	8	14	16	14	11	63	63
	08:00 - 08:59	15	9	14	19	12	69	69
	09:00 - 09:59	30	24	32	20	20	126	126
	15:00 - 15:59	4	5	7	2	8	26	26
	16:00 - 16:59	16	13	6	9	4	48	48
	17:00 - 17:59	5	7	11	13	7	43	43
21/07/2024	06:00 - 06:59	2	3	3	4	2	14	14
	07:00 - 07:59	8	13	10	11	12	54	54
	08:00 - 08:59	28	15	16	15	16	90	90
	09:00 - 09:59	31	19	34	30	23	137	137
	15:00 - 15:59	6	9	6	4	2	27	27
	16:00 - 16:59	13	9	13	6	13	54	54
	17:00 - 17:59	8	11	5	7	9	40	40
28/07/024	06:00 - 06:59	5	5	6	4	5	25	25
	07:00 - 07:59	12	10	15	11	14	62	62
	08:00 - 08:59	14	19	11	11	13	68	68
	09:00 - 09:59	32	42	21	12	23	130	130
	15:00 - 15:59	4	5	5	1	7	22	22
	16:00 - 16:59	11	9	8	9	12	49	49
	17:00 - 17:59	8	4	6	14	14	46	46
04/08/2024	06:00 - 06:59	7	6	1	6	2	22	22
	07:00 - 07:59	10	12	15	10	7	54	54
	08:00 - 08:59	16	18	10	14	10	68	68
	09:00 - 09:59	26	27	25	23	43	144	144
	15:00 - 15:59	2	6	4	2	6	20	20
	16:00 - 16:59	9	7	8	14	9	47	47
	17:00 - 17:59	6	10	5	4	4	29	29
11/08/2024	06:00 - 06:59	5	7	8	5	5	30	30
	07:00 - 07:59	12	13	21	8	5	59	59
	08:00 - 08:59	23	12	6	6	10	57	57
	09:00 - 09:59	27	18	25	31	33	134	134
	15:00 - 15:59	6	9	10	5	7	37	37
	16:00 - 16:59	13	9	8	7	10	47	47
	17:00 - 17:59	5	7	24	15	1	52	52

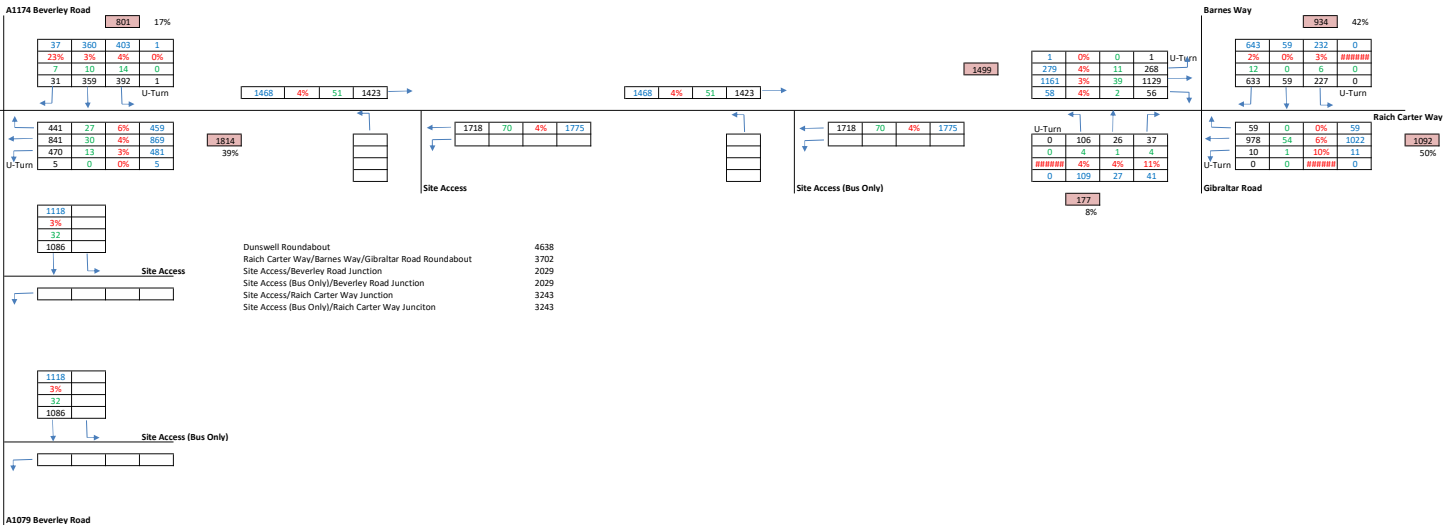
Average Week	06:00 - 06:59	5	6	6	4	4	24	9%
	07:00 - 07:59	10	12	14	12	11	58	21%
	08:00 - 08:59	13	13	11	12	14	63	23%
	09:00 - 09:59	23	27	28	24	25	127	47%
		50	58	59	52	53	273	

	15:00 - 15:59	4	5	5	4	5	23	19%
	16:00 - 16:59	10	10	12	10	9	52	42%
	17:00 - 17:59	8	9	10	12	7	47	39%
		22	25	27	27	21	121	

Appendix 9 – Network Diagrams

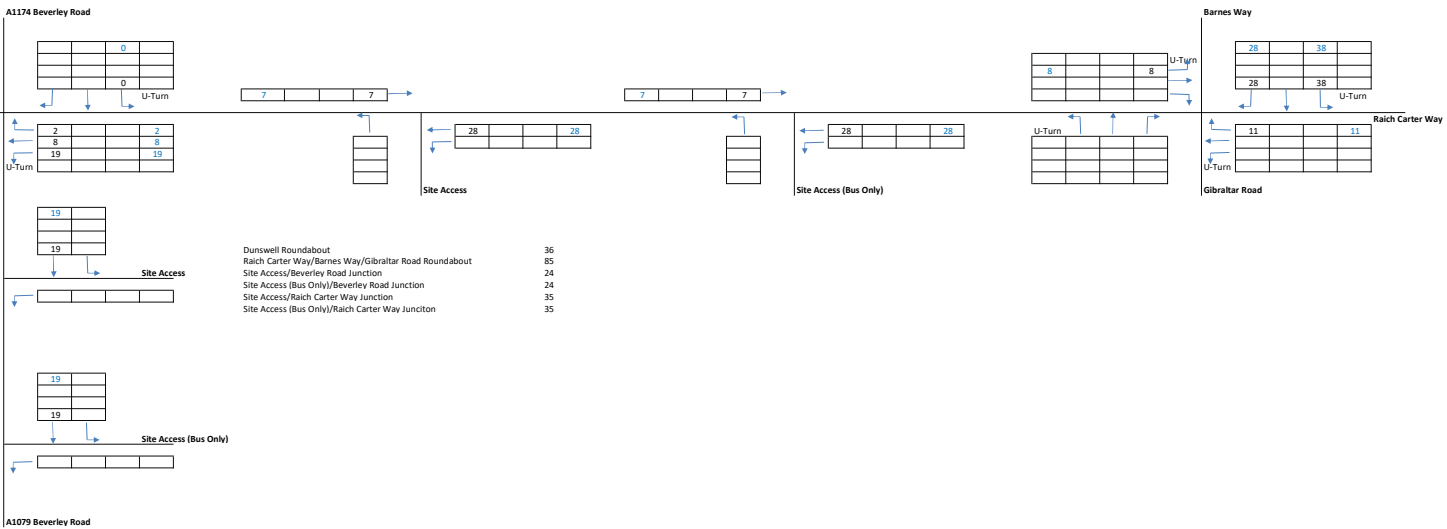
AM Peak (07:30-08:30)

1112	18	6%	1	17
24%	832	4%	32	803
	262	4%	9	256



AM Peak (07:30-08:30)

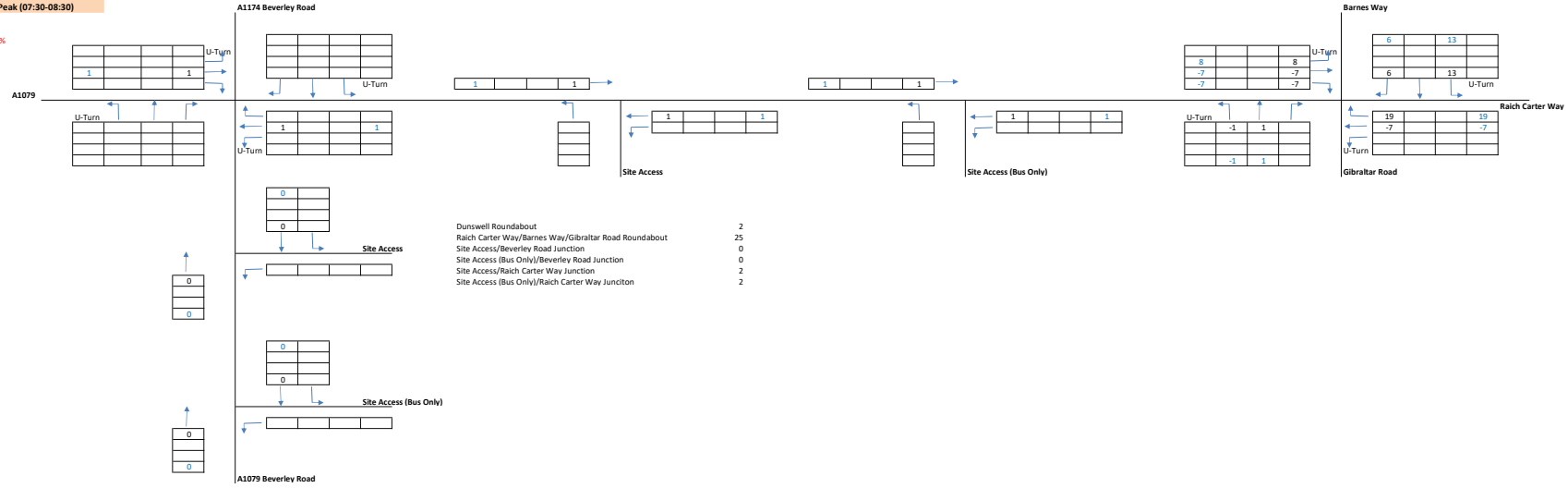
				0-10m
2			2	→
				↓



Committed Development - Lidl Supermarket

AM Peak (07:30-08:30)

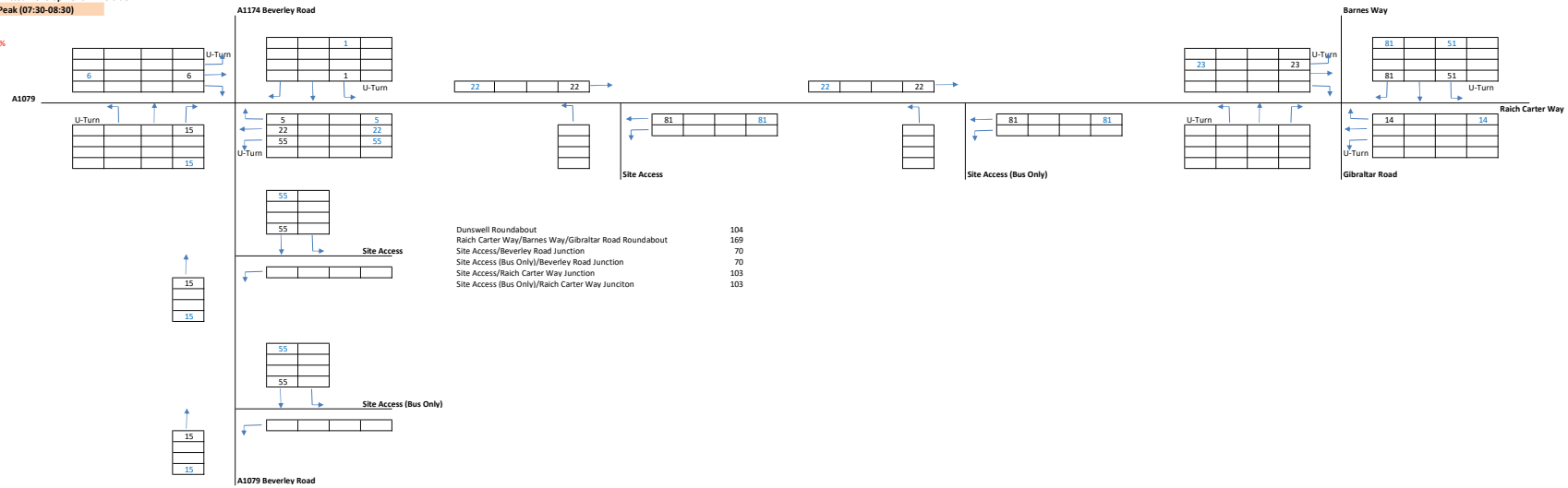
Veh
HGV
HGV %
PCU



Committed Development - Riverside

AM Peak (07:30-08:30)

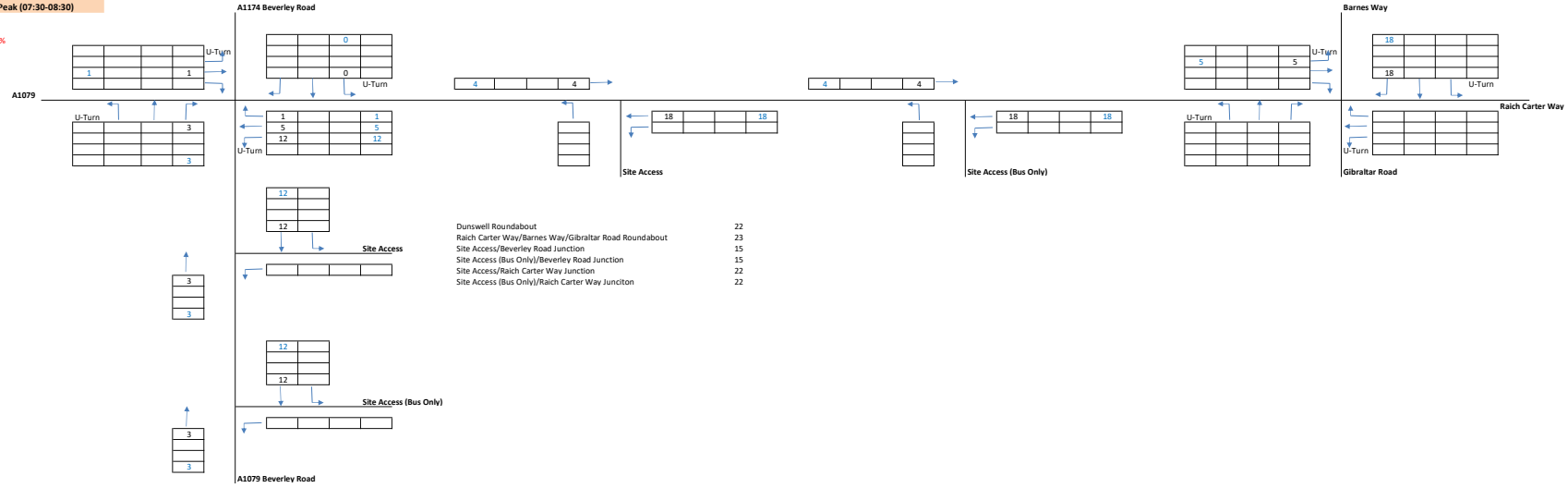
Veh
HGV
HGV %
PCU



Committed Development - Kingswood Parks North

AM Peak (07:30-08:30)

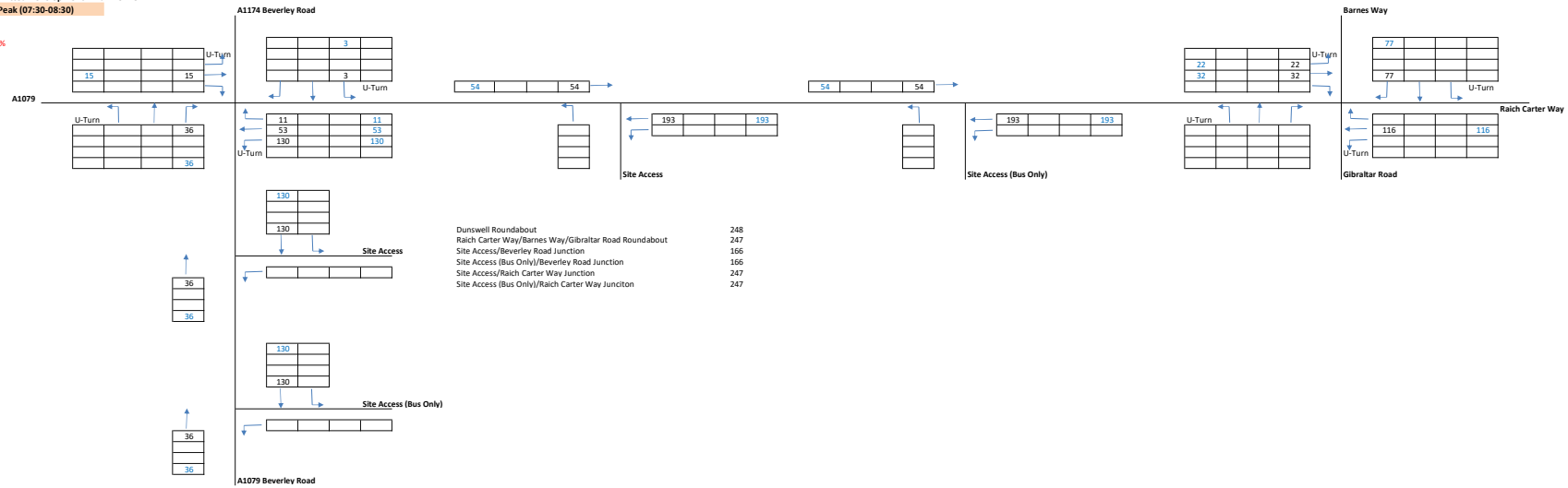
Veh
HGV
HGV %
PCU



Committed Development - Wawne View

AM Peak (07:30-08:30)

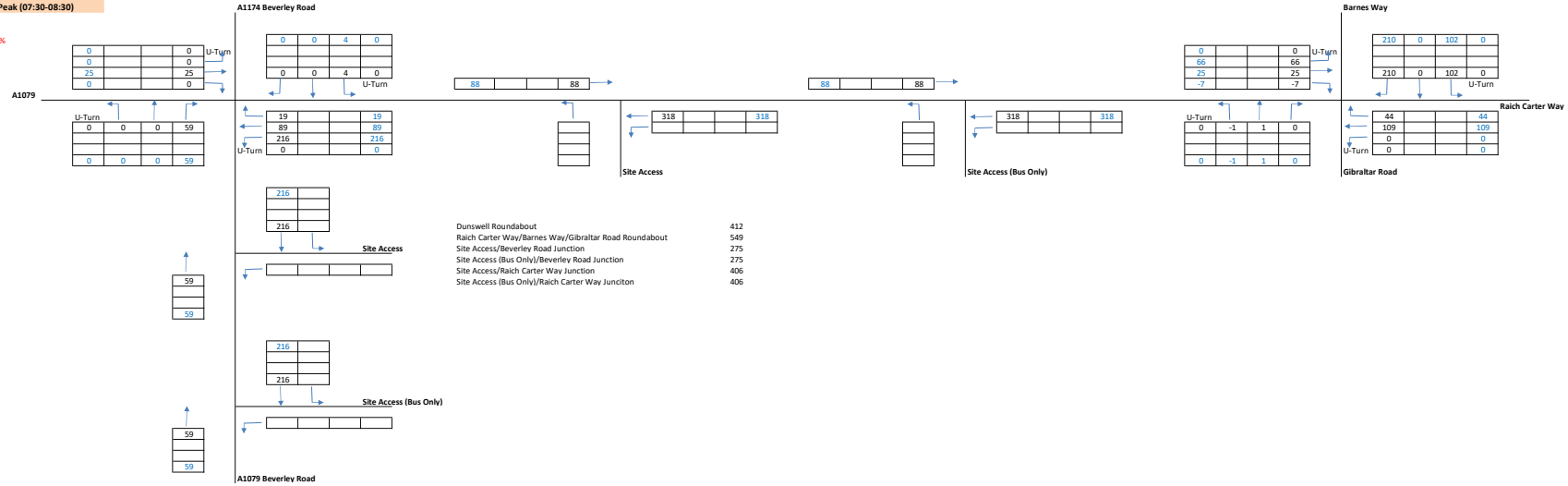
Veh
HGV
HGV %
PCU



Committed Development - TOTAL

AM Peak (07:30-08:30)

Veh
HGV %
PCU

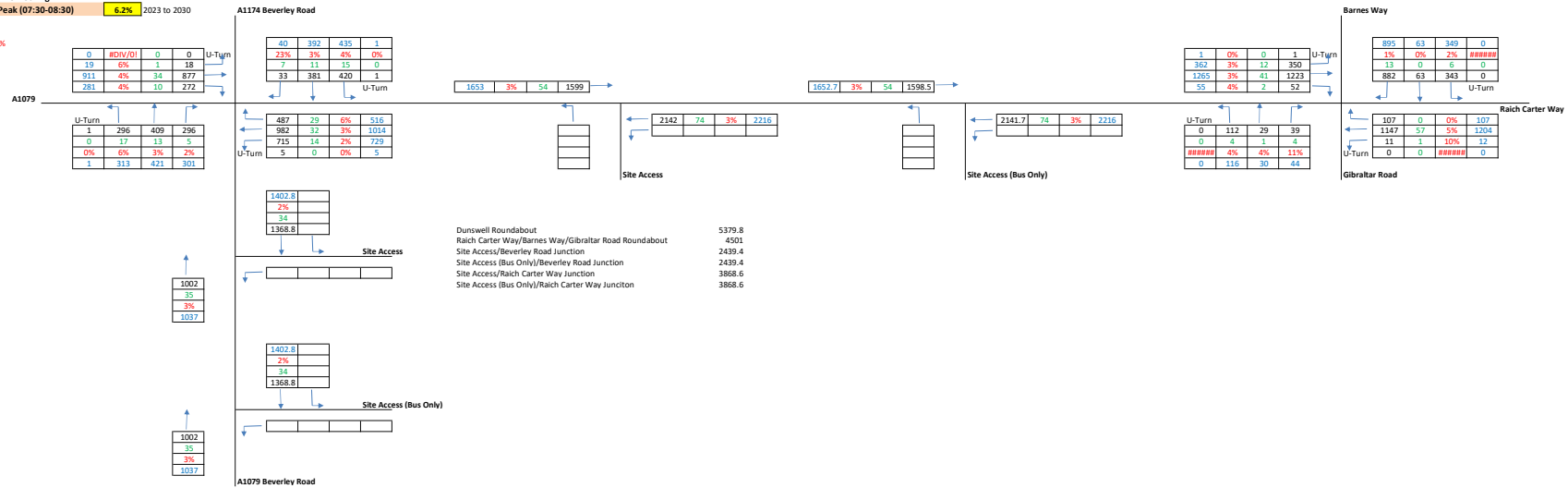


2030 Do Nothing

AM Peak (07:30-08:30)

6.2% 2023 to 2030

Veh
HGV %
PCU



Existing Approach and Exit Proportions

AM Peak (07:30-08:30)

4638 Approach
4638 Exit

24% 1112
26% 1196

A1079

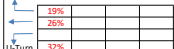
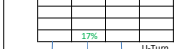


911 1104
20% 24%



A1174 Beverley Road

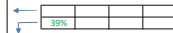
19% 17%
870 801



1468 32%
1814 39%

32%

76%



Site Access

32%

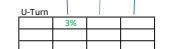


Site Access (Bus Only)

32% 1499

2203 Approach

1499 Exit

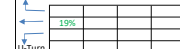
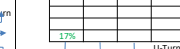


177 58
3% 1%



Barnes Way

6% 17%
279 934



Gibraltar Road

Raich Carter Way

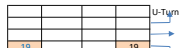
1161 25%
1092 19%

Proposed Drive-Thru Coffee and Fast Food Units

AM Peak (07:30-08:30)

Veh
HGV %
PCU
IN 79
OUT 73

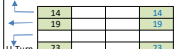
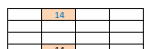
A1079



16 16



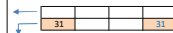
A1174 Beverley Road



23 23

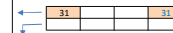
23 23

56 56

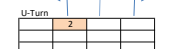
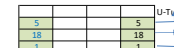


Site Access

23 23



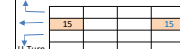
Site Access (Bus Only)



5 18 1



Barnes Way

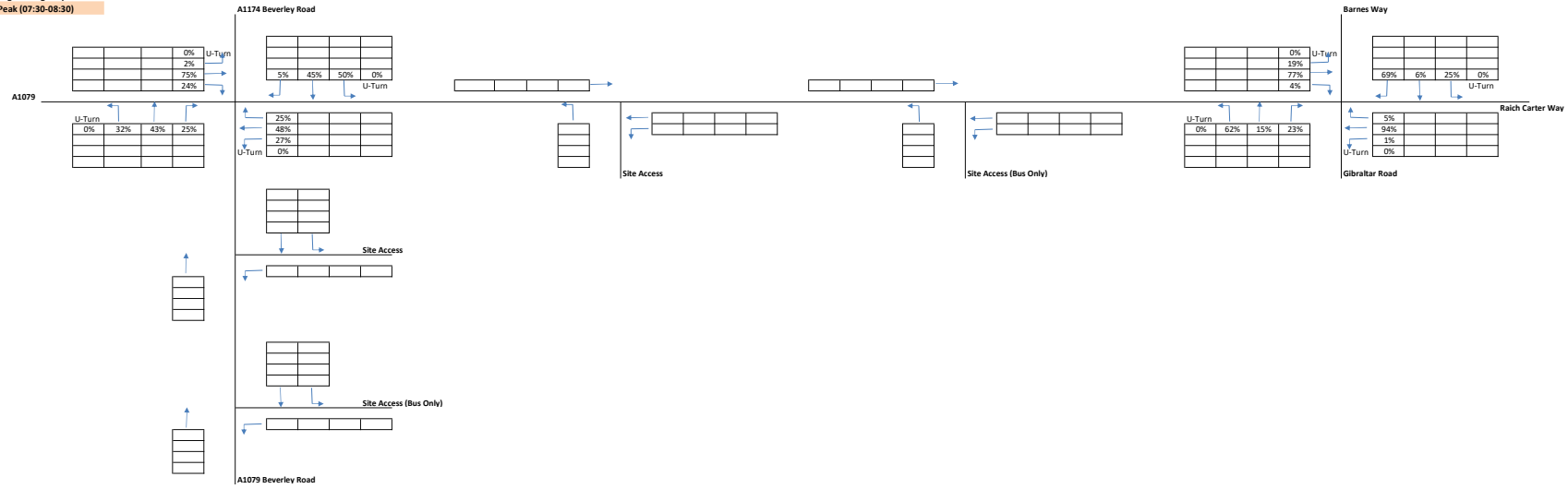


Gibraltar Road

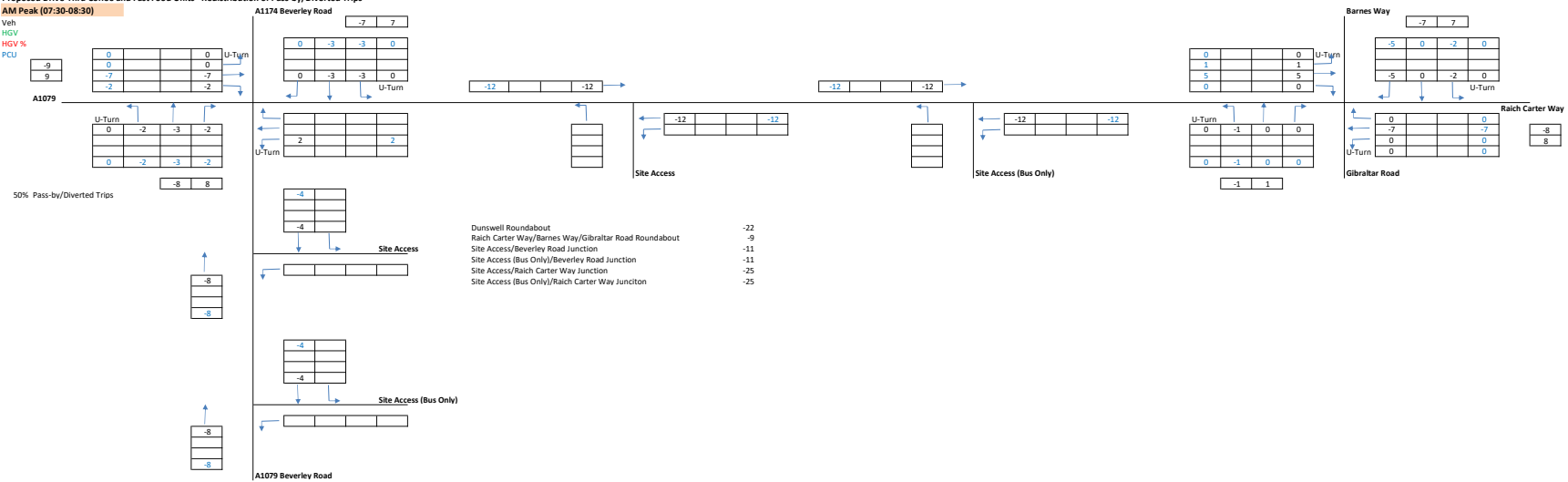
Raich Carter Way

Dunswell Roundabout 104
Raich Carter Way/Barnes Way/Gibraltar Road Roundabout 54
Site Access/Beverley Road Junction 81
Site Access (Bus Only)/Beverley Road Junction 33
Site Access/Raich Carter Way Junction 110
Site Access (Bus Only)/Raich Carter Way Junction 54

Existing Turning Proportions
AM Peak (07:30-08:30)



Proposed Drive-Thru Coffee and Fast Food Units - Redistribution of Pass-by/Diverted Trips
AM Peak (07:30-08:30) A1174 Beverley Road



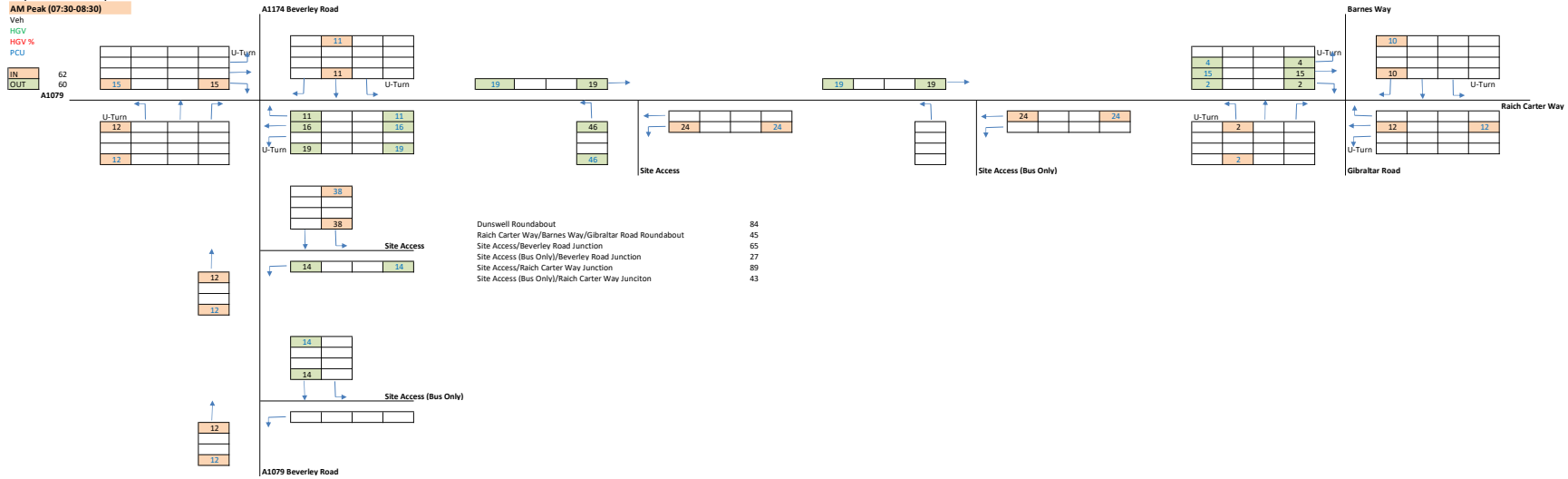
Dunsweil Roundabout	-22
Raich Carter Way/Barnes Way/Gibraltar Road Roundabout	-9
Site Access/Beverley Road Junction	-11
Site Access (Bus Only)/Beverley Road Junction	-11
Site Access/Raich Carter Way Junction	-25
Site Access (Bus Only)/Raich Carter Way Junction	-25

AM Peak (07:30-08:30)

HGV

PCU

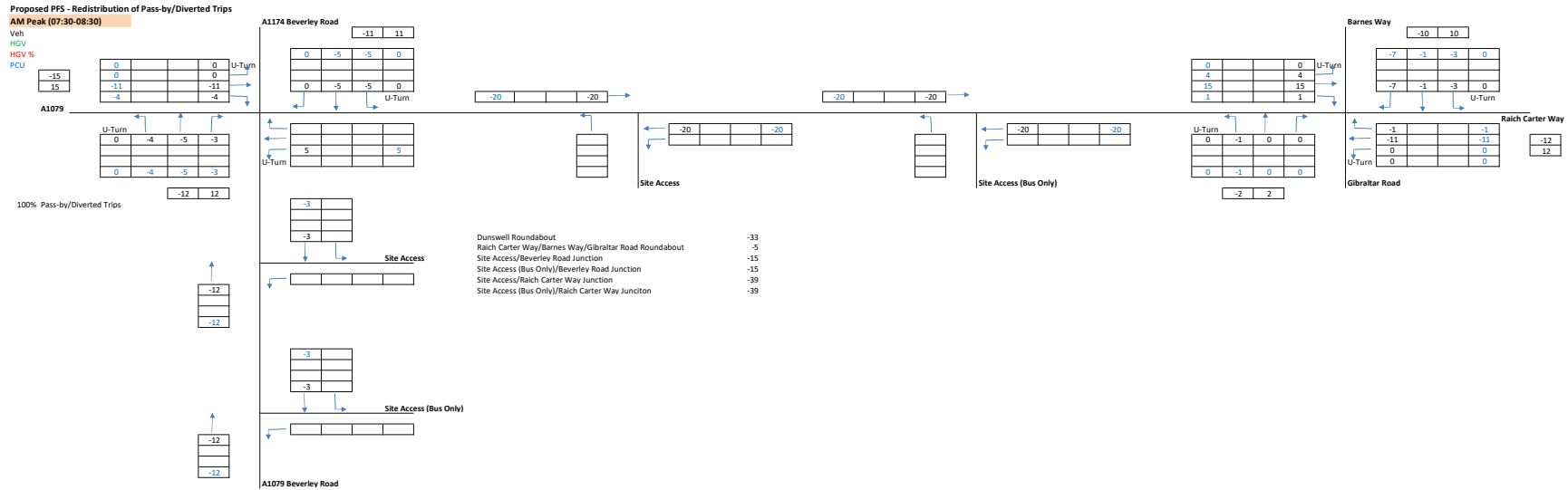
IN
OUT



AM Peak (07:30-08:30)

Veh

HGV %

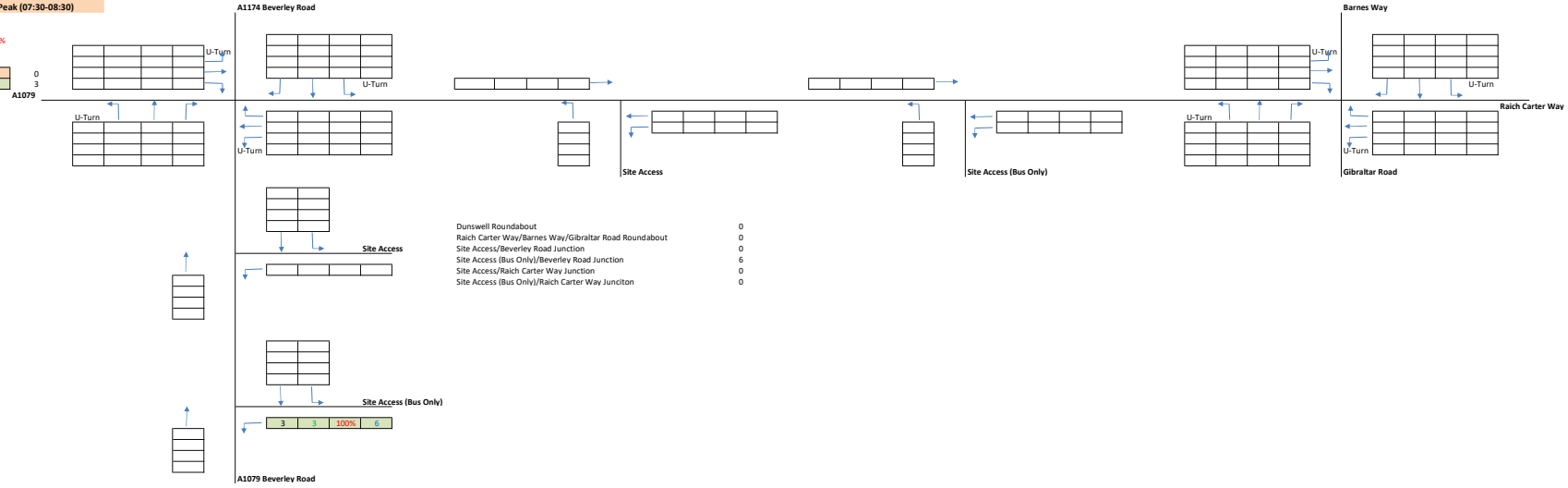


Proposed Bus Depot - Bus Movements

AM Peak (07:30-08:30)

Veh
HGV %
PCU

IN 0
OUT 3

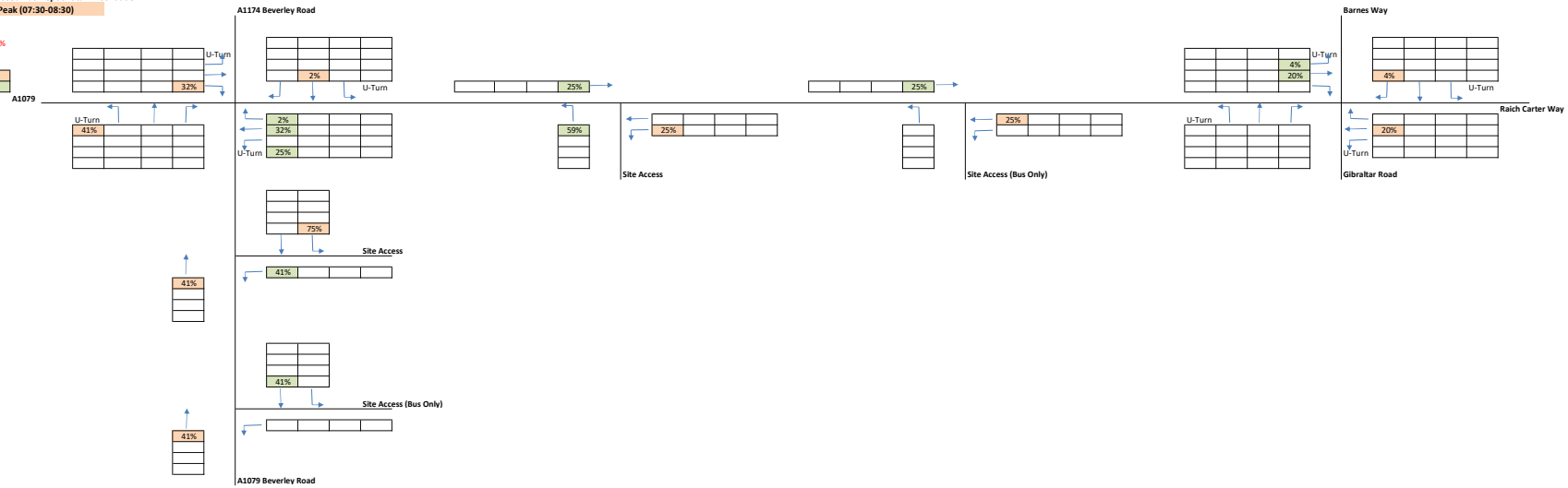


Proposed Bus Depot - Staff Distribution

AM Peak (07:30-08:30)

Veh
HGV %
PCU

IN
OUT



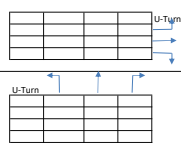
Proposed Bus Depot - Staff Trips

AM Peak (07:30-08:30)

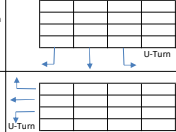
Veh
HGV
HGV %
PCU

IN 0
OUT 0

A1079



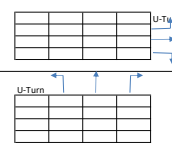
A1174 Beverley Road



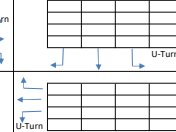
Site Access



Site Access (Bus Only)



Barnes Way



Raich Carter Way

Gibraltar Road

Dunswell Roundabout 0
Raich Carter Way/Barnes Way/Gibraltar Road Roundabout 0
Site Access/Beverley Road Junction 0
Site Access (Bus Only)/Beverley Road Junction 0
Site Access/Raich Carter Way Junction 0
Site Access (Bus Only)/Raich Carter Way Junction 0

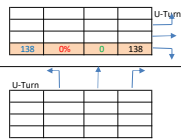
Proposed P&R - Visitor Trips

AM Peak (07:30-08:30)

Veh
HGV
HGV %
PCU

IN 235
OUT 0

A1079



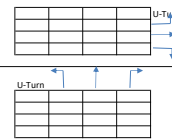
A1174 Beverley Road



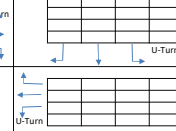
Site Access



Site Access (Bus Only)



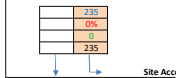
Barnes Way



Raich Carter Way

Gibraltar Road

Approach from A1174 41%
Approach from A1079 59%
1857

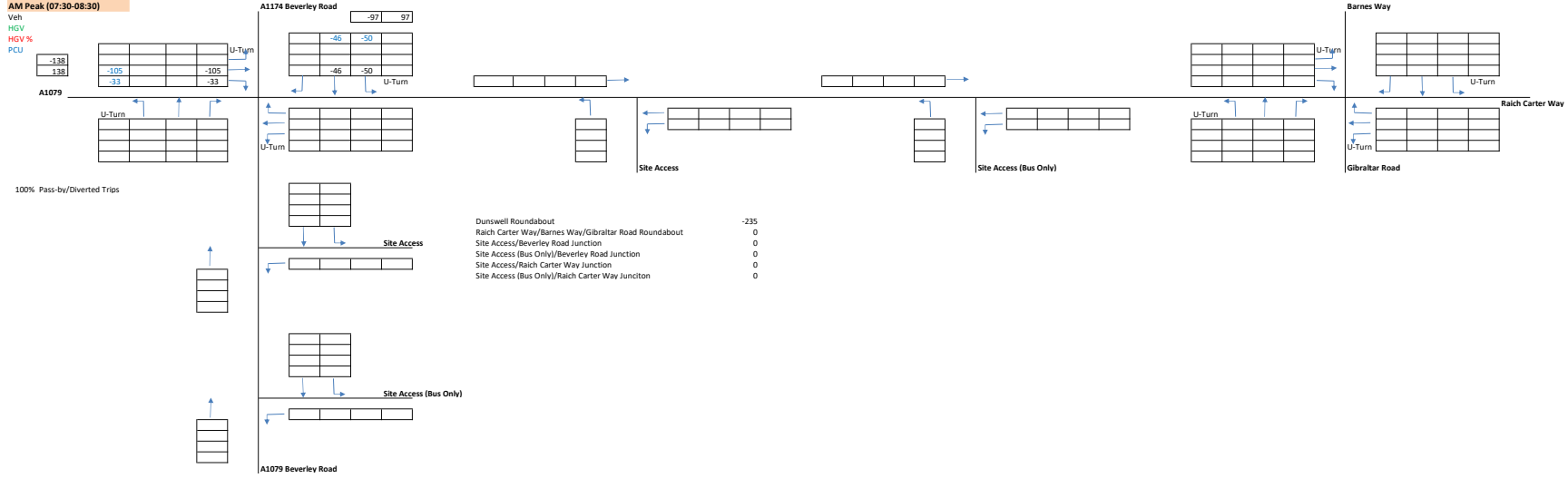


Dunswell Roundabout 235
Raich Carter Way/Barnes Way/Gibraltar Road Roundabout 0
Site Access/Beverley Road Junction 235
Site Access (Bus Only)/Beverley Road Junction 0
Site Access/Raich Carter Way Junction 0
Site Access (Bus Only)/Raich Carter Way Junction 0

Proposed P&R - Redistribution of Visitor Pass-by/Diverted Trips

AM Peak (07:30-08:30)

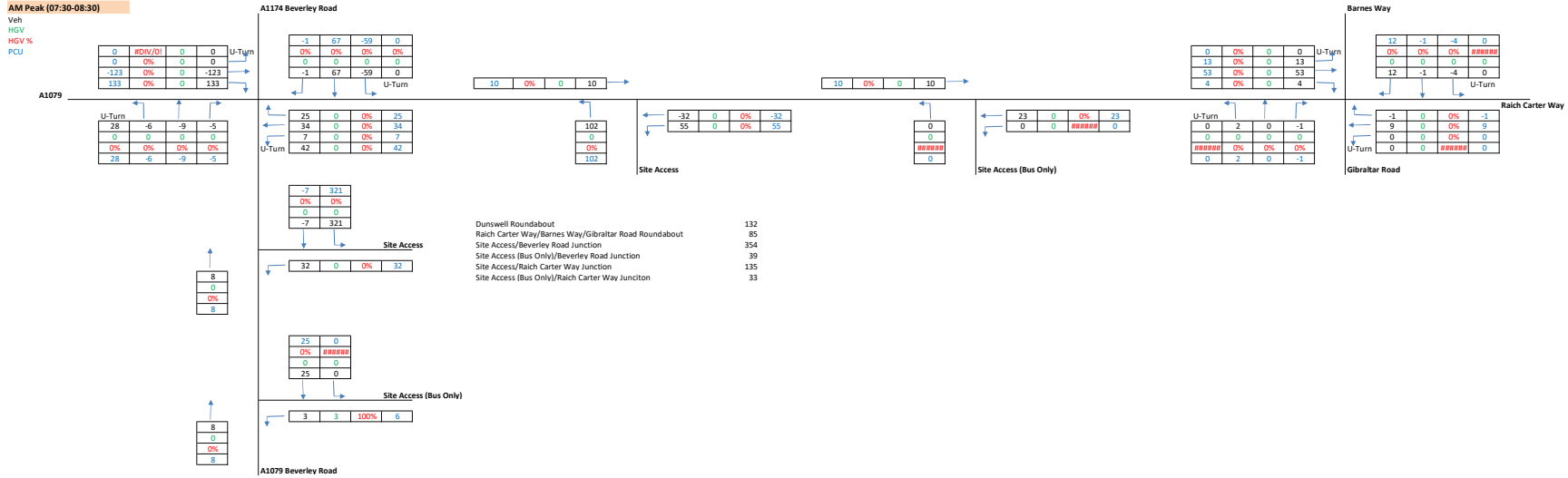
Veh
HGV
HGV %
PCU



Total Development Trips

AM Peak (07:30-08:30)

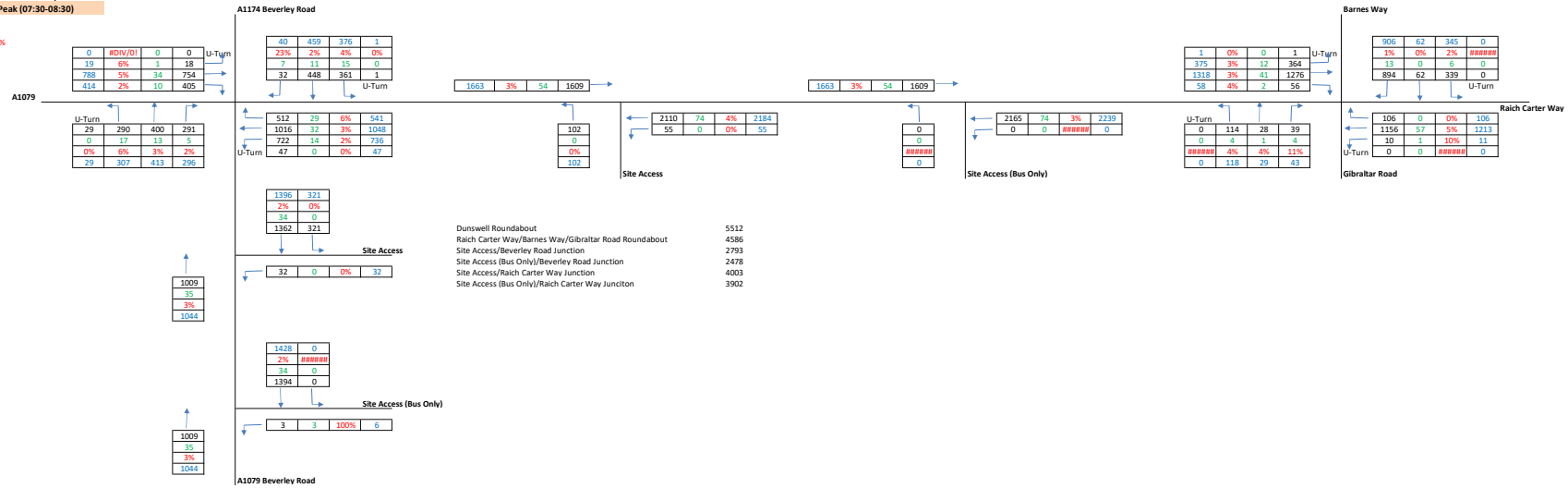
Veh
HGV
HGV %
PCU



AM Peak (07:30-08:30)

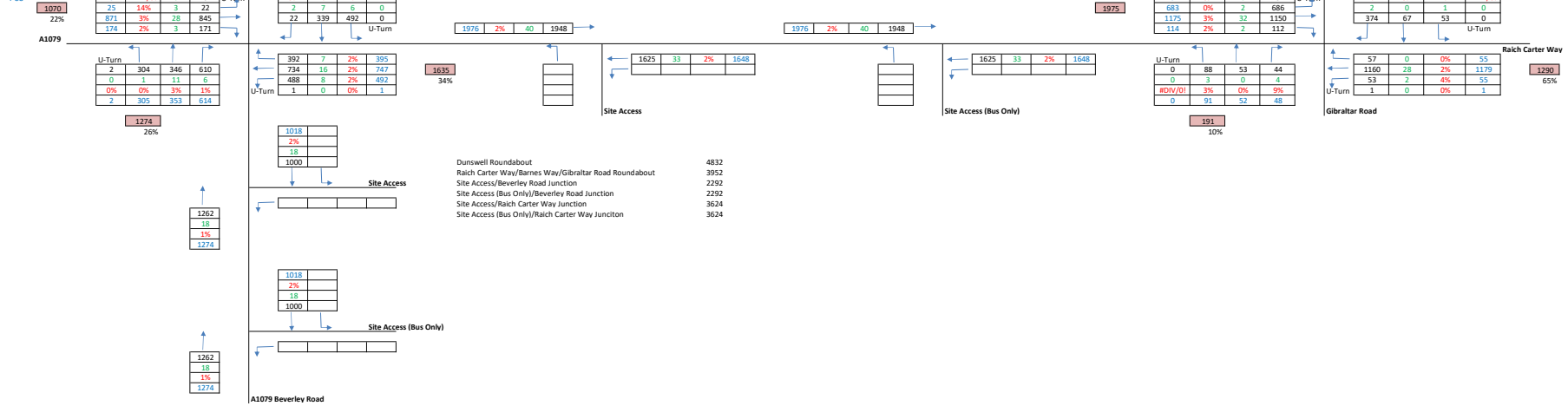
HGV

PCU



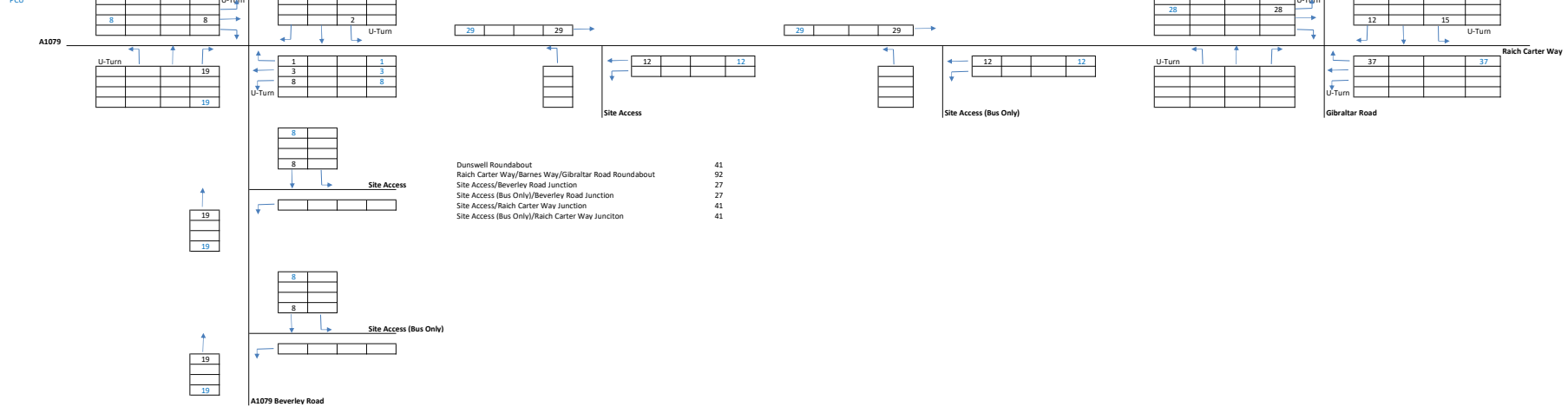
PM Peak (16:30-17:30)

1070



PM Peak (16:30-17:30)

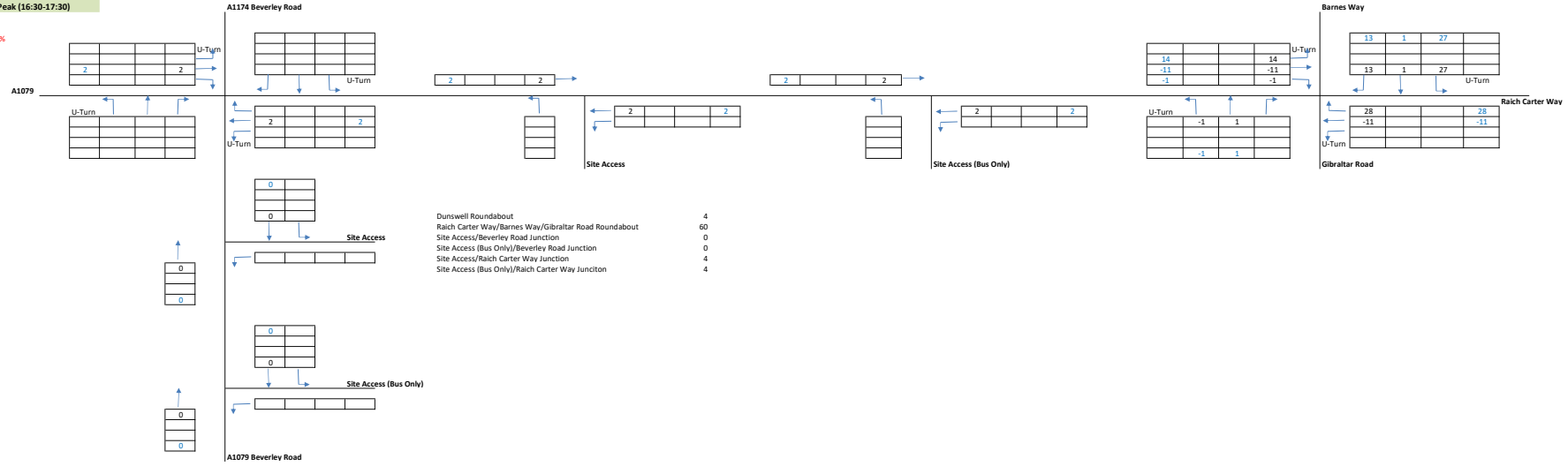
FCB



Committed Development - Lidl Supermarket

PM Peak (16:30-17:30)

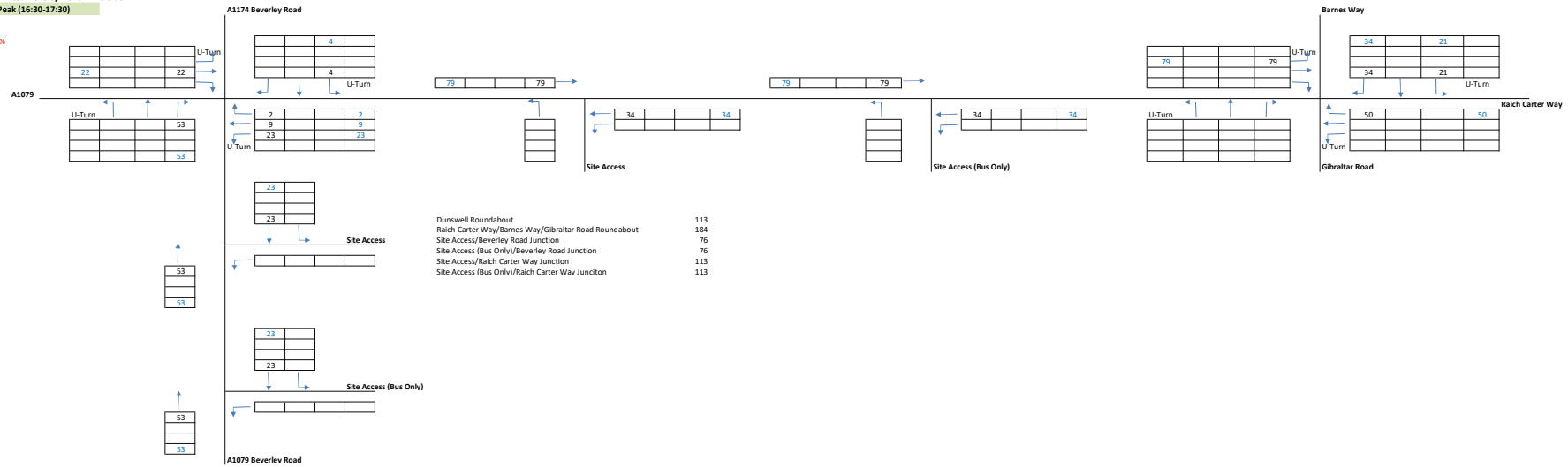
Veh
HGV
HGV %
PCU



Committed Development - Riverside

PM Peak (16:30-17:30)

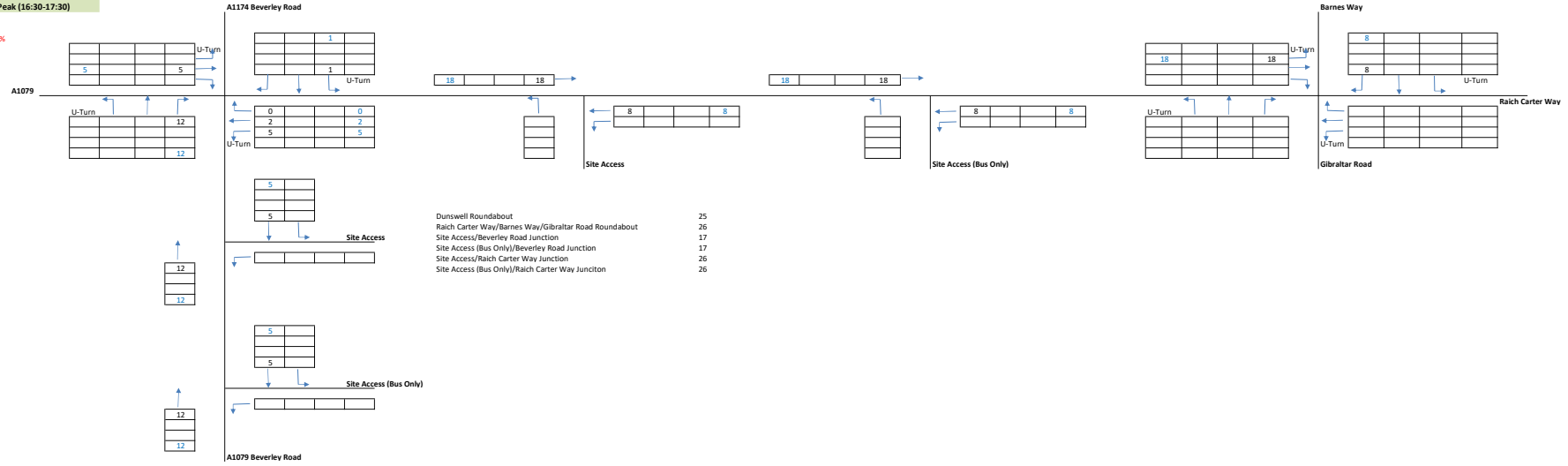
Veh
HGV
HGV %
PCU



Committed Development - Kingswood Parks North

PM Peak (16:30-17:30)

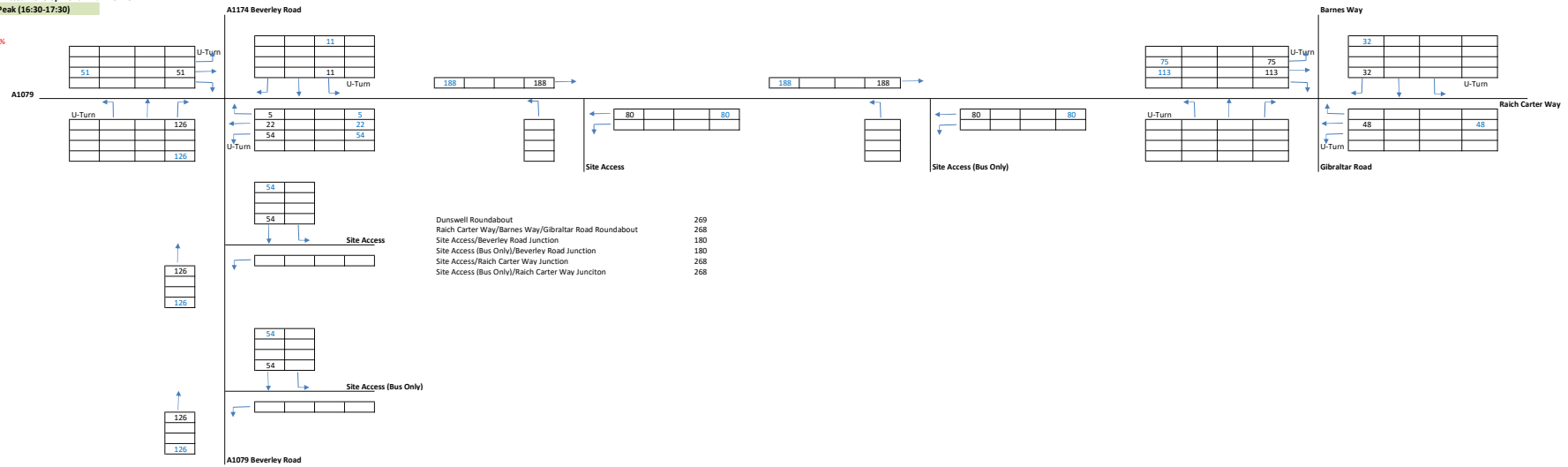
Veh
HGV
HGV %
PCU



Committed Development - Wawne View

PM Peak (16:30-17:30)

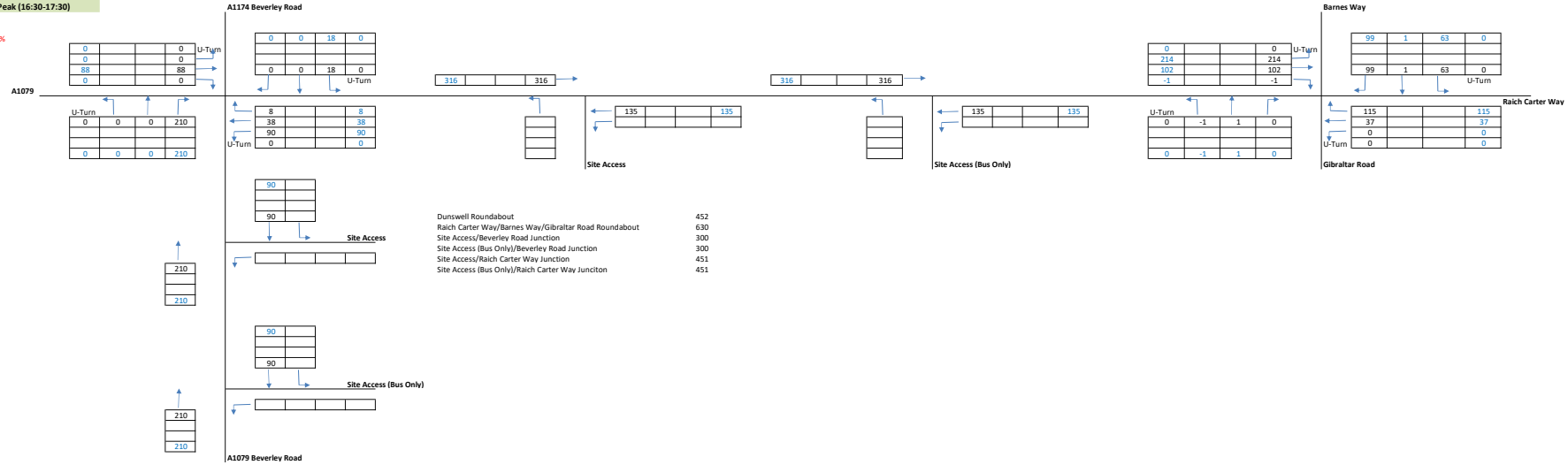
Veh
HGV
HGV %
PCU



Committed Development - TOTAL

PM Peak (16:30-17:30)

Veh
HGV
HGV %
PCU

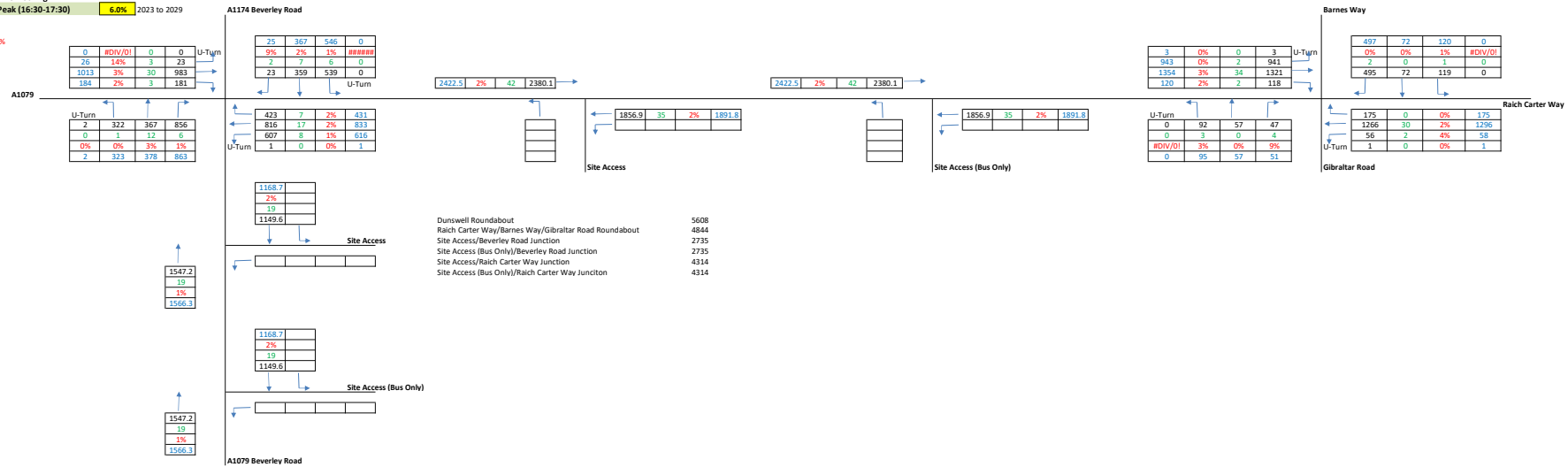


2030 Do Nothing

PM Peak (16:30-17:30)

6.0% 2023 to 2029

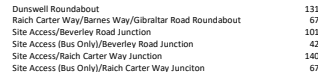
Veh
HGV
HGV %
PCU



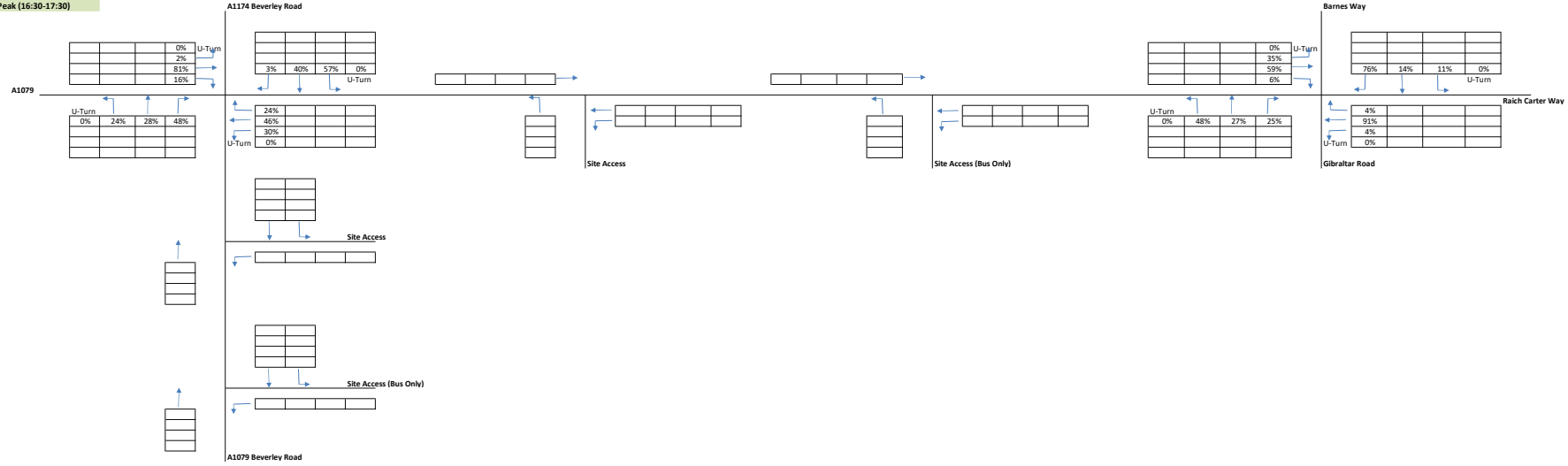
PM Peak (16:30-17:30)



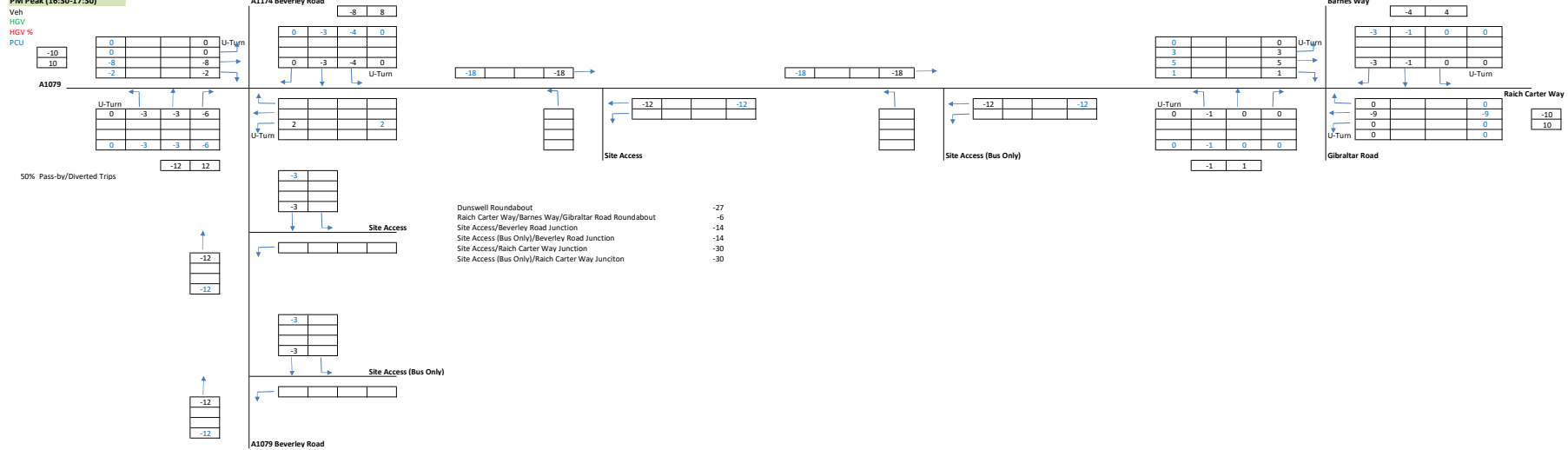
Proposed Drive-Thru Coffee and Fast Food Units



Existing Turning Proportions
PM Peak (16:30-17:30)



Proposed Drive-Thru Coffee and Fast Food Units - Redistribution of Pass-by/Diverted Trips
PM Peak (16:30-17:30)



Proposed PFS - Total Trips

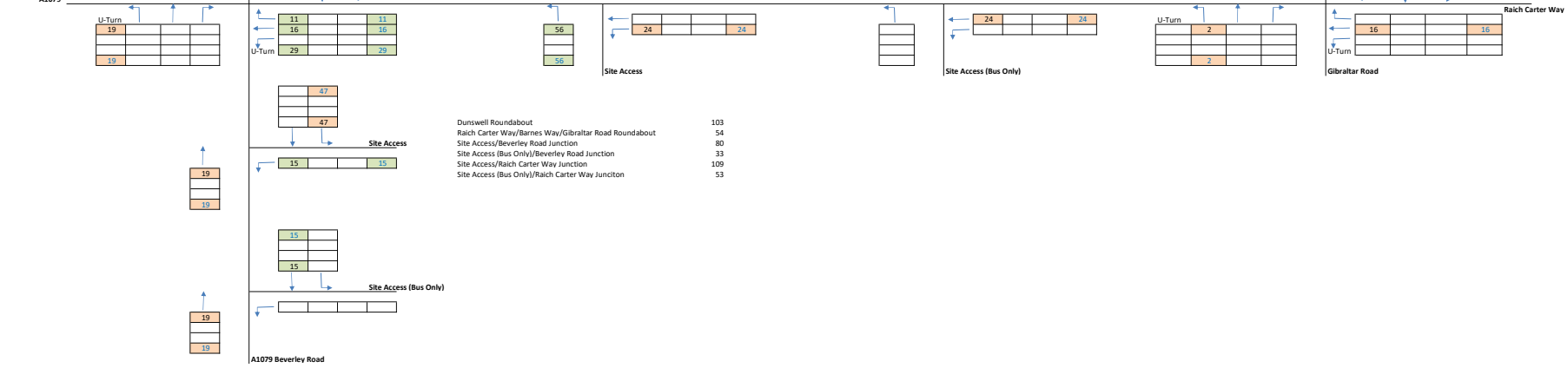
PM Peak (16:30-17:30)

Veh

HGV %

PCU

IN	70
OUT	71



Proposed PFS - Redistribution of Pass-by/Diverted Trips

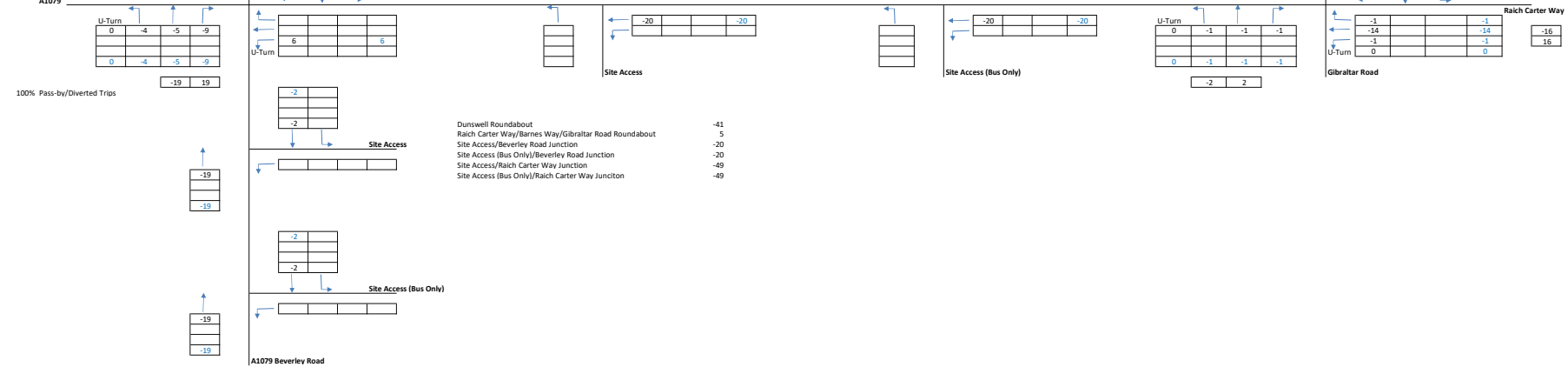
PM Peak (16:30-17:30)

Veh

HGV %

PCU

-16	0	0
16	-13	0
	-3	-3



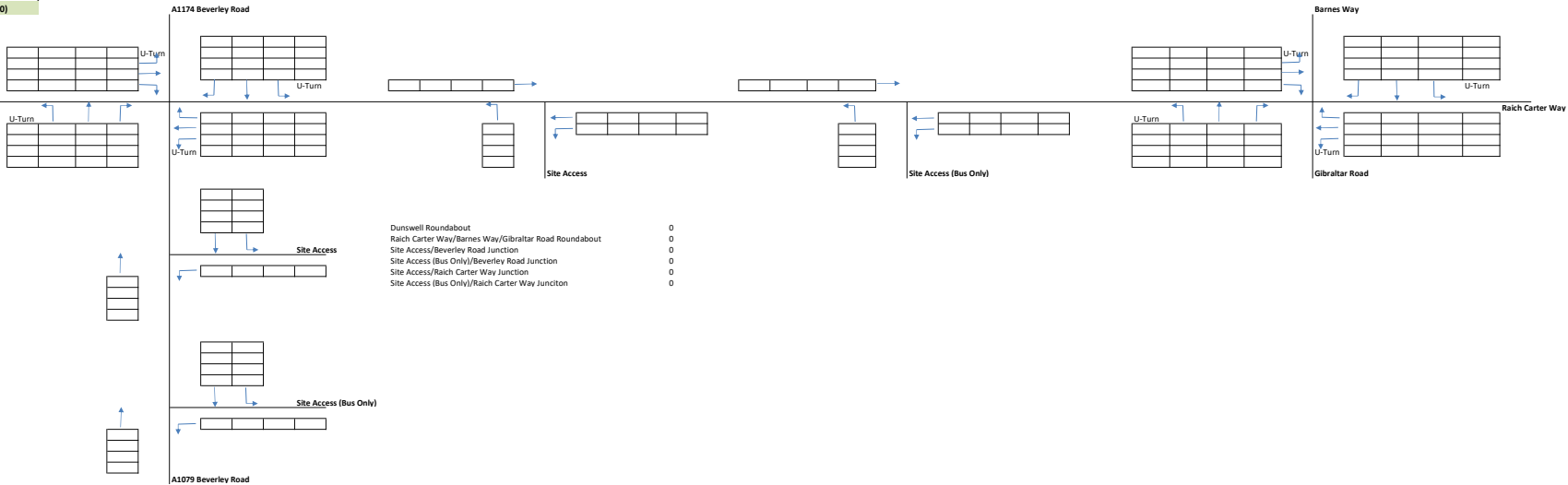
Proposed Bus Depot - Staff Trips

PM Peak (16:30-17:30)

Veh
HGV %
PCU

IN 0
OUT 0

A1079



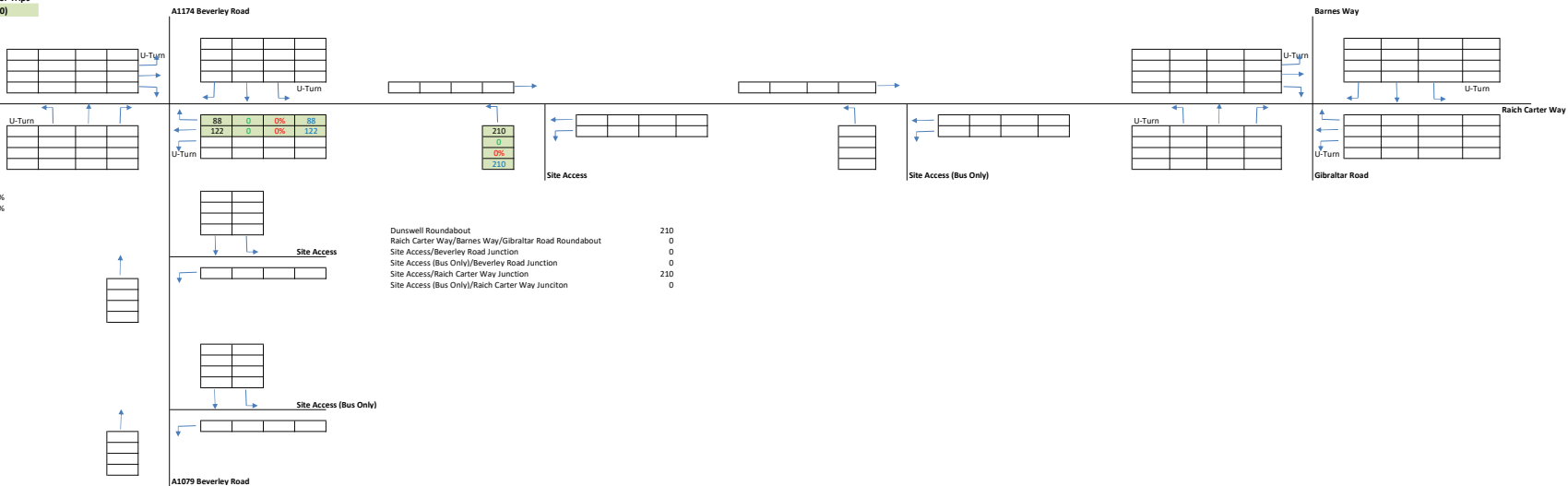
Proposed P&R - Visitor Trips

PM Peak (16:30-17:30)

Veh
HGV %
PCU

IN 0
OUT 210

A1079



Exit to A1174 42%
Exit to A1079 58%
1849

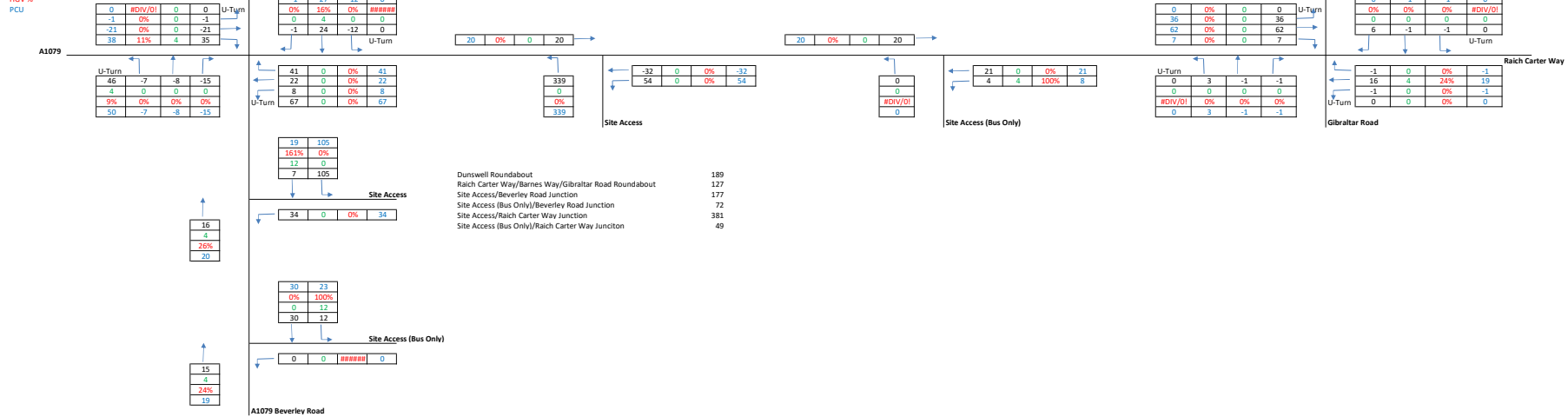
PM Peak (16:30-17:30)

A1079



PM Peak (16:30-17:30)

A1079



2030 With Development

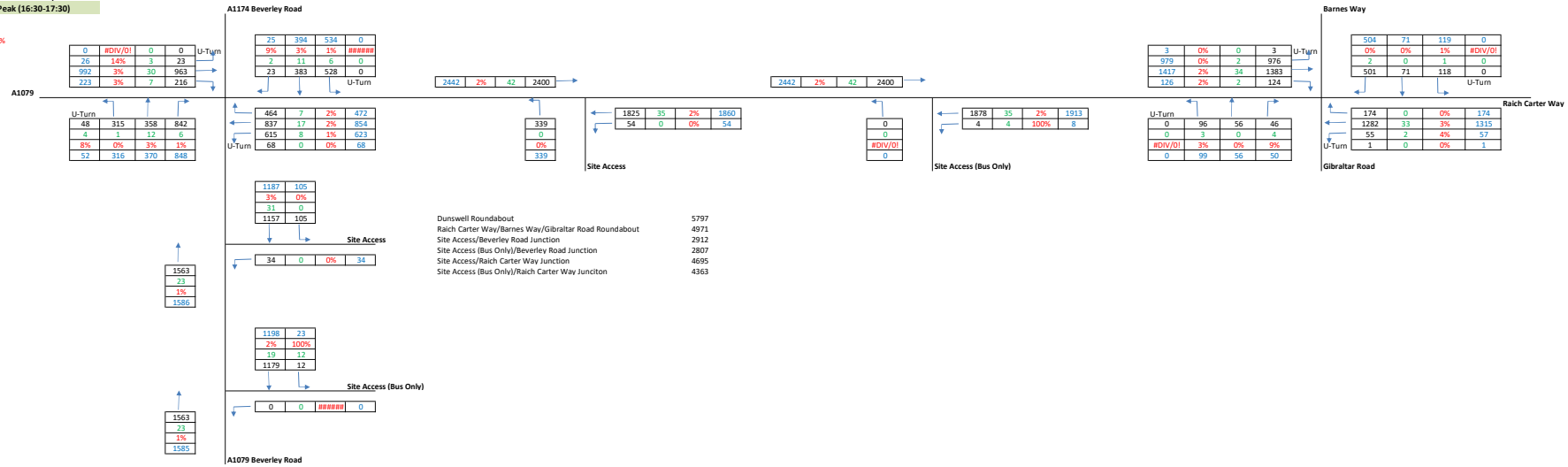
PM Peak (16:30-17:30)

Veh

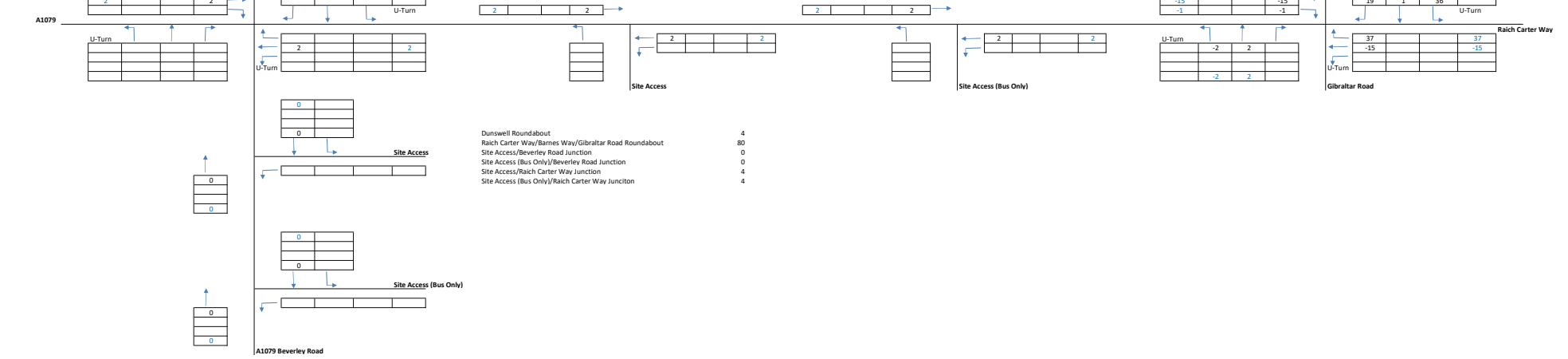
HGV

HGV %

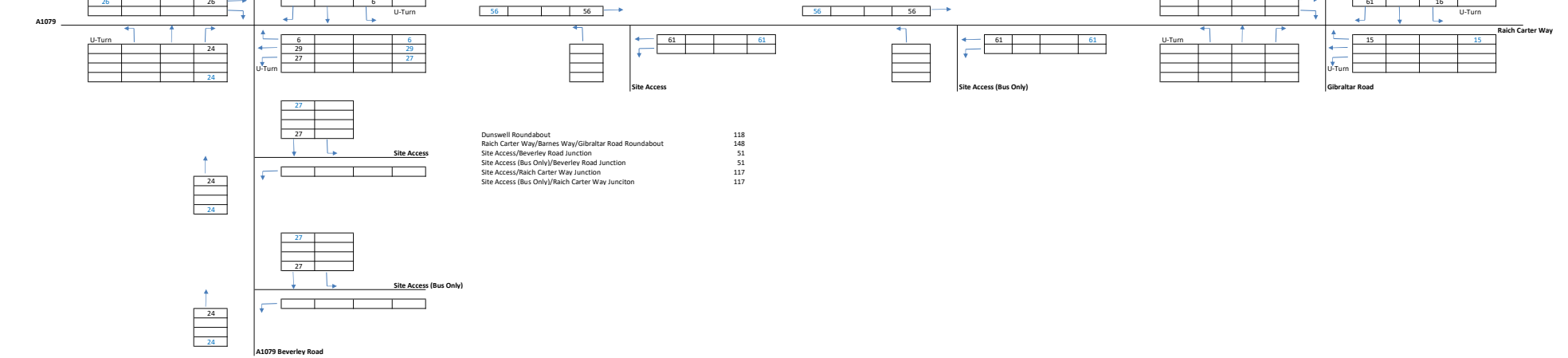
PCU



Saturday Peak (12:15-13:15)



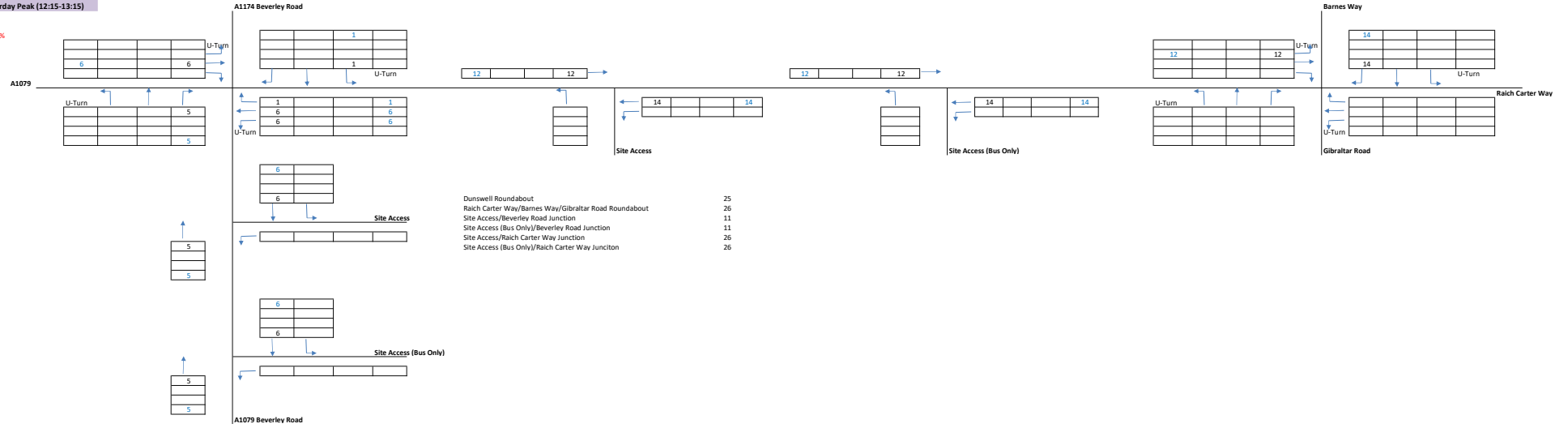
Saturday Peak (12:15-13:15)



Committed Development - Kingswood Parks North

Saturday Peak (12:15-13:15)

Veh
HGV
HGV %
PCU



Committed Development - Wawne View

Saturday Peak (12:15-13:15)

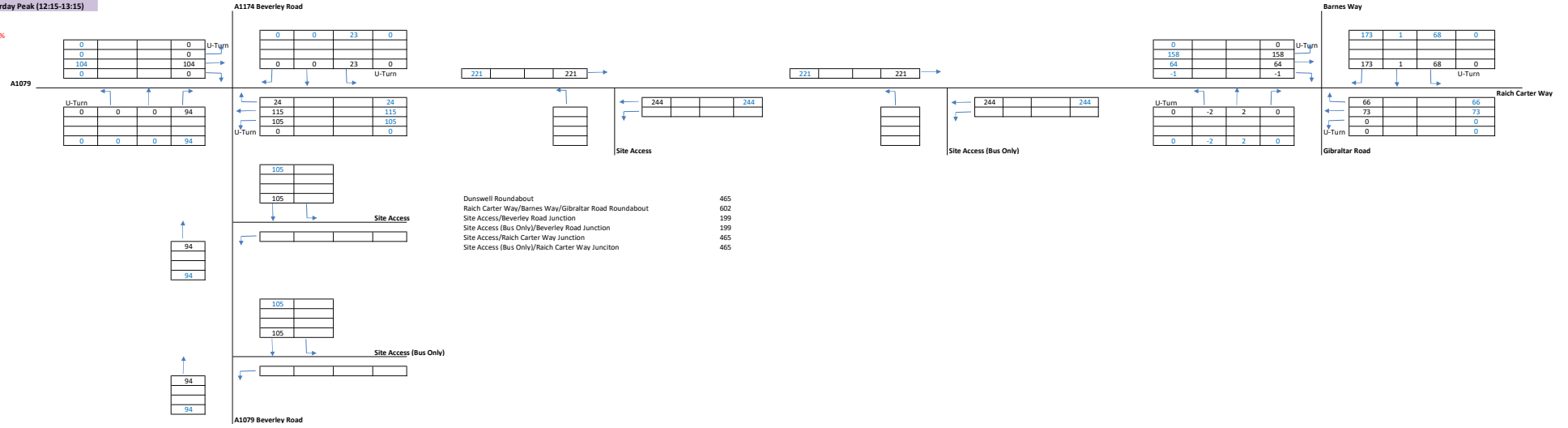
Veh
HGV
HGV %
PCU



Committed Development - TOTAL

Saturday Peak (12:15-13:15)

Veh
HGV
HGV %
PCU

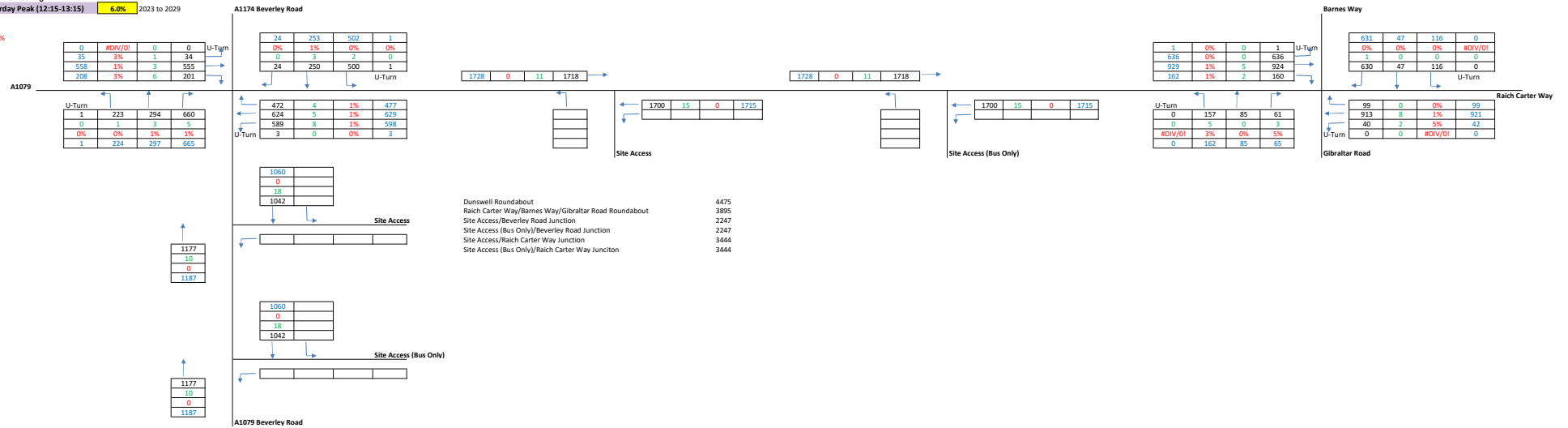


2030 Do Nothing

Saturday Peak (12:15-13:15)

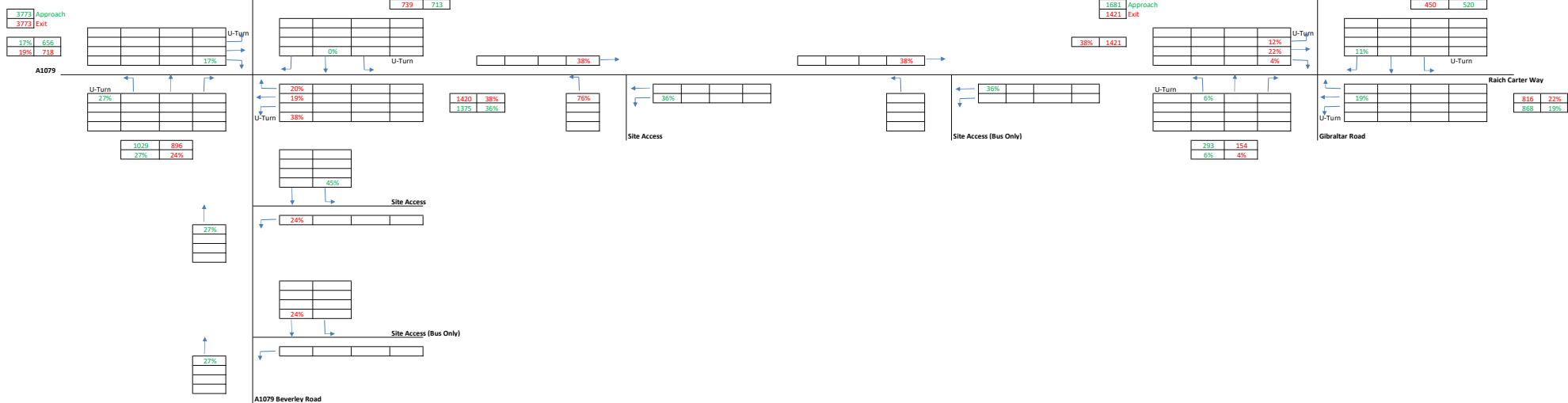
6.0% 2023 to 2029

Veh
HGV
HGV %
PCU



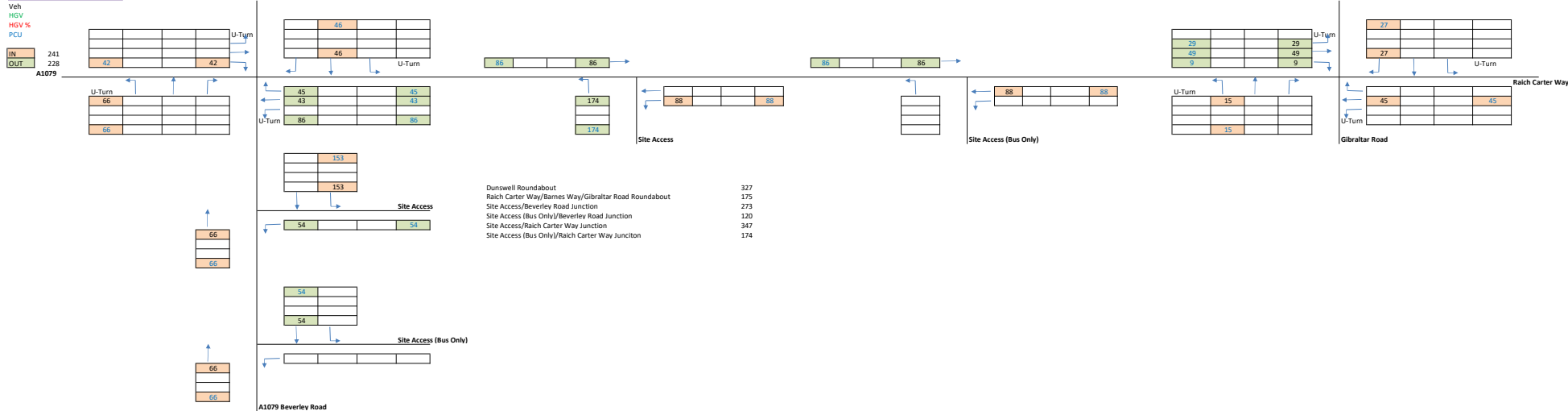
Existing Approach and Exit Proportions

Saturday Peak (12:15-13:15)



Proposed Drive-Thru Coffee and Fast Food Units

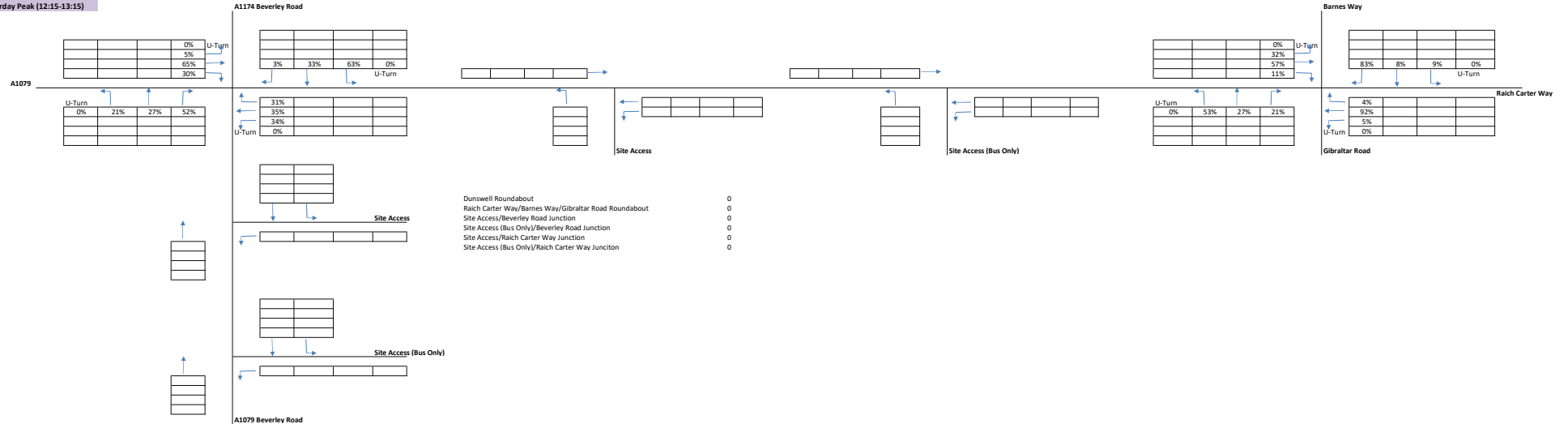
Saturday Peak (12:15-13:15)



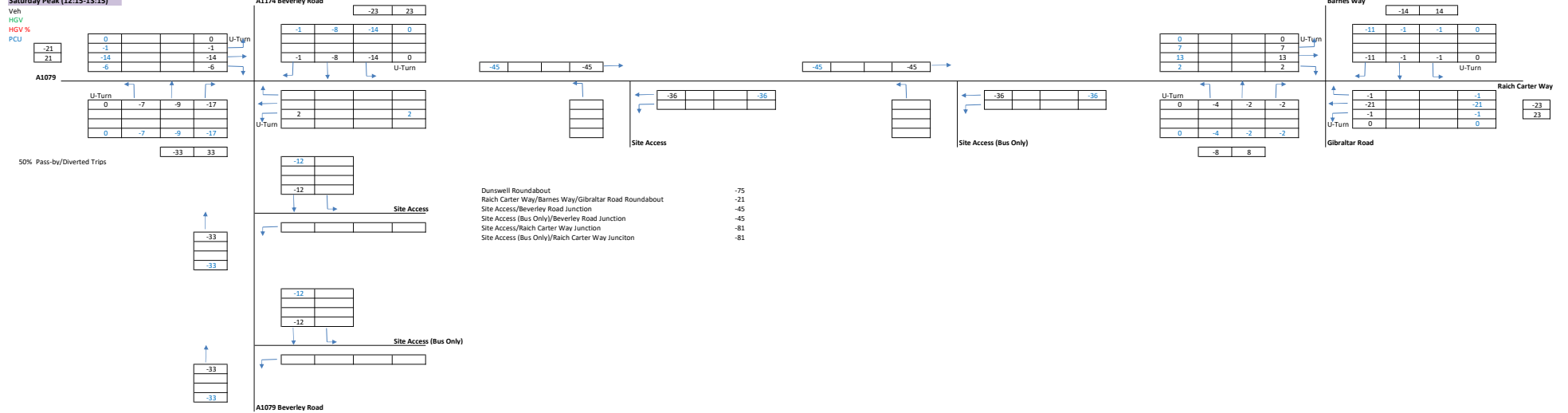
Dunswell Roundabout
Raich Carter Way/Barnes Way/Gibraltar Road Roundabout
Site Access/Beverley Road Junction
Site Access (Bus Only)/Beverley Road Junction
Site Access/Raich Carter Way Junction
Site Access (Bus Only)/Raich Carter Way Junction

327
175
273
120
347
174

Existing Turning Proportions
Saturday Peak (12:15-13:15)

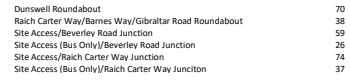


Proposed Drive-Thru Coffee and Fast Food Units - Redistribution of Pass-by/Diverted Trips
Saturday Peak (12:15-13:15)



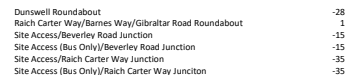
Saturday Peak (12:15-13:15)

IN	52
OUT	48



Saturday Peak (12:15-13:15)

9



Proposed Bus Depot - Bus Movements

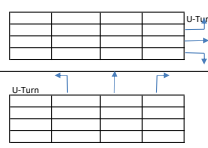
Saturday Peak (12:15-13:15)

Veh
HGV %
PCU

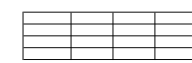
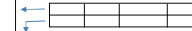
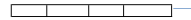
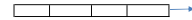
IN
OUT

0
0

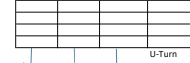
A1079



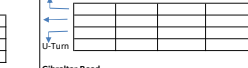
A1174 Beverley Road



Barnes Way



Raich Carter Way



Gibraltar Road



Site Access

Dunswell Roundabout

0

Raich Carter Way/Barnes Way/Gibraltar Road Roundabout

0

Site Access/Beverley Road Junction

0

Site Access (Bus Only)/Beverley Road Junction

0

Site Access/Raich Carter Way Junction

0

Site Access (Bus Only)/Raich Carter Way Junction

0

A1079 Beverley Road

Proposed Bus Depot - Staff Distribution

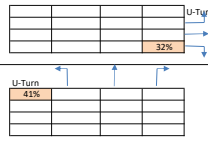
Saturday Peak (12:15-13:15)

Veh
HGV %
PCU

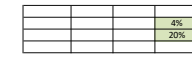
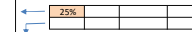
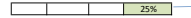
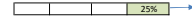
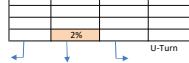
IN
OUT

0
0

A1079



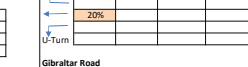
A1174 Beverley Road



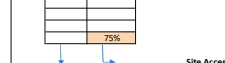
Barnes Way



Raich Carter Way

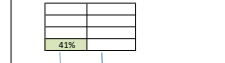


Gibraltar Road



Site Access

41%



Site Access

41%

A1079 Beverley Road

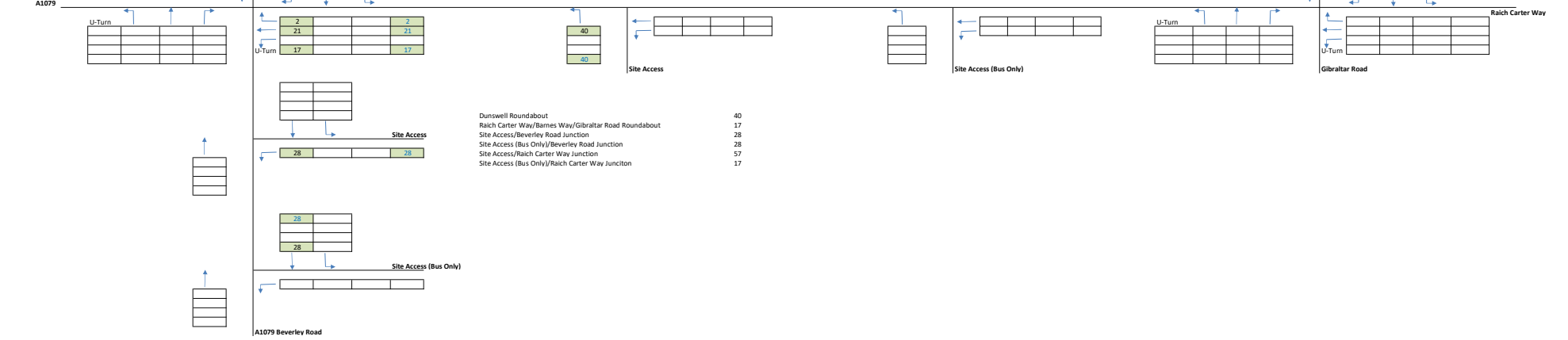


Proposed Bus Depot - Staff Trips

Saturday Peak (12:15-13:15)

Veh
HGV
HGV %
PCU

IN 0
OUT 68

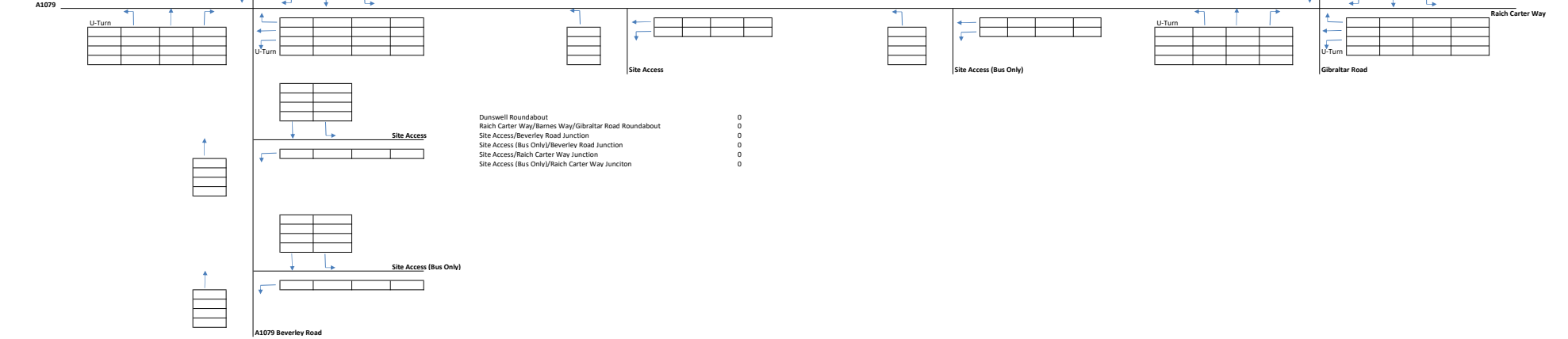


Proposed P&R - Visitor Trips

Saturday Peak (12:15-13:15)

Veh
HGV
HGV %
PCU

IN 0
OUT 0



Saturday Peak (12:15-13:15)

A1079



Saturday Peak (12:15-13:15)

A1079

2030 With Development

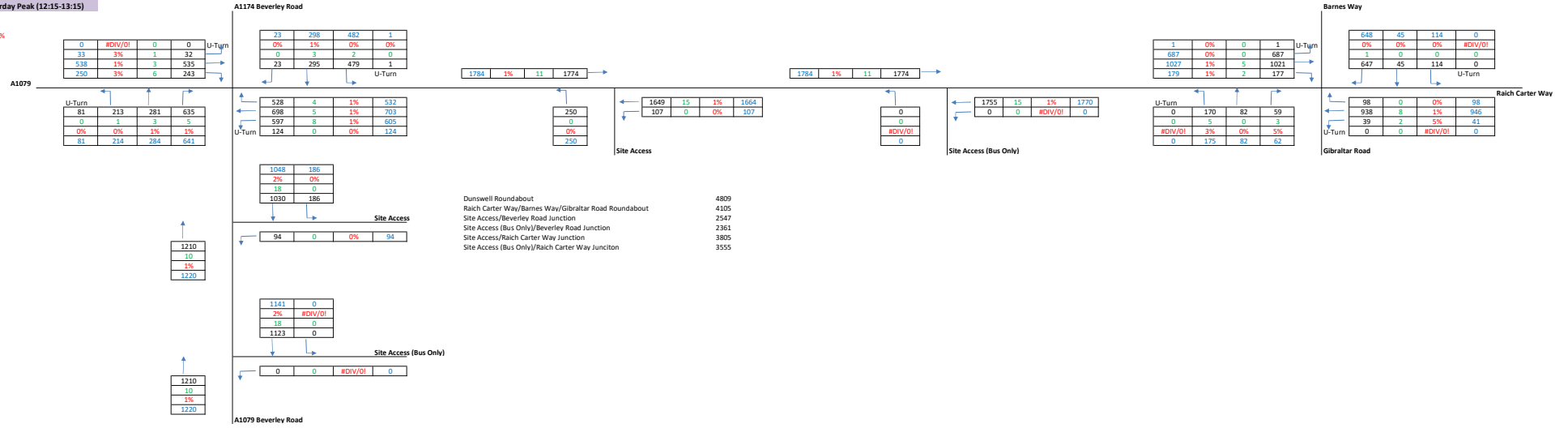
Saturday Peak (12:15-13:15)

Veh

HGV

HGV %

PCU



Appendix 10 – Traffic Growthing

Traffic Growth Forecasts

Base Year:	2023
Assessment Year:	2030
Period (years):	7
Area Type:	N/A
Road Type:	All
Area Served:	Region
NTM Dataset:	RTF 2018 Scenario 1 - Reference
Region Data Set Version:	Yorkshire & Humber v7.2
Software Version:	TEMPRO v8.1
Area:	Humberside

Factor	Households (HH)	Jobs
Base Year Unadjusted	415932	447468
Forecast Year Unadjusted	422612	460043
Growth Unadjusted	6680	12575
Committed Developments	1775	20
Do Nothing Adjusted	420837	460023
Proposed Development		
Do Something Adjusted	420837	460023

Scenario	Weekday AM Peak Period (07:00-09:59)	Weekday PM Peak Period (16:00-18:59)	Saturday Peak
Unadjusted	1.0635	1.0617	1.0623
<i>Unadjusted Growth Factor:</i>	6.3%	6.2%	6.2%

Scenario	Weekday AM Peak Period (07:00-09:59)	Weekday PM Peak Period (16:00-18:59)	Saturday Peak
Adjusted	1.0615	1.0596	1.0600
<i>Adjusted Growth Factor:</i>	6.2%	6.0%	6.0%

Appendix II –JI Capacity Assessment

Junctions 9															
PICADY 9 - Priority Intersection Module															
Version: 9.5.1.7462 © Copyright TRL Limited, 2019															
For sales and distribution information, program advice and maintenance, contact TRL: +44 (0)1344 379777 software@trl.co.uk www.trlsoftware.co.uk															
The users of this computer program for the solution of an engineering problem are in no way relieved of their responsibility for the correctness of the solution															

Filename: Site Access_Raich Carter Way Junction.j9

Path: Z:\Projects\5913 Dunswell P&R\Data\Modelling\Site Access_Raich Carter Way Junction

Report generation date: 22/10/2024 12:10:31

«2030 With Development, SAT

- »Junction Network
- »Arms
- »Traffic Demand
- »Origin-Destination Data
- »Vehicle Mix
- »Results

Summary of junction performance

	AM					PM					SAT				
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Set ID	Queue (PCU)	Delay (s)	RFC	LOS
2030 With Development															
Stream B-AC	D1	0.8	26.72	0.46	D	D2	28.4	259.28	1.13	F	D3	2.6	35.63	0.74	E
Stream C-AB		0.0	0.00	0.00	A		0.0	0.00	0.00	A		0.0	0.00	0.00	A

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	Site Access/Raich Carter Way Junction
Location	Dunswell
Site number	
Date	16/10/2024
Version	
Status	
Identifier	
Client	Ashcourt
Jobnumber	LTP/5913
Enumerator	LTP\AC
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

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

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	2030 With Development	SAT	ONE HOUR	12:00	13:30	15

2030 With Development, SAT

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	Site Access/Raich Carter Way Junction	T-Junction	One-way from A to C		4.41	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	Raich Carter Way (E)		Major
B	Site Access		Minor
C	Raich Carter Way (W)		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 - Raich Carter Way (W)	6.00				✓	

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	3.80	200	200

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	702	0.094	0.239	0.150	0.341
B-C	810	0.092	0.232	-	-
C-B	574	0.164	0.164	-	-

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

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 - Raich Carter Way (E)		✓	1771	100.000
B - Site Access		✓	250	100.000
C - Raich Carter Way (W)		✓	0	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A - Raich Carter Way (E)	B - Site Access	C - Raich Carter Way (W)
From	A - Raich Carter Way (E)	0	107	1664
	B - Site Access	0	0	250
	C - Raich Carter Way (W)	0	0	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
		A - Raich Carter Way (E)	B - Site Access	C - Raich Carter Way (W)
From	A - Raich Carter Way (E)	0	0	1
	B - Site Access	0	0	0
	C - Raich Carter Way (W)	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.74	35.63	2.6	E
C-AB	0.00	0.00	0.0	A
C-A				
A-B				
A-C				

Main Results for each time segment

12:00 - 12:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	188	512	0.368	186	0.6	10.967	B
C-AB	0	355	0.000	0	0.0	0.000	A
C-A	0			0			
A-B	81			81			
A-C	1253			1253			

12:15 - 12:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	225	454	0.495	223	0.9	15.482	C
C-AB	0	312	0.000	0	0.0	0.000	A
C-A	0			0			
A-B	96			96			
A-C	1496			1496			

12:30 - 12:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	275	374	0.735	269	2.5	32.577	D
C-AB	0	254	0.000	0	0.0	0.000	A
C-A	0			0			
A-B	118			118			
A-C	1832			1832			

12:45 - 13:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	275	374	0.735	275	2.6	35.634	E
C-AB	0	254	0.000	0	0.0	0.000	A
C-A	0			0			
A-B	118			118			
A-C	1832			1832			

13:00 - 13:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	225	454	0.495	231	1.0	16.558	C
C-AB	0	312	0.000	0	0.0	0.000	A
C-A	0			0			
A-B	96			96			
A-C	1496			1496			

13:15 - 13:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	188	512	0.368	190	0.6	11.234	B
C-AB	0	355	0.000	0	0.0	0.000	A
C-A	0			0			
A-B	81			81			
A-C	1253			1253			

Appendix 12 – J2 Capacity Assessment

Junctions 9															
PICADY 9 - Priority Intersection Module															
Version: 9.5.1.7462 © Copyright TRL Limited, 2019															
For sales and distribution information, program advice and maintenance, contact TRL: +44 (0)1344 379777 software@trl.co.uk www.trlsoftware.co.uk															
The users of this computer program for the solution of an engineering problem are in no way relieved of their responsibility for the correctness of the solution															

Filename: Site Access_Beverley Road Junction.j9

Path: Z:\Projects\5913 Dunswell P&R\Data\Modelling\Site Access_Beverley Road Junction

Report generation date: 23/10/2024 07:28:26

«2030 With Development, AM

»Junction Network

»Arms

»Traffic Demand

»Origin-Destination Data

»Vehicle Mix

»Results

Summary of junction performance

	AM					PM					SAT				
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Set ID	Queue (PCU)	Delay (s)	RFC	LOS
	2030 With Development														
Stream B-AC	D1	0.1	10.76	0.10	B	D2	0.1	8.93	0.09	A	D3	0.3	9.93	0.22	A
Stream C-AB		0.0	0.00	0.00	A		0.0	0.00	0.00	A		0.0	0.00	0.00	A

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	Site Access/Beverley Road Junction
Location	Dunswell
Site number	
Date	16/10/2024
Version	
Status	
Identifier	
Client	Ashcourt
Jobnumber	LTP/5913
Enumerator	LTP\AC
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

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

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	2030 With Development	AM	ONE HOUR	07:15	08:45	15

2030 With Development, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	Site Access/Beverley Road Junction	T-Junction	One-way from A to C		0.20	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	A1079 Beverley Road (N)		Major
B	Site Access		Minor
C	A1079 Beverley Road (S)		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 - A1079 Beverley Road (S)	5.70				✓	

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	3.80	150	90

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	619	0.086	0.218	0.137	0.311
B-C	735	0.086	0.218	-	-
C-B	574	0.170	0.170	-	-

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

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 - A1079 Beverley Road (N)		✓	1717	100.000
B - Site Access		✓	32	100.000
C - A1079 Beverley Road (S)		✓	0	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A - A1079 Beverley Road (N)	B - Site Access	C - A1079 Beverley Road (S)
	From			
	A - A1079 Beverley Road (N)	0	321	1396
	B - Site Access	0	0	32
	C - A1079 Beverley Road (S)	0	0	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
		A - A1079 Beverley Road (N)	B - Site Access	C - A1079 Beverley Road (S)
	From			
	A - A1079 Beverley Road (N)	0	0	2
	B - Site Access	0	0	0
	C - A1079 Beverley Road (S)	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.10	10.76	0.1	B
C-AB	0.00	0.00	0.0	A
C-A				
A-B				
A-C				

Main Results for each time segment

07:15 - 07:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	24	485	0.050	24	0.1	7.799	A
C-AB	0	354	0.000	0	0.0	0.000	A
C-A	0			0			
A-B	242			242			
A-C	1051			1051			

07:30 - 07:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	29	437	0.066	29	0.1	8.821	A
C-AB	0	311	0.000	0	0.0	0.000	A
C-A	0			0			
A-B	289			289			
A-C	1255			1255			

07:45 - 08:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	35	370	0.095	35	0.1	10.754	B
C-AB	0	252	0.000	0	0.0	0.000	A
C-A	0			0			
A-B	353			353			
A-C	1537			1537			

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	35	370	0.095	35	0.1	10.762	B
C-AB	0	252	0.000	0	0.0	0.000	A
C-A	0			0			
A-B	353			353			
A-C	1537			1537			

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	29	437	0.066	29	0.1	8.830	A
C-AB	0	311	0.000	0	0.0	0.000	A
C-A	0			0			
A-B	289			289			
A-C	1255			1255			

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	24	485	0.050	24	0.1	7.810	A
C-AB	0	354	0.000	0	0.0	0.000	A
C-A	0			0			
A-B	242			242			
A-C	1051			1051			

Appendix 13 – J3 Capacity Assessment

Junctions 9					
ARCADY 9 - Roundabout Module					
Version: 9.5.1.7462					
© Copyright TRL Limited, 2019					
For sales and distribution information, program advice and maintenance, contact TRL:					
+44 (0)1344 379777 software@trl.co.uk www.trlsoftware.co.uk					
The users of this computer program for the solution of an engineering problem are in no way relieved of their responsibility for the correctness of the solution					

Filename: Dunswell Roundabout AM Peak 2024.j9

Path: Z:\Projects\5913 Dunswell P&R\Data\Modelling\Dunswell Roundabout

Report generation date: 25/10/2024 13:56:10

- »Existing Layout - 2023 Base, AM
- »Existing Layout - 2030 Do Nothing, AM
- »Existing Layout - 2030 With Development, AM

Summary of junction performance

	AM				
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS
	Existing Layout [Lane Simulation] - 2023 Base				
1 - A1174 (Beverley Road)	D1	11.0	41.35		E
2 - A1033 Raich Carter Way		36.3	59.06		F
3 - A1079 (Beverley Road)		5.7	18.54		C
4 - A1079		27.9	73.39		F
	Existing Layout [Lane Simulation] - 2030 Do Nothing				
1 - A1174 (Beverley Road)	D2	17.2	61.02		F
2 - A1033 Raich Carter Way		200.1	352.26		F
3 - A1079 (Beverley Road)		8.0	22.51		C
4 - A1079		124.4	309.03		F
	Existing Layout [Lane Simulation] - 2030 With Development				
1 - A1174 (Beverley Road)	D3	20.6	73.02		F
2 - A1033 Raich Carter Way		350.5	619.54		F
3 - A1079 (Beverley Road)		7.0	22.38		C
4 - A1079		180.9	507.60		F

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

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle. Arm and junction delays are averages for all movements, including movements with zero delay.

File summary

File Description

Title	Dunswell Roundabout
Location	ERYC
Site number	
Date	25/10/2024
Version	
Status	
Identifier	
Client	Ashcourt
Jobnumber	LTP/5913
Enumerator	LTP\MR\AC
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

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
5.75				0.85	36.00	20.00

Lane Simulation options

Criteria type	Stop criteria (%)	Stop criteria time (s)	Stop criteria number of trials	Random seed	Results refresh speed (s)	Individual vehicle animation number of trials	Average animation capture interval (s)	Use quick response	Do flow sampling	Suppress automatic lane creation	Last run random seed	Last run number of trials	Last run time taken (s)
Delay	1.00	100000	100000	-1	3	1	60	✓			323114411	232	152.92

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2023 Base	AM	ONE HOUR	07:15	08:45	15	✓
D2	2030 Do Nothing	AM	ONE HOUR	07:15	08:45	15	✓
D3	2030 With Development	AM	ONE HOUR	07:15	08:45	15	✓

Analysis Set Details

ID	Name	Use Lane Simulation	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	Existing Layout	✓	✓	100.000	100.000

Existing Layout - 2023 Base, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Lane Simulation	A1 - Existing Layout [Lane Simulation]	This analysis set uses Lane Simulation mode. This is provided as an investigative tool and the user should apply judgement when interpreting the results.
Warning	Geometry	1 - A1174 (Beverley Road) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	3 - A1079 (Beverley Road) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	4 - A1079 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Dunswell Roundabout	Large Roundabout	✓	1, 2, 3, 4	51.50	F

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
1	A1174 (Beverley Road)	
2	A1033 Raich Carter Way	
3	A1079 (Beverley Road)	
4	A1079	

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	I' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
1 - A1174 (Beverley Road)	3.72	7.63	45.3	42.3	72.0	34.0	
2 - A1033 Raich Carter Way	7.27	10.84	28.0	23.3	69.5	38.0	
3 - A1079 (Beverley Road)	6.00	11.30	39.0	37.5	89.0	45.0	
4 - A1079	3.57	9.13	88.0	27.0	80.0	35.0	

Large Roundabout Data

Arm	Circulating flow (PCU/hr)	Entry-to-exit separation (m)
1 - A1174 (Beverley Road)	1379	35.00
2 - A1033 Raich Carter Way	703	45.00
3 - A1079 (Beverley Road)	1343	37.00
4 - A1079	1147	48.00

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1 - A1174 (Beverley Road)	0.900	2554
2 - A1033 Raich Carter Way	1.298	3522
3 - A1079 (Beverley Road)	0.999	3332
4 - A1079	0.994	2973

The slope and intercept shown above include any corrections and adjustments.

Arm Capacity Adjustments

Arm	Type	Reason	Direct capacity adjustment (PCU/hr)
1 - A1174 (Beverley Road)	Direct	Validation	-45
2 - A1033 Raich Carter Way	Direct	Validation	140
3 - A1079 (Beverley Road)	Direct	Validation	-10
4 - A1079	Direct	Validation	-270

Lane Simulation: Arm options

Arm	Lane capacity source	Traffic considering secondary lanes (%)
1 - A1174 (Beverley Road)	Evenly split	10.00
2 - A1033 Raich Carter Way	Evenly split	10.00
3 - A1079 (Beverley Road)	Evenly split	10.00
4 - A1079	Evenly split	10.00

Lanes

Arm	Side	Lane level	Lane	Destination arms	Has limited storage	Storage (PCU)	Has bottleneck	Minimum capacity (PCU/hr)	Maximum capacity (PCU/hr)	Signalised
1 - A1174 (Beverley Road)	Entry	1	1	2	✓	6.00		0	99999	
			2	1, 3, 4	✓	6.00		0	99999	
		2	1	(1, 2, 3, 4)		Infinity				
	Exit	1	1			Infinity				
	CircLink	1	1	1, 2	✓	3.00		0	99999	
			2	2, 3, 4	✓	3.00		0	99999	
	CircBase	1	1	2, 3	✓	4.00		0	99999	
			2	3, 4	✓	4.00		0	99999	
2 - A1033 Raich Carter Way	Entry	1	1	3	✓	4.00		0	99999	
			2	4	✓	4.00		0	99999	
			3	1, 2	✓	4.00		0	99999	
	Exit	1	1			Infinity				
	CircLink	1	1	2	✓	13.00		0	99999	
			2	2, 3	✓	13.00		0	99999	
			3	1, 3, 4	✓	13.00		0	99999	
	CircBase	1	1	3	✓	4.00		0	99999	
			2	1, 3, 4	✓	4.00		0	99999	
	Entry	2	1	(3, 4)		Infinity				
			2	(1, 2)		Infinity				
3 - A1079 (Beverley Road)	Entry	1	1	4	✓	6.00		0	99999	
			2	1	✓	6.00		0	99999	
			3	2, 3	✓	6.00		0	99999	
	Exit	1	1			Infinity				
	CircLink	1	1	3	✓	4.00		0	99999	
			2	1, 2, 3, 4	✓	4.00		0	99999	
	CircBase	1	1	4	✓	3.00		0	99999	
			2	1, 2	✓	3.00		0	99999	
	Entry	2	1	(1, 4)		Infinity				
			2	(2, 3)		Infinity				
4 - A1079	Entry	1	1	1, 2	✓	15.00		0	99999	
			2	2, 3, 4	✓	15.00		0	99999	
	CircLink	1	2	1	✓	12.00		0	99999	
	Entry	2	1	(1, 2, 3, 4)		Infinity				
	Exit	1	1			Infinity				
	CircLink	1	1	4	✓	12.00		0	99999	
			3	2, 3	✓	12.00		0	99999	
	CircBase	1	1	1	✓	6.00		0	99999	
			2	2, 3	✓	6.00		0	99999	

Entry Lane slope and intercept

Arm	Side	Lane level	Lane	Final slope	Final intercept (PCU/hr)
1 - A1174 (Beverley Road)	Entry	1	1	0.450	1277
			2	0.450	1277
2 - A1033 Raich Carter Way	Entry	1	1	0.433	1174
			2	0.433	1174
			3	0.433	1174
3 - A1079 (Beverley Road)	Entry	1	1	0.333	1111
			2	0.333	1111
			3	0.333	1111
4 - A1079	Entry	1	1	0.497	1486
			2	0.497	1486

Summary of Entry Lane allowed movements

Arm	Lane Level	Lane	Destination arm			
			A1174 (Beverley Road)	A1033 Raich Carter Way	A1079 (Beverley Road)	A1079
1 - A1174 (Beverley Road)	1	1		✓		
		2	✓		✓	✓
	2	1	✓	✓	✓	✓
2 - A1033 Raich Carter Way	1	1			✓	
		2				✓
		3	✓	✓		
	2	1			✓	✓
		2	✓	✓		
3 - A1079 (Beverley Road)	1	1				✓
		2	✓			
		3		✓	✓	
	2	1	✓			✓
		2		✓	✓	
4 - A1079	1	1	✓	✓		
		2		✓	✓	✓
	2	1	✓	✓	✓	✓

Summary of Circulating Lane allowed movements

Arm	Side	Lane Level	Lane	Destination arm			
				A1174 (Beverley Road)	A1033 Raich Carter Way	A1079 (Beverley Road)	A1079
1 - A1174 (Beverley Road)	CircBase	1	1		✓	✓	
			2			✓	✓
	CircLink	1	1	✓	✓		
			2		✓	✓	✓
2 - A1033 Raich Carter Way	CircBase	1	1			✓	
			2	✓		✓	✓
	CircLink	1	1		✓		
			2		✓	✓	
			3	✓		✓	✓
3 - A1079 (Beverley Road)	CircBase	1	1				✓
			2	✓	✓		
	CircLink	1	1			✓	
			2	✓	✓	✓	✓
4 - A1079	CircBase	1	1	✓			
			2		✓	✓	
	CircLink	1	1				✓
			2	✓			
			3		✓	✓	

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)	Run automatically
D1	2023 Base	AM	ONE HOUR	07:15	08:45	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	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - A1174 (Beverley Road)		ONE HOUR	✓	801	100.000
2 - A1033 Raich Carter Way		ONE HOUR	✓	1814	100.000
3 - A1079 (Beverley Road)		ONE HOUR	✓	911	100.000
4 - A1079		ONE HOUR	✓	1112	100.000

Origin-Destination Data

Demand (PCU/hr)

	To				
		1 - A1174 (Beverley Road)	2 - A1033 Raich Carter Way	3 - A1079 (Beverley Road)	4 - A1079
From	1 - A1174 (Beverley Road)	1	403	360	37
	2 - A1033 Raich Carter Way	459	5	481	869
	3 - A1079 (Beverley Road)	392	228	1	290
	4 - A1079	18	832	262	0

Vehicle Mix

Heavy Vehicle Percentages

	To				
		1 - A1174 (Beverley Road)	2 - A1033 Raich Carter Way	3 - A1079 (Beverley Road)	4 - A1079
From	1 - A1174 (Beverley Road)	0	4	3	23
	2 - A1033 Raich Carter Way	6	0	4	3
	3 - A1079 (Beverley Road)	3	2	0	6
	4 - A1079	6	4	4	0

Results

Results Summary for whole modelled period

Arm	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - A1174 (Beverley Road)	41.35	11.0	E	738	1107
2 - A1033 Raich Carter Way	59.06	36.3	F	1663	2495
3 - A1079 (Beverley Road)	18.54	5.7	C	833	1249
4 - A1079	73.39	27.9	F	1021	1532

Main Results for each time segment

07:15 - 07:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Average throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A1174 (Beverley Road)	606	151	1004	605	602	650	0.0	1.5	8.057	A
2 - A1033 Raich Carter Way	1364	341	499	1359	1353	1111	0.0	2.9	6.944	A
3 - A1079 (Beverley Road)	676	169	1033	678	675	825	0.0	1.4	7.381	A
4 - A1079	842	210	812	843	837	899	0.0	1.7	7.305	A

07:30 - 07:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Average throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A1174 (Beverley Road)	724	181	1188	720	715	770	1.5	2.8	12.126	B
2 - A1033 Raich Carter Way	1614	404	597	1616	1615	1311	2.9	5.5	11.137	B
3 - A1079 (Beverley Road)	824	206	1217	829	815	995	1.4	1.9	9.421	A
4 - A1079	999	250	960	998	992	1086	1.7	3.0	10.610	B

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Average throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A1174 (Beverley Road)	893	223	1414	880	865	963	2.8	8.7	27.952	D
2 - A1033 Raich Carter Way	2009	502	715	1940	1921	1579	5.5	25.8	32.376	D
3 - A1079 (Beverley Road)	1002	251	1471	1004	987	1184	1.9	5.1	16.094	C
4 - A1079	1233	308	1199	1178	1167	1276	3.0	19.5	38.814	E

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Average throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A1174 (Beverley Road)	888	222	1428	878	881	955	8.7	11.0	41.349	E
2 - A1033 Raich Carter Way	2004	501	726	1965	1956	1580	25.8	36.3	59.060	F
3 - A1079 (Beverley Road)	1008	252	1493	1002	999	1197	5.1	5.7	18.536	C
4 - A1079	1221	305	1195	1187	1192	1300	19.5	27.9	73.387	F

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Average throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A1174 (Beverley Road)	711	178	1209	723	754	790	11.0	2.7	22.390	C
2 - A1033 Raich Carter Way	1629	407	600	1680	1743	1332	36.3	7.5	32.923	D
3 - A1079 (Beverley Road)	816	204	1258	823	826	1021	5.7	2.3	11.601	B
4 - A1079	990	248	983	1016	1095	1098	27.9	3.6	33.029	D

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Average throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A1174 (Beverley Road)	608	152	1007	608	603	645	2.7	1.4	8.297	A
2 - A1033 Raich Carter Way	1361	340	502	1362	1382	1113	7.5	2.7	8.006	A
3 - A1079 (Beverley Road)	668	167	1031	668	684	833	2.3	1.5	7.647	A
4 - A1079	843	211	810	842	848	889	3.6	1.8	8.101	A

Lane Results

Lane Level notation: Lane Level 1 is always closest to the junction.

Lanes: Main Results for each time segment

07:15 - 07:30

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Average throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A1174 (Beverley Road)	Entry	1	1	2	309	780	0.397	308	305	0.0	0.8	7.892	A
			2	1, 3, 4	297	780	0.381	297	298	0.0	0.7	7.851	A
		2	1	(1, 2, 3, 4)	606			606	608	0.0	0.0	0.181	A
	Exit	1	1		650			650	643	0.0	0.0	0.000	A
	CircLink	1	1	1, 2	1047			1047	1041	0.0	0.0	0.000	A
			2	2, 3, 4	607			607	598	0.0	0.0	0.000	A
	CircBase	1	1	2, 3	903			903	898	0.0	0.0	0.000	A
			2	3, 4	101			101	98	0.0	0.0	0.000	A
2 - A1033 Raich Carter Way	Entry	1	1	3	358	1098	0.326	356	359	0.0	0.7	5.079	A
			2	4	657	1098	0.598	653	649	0.0	1.4	7.071	A
			3	1, 2	349	1098	0.318	350	346	0.0	0.4	4.983	A
	Exit	1	1		1111			1111	1103	0.0	0.0	0.000	A
	CircLink	1	1	2	556			556	553	0.0	0.0	0.000	A
			2	2, 3	788			788	783	0.0	0.0	0.000	A
			3	1, 3, 4	265			265	262	0.0	0.0	0.000	A
	CircBase	1	1	3	236			236	233	0.0	0.0	0.000	A
			2	1, 3, 4	263			263	263	0.0	0.0	0.000	A
	Entry	2	1	(3, 4)	1015			1015	1016	0.0	0.3	1.190	A
			2	(1, 2)	349			349	347	0.0	0.0	0.106	A
3 - A1079 (Beverley Road)	Entry	1	1	4	217	757	0.287	217	220	0.0	0.5	7.209	A
			2	1	286	757	0.379	289	286	0.0	0.6	7.978	A
			3	2, 3	172	757	0.227	172	169	0.0	0.4	6.442	A
	Exit	1	1		825			825	826	0.0	0.0	0.000	A
	CircLink	1	1	3	413			413	412	0.0	0.0	0.000	A
			2	1, 2, 3, 4	1446			1446	1437	0.0	0.0	0.000	A
	CircBase	1	1	4	682			682	676	0.0	0.0	0.000	A
			2	1, 2	351			351	347	0.0	0.0	0.000	A
	Entry	2	1	(1, 4)	504			504	510	0.0	0.0	0.049	A
			2	(2, 3)	172			172	171	0.0	0.0	0.005	A
4 - A1079	Entry	1	1	1, 2	377	813	0.463	377	373	0.0	0.7	6.843	A
			2	2, 3, 4	465	813	0.572	466	465	0.0	1.0	7.675	A
	CircBase	1	1	1	636			636	629	0.0	0.0	0.000	A
	Entry	2	1	(1, 2, 3, 4)	842			842	844	0.0	0.0	0.000	A
			1		899			899	897	0.0	0.0	0.000	A
	CircLink	1	1	4	899			899	897	0.0	0.0	0.000	A
			2	1	636			636	629	0.0	0.0	0.000	A
			3	2, 3	175			175	173	0.0	0.0	0.000	A
	CircBase	1	2	2, 3	175			175	173	0.0	0.0	0.000	A

07:30 - 07:45

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Average throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A1174 (Beverley Road)	Entry	1	1	2	364	697	0.522	363	360	0.8	1.3	11.551	B
			2	1, 3, 4	358	697	0.514	357	354	0.7	1.2	10.895	B
		2	1	(1, 2, 3, 4)	724			722	719	0.0	0.2	0.887	A
	Exit	1	1		770			770	767	0.0	0.0	0.000	A
	CircLink	1	1	1, 2	1248			1248	1242	0.0	0.0	0.000	A
			2	2, 3, 4	709			709	708	0.0	0.0	0.000	A
	CircBase	1	1	2, 3	1070			1070	1067	0.0	0.0	0.000	A
			2	3, 4	118			118	116	0.0	0.0	0.000	A
2 - A1033 Raich Carter Way	Entry	1	1	3	433	1056	0.410	432	431	0.7	0.7	6.057	A
			2	4	781	1056	0.739	782	778	1.4	2.0	9.061	A
			3	1, 2	404	1056	0.382	401	407	0.4	0.8	5.732	A
	Exit	1	1		1311			1311	1309	0.0	0.0	0.000	A
	CircLink	1	1	2	652			652	653	0.0	0.0	0.000	A
			2	2, 3	943			943	934	0.0	0.0	0.000	A
			3	1, 3, 4	312			312	311	0.0	0.0	0.000	A
	CircBase	1	1	3	283			283	278	0.0	0.0	0.000	A
			2	1, 3, 4	314			314	311	0.0	0.0	0.000	A
	Entry	2	1	(3, 4)	1210			1214	1211	0.3	1.9	4.814	A
			2	(1, 2)	404			404	408	0.0	0.0	0.218	A
3 - A1079 (Beverley Road)	Entry	1	1	4	271	695	0.390	271	264	0.5	0.6	9.014	A
			2	1	352	695	0.507	356	348	0.6	0.9	10.482	B
			3	2, 3	202	695	0.290	202	202	0.4	0.4	7.229	A
	Exit	1	1		995			995	985	0.0	0.0	0.000	A
	CircLink	1	1	3	495			495	491	0.0	0.0	0.000	A
			2	1, 2, 3, 4	1717			1717	1713	0.0	0.0	0.000	A
	CircBase	1	1	4	815			815	811	0.0	0.0	0.000	A
			2	1, 2	402			402	407	0.0	0.0	0.000	A
	Entry	2	1	(1, 4)	623			623	614	0.0	0.0	0.294	A
			2	(2, 3)	202			202	202	0.0	0.0	0.006	A
4 - A1079	Entry	1	1	1, 2	458	739	0.619	456	454	0.7	1.3	9.968	A
			2	2, 3, 4	541	739	0.732	541	537	1.0	1.7	11.151	B
	CircBase	1	1	1	753			753	751	0.0	0.0	0.000	A
	Entry	2	1	(1, 2, 3, 4)	999			999	997	0.0	0.0	0.001	A
			1	1	1086			1086	1075	0.0	0.0	0.000	A
	CircLink	1	1	4	1086			1086	1075	0.0	0.0	0.000	A
			2	1	753			753	751	0.0	0.0	0.000	A
			3	2, 3	207			207	207	0.0	0.0	0.000	A
	CircBase	1	2	2, 3	207			207	207	0.0	0.0	0.000	A

07:45 - 08:00

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Average throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A1174 (Beverley Road)	Entry	1	1	2	440	595	0.739	445	435	1.3	2.3	18.871	C
			2	1, 3, 4	441	595	0.741	435	430	1.2	2.8	19.049	C
		2	1	(1, 2, 3, 4)	893			881	875	0.2	3.5	8.844	A
	Exit	1	1		963			963	947	0.0	0.0	0.000	A
	CircLink	1	1	1, 2	1532			1532	1516	0.0	0.0	0.000	A
			2	2, 3, 4	846			846	835	0.0	0.0	0.000	A
	CircBase	1	1	2, 3	1274			1274	1269	0.0	0.0	0.000	A
			2	3, 4	140			140	135	0.0	0.0	0.000	A
2 - A1033 Raich Carter Way	Entry	1	1	3	510	1005	0.507	510	504	0.7	1.1	7.490	A
			2	4	921	1005	0.917	919	907	2.0	3.3	11.819	B
			3	1, 2	512	1005	0.510	512	509	0.8	1.1	7.035	A
	Exit	1	1		1579			1579	1568	0.0	0.0	0.000	A
	CircLink	1	1	2	790			790	782	0.0	0.0	0.000	A
			2	2, 3	1120			1120	1112	0.0	0.0	0.000	A
			3	1, 3, 4	384			384	376	0.0	0.0	0.000	A
	CircBase	1	1	3	334			334	329	0.0	0.0	0.000	A
			2	1, 3, 4	381			381	372	0.0	0.0	0.000	A
	Entry	2	1	(3, 4)	1496			1431	1418	1.9	20.1	30.244	D
			2	(1, 2)	512			512	510	0.0	0.1	0.724	A
3 - A1079 (Beverley Road)	Entry	1	1	4	320	611	0.523	317	313	0.6	1.4	12.687	B
			2	1	437	611	0.715	438	422	0.9	2.3	16.938	C
			3	2, 3	250	611	0.409	249	252	0.4	0.8	10.078	B
	Exit	1	1		1184			1184	1166	0.0	0.0	0.000	A
	CircLink	1	1	3	589			589	583	0.0	0.0	0.000	A
			2	1, 2, 3, 4	2066			2066	2039	0.0	0.0	0.000	A
	CircBase	1	1	4	958			958	946	0.0	0.0	0.000	A
			2	1, 2	512			512	510	0.0	0.0	0.000	A
	Entry	2	1	(1, 4)	752			757	744	0.0	0.6	2.939	A
			2	(2, 3)	250			250	253	0.0	0.0	0.107	A
4 - A1079	Entry	1	1	1, 2	596	620	0.961	579	569	1.3	7.9	33.810	D
			2	2, 3, 4	614	620	0.990	599	598	1.7	8.7	36.738	E
	CircBase	1	1	1	945			945	927	0.0	0.0	0.000	A
	Entry	2	1	(1, 2, 3, 4)	1233			1210	1222	0.0	2.9	3.044	A
			1	1	1276			1276	1259	0.0	0.0	0.000	A
	CircLink	1	1	4	1276			1276	1259	0.0	0.0	0.000	A
			2	1	945			945	927	0.0	0.0	0.000	A
			3	2, 3	254			254	257	0.0	0.0	0.000	A
	CircBase	1	2	2, 3	254			254	257	0.0	0.0	0.000	A

08:00 - 08:15

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Average throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A1174 (Beverley Road)	Entry	1	1	2	436	589	0.739	433	442	2.3	2.9	22.423	C
			2	1, 3, 4	443	589	0.752	445	439	2.8	2.6	21.954	C
		2	1	(1, 2, 3, 4)	888			879	883	3.5	5.5	19.141	C
	Exit	1	1		955			955	963	0.0	0.0	0.000	A
	CircLink	1	1	1, 2	1521			1521	1534	0.0	0.0	0.000	A
			2	2, 3, 4	861			861	858	0.0	0.0	0.000	A
	CircBase	1	1	2, 3	1286			1286	1290	0.0	0.0	0.000	A
			2	3, 4	141			141	139	0.0	0.0	0.000	A
2 - A1033 Raich Carter Way	Entry	1	1	3	511	1000	0.511	514	510	1.1	0.9	7.838	A
			2	4	935	1000	0.936	935	928	3.3	3.4	12.695	B
			3	1, 2	516	1000	0.516	516	519	1.1	1.0	7.407	A
	Exit	1	1		1580			1580	1593	0.0	0.0	0.000	A
	CircLink	1	1	2	788			788	793	0.0	0.0	0.000	A
			2	2, 3	1134			1134	1137	0.0	0.0	0.000	A
			3	1, 3, 4	384			384	380	0.0	0.0	0.000	A
	CircBase	1	1	3	343			343	342	0.0	0.0	0.000	A
			2	1, 3, 4	383			383	376	0.0	0.0	0.000	A
	Entry	2	1	(3, 4)	1487			1446	1437	20.1	30.8	65.455	F
			2	(1, 2)	517			516	518	0.1	0.1	0.785	A
3 - A1079 (Beverley Road)	Entry	1	1	4	326	604	0.540	324	319	1.4	1.4	13.920	B
			2	1	430	604	0.713	429	430	2.3	2.4	18.395	C
			3	2, 3	250	604	0.414	250	250	0.8	0.8	10.567	B
	Exit	1	1		1197			1197	1185	0.0	0.0	0.000	A
	CircLink	1	1	3	597			597	588	0.0	0.0	0.000	A
			2	1, 2, 3, 4	2094			2094	2085	0.0	0.0	0.000	A
	CircBase	1	1	4	977			977	969	0.0	0.0	0.000	A
			2	1, 2	517			517	520	0.0	0.0	0.000	A
	Entry	2	1	(1, 4)	758			757	750	0.6	1.1	4.660	A
			2	(2, 3)	250			250	250	0.0	0.0	0.130	A
4 - A1079	Entry	1	1	1, 2	592	623	0.950	583	587	7.9	9.0	51.231	F
			2	2, 3, 4	612	623	0.982	604	605	8.7	10.1	55.165	F
	CircBase	1	1	1	938			938	944	0.0	0.0	0.000	A
	Entry	2	1	(1, 2, 3, 4)	1221			1203	1202	2.9	8.8	19.766	C
			1	1	1300			1300	1289	0.0	0.0	0.000	A
	CircLink	1	1	4	1300			1300	1289	0.0	0.0	0.000	A
			2	1	938			938	944	0.0	0.0	0.000	A
			3	2, 3	257			257	256	0.0	0.0	0.000	A
	CircBase	1	2	2, 3	257			257	256	0.0	0.0	0.000	A

08:15 - 08:30

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Average throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A1174 (Beverley Road)	Entry	1	1	2	361	688	0.525	361	379	2.9	1.4	15.499	C
			2	1, 3, 4	357	688	0.519	362	375	2.6	1.1	16.430	C
		2	1	(1, 2, 3, 4)	711			718	742	5.5	0.1	6.764	A
	Exit	1	1		790			790	793	0.0	0.0	0.000	A
	CircLink	1	1	1, 2	1272			1272	1305	0.0	0.0	0.000	A
			2	2, 3, 4	727			727	774	0.0	0.0	0.000	A
	CircBase	1	1	2, 3	1092			1092	1158	0.0	0.0	0.000	A
			2	3, 4	117			117	128	0.0	0.0	0.000	A
2 - A1033 Raich Carter Way	Entry	1	1	3	452	1054	0.429	454	471	0.9	0.6	6.691	A
			2	4	801	1054	0.760	805	852	3.4	2.2	10.961	B
			3	1, 2	419	1054	0.398	420	421	1.0	0.7	6.114	A
	Exit	1	1		1332			1332	1408	0.0	0.0	0.000	A
	CircLink	1	1	2	670			670	704	0.0	0.0	0.000	A
			2	2, 3	948			948	1002	0.0	0.0	0.000	A
			3	1, 3, 4	314			314	334	0.0	0.0	0.000	A
	CircBase	1	1	3	289			289	299	0.0	0.0	0.000	A
			2	1, 3, 4	311			311	333	0.0	0.0	0.000	A
	Entry	2	1	(3, 4)	1210			1253	1317	30.8	4.0	32.591	D
			2	(1, 2)	418			419	420	0.1	0.0	0.349	A
3 - A1079 (Beverley Road)	Entry	1	1	4	261	682	0.382	261	263	1.4	0.6	10.150	B
			2	1	353	682	0.518	358	359	2.4	1.1	13.159	B
			3	2, 3	204	682	0.299	204	204	0.8	0.5	8.328	A
	Exit	1	1		1021			1021	1066	0.0	0.0	0.000	A
	CircLink	1	1	3	506			506	529	0.0	0.0	0.000	A
			2	1, 2, 3, 4	1773			1773	1846	0.0	0.0	0.000	A
	CircBase	1	1	4	837			837	887	0.0	0.0	0.000	A
			2	1, 2	421			421	422	0.0	0.0	0.000	A
	Entry	2	1	(1, 4)	613			614	613	1.1	0.0	0.908	A
			2	(2, 3)	204			204	203	0.0	0.0	0.009	A
4 - A1079	Entry	1	1	1, 2	470	728	0.646	479	521	9.0	1.5	25.988	D
			2	2, 3, 4	528	728	0.725	538	574	10.1	2.0	27.592	D
	CircBase	1	1	1	774			774	776	0.0	0.0	0.000	A
	Entry	2	1	(1, 2, 3, 4)	990			998	1032	8.8	0.2	7.923	A
			1	1	1098			1098	1150	0.0	0.0	0.000	A
	CircLink	1	1	4	1098			1098	1150	0.0	0.0	0.000	A
			2	1	774			774	776	0.0	0.0	0.000	A
			3	2, 3	209			209	209	0.0	0.0	0.000	A
	CircBase	1	2	2, 3	209			209	209	0.0	0.0	0.000	A

08:30 - 08:45

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Average throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A1174 (Beverley Road)	Entry	1	1	2	308	778	0.396	307	302	1.4	0.8	8.053	A
			2	1, 3, 4	300	778	0.385	301	300	1.1	0.6	8.362	A
		2	1	(1, 2, 3, 4)	608			608	599	0.1	0.0	0.103	A
	Exit	1	1		645			645	656	0.0	0.0	0.000	A
	CircLink	1	1	1, 2	1039			1039	1058	0.0	0.0	0.000	A
			2	2, 3, 4	613			613	609	0.0	0.0	0.000	A
	CircBase	1	1	2, 3	907			907	910	0.0	0.0	0.000	A
			2	3, 4	100			100	101	0.0	0.0	0.000	A
2 - A1033 Raich Carter Way	Entry	1	1	3	357	1097	0.326	358	365	0.6	0.5	5.161	A
			2	4	653	1097	0.595	653	665	2.2	1.2	7.420	A
			3	1, 2	352	1097	0.321	351	352	0.7	0.6	5.157	A
	Exit	1	1		1113			1113	1112	0.0	0.0	0.000	A
	CircLink	1	1	2	556			556	555	0.0	0.0	0.000	A
			2	2, 3	794			794	792	0.0	0.0	0.000	A
			3	1, 3, 4	266			266	267	0.0	0.0	0.000	A
	CircBase	1	1	3	231			231	234	0.0	0.0	0.000	A
			2	1, 3, 4	271			271	268	0.0	0.0	0.000	A
	Entry	2	1	(3, 4)	1010			1010	1026	4.0	0.3	2.366	A
			2	(1, 2)	351			352	352	0.0	0.0	0.129	A
3 - A1079 (Beverley Road)	Entry	1	1	4	210	757	0.278	210	219	0.6	0.5	7.335	A
			2	1	285	757	0.376	285	294	1.1	0.6	8.447	A
			3	2, 3	173	757	0.228	173	171	0.5	0.3	6.500	A
	Exit	1	1		833			833	839	0.0	0.0	0.000	A
	CircLink	1	1	3	418			418	421	0.0	0.0	0.000	A
			2	1, 2, 3, 4	1446			1446	1463	0.0	0.0	0.000	A
	CircBase	1	1	4	679			679	692	0.0	0.0	0.000	A
			2	1, 2	352			352	353	0.0	0.0	0.000	A
	Entry	2	1	(1, 4)	496			496	510	0.0	0.0	0.062	A
			2	(2, 3)	173			173	171	0.0	0.0	0.002	A
4 - A1079	Entry	1	1	1, 2	376	814	0.461	375	381	1.5	0.7	7.545	A
			2	2, 3, 4	467	814	0.574	467	468	2.0	1.0	8.536	A
	CircBase	1	1	1	633			633	643	0.0	0.0	0.000	A
	Entry	2	1	(1, 2, 3, 4)	843			843	842	0.2	0.0	0.085	A
			1	1	889			889	911	0.0	0.0	0.000	A
	CircLink	1	1	4	889			889	911	0.0	0.0	0.000	A
			2	1	633			633	643	0.0	0.0	0.000	A
			3	2, 3	177			177	175	0.0	0.0	0.000	A
	CircBase	1	2	2, 3	177			177	175	0.0	0.0	0.000	A

Existing Layout - 2030 Do Nothing, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Lane Simulation	A1 - Existing Layout [Lane Simulation]	This analysis set uses Lane Simulation mode. This is provided as an investigative tool and the user should apply judgement when interpreting the results.
Last Run	Lane Simulation	2 - A1033 Raich Carter Way - Lane Simulation	Arm 2: Queue at end of modelled period is greater than 10 PCU. Delay is likely to have been underestimated.
Warning	Geometry	1 - A1174 (Beverley Road) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	3 - A1079 (Beverley Road) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	4 - A1079 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Dunswell Roundabout	Large Roundabout	✓	1, 2, 3, 4	232.04	F

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

[same as above]

Roundabout Geometry

[same as above]

Large Roundabout Data

Arm	Circulating flow (PCU/hr)	Entry-to-exit separation (m)
1 - A1174 (Beverley Road)	1548	35.00
2 - A1033 Raich Carter Way	759	45.00
3 - A1079 (Beverley Road)	1523	37.00
4 - A1079	1290	48.00

Slope / Intercept / Capacity

[same as above]

Lane Simulation: Arm options

[same as above]

Lanes

[same as above]

Entry Lane slope and intercept

[same as above]

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)	Run automatically
D2	2030 Do Nothing	AM	ONE HOUR	07:15	08:45	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	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - A1174 (Beverley Road)		ONE HOUR	✓	868	100.000
2 - A1033 Raich Carter Way		ONE HOUR	✓	2264	100.000
3 - A1079 (Beverley Road)		ONE HOUR	✓	1036	100.000
4 - A1079		ONE HOUR	✓	1211	100.000

Origin-Destination Data

Demand (PCU/hr)

	To				
From		1 - A1174 (Beverley Road)	2 - A1033 Raich Carter Way	3 - A1079 (Beverley Road)	4 - A1079
	1 - A1174 (Beverley Road)	1	435	392	40
	2 - A1033 Raich Carter Way	516	5	729	1014
	3 - A1079 (Beverley Road)	421	301	1	313
	4 - A1079	19	911	281	0

Vehicle Mix

Heavy Vehicle Percentages

	To				
From		1 - A1174 (Beverley Road)	2 - A1033 Raich Carter Way	3 - A1079 (Beverley Road)	4 - A1079
	1 - A1174 (Beverley Road)	0	4	3	23
	2 - A1033 Raich Carter Way	6	0	2	3
	3 - A1079 (Beverley Road)	3	2	0	6
	4 - A1079	6	4	4	0

Results

Results Summary for whole modelled period

Arm	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - A1174 (Beverley Road)	61.02	17.2	F	799	1199
2 - A1033 Raich Carter Way	352.26	200.1	F	2083	3125
3 - A1079 (Beverley Road)	22.51	8.0	C	950	1425
4 - A1079	309.03	124.4	F	1109	1663

Main Results for each time segment

07:15 - 07:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Average throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A1174 (Beverley Road)	645	161	1133	647	644	717	0.0	1.6	9.638	A
2 - A1033 Raich Carter Way	1702	426	543	1692	1674	1238	0.0	6.0	10.261	B
3 - A1079 (Beverley Road)	769	192	1182	769	768	1053	0.0	1.9	8.351	A
4 - A1079	922	231	927	924	908	1024	0.0	2.5	9.239	A

07:30 - 07:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Average throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A1174 (Beverley Road)	785	196	1332	781	767	867	1.6	4.1	15.567	C
2 - A1033 Raich Carter Way	2044	511	643	2018	1991	1471	6.0	19.0	26.354	D
3 - A1079 (Beverley Road)	935	234	1412	932	923	1249	1.9	3.5	12.289	B
4 - A1079	1085	271	1125	1075	1071	1219	2.5	7.4	19.894	C

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Average throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A1174 (Beverley Road)	978	244	1424	942	913	1043	4.1	16.2	45.473	E
2 - A1033 Raich Carter Way	2499	625	722	2127	2134	1644	19.0	108.0	115.264	F
3 - A1079 (Beverley Road)	1128	282	1528	1126	1120	1321	3.5	7.9	21.983	C
4 - A1079	1332	333	1365	1102	1115	1288	7.4	62.2	112.048	F

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Average throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A1174 (Beverley Road)	961	240	1392	942	954	1051	16.2	17.2	61.022	F
2 - A1033 Raich Carter Way	2506	627	719	2121	2121	1615	108.0	200.1	277.181	F
3 - A1079 (Beverley Road)	1145	286	1522	1129	1141	1319	7.9	8.0	22.509	C
4 - A1079	1330	333	1366	1077	1079	1285	62.2	124.4	309.030	F

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Average throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A1174 (Beverley Road)	763	191	1569	767	808	869	17.2	8.1	43.386	E
2 - A1033 Raich Carter Way	2022	505	687	2050	2047	1649	200.1	196.4	352.262	F
3 - A1079 (Beverley Road)	939	235	1424	938	951	1313	8.0	3.4	14.506	B
4 - A1079	1074	268	1131	1307	1263	1231	124.4	79.1	296.152	F

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Average throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A1174 (Beverley Road)	664	166	1272	667	673	728	8.1	3.9	25.127	D
2 - A1033 Raich Carter Way	1726	431	580	2038	2019	1359	196.4	119.1	249.161	F
3 - A1079 (Beverley Road)	784	196	1381	782	782	1238	3.4	2.3	10.075	B
4 - A1079	909	227	944	1056	1208	1219	79.1	6.8	89.872	F

Lane Results

Lane Level notation: Lane Level 1 is always closest to the junction.

Lanes: Main Results for each time segment

07:15 - 07:30

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Average throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A1174 (Beverley Road)	Entry	1	1	2	320	723	0.443	320	321	0.0	0.9	9.255	A
			2	1, 3, 4	326	723	0.451	328	323	0.0	0.7	9.450	A
		2	1	(1, 2, 3, 4)	645			646	650	0.0	0.0	0.280	A
	Exit	1	1		717			717	711	0.0	0.0	0.000	A
	CircLink	1	1	1, 2	1174			1174	1171	0.0	0.0	0.000	A
			2	2, 3, 4	676			676	660	0.0	0.0	0.000	A
	CircBase	1	1	2, 3	1023			1023	1014	0.0	0.0	0.000	A
			2	3, 4	110			110	106	0.0	0.0	0.000	A
2 - A1033 Raich Carter Way	Entry	1	1	3	538	1077	0.500	540	540	0.0	0.8	6.397	A
			2	4	767	1077	0.712	764	748	0.0	2.1	8.226	A
			3	1, 2	389	1077	0.361	388	386	0.0	0.6	5.395	A
	Exit	1	1		1238			1238	1231	0.0	0.0	0.000	A
	CircLink	1	1	2	623			623	616	0.0	0.0	0.000	A
			2	2, 3	871			871	868	0.0	0.0	0.000	A
			3	1, 3, 4	287			287	280	0.0	0.0	0.000	A
	CircBase	1	1	3	254			254	251	0.0	0.0	0.000	A
			2	1, 3, 4	289			289	283	0.0	0.0	0.000	A
	Entry	2	1	(3, 4)	1313			1306	1300	0.0	2.4	4.121	A
			2	(1, 2)	389			389	388	0.0	0.0	0.204	A
3 - A1079 (Beverley Road)	Entry	1	1	4	231	710	0.325	231	231	0.0	0.5	7.993	A
			2	1	317	710	0.447	316	314	0.0	0.9	9.140	A
			3	2, 3	221	710	0.312	222	224	0.0	0.5	7.364	A
	Exit	1	1		1053			1053	1045	0.0	0.0	0.000	A
	CircLink	1	1	3	528			528	524	0.0	0.0	0.000	A
			2	1, 2, 3, 4	1707			1707	1683	0.0	0.0	0.000	A
	CircBase	1	1	4	793			793	776	0.0	0.0	0.000	A
			2	1, 2	389			389	386	0.0	0.0	0.000	A
	Entry	2	1	(1, 4)	548			548	550	0.0	0.0	0.090	A
			2	(2, 3)	221			221	226	0.0	0.0	0.028	A
4 - A1079	Entry	1	1	1, 2	423	754	0.562	424	416	0.0	1.2	8.599	A
			2	2, 3, 4	499	754	0.662	500	491	0.0	1.3	9.782	A
	CircBase	1	1	1	701			701	696	0.0	0.0	0.000	A
	Entry	2	1	(1, 2, 3, 4)	922			922	918	0.0	0.0	0.000	A
			1		1024			1024	1007	0.0	0.0	0.000	A
	CircLink	1	1	4	1024			1024	1007	0.0	0.0	0.000	A
			2	1	701			701	696	0.0	0.0	0.000	A
			3	2, 3	226			226	228	0.0	0.0	0.000	A
	CircBase	1	2	2, 3	226			226	228	0.0	0.0	0.000	A

07:30 - 07:45

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Average throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A1174 (Beverley Road)	Entry	1	1	2	391	637	0.614	393	386	0.9	1.7	13.990	B
			2	1, 3, 4	389	637	0.612	388	381	0.7	1.7	13.853	B
		2	1	(1, 2, 3, 4)	785			780	774	0.0	0.8	1.608	A
	Exit	1	1		867			867	864	0.0	0.0	0.000	A
	CircLink	1	1	1, 2	1406			1406	1399	0.0	0.0	0.000	A
			2	2, 3, 4	794			794	791	0.0	0.0	0.000	A
	CircBase	1	1	2, 3	1207			1207	1202	0.0	0.0	0.000	A
			2	3, 4	125			125	124	0.0	0.0	0.000	A
2 - A1033 Raich Carter Way	Entry	1	1	3	647	1035	0.625	644	632	0.8	1.7	7.985	A
			2	4	892	1035	0.862	896	881	2.1	2.6	10.591	B
			3	1, 2	476	1035	0.460	478	477	0.6	0.9	6.459	A
	Exit	1	1		1471			1471	1462	0.0	0.0	0.000	A
	CircLink	1	1	2	725			725	724	0.0	0.0	0.000	A
			2	2, 3	1044			1044	1037	0.0	0.0	0.000	A
			3	1, 3, 4	344			344	333	0.0	0.0	0.000	A
	CircBase	1	1	3	297			297	297	0.0	0.0	0.000	A
			2	1, 3, 4	345			345	335	0.0	0.0	0.000	A
	Entry	2	1	(3, 4)	1568			1539	1519	2.4	13.7	22.546	C
			2	(1, 2)	476			476	478	0.0	0.1	0.521	A
3 - A1079 (Beverley Road)	Entry	1	1	4	287	637	0.451	286	282	0.5	1.1	10.898	B
			2	1	378	637	0.594	377	373	0.9	1.4	13.179	B
			3	2, 3	268	637	0.421	270	269	0.5	0.7	10.153	B
	Exit	1	1		1249			1249	1227	0.0	0.0	0.000	A
	CircLink	1	1	3	620			620	614	0.0	0.0	0.000	A
			2	1, 2, 3, 4	2041			2041	2008	0.0	0.0	0.000	A
	CircBase	1	1	4	933			933	917	0.0	0.0	0.000	A
			2	1, 2	479			479	478	0.0	0.0	0.000	A
	Entry	2	1	(1, 4)	668			666	659	0.0	0.3	0.892	A
			2	(2, 3)	268			268	269	0.0	0.0	0.086	A
4 - A1079	Entry	1	1	1, 2	518	659	0.786	513	510	1.2	3.4	18.614	C
			2	2, 3, 4	567	659	0.861	561	560	1.3	3.9	20.834	C
	CircBase	1	1	1	851			851	847	0.0	0.0	0.000	A
	Entry	2	1	(1, 2, 3, 4)	1085			1085	1090	0.0	0.1	0.098	A
			1	1	1219			1219	1199	0.0	0.0	0.000	A
	CircLink	1	1	4	1219			1219	1199	0.0	0.0	0.000	A
			2	1	851			851	847	0.0	0.0	0.000	A
			3	2, 3	274			274	273	0.0	0.0	0.000	A
	CircBase	1	2	2, 3	274			274	273	0.0	0.0	0.000	A

07:45 - 08:00

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Average throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A1174 (Beverley Road)	Entry	1	1	2	481	597	0.805	480	462	1.7	3.2	22.404	C
			2	1, 3, 4	467	597	0.783	462	451	1.7	3.3	22.502	C
		2	1	(1, 2, 3, 4)	978			948	926	0.8	9.7	22.777	C
	Exit	1	1		1043			1043	1035	0.0	0.0	0.000	A
	CircLink	1	1	1, 2	1625			1625	1620	0.0	0.0	0.000	A
			2	2, 3, 4	843			843	847	0.0	0.0	0.000	A
	CircBase	1	1	2, 3	1292			1292	1300	0.0	0.0	0.000	A
			2	3, 4	132			132	132	0.0	0.0	0.000	A
2 - A1033 Raich Carter Way	Entry	1	1	3	649	1001	0.649	646	652	1.7	1.7	9.013	A
			2	4	906	1001	0.906	907	913	2.6	3.1	12.162	B
			3	1, 2	575	1001	0.575	575	570	0.9	1.3	7.950	A
	Exit	1	1		1644			1644	1633	0.0	0.0	0.000	A
	CircLink	1	1	2	823			823	815	0.0	0.0	0.000	A
			2	2, 3	1154			1154	1154	0.0	0.0	0.000	A
			3	1, 3, 4	388			388	377	0.0	0.0	0.000	A
	CircBase	1	1	3	337			337	334	0.0	0.0	0.000	A
			2	1, 3, 4	385			385	379	0.0	0.0	0.000	A
	Entry	2	1	(3, 4)	1923			1556	1566	13.7	101.6	134.957	F
			2	(1, 2)	576			575	571	0.1	0.3	1.479	A
3 - A1079 (Beverley Road)	Entry	1	1	4	336	600	0.561	336	338	1.1	1.5	14.928	B
			2	1	454	600	0.758	455	451	1.4	2.8	20.254	C
			3	2, 3	334	600	0.557	334	330	0.7	1.2	13.409	B
	Exit	1	1		1321			1321	1322	0.0	0.0	0.000	A
	CircLink	1	1	3	666			666	664	0.0	0.0	0.000	A
			2	1, 2, 3, 4	2183			2183	2182	0.0	0.0	0.000	A
	CircBase	1	1	4	952			952	954	0.0	0.0	0.000	A
			2	1, 2	576			576	571	0.0	0.0	0.000	A
	Entry	2	1	(1, 4)	794			791	797	0.3	2.3	7.255	A
			2	(2, 3)	334			334	333	0.0	0.0	0.591	A
4 - A1079	Entry	1	1	1, 2	565	543	1.041	551	555	3.4	13.2	64.067	F
			2	2, 3, 4	562	543	1.035	551	560	3.9	14.2	69.821	F
	CircBase	1	1	1	1025			1025	1016	0.0	0.0	0.000	A
	Entry	2	1	(1, 2, 3, 4)	1332			1127	1195	0.1	34.8	41.957	E
			1	1	1288			1288	1292	0.0	0.0	0.000	A
	CircLink	1	1	4	1288			1288	1292	0.0	0.0	0.000	A
			2	1	1025			1025	1016	0.0	0.0	0.000	A
			3	2, 3	341			341	336	0.0	0.0	0.000	A
	CircBase	1	2	2, 3	341			341	336	0.0	0.0	0.000	A

08:00 - 08:15

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Average throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A1174 (Beverley Road)	Entry	1	1	2	474	611	0.777	478	477	3.2	3.2	23.366	C
			2	1, 3, 4	464	611	0.760	464	477	3.3	3.0	23.517	C
		2	1	(1, 2, 3, 4)	961			938	953	9.7	11.0	37.584	E
	Exit	1	1		1051			1051	1050	0.0	0.0	0.000	A
	CircLink	1	1	1, 2	1623			1623	1622	0.0	0.0	0.000	A
			2	2, 3, 4	821			821	825	0.0	0.0	0.000	A
	CircBase	1	1	2, 3	1262			1262	1268	0.0	0.0	0.000	A
			2	3, 4	130			130	129	0.0	0.0	0.000	A
2 - A1033 Raich Carter Way	Entry	1	1	3	642	1002	0.640	642	646	1.7	1.7	9.421	A
			2	4	899	1002	0.897	899	899	3.1	3.0	12.397	B
			3	1, 2	582	1002	0.581	580	576	1.3	1.4	7.969	A
	Exit	1	1		1615			1615	1620	0.0	0.0	0.000	A
	CircLink	1	1	2	799			799	805	0.0	0.0	0.000	A
			2	2, 3	1160			1160	1160	0.0	0.0	0.000	A
			3	1, 3, 4	376			376	387	0.0	0.0	0.000	A
	CircBase	1	1	3	336			336	342	0.0	0.0	0.000	A
			2	1, 3, 4	383			383	389	0.0	0.0	0.000	A
	Entry	2	1	(3, 4)	1924			1540	1545	101.6	193.7	343.996	F
			2	(1, 2)	583			582	576	0.3	0.3	1.478	A
3 - A1079 (Beverley Road)	Entry	1	1	4	346	602	0.575	344	349	1.5	1.5	15.573	C
			2	1	461	602	0.766	457	460	2.8	2.9	20.793	C
			3	2, 3	330	602	0.549	328	331	1.2	1.4	13.431	B
	Exit	1	1		1319			1319	1332	0.0	0.0	0.000	A
	CircLink	1	1	3	653			653	664	0.0	0.0	0.000	A
			2	1, 2, 3, 4	2188			2188	2188	0.0	0.0	0.000	A
	CircBase	1	1	4	941			941	943	0.0	0.0	0.000	A
			2	1, 2	581			581	577	0.0	0.0	0.000	A
	Entry	2	1	(1, 4)	814			806	810	2.3	2.2	7.529	A
			2	(2, 3)	331			330	331	0.0	0.1	0.447	A
4 - A1079	Entry	1	1	1, 2	545	543	1.004	543	545	13.2	13.5	88.180	F
			2	2, 3, 4	536	543	0.987	534	534	14.2	14.8	98.170	F
	CircBase	1	1	1	1034			1034	1033	0.0	0.0	0.000	A
	Entry	2	1	(1, 2, 3, 4)	1330			1081	1083	34.8	96.1	219.491	F
			1	1	1285			1285	1292	0.0	0.0	0.000	A
	CircLink	1	1	4	1285			1285	1292	0.0	0.0	0.000	A
			2	1	1034			1034	1033	0.0	0.0	0.000	A
			3	2, 3	333			333	336	0.0	0.0	0.000	A
	CircBase	1	2	2, 3	333			333	336	0.0	0.0	0.000	A

08:15 - 08:30

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Average throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A1174 (Beverley Road)	Entry	1	1	2	380	534	0.712	381	405	3.2	2.3	21.490	C
			2	1, 3, 4	381	534	0.712	386	403	3.0	2.2	22.194	C
		2	1	(1, 2, 3, 4)	763			761	801	11.0	3.6	21.709	C
	Exit	1	1		869			869	875	0.0	0.0	0.000	A
	CircLink	1	1	1, 2	1499			1499	1489	0.0	0.0	0.000	A
			2	2, 3, 4	939			939	911	0.0	0.0	0.000	A
	CircBase	1	1	2, 3	1418			1418	1378	0.0	0.0	0.000	A
			2	3, 4	152			152	148	0.0	0.0	0.000	A
2 - A1033 Raich Carter Way	Entry	1	1	3	665	1016	0.655	663	660	1.7	1.8	9.137	A
			2	4	916	1016	0.902	915	914	3.0	3.2	12.160	B
			3	1, 2	470	1016	0.463	472	473	1.4	0.8	6.804	A
	Exit	1	1		1649			1649	1636	0.0	0.0	0.000	A
	CircLink	1	1	2	817			817	809	0.0	0.0	0.000	A
			2	2, 3	1158			1158	1159	0.0	0.0	0.000	A
			3	1, 3, 4	362			362	366	0.0	0.0	0.000	A
	CircBase	1	1	3	329			329	333	0.0	0.0	0.000	A
			2	1, 3, 4	359			359	364	0.0	0.0	0.000	A
	Entry	2	1	(3, 4)	1552			1581	1575	193.7	190.5	442.085	F
			2	(1, 2)	470			470	470	0.3	0.1	0.504	A
3 - A1079 (Beverley Road)	Entry	1	1	4	280	633	0.442	280	288	1.5	0.8	11.517	B
			2	1	384	633	0.607	382	387	2.9	1.7	15.180	C
			3	2, 3	278	633	0.439	277	276	1.4	0.8	10.516	B
	Exit	1	1		1313			1313	1320	0.0	0.0	0.000	A
	CircLink	1	1	3	656			656	661	0.0	0.0	0.000	A
			2	1, 2, 3, 4	2081			2081	2084	0.0	0.0	0.000	A
	CircBase	1	1	4	952			952	951	0.0	0.0	0.000	A
			2	1, 2	473			473	474	0.0	0.0	0.000	A
	Entry	2	1	(1, 4)	662			664	667	2.2	0.1	2.715	A
			2	(2, 3)	277			278	274	0.1	0.0	0.121	A
4 - A1079	Entry	1	1	1, 2	631	656	0.963	644	627	13.5	11.8	73.803	F
			2	2, 3, 4	652	656	0.994	663	637	14.8	13.1	79.475	F
	CircBase	1	1	1	850			850	856	0.0	0.0	0.000	A
	Entry	2	1	(1, 2, 3, 4)	1074			1283	1250	96.1	54.2	222.543	F
			1	1	1231			1231	1239	0.0	0.0	0.000	A
	CircLink	1	1	4	1231			1231	1239	0.0	0.0	0.000	A
			2	1	850			850	856	0.0	0.0	0.000	A
			3	2, 3	281			281	281	0.0	0.0	0.000	A
	CircBase	1	2	2, 3	281			281	281	0.0	0.0	0.000	A

08:30 - 08:45

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Average throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A1174 (Beverley Road)	Entry	1	1	2	334	663	0.504	334	337	2.3	1.6	18.097	C
			2	1, 3, 4	332	663	0.501	332	336	2.2	1.4	17.840	C
		2	1	(1, 2, 3, 4)	664			666	667	3.6	0.9	7.463	A
	Exit	1	1		728			728	728	0.0	0.0	0.000	A
	CircLink	1	1	1, 2	1242			1242	1297	0.0	0.0	0.000	A
			2	2, 3, 4	758			758	854	0.0	0.0	0.000	A
	CircBase	1	1	2, 3	1148			1148	1278	0.0	0.0	0.000	A
			2	3, 4	124			124	145	0.0	0.0	0.000	A
2 - A1033 Raich Carter Way	Entry	1	1	3	686	1062	0.646	687	679	1.8	1.7	8.804	A
			2	4	953	1062	0.897	953	942	3.2	3.0	11.618	B
			3	1, 2	400	1062	0.377	399	397	0.8	0.6	5.921	A
	Exit	1	1		1359			1359	1475	0.0	0.0	0.000	A
	CircLink	1	1	2	680			680	741	0.0	0.0	0.000	A
			2	2, 3	955			955	1030	0.0	0.0	0.000	A
			3	1, 3, 4	303			303	325	0.0	0.0	0.000	A
	CircBase	1	1	3	278			278	296	0.0	0.0	0.000	A
			2	1, 3, 4	302			302	325	0.0	0.0	0.000	A
	Entry	2	1	(3, 4)	1326			1639	1620	190.5	113.8	335.112	F
			2	(1, 2)	400			400	397	0.1	0.0	0.254	A
3 - A1079 (Beverley Road)	Entry	1	1	4	238	647	0.368	238	237	0.8	0.7	9.339	A
			2	1	318	647	0.491	316	315	1.7	1.0	11.241	B
			3	2, 3	228	647	0.353	229	230	0.8	0.6	8.732	A
	Exit	1	1		1238			1238	1269	0.0	0.0	0.000	A
	CircLink	1	1	3	618			618	634	0.0	0.0	0.000	A
			2	1, 2, 3, 4	2001			2001	2006	0.0	0.0	0.000	A
	CircBase	1	1	4	982			982	972	0.0	0.0	0.000	A
			2	1, 2	399			399	398	0.0	0.0	0.000	A
	Entry	2	1	(1, 4)	556			556	549	0.1	0.0	0.218	A
			2	(2, 3)	228			228	229	0.0	0.0	0.020	A
4 - A1079	Entry	1	1	1, 2	467	746	0.626	498	585	11.8	2.4	43.006	E
			2	2, 3, 4	523	746	0.702	558	624	13.1	2.8	44.813	E
	CircBase	1	1	1	711			711	710	0.0	0.0	0.000	A
	Entry	2	1	(1, 2, 3, 4)	909			990	1129	54.2	1.6	51.946	F
			1	1	1219			1219	1209	0.0	0.0	0.000	A
	CircLink	1	1	4	1219			1219	1209	0.0	0.0	0.000	A
			2	1	711			711	710	0.0	0.0	0.000	A
			3	2, 3	233			233	233	0.0	0.0	0.000	A
	CircBase	1	2	2, 3	233			233	233	0.0	0.0	0.000	A

Existing Layout - 2030 With Development, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Lane Simulation	A1 - Existing Layout [Lane Simulation]	This analysis set uses Lane Simulation mode. This is provided as an investigative tool and the user should apply judgement when interpreting the results.
Last Run	Lane Simulation	2 - A1033 Raich Carter Way - Lane Simulation	Arm 2: Queue at end of modelled period is greater than 10 PCU. Delay is likely to have been underestimated.
Last Run	Lane Simulation	4 - A1079 - Lane Simulation	Arm 4: Queue at end of modelled period is greater than 10 PCU. Delay is likely to have been underestimated.
Warning	Geometry	1 - A1174 (Beverley Road) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	3 - A1079 (Beverley Road) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	4 - A1079 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Dunswell Roundabout	Large Roundabout	✓	1, 2, 3, 4	394.90	F

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

[same as above]

Roundabout Geometry

[same as above]

Large Roundabout Data

Arm	Circulating flow (PCU/hr)	Entry-to-exit separation (m)
1 - A1174 (Beverley Road)	1568	35.00
2 - A1033 Raich Carter Way	759	45.00
3 - A1079 (Beverley Road)	1548	37.00
4 - A1079	1308	48.00

Slope / Intercept / Capacity

[same as above]

Lane Simulation: Arm options

[same as above]

Lanes

[same as above]

Entry Lane slope and intercept

[same as above]

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)	Run automatically
D3	2030 With Development	AM	ONE HOUR	07:15	08:45	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	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - A1174 (Beverley Road)		ONE HOUR	✓	876	100.000
2 - A1033 Raich Carter Way		ONE HOUR	✓	2372	100.000
3 - A1079 (Beverley Road)		ONE HOUR	✓	1045	100.000
4 - A1079		ONE HOUR	✓	1221	100.000

Origin-Destination Data

Demand (PCU/hr)

	To				
From		1 - A1174 (Beverley Road)	2 - A1033 Raich Carter Way	3 - A1079 (Beverley Road)	4 - A1079
	1 - A1174 (Beverley Road)	1	376	459	40
	2 - A1033 Raich Carter Way	541	47	736	1048
	3 - A1079 (Beverley Road)	413	296	29	307
	4 - A1079	19	788	414	0

Vehicle Mix

Heavy Vehicle Percentages

	To				
From		1 - A1174 (Beverley Road)	2 - A1033 Raich Carter Way	3 - A1079 (Beverley Road)	4 - A1079
	1 - A1174 (Beverley Road)	0	4	2	23
	2 - A1033 Raich Carter Way	6	0	3	2
	3 - A1079 (Beverley Road)	3	2	6	0
	4 - A1079	6	5	4	0

Results

Results Summary for whole modelled period

Arm	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - A1174 (Beverley Road)	73.02	20.6	F	807	1210
2 - A1033 Raich Carter Way	619.54	350.5	F	2179	3268
3 - A1079 (Beverley Road)	22.38	7.0	C	957	1436
4 - A1079	507.60	180.9	F	1125	1688

Main Results for each time segment

07:15 - 07:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Average throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A1174 (Beverley Road)	664	166	1182	662	650	726	0.0	2.1	10.115	B
2 - A1033 Raich Carter Way	1787	447	712	1773	1748	1131	0.0	9.3	15.273	C
3 - A1079 (Beverley Road)	780	195	1252	779	780	1233	0.0	2.1	8.757	A
4 - A1079	919	230	993	914	910	1038	0.0	3.3	11.063	B

07:30 - 07:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Average throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A1174 (Beverley Road)	794	199	1417	781	779	873	2.1	5.5	19.960	C
2 - A1033 Raich Carter Way	2124	531	849	1987	1995	1349	9.3	43.8	50.770	F
3 - A1079 (Beverley Road)	937	234	1418	935	933	1417	2.1	3.2	11.640	B
4 - A1079	1098	274	1186	1104	1071	1168	3.3	9.4	26.778	D

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Average throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A1174 (Beverley Road)	978	244	1382	962	922	1083	5.5	18.4	56.830	F
2 - A1033 Raich Carter Way	2636	659	915	2075	2082	1429	43.8	177.7	208.346	F
3 - A1079 (Beverley Road)	1166	291	1541	1168	1144	1449	3.2	6.5	19.851	C
4 - A1079	1341	335	1488	977	1023	1222	9.4	89.3	170.296	F

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Average throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A1174 (Beverley Road)	966	242	1374	952	956	1074	18.4	20.6	73.016	F
2 - A1033 Raich Carter Way	2605	651	903	2095	2089	1423	177.7	307.6	462.021	F
3 - A1079 (Beverley Road)	1146	287	1548	1151	1150	1449	6.5	7.0	22.377	C
4 - A1079	1356	339	1469	979	979	1231	89.3	180.9	481.144	F

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Average throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A1174 (Beverley Road)	780	195	1557	778	822	864	20.6	12.2	57.708	F
2 - A1033 Raich Carter Way	2128	532	890	1974	1966	1446	307.6	350.5	619.545	F
3 - A1079 (Beverley Road)	928	232	1412	930	953	1451	7.0	3.2	13.825	B
4 - A1079	1108	277	1182	1239	1182	1160	180.9	160.3	507.600	F

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Average throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A1174 (Beverley Road)	658	164	1603	657	678	743	12.2	7.3	39.953	E
2 - A1033 Raich Carter Way	1792	448	851	1921	1912	1409	350.5	319.1	399.788	F
3 - A1079 (Beverley Road)	787	197	1340	792	796	1432	3.2	1.9	9.816	A
4 - A1079	929	232	1000	1347	1359	1132	160.3	52.5	276.362	F

Lane Results

Lane Level notation: Lane Level 1 is always closest to the junction.

Lanes: Main Results for each time segment

07:15 - 07:30

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Average throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A1174 (Beverley Road)	Entry	1	1	2	283	702	0.403	283	281	0.0	0.7	8.653	A
			2	1, 3, 4	380	702	0.542	379	370	0.0	1.3	10.739	B
		2	1	(1, 2, 3, 4)	664			663	658	0.0	0.1	0.259	A
	Exit	1	1		726			726	723	0.0	0.0	0.000	A
	CircLink	1	1	1, 2	1153			1153	1146	0.0	0.0	0.000	A
			2	2, 3, 4	755			755	748	0.0	0.0	0.000	A
	CircBase	1	1	2, 3	1015			1015	1007	0.0	0.0	0.000	A
			2	3, 4	166			166	164	0.0	0.0	0.000	A
2 - A1033 Raich Carter Way	Entry	1	1	3	555	1005	0.552	552	544	0.0	1.3	7.557	A
			2	4	787	1005	0.783	786	768	0.0	2.2	9.750	A
			3	1, 2	436	1005	0.434	435	435	0.0	0.8	6.438	A
	Exit	1	1		1131			1131	1123	0.0	0.0	0.000	A
	CircLink	1	1	2	569			569	563	0.0	0.0	0.000	A
			2	2, 3	903			903	894	0.0	0.0	0.000	A
			3	1, 3, 4	372			372	363	0.0	0.0	0.000	A
	CircBase	1	1	3	335			335	331	0.0	0.0	0.000	A
			2	1, 3, 4	377			377	367	0.0	0.0	0.000	A
	Entry	2	1	(3, 4)	1351			1342	1327	0.0	4.9	9.056	A
			2	(1, 2)	436			436	438	0.0	0.0	0.416	A
3 - A1079 (Beverley Road)	Entry	1	1	4	223	688	0.323	222	231	0.0	0.6	7.980	A
			2	1	311	688	0.452	310	308	0.0	1.0	9.495	A
			3	2, 3	246	688	0.358	247	241	0.0	0.5	8.168	A
	Exit	1	1		1233			1233	1213	0.0	0.0	0.000	A
	CircLink	1	1	3	613			613	603	0.0	0.0	0.000	A
			2	1, 2, 3, 4	1872			1872	1843	0.0	0.0	0.000	A
	CircBase	1	1	4	816			816	797	0.0	0.0	0.000	A
			2	1, 2	436			436	436	0.0	0.0	0.000	A
	Entry	2	1	(1, 4)	534			534	545	0.0	0.0	0.164	A
			2	(2, 3)	246			246	243	0.0	0.0	0.032	A
4 - A1079	Entry	1	1	1, 2	403	722	0.559	401	398	0.0	1.3	9.333	A
			2	2, 3, 4	515	722	0.713	513	511	0.0	2.0	12.393	B
	CircBase	1	1	1	711			711	708	0.0	0.0	0.000	A
	Entry	2	1	(1, 2, 3, 4)	919			919	923	0.0	0.0	0.003	A
			1	1	1038			1038	1027	0.0	0.0	0.000	A
	CircLink	1	1	4	1038			1038	1027	0.0	0.0	0.000	A
			2	1	711			711	708	0.0	0.0	0.000	A
			3	2, 3	282			282	276	0.0	0.0	0.000	A
	CircBase	1	2	2, 3	282			282	276	0.0	0.0	0.000	A

07:30 - 07:45

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Average throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A1174 (Beverley Road)	Entry	1	1	2	337	601	0.561	334	334	0.7	1.6	12.951	B
			2	1, 3, 4	454	601	0.755	447	445	1.3	2.6	17.974	C
		2	1	(1, 2, 3, 4)	794			791	788	0.1	1.3	4.057	A
	Exit	1	1		873			873	871	0.0	0.0	0.000	A
	CircLink	1	1	1, 2	1382			1382	1370	0.0	0.0	0.000	A
			2	2, 3, 4	908			908	887	0.0	0.0	0.000	A
	CircBase	1	1	2, 3	1214			1214	1191	0.0	0.0	0.000	A
			2	3, 4	203			203	194	0.0	0.0	0.000	A
2 - A1033 Raich Carter Way	Entry	1	1	3	605	947	0.639	606	611	1.3	1.6	9.158	A
			2	4	856	947	0.904	855	859	2.2	3.2	12.263	B
			3	1, 2	528	947	0.557	526	525	0.8	1.4	7.775	A
	Exit	1	1		1349			1349	1334	0.0	0.0	0.000	A
	CircLink	1	1	2	684			684	667	0.0	0.0	0.000	A
			2	2, 3	1067			1067	1063	0.0	0.0	0.000	A
			3	1, 3, 4	447			447	434	0.0	0.0	0.000	A
	CircBase	1	1	3	403			403	394	0.0	0.0	0.000	A
			2	1, 3, 4	445			445	437	0.0	0.0	0.000	A
	Entry	2	1	(3, 4)	1595			1461	1474	4.9	37.4	53.155	F
			2	(1, 2)	529			528	528	0.0	0.2	0.920	A
3 - A1079 (Beverley Road)	Entry	1	1	4	277	635	0.435	276	275	0.6	0.8	9.955	A
			2	1	373	635	0.587	372	370	1.0	1.4	12.682	B
			3	2, 3	289	635	0.454	287	288	0.5	0.9	10.697	B
	Exit	1	1		1417			1417	1404	0.0	0.0	0.000	A
	CircLink	1	1	3	711			711	702	0.0	0.0	0.000	A
			2	1, 2, 3, 4	2124			2124	2123	0.0	0.0	0.000	A
	CircBase	1	1	4	892			892	895	0.0	0.0	0.000	A
			2	1, 2	527			527	526	0.0	0.0	0.000	A
	Entry	2	1	(1, 4)	649			650	647	0.0	0.1	0.495	A
			2	(2, 3)	289			289	290	0.0	0.0	0.137	A
4 - A1079	Entry	1	1	1, 2	520	630	0.826	524	502	1.3	3.7	22.849	C
			2	2, 3, 4	574	630	0.911	580	569	2.0	5.1	28.778	D
	CircBase	1	1	1	856			856	854	0.0	0.0	0.000	A
	Entry	2	1	(1, 2, 3, 4)	1098			1094	1094	0.0	0.6	0.663	A
			1	1	1168			1168	1170	0.0	0.0	0.000	A
	CircLink	1	1	4	1168			1168	1170	0.0	0.0	0.000	A
			2	1	856			856	854	0.0	0.0	0.000	A
			3	2, 3	330			330	331	0.0	0.0	0.000	A
	CircBase	1	2	2, 3	330			330	331	0.0	0.0	0.000	A

07:45 - 08:00

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Average throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A1174 (Beverley Road)	Entry	1	1	2	408	616	0.663	411	394	1.6	2.1	18.826	C
			2	1, 3, 4	554	616	0.899	551	529	2.6	4.4	27.125	D
		2	1	(1, 2, 3, 4)	978			962	932	1.3	11.9	33.118	D
	Exit	1	1		1083			1083	1053	0.0	0.0	0.000	A
	CircLink	1	1	1, 2	1590			1590	1573	0.0	0.0	0.000	A
			2	2, 3, 4	875			875	900	0.0	0.0	0.000	A
	CircBase	1	1	2, 3	1202			1202	1230	0.0	0.0	0.000	A
			2	3, 4	179			179	190	0.0	0.0	0.000	A
2 - A1033 Raich Carter Way	Entry	1	1	3	580	918	0.632	580	593	1.6	1.6	9.906	A
			2	4	846	918	0.921	847	851	3.2	3.1	13.454	B
			3	1, 2	650	918	0.708	649	638	1.4	2.0	9.925	A
	Exit	1	1		1429			1429	1437	0.0	0.0	0.000	A
	CircLink	1	1	2	708			708	718	0.0	0.0	0.000	A
			2	2, 3	1156			1156	1148	0.0	0.0	0.000	A
			3	1, 3, 4	480			480	476	0.0	0.0	0.000	A
	CircBase	1	1	3	435			435	428	0.0	0.0	0.000	A
			2	1, 3, 4	480			480	477	0.0	0.0	0.000	A
	Entry	2	1	(3, 4)	1986			1426	1444	37.4	170.0	257.869	F
			2	(1, 2)	650			650	641	0.2	0.9	3.737	A
3 - A1079 (Beverley Road)	Entry	1	1	4	332	596	0.556	330	334	0.8	1.3	13.968	B
			2	1	467	596	0.784	469	450	1.4	2.6	19.696	C
			3	2, 3	369	596	0.618	369	360	0.9	1.5	15.108	C
	Exit	1	1		1449			1449	1455	0.0	0.0	0.000	A
	CircLink	1	1	3	722			722	728	0.0	0.0	0.000	A
			2	1, 2, 3, 4	2268			2268	2259	0.0	0.0	0.000	A
	CircBase	1	1	4	892			892	893	0.0	0.0	0.000	A
			2	1, 2	650			650	639	0.0	0.0	0.000	A
	Entry	2	1	(1, 4)	798			799	791	0.1	1.1	4.275	A
			2	(2, 3)	368			369	362	0.0	0.1	0.950	A
4 - A1079	Entry	1	1	1, 2	487	485	1.004	486	506	3.7	12.2	71.985	F
			2	2, 3, 4	494	485	1.018	490	518	5.1	14.7	85.571	F
	CircBase	1	1	1	1068			1068	1037	0.0	0.0	0.000	A
	Entry	2	1	(1, 2, 3, 4)	1341			981	1096	0.6	62.4	87.697	F
			1	1	1222			1222	1227	0.0	0.0	0.000	A
	CircLink	1	1	4	1222			1222	1227	0.0	0.0	0.000	A
			2	1	1068			1068	1037	0.0	0.0	0.000	A
			3	2, 3	420			420	412	0.0	0.0	0.000	A
	CircBase	1	2	2, 3	420			420	412	0.0	0.0	0.000	A

08:00 - 08:15

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Average throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A1174 (Beverley Road)	Entry	1	1	2	407	619	0.656	406	408	2.1	2.3	19.206	C
			2	1, 3, 4	548	619	0.885	547	548	4.4	4.1	27.441	D
		2	1	(1, 2, 3, 4)	966			954	955	11.9	14.2	48.959	E
	Exit	1	1		1074			1074	1070	0.0	0.0	0.000	A
	CircLink	1	1	1, 2	1578			1578	1572	0.0	0.0	0.000	A
			2	2, 3, 4	870			870	871	0.0	0.0	0.000	A
	CircBase	1	1	2, 3	1196			1196	1191	0.0	0.0	0.000	A
			2	3, 4	178			178	182	0.0	0.0	0.000	A
2 - A1033 Raich Carter Way	Entry	1	1	3	592	923	0.642	591	591	1.6	1.7	10.037	B
			2	4	848	923	0.918	848	845	3.1	3.2	13.635	B
			3	1, 2	655	923	0.709	655	653	2.0	1.9	10.329	B
	Exit	1	1		1423			1423	1418	0.0	0.0	0.000	A
	CircLink	1	1	2	704			704	705	0.0	0.0	0.000	A
			2	2, 3	1147			1147	1142	0.0	0.0	0.000	A
			3	1, 3, 4	475			475	482	0.0	0.0	0.000	A
	CircBase	1	1	3	436			436	435	0.0	0.0	0.000	A
			2	1, 3, 4	468			468	476	0.0	0.0	0.000	A
	Entry	2	1	(3, 4)	1953			1440	1437	170.0	300.0	594.872	F
			2	(1, 2)	652			655	653	0.9	0.8	4.468	A
3 - A1079 (Beverley Road)	Entry	1	1	4	340	594	0.572	339	341	1.3	1.4	15.171	C
			2	1	455	594	0.765	456	453	2.6	2.7	20.863	C
			3	2, 3	357	594	0.601	357	356	1.5	1.7	14.943	B
	Exit	1	1		1449			1449	1457	0.0	0.0	0.000	A
	CircLink	1	1	3	730			730	730	0.0	0.0	0.000	A
			2	1, 2, 3, 4	2268			2268	2270	0.0	0.0	0.000	A
	CircBase	1	1	4	892			892	889	0.0	0.0	0.000	A
			2	1, 2	656			656	655	0.0	0.0	0.000	A
	Entry	2	1	(1, 4)	788			795	795	1.1	1.2	6.825	A
			2	(2, 3)	358			357	357	0.1	0.1	1.101	A
4 - A1079	Entry	1	1	1, 2	484	494	0.979	489	488	12.2	12.2	91.002	F
			2	2, 3, 4	491	494	0.994	490	492	14.7	14.9	108.215	F
	CircBase	1	1	1	1059			1059	1054	0.0	0.0	0.000	A
	Entry	2	1	(1, 2, 3, 4)	1356			975	980	62.4	153.8	388.881	F
			1	1	1231			1231	1230	0.0	0.0	0.000	A
	CircLink	1	1	4	1231			1231	1230	0.0	0.0	0.000	A
			2	1	1059			1059	1054	0.0	0.0	0.000	A
			3	2, 3	410			410	409	0.0	0.0	0.000	A
	CircBase	1	2	2, 3	410			410	409	0.0	0.0	0.000	A

08:15 - 08:30

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Average throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A1174 (Beverley Road)	Entry	1	1	2	345	540	0.638	342	355	2.3	1.9	18.371	C
			2	1, 3, 4	437	540	0.809	436	467	4.1	3.3	25.618	D
		2	1	(1, 2, 3, 4)	780			782	818	14.2	6.9	35.214	E
	Exit	1	1		864			864	888	0.0	0.0	0.000	A
	CircLink	1	1	1, 2	1419			1419	1427	0.0	0.0	0.000	A
			2	2, 3, 4	1003			1003	964	0.0	0.0	0.000	A
	CircBase	1	1	2, 3	1333			1333	1289	0.0	0.0	0.000	A
			2	3, 4	224			224	214	0.0	0.0	0.000	A
2 - A1033 Raich Carter Way	Entry	1	1	3	595	929	0.640	596	589	1.7	1.5	9.877	A
			2	4	850	929	0.915	852	845	3.2	3.2	13.658	B
			3	1, 2	526	929	0.566	526	532	1.9	1.2	8.615	A
	Exit	1	1		1446			1446	1429	0.0	0.0	0.000	A
	CircLink	1	1	2	718			718	715	0.0	0.0	0.000	A
			2	2, 3	1157			1157	1143	0.0	0.0	0.000	A
			3	1, 3, 4	460			460	467	0.0	0.0	0.000	A
	CircBase	1	1	3	425			425	428	0.0	0.0	0.000	A
			2	1, 3, 4	465			465	468	0.0	0.0	0.000	A
	Entry	2	1	(3, 4)	1600			1445	1433	300.0	344.3	801.721	F
			2	(1, 2)	528			526	529	0.8	0.2	1.635	A
3 - A1079 (Beverley Road)	Entry	1	1	4	275	637	0.431	274	277	1.4	0.7	10.515	B
			2	1	363	637	0.570	363	379	2.7	1.5	15.107	C
			3	2, 3	292	637	0.458	292	297	1.7	1.0	11.803	B
	Exit	1	1		1451			1451	1449	0.0	0.0	0.000	A
	CircLink	1	1	3	728			728	723	0.0	0.0	0.000	A
			2	1, 2, 3, 4	2136			2136	2139	0.0	0.0	0.000	A
	CircBase	1	1	4	885			885	881	0.0	0.0	0.000	A
			2	1, 2	527			527	533	0.0	0.0	0.000	A
	Entry	2	1	(1, 4)	635			638	648	1.2	0.0	1.554	A
			2	(2, 3)	292			292	294	0.1	0.0	0.402	A
4 - A1079	Entry	1	1	1, 2	614	631	0.972	617	592	12.2	11.6	72.435	F
			2	2, 3, 4	623	631	0.986	622	590	14.9	14.7	88.334	F
	CircBase	1	1	1	846			846	869	0.0	0.0	0.000	A
	Entry	2	1	(1, 2, 3, 4)	1108			1236	1179	153.8	134.0	434.362	F
			1	1	1160			1160	1158	0.0	0.0	0.000	A
	CircLink	1	1	4	1160			1160	1158	0.0	0.0	0.000	A
			2	1	846			846	869	0.0	0.0	0.000	A
			3	2, 3	337			337	340	0.0	0.0	0.000	A
	CircBase	1	2	2, 3	337			337	340	0.0	0.0	0.000	A

08:30 - 08:45

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Average throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A1174 (Beverley Road)	Entry	1	1	2	276	521	0.529	276	287	1.9	1.5	18.250	C
			2	1, 3, 4	382	521	0.734	381	391	3.3	2.7	25.778	D
		2	1	(1, 2, 3, 4)	658			658	674	6.9	3.1	17.945	C
	Exit	1	1		743			743	748	0.0	0.0	0.000	A
	CircLink	1	1	1, 2	1308			1308	1317	0.0	0.0	0.000	A
			2	2, 3, 4	1038			1038	1053	0.0	0.0	0.000	A
	CircBase	1	1	2, 3	1366			1366	1379	0.0	0.0	0.000	A
			2	3, 4	237			237	243	0.0	0.0	0.000	A
2 - A1033 Raich Carter Way	Entry	1	1	3	615	945	0.650	614	606	1.5	1.6	9.656	A
			2	4	861	945	0.911	862	860	3.2	3.3	13.336	B
			3	1, 2	444	945	0.469	445	446	1.2	0.8	7.404	A
	Exit	1	1		1409			1409	1427	0.0	0.0	0.000	A
	CircLink	1	1	2	713			713	715	0.0	0.0	0.000	A
			2	2, 3	1112			1112	1134	0.0	0.0	0.000	A
			3	1, 3, 4	436			436	451	0.0	0.0	0.000	A
	CircBase	1	1	3	412			412	421	0.0	0.0	0.000	A
			2	1, 3, 4	439			439	452	0.0	0.0	0.000	A
	Entry	2	1	(3, 4)	1348			1476	1466	344.3	313.3	714.930	F
			2	(1, 2)	444			444	445	0.2	0.1	0.610	A
3 - A1079 (Beverley Road)	Entry	1	1	4	235	660	0.357	238	232	0.7	0.5	8.734	A
			2	1	306	660	0.463	306	314	1.5	0.9	10.820	B
			3	2, 3	245	660	0.372	248	250	1.0	0.5	9.033	A
	Exit	1	1		1432			1432	1444	0.0	0.0	0.000	A
	CircLink	1	1	3	714			714	725	0.0	0.0	0.000	A
			2	1, 2, 3, 4	2058			2058	2060	0.0	0.0	0.000	A
	CircBase	1	1	4	894			894	893	0.0	0.0	0.000	A
			2	1, 2	446			446	447	0.0	0.0	0.000	A
	Entry	2	1	(1, 4)	542			541	542	0.0	0.0	0.233	A
			2	(2, 3)	245			245	248	0.0	0.0	0.068	A
4 - A1079	Entry	1	1	1, 2	640	719	0.891	672	673	11.6	8.5	58.445	F
			2	2, 3, 4	649	719	0.902	674	686	14.7	11.0	70.413	F
	CircBase	1	1	1	721			721	726	0.0	0.0	0.000	A
	Entry	2	1	(1, 2, 3, 4)	929			1289	1332	134.0	33.1	210.839	F
			1	1	1132			1132	1125	0.0	0.0	0.000	A
	CircLink	1	1	4	1132			1132	1125	0.0	0.0	0.000	A
			2	1	721			721	726	0.0	0.0	0.000	A
			3	2, 3	279			279	285	0.0	0.0	0.000	A
	CircBase	1	2	2, 3	279			279	285	0.0	0.0	0.000	A

Junctions 9					
ARCADY 9 - Roundabout Module					
Version: 9.5.1.7462					
© Copyright TRL Limited, 2019					
For sales and distribution information, program advice and maintenance, contact TRL:					
+44 (0)1344 379777 software@trl.co.uk www.trlsoftware.co.uk					
The users of this computer program for the solution of an engineering problem are in no way relieved of their responsibility for the correctness of the solution					

Filename: Dunswell Roundabout PM Peak 2024.j9

Path: Z:\Projects\5913 Dunswell P&R\Data\Modelling\Dunswell Roundabout

Report generation date: 25/10/2024 14:08:09

- »Existing Layout - 2023 Base, PM
- »Existing Layout - 2030 Do Nothing, PM
- »Existing Layout - 2030 With Development, PM

Summary of junction performance

	PM				
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS
	Existing Layout [Lane Simulation] - 2023 Base				
1 - A1174 (Beverley Road)	D1	30.6	98.02		F
2 - A1033 Raich Carter Way		13.8	27.41		D
3 - A1079 (Beverley Road)		19.6	45.87		E
4 - A1079		43.1	113.46		F
	Existing Layout [Lane Simulation] - 2030 Do Nothing				
1 - A1174 (Beverley Road)	D2	62.6	244.19		F
2 - A1033 Raich Carter Way		55.5	85.15		F
3 - A1079 (Beverley Road)		176.7	461.50		F
4 - A1079		152.5	445.09		F
	Existing Layout [Lane Simulation] - 2030 With Development				
1 - A1174 (Beverley Road)	D3	53.5	182.28		F
2 - A1033 Raich Carter Way		97.1	144.51		F
3 - A1079 (Beverley Road)		237.8	615.55		F
4 - A1079		213.0	676.61		F

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

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle. Arm and junction delays are averages for all movements, including movements with zero delay.

File summary

File Description

Title	Dunswell Roundabout
Location	ERYC
Site number	
Date	25/10/2024
Version	
Status	
Identifier	
Client	Ashcourt
Jobnumber	LTP/5913
Enumerator	LTP\MR\AC
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

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
5.75				0.85	36.00	20.00

Lane Simulation options

Criteria type	Stop criteria (%)	Stop criteria time (s)	Stop criteria number of trials	Random seed	Results refresh speed (s)	Individual vehicle animation number of trials	Average animation capture interval (s)	Use quick response	Do flow sampling	Suppress automatic lane creation	Last run random seed	Last run number of trials	Last run time taken (s)
Delay	1.00	100000	100000	-1	3	1	60	✓			334162783	189	122.52

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2023 Base	PM	ONE HOUR	16:15	17:45	15	✓
D2	2030 Do Nothing	PM	ONE HOUR	16:15	17:45	15	✓
D3	2030 With Development	PM	ONE HOUR	16:15	17:45	15	✓

Analysis Set Details

ID	Name	Use Lane Simulation	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	Existing Layout	✓	✓	100.000	100.000

Existing Layout - 2023 Base, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Lane Simulation	A1 - Existing Layout [Lane Simulation]	This analysis set uses Lane Simulation mode. This is provided as an investigative tool and the user should apply judgement when interpreting the results.
Warning	Geometry	1 - A1174 (Beverley Road) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	3 - A1079 (Beverley Road) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	4 - A1079 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Dunswell Roundabout	Large Roundabout	✓	1, 2, 3, 4	63.75	F

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
1	A1174 (Beverley Road)	
2	A1033 Raich Carter Way	
3	A1079 (Beverley Road)	
4	A1079	

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	I' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
1 - A1174 (Beverley Road)	3.72	7.63	45.3	42.3	72.0	34.0	
2 - A1033 Raich Carter Way	7.27	10.84	28.0	23.3	69.5	38.0	
3 - A1079 (Beverley Road)	6.00	11.30	39.0	37.5	89.0	45.0	
4 - A1079	3.57	9.13	88.0	27.0	80.0	35.0	

Large Roundabout Data

Arm	Circulating flow (PCU/hr)	Entry-to-exit separation (m)
1 - A1174 (Beverley Road)	1379	35.00
2 - A1033 Raich Carter Way	703	45.00
3 - A1079 (Beverley Road)	1343	37.00
4 - A1079	1147	48.00

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1 - A1174 (Beverley Road)	0.900	2554
2 - A1033 Raich Carter Way	1.298	3522
3 - A1079 (Beverley Road)	0.999	3332
4 - A1079	0.994	2973

The slope and intercept shown above include any corrections and adjustments.

Arm Capacity Adjustments

Arm	Type	Reason	Direct capacity adjustment (PCU/hr)
1 - A1174 (Beverley Road)	Direct	Validation	65
2 - A1033 Raich Carter Way	Direct	Validation	40
3 - A1079 (Beverley Road)	Direct	Validation	15
4 - A1079	Direct	Validation	-185

Lane Simulation: Arm options

Arm	Lane capacity source	Traffic considering secondary lanes (%)
1 - A1174 (Beverley Road)	Evenly split	10.00
2 - A1033 Raich Carter Way	Evenly split	10.00
3 - A1079 (Beverley Road)	Evenly split	10.00
4 - A1079	Evenly split	10.00

Lanes

Arm	Side	Lane level	Lane	Destination arms	Has limited storage	Storage (PCU)	Has bottleneck	Minimum capacity (PCU/hr)	Maximum capacity (PCU/hr)	Signalised
1 - A1174 (Beverley Road)	Entry	1	1	2	✓	6.00		0	99999	
			2	1, 3, 4	✓	6.00		0	99999	
	Exit	1	1	(1, 2, 3, 4)		Infinity				
			1			Infinity				
	CircLink	1	1	1, 2	✓	3.00		0	99999	
			2	2, 3, 4	✓	3.00		0	99999	
	CircBase	1	1	2, 3	✓	4.00		0	99999	
			2	3, 4	✓	4.00		0	99999	
2 - A1033 Raich Carter Way	Entry	1	1	3	✓	4.00		0	99999	
			2	4	✓	4.00		0	99999	
			3	1, 2	✓	4.00		0	99999	
	Exit	1	1			Infinity				
			1	2	✓	13.00		0	99999	
			2	2, 3	✓	13.00		0	99999	
	CircLink	1	3	1, 3, 4	✓	13.00		0	99999	
			1	3	✓	4.00		0	99999	
			2	1, 3, 4	✓	4.00		0	99999	
	Entry	2	1	(3, 4)		Infinity				
			2	(1, 2)		Infinity				
3 - A1079 (Beverley Road)	Entry	1	1	4	✓	6.00		0	99999	
			2	1	✓	6.00		0	99999	
			3	2, 3	✓	6.00		0	99999	
	Exit	1	1			Infinity				
			1	3	✓	4.00		0	99999	
	CircLink	1	2	1, 2, 3, 4	✓	4.00		0	99999	
			1	4	✓	3.00		0	99999	
	CircBase	1	2	1, 2	✓	3.00		0	99999	
			1	(1, 4)		Infinity				
	Entry	2	2	(2, 3)		Infinity				
4 - A1079	Entry	1	1	1, 2	✓	15.00		0	99999	
			2	2, 3, 4	✓	15.00		0	99999	
	CircLink	1	2	1	✓	12.00		0	99999	
	Entry	2	1	(1, 2, 3, 4)		Infinity				
			1			Infinity				
	CircLink	1	1	4	✓	12.00		0	99999	
			3	2, 3	✓	12.00		0	99999	
	CircBase	1	1	1	✓	6.00		0	99999	
			2	2, 3	✓	6.00		0	99999	

Entry Lane slope and intercept

Arm	Side	Lane level	Lane	Final slope	Final intercept (PCU/hr)
1 - A1174 (Beverley Road)	Entry	1	1	0.450	1277
			2	0.450	1277
2 - A1033 Raich Carter Way	Entry	1	1	0.433	1174
			2	0.433	1174
			3	0.433	1174
3 - A1079 (Beverley Road)	Entry	1	1	0.333	1111
			2	0.333	1111
			3	0.333	1111
4 - A1079	Entry	1	1	0.497	1486
			2	0.497	1486

Summary of Entry Lane allowed movements

Arm	Lane Level	Lane	Destination arm			
			A1174 (Beverley Road)	A1033 Raich Carter Way	A1079 (Beverley Road)	A1079
1 - A1174 (Beverley Road)	1	1		✓		
		2	✓		✓	✓
	2	1	✓	✓	✓	✓
2 - A1033 Raich Carter Way	1	1			✓	
		2				✓
		3	✓	✓		
	2	1			✓	✓
		2	✓	✓		
3 - A1079 (Beverley Road)	1	1				✓
		2	✓			
		3		✓	✓	
	2	1	✓			✓
		2		✓	✓	
4 - A1079	1	1	✓	✓		
		2		✓	✓	✓
	2	1	✓	✓	✓	✓

Summary of Circulating Lane allowed movements

Arm	Side	Lane Level	Lane	Destination arm			
				A1174 (Beverley Road)	A1033 Raich Carter Way	A1079 (Beverley Road)	A1079
1 - A1174 (Beverley Road)	CircBase	1	1		✓	✓	
			2			✓	✓
	CircLink	1	1	✓	✓		
			2		✓	✓	✓
2 - A1033 Raich Carter Way	CircBase	1	1			✓	
			2	✓		✓	✓
	CircLink	1	1		✓		
			2		✓	✓	
			3	✓		✓	✓
3 - A1079 (Beverley Road)	CircBase	1	1				✓
			2	✓	✓		
	CircLink	1	1			✓	
			2	✓	✓	✓	✓
4 - A1079	CircBase	1	1	✓			
			2		✓	✓	
	CircLink	1	1				✓
			2	✓			
			3		✓	✓	

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)	Run automatically
D1	2023 Base	PM	ONE HOUR	16:15	17:45	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	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - A1174 (Beverley Road)		ONE HOUR	✓	853	100.000
2 - A1033 Raich Carter Way		ONE HOUR	✓	1635	100.000
3 - A1079 (Beverley Road)		ONE HOUR	✓	1274	100.000
4 - A1079		ONE HOUR	✓	1070	100.000

Origin-Destination Data

Demand (PCU/hr)

	To				
		1 - A1174 (Beverley Road)	2 - A1033 Raich Carter Way	3 - A1079 (Beverley Road)	4 - A1079
From	1 - A1174 (Beverley Road)	0	490	339	24
	2 - A1033 Raich Carter Way	395	1	492	747
	3 - A1079 (Beverley Road)	353	614	2	305
	4 - A1079	25	871	174	0

Vehicle Mix

Heavy Vehicle Percentages

	To				
		1 - A1174 (Beverley Road)	2 - A1033 Raich Carter Way	3 - A1079 (Beverley Road)	4 - A1079
From	1 - A1174 (Beverley Road)	0	1	2	9
	2 - A1033 Raich Carter Way	2	0	2	2
	3 - A1079 (Beverley Road)	3	1	0	0
	4 - A1079	14	3	2	0

Results

Results Summary for whole modelled period

Arm	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - A1174 (Beverley Road)	98.02	30.6	F	780	1169
2 - A1033 Raich Carter Way	27.41	13.8	D	1501	2251
3 - A1079 (Beverley Road)	45.87	19.6	E	1172	1757
4 - A1079	113.46	43.1	F	981	1471

Main Results for each time segment

16:15 - 16:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Average throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A1174 (Beverley Road)	643	161	1253	643	633	582	0.0	1.6	8.391	A
2 - A1033 Raich Carter Way	1230	307	404	1231	1222	1492	0.0	2.2	6.590	A
3 - A1079 (Beverley Road)	962	241	875	960	955	759	0.0	2.3	7.924	A
4 - A1079	809	202	1030	805	800	805	0.0	1.9	7.033	A

16:30 - 16:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Average throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A1174 (Beverley Road)	770	192	1499	767	758	690	1.6	3.1	13.064	B
2 - A1033 Raich Carter Way	1475	369	486	1467	1462	1780	2.2	4.2	9.504	A
3 - A1079 (Beverley Road)	1127	282	1047	1129	1132	906	2.3	3.6	11.258	B
4 - A1079	968	242	1220	968	953	956	1.9	3.3	10.916	B

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Average throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A1174 (Beverley Road)	933	233	1729	881	877	857	3.1	17.0	43.845	E
2 - A1033 Raich Carter Way	1797	449	548	1789	1766	2061	4.2	11.7	20.148	C
3 - A1079 (Beverley Road)	1417	354	1277	1385	1366	1060	3.6	13.6	25.698	D
4 - A1079	1179	295	1481	1105	1092	1181	3.3	24.7	48.926	E

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Average throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A1174 (Beverley Road)	938	235	1736	883	889	858	17.0	30.6	98.024	F
2 - A1033 Raich Carter Way	1810	453	557	1817	1801	2063	11.7	13.8	27.413	D
3 - A1079 (Beverley Road)	1405	351	1299	1384	1373	1074	13.6	19.6	45.866	E
4 - A1079	1167	292	1493	1101	1105	1191	24.7	43.1	113.458	F

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Average throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A1174 (Beverley Road)	762	190	1580	840	843	697	30.6	10.7	81.899	F
2 - A1033 Raich Carter Way	1466	367	523	1473	1505	1898	13.8	4.6	14.406	B
3 - A1079 (Beverley Road)	1139	285	1049	1156	1202	946	19.6	5.1	25.173	D
4 - A1079	963	241	1240	1037	1103	965	43.1	6.9	64.300	F

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Average throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A1174 (Beverley Road)	631	158	1251	639	682	594	10.7	1.5	15.335	C
2 - A1033 Raich Carter Way	1225	306	404	1228	1242	1486	4.6	2.1	6.897	A
3 - A1079 (Beverley Road)	979	245	873	975	972	759	5.1	2.4	9.026	A
4 - A1079	799	200	1045	799	825	803	6.9	1.6	8.923	A

Lane Results

Lane Level notation: Lane Level 1 is always closest to the junction.

Lanes: Main Results for each time segment

16:15 - 16:30

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Average throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A1174 (Beverley Road)	Entry	1	1	2	371	778	0.476	371	363	0.0	1.0	8.826	A
			2	1, 3, 4	272	778	0.350	273	270	0.0	0.5	7.341	A
		2	1	(1, 2, 3, 4)	643			643	639	0.0	0.1	0.184	A
	Exit	1	1		582			582	581	0.0	0.0	0.000	A
	CircLink	1	1	1, 2	1140			1140	1137	0.0	0.0	0.000	A
			2	2, 3, 4	695			695	686	0.0	0.0	0.000	A
	CircBase	1	1	2, 3	1189			1189	1176	0.0	0.0	0.000	A
			2	3, 4	64			64	66	0.0	0.0	0.000	A
2 - A1033 Raich Carter Way	Entry	1	1	3	374	1039	0.360	373	364	0.0	0.6	5.333	A
			2	4	555	1039	0.534	557	556	0.0	1.0	6.990	A
			3	1, 2	301	1039	0.289	301	302	0.0	0.5	5.020	A
	Exit	1	1		1492			1492	1473	0.0	0.0	0.000	A
	CircLink	1	1	2	747			747	738	0.0	0.0	0.000	A
			2	2, 3	939			939	927	0.0	0.0	0.000	A
			3	1, 3, 4	210			210	210	0.0	0.0	0.000	A
	CircBase	1	1	3	196			196	193	0.0	0.0	0.000	A
			2	1, 3, 4	208			208	209	0.0	0.0	0.000	A
	Entry	2	1	(3, 4)	929			929	927	0.0	0.2	0.740	A
			2	(1, 2)	300			301	303	0.0	0.0	0.080	A
3 - A1079 (Beverley Road)	Entry	1	1	4	231	834	0.277	231	233	0.0	0.4	5.834	A
			2	1	264	834	0.316	263	261	0.0	0.6	6.439	A
			3	2, 3	467	834	0.560	467	461	0.0	1.3	9.519	A
	Exit	1	1		759			759	749	0.0	0.0	0.000	A
	CircLink	1	1	3	375			375	373	0.0	0.0	0.000	A
			2	1, 2, 3, 4	1259			1259	1251	0.0	0.0	0.000	A
	CircBase	1	1	4	574			574	573	0.0	0.0	0.000	A
			2	1, 2	301			301	302	0.0	0.0	0.000	A
	Entry	2	1	(1, 4)	494			494	497	0.0	0.0	0.016	A
			2	(2, 3)	468			467	466	0.0	0.1	0.258	A
4 - A1079	Entry	1	1	1, 2	379	789	0.481	377	376	0.0	0.9	6.679	A
			2	2, 3, 4	429	789	0.544	428	424	0.0	0.9	7.346	A
	CircBase	1	1	1	563			563	562	0.0	0.0	0.000	A
	Entry	2	1	(1, 2, 3, 4)	809			809	807	0.0	0.0	0.000	A
			1		805			805	806	0.0	0.0	0.000	A
	CircLink	1	1	4	805			805	806	0.0	0.0	0.000	A
			2	1	563			563	562	0.0	0.0	0.000	A
			3	2, 3	467			467	462	0.0	0.0	0.000	A
	CircBase	1	2	2, 3	467			467	462	0.0	0.0	0.000	A

16:30 - 16:45

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Average throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A1174 (Beverley Road)	Entry	1	1	2	441	667	0.661	442	437	1.0	1.8	13.331	B
			2	1, 3, 4	326	667	0.489	326	322	0.5	1.0	10.124	B
		2	1	(1, 2, 3, 4)	770			768	763	0.1	0.4	1.065	A
	Exit	1	1		690			690	688	0.0	0.0	0.000	A
	CircLink	1	1	1, 2	1357			1357	1349	0.0	0.0	0.000	A
			2	2, 3, 4	831			831	817	0.0	0.0	0.000	A
	CircBase	1	1	2, 3	1417			1417	1400	0.0	0.0	0.000	A
			2	3, 4	81			81	78	0.0	0.0	0.000	A
2 - A1033 Raich Carter Way	Entry	1	1	3	443	1004	0.441	442	440	0.6	0.7	6.282	A
			2	4	670	1004	0.668	670	671	1.0	1.7	8.737	A
			3	1, 2	357	1004	0.356	355	352	0.5	0.6	5.594	A
	Exit	1	1		1780			1780	1758	0.0	0.0	0.000	A
	CircLink	1	1	2	898			898	878	0.0	0.0	0.000	A
			2	2, 3	1114			1114	1110	0.0	0.0	0.000	A
			3	1, 3, 4	254			254	249	0.0	0.0	0.000	A
	CircBase	1	1	3	231			231	227	0.0	0.0	0.000	A
			2	1, 3, 4	255			255	251	0.0	0.0	0.000	A
	Entry	2	1	(3, 4)	1118			1113	1114	0.2	1.2	2.925	A
			2	(1, 2)	357			357	352	0.0	0.0	0.107	A
3 - A1079 (Beverley Road)	Entry	1	1	4	266	777	0.342	264	271	0.4	0.6	6.996	A
			2	1	311	777	0.400	313	314	0.6	0.7	8.065	A
			3	2, 3	552	777	0.711	552	547	1.3	2.0	13.153	B
	Exit	1	1		906			906	895	0.0	0.0	0.000	A
	CircLink	1	1	3	451			451	451	0.0	0.0	0.000	A
			2	1, 2, 3, 4	1502			1502	1490	0.0	0.0	0.000	A
	CircBase	1	1	4	692			692	693	0.0	0.0	0.000	A
			2	1, 2	355			355	352	0.0	0.0	0.000	A
	Entry	2	1	(1, 4)	576			576	586	0.0	0.0	0.051	A
			2	(2, 3)	551			552	550	0.1	0.3	1.937	A
4 - A1079	Entry	1	1	1, 2	467	695	0.672	467	455	0.9	1.6	10.454	B
			2	2, 3, 4	501	695	0.720	502	497	0.9	1.7	11.335	B
	CircBase	1	1	1	667			667	665	0.0	0.0	0.000	A
	Entry	2	1	(1, 2, 3, 4)	968			968	958	0.0	0.0	0.000	A
			1	1	956			956	964	0.0	0.0	0.000	A
	CircLink	1	1	4	956			956	964	0.0	0.0	0.000	A
			2	1	667			667	665	0.0	0.0	0.000	A
			3	2, 3	553			553	548	0.0	0.0	0.000	A
	CircBase	1	2	2, 3	553			553	548	0.0	0.0	0.000	A

16:45 - 17:00

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Average throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A1174 (Beverley Road)	Entry	1	1	2	515	564	0.913	513	506	1.8	4.2	25.097	D
			2	1, 3, 4	372	564	0.660	368	371	1.0	2.0	17.902	C
		2	1	(1, 2, 3, 4)	933			887	891	0.4	10.7	21.338	C
	Exit	1	1		857			857	851	0.0	0.0	0.000	A
	CircLink	1	1	1, 2	1627			1627	1615	0.0	0.0	0.000	A
			2	2, 3, 4	959			959	945	0.0	0.0	0.000	A
	CircBase	1	1	2, 3	1637			1637	1618	0.0	0.0	0.000	A
			2	3, 4	92			92	90	0.0	0.0	0.000	A
2 - A1033 Raich Carter Way	Entry	1	1	3	531	977	0.544	534	526	0.7	1.1	7.874	A
			2	4	819	977	0.838	821	803	1.7	2.6	11.206	B
			3	1, 2	434	977	0.445	434	437	0.6	0.8	6.538	A
	Exit	1	1		2061			2061	2036	0.0	0.0	0.000	A
	CircLink	1	1	2	1033			1033	1013	0.0	0.0	0.000	A
			2	2, 3	1293			1293	1285	0.0	0.0	0.000	A
			3	1, 3, 4	283			283	287	0.0	0.0	0.000	A
	CircBase	1	1	3	266			266	265	0.0	0.0	0.000	A
			2	1, 3, 4	282			282	284	0.0	0.0	0.000	A
	Entry	2	1	(3, 4)	1363			1350	1334	1.2	7.2	14.480	B
			2	(1, 2)	434			434	437	0.0	0.0	0.405	A
3 - A1079 (Beverley Road)	Entry	1	1	4	337	701	0.480	339	335	0.6	0.8	9.394	A
			2	1	397	701	0.567	395	390	0.7	1.4	11.125	B
			3	2, 3	659	701	0.940	652	641	2.0	4.8	22.426	C
	Exit	1	1		1060			1060	1051	0.0	0.0	0.000	A
	CircLink	1	1	3	527			527	524	0.0	0.0	0.000	A
			2	1, 2, 3, 4	1810			1810	1791	0.0	0.0	0.000	A
	CircBase	1	1	4	843			843	827	0.0	0.0	0.000	A
			2	1, 2	434			434	437	0.0	0.0	0.000	A
	Entry	2	1	(1, 4)	733			734	729	0.0	0.1	0.418	A
			2	(2, 3)	684			659	652	0.3	6.5	18.907	C
4 - A1079	Entry	1	1	1, 2	564	566	0.997	546	539	1.6	9.4	41.370	E
			2	2, 3, 4	574	566	1.015	558	553	1.7	9.8	43.227	E
	CircBase	1	1	1	828			828	825	0.0	0.0	0.000	A
	Entry	2	1	(1, 2, 3, 4)	1179			1138	1156	0.0	5.5	5.600	A
			1	1	1181			1181	1162	0.0	0.0	0.000	A
	CircLink	1	1	4	1181			1181	1162	0.0	0.0	0.000	A
			2	1	828			828	825	0.0	0.0	0.000	A
			3	2, 3	653			653	642	0.0	0.0	0.000	A
	CircBase	1	2	2, 3	653			653	642	0.0	0.0	0.000	A

17:00 - 17:15

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Average throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A1174 (Beverley Road)	Entry	1	1	2	508	560	0.906	506	507	4.2	4.7	31.160	D
			2	1, 3, 4	379	560	0.676	377	382	2.0	2.3	21.595	C
		2	1	(1, 2, 3, 4)	938			886	892	10.7	23.5	70.782	F
	Exit	1	1		858			858	852	0.0	0.0	0.000	A
	CircLink	1	1	1, 2	1634			1634	1628	0.0	0.0	0.000	A
			2	2, 3, 4	959			959	959	0.0	0.0	0.000	A
	CircBase	1	1	2, 3	1647			1647	1644	0.0	0.0	0.000	A
			2	3, 4	89			89	90	0.0	0.0	0.000	A
2 - A1033 Raich Carter Way	Entry	1	1	3	546	973	0.561	543	539	1.1	1.4	8.157	A
			2	4	832	973	0.855	834	827	2.6	2.6	11.520	B
			3	1, 2	441	973	0.453	440	436	0.8	0.8	6.544	A
	Exit	1	1		2063			2063	2061	0.0	0.0	0.000	A
	CircLink	1	1	2	1037			1037	1028	0.0	0.0	0.000	A
			2	2, 3	1289			1289	1302	0.0	0.0	0.000	A
			3	1, 3, 4	294			294	294	0.0	0.0	0.000	A
	CircBase	1	1	3	265			265	270	0.0	0.0	0.000	A
			2	1, 3, 4	292			292	292	0.0	0.0	0.000	A
	Entry	2	1	(3, 4)	1369			1377	1366	7.2	8.9	23.753	C
			2	(1, 2)	441			441	436	0.0	0.1	0.327	A
3 - A1079 (Beverley Road)	Entry	1	1	4	330	693	0.477	331	327	0.8	0.9	9.621	A
			2	1	392	693	0.565	393	390	1.4	1.4	12.086	B
			3	2, 3	663	693	0.957	661	656	4.8	5.3	27.420	D
	Exit	1	1		1074			1074	1077	0.0	0.0	0.000	A
	CircLink	1	1	3	534			534	537	0.0	0.0	0.000	A
			2	1, 2, 3, 4	1839			1839	1827	0.0	0.0	0.000	A
	CircBase	1	1	4	859			859	852	0.0	0.0	0.000	A
			2	1, 2	440			440	436	0.0	0.0	0.000	A
	Entry	2	1	(1, 4)	723			722	718	0.1	0.2	0.562	A
			2	(2, 3)	682			663	658	6.5	11.9	54.491	F
4 - A1079	Entry	1	1	1, 2	558	559	0.997	551	553	9.4	11.9	70.788	F
			2	2, 3, 4	554	559	0.991	550	552	9.8	12.4	74.513	F
	CircBase	1	1	1	832			832	826	0.0	0.0	0.000	A
	Entry	2	1	(1, 2, 3, 4)	1167			1112	1125	5.5	18.8	40.222	E
			1	1	1191			1191	1179	0.0	0.0	0.000	A
	CircLink	1	1	4	1191			1191	1179	0.0	0.0	0.000	A
			2	1	832			832	826	0.0	0.0	0.000	A
			3	2, 3	661			661	656	0.0	0.0	0.000	A
	CircBase	1	2	2, 3	661			661	656	0.0	0.0	0.000	A

17:15 - 17:30

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Average throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A1174 (Beverley Road)	Entry	1	1	2	477	630	0.757	485	486	4.7	3.1	29.188	D
			2	1, 3, 4	349	630	0.554	356	357	2.3	1.5	18.988	C
		2	1	(1, 2, 3, 4)	762			827	834	23.5	6.1	57.667	F
	Exit	1	1		697			697	703	0.0	0.0	0.000	A
	CircLink	1	1	1, 2	1406			1406	1460	0.0	0.0	0.000	A
			2	2, 3, 4	872			872	928	0.0	0.0	0.000	A
	CircBase	1	1	2, 3	1497			1497	1595	0.0	0.0	0.000	A
			2	3, 4	83			83	90	0.0	0.0	0.000	A
2 - A1033 Raich Carter Way	Entry	1	1	3	443	988	0.449	445	455	1.4	0.9	7.165	A
			2	4	674	988	0.682	671	692	2.6	1.9	9.638	A
			3	1, 2	356	988	0.361	357	358	0.8	0.5	5.938	A
	Exit	1	1		1898			1898	1991	0.0	0.0	0.000	A
	CircLink	1	1	2	961			961	1001	0.0	0.0	0.000	A
			2	2, 3	1182			1182	1245	0.0	0.0	0.000	A
			3	1, 3, 4	277			277	283	0.0	0.0	0.000	A
	CircBase	1	1	3	255			255	257	0.0	0.0	0.000	A
			2	1, 3, 4	268			268	281	0.0	0.0	0.000	A
	Entry	2	1	(3, 4)	1111			1118	1142	8.9	1.3	8.474	A
			2	(1, 2)	356			356	357	0.1	0.0	0.206	A
3 - A1079 (Beverley Road)	Entry	1	1	4	272	776	0.351	273	276	0.9	0.5	7.545	A
			2	1	319	776	0.410	317	319	1.4	0.8	8.725	A
			3	2, 3	562	776	0.724	566	607	5.3	2.5	19.448	C
	Exit	1	1		946			946	970	0.0	0.0	0.000	A
	CircLink	1	1	3	471			471	484	0.0	0.0	0.000	A
			2	1, 2, 3, 4	1524			1524	1558	0.0	0.0	0.000	A
	CircBase	1	1	4	692			692	714	0.0	0.0	0.000	A
			2	1, 2	357			357	358	0.0	0.0	0.000	A
	Entry	2	1	(1, 4)	591			591	591	0.2	0.0	0.104	A
			2	(2, 3)	548			562	596	11.9	1.3	24.588	C
4 - A1079	Entry	1	1	1, 2	479	685	0.700	502	541	11.9	2.9	44.775	E
			2	2, 3, 4	514	685	0.750	535	562	12.4	3.2	45.415	E
	CircBase	1	1	1	673			673	677	0.0	0.0	0.000	A
	Entry	2	1	(1, 2, 3, 4)	963			993	1030	18.8	0.8	22.547	C
			1	1	965			965	990	0.0	0.0	0.000	A
	CircLink	1	1	4	965			965	990	0.0	0.0	0.000	A
			2	1	673			673	677	0.0	0.0	0.000	A
			3	2, 3	567			567	608	0.0	0.0	0.000	A
	CircBase	1	2	2, 3	567			567	608	0.0	0.0	0.000	A

17:30 - 17:45

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Average throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A1174 (Beverley Road)	Entry	1	1	2	363	779	0.466	365	392	3.1	0.9	11.693	B
			2	1, 3, 4	273	779	0.350	274	290	1.5	0.6	9.132	A
		2	1	(1, 2, 3, 4)	631			636	669	6.1	0.0	5.277	A
	Exit	1	1		594			594	588	0.0	0.0	0.000	A
	CircLink	1	1	1, 2	1156			1156	1160	0.0	0.0	0.000	A
			2	2, 3, 4	689			689	709	0.0	0.0	0.000	A
	CircBase	1	1	2, 3	1191			1191	1214	0.0	0.0	0.000	A
			2	3, 4	60			60	66	0.0	0.0	0.000	A
2 - A1033 Raich Carter Way	Entry	1	1	3	373	1039	0.359	373	371	0.9	0.5	5.535	A
			2	4	554	1039	0.533	556	570	1.9	1.0	7.255	A
			3	1, 2	298	1039	0.287	299	301	0.5	0.4	4.931	A
	Exit	1	1		1486			1486	1536	0.0	0.0	0.000	A
	CircLink	1	1	2	744			744	769	0.0	0.0	0.000	A
			2	2, 3	937			937	971	0.0	0.0	0.000	A
			3	1, 3, 4	209			209	222	0.0	0.0	0.000	A
	CircBase	1	1	3	195			195	204	0.0	0.0	0.000	A
			2	1, 3, 4	209			209	222	0.0	0.0	0.000	A
	Entry	2	1	(3, 4)	927			926	936	1.3	0.2	0.975	A
			2	(1, 2)	298			298	301	0.0	0.0	0.049	A
3 - A1079 (Beverley Road)	Entry	1	1	4	230	835	0.275	229	230	0.5	0.5	6.146	A
			2	1	277	835	0.331	278	269	0.8	0.4	6.757	A
			3	2, 3	472	835	0.565	468	473	2.5	1.4	10.674	B
	Exit	1	1		759			759	778	0.0	0.0	0.000	A
	CircLink	1	1	3	379			379	387	0.0	0.0	0.000	A
			2	1, 2, 3, 4	1253			1253	1281	0.0	0.0	0.000	A
	CircBase	1	1	4	574			574	589	0.0	0.0	0.000	A
			2	1, 2	299			299	301	0.0	0.0	0.000	A
	Entry	2	1	(1, 4)	507			507	497	0.0	0.0	0.013	A
			2	(2, 3)	473			472	469	1.3	0.1	1.233	A
4 - A1079	Entry	1	1	1, 2	377	782	0.482	375	387	2.9	0.8	8.491	A
			2	2, 3, 4	422	782	0.540	424	438	3.2	0.8	9.186	A
	CircBase	1	1	1	576			576	570	0.0	0.0	0.000	A
	Entry	2	1	(1, 2, 3, 4)	799			799	806	0.8	0.0	0.281	A
			1	1	803			803	819	0.0	0.0	0.000	A
	CircLink	1	1	4	803			803	819	0.0	0.0	0.000	A
			2	1	576			576	570	0.0	0.0	0.000	A
			3	2, 3	469			469	474	0.0	0.0	0.000	A
	CircBase	1	2	2, 3	469			469	474	0.0	0.0	0.000	A

Existing Layout - 2030 Do Nothing, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Lane Simulation	A1 - Existing Layout [Lane Simulation]	This analysis set uses Lane Simulation mode. This is provided as an investigative tool and the user should apply judgement when interpreting the results.
Last Run	Lane Simulation	1 - A1174 (Beverley Road) - Lane Simulation	Arm 1: Queue at end of modelled period is greater than 10 PCU. Delay is likely to have been underestimated.
Last Run	Lane Simulation	3 - A1079 (Beverley Road) - Lane Simulation	Arm 3: Queue at end of modelled period is greater than 10 PCU. Delay is likely to have been underestimated.
Last Run	Lane Simulation	4 - A1079 - Lane Simulation	Arm 4: Queue at end of modelled period is greater than 10 PCU. Delay is likely to have been underestimated.
Warning	Geometry	1 - A1174 (Beverley Road) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	3 - A1079 (Beverley Road) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	4 - A1079 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Dunswell Roundabout	Large Roundabout	✓	1, 2, 3, 4	294.86	F

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

[same as above]

Roundabout Geometry

[same as above]

Large Roundabout Data

Arm	Circulating flow (PCU/hr)	Entry-to-exit separation (m)
1 - A1174 (Beverley Road)	1548	35.00
2 - A1033 Raich Carter Way	759	45.00
3 - A1079 (Beverley Road)	1523	37.00
4 - A1079	1290	48.00

Slope / Intercept / Capacity

[same as above]

Lane Simulation: Arm options

[same as above]

Lanes

[same as above]

Entry Lane slope and intercept

[same as above]

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)	Run automatically
D2	2030 Do Nothing	PM	ONE HOUR	16:15	17:45	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	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - A1174 (Beverley Road)		ONE HOUR	✓	938	100.000
2 - A1033 Raich Carter Way		ONE HOUR	✓	1881	100.000
3 - A1079 (Beverley Road)		ONE HOUR	✓	1566	100.000
4 - A1079		ONE HOUR	✓	1223	100.000

Origin-Destination Data

Demand (PCU/hr)

	To				
		1 - A1174 (Beverley Road)	2 - A1033 Raich Carter Way	3 - A1079 (Beverley Road)	4 - A1079
From	1 - A1174 (Beverley Road)	0	546	367	25
	2 - A1033 Raich Carter Way	431	1	616	833
	3 - A1079 (Beverley Road)	378	863	2	323
	4 - A1079	26	1013	184	0

Vehicle Mix

Heavy Vehicle Percentages

	To				
		1 - A1174 (Beverley Road)	2 - A1033 Raich Carter Way	3 - A1079 (Beverley Road)	4 - A1079
From	1 - A1174 (Beverley Road)	0	1	2	9
	2 - A1033 Raich Carter Way	2	0	1	2
	3 - A1079 (Beverley Road)	3	1	0	0
	4 - A1079	14	3	2	0

Results

Results Summary for whole modelled period

Arm	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - A1174 (Beverley Road)	244.19	62.6	F	861	1292
2 - A1033 Raich Carter Way	85.15	55.5	F	1734	2601
3 - A1079 (Beverley Road)	461.50	176.7	F	1435	2152
4 - A1079	445.09	152.5	F	1120	1680

Main Results for each time segment

16:15 - 16:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Average throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A1174 (Beverley Road)	720	180	1561	713	701	622	0.0	3.4	13.478	B
2 - A1033 Raich Carter Way	1416	354	449	1420	1411	1824	0.0	2.9	7.977	A
3 - A1079 (Beverley Road)	1190	298	974	1187	1160	896	0.0	5.5	16.017	C
4 - A1079	922	230	1259	924	913	902	0.0	2.7	10.343	B

16:30 - 16:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Average throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A1174 (Beverley Road)	824	206	1768	819	819	752	3.4	10.1	36.031	E
2 - A1033 Raich Carter Way	1714	429	499	1705	1675	2088	2.9	7.7	13.847	B
3 - A1079 (Beverley Road)	1412	353	1163	1345	1341	1042	5.5	23.6	43.140	E
4 - A1079	1092	273	1451	1069	1067	1057	2.7	12.9	31.133	D

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Average throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A1174 (Beverley Road)	1032	258	1714	953	916	911	10.1	40.5	112.661	F
2 - A1033 Raich Carter Way	2088	522	554	1994	1974	2113	7.7	35.3	42.948	E
3 - A1079 (Beverley Road)	1721	430	1365	1456	1453	1183	23.6	91.6	168.275	F
4 - A1079	1349	337	1571	1055	1067	1250	12.9	83.1	162.718	F

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Average throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A1174 (Beverley Road)	1042	260	1706	952	947	908	40.5	62.6	201.113	F
2 - A1033 Raich Carter Way	2069	517	555	1995	1994	2103	35.3	55.5	85.151	F
3 - A1079 (Beverley Road)	1715	429	1374	1417	1438	1176	91.6	162.3	370.391	F
4 - A1079	1340	335	1548	1066	1061	1243	83.1	152.5	395.624	F

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Average throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A1174 (Beverley Road)	835	209	1883	825	866	738	62.6	55.6	244.194	F
2 - A1033 Raich Carter Way	1688	422	533	1790	1839	2175	55.5	20.4	65.901	F
3 - A1079 (Beverley Road)	1388	347	1208	1334	1340	1115	162.3	176.7	461.498	F
4 - A1079	1100	275	1437	1185	1171	1106	152.5	135.1	445.092	F

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Average throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A1174 (Beverley Road)	714	179	1936	749	762	645	55.6	42.6	194.139	F
2 - A1033 Raich Carter Way	1429	357	488	1443	1493	2198	20.4	3.6	16.389	C
3 - A1079 (Beverley Road)	1182	295	986	1320	1298	945	176.7	147.0	264.877	F
4 - A1079	916	229	1419	1162	1201	887	135.1	64.6	275.126	F

Lane Results

Lane Level notation: Lane Level 1 is always closest to the junction.

Lanes: Main Results for each time segment

16:15 - 16:30

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Average throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A1174 (Beverley Road)	Entry	1	1	2	411	648	0.634	409	408	0.0	1.8	13.806	B
			2	1, 3, 4	305	648	0.471	303	293	0.0	1.0	10.411	B
		2	1	(1, 2, 3, 4)	720			716	712	0.0	0.5	1.051	A
	Exit	1	1		622			622	623	0.0	0.0	0.000	A
	CircLink	1	1	1, 2	1325			1325	1320	0.0	0.0	0.000	A
			2	2, 3, 4	858			858	835	0.0	0.0	0.000	A
	CircBase	1	1	2, 3	1488			1488	1461	0.0	0.0	0.000	A
			2	3, 4	73			73	71	0.0	0.0	0.000	A
2 - A1033 Raich Carter Way	Entry	1	1	3	468	1017	0.460	466	464	0.0	0.8	6.100	A
			2	4	633	1017	0.622	636	625	0.0	1.2	7.694	A
			3	1, 2	318	1017	0.312	317	322	0.0	0.5	5.213	A
	Exit	1	1		1824			1824	1797	0.0	0.0	0.000	A
	CircLink	1	1	2	912			912	895	0.0	0.0	0.000	A
			2	2, 3	1125			1125	1106	0.0	0.0	0.000	A
			3	1, 3, 4	237			237	231	0.0	0.0	0.000	A
	CircBase	1	1	3	214			214	206	0.0	0.0	0.000	A
			2	1, 3, 4	236			236	229	0.0	0.0	0.000	A
	Entry	2	1	(3, 4)	1098			1101	1097	0.0	0.5	1.751	A
			2	(1, 2)	318			318	324	0.0	0.0	0.080	A
3 - A1079 (Beverley Road)	Entry	1	1	4	246	801	0.307	246	240	0.0	0.4	6.407	A
			2	1	283	801	0.354	285	283	0.0	0.6	7.313	A
			3	2, 3	660	801	0.824	657	638	0.0	3.1	16.643	C
	Exit	1	1		896			896	881	0.0	0.0	0.000	A
	CircLink	1	1	3	449			449	442	0.0	0.0	0.000	A
			2	1, 2, 3, 4	1421			1421	1405	0.0	0.0	0.000	A
	CircBase	1	1	4	656			656	644	0.0	0.0	0.000	A
			2	1, 2	317			317	322	0.0	0.0	0.000	A
	Entry	2	1	(1, 4)	530			530	527	0.0	0.0	0.019	A
			2	(2, 3)	661			660	650	0.0	1.3	6.558	A
4 - A1079	Entry	1	1	1, 2	440	679	0.648	440	438	0.0	1.3	9.850	A
			2	2, 3, 4	482	679	0.709	484	475	0.0	1.4	10.793	B
	CircBase	1	1	1	601			601	604	0.0	0.0	0.000	A
	Entry	2	1	(1, 2, 3, 4)	922			922	923	0.0	0.0	0.000	A
	Exit	1	1		902			902	884	0.0	0.0	0.000	A
	CircLink	1	1	4	902			902	884	0.0	0.0	0.000	A
			2	1	601			601	604	0.0	0.0	0.000	A
			3	2, 3	658			658	639	0.0	0.0	0.000	A
	CircBase	1	2	2, 3	658			658	639	0.0	0.0	0.000	A

16:30 - 16:45

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Average throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A1174 (Beverley Road)	Entry	1	1	2	479	558	0.857	480	478	1.8	3.5	25.121	D
			2	1, 3, 4	337	558	0.604	340	340	1.0	1.5	16.465	C
		2	1	(1, 2, 3, 4)	824			816	827	0.5	5.1	14.295	B
	Exit	1	1		752			752	745	0.0	0.0	0.000	A
	CircLink	1	1	1, 2	1562			1562	1546	0.0	0.0	0.000	A
			2	2, 3, 4	958			958	957	0.0	0.0	0.000	A
	CircBase	1	1	2, 3	1688			1688	1680	0.0	0.0	0.000	A
			2	3, 4	80			80	78	0.0	0.0	0.000	A
2 - A1033 Raich Carter Way	Entry	1	1	3	567	996	0.569	566	554	0.8	1.2	7.583	A
			2	4	753	996	0.756	752	740	1.2	2.2	9.670	A
			3	1, 2	389	996	0.391	387	381	0.5	0.8	5.808	A
	Exit	1	1		2088			2088	2080	0.0	0.0	0.000	A
	CircLink	1	1	2	1036			1036	1038	0.0	0.0	0.000	A
			2	2, 3	1290			1290	1279	0.0	0.0	0.000	A
			3	1, 3, 4	262			262	259	0.0	0.0	0.000	A
	CircBase	1	1	3	242			242	238	0.0	0.0	0.000	A
			2	1, 3, 4	256			256	258	0.0	0.0	0.000	A
	Entry	2	1	(3, 4)	1325			1320	1300	0.5	3.5	7.350	A
			2	(1, 2)	390			389	382	0.0	0.0	0.120	A
3 - A1079 (Beverley Road)	Entry	1	1	4	282	741	0.380	281	286	0.4	0.6	7.685	A
			2	1	341	741	0.460	343	343	0.6	0.8	9.154	A
			3	2, 3	724	741	0.977	721	712	3.1	5.5	24.944	C
	Exit	1	1		1042			1042	1027	0.0	0.0	0.000	A
	CircLink	1	1	3	530			530	517	0.0	0.0	0.000	A
			2	1, 2, 3, 4	1674			1674	1655	0.0	0.0	0.000	A
	CircBase	1	1	4	776			776	763	0.0	0.0	0.000	A
			2	1, 2	387			387	381	0.0	0.0	0.000	A
	Entry	2	1	(1, 4)	623			623	630	0.0	0.0	0.088	A
			2	(2, 3)	789			724	722	1.3	16.6	45.550	E
4 - A1079	Entry	1	1	1, 2	526	587	0.897	518	525	1.3	5.7	28.856	D
			2	2, 3, 4	558	587	0.950	550	542	1.4	6.0	30.197	D
	CircBase	1	1	1	729			729	723	0.0	0.0	0.000	A
	Entry	2	1	(1, 2, 3, 4)	1092			1084	1103	0.0	1.2	1.310	A
			1	1	1057			1057	1049	0.0	0.0	0.000	A
	CircLink	1	1	4	1057			1057	1049	0.0	0.0	0.000	A
			2	1	729			729	723	0.0	0.0	0.000	A
			3	2, 3	722			722	713	0.0	0.0	0.000	A
	CircBase	1	2	2, 3	722			722	713	0.0	0.0	0.000	A

16:45 - 17:00

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Average throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A1174 (Beverley Road)	Entry	1	1	2	556	582	0.957	555	535	3.5	5.1	32.202	D
			2	1, 3, 4	399	582	0.686	398	382	1.5	2.5	21.802	C
		2	1	(1, 2, 3, 4)	1032			955	927	5.1	32.9	84.575	F
	Exit	1	1		911			911	912	0.0	0.0	0.000	A
	CircLink	1	1	1, 2	1699			1699	1701	0.0	0.0	0.000	A
			2	2, 3, 4	926			926	946	0.0	0.0	0.000	A
	CircBase	1	1	2, 3	1639			1639	1656	0.0	0.0	0.000	A
			2	3, 4	75			75	80	0.0	0.0	0.000	A
2 - A1033 Raich Carter Way	Entry	1	1	3	657	973	0.676	654	642	1.2	1.7	9.309	A
			2	4	860	973	0.885	862	850	2.2	2.9	11.748	B
			3	1, 2	477	973	0.491	478	482	0.8	1.1	7.021	A
	Exit	1	1		2113			2113	2109	0.0	0.0	0.000	A
	CircLink	1	1	2	1051			1051	1054	0.0	0.0	0.000	A
			2	2, 3	1326			1326	1314	0.0	0.0	0.000	A
			3	1, 3, 4	290			290	284	0.0	0.0	0.000	A
	CircBase	1	1	3	260			260	261	0.0	0.0	0.000	A
			2	1, 3, 4	295			295	282	0.0	0.0	0.000	A
	Entry	2	1	(3, 4)	1610			1517	1497	3.5	29.4	42.847	E
			2	(1, 2)	477			477	483	0.0	0.1	0.538	A
3 - A1079 (Beverley Road)	Entry	1	1	4	363	676	0.536	363	355	0.6	1.2	10.923	B
			2	1	408	676	0.604	412	409	0.8	1.6	12.882	B
			3	2, 3	681	676	1.006	681	689	5.5	6.0	30.987	D
	Exit	1	1		1183			1183	1161	0.0	0.0	0.000	A
	CircLink	1	1	3	584			584	580	0.0	0.0	0.000	A
			2	1, 2, 3, 4	1964			1964	1937	0.0	0.0	0.000	A
	CircBase	1	1	4	887			887	873	0.0	0.0	0.000	A
			2	1, 2	478			478	482	0.0	0.0	0.000	A
	Entry	2	1	(1, 4)	771			771	769	0.0	0.2	0.952	A
			2	(2, 3)	950			681	691	16.6	82.6	261.244	F
4 - A1079	Entry	1	1	1, 2	540	529	1.020	536	538	5.7	14.3	78.473	F
			2	2, 3, 4	522	529	0.986	518	529	6.0	14.7	83.245	F
	CircBase	1	1	1	890			890	890	0.0	0.0	0.000	A
	Entry	2	1	(1, 2, 3, 4)	1349			1062	1136	1.2	54.1	78.948	F
			1	1	1250			1250	1228	0.0	0.0	0.000	A
	CircLink	1	1	4	1250			1250	1228	0.0	0.0	0.000	A
			2	1	890			890	890	0.0	0.0	0.000	A
			3	2, 3	681			681	690	0.0	0.0	0.000	A
	CircBase	1	2	2, 3	681			681	690	0.0	0.0	0.000	A

17:00 - 17:15

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Average throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A1174 (Beverley Road)	Entry	1	1	2	560	585	0.957	555	550	5.1	5.4	33.388	D
			2	1, 3, 4	395	585	0.675	398	397	2.5	2.3	21.997	C
		2	1	(1, 2, 3, 4)	1042			955	947	32.9	55.0	172.209	F
	Exit	1	1		908			908	914	0.0	0.0	0.000	A
	CircLink	1	1	1, 2	1680			1680	1692	0.0	0.0	0.000	A
			2	2, 3, 4	934			934	931	0.0	0.0	0.000	A
	CircBase	1	1	2, 3	1627			1627	1629	0.0	0.0	0.000	A
			2	3, 4	78			78	79	0.0	0.0	0.000	A
2 - A1033 Raich Carter Way	Entry	1	1	3	643	972	0.662	646	647	1.7	1.7	9.416	A
			2	4	873	972	0.898	873	869	2.9	3.0	12.496	B
			3	1, 2	478	972	0.492	476	479	1.1	1.1	7.075	A
	Exit	1	1		2103			2103	2101	0.0	0.0	0.000	A
	CircLink	1	1	2	1045			1045	1048	0.0	0.0	0.000	A
			2	2, 3	1319			1319	1319	0.0	0.0	0.000	A
			3	1, 3, 4	294			294	288	0.0	0.0	0.000	A
	CircBase	1	1	3	266			266	264	0.0	0.0	0.000	A
			2	1, 3, 4	289			289	290	0.0	0.0	0.000	A
	Entry	2	1	(3, 4)	1591			1517	1516	29.4	49.5	97.091	F
			2	(1, 2)	478			478	479	0.1	0.1	0.745	A
3 - A1079 (Beverley Road)	Entry	1	1	4	344	674	0.511	346	355	1.2	1.1	10.970	B
			2	1	411	674	0.610	410	414	1.6	1.5	13.329	B
			3	2, 3	662	674	0.983	662	670	6.0	6.0	32.309	D
	Exit	1	1		1176			1176	1175	0.0	0.0	0.000	A
	CircLink	1	1	3	587			587	587	0.0	0.0	0.000	A
			2	1, 2, 3, 4	1963			1963	1962	0.0	0.0	0.000	A
	CircBase	1	1	4	898			898	895	0.0	0.0	0.000	A
			2	1, 2	476			476	479	0.0	0.0	0.000	A
	Entry	2	1	(1, 4)	756			755	768	0.2	0.2	0.754	A
			2	(2, 3)	959			662	670	82.6	153.5	625.538	F
4 - A1079	Entry	1	1	1, 2	533	540	0.987	534	530	14.3	14.3	95.790	F
			2	2, 3, 4	533	540	0.986	532	531	14.7	14.8	99.533	F
	CircBase	1	1	1	885			885	891	0.0	0.0	0.000	A
	Entry	2	1	(1, 2, 3, 4)	1340			1066	1061	54.1	123.4	301.098	F
			1	1	1243			1243	1250	0.0	0.0	0.000	A
	CircLink	1	1	4	1243			1243	1250	0.0	0.0	0.000	A
			2	1	885			885	891	0.0	0.0	0.000	A
			3	2, 3	663			663	671	0.0	0.0	0.000	A
	CircBase	1	2	2, 3	663			663	671	0.0	0.0	0.000	A

17:15 - 17:30

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Average throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A1174 (Beverley Road)	Entry	1	1	2	484	509	0.952	479	504	5.4	5.2	35.487	E
			2	1, 3, 4	345	509	0.678	346	361	2.3	2.5	24.334	C
		2	1	(1, 2, 3, 4)	835			829	866	55.0	47.9	212.157	F
	Exit	1	1		738			738	759	0.0	0.0	0.000	A
	CircLink	1	1	1, 2	1587			1587	1602	0.0	0.0	0.000	A
			2	2, 3, 4	1034			1034	1014	0.0	0.0	0.000	A
	CircBase	1	1	2, 3	1791			1791	1768	0.0	0.0	0.000	A
			2	3, 4	92			92	89	0.0	0.0	0.000	A
2 - A1033 Raich Carter Way	Entry	1	1	3	603	982	0.614	605	616	1.7	1.5	9.065	A
			2	4	794	982	0.809	796	828	3.0	2.4	11.673	B
			3	1, 2	387	982	0.394	389	395	1.1	0.6	6.185	A
	Exit	1	1		2175			2175	2181	0.0	0.0	0.000	A
	CircLink	1	1	2	1092			1092	1090	0.0	0.0	0.000	A
			2	2, 3	1339			1339	1348	0.0	0.0	0.000	A
			3	1, 3, 4	277			277	284	0.0	0.0	0.000	A
	CircBase	1	1	3	250			250	256	0.0	0.0	0.000	A
			2	1, 3, 4	282			282	285	0.0	0.0	0.000	A
	Entry	2	1	(3, 4)	1301			1397	1441	49.5	15.9	73.217	F
			2	(1, 2)	387			387	393	0.1	0.0	0.240	A
3 - A1079 (Beverley Road)	Entry	1	1	4	285	727	0.393	286	290	1.1	0.6	8.638	A
			2	1	328	727	0.452	327	341	1.5	1.0	10.617	B
			3	2, 3	721	727	0.992	721	709	6.0	6.0	30.387	D
	Exit	1	1		1115			1115	1133	0.0	0.0	0.000	A
	CircLink	1	1	3	562			562	575	0.0	0.0	0.000	A
			2	1, 2, 3, 4	1761			1761	1806	0.0	0.0	0.000	A
	CircBase	1	1	4	819			819	853	0.0	0.0	0.000	A
			2	1, 2	389			389	395	0.0	0.0	0.000	A
	Entry	2	1	(1, 4)	614			614	626	0.2	0.0	0.232	A
			2	(2, 3)	774			721	709	153.5	169.1	798.975	F
4 - A1079	Entry	1	1	1, 2	588	594	0.991	587	585	14.3	13.9	86.041	F
			2	2, 3, 4	595	594	1.002	598	585	14.8	14.4	89.615	F
	CircBase	1	1	1	714			714	735	0.0	0.0	0.000	A
	Entry	2	1	(1, 2, 3, 4)	1100			1183	1168	123.4	106.7	359.709	F
			1	1	1106			1106	1142	0.0	0.0	0.000	A
	CircLink	1	1	4	1106			1106	1142	0.0	0.0	0.000	A
			2	1	714			714	735	0.0	0.0	0.000	A
			3	2, 3	722			722	710	0.0	0.0	0.000	A
	CircBase	1	2	2, 3	722			722	710	0.0	0.0	0.000	A

17:30 - 17:45

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Average throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A1174 (Beverley Road)	Entry	1	1	2	434	486	0.894	436	444	5.2	4.6	38.535	E
			2	1, 3, 4	315	486	0.648	314	318	2.5	2.3	25.100	D
		2	1	(1, 2, 3, 4)	714			749	759	47.9	35.6	162.959	F
	Exit	1	1		645			645	634	0.0	0.0	0.000	A
	CircLink	1	1	1, 2	1516			1516	1519	0.0	0.0	0.000	A
			2	2, 3, 4	1065			1065	1067	0.0	0.0	0.000	A
	CircBase	1	1	2, 3	1850			1850	1863	0.0	0.0	0.000	A
			2	3, 4	86			86	88	0.0	0.0	0.000	A
2 - A1033 Raich Carter Way	Entry	1	1	3	474	1001	0.474	476	500	1.5	0.9	7.168	A
			2	4	627	1001	0.627	630	665	2.4	1.3	9.224	A
			3	1, 2	337	1001	0.337	337	327	0.6	0.5	5.565	A
	Exit	1	1		2198			2198	2217	0.0	0.0	0.000	A
	CircLink	1	1	2	1092			1092	1106	0.0	0.0	0.000	A
			2	2, 3	1343			1343	1351	0.0	0.0	0.000	A
			3	1, 3, 4	251			251	256	0.0	0.0	0.000	A
	CircBase	1	1	3	233			233	237	0.0	0.0	0.000	A
			2	1, 3, 4	255			255	259	0.0	0.0	0.000	A
	Entry	2	1	(3, 4)	1092			1101	1159	15.9	0.8	11.374	B
			2	(1, 2)	337			337	327	0.0	0.0	0.103	A
3 - A1079 (Beverley Road)	Entry	1	1	4	238	797	0.299	238	241	0.6	0.5	6.900	A
			2	1	285	797	0.357	285	283	1.0	0.6	7.722	A
			3	2, 3	797	797	1.000	797	774	6.0	6.0	27.756	D
	Exit	1	1		945			945	977	0.0	0.0	0.000	A
	CircLink	1	1	3	469			469	487	0.0	0.0	0.000	A
			2	1, 2, 3, 4	1462			1462	1502	0.0	0.0	0.000	A
	CircBase	1	1	4	649			649	685	0.0	0.0	0.000	A
			2	1, 2	337			337	327	0.0	0.0	0.000	A
	Entry	2	1	(1, 4)	523			523	522	0.0	0.0	0.064	A
			2	(2, 3)	659			797	774	169.1	139.8	653.524	F
4 - A1079	Entry	1	1	1, 2	561	602	0.932	579	599	13.9	10.8	75.056	F
			2	2, 3, 4	566	602	0.940	584	602	14.4	11.2	78.192	F
	CircBase	1	1	1	622			622	609	0.0	0.0	0.000	A
	Entry	2	1	(1, 2, 3, 4)	916			1127	1176	106.7	42.6	202.460	F
			1	1	887			887	926	0.0	0.0	0.000	A
	CircLink	1	1	4	887			887	926	0.0	0.0	0.000	A
			2	1	622			622	609	0.0	0.0	0.000	A
			3	2, 3	798			798	775	0.0	0.0	0.000	A
	CircBase	1	2	2, 3	798			798	775	0.0	0.0	0.000	A

Existing Layout - 2030 With Development, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Lane Simulation	A1 - Existing Layout [Lane Simulation]	This analysis set uses Lane Simulation mode. This is provided as an investigative tool and the user should apply judgement when interpreting the results.
Last Run	Lane Simulation	1 - A1174 (Beverley Road) - Lane Simulation	Arm 1: Queue at end of modelled period is greater than 10 PCU. Delay is likely to have been underestimated.
Last Run	Lane Simulation	2 - A1033 Raich Carter Way - Lane Simulation	Arm 2: Queue at end of modelled period is greater than 10 PCU. Delay is likely to have been underestimated.
Last Run	Lane Simulation	3 - A1079 (Beverley Road) - Lane Simulation	Arm 3: Queue at end of modelled period is greater than 10 PCU. Delay is likely to have been underestimated.
Last Run	Lane Simulation	4 - A1079 - Lane Simulation	Arm 4: Queue at end of modelled period is greater than 10 PCU. Delay is likely to have been underestimated.
Warning	Geometry	1 - A1174 (Beverley Road) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	3 - A1079 (Beverley Road) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	4 - A1079 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Dunswell Roundabout	Large Roundabout	✓	1, 2, 3, 4	393.77	F

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

[same as above]

Roundabout Geometry

[same as above]

Large Roundabout Data

Arm	Circulating flow (PCU/hr)	Entry-to-exit separation (m)
1 - A1174 (Beverley Road)	1568	35.00
2 - A1033 Raich Carter Way	759	45.00
3 - A1079 (Beverley Road)	1548	37.00
4 - A1079	1308	48.00

Slope / Intercept / Capacity

[same as above]

Lane Simulation: Arm options

[same as above]

Lanes

[same as above]

Entry Lane slope and intercept

[same as above]

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)	Run automatically
D3	2030 With Development	PM	ONE HOUR	16:15	17:45	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	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - A1174 (Beverley Road)		ONE HOUR	✓	953	100.000
2 - A1033 Raich Carter Way		ONE HOUR	✓	2017	100.000
3 - A1079 (Beverley Road)		ONE HOUR	✓	1586	100.000
4 - A1079		ONE HOUR	✓	1241	100.000

Origin-Destination Data

Demand (PCU/hr)

	To				
		1 - A1174 (Beverley Road)	2 - A1033 Raich Carter Way	3 - A1079 (Beverley Road)	4 - A1079
From	1 - A1174 (Beverley Road)	0	534	394	25
	2 - A1033 Raich Carter Way	472	68	623	854
	3 - A1079 (Beverley Road)	370	848	52	316
	4 - A1079	26	992	223	0

Vehicle Mix

Heavy Vehicle Percentages

	To				
		1 - A1174 (Beverley Road)	2 - A1033 Raich Carter Way	3 - A1079 (Beverley Road)	4 - A1079
From	1 - A1174 (Beverley Road)	0	1	3	9
	2 - A1033 Raich Carter Way	2	0	1	2
	3 - A1079 (Beverley Road)	3	1	0	0
	4 - A1079	14	3	3	0

Results

Results Summary for whole modelled period

Arm	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - A1174 (Beverley Road)	182.28	53.5	F	875	1312
2 - A1033 Raich Carter Way	144.51	97.1	F	1852	2778
3 - A1079 (Beverley Road)	615.55	237.8	F	1455	2183
4 - A1079	676.61	213.0	F	1145	1718

Main Results for each time segment

16:15 - 16:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Average throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A1174 (Beverley Road)	721	180	1660	720	711	660	0.0	3.3	14.199	B
2 - A1033 Raich Carter Way	1523	381	536	1522	1511	1843	0.0	3.9	9.240	A
3 - A1079 (Beverley Road)	1211	303	1084	1200	1171	974	0.0	8.5	20.418	C
4 - A1079	948	237	1378	942	917	906	0.0	4.4	13.754	B

16:30 - 16:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Average throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A1174 (Beverley Road)	860	215	1774	831	816	784	3.3	12.2	37.593	E
2 - A1033 Raich Carter Way	1819	455	600	1817	1788	2005	3.9	10.0	17.493	C
3 - A1079 (Beverley Road)	1415	354	1290	1304	1309	1127	8.5	35.6	65.797	F
4 - A1079	1097	274	1507	1051	1046	1087	4.4	20.0	47.994	E

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Average throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A1174 (Beverley Road)	1045	261	1685	1001	947	941	12.2	37.2	108.848	F
2 - A1033 Raich Carter Way	2213	553	654	2054	2039	2032	10.0	54.0	62.380	F
3 - A1079 (Beverley Road)	1748	437	1468	1401	1409	1241	35.6	120.3	243.754	F
4 - A1079	1368	342	1646	980	997	1222	20.0	111.2	236.820	F

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Average throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A1174 (Beverley Road)	1053	263	1699	978	988	962	37.2	53.5	167.361	F
2 - A1033 Raich Carter Way	2235	559	644	2058	2059	2033	54.0	97.1	138.033	F
3 - A1079 (Beverley Road)	1755	439	1469	1425	1408	1233	120.3	206.0	505.259	F
4 - A1079	1397	349	1674	987	984	1221	111.2	208.3	568.431	F

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Average throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A1174 (Beverley Road)	858	214	1852	845	892	765	53.5	42.7	182.285	F
2 - A1033 Raich Carter Way	1804	451	614	1934	1955	2083	97.1	62.3	144.514	F
3 - A1079 (Beverley Road)	1415	354	1354	1297	1297	1193	206.0	237.8	615.546	F
4 - A1079	1113	278	1489	1127	1100	1162	208.3	213.0	676.605	F

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Average throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A1174 (Beverley Road)	712	178	1958	742	780	653	42.7	26.4	132.506	F
2 - A1033 Raich Carter Way	1518	380	585	1640	1713	2115	62.3	14.0	60.952	F
3 - A1079 (Beverley Road)	1189	297	1142	1252	1243	1083	237.8	226.4	286.119	F
4 - A1079	947	237	1421	1191	1185	973	213.0	151.0	525.628	F

Lane Results

Lane Level notation: Lane Level 1 is always closest to the junction.

Lanes: Main Results for each time segment

16:15 - 16:30

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Average throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A1174 (Beverley Road)	Entry	1	1	2	401	606	0.662	397	394	0.0	1.9	14.441	B
			2	1, 3, 4	322	606	0.531	323	318	0.0	1.1	11.302	B
		2	1	(1, 2, 3, 4)	721			723	724	0.0	0.2	1.122	A
	Exit	1	1		660			660	652	0.0	0.0	0.000	A
	CircLink	1	1	1, 2	1386			1386	1351	0.0	0.0	0.000	A
			2	2, 3, 4	934			934	910	0.0	0.0	0.000	A
	CircBase	1	1	2, 3	1556			1556	1508	0.0	0.0	0.000	A
			2	3, 4	104			104	101	0.0	0.0	0.000	A
2 - A1033 Raich Carter Way	Entry	1	1	3	460	980	0.470	458	462	0.0	1.0	6.685	A
			2	4	646	980	0.659	648	641	0.0	1.5	8.541	A
			3	1, 2	414	980	0.423	416	408	0.0	0.6	6.250	A
	Exit	1	1		1843			1843	1799	0.0	0.0	0.000	A
	CircLink	1	1	2	915			915	891	0.0	0.0	0.000	A
			2	2, 3	1182			1182	1158	0.0	0.0	0.000	A
			3	1, 3, 4	282			282	271	0.0	0.0	0.000	A
	CircBase	1	1	3	259			259	253	0.0	0.0	0.000	A
			2	1, 3, 4	277			277	269	0.0	0.0	0.000	A
	Entry	2	1	(3, 4)	1109			1107	1113	0.0	0.8	2.484	A
			2	(1, 2)	414			414	410	0.0	0.0	0.230	A
3 - A1079 (Beverley Road)	Entry	1	1	4	240	766	0.313	238	235	0.0	0.5	6.698	A
			2	1	279	766	0.364	280	278	0.0	0.6	7.360	A
			3	2, 3	682	766	0.890	683	659	0.0	3.8	18.679	C
	Exit	1	1		974			974	965	0.0	0.0	0.000	A
	CircLink	1	1	3	490			490	486	0.0	0.0	0.000	A
			2	1, 2, 3, 4	1569			1569	1547	0.0	0.0	0.000	A
	CircBase	1	1	4	668			668	660	0.0	0.0	0.000	A
			2	1, 2	416			416	408	0.0	0.0	0.000	A
	Entry	2	1	(1, 4)	519			519	517	0.0	0.0	0.027	A
			2	(2, 3)	691			682	674	0.0	3.7	11.503	B
4 - A1079	Entry	1	1	1, 2	451	623	0.724	447	436	0.0	2.1	13.255	B
			2	2, 3, 4	497	623	0.799	495	481	0.0	2.3	14.203	B
	CircBase	1	1	1	641			641	634	0.0	0.0	0.000	A
	Entry	2	1	(1, 2, 3, 4)	948			948	934	0.0	0.0	0.000	A
			1	1	906			906	895	0.0	0.0	0.000	A
	CircLink	1	1	4	906			906	895	0.0	0.0	0.000	A
			2	1	641			641	634	0.0	0.0	0.000	A
			3	2, 3	737			737	711	0.0	0.0	0.000	A
	CircBase	1	2	2, 3	737			737	711	0.0	0.0	0.000	A

16:30 - 16:45

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Average throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A1174 (Beverley Road)	Entry	1	1	2	466	557	0.837	461	455	1.9	3.7	25.581	D
			2	1, 3, 4	369	557	0.663	370	361	1.1	2.1	17.840	C
		2	1	(1, 2, 3, 4)	860			836	828	0.2	6.3	15.129	C
	Exit	1	1		784			784	774	0.0	0.0	0.000	A
	CircLink	1	1	1, 2	1561			1561	1555	0.0	0.0	0.000	A
			2	2, 3, 4	997			997	1001	0.0	0.0	0.000	A
	CircBase	1	1	2, 3	1660			1660	1669	0.0	0.0	0.000	A
			2	3, 4	114			114	114	0.0	0.0	0.000	A
2 - A1033 Raich Carter Way	Entry	1	1	3	552	953	0.579	551	550	1.0	1.3	8.153	A
			2	4	782	953	0.820	782	757	1.5	2.5	10.824	B
			3	1, 2	485	953	0.509	484	481	0.6	1.1	7.318	A
	Exit	1	1		2005			2005	2009	0.0	0.0	0.000	A
	CircLink	1	1	2	1003			1003	1005	0.0	0.0	0.000	A
			2	2, 3	1289			1289	1289	0.0	0.0	0.000	A
			3	1, 3, 4	313			313	306	0.0	0.0	0.000	A
	CircBase	1	1	3	281			281	282	0.0	0.0	0.000	A
			2	1, 3, 4	319			319	308	0.0	0.0	0.000	A
	Entry	2	1	(3, 4)	1334			1334	1312	0.8	5.0	11.259	B
			2	(1, 2)	485			485	483	0.0	0.1	0.594	A
3 - A1079 (Beverley Road)	Entry	1	1	4	282	701	0.402	281	280	0.5	0.8	8.324	A
			2	1	337	701	0.481	338	331	0.6	1.1	9.680	A
			3	2, 3	686	701	0.979	685	698	3.8	5.8	28.246	D
	Exit	1	1		1127			1127	1119	0.0	0.0	0.000	A
	CircLink	1	1	3	566			566	561	0.0	0.0	0.000	A
			2	1, 2, 3, 4	1851			1851	1818	0.0	0.0	0.000	A
	CircBase	1	1	4	806			806	778	0.0	0.0	0.000	A
			2	1, 2	484			484	481	0.0	0.0	0.000	A
	Entry	2	1	(1, 4)	620			619	615	0.0	0.1	0.092	A
			2	(2, 3)	795			686	706	3.7	27.9	80.235	F
4 - A1079	Entry	1	1	1, 2	530	561	0.945	521	515	2.1	7.6	40.762	E
			2	2, 3, 4	544	561	0.969	530	531	2.3	8.5	43.046	E
	CircBase	1	1	1	761			761	752	0.0	0.0	0.000	A
	Entry	2	1	(1, 2, 3, 4)	1097			1074	1093	0.0	3.9	5.186	A
			1	1	1087			1087	1059	0.0	0.0	0.000	A
	CircLink	1	1	4	1087			1087	1059	0.0	0.0	0.000	A
			2	1	761			761	752	0.0	0.0	0.000	A
			3	2, 3	746			746	758	0.0	0.0	0.000	A
	CircBase	1	2	2, 3	746			746	758	0.0	0.0	0.000	A

16:45 - 17:00

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Average throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A1174 (Beverley Road)	Entry	1	1	2	561	595	0.941	560	529	3.7	4.7	31.092	D
			2	1, 3, 4	444	595	0.746	440	418	2.1	2.8	22.902	C
		2	1	(1, 2, 3, 4)	1045			1005	954	6.3	29.6	81.250	F
	Exit	1	1		941			941	939	0.0	0.0	0.000	A
	CircLink	1	1	1, 2	1673			1673	1685	0.0	0.0	0.000	A
			2	2, 3, 4	954			954	966	0.0	0.0	0.000	A
	CircBase	1	1	2, 3	1574			1574	1603	0.0	0.0	0.000	A
			2	3, 4	111			111	109	0.0	0.0	0.000	A
2 - A1033 Raich Carter Way	Entry	1	1	3	611	930	0.657	612	608	1.3	1.5	9.567	A
			2	4	849	930	0.913	848	839	2.5	3.2	12.993	B
			3	1, 2	595	930	0.639	595	592	1.1	1.4	8.806	A
	Exit	1	1		2032			2032	2027	0.0	0.0	0.000	A
	CircLink	1	1	2	1023			1023	1012	0.0	0.0	0.000	A
			2	2, 3	1322			1322	1320	0.0	0.0	0.000	A
			3	1, 3, 4	341			341	327	0.0	0.0	0.000	A
	CircBase	1	1	3	313			313	301	0.0	0.0	0.000	A
			2	1, 3, 4	341			341	332	0.0	0.0	0.000	A
	Entry	2	1	(3, 4)	1618			1460	1450	5.0	47.5	69.764	F
			2	(1, 2)	595			595	594	0.1	0.4	1.816	A
3 - A1079 (Beverley Road)	Entry	1	1	4	346	645	0.536	349	347	0.8	1.0	11.822	B
			2	1	403	645	0.625	405	401	1.1	1.7	14.033	B
			3	2, 3	647	645	1.003	647	661	5.8	6.0	32.665	D
	Exit	1	1		1241			1241	1216	0.0	0.0	0.000	A
	CircLink	1	1	3	620			620	610	0.0	0.0	0.000	A
			2	1, 2, 3, 4	2088			2088	2062	0.0	0.0	0.000	A
	CircBase	1	1	4	873			873	864	0.0	0.0	0.000	A
			2	1, 2	595			595	592	0.0	0.0	0.000	A
	Entry	2	1	(1, 4)	751			749	751	0.1	0.4	1.304	A
			2	(2, 3)	998			647	662	27.9	111.2	383.222	F
4 - A1079	Entry	1	1	1, 2	488	494	0.988	487	496	7.6	14.2	92.505	F
			2	2, 3, 4	494	494	1.000	493	501	8.5	14.8	96.163	F
	CircBase	1	1	1	923			923	920	0.0	0.0	0.000	A
	Entry	2	1	(1, 2, 3, 4)	1368			983	1048	3.9	82.1	139.418	F
			1	1	1222			1222	1210	0.0	0.0	0.000	A
	CircLink	1	1	4	1222			1222	1210	0.0	0.0	0.000	A
			2	1	923			923	920	0.0	0.0	0.000	A
			3	2, 3	724			724	735	0.0	0.0	0.000	A
	CircBase	1	2	2, 3	724			724	735	0.0	0.0	0.000	A

17:00 - 17:15

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Average throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A1174 (Beverley Road)	Entry	1	1	2	553	590	0.938	552	554	4.7	4.9	31.429	D
			2	1, 3, 4	428	590	0.727	426	433	2.8	2.8	21.991	C
		2	1	(1, 2, 3, 4)	1053			981	988	29.6	45.7	140.067	F
	Exit	1	1		962			962	951	0.0	0.0	0.000	A
	CircLink	1	1	1, 2	1695			1695	1683	0.0	0.0	0.000	A
			2	2, 3, 4	966			966	954	0.0	0.0	0.000	A
	CircBase	1	1	2, 3	1594			1594	1579	0.0	0.0	0.000	A
			2	3, 4	105			105	107	0.0	0.0	0.000	A
2 - A1033 Raich Carter Way	Entry	1	1	3	612	934	0.655	616	614	1.5	1.5	10.050	B
			2	4	842	934	0.902	841	849	3.2	3.2	13.208	B
			3	1, 2	601	934	0.643	602	597	1.4	1.5	9.203	A
	Exit	1	1		2033			2033	2025	0.0	0.0	0.000	A
	CircLink	1	1	2	1013			1013	1012	0.0	0.0	0.000	A
			2	2, 3	1321			1321	1324	0.0	0.0	0.000	A
			3	1, 3, 4	343			343	338	0.0	0.0	0.000	A
	CircBase	1	1	3	307			307	310	0.0	0.0	0.000	A
			2	1, 3, 4	337			337	338	0.0	0.0	0.000	A
	Entry	2	1	(3, 4)	1634			1454	1463	47.5	90.5	172.208	F
			2	(1, 2)	600			601	597	0.4	0.4	2.234	A
3 - A1079 (Beverley Road)	Entry	1	1	4	351	644	0.544	353	352	1.0	1.2	12.297	B
			2	1	412	644	0.639	415	409	1.7	1.7	15.005	C
			3	2, 3	658	644	1.021	658	648	6.0	6.0	33.413	D
	Exit	1	1		1233			1233	1237	0.0	0.0	0.000	A
	CircLink	1	1	3	620			620	620	0.0	0.0	0.000	A
			2	1, 2, 3, 4	2082			2082	2088	0.0	0.0	0.000	A
	CircBase	1	1	4	868			868	874	0.0	0.0	0.000	A
			2	1, 2	602			602	597	0.0	0.0	0.000	A
	Entry	2	1	(1, 4)	762			762	762	0.4	0.4	2.079	A
			2	(2, 3)	994			658	647	111.2	196.8	847.391	F
4 - A1079	Entry	1	1	1, 2	498	481	1.036	497	491	14.2	14.2	102.984	F
			2	2, 3, 4	492	481	1.023	490	493	14.8	14.9	108.038	F
	CircBase	1	1	1	942			942	931	0.0	0.0	0.000	A
	Entry	2	1	(1, 2, 3, 4)	1397			990	984	82.1	179.3	469.694	F
			1	1	1221			1221	1226	0.0	0.0	0.000	A
	CircLink	1	1	4	1221			1221	1226	0.0	0.0	0.000	A
			2	1	942			942	931	0.0	0.0	0.000	A
			3	2, 3	732			732	722	0.0	0.0	0.000	A
	CircBase	1	2	2, 3	732			732	722	0.0	0.0	0.000	A

17:15 - 17:30

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Average throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A1174 (Beverley Road)	Entry	1	1	2	480	524	0.916	477	502	4.9	4.7	33.239	D
			2	1, 3, 4	365	524	0.698	368	389	2.8	2.5	24.253	C
		2	1	(1, 2, 3, 4)	858			845	889	45.7	35.5	152.001	F
	Exit	1	1		765			765	786	0.0	0.0	0.000	A
	CircLink	1	1	1, 2	1569			1569	1580	0.0	0.0	0.000	A
			2	2, 3, 4	1048			1048	1019	0.0	0.0	0.000	A
	CircBase	1	1	2, 3	1727			1727	1692	0.0	0.0	0.000	A
			2	3, 4	125			125	121	0.0	0.0	0.000	A
2 - A1033 Raich Carter Way	Entry	1	1	3	601	947	0.634	603	617	1.5	1.7	9.763	A
			2	4	853	947	0.901	853	850	3.2	2.9	13.044	B
			3	1, 2	479	947	0.506	478	488	1.5	1.0	7.548	A
	Exit	1	1		2083			2083	2077	0.0	0.0	0.000	A
	CircLink	1	1	2	1038			1038	1040	0.0	0.0	0.000	A
			2	2, 3	1344			1344	1342	0.0	0.0	0.000	A
			3	1, 3, 4	314			314	323	0.0	0.0	0.000	A
	CircBase	1	1	3	289			289	299	0.0	0.0	0.000	A
			2	1, 3, 4	325			325	328	0.0	0.0	0.000	A
	Entry	2	1	(3, 4)	1325			1454	1467	90.5	56.7	182.485	F
			2	(1, 2)	480			479	486	0.4	0.0	0.688	A
3 - A1079 (Beverley Road)	Entry	1	1	4	286	681	0.421	286	286	1.2	0.7	9.326	A
			2	1	325	681	0.478	326	336	1.7	1.0	11.104	B
			3	2, 3	686	681	1.007	686	674	6.0	6.0	31.950	D
	Exit	1	1		1193			1193	1220	0.0	0.0	0.000	A
	CircLink	1	1	3	590			590	607	0.0	0.0	0.000	A
			2	1, 2, 3, 4	1958			1958	1976	0.0	0.0	0.000	A
	CircBase	1	1	4	876			876	874	0.0	0.0	0.000	A
			2	1, 2	478			478	488	0.0	0.0	0.000	A
	Entry	2	1	(1, 4)	612			612	618	0.4	0.0	0.329	A
			2	(2, 3)	803			686	674	196.8	230.1	1065.554	F
4 - A1079	Entry	1	1	1, 2	567	569	0.995	566	552	14.2	13.9	89.926	F
			2	2, 3, 4	559	569	0.982	561	548	14.9	14.6	95.710	F
	CircBase	1	1	1	741			741	761	0.0	0.0	0.000	A
	Entry	2	1	(1, 2, 3, 4)	1113			1126	1097	179.3	184.5	588.888	F
			1	1	1162			1162	1161	0.0	0.0	0.000	A
	CircLink	1	1	4	1162			1162	1161	0.0	0.0	0.000	A
			2	1	741			741	761	0.0	0.0	0.000	A
			3	2, 3	748			748	738	0.0	0.0	0.000	A
	CircBase	1	2	2, 3	748			748	738	0.0	0.0	0.000	A

17:30 - 17:45

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Average throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A1174 (Beverley Road)	Entry	1	1	2	414	478	0.867	416	439	4.7	3.9	33.494	D
			2	1, 3, 4	324	478	0.678	326	340	2.5	2.4	24.968	C
		2	1	(1, 2, 3, 4)	712			739	776	35.5	20.1	103.740	F
	Exit	1	1		653			653	662	0.0	0.0	0.000	A
	CircLink	1	1	1, 2	1507			1507	1502	0.0	0.0	0.000	A
			2	2, 3, 4	1104			1104	1097	0.0	0.0	0.000	A
	CircBase	1	1	2, 3	1828			1828	1808	0.0	0.0	0.000	A
			2	3, 4	130			130	129	0.0	0.0	0.000	A
2 - A1033 Raich Carter Way	Entry	1	1	3	512	959	0.533	516	551	1.7	1.1	8.750	A
			2	4	716	959	0.747	717	753	2.9	2.1	11.552	B
			3	1, 2	408	959	0.426	407	409	1.0	0.9	6.557	A
	Exit	1	1		2115			2115	2117	0.0	0.0	0.000	A
	CircLink	1	1	2	1047			1047	1057	0.0	0.0	0.000	A
			2	2, 3	1350			1350	1350	0.0	0.0	0.000	A
			3	1, 3, 4	302			302	310	0.0	0.0	0.000	A
	CircBase	1	1	3	285			285	293	0.0	0.0	0.000	A
			2	1, 3, 4	300			300	306	0.0	0.0	0.000	A
	Entry	2	1	(3, 4)	1110			1228	1298	56.7	10.0	70.795	F
			2	(1, 2)	408			408	408	0.0	0.0	0.314	A
3 - A1079 (Beverley Road)	Entry	1	1	4	236	748	0.316	238	239	0.7	0.5	7.454	A
			2	1	275	748	0.367	275	280	1.0	0.7	8.581	A
			3	2, 3	740	748	0.989	740	724	6.0	6.0	29.659	D
	Exit	1	1		1083			1083	1131	0.0	0.0	0.000	A
	CircLink	1	1	3	543			543	562	0.0	0.0	0.000	A
			2	1, 2, 3, 4	1682			1682	1751	0.0	0.0	0.000	A
	CircBase	1	1	4	736			736	773	0.0	0.0	0.000	A
			2	1, 2	407			407	409	0.0	0.0	0.000	A
	Entry	2	1	(1, 4)	510			511	517	0.0	0.0	0.093	A
			2	(2, 3)	679			740	724	230.1	219.3	820.231	F
4 - A1079	Entry	1	1	1, 2	594	602	0.987	595	594	13.9	13.8	82.351	F
			2	2, 3, 4	593	602	0.985	595	591	14.6	14.5	88.020	F
	CircBase	1	1	1	629			629	638	0.0	0.0	0.000	A
	Entry	2	1	(1, 2, 3, 4)	947			1188	1185	184.5	122.7	445.020	F
			1	1	973			973	1012	0.0	0.0	0.000	A
	CircLink	1	1	4	973			973	1012	0.0	0.0	0.000	A
			2	1	629			629	638	0.0	0.0	0.000	A
			3	2, 3	792			792	776	0.0	0.0	0.000	A
	CircBase	1	2	2, 3	792			792	776	0.0	0.0	0.000	A

Junctions 9					
ARCADY 9 - Roundabout Module					
Version: 9.5.1.7462					
© Copyright TRL Limited, 2019					
For sales and distribution information, program advice and maintenance, contact TRL:					
+44 (0)1344 379777 software@trl.co.uk www.trlsoftware.co.uk					
The users of this computer program for the solution of an engineering problem are in no way relieved of their responsibility for the correctness of the solution					

Filename: Dunswell Roundabout SAT Peak 2024.j9

Path: Z:\Projects\5913 Dunswell P&R\Data\Modelling\Dunswell Roundabout

Report generation date: 25/10/2024 14:22:40

- »Existing Layout - 2023 Base, SAT
- »Existing Layout - 2030 Do Nothing, SAT
- »Existing Layout - 2030 With Development, SAT

Summary of junction performance

	SAT				
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS
	Existing Layout [Lane Simulation] - 2023 Base				
1 - A1174 (Beverley Road)	D1	7.9	38.45		E
2 - A1033 Raich Carter Way		4.8	11.50		B
3 - A1079 (Beverley Road)		7.7	23.10		C
4 - A1079		6.8	30.12		D
	Existing Layout [Lane Simulation] - 2030 Do Nothing				
1 - A1174 (Beverley Road)	D2	36.0	149.93		F
2 - A1033 Raich Carter Way		19.5	34.06		D
3 - A1079 (Beverley Road)		61.4	156.29		F
4 - A1079		50.4	184.62		F
	Existing Layout [Lane Simulation] - 2030 With Development				
1 - A1174 (Beverley Road)	D3	31.7	120.37		F
2 - A1033 Raich Carter Way		80.4	117.53		F
3 - A1079 (Beverley Road)		143.7	472.81		F
4 - A1079		107.1	424.96		F

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

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle. Arm and junction delays are averages for all movements, including movements with zero delay.

File summary

File Description

Title	Dunswell Roundabout
Location	ERYC
Site number	
Date	25/10/2024
Version	
Status	
Identifier	
Client	Ashcourt
Jobnumber	LTP/5913
Enumerator	LTP\MR\AC
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

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
5.75				0.85	36.00	20.00

Lane Simulation options

Criteria type	Stop criteria (%)	Stop criteria time (s)	Stop criteria number of trials	Random seed	Results refresh speed (s)	Individual vehicle animation number of trials	Average animation capture interval (s)	Use quick response	Do flow sampling	Suppress automatic lane creation	Last run random seed	Last run number of trials	Last run time taken (s)
Delay	1.00	100000	100000	-1	3	1	60	✓			682783459	241	141.38

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2023 Base	SAT	ONE HOUR	12:00	13:30	15	✓
D2	2030 Do Nothing	SAT	ONE HOUR	12:00	13:30	15	✓
D3	2030 With Development	SAT	ONE HOUR	12:00	13:30	15	✓

Analysis Set Details

ID	Name	Use Lane Simulation	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	Existing Layout	✓	✓	100.000	100.000

Existing Layout - 2023 Base, SAT

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Lane Simulation	A1 - Existing Layout [Lane Simulation]	This analysis set uses Lane Simulation mode. This is provided as an investigative tool and the user should apply judgement when interpreting the results.
Warning	Geometry	1 - A1174 (Beverley Road) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	3 - A1079 (Beverley Road) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	4 - A1079 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Dunswell Roundabout	Large Roundabout	✓	1, 2, 3, 4	22.99	C

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
1	A1174 (Beverley Road)	
2	A1033 Raich Carter Way	
3	A1079 (Beverley Road)	
4	A1079	

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	I' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
1 - A1174 (Beverley Road)	3.72	7.63	45.3	42.3	72.0	34.0	
2 - A1033 Raich Carter Way	7.27	10.84	28.0	23.3	69.5	38.0	
3 - A1079 (Beverley Road)	6.00	11.30	39.0	37.5	89.0	45.0	
4 - A1079	3.57	9.13	88.0	27.0	80.0	35.0	

Large Roundabout Data

Arm	Circulating flow (PCU/hr)	Entry-to-exit separation (m)
1 - A1174 (Beverley Road)	1379	35.00
2 - A1033 Raich Carter Way	703	45.00
3 - A1079 (Beverley Road)	1343	37.00
4 - A1079	1147	48.00

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1 - A1174 (Beverley Road)	0.900	2554
2 - A1033 Raich Carter Way	1.298	3522
3 - A1079 (Beverley Road)	0.999	3332
4 - A1079	0.994	2973

The slope and intercept shown above include any corrections and adjustments.

Arm Capacity Adjustments

Arm	Type	Reason	Direct capacity adjustment (PCU/hr)
1 - A1174 (Beverley Road)	Direct	Validation	-120
2 - A1033 Raich Carter Way	Direct	Validation	-80
3 - A1079 (Beverley Road)	Direct	Validation	-70
4 - A1079	Direct	Validation	-350

Lane Simulation: Arm options

Arm	Lane capacity source	Traffic considering secondary lanes (%)
1 - A1174 (Beverley Road)	Evenly split	10.00
2 - A1033 Raich Carter Way	Evenly split	10.00
3 - A1079 (Beverley Road)	Evenly split	10.00
4 - A1079	Evenly split	10.00

Lanes

Arm	Side	Lane level	Lane	Destination arms	Has limited storage	Storage (PCU)	Has bottleneck	Minimum capacity (PCU/hr)	Maximum capacity (PCU/hr)	Signalised
1 - A1174 (Beverley Road)	Entry	1	1	2	✓	6.00		0	99999	
			2	1, 3, 4	✓	6.00		0	99999	
	Exit	1	1	(1, 2, 3, 4)		Infinity				
			1			Infinity				
	CircLink	1	1	1, 2	✓	3.00		0	99999	
			2	2, 3, 4	✓	3.00		0	99999	
	CircBase	1	1	2, 3	✓	4.00		0	99999	
			2	3, 4	✓	4.00		0	99999	
2 - A1033 Raich Carter Way	Entry	1	1	3	✓	4.00		0	99999	
			2	4	✓	4.00		0	99999	
			3	1, 2	✓	4.00		0	99999	
	Exit	1	1			Infinity				
			1	2	✓	13.00		0	99999	
			2	2, 3	✓	13.00		0	99999	
	CircLink	1	3	1, 3, 4	✓	13.00		0	99999	
			1	3	✓	4.00		0	99999	
			2	1, 3, 4	✓	4.00		0	99999	
	Entry	2	1	(3, 4)		Infinity				
			2	(1, 2)		Infinity				
3 - A1079 (Beverley Road)	Entry	1	1	4	✓	6.00		0	99999	
			2	1	✓	6.00		0	99999	
			3	2, 3	✓	6.00		0	99999	
	Exit	1	1			Infinity				
			1	3	✓	4.00		0	99999	
	CircLink	1	2	1, 2, 3, 4	✓	4.00		0	99999	
			1	4	✓	3.00		0	99999	
	CircBase	1	2	1, 2	✓	3.00		0	99999	
			1	(1, 4)		Infinity				
	Entry	2	2	(2, 3)		Infinity				
4 - A1079	Entry	1	1	1, 2	✓	15.00		0	99999	
			2	2, 3, 4	✓	15.00		0	99999	
	CircLink	1	2	1	✓	12.00		0	99999	
	Entry	2	1	(1, 2, 3, 4)		Infinity				
			1			Infinity				
	CircLink	1	1	4	✓	12.00		0	99999	
			3	2, 3	✓	12.00		0	99999	
	CircBase	1	1	1	✓	6.00		0	99999	
			2	2, 3	✓	6.00		0	99999	

Entry Lane slope and intercept

Arm	Side	Lane level	Lane	Final slope	Final intercept (PCU/hr)
1 - A1174 (Beverley Road)	Entry	1	1	0.450	1277
			2	0.450	1277
2 - A1033 Raich Carter Way	Entry	1	1	0.433	1174
			2	0.433	1174
			3	0.433	1174
3 - A1079 (Beverley Road)	Entry	1	1	0.333	1111
			2	0.333	1111
			3	0.333	1111
4 - A1079	Entry	1	1	0.497	1486
			2	0.497	1486

Summary of Entry Lane allowed movements

Arm	Lane Level	Lane	Destination arm			
			A1174 (Beverley Road)	A1033 Raich Carter Way	A1079 (Beverley Road)	A1079
1 - A1174 (Beverley Road)	1	1		✓		
		2	✓		✓	✓
	2	1	✓	✓	✓	✓
2 - A1033 Raich Carter Way	1	1			✓	
		2				✓
		3	✓	✓		
	2	1			✓	✓
		2	✓	✓		
3 - A1079 (Beverley Road)	1	1				✓
		2	✓			
		3		✓	✓	
	2	1	✓			✓
		2		✓	✓	
4 - A1079	1	1	✓	✓		
		2		✓	✓	✓
	2	1	✓	✓	✓	✓

Summary of Circulating Lane allowed movements

Arm	Side	Lane Level	Lane	Destination arm			
				A1174 (Beverley Road)	A1033 Raich Carter Way	A1079 (Beverley Road)	A1079
1 - A1174 (Beverley Road)	CircBase	1	1		✓	✓	
			2			✓	✓
	CircLink	1	1	✓	✓		
			2		✓	✓	✓
2 - A1033 Raich Carter Way	CircBase	1	1			✓	
			2	✓		✓	✓
	CircLink	1	1		✓		
			2		✓	✓	
			3	✓		✓	✓
3 - A1079 (Beverley Road)	CircBase	1	1				✓
			2	✓	✓		
	CircLink	1	1			✓	
			2	✓	✓	✓	✓
4 - A1079	CircBase	1	1	✓			
			2		✓	✓	
	CircLink	1	1				✓
			2	✓			
			3		✓	✓	

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)	Run automatically
D1	2023 Base	SAT	ONE HOUR	12:00	13:30	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	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - A1174 (Beverley Road)		ONE HOUR	✓	713	100.000
2 - A1033 Raich Carter Way		ONE HOUR	✓	1375	100.000
3 - A1079 (Beverley Road)		ONE HOUR	✓	1029	100.000
4 - A1079		ONE HOUR	✓	656	100.000

Origin-Destination Data

Demand (PCU/hr)

	To				
		1 - A1174 (Beverley Road)	2 - A1033 Raich Carter Way	3 - A1079 (Beverley Road)	4 - A1079
From	1 - A1174 (Beverley Road)	1	451	238	23
	2 - A1033 Raich Carter Way	426	3	462	484
	3 - A1079 (Beverley Road)	279	538	1	211
	4 - A1079	33	428	195	0

Vehicle Mix

Heavy Vehicle Percentages

	To				
		1 - A1174 (Beverley Road)	2 - A1033 Raich Carter Way	3 - A1079 (Beverley Road)	4 - A1079
From	1 - A1174 (Beverley Road)	0	0	1	0
	2 - A1033 Raich Carter Way	1	0	2	1
	3 - A1079 (Beverley Road)	1	1	0	1
	4 - A1079	3	1	3	0

Results

Results Summary for whole modelled period

Arm	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - A1174 (Beverley Road)	38.45	7.9	E	654	980
2 - A1033 Raich Carter Way	11.50	4.8	B	1261	1892
3 - A1079 (Beverley Road)	23.10	7.7	C	949	1423
4 - A1079	30.12	6.8	D	603	904

Main Results for each time segment

12:00 - 12:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Average throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A1174 (Beverley Road)	541	135	886	541	536	555	0.0	1.2	7.786	A
2 - A1033 Raich Carter Way	1041	260	345	1040	1038	1082	0.0	1.8	6.191	A
3 - A1079 (Beverley Road)	767	192	710	770	764	675	0.0	1.6	7.637	A
4 - A1079	497	124	943	498	493	537	0.0	0.9	7.166	A

12:15 - 12:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Average throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A1174 (Beverley Road)	638	160	1048	636	634	662	1.2	2.1	10.960	B
2 - A1033 Raich Carter Way	1229	307	402	1229	1227	1282	1.8	2.7	7.609	A
3 - A1079 (Beverley Road)	935	234	836	937	920	795	1.6	2.6	9.885	A
4 - A1079	586	146	1124	586	587	649	0.9	1.7	9.791	A

12:30 - 12:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Average throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A1174 (Beverley Road)	799	200	1280	790	771	807	2.1	7.9	27.603	D
2 - A1033 Raich Carter Way	1505	376	513	1501	1497	1557	2.7	4.8	10.980	B
3 - A1079 (Beverley Road)	1138	284	1026	1131	1119	987	2.6	6.7	18.021	C
4 - A1079	718	179	1366	721	704	790	1.7	5.5	22.720	C

12:45 - 13:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Average throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A1174 (Beverley Road)	778	194	1287	790	788	817	7.9	7.8	38.448	E
2 - A1033 Raich Carter Way	1524	381	504	1526	1519	1573	4.8	4.6	11.496	B
3 - A1079 (Beverley Road)	1143	286	1038	1140	1132	992	6.7	7.7	23.098	C
4 - A1079	727	182	1385	719	717	793	5.5	6.8	30.119	D

13:00 - 13:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Average throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A1174 (Beverley Road)	634	158	1067	640	664	668	7.8	2.2	18.039	C
2 - A1033 Raich Carter Way	1234	309	413	1236	1243	1294	4.6	2.4	7.834	A
3 - A1079 (Beverley Road)	936	234	835	941	950	814	7.7	2.5	12.944	B
4 - A1079	598	150	1136	599	613	641	6.8	1.8	14.817	B

13:15 - 13:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Average throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A1174 (Beverley Road)	532	133	876	535	542	554	2.2	1.1	8.400	A
2 - A1033 Raich Carter Way	1035	259	343	1036	1039	1069	2.4	1.8	6.146	A
3 - A1079 (Beverley Road)	776	194	704	775	775	675	2.5	1.8	7.796	A
4 - A1079	491	123	937	493	495	541	1.8	0.9	7.742	A

Lane Results

Lane Level notation: Lane Level 1 is always closest to the junction.

Lanes: Main Results for each time segment

12:00 - 12:15

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Average throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A1174 (Beverley Road)	Entry	1	1	2	348	758	0.459	347	340	0.0	0.8	8.401	A
			2	1, 3, 4	193	758	0.255	194	196	0.0	0.4	6.479	A
		2	1	(1, 2, 3, 4)	541			541	540	0.0	0.0	0.083	A
	Exit	1	1		555			555	549	0.0	0.0	0.000	A
	CircLink	1	1	1, 2	920			920	912	0.0	0.0	0.000	A
			2	2, 3, 4	521			521	511	0.0	0.0	0.000	A
	CircBase	1	1	2, 3	809			809	800	0.0	0.0	0.000	A
			2	3, 4	76			76	74	0.0	0.0	0.000	A
2 - A1033 Raich Carter Way	Entry	1	1	3	349	944	0.370	349	349	0.0	0.6	5.926	A
			2	4	364	944	0.386	364	370	0.0	0.6	6.166	A
			3	1, 2	327	944	0.346	327	319	0.0	0.6	5.727	A
	Exit	1	1		1082			1082	1066	0.0	0.0	0.000	A
	CircLink	1	1	2	533			533	530	0.0	0.0	0.000	A
			2	2, 3	715			715	700	0.0	0.0	0.000	A
			3	1, 3, 4	179			179	179	0.0	0.0	0.000	A
	CircBase	1	1	3	161			161	162	0.0	0.0	0.000	A
			2	1, 3, 4	185			185	182	0.0	0.0	0.000	A
	Entry	2	1	(3, 4)	714			714	723	0.0	0.0	0.303	A
			2	(1, 2)	327			327	322	0.0	0.0	0.101	A
3 - A1079 (Beverley Road)	Entry	1	1	4	155	804	0.192	154	154	0.0	0.2	5.513	A
			2	1	206	804	0.256	207	207	0.0	0.4	6.239	A
			3	2, 3	406	804	0.505	409	403	0.0	1.0	9.040	A
	Exit	1	1		675			675	674	0.0	0.0	0.000	A
	CircLink	1	1	3	336			336	337	0.0	0.0	0.000	A
			2	1, 2, 3, 4	1049			1049	1044	0.0	0.0	0.000	A
	CircBase	1	1	4	382			382	387	0.0	0.0	0.000	A
			2	1, 2	328			328	320	0.0	0.0	0.000	A
	Entry	2	1	(1, 4)	361			361	363	0.0	0.0	0.001	A
			2	(2, 3)	406			406	407	0.0	0.0	0.116	A
4 - A1079	Entry	1	1	1, 2	210	668	0.314	210	208	0.0	0.3	6.544	A
			2	2, 3, 4	288	668	0.431	288	285	0.0	0.6	7.622	A
	CircBase	1	1	1	532			532	525	0.0	0.0	0.000	A
	Entry	2	1	(1, 2, 3, 4)	497			497	497	0.0	0.0	0.000	A
			1		537			537	541	0.0	0.0	0.000	A
	CircLink	1	1	4	537			537	541	0.0	0.0	0.000	A
			2	1	532			532	525	0.0	0.0	0.000	A
			3	2, 3	412			412	406	0.0	0.0	0.000	A
	CircBase	1	2	2, 3	412			412	406	0.0	0.0	0.000	A

12:15 - 12:30

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Average throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A1174 (Beverley Road)	Entry	1	1	2	407	685	0.595	407	400	0.8	1.4	11.922	B
			2	1, 3, 4	229	685	0.334	229	234	0.4	0.5	7.916	A
		2	1	(1, 2, 3, 4)	638			637	637	0.0	0.2	0.490	A
	Exit	1	1		662			662	663	0.0	0.0	0.000	A
	CircLink	1	1	1, 2	1099			1099	1097	0.0	0.0	0.000	A
			2	2, 3, 4	610			610	605	0.0	0.0	0.000	A
	CircBase	1	1	2, 3	956			956	951	0.0	0.0	0.000	A
			2	3, 4	92			92	88	0.0	0.0	0.000	A
2 - A1033 Raich Carter Way	Entry	1	1	3	414	920	0.450	414	410	0.6	0.9	7.071	A
			2	4	432	920	0.469	432	432	0.6	1.0	7.147	A
			3	1, 2	384	920	0.417	383	385	0.6	0.7	6.511	A
	Exit	1	1		1282			1282	1264	0.0	0.0	0.000	A
	CircLink	1	1	2	645			645	635	0.0	0.0	0.000	A
			2	2, 3	827			827	823	0.0	0.0	0.000	A
			3	1, 3, 4	212			212	215	0.0	0.0	0.000	A
	CircBase	1	1	3	192			192	195	0.0	0.0	0.000	A
			2	1, 3, 4	210			210	214	0.0	0.0	0.000	A
	Entry	2	1	(3, 4)	846			846	845	0.0	0.2	0.900	A
			2	(1, 2)	383			384	385	0.0	0.0	0.210	A
3 - A1079 (Beverley Road)	Entry	1	1	4	198	762	0.260	197	190	0.2	0.4	6.263	A
			2	1	250	762	0.328	251	251	0.4	0.5	7.216	A
			3	2, 3	486	762	0.637	488	479	1.0	1.5	11.852	B
	Exit	1	1		795			795	798	0.0	0.0	0.000	A
	CircLink	1	1	3	399			399	399	0.0	0.0	0.000	A
			2	1, 2, 3, 4	1232			1232	1236	0.0	0.0	0.000	A
	CircBase	1	1	4	452			452	452	0.0	0.0	0.000	A
			2	1, 2	384			384	385	0.0	0.0	0.000	A
	Entry	2	1	(1, 4)	449			449	442	0.0	0.0	0.008	A
			2	(2, 3)	486			486	481	0.0	0.1	0.831	A
4 - A1079	Entry	1	1	1, 2	255	578	0.441	255	254	0.3	0.7	8.871	A
			2	2, 3, 4	330	578	0.572	331	333	0.6	1.0	10.496	B
	CircBase	1	1	1	632			632	634	0.0	0.0	0.000	A
	Entry	2	1	(1, 2, 3, 4)	586			586	590	0.0	0.0	0.000	A
			1	1	649			649	642	0.0	0.0	0.000	A
	CircLink	1	1	4	649			649	642	0.0	0.0	0.000	A
			2	1	632			632	634	0.0	0.0	0.000	A
			3	2, 3	491			491	481	0.0	0.0	0.000	A
	CircBase	1	2	2, 3	491			491	481	0.0	0.0	0.000	A

12:30 - 12:45

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Average throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A1174 (Beverley Road)	Entry	1	1	2	500	581	0.862	498	486	1.4	3.6	22.127	C
			2	1, 3, 4	290	581	0.499	292	286	0.5	1.0	12.175	B
		2	1	(1, 2, 3, 4)	799			790	782	0.2	3.4	8.955	A
	Exit	1	1		807			807	804	0.0	0.0	0.000	A
	CircLink	1	1	1, 2	1337			1337	1326	0.0	0.0	0.000	A
			2	2, 3, 4	750			750	728	0.0	0.0	0.000	A
	CircBase	1	1	2, 3	1167			1167	1144	0.0	0.0	0.000	A
			2	3, 4	113			113	106	0.0	0.0	0.000	A
2 - A1033 Raich Carter Way	Entry	1	1	3	501	872	0.574	501	503	0.9	1.3	8.761	A
			2	4	533	872	0.612	533	529	1.0	1.3	8.901	A
			3	1, 2	468	872	0.537	467	465	0.7	1.1	7.978	A
	Exit	1	1		1557			1557	1524	0.0	0.0	0.000	A
	CircLink	1	1	2	776			776	760	0.0	0.0	0.000	A
			2	2, 3	1027			1027	1003	0.0	0.0	0.000	A
			3	1, 3, 4	267			267	258	0.0	0.0	0.000	A
	CircBase	1	1	3	240			240	234	0.0	0.0	0.000	A
			2	1, 3, 4	272			272	263	0.0	0.0	0.000	A
	Entry	2	1	(3, 4)	1035			1034	1035	0.2	0.9	3.170	A
			2	(1, 2)	470			468	467	0.0	0.2	0.703	A
3 - A1079 (Beverley Road)	Entry	1	1	4	232	699	0.332	233	236	0.4	0.5	7.800	A
			2	1	308	699	0.440	307	306	0.5	0.9	9.137	A
			3	2, 3	596	699	0.853	591	578	1.5	3.8	19.416	C
	Exit	1	1		987			987	974	0.0	0.0	0.000	A
	CircLink	1	1	3	497			497	487	0.0	0.0	0.000	A
			2	1, 2, 3, 4	1516			1516	1507	0.0	0.0	0.000	A
	CircBase	1	1	4	558			558	554	0.0	0.0	0.000	A
			2	1, 2	468			468	466	0.0	0.0	0.000	A
	Entry	2	1	(1, 4)	540			540	543	0.0	0.0	0.106	A
			2	(2, 3)	598			596	587	0.1	1.5	7.086	A
4 - A1079	Entry	1	1	1, 2	335	458	0.732	337	328	0.7	2.3	20.419	C
			2	2, 3, 4	382	458	0.835	384	377	1.0	3.1	24.520	C
	CircBase	1	1	1	771			771	769	0.0	0.0	0.000	A
	Entry	2	1	(1, 2, 3, 4)	718			717	719	0.0	0.1	0.074	A
			1	1	790			790	790	0.0	0.0	0.000	A
	CircLink	1	1	4	790			790	790	0.0	0.0	0.000	A
			2	1	771			771	769	0.0	0.0	0.000	A
			3	2, 3	595			595	581	0.0	0.0	0.000	A
	CircBase	1	2	2, 3	595			595	581	0.0	0.0	0.000	A

12:45 - 13:00

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Average throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A1174 (Beverley Road)	Entry	1	1	2	496	577	0.859	500	500	3.6	3.3	25.352	D
			2	1, 3, 4	288	577	0.498	290	288	1.0	0.9	13.465	B
		2	1	(1, 2, 3, 4)	778			784	787	3.4	3.5	17.405	C
	Exit	1	1		817			817	818	0.0	0.0	0.000	A
	CircLink	1	1	1, 2	1348			1348	1345	0.0	0.0	0.000	A
			2	2, 3, 4	756			756	748	0.0	0.0	0.000	A
	CircBase	1	1	2, 3	1181			1181	1169	0.0	0.0	0.000	A
			2	3, 4	106			106	106	0.0	0.0	0.000	A
2 - A1033 Raich Carter Way	Entry	1	1	3	513	876	0.585	514	509	1.3	1.2	8.843	A
			2	4	535	876	0.611	534	535	1.3	1.4	9.286	A
			3	1, 2	477	876	0.545	478	475	1.1	1.0	8.414	A
	Exit	1	1		1573			1573	1561	0.0	0.0	0.000	A
	CircLink	1	1	2	787			787	778	0.0	0.0	0.000	A
			2	2, 3	1025			1025	1023	0.0	0.0	0.000	A
			3	1, 3, 4	265			265	263	0.0	0.0	0.000	A
	CircBase	1	1	3	241			241	239	0.0	0.0	0.000	A
			2	1, 3, 4	263			263	263	0.0	0.0	0.000	A
	Entry	2	1	(3, 4)	1047			1047	1044	0.9	0.9	3.339	A
			2	(1, 2)	477			477	475	0.2	0.1	1.084	A
3 - A1079 (Beverley Road)	Entry	1	1	4	235	695	0.338	235	231	0.5	0.5	7.738	A
			2	1	305	695	0.439	306	310	0.9	0.7	9.233	A
			3	2, 3	598	695	0.860	599	590	3.8	3.8	22.251	C
	Exit	1	1		992			992	985	0.0	0.0	0.000	A
	CircLink	1	1	3	498			498	498	0.0	0.0	0.000	A
			2	1, 2, 3, 4	1533			1533	1524	0.0	0.0	0.000	A
	CircBase	1	1	4	559			559	560	0.0	0.0	0.000	A
			2	1, 2	480			480	476	0.0	0.0	0.000	A
	Entry	2	1	(1, 4)	540			540	540	0.0	0.0	0.075	A
			2	(2, 3)	603			598	590	1.5	2.7	13.855	B
4 - A1079	Entry	1	1	1, 2	340	448	0.760	338	338	2.3	2.9	27.580	D
			2	2, 3, 4	386	448	0.861	381	378	3.1	3.9	32.142	D
	CircBase	1	1	1	783			783	783	0.0	0.0	0.000	A
	Entry	2	1	(1, 2, 3, 4)	727			726	722	0.1	0.0	0.156	A
			1	1	793			793	791	0.0	0.0	0.000	A
	CircLink	1	1	4	793			793	791	0.0	0.0	0.000	A
			2	1	783			783	783	0.0	0.0	0.000	A
			3	2, 3	602			602	594	0.0	0.0	0.000	A
	CircBase	1	2	2, 3	602			602	594	0.0	0.0	0.000	A

13:00 - 13:15

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Average throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A1174 (Beverley Road)	Entry	1	1	2	401	677	0.592	404	419	3.3	1.5	16.281	C
			2	1, 3, 4	237	677	0.350	237	244	0.9	0.6	9.516	A
		2	1	(1, 2, 3, 4)	634			637	655	3.5	0.1	4.579	A
	Exit	1	1		668			668	668	0.0	0.0	0.000	A
	CircLink	1	1	1, 2	1109			1109	1123	0.0	0.0	0.000	A
			2	2, 3, 4	625			625	640	0.0	0.0	0.000	A
	CircBase	1	1	2, 3	979			979	1002	0.0	0.0	0.000	A
			2	3, 4	88			88	93	0.0	0.0	0.000	A
2 - A1033 Raich Carter Way	Entry	1	1	3	421	915	0.460	422	418	1.2	0.8	7.219	A
			2	4	430	915	0.470	431	437	1.4	0.8	7.451	A
			3	1, 2	383	915	0.418	382	388	1.0	0.7	6.789	A
	Exit	1	1		1294			1294	1328	0.0	0.0	0.000	A
	CircLink	1	1	2	648			648	664	0.0	0.0	0.000	A
			2	2, 3	837			837	867	0.0	0.0	0.000	A
			3	1, 3, 4	222			222	227	0.0	0.0	0.000	A
	CircBase	1	1	3	198			198	206	0.0	0.0	0.000	A
			2	1, 3, 4	215			215	224	0.0	0.0	0.000	A
	Entry	2	1	(3, 4)	852			851	851	0.9	0.2	0.883	A
			2	(1, 2)	382			383	386	0.1	0.0	0.250	A
3 - A1079 (Beverley Road)	Entry	1	1	4	188	763	0.247	188	189	0.5	0.3	6.459	A
			2	1	258	763	0.338	257	252	0.7	0.5	7.424	A
			3	2, 3	492	763	0.645	495	509	3.8	1.6	14.616	B
	Exit	1	1		814			814	826	0.0	0.0	0.000	A
	CircLink	1	1	3	407			407	412	0.0	0.0	0.000	A
			2	1, 2, 3, 4	1242			1242	1261	0.0	0.0	0.000	A
	CircBase	1	1	4	452			452	459	0.0	0.0	0.000	A
			2	1, 2	383			383	388	0.0	0.0	0.000	A
	Entry	2	1	(1, 4)	446			446	440	0.0	0.0	0.023	A
			2	(2, 3)	490			492	500	2.7	0.1	4.012	A
4 - A1079	Entry	1	1	1, 2	259	572	0.454	260	270	2.9	0.7	13.980	B
			2	2, 3, 4	339	572	0.593	339	343	3.9	1.0	15.500	C
	CircBase	1	1	1	638			638	638	0.0	0.0	0.000	A
	Entry	2	1	(1, 2, 3, 4)	598			598	593	0.0	0.0	0.016	A
			1	1	641			641	648	0.0	0.0	0.000	A
	CircLink	1	1	4	641			641	648	0.0	0.0	0.000	A
			2	1	638			638	638	0.0	0.0	0.000	A
			3	2, 3	498			498	512	0.0	0.0	0.000	A
	CircBase	1	2	2, 3	498			498	512	0.0	0.0	0.000	A

13:15 - 13:30

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Average throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A1174 (Beverley Road)	Entry	1	1	2	337	762	0.442	339	343	1.5	0.8	9.212	A
			2	1, 3, 4	196	762	0.257	197	199	0.6	0.4	6.560	A
		2	1	(1, 2, 3, 4)	532			532	538	0.1	0.0	0.178	A
	Exit	1	1		554			554	557	0.0	0.0	0.000	A
	CircLink	1	1	1, 2	923			923	926	0.0	0.0	0.000	A
			2	2, 3, 4	508			508	511	0.0	0.0	0.000	A
	CircBase	1	1	2, 3	806			806	807	0.0	0.0	0.000	A
			2	3, 4	70			70	72	0.0	0.0	0.000	A
2 - A1033 Raich Carter Way	Entry	1	1	3	351	946	0.371	352	352	0.8	0.7	6.055	A
			2	4	365	946	0.386	365	364	0.8	0.6	6.088	A
			3	1, 2	319	946	0.338	319	322	0.7	0.5	5.687	A
	Exit	1	1		1069			1069	1076	0.0	0.0	0.000	A
	CircLink	1	1	2	538			538	540	0.0	0.0	0.000	A
			2	2, 3	695			695	701	0.0	0.0	0.000	A
			3	1, 3, 4	179			179	181	0.0	0.0	0.000	A
	CircBase	1	1	3	164			164	165	0.0	0.0	0.000	A
			2	1, 3, 4	179			179	180	0.0	0.0	0.000	A
	Entry	2	1	(3, 4)	716			716	715	0.2	0.0	0.236	A
			2	(1, 2)	319			319	322	0.0	0.0	0.110	A
3 - A1079 (Beverley Road)	Entry	1	1	4	157	806	0.195	158	157	0.3	0.3	5.791	A
			2	1	212	806	0.263	212	211	0.5	0.4	6.299	A
			3	2, 3	406	806	0.503	405	407	1.6	1.1	9.185	A
	Exit	1	1		675			675	680	0.0	0.0	0.000	A
	CircLink	1	1	3	338			338	339	0.0	0.0	0.000	A
			2	1, 2, 3, 4	1042			1042	1046	0.0	0.0	0.000	A
	CircBase	1	1	4	384			384	382	0.0	0.0	0.000	A
			2	1, 2	320			320	323	0.0	0.0	0.000	A
	Entry	2	1	(1, 4)	370			370	368	0.0	0.0	0.003	A
			2	(2, 3)	406			406	405	0.1	0.1	0.186	A
4 - A1079	Entry	1	1	1, 2	208	670	0.311	209	211	0.7	0.4	7.160	A
			2	2, 3, 4	283	670	0.421	284	285	1.0	0.6	8.177	A
	CircBase	1	1	1	530			530	532	0.0	0.0	0.000	A
	Entry	2	1	(1, 2, 3, 4)	491			491	492	0.0	0.0	0.000	A
			1	1	541			541	539	0.0	0.0	0.000	A
	CircLink	1	1	4	541			541	539	0.0	0.0	0.000	A
			2	1	530			530	532	0.0	0.0	0.000	A
			3	2, 3	407			407	409	0.0	0.0	0.000	A
	CircBase	1	2	2, 3	407			407	409	0.0	0.0	0.000	A

Existing Layout - 2030 Do Nothing, SAT

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Lane Simulation	A1 - Existing Layout [Lane Simulation]	This analysis set uses Lane Simulation mode. This is provided as an investigative tool and the user should apply judgement when interpreting the results.
Warning	Geometry	1 - A1174 (Beverley Road) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	3 - A1079 (Beverley Road) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	4 - A1079 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Dunswell Roundabout	Large Roundabout	✓	1, 2, 3, 4	113.59	F

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

[same as above]

Roundabout Geometry

[same as above]

Large Roundabout Data

Arm	Circulating flow (PCU/hr)	Entry-to-exit separation (m)
1 - A1174 (Beverley Road)	1548	35.00
2 - A1033 Raich Carter Way	759	45.00
3 - A1079 (Beverley Road)	1523	37.00
4 - A1079	1290	48.00

Slope / Intercept / Capacity

[same as above]

Lane Simulation: Arm options

[same as above]

Lanes

[same as above]

Entry Lane slope and intercept

[same as above]

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)	Run automatically
D2	2030 Do Nothing	SAT	ONE HOUR	12:00	13:30	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	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - A1174 (Beverley Road)		ONE HOUR	✓	780	100.000
2 - A1033 Raich Carter Way		ONE HOUR	✓	1707	100.000
3 - A1079 (Beverley Road)		ONE HOUR	✓	1187	100.000
4 - A1079		ONE HOUR	✓	801	100.000

Origin-Destination Data

Demand (PCU/hr)

	To				
From		1 - A1174 (Beverley Road)	2 - A1033 Raich Carter Way	3 - A1079 (Beverley Road)	4 - A1079
	1 - A1174 (Beverley Road)	1	502	253	24
	2 - A1033 Raich Carter Way	477	3	598	629
	3 - A1079 (Beverley Road)	297	665	1	224
	4 - A1079	35	558	208	0

Vehicle Mix

Heavy Vehicle Percentages

	To				
From		1 - A1174 (Beverley Road)	2 - A1033 Raich Carter Way	3 - A1079 (Beverley Road)	4 - A1079
	1 - A1174 (Beverley Road)	0	0	1	0
	2 - A1033 Raich Carter Way	1	0	1	1
	3 - A1079 (Beverley Road)	1	1	0	0
	4 - A1079	3	1	3	0

Results

Results Summary for whole modelled period

Arm	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - A1174 (Beverley Road)	149.93	36.0	F	715	1073
2 - A1033 Raich Carter Way	34.06	19.5	D	1567	2350
3 - A1079 (Beverley Road)	156.29	61.4	F	1089	1634
4 - A1079	184.62	50.4	F	733	1100

Main Results for each time segment

12:00 - 12:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Average throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A1174 (Beverley Road)	589	147	1078	588	583	605	0.0	2.0	10.627	B
2 - A1033 Raich Carter Way	1284	321	364	1285	1280	1301	0.0	2.7	7.723	A
3 - A1079 (Beverley Road)	887	222	856	887	882	794	0.0	2.9	10.743	B
4 - A1079	600	150	1084	599	597	659	0.0	1.6	9.551	A

12:15 - 12:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Average throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A1174 (Beverley Road)	701	175	1280	698	690	726	2.0	4.8	20.696	C
2 - A1033 Raich Carter Way	1534	384	431	1534	1530	1546	2.7	4.8	10.945	B
3 - A1079 (Beverley Road)	1065	266	1024	1059	1054	941	2.9	6.4	19.177	C
4 - A1079	713	178	1287	719	710	796	1.6	3.5	17.306	C

12:30 - 12:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Average throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A1174 (Beverley Road)	859	215	1383	788	783	895	4.8	22.5	68.658	F
2 - A1033 Raich Carter Way	1880	470	486	1859	1834	1686	4.8	15.5	23.593	C
3 - A1079 (Beverley Road)	1313	328	1239	1205	1194	1106	6.4	35.0	69.790	F
4 - A1079	878	219	1491	787	777	952	3.5	28.3	79.104	F

12:45 - 13:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Average throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A1174 (Beverley Road)	853	213	1408	804	803	893	22.5	36.0	136.283	F
2 - A1033 Raich Carter Way	1881	470	499	1867	1866	1712	15.5	19.5	34.062	D
3 - A1079 (Beverley Road)	1307	327	1240	1206	1205	1127	35.0	61.4	156.285	F
4 - A1079	883	221	1493	807	796	952	28.3	50.4	184.621	F

13:00 - 13:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Average throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A1174 (Beverley Road)	699	175	1463	720	734	740	36.0	27.5	149.933	F
2 - A1033 Raich Carter Way	1531	383	468	1551	1592	1715	19.5	5.2	19.332	C
3 - A1079 (Beverley Road)	1070	268	1026	1157	1149	993	61.4	41.5	154.968	F
4 - A1079	721	180	1389	815	836	794	50.4	21.6	145.486	F

13:15 - 13:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Average throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A1174 (Beverley Road)	589	147	1196	644	674	606	27.5	5.5	66.100	F
2 - A1033 Raich Carter Way	1288	322	389	1287	1293	1450	5.2	3.0	8.549	A
3 - A1079 (Beverley Road)	894	224	851	981	1025	825	41.5	9.0	63.088	F
4 - A1079	605	151	1172	629	687	660	21.6	2.4	35.411	E

Lane Results

Lane Level notation: Lane Level 1 is always closest to the junction.

Lanes: Main Results for each time segment

12:00 - 12:15

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Average throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A1174 (Beverley Road)	Entry	1	1	2	381	671	0.567	381	377	0.0	1.4	11.533	B
			2	1, 3, 4	207	671	0.308	207	206	0.0	0.5	7.790	A
		2	1	(1, 2, 3, 4)	589			588	590	0.0	0.1	0.389	A
	Exit	1	1		605			605	607	0.0	0.0	0.000	A
			1	1, 2	1061			1061	1064	0.0	0.0	0.000	A
	CircLink	1	1	2, 3, 4	622			622	612	0.0	0.0	0.000	A
			2	2, 3	998			998	990	0.0	0.0	0.000	A
	CircBase	1	1	3, 4	80			80	78	0.0	0.0	0.000	A
2 - A1033 Raich Carter Way	Entry	1	1	3	448	934	0.480	448	446	0.0	0.9	7.026	A
			2	4	472	934	0.506	474	472	0.0	0.9	7.361	A
			3	1, 2	363	934	0.389	363	362	0.0	0.6	6.314	A
	Exit	1	1		1301			1301	1289	0.0	0.0	0.000	A
			1	2	652			652	645	0.0	0.0	0.000	A
			2	2, 3	824			824	816	0.0	0.0	0.000	A
	CircLink	1	3	1, 3, 4	190			190	190	0.0	0.0	0.000	A
			1	3	172			172	171	0.0	0.0	0.000	A
			2	1, 3, 4	192			192	191	0.0	0.0	0.000	A
	CircBase	1	1	(3, 4)	921			920	925	0.0	0.3	1.003	A
			2	(1, 2)	363			363	364	0.0	0.0	0.175	A
3 - A1079 (Beverley Road)	Entry	1	1	4	168	754	0.222	168	166	0.0	0.3	6.136	A
			2	1	217	754	0.287	217	222	0.0	0.4	6.899	A
			3	2, 3	503	754	0.667	503	494	0.0	1.9	12.674	B
	Exit	1	1		794			794	789	0.0	0.0	0.000	A
			1	3	396			396	395	0.0	0.0	0.000	A
			2	1, 2, 3, 4	1253			1253	1247	0.0	0.0	0.000	A
	CircLink	1	1	4	491			491	489	0.0	0.0	0.000	A
			2	1, 2	364			364	363	0.0	0.0	0.000	A
	CircBase	1	1	(1, 4)	384			384	391	0.0	0.0	0.004	A
			2	(2, 3)	503			503	502	0.0	0.2	1.293	A
4 - A1079	Entry	1	1	1, 2	267	599	0.446	267	266	0.0	0.6	8.902	A
			2	2, 3, 4	333	599	0.557	333	331	0.0	1.0	10.077	B
	CircBase	1	1	1	579			579	582	0.0	0.0	0.000	A
			2	1	600			600	603	0.0	0.0	0.000	A
			1		659			659	655	0.0	0.0	0.000	A
	CircLink	1	1	4	659			659	655	0.0	0.0	0.000	A
			2	1	579			579	582	0.0	0.0	0.000	A
			3	2, 3	505			505	497	0.0	0.0	0.000	A
	CircBase	1	2	2, 3	505			505	497	0.0	0.0	0.000	A

12:15 - 12:30

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Average throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A1174 (Beverley Road)	Entry	1	1	2	455	584	0.778	454	444	1.4	2.7	19.524	C
			2	1, 3, 4	245	584	0.419	244	246	0.5	0.8	10.538	B
		2	1	(1, 2, 3, 4)	701			700	696	0.1	1.3	4.243	A
	Exit	1	1		726			726	726	0.0	0.0	0.000	A
	CircLink	1	1	1, 2	1275			1275	1269	0.0	0.0	0.000	A
			2	2, 3, 4	732			732	725	0.0	0.0	0.000	A
	CircBase	1	1	2, 3	1185			1185	1174	0.0	0.0	0.000	A
			2	3, 4	95			95	93	0.0	0.0	0.000	A
2 - A1033 Raich Carter Way	Entry	1	1	3	533	905	0.589	532	533	0.9	1.3	8.496	A
			2	4	569	905	0.629	571	566	0.9	1.4	9.017	A
			3	1, 2	432	905	0.477	432	431	0.6	0.8	7.237	A
	Exit	1	1		1546			1546	1526	0.0	0.0	0.000	A
	CircLink	1	1	2	773			773	766	0.0	0.0	0.000	A
			2	2, 3	979			979	966	0.0	0.0	0.000	A
			3	1, 3, 4	226			226	226	0.0	0.0	0.000	A
	CircBase	1	1	3	207			207	207	0.0	0.0	0.000	A
			2	1, 3, 4	224			224	224	0.0	0.0	0.000	A
	Entry	2	1	(3, 4)	1103			1102	1103	0.3	1.2	3.454	A
			2	(1, 2)	432			432	432	0.0	0.0	0.408	A
3 - A1079 (Beverley Road)	Entry	1	1	4	204	700	0.292	205	202	0.3	0.4	7.181	A
			2	1	263	700	0.376	264	267	0.4	0.5	8.057	A
			3	2, 3	591	700	0.845	590	585	1.9	3.5	19.704	C
	Exit	1	1		941			941	942	0.0	0.0	0.000	A
	CircLink	1	1	3	472			472	470	0.0	0.0	0.000	A
			2	1, 2, 3, 4	1494			1494	1491	0.0	0.0	0.000	A
	CircBase	1	1	4	591			591	588	0.0	0.0	0.000	A
			2	1, 2	433			433	432	0.0	0.0	0.000	A
	Entry	2	1	(1, 4)	467			467	470	0.0	0.0	0.027	A
			2	(2, 3)	598			591	592	0.2	2.0	8.354	A
4 - A1079	Entry	1	1	1, 2	333	501	0.665	336	330	0.6	1.6	16.142	C
			2	2, 3, 4	380	501	0.760	383	380	1.0	1.9	18.325	C
	CircBase	1	1	1	695			695	696	0.0	0.0	0.000	A
	Entry	2	1	(1, 2, 3, 4)	713			713	718	0.0	0.0	0.000	A
			1	1	796			796	790	0.0	0.0	0.000	A
	CircLink	1	1	4	796			796	790	0.0	0.0	0.000	A
			2	1	695			695	696	0.0	0.0	0.000	A
			3	2, 3	593			593	588	0.0	0.0	0.000	A
	CircBase	1	2	2, 3	593			593	588	0.0	0.0	0.000	A

12:30 - 12:45

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Average throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A1174 (Beverley Road)	Entry	1	1	2	512	540	0.949	507	503	2.7	5.1	31.778	D
			2	1, 3, 4	280	540	0.519	281	280	0.8	1.2	15.568	C
		2	1	(1, 2, 3, 4)	859			792	794	1.3	16.2	42.218	E
	Exit	1	1		895			895	885	0.0	0.0	0.000	A
	CircLink	1	1	1, 2	1485			1485	1472	0.0	0.0	0.000	A
			2	2, 3, 4	794			794	784	0.0	0.0	0.000	A
	CircBase	1	1	2, 3	1278			1278	1271	0.0	0.0	0.000	A
			2	3, 4	105			105	101	0.0	0.0	0.000	A
2 - A1033 Raich Carter Way	Entry	1	1	3	649	882	0.736	647	637	1.3	2.2	10.877	B
			2	4	681	882	0.772	680	669	1.4	2.2	11.292	B
			3	1, 2	531	882	0.602	532	528	0.8	1.3	8.725	A
	Exit	1	1		1686			1686	1674	0.0	0.0	0.000	A
	CircLink	1	1	2	846			846	841	0.0	0.0	0.000	A
			2	2, 3	1071			1071	1063	0.0	0.0	0.000	A
			3	1, 3, 4	254			254	251	0.0	0.0	0.000	A
	CircBase	1	1	3	230			230	226	0.0	0.0	0.000	A
			2	1, 3, 4	256			256	255	0.0	0.0	0.000	A
	Entry	2	1	(3, 4)	1348			1330	1313	1.2	9.6	17.835	C
			2	(1, 2)	532			531	530	0.0	0.2	1.274	A
3 - A1079 (Beverley Road)	Entry	1	1	4	246	632	0.389	247	244	0.4	0.6	8.936	A
			2	1	332	632	0.525	332	325	0.5	1.1	11.048	B
			3	2, 3	627	632	0.993	626	625	3.5	5.9	31.144	D
	Exit	1	1		1106			1106	1092	0.0	0.0	0.000	A
	CircLink	1	1	3	551			551	547	0.0	0.0	0.000	A
			2	1, 2, 3, 4	1794			1794	1769	0.0	0.0	0.000	A
	CircBase	1	1	4	705			705	694	0.0	0.0	0.000	A
			2	1, 2	533			533	529	0.0	0.0	0.000	A
	Entry	2	1	(1, 4)	577			577	573	0.0	0.0	0.174	A
			2	(2, 3)	735			627	634	2.0	27.4	84.666	F
4 - A1079	Entry	1	1	1, 2	404	402	1.004	388	381	1.6	9.7	62.649	F
			2	2, 3, 4	417	402	1.036	400	396	1.9	10.8	67.822	F
	CircBase	1	1	1	862			862	851	0.0	0.0	0.000	A
	Entry	2	1	(1, 2, 3, 4)	878			821	845	0.0	7.8	11.615	B
			1	1	952			952	938	0.0	0.0	0.000	A
	CircLink	1	1	4	952			952	938	0.0	0.0	0.000	A
			2	1	862			862	851	0.0	0.0	0.000	A
			3	2, 3	630			630	628	0.0	0.0	0.000	A
	CircBase	1	2	2, 3	630			630	628	0.0	0.0	0.000	A

12:45 - 13:00

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Average throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A1174 (Beverley Road)	Entry	1	1	2	517	529	0.977	516	516	5.1	5.4	36.547	E
			2	1, 3, 4	288	529	0.545	288	287	1.2	1.4	17.502	C
		2	1	(1, 2, 3, 4)	853			805	805	16.2	29.2	106.226	F
	Exit	1	1		893			893	889	0.0	0.0	0.000	A
	CircLink	1	1	1, 2	1491			1491	1485	0.0	0.0	0.000	A
			2	2, 3, 4	809			809	801	0.0	0.0	0.000	A
	CircBase	1	1	2, 3	1304			1304	1294	0.0	0.0	0.000	A
			2	3, 4	104			104	103	0.0	0.0	0.000	A
2 - A1033 Raich Carter Way	Entry	1	1	3	654	876	0.747	653	652	2.2	2.1	11.315	B
			2	4	682	876	0.779	682	685	2.2	2.4	11.921	B
			3	1, 2	530	876	0.605	532	530	1.3	1.3	9.090	A
	Exit	1	1		1712			1712	1706	0.0	0.0	0.000	A
	CircLink	1	1	2	858			858	854	0.0	0.0	0.000	A
			2	2, 3	1089			1089	1085	0.0	0.0	0.000	A
			3	1, 3, 4	265			265	260	0.0	0.0	0.000	A
	CircBase	1	1	3	233			233	233	0.0	0.0	0.000	A
			2	1, 3, 4	266			266	260	0.0	0.0	0.000	A
	Entry	2	1	(3, 4)	1353			1336	1337	9.6	13.6	31.592	D
			2	(1, 2)	528			530	530	0.2	0.1	1.508	A
3 - A1079 (Beverley Road)	Entry	1	1	4	247	631	0.391	246	247	0.6	0.7	9.559	A
			2	1	329	631	0.520	329	328	1.1	1.1	11.890	B
			3	2, 3	632	631	1.000	631	631	5.9	6.0	33.805	D
	Exit	1	1		1127			1127	1119	0.0	0.0	0.000	A
	CircLink	1	1	3	558			558	558	0.0	0.0	0.000	A
			2	1, 2, 3, 4	1809			1809	1802	0.0	0.0	0.000	A
	CircBase	1	1	4	707			707	709	0.0	0.0	0.000	A
			2	1, 2	533			533	531	0.0	0.0	0.000	A
	Entry	2	1	(1, 4)	574			575	575	0.0	0.0	0.354	A
			2	(2, 3)	733			632	631	27.4	53.6	236.678	F
4 - A1079	Entry	1	1	1, 2	406	402	1.012	402	397	9.7	12.0	101.180	F
			2	2, 3, 4	408	402	1.015	405	399	10.8	13.1	110.506	F
	CircBase	1	1	1	859			859	855	0.0	0.0	0.000	A
	Entry	2	1	(1, 2, 3, 4)	883			814	814	7.8	25.3	78.329	F
			1	1	952			952	956	0.0	0.0	0.000	A
	CircLink	1	1	4	952			952	956	0.0	0.0	0.000	A
			2	1	859			859	855	0.0	0.0	0.000	A
			3	2, 3	634			634	634	0.0	0.0	0.000	A
	CircBase	1	2	2, 3	634			634	634	0.0	0.0	0.000	A

13:00 - 13:15

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Average throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A1174 (Beverley Road)	Entry	1	1	2	462	505	0.915	466	473	5.4	4.8	38.197	E
			2	1, 3, 4	255	505	0.504	255	262	1.4	1.3	18.625	C
		2	1	(1, 2, 3, 4)	699			716	732	29.2	21.4	118.817	F
	Exit	1	1		740			740	737	0.0	0.0	0.000	A
	CircLink	1	1	1, 2	1365			1365	1368	0.0	0.0	0.000	A
			2	2, 3, 4	838			838	847	0.0	0.0	0.000	A
	CircBase	1	1	2, 3	1356			1356	1368	0.0	0.0	0.000	A
			2	3, 4	108			108	109	0.0	0.0	0.000	A
2 - A1033 Raich Carter Way	Entry	1	1	3	546	889	0.614	547	567	2.1	1.5	10.051	B
			2	4	571	889	0.642	573	594	2.4	1.4	10.365	B
			3	1, 2	430	889	0.483	430	431	1.3	0.8	7.609	A
	Exit	1	1		1715			1715	1733	0.0	0.0	0.000	A
	CircLink	1	1	2	859			859	867	0.0	0.0	0.000	A
			2	2, 3	1079			1079	1096	0.0	0.0	0.000	A
			3	1, 3, 4	245			245	249	0.0	0.0	0.000	A
	CircBase	1	1	3	224			224	230	0.0	0.0	0.000	A
			2	1, 3, 4	244			244	249	0.0	0.0	0.000	A
	Entry	2	1	(3, 4)	1101			1117	1155	13.6	1.4	13.578	B
			2	(1, 2)	430			430	429	0.1	0.1	0.537	A
3 - A1079 (Beverley Road)	Entry	1	1	4	199	700	0.284	200	202	0.7	0.4	7.521	A
			2	1	274	700	0.392	274	273	1.1	0.7	8.941	A
			3	2, 3	682	700	0.974	683	675	6.0	5.6	30.892	D
	Exit	1	1		993			993	1023	0.0	0.0	0.000	A
	CircLink	1	1	3	492			492	510	0.0	0.0	0.000	A
			2	1, 2, 3, 4	1527			1527	1561	0.0	0.0	0.000	A
	CircBase	1	1	4	595			595	616	0.0	0.0	0.000	A
			2	1, 2	431			431	432	0.0	0.0	0.000	A
	Entry	2	1	(1, 4)	473			473	471	0.0	0.0	0.052	A
			2	(2, 3)	597			682	673	53.6	35.0	240.789	F
4 - A1079	Entry	1	1	1, 2	377	452	0.834	394	412	12.0	6.6	80.001	F
			2	2, 3, 4	397	452	0.879	421	424	13.1	7.3	86.499	F
	CircBase	1	1	1	702			702	701	0.0	0.0	0.000	A
	Entry	2	1	(1, 2, 3, 4)	721			774	791	25.3	7.7	65.977	F
			1	1	794			794	817	0.0	0.0	0.000	A
	CircLink	1	1	4	794			794	817	0.0	0.0	0.000	A
			2	1	702			702	701	0.0	0.0	0.000	A
			3	2, 3	686			686	678	0.0	0.0	0.000	A
	CircBase	1	2	2, 3	686			686	678	0.0	0.0	0.000	A

13:15 - 13:30

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Average throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A1174 (Beverley Road)	Entry	1	1	2	409	621	0.659	419	437	4.8	2.1	27.077	D
			2	1, 3, 4	224	621	0.361	225	238	1.3	0.7	13.660	B
		2	1	(1, 2, 3, 4)	589			633	661	21.4	2.7	44.974	E
	Exit	1	1		606			606	613	0.0	0.0	0.000	A
	CircLink	1	1	1, 2	1122			1122	1167	0.0	0.0	0.000	A
			2	2, 3, 4	679			679	737	0.0	0.0	0.000	A
	CircBase	1	1	2, 3	1113			1113	1202	0.0	0.0	0.000	A
			2	3, 4	82			82	89	0.0	0.0	0.000	A
2 - A1033 Raich Carter Way	Entry	1	1	3	456	923	0.494	456	457	1.5	1.0	7.652	A
			2	4	473	923	0.513	472	477	1.4	1.1	7.920	A
			3	1, 2	360	923	0.390	359	359	0.8	0.6	6.400	A
	Exit	1	1		1450			1450	1549	0.0	0.0	0.000	A
	CircLink	1	1	2	728			728	773	0.0	0.0	0.000	A
			2	2, 3	903			903	973	0.0	0.0	0.000	A
			3	1, 3, 4	208			208	219	0.0	0.0	0.000	A
	CircBase	1	1	3	183			183	198	0.0	0.0	0.000	A
			2	1, 3, 4	207			207	219	0.0	0.0	0.000	A
	Entry	2	1	(3, 4)	929			929	931	1.4	0.3	1.555	A
			2	(1, 2)	360			360	358	0.1	0.0	0.186	A
3 - A1079 (Beverley Road)	Entry	1	1	4	169	755	0.223	168	168	0.4	0.3	6.163	A
			2	1	222	755	0.294	222	225	0.7	0.5	6.974	A
			3	2, 3	581	755	0.769	591	632	5.6	2.7	23.367	C
	Exit	1	1		825			825	853	0.0	0.0	0.000	A
	CircLink	1	1	3	416			416	429	0.0	0.0	0.000	A
			2	1, 2, 3, 4	1261			1261	1280	0.0	0.0	0.000	A
	CircBase	1	1	4	492			492	497	0.0	0.0	0.000	A
			2	1, 2	360			360	360	0.0	0.0	0.000	A
	Entry	2	1	(1, 4)	391			391	392	0.0	0.0	0.006	A
			2	(2, 3)	503			581	621	35.0	5.5	86.584	F
4 - A1079	Entry	1	1	1, 2	281	556	0.506	290	324	6.6	1.0	30.210	D
			2	2, 3, 4	329	556	0.592	339	364	7.3	1.4	31.886	D
	CircBase	1	1	1	579			579	583	0.0	0.0	0.000	A
	Entry	2	1	(1, 2, 3, 4)	605			611	641	7.7	0.1	7.974	A
			1	1	660			660	665	0.0	0.0	0.000	A
	CircLink	1	1	4	660			660	665	0.0	0.0	0.000	A
			2	1	579			579	583	0.0	0.0	0.000	A
			3	2, 3	593			593	634	0.0	0.0	0.000	A
	CircBase	1	2	2, 3	593			593	634	0.0	0.0	0.000	A

Existing Layout - 2030 With Development, SAT

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Lane Simulation	A1 - Existing Layout [Lane Simulation]	This analysis set uses Lane Simulation mode. This is provided as an investigative tool and the user should apply judgement when interpreting the results.
Last Run	Lane Simulation	1 - A1174 (Beverley Road) - Lane Simulation	Arm 1: Queue at end of modelled period is greater than 10 PCU. Delay is likely to have been underestimated.
Last Run	Lane Simulation	3 - A1079 (Beverley Road) - Lane Simulation	Arm 3: Queue at end of modelled period is greater than 10 PCU. Delay is likely to have been underestimated.
Last Run	Lane Simulation	4 - A1079 - Lane Simulation	Arm 4: Queue at end of modelled period is greater than 10 PCU. Delay is likely to have been underestimated.
Warning	Geometry	1 - A1174 (Beverley Road) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	3 - A1079 (Beverley Road) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	4 - A1079 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Dunswell Roundabout	Large Roundabout	✓	1, 2, 3, 4	260.46	F

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

[same as above]

Roundabout Geometry

[same as above]

Large Roundabout Data

Arm	Circulating flow (PCU/hr)	Entry-to-exit separation (m)
1 - A1174 (Beverley Road)	1568	35.00
2 - A1033 Raich Carter Way	759	45.00
3 - A1079 (Beverley Road)	1548	37.00
4 - A1079	1308	48.00

Slope / Intercept / Capacity

[same as above]

Lane Simulation: Arm options

[same as above]

Lanes

[same as above]

Entry Lane slope and intercept

[same as above]

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)	Run automatically
D3	2030 With Development	SAT	ONE HOUR	12:00	13:30	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	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - A1174 (Beverley Road)		ONE HOUR	✓	804	100.000
2 - A1033 Raich Carter Way		ONE HOUR	✓	1964	100.000
3 - A1079 (Beverley Road)		ONE HOUR	✓	1220	100.000
4 - A1079		ONE HOUR	✓	821	100.000

Origin-Destination Data

Demand (PCU/hr)

	To				
		1 - A1174 (Beverley Road)	2 - A1033 Raich Carter Way	3 - A1079 (Beverley Road)	4 - A1079
From	1 - A1174 (Beverley Road)	1	482	298	23
	2 - A1033 Raich Carter Way	532	124	605	703
	3 - A1079 (Beverley Road)	284	641	81	214
	4 - A1079	33	538	250	0

Vehicle Mix

Heavy Vehicle Percentages

	To				
		1 - A1174 (Beverley Road)	2 - A1033 Raich Carter Way	3 - A1079 (Beverley Road)	4 - A1079
From	1 - A1174 (Beverley Road)	0	0	1	0
	2 - A1033 Raich Carter Way	1	0	1	1
	3 - A1079 (Beverley Road)	1	1	0	0
	4 - A1079	3	1	3	0

Results

Results Summary for whole modelled period

Arm	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - A1174 (Beverley Road)	120.37	31.7	F	738	1108
2 - A1033 Raich Carter Way	117.53	80.4	F	1804	2706
3 - A1079 (Beverley Road)	472.81	143.7	F	1120	1679
4 - A1079	424.96	107.1	F	751	1126

Main Results for each time segment

12:00 - 12:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Average throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A1174 (Beverley Road)	603	151	1246	603	596	638	0.0	2.6	13.037	B
2 - A1033 Raich Carter Way	1469	367	498	1475	1464	1352	0.0	4.2	10.575	B
3 - A1079 (Beverley Road)	918	229	1038	923	910	935	0.0	4.4	16.690	C
4 - A1079	628	157	1258	627	613	703	0.0	2.4	13.169	B

12:15 - 12:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Average throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A1174 (Beverley Road)	719	180	1415	709	701	756	2.6	6.9	26.588	D
2 - A1033 Raich Carter Way	1758	439	576	1761	1741	1548	4.2	9.3	17.095	C
3 - A1079 (Beverley Road)	1104	276	1237	1060	1049	1100	4.4	17.2	40.915	E
4 - A1079	726	181	1452	720	711	846	2.4	8.8	34.549	D

12:30 - 12:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Average throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A1174 (Beverley Road)	879	220	1381	847	822	922	6.9	22.7	76.787	F
2 - A1033 Raich Carter Way	2168	542	623	2030	2012	1605	9.3	48.6	57.967	F
3 - A1079 (Beverley Road)	1341	335	1443	1121	1119	1210	17.2	72.4	166.776	F
4 - A1079	899	225	1603	700	711	961	8.8	56.6	170.131	F

12:45 - 13:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Average throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A1174 (Beverley Road)	884	221	1384	862	846	922	22.7	31.7	120.370	F
2 - A1033 Raich Carter Way	2174	544	630	2008	2034	1616	48.6	80.4	117.532	F
3 - A1079 (Beverley Road)	1349	337	1432	1126	1116	1206	72.4	129.2	377.686	F
4 - A1079	903	226	1600	705	704	959	56.6	107.1	413.068	F

13:00 - 13:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Average throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A1174 (Beverley Road)	725	181	1523	727	760	775	31.7	22.5	115.131	F
2 - A1033 Raich Carter Way	1777	444	618	1885	1909	1632	80.4	43.9	108.571	F
3 - A1079 (Beverley Road)	1090	272	1317	1049	1037	1186	129.2	143.7	472.814	F
4 - A1079	731	183	1458	840	817	908	107.1	86.2	424.960	F

13:15 - 13:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Average throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A1174 (Beverley Road)	619	155	1542	642	657	647	22.5	11.5	76.332	F
2 - A1033 Raich Carter Way	1477	369	579	1534	1620	1605	43.9	8.9	40.330	E
3 - A1079 (Beverley Road)	915	229	1066	1047	1034	1047	143.7	115.3	274.941	F
4 - A1079	618	155	1380	809	850	734	86.2	29.3	217.007	F

Lane Results

Lane Level notation: Lane Level 1 is always closest to the junction.

Lanes: Main Results for each time segment

12:00 - 12:15

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Average throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A1174 (Beverley Road)	Entry	1	1	2	362	599	0.605	364	359	0.0	1.5	13.906	B
			2	1, 3, 4	239	599	0.399	239	237	0.0	0.7	9.578	A
		2	1	(1, 2, 3, 4)	603			601	605	0.0	0.3	0.807	A
	Exit	1	1		638			638	637	0.0	0.0	0.000	A
			1	1, 2	1139			1139	1122	0.0	0.0	0.000	A
	CircLink	1	2	2, 3, 4	746			746	736	0.0	0.0	0.000	A
			1	2, 3	1119			1119	1096	0.0	0.0	0.000	A
	CircBase	1	2	3, 4	128			128	125	0.0	0.0	0.000	A
2 - A1033 Raich Carter Way	Entry	1	1	3	454	876	0.518	456	449	0.0	1.0	7.789	A
			2	4	528	876	0.602	528	524	0.0	1.3	8.881	A
			3	1, 2	491	876	0.561	492	491	0.0	1.2	8.608	A
	Exit	1	1		1352			1352	1330	0.0	0.0	0.000	A
			1	2	676			676	663	0.0	0.0	0.000	A
			2	2, 3	915			915	901	0.0	0.0	0.000	A
	CircLink	1	3	1, 3, 4	259			259	253	0.0	0.0	0.000	A
			1	3	237			237	235	0.0	0.0	0.000	A
			2	1, 3, 4	262			262	252	0.0	0.0	0.000	A
	CircBase	1	1	(3, 4)	978			982	983	0.0	0.6	2.593	A
			2	(1, 2)	491			491	495	0.0	0.1	1.156	A
3 - A1079 (Beverley Road)	Entry	1	1	4	157	696	0.226	157	157	0.0	0.3	6.652	A
			2	1	214	696	0.308	215	215	0.0	0.4	7.527	A
			3	2, 3	548	696	0.787	550	538	0.0	2.7	17.716	C
	Exit	1	1		935			935	918	0.0	0.0	0.000	A
			1	3	466			466	459	0.0	0.0	0.000	A
	CircLink	1	2	1, 2, 3, 4	1507			1507	1492	0.0	0.0	0.000	A
			1	4	546			546	542	0.0	0.0	0.000	A
	CircBase	1	2	1, 2	492			492	491	0.0	0.0	0.000	A
			1	(1, 4)	372			372	375	0.0	0.0	0.007	A
	Entry	2	2	(2, 3)	546			548	549	0.0	0.9	5.340	A
4 - A1079	Entry	1	1	1, 2	276	515	0.537	275	271	0.0	0.9	11.702	B
			2	2, 3, 4	351	515	0.681	352	342	0.0	1.4	14.342	B
	CircBase	1	1	1	612			612	612	0.0	0.0	0.000	A
	Entry	2	1	(1, 2, 3, 4)	628			628	623	0.0	0.0	0.000	A
			1		703			703	698	0.0	0.0	0.000	A
	CircLink	1	1	4	703			703	698	0.0	0.0	0.000	A
			2	1	612			612	612	0.0	0.0	0.000	A
			3	2, 3	646			646	633	0.0	0.0	0.000	A
	CircBase	1	2	2, 3	646			646	633	0.0	0.0	0.000	A

12:15 - 12:30

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Average throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A1174 (Beverley Road)	Entry	1	1	2	429	526	0.815	424	418	1.5	3.3	22.776	C
			2	1, 3, 4	285	526	0.542	285	284	0.7	1.3	14.682	B
		2	1	(1, 2, 3, 4)	719			714	711	0.3	2.3	6.909	A
	Exit	1	1		756			756	756	0.0	0.0	0.000	A
	CircLink	1	1	1, 2	1314			1314	1311	0.0	0.0	0.000	A
			2	2, 3, 4	857			857	843	0.0	0.0	0.000	A
	CircBase	1	1	2, 3	1269			1269	1257	0.0	0.0	0.000	A
			2	3, 4	146			146	141	0.0	0.0	0.000	A
2 - A1033 Raich Carter Way	Entry	1	1	3	545	843	0.646	545	538	1.0	1.6	9.805	A
			2	4	632	843	0.750	632	618	1.3	2.2	11.134	B
			3	1, 2	584	843	0.693	584	585	1.2	1.7	10.481	B
	Exit	1	1		1548			1548	1531	0.0	0.0	0.000	A
	CircLink	1	1	2	781			781	766	0.0	0.0	0.000	A
			2	2, 3	1044			1044	1038	0.0	0.0	0.000	A
			3	1, 3, 4	300			300	295	0.0	0.0	0.000	A
	CircBase	1	1	3	279			279	274	0.0	0.0	0.000	A
			2	1, 3, 4	297			297	295	0.0	0.0	0.000	A
	Entry	2	1	(3, 4)	1175			1177	1161	0.6	3.3	8.369	A
			2	(1, 2)	583			584	588	0.1	0.4	2.989	A
3 - A1079 (Beverley Road)	Entry	1	1	4	193	633	0.305	193	192	0.3	0.4	7.928	A
			2	1	257	633	0.406	254	253	0.4	0.7	9.226	A
			3	2, 3	612	633	0.966	613	604	2.7	5.1	27.528	D
	Exit	1	1		1100			1100	1085	0.0	0.0	0.000	A
	CircLink	1	1	3	552			552	544	0.0	0.0	0.000	A
			2	1, 2, 3, 4	1785			1785	1765	0.0	0.0	0.000	A
	CircBase	1	1	4	653			653	638	0.0	0.0	0.000	A
			2	1, 2	584			584	586	0.0	0.0	0.000	A
	Entry	2	1	(1, 4)	450			450	446	0.0	0.0	0.017	A
			2	(2, 3)	654			612	613	0.9	10.9	35.025	E
4 - A1079	Entry	1	1	1, 2	350	422	0.829	347	336	0.9	3.8	30.609	D
			2	2, 3, 4	375	422	0.887	373	375	1.4	4.6	36.342	E
	CircBase	1	1	1	727			727	728	0.0	0.0	0.000	A
	Entry	2	1	(1, 2, 3, 4)	726			725	735	0.0	0.3	0.748	A
			1	1	846			846	829	0.0	0.0	0.000	A
	CircLink	1	1	4	846			846	829	0.0	0.0	0.000	A
			2	1	727			727	728	0.0	0.0	0.000	A
			3	2, 3	724			724	716	0.0	0.0	0.000	A
	CircBase	1	2	2, 3	724			724	716	0.0	0.0	0.000	A

12:30 - 12:45

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Average throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A1174 (Beverley Road)	Entry	1	1	2	506	541	0.936	505	491	3.3	4.8	32.792	D
			2	1, 3, 4	339	541	0.627	341	331	1.3	1.7	19.710	C
		2	1	(1, 2, 3, 4)	879			846	829	2.3	16.3	48.938	E
	Exit	1	1		922			922	916	0.0	0.0	0.000	A
	CircLink	1	1	1, 2	1474			1474	1473	0.0	0.0	0.000	A
			2	2, 3, 4	829			829	836	0.0	0.0	0.000	A
	CircBase	1	1	2, 3	1243			1243	1254	0.0	0.0	0.000	A
			2	3, 4	138			138	139	0.0	0.0	0.000	A
2 - A1033 Raich Carter Way	Entry	1	1	3	609	823	0.740	609	600	1.6	2.2	12.149	B
			2	4	704	823	0.856	703	702	2.2	2.8	13.729	B
			3	1, 2	717	823	0.872	717	710	1.7	2.7	13.648	B
	Exit	1	1		1605			1605	1605	0.0	0.0	0.000	A
	CircLink	1	1	2	801			801	803	0.0	0.0	0.000	A
			2	2, 3	1104			1104	1094	0.0	0.0	0.000	A
			3	1, 3, 4	323			323	318	0.0	0.0	0.000	A
	CircBase	1	1	3	297			297	292	0.0	0.0	0.000	A
			2	1, 3, 4	326			326	318	0.0	0.0	0.000	A
	Entry	2	1	(3, 4)	1453			1313	1307	3.3	38.0	60.548	F
			2	(1, 2)	715			717	713	0.4	2.9	13.069	B
3 - A1079 (Beverley Road)	Entry	1	1	4	236	567	0.416	235	231	0.4	0.7	10.219	B
			2	1	313	567	0.552	311	308	0.7	1.5	14.021	B
			3	2, 3	574	567	1.012	574	579	5.1	6.0	36.693	E
	Exit	1	1		1210			1210	1185	0.0	0.0	0.000	A
	CircLink	1	1	3	599			599	590	0.0	0.0	0.000	A
			2	1, 2, 3, 4	2054			2054	2031	0.0	0.0	0.000	A
	CircBase	1	1	4	726			726	726	0.0	0.0	0.000	A
			2	1, 2	718			718	711	0.0	0.0	0.000	A
	Entry	2	1	(1, 4)	550			550	544	0.0	0.2	0.553	A
			2	(2, 3)	791			574	583	10.9	64.0	235.154	F
4 - A1079	Entry	1	1	1, 2	359	350	1.025	346	351	3.8	12.4	97.945	F
			2	2, 3, 4	367	350	1.050	354	360	4.6	14.2	109.117	F
	CircBase	1	1	1	893			893	886	0.0	0.0	0.000	A
	Entry	2	1	(1, 2, 3, 4)	899			726	783	0.3	30.0	61.202	F
			1	1	961			961	957	0.0	0.0	0.000	A
	CircLink	1	1	4	961			961	957	0.0	0.0	0.000	A
			2	1	893			893	886	0.0	0.0	0.000	A
			3	2, 3	710			710	712	0.0	0.0	0.000	A
	CircBase	1	2	2, 3	710			710	712	0.0	0.0	0.000	A

12:45 - 13:00

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Average throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A1174 (Beverley Road)	Entry	1	1	2	516	540	0.956	515	507	4.8	4.8	34.027	D
			2	1, 3, 4	343	540	0.634	347	340	1.7	1.8	20.389	C
		2	1	(1, 2, 3, 4)	884			859	847	16.3	25.1	91.679	F
	Exit	1	1		922			922	923	0.0	0.0	0.000	A
	CircLink	1	1	1, 2	1477			1477	1475	0.0	0.0	0.000	A
			2	2, 3, 4	828			828	827	0.0	0.0	0.000	A
	CircBase	1	1	2, 3	1242			1242	1240	0.0	0.0	0.000	A
			2	3, 4	141			141	139	0.0	0.0	0.000	A
2 - A1033 Raich Carter Way	Entry	1	1	3	603	820	0.735	603	612	2.2	2.1	12.649	B
			2	4	696	820	0.848	695	706	2.8	2.8	14.382	B
			3	1, 2	710	820	0.866	710	715	2.7	2.8	14.296	B
	Exit	1	1		1616			1616	1607	0.0	0.0	0.000	A
	CircLink	1	1	2	803			803	802	0.0	0.0	0.000	A
			2	2, 3	1117			1117	1100	0.0	0.0	0.000	A
			3	1, 3, 4	326			326	323	0.0	0.0	0.000	A
	CircBase	1	1	3	305			305	297	0.0	0.0	0.000	A
			2	1, 3, 4	325			325	321	0.0	0.0	0.000	A
	Entry	2	1	(3, 4)	1455			1299	1318	38.0	68.5	146.116	F
			2	(1, 2)	719			710	716	2.9	4.2	19.100	C
3 - A1079 (Beverley Road)	Entry	1	1	4	237	571	0.415	237	234	0.7	0.8	11.034	B
			2	1	317	571	0.556	320	316	1.5	1.2	14.780	B
			3	2, 3	569	571	0.996	569	566	6.0	6.0	38.094	E
	Exit	1	1		1206			1206	1204	0.0	0.0	0.000	A
	CircLink	1	1	3	593			593	597	0.0	0.0	0.000	A
			2	1, 2, 3, 4	2045			2045	2055	0.0	0.0	0.000	A
	CircBase	1	1	4	722			722	731	0.0	0.0	0.000	A
			2	1, 2	711			711	716	0.0	0.0	0.000	A
	Entry	2	1	(1, 4)	553			554	549	0.2	0.1	0.706	A
			2	(2, 3)	796			569	566	64.0	121.2	592.030	F
4 - A1079	Entry	1	1	1, 2	358	351	1.020	353	353	12.4	13.1	130.031	F
			2	2, 3, 4	354	351	1.007	352	352	14.2	14.7	148.352	F
	CircBase	1	1	1	893			893	894	0.0	0.0	0.000	A
	Entry	2	1	(1, 2, 3, 4)	903			712	709	30.0	79.3	279.892	F
			1	1	959			959	965	0.0	0.0	0.000	A
	CircLink	1	1	4	959			959	965	0.0	0.0	0.000	A
			2	1	893			893	894	0.0	0.0	0.000	A
			3	2, 3	707			707	704	0.0	0.0	0.000	A
	CircBase	1	2	2, 3	707			707	704	0.0	0.0	0.000	A

13:00 - 13:15

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Average throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A1174 (Beverley Road)	Entry	1	1	2	437	480	0.910	435	455	4.8	4.5	34.863	D
			2	1, 3, 4	293	480	0.610	292	305	1.8	1.8	20.945	C
		2	1	(1, 2, 3, 4)	725			730	758	25.1	16.2	85.607	F
	Exit	1	1		775			775	780	0.0	0.0	0.000	A
	CircLink	1	1	1, 2	1372			1372	1363	0.0	0.0	0.000	A
			2	2, 3, 4	927			927	907	0.0	0.0	0.000	A
	CircBase	1	1	2, 3	1360			1360	1332	0.0	0.0	0.000	A
			2	3, 4	163			163	159	0.0	0.0	0.000	A
2 - A1033 Raich Carter Way	Entry	1	1	3	587	825	0.712	590	599	2.1	2.0	12.454	B
			2	4	693	825	0.840	694	701	2.8	2.6	14.162	B
			3	1, 2	600	825	0.727	601	608	2.8	1.9	11.957	B
	Exit	1	1		1632			1632	1628	0.0	0.0	0.000	A
	CircLink	1	1	2	815			815	814	0.0	0.0	0.000	A
			2	2, 3	1119			1119	1115	0.0	0.0	0.000	A
			3	1, 3, 4	316			316	321	0.0	0.0	0.000	A
	CircBase	1	1	3	298			298	299	0.0	0.0	0.000	A
			2	1, 3, 4	320			320	323	0.0	0.0	0.000	A
	Entry	2	1	(3, 4)	1180			1281	1299	68.5	36.9	140.242	F
			2	(1, 2)	597			600	605	4.2	0.7	7.656	A
3 - A1079 (Beverley Road)	Entry	1	1	4	193	608	0.318	192	193	0.8	0.4	8.908	A
			2	1	257	608	0.423	257	256	1.2	0.8	10.869	B
			3	2, 3	600	608	0.987	600	587	6.0	6.0	36.685	E
	Exit	1	1		1186			1186	1199	0.0	0.0	0.000	A
	CircLink	1	1	3	595			595	601	0.0	0.0	0.000	A
			2	1, 2, 3, 4	1908			1908	1930	0.0	0.0	0.000	A
	CircBase	1	1	4	715			715	723	0.0	0.0	0.000	A
			2	1, 2	601			601	609	0.0	0.0	0.000	A
	Entry	2	1	(1, 4)	451			451	447	0.1	0.0	0.061	A
			2	(2, 3)	639			600	587	121.2	136.5	760.702	F
4 - A1079	Entry	1	1	1, 2	416	419	0.993	426	409	13.1	12.1	110.991	F
			2	2, 3, 4	408	419	0.972	414	408	14.7	14.0	127.009	F
	CircBase	1	1	1	742			742	748	0.0	0.0	0.000	A
	Entry	2	1	(1, 2, 3, 4)	731			824	810	79.3	60.1	311.221	F
			1	1	908			908	916	0.0	0.0	0.000	A
	CircLink	1	1	4	908			908	916	0.0	0.0	0.000	A
			2	1	742			742	748	0.0	0.0	0.000	A
			3	2, 3	716			716	705	0.0	0.0	0.000	A
	CircBase	1	2	2, 3	716			716	705	0.0	0.0	0.000	A

13:15 - 13:30

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Average throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A1174 (Beverley Road)	Entry	1	1	2	382	472	0.809	385	396	4.5	3.3	33.772	D
			2	1, 3, 4	256	472	0.542	257	261	1.8	1.4	20.087	C
		2	1	(1, 2, 3, 4)	619			638	651	16.2	6.9	48.854	E
	Exit	1	1		647			647	659	0.0	0.0	0.000	A
	CircLink	1	1	1, 2	1258			1258	1274	0.0	0.0	0.000	A
			2	2, 3, 4	931			931	949	0.0	0.0	0.000	A
	CircBase	1	1	2, 3	1380			1380	1397	0.0	0.0	0.000	A
			2	3, 4	162			162	166	0.0	0.0	0.000	A
2 - A1033 Raich Carter Way	Entry	1	1	3	487	842	0.578	489	521	2.0	1.2	10.506	B
			2	4	552	842	0.655	553	600	2.6	1.6	11.931	B
			3	1, 2	493	842	0.585	492	499	1.9	1.3	9.478	A
	Exit	1	1		1605			1605	1625	0.0	0.0	0.000	A
	CircLink	1	1	2	800			800	810	0.0	0.0	0.000	A
			2	2, 3	1079			1079	1102	0.0	0.0	0.000	A
			3	1, 3, 4	305			305	309	0.0	0.0	0.000	A
	CircBase	1	1	3	278			278	288	0.0	0.0	0.000	A
			2	1, 3, 4	302			302	308	0.0	0.0	0.000	A
	Entry	2	1	(3, 4)	983			1039	1114	36.9	4.4	44.081	E
			2	(1, 2)	494			493	497	0.7	0.3	1.504	A
3 - A1079 (Beverley Road)	Entry	1	1	4	162	687	0.235	161	162	0.4	0.4	7.365	A
			2	1	214	687	0.312	213	216	0.8	0.5	8.498	A
			3	2, 3	674	687	0.981	674	656	6.0	6.0	32.728	D
	Exit	1	1		1047			1047	1098	0.0	0.0	0.000	A
	CircLink	1	1	3	524			524	552	0.0	0.0	0.000	A
			2	1, 2, 3, 4	1589			1589	1665	0.0	0.0	0.000	A
	CircBase	1	1	4	573			573	618	0.0	0.0	0.000	A
			2	1, 2	493			493	500	0.0	0.0	0.000	A
	Entry	2	1	(1, 4)	376			376	377	0.0	0.0	0.017	A
			2	(2, 3)	540			674	656	136.5	108.4	598.308	F
4 - A1079	Entry	1	1	1, 2	362	457	0.792	392	416	12.1	7.1	86.951	F
			2	2, 3, 4	384	457	0.840	417	434	14.0	8.3	96.562	F
	CircBase	1	1	1	617			617	625	0.0	0.0	0.000	A
	Entry	2	1	(1, 2, 3, 4)	618			746	807	60.1	13.9	132.581	F
			1	1	734			734	780	0.0	0.0	0.000	A
	CircLink	1	1	4	734			734	780	0.0	0.0	0.000	A
			2	1	617			617	625	0.0	0.0	0.000	A
			3	2, 3	763			763	748	0.0	0.0	0.000	A
	CircBase	1	2	2, 3	763			763	748	0.0	0.0	0.000	A



Appendix I4 – J4 Capacity Assessment

Junctions 9					
ARCADY 9 - Roundabout Module					
Version: 9.5.1.7462 © Copyright TRL Limited, 2019					
For sales and distribution information, program advice and maintenance, contact TRL: +44 (0)1344 379777 software@trl.co.uk www.trlsoftware.co.uk					
The users of this computer program for the solution of an engineering problem are in no way relieved of their responsibility for the correctness of the solution					

Filename: Interim Improvement Scheme AM Peak.j9
Path: Z:\Projects\5913 Dunswell P&R\Data\Modelling\Raich Carter Way_Barnes Way_Gibraltar Way Roundabout\Interim Improvement Scheme
Report generation date: 22/10/2024 11:53:27

»Proposed Layout –2023 Existing, AM
»Proposed Layout –2030 Do Nothing, AM
»Proposed Layout –2030 With Development, AM

Summary of junction performance

	AM				
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS
	Proposed Layout - 2023 Existing				
1 - Barnes Way (N)	D1	1.9	6.66	0.65	A
2 - A1033 Raich Carter Way (E)		4.6	14.39	0.82	B
3 - Gibraltar Road		1.3	23.96	0.55	C
4 - A1033 Raich Carter Way (W)		1.1	2.51	0.53	A
	Proposed Layout - 2030 Do Nothing				
1 - Barnes Way (N)	D2	14.9	39.57	0.96	E
2 - A1033 Raich Carter Way (E)		97.3	214.83	1.14	F
3 - Gibraltar Road		58.4	1103.79	1.95	F
4 - A1033 Raich Carter Way (W)		1.5	2.90	0.59	A
	Proposed Layout - 2030 With Development				
1 - Barnes Way (N)	D3	24.4	61.28	0.99	F
2 - A1033 Raich Carter Way (E)		101.3	223.62	1.15	F
3 - Gibraltar Road		60.5	1163.83	1.96	F
4 - A1033 Raich Carter Way (W)		1.6	3.08	0.62	A

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

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

File summary

File Description

Title	A1033 Raich Carter Way/Barnes Way/Gibraltar Road Roundabout Interim Improvement Scheme
Location	Kingswood, Hull
Site number	
Date	16/10/2023
Version	
Status	
Identifier	
Client	Ashcourt
Jobnumber	LTP/5913
Enumerator	LTP\MR\AC
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

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
5.75				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)	Run automatically
D1	2023 Existing	AM	ONE HOUR	07:00	08:30	15	✓
D2	2030 Do Nothing	AM	ONE HOUR	07:00	08:30	15	✓
D3	2030 With Development	AM	ONE HOUR	07:00	08:30	15	✓

Analysis Set Details

ID	Name	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	Proposed Layout	✓	100.000	100.000

Proposed Layout –2023 Existing, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - Barnes Way (N) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	4 - A1033 Raich Carter Way (W) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Kingswood Roundabout	Standard Roundabout		1, 2, 3, 4	8.08	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
1	Barnes Way (N)	
2	A1033 Raich Carter Way (E)	
3	Gibraltar Road	
4	A1033 Raich Carter Way (W)	

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	I' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
1 - Barnes Way (N)	7.16	10.50	50.0	43.4	60.0	23.5	
2 - A1033 Raich Carter Way (E)	7.30	7.30	0.0	41.5	57.0	20.0	
3 - Gibraltar Road	7.23	7.50	17.6	47.2	57.0	19.0	
4 - A1033 Raich Carter Way (W)	7.30	7.60	31.6	44.1	57.0	21.0	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1 - Barnes Way (N)	0.821	3150
2 - A1033 Raich Carter Way (E)	0.705	2345
3 - Gibraltar Road	0.720	2419
4 - A1033 Raich Carter Way (W)	0.720	2433

The slope and intercept shown above include any corrections and adjustments.

Arm Capacity Adjustments

Arm	Type	Reason	Direct capacity adjustment (PCU/hr)
1 - Barnes Way (N)	Direct	Queue Survey	-430
2 - A1033 Raich Carter Way (E)	Direct	Queue Survey	-290
3 - Gibraltar Road	Direct	Queue Survey	-700
4 - A1033 Raich Carter Way (W)	Direct	Queue Survey	800

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)	Run automatically
D1	2023 Existing	AM	ONE HOUR	07:00	08:30	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	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Barnes Way (N)		ONE HOUR	✓	934	100.000
2 - A1033 Raich Carter Way (E)		ONE HOUR	✓	1092	100.000
3 - Gibraltar Road		ONE HOUR	✓	177	100.000
4 - A1033 Raich Carter Way (W)		ONE HOUR	✓	1499	100.000

Origin-Destination Data

Demand (PCU/hr)

	To				
		1 - Barnes Way (N)	2 - A1033 Raich Carter Way (E)	3 - Gibraltar Road	4 - A1033 Raich Carter Way (W)
From	1 - Barnes Way (N)	0	232	59	643
	2 - A1033 Raich Carter Way (E)	59	0	11	1022
	3 - Gibraltar Road	27	41	0	109
	4 - A1033 Raich Carter Way (W)	279	1161	58	1

Vehicle Mix

Heavy Vehicle Percentages

	To				
		1 - Barnes Way (N)	2 - A1033 Raich Carter Way (E)	3 - Gibraltar Road	4 - A1033 Raich Carter Way (W)
From	1 - Barnes Way (N)	0	3	0	2
	2 - A1033 Raich Carter Way (E)	0	0	10	6
	3 - Gibraltar Road	4	11	0	4
	4 - A1033 Raich Carter Way (W)	4	3	4	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Barnes Way (N)	0.65	6.66	1.9	A	857	1286
2 - A1033 Raich Carter Way (E)	0.82	14.39	4.6	B	1002	1503
3 - Gibraltar Road	0.55	23.96	1.3	C	162	244
4 - A1033 Raich Carter Way (W)	0.53	2.51	1.1	A	1376	2063

Main Results for each time segment

07:00 –07:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnes Way (N)	703	176	947	1942	0.362	701	274	0.0	0.6	2.956	A
2 - A1033 Raich Carter Way (E)	822	206	571	1652	0.498	818	1077	0.0	1.0	4.539	A
3 - Gibraltar Road	133	33	1293	788	0.169	132	96	0.0	0.2	5.785	A
4 - A1033 Raich Carter Way (W)	1129	282	95	3165	0.357	1126	1330	0.0	0.6	1.820	A

07:15 –07:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnes Way (N)	840	210	1133	1790	0.469	838	328	0.6	0.9	3.859	A
2 - A1033 Raich Carter Way (E)	982	245	683	1573	0.624	979	1288	1.0	1.7	6.374	A
3 - Gibraltar Road	159	40	1547	605	0.263	158	115	0.2	0.4	8.489	A
4 - A1033 Raich Carter Way (W)	1348	337	114	3152	0.428	1347	1592	0.6	0.8	2.057	A

07:30 –07:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnes Way (N)	1028	257	1386	1582	0.650	1024	401	0.9	1.9	6.552	A
2 - A1033 Raich Carter Way (E)	1202	301	835	1466	0.820	1191	1576	1.7	4.5	13.347	B
3 - Gibraltar Road	195	49	1886	362	0.539	192	141	0.4	1.2	21.965	C
4 - A1033 Raich Carter Way (W)	1650	413	138	3134	0.527	1649	1939	0.8	1.1	2.500	A

07:45 –08:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnes Way (N)	1028	257	1388	1580	0.651	1028	402	1.9	1.9	6.658	A
2 - A1033 Raich Carter Way (E)	1202	301	838	1464	0.821	1202	1579	4.5	4.6	14.385	B
3 - Gibraltar Road	195	49	1898	353	0.553	195	141	1.2	1.3	23.959	C
4 - A1033 Raich Carter Way (W)	1650	413	140	3133	0.527	1650	1953	1.1	1.1	2.506	A

08:00 – 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnes Way (N)	840	210	1136	1788	0.470	844	330	1.9	0.9	3.909	A
2 - A1033 Raich Carter Way (E)	982	245	687	1570	0.625	993	1292	4.6	1.8	6.718	A
3 - Gibraltar Road	159	40	1565	593	0.268	163	115	1.3	0.4	8.901	A
4 - A1033 Raich Carter Way (W)	1348	337	116	3150	0.428	1349	1611	1.1	0.8	2.064	A

08:15 – 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnes Way (N)	703	176	950	1940	0.362	704	275	0.9	0.6	2.978	A
2 - A1033 Raich Carter Way (E)	822	206	574	1650	0.498	825	1081	1.8	1.1	4.629	A
3 - Gibraltar Road	133	33	1302	782	0.171	134	97	0.4	0.2	5.875	A
4 - A1033 Raich Carter Way (W)	1129	282	96	3164	0.357	1129	1340	0.8	0.6	1.825	A

Proposed Layout – 2030 Do Nothing, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - Barnes Way (N) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	4 - A1033 Raich Carter Way (W) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Kingswood Roundabout	Standard Roundabout		1, 2, 3, 4	122.26	F

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)	Run automatically
D2	2030 Do Nothing	AM	ONE HOUR	07:00	08:30	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	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Barnes Way (N)		ONE HOUR	✓	1307	100.000
2 - A1033 Raich Carter Way (E)		ONE HOUR	✓	1323	100.000
3 - Gibraltar Road		ONE HOUR	✓	190	100.000
4 - A1033 Raich Carter Way (W)		ONE HOUR	✓	1683	100.000

Origin-Destination Data

Demand (PCU/hr)

	To				
		1 - Barnes Way (N)	2 - A1033 Raich Carter Way (E)	3 - Gibraltar Road	4 - A1033 Raich Carter Way (W)
From	1 - Barnes Way (N)	0	349	63	895
	2 - A1033 Raich Carter Way (E)	107	0	12	1204
	3 - Gibraltar Road	30	44	0	116
	4 - A1033 Raich Carter Way (W)	362	1265	55	1

Vehicle Mix

Heavy Vehicle Percentages

	To				
		1 - Barnes Way (N)	2 - A1033 Raich Carter Way (E)	3 - Gibraltar Road	4 - A1033 Raich Carter Way (W)
From	1 - Barnes Way (N)	0	2	0	1
	2 - A1033 Raich Carter Way (E)	0	0	10	5
	3 - Gibraltar Road	4	11	0	4
	4 - A1033 Raich Carter Way (W)	3	3	4	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Barnes Way (N)	0.96	39.57	14.9	E	1199	1799
2 - A1033 Raich Carter Way (E)	1.14	214.83	97.3	F	1214	1821
3 - Gibraltar Road	1.95	1103.79	58.4	F	174	262
4 - A1033 Raich Carter Way (W)	0.59	2.90	1.5	A	1544	2317

Main Results for each time segment

07:00 – 07:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnes Way (N)	984	246	1025	1878	0.524	980	374	0.0	1.1	4.035	A
2 - A1033 Raich Carter Way (E)	996	249	760	1519	0.656	988	1245	0.0	1.9	6.999	A
3 - Gibraltar Road	143	36	1651	531	0.269	142	97	0.0	0.4	9.723	A
4 - A1033 Raich Carter Way (W)	1267	317	135	3136	0.404	1264	1657	0.0	0.7	1.979	A

07:15 – 07:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnes Way (N)	1175	294	1225	1714	0.686	1171	447	1.1	2.2	6.657	A
2 - A1033 Raich Carter Way (E)	1189	297	908	1414	0.841	1177	1488	1.9	5.0	15.148	C
3 - Gibraltar Road	171	43	1969	302	0.566	167	117	0.4	1.3	27.563	D
4 - A1033 Raich Carter Way (W)	1513	378	160	3118	0.485	1512	1976	0.7	1.0	2.308	A

07:30 – 07:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnes Way (N)	1439	360	1480	1505	0.956	1398	520	2.2	12.3	27.514	D
2 - A1033 Raich Carter Way (E)	1457	364	1087	1289	1.130	1273	1792	5.0	50.9	90.245	F
3 - Gibraltar Road	209	52	2220	121	1.729	118	139	1.3	24.2	453.559	F
4 - A1033 Raich Carter Way (W)	1853	463	149	3126	0.593	1851	2189	1.0	1.5	2.903	A

07:45 – 08:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnes Way (N)	1439	360	1479	1505	0.956	1429	518	12.3	14.9	39.573	E

2 - A1033 Raich Carter Way (E)	1457	364	1109	1273	1.144	1271	1799	50.9	97.3	214.832	F
3 - Gibraltar Road	209	52	2239	107	1.951	107	141	24.2	49.7	1061.737	F
4 - A1033 Raich Carter Way (W)	1853	463	144	3129	0.592	1853	2202	1.5	1.5	2.905	A

08:00 – 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnes Way (N)	1175	294	1221	1718	0.684	1226	458	14.9	2.2	8.158	A
2 - A1033 Raich Carter Way (E)	1189	297	949	1386	0.858	1371	1498	97.3	51.8	196.751	F
3 - Gibraltar Road	171	43	2199	136	1.254	136	121	49.7	58.4	1103.788	F
4 - A1033 Raich Carter Way (W)	1513	378	164	3115	0.486	1515	2171	1.5	1.0	2.321	A

08:15 – 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnes Way (N)	984	246	1081	1832	0.537	988	428	2.2	1.2	4.338	A
2 - A1033 Raich Carter Way (E)	996	249	767	1514	0.658	1195	1303	51.8	2.1	22.164	C
3 - Gibraltar Road	143	36	1862	379	0.377	372	100	58.4	1.2	299.628	F
4 - A1033 Raich Carter Way (W)	1267	317	241	3060	0.414	1268	1992	1.0	0.7	2.072	A

Proposed Layout – 2030 With Development, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - Barnes Way (N) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	4 - A1033 Raich Carter Way (W) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
----------	------	---------------	-----------------------	-----------	--------------------	--------------

1	Kingswood Roundabout	Standard Roundabout		1, 2, 3, 4	131.82	F
---	----------------------	---------------------	--	------------	--------	---

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)	Run automatically
D3	2030 With Development	AM	ONE HOUR	07:00	08:30	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	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Barnes Way (N)		ONE HOUR	✓	1313	100.000
2 - A1033 Raich Carter Way (E)		ONE HOUR	✓	1330	100.000
3 - Gibraltar Road		ONE HOUR	✓	190	100.000
4 - A1033 Raich Carter Way (W)		ONE HOUR	✓	1752	100.000

Origin-Destination Data

Demand (PCU/hr)

	To				
		1 - Barnes Way (N)	2 - A1033 Raich Carter Way (E)	3 - Gibraltar Road	4 - A1033 Raich Carter Way (W)
From	1 - Barnes Way (N)	0	345	62	906
	2 - A1033 Raich Carter Way (E)	106	0	11	1213
	3 - Gibraltar Road	29	43	0	118
	4 - A1033 Raich Carter Way (W)	375	1318	58	1

Vehicle Mix

Heavy Vehicle Percentages

	To				
		1 - Barnes Way (N)	2 - A1033 Raich Carter Way (E)	3 - Gibraltar Road	4 - A1033 Raich Carter Way (W)
From	1 - Barnes Way (N)	0	2	0	1
	2 - A1033 Raich Carter Way (E)	0	0	10	5
	3 - Gibraltar Road	4	11	0	4
	4 - A1033 Raich Carter Way (W)	3	3	4	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Barnes Way (N)	0.99	61.28	24.4	F	1205	1807
2 - A1033 Raich Carter Way (E)	1.15	223.62	101.3	F	1220	1831
3 - Gibraltar Road	1.96	1163.83	60.5	F	174	262
4 - A1033 Raich Carter Way (W)	0.62	3.08	1.6	A	1608	2411

Main Results for each time segment

07:00 –07:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnes Way (N)	988	247	1066	1845	0.536	984	382	0.0	1.2	4.211	A
2 - A1033 Raich Carter Way (E)	1001	250	770	1512	0.662	993	1281	0.0	2.0	7.152	A
3 - Gibraltar Road	143	36	1665	521	0.275	141	98	0.0	0.4	9.974	A
4 - A1033 Raich Carter Way (W)	1319	330	133	3138	0.420	1316	1673	0.0	0.7	2.032	A

07:15 –07:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnes Way (N)	1180	295	1275	1673	0.705	1176	457	1.2	2.4	7.250	A
2 - A1033 Raich Carter Way (E)	1196	299	920	1406	0.850	1182	1531	2.0	5.3	15.946	C
3 - Gibraltar Road	171	43	1985	290	0.588	167	117	0.4	1.4	29.841	D
4 - A1033 Raich Carter Way (W)	1575	394	157	3120	0.505	1574	1994	0.7	1.0	2.395	A

07:30 –07:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnes Way (N)	1446	361	1541	1455	0.994	1384	532	2.4	17.7	36.418	E
2 - A1033 Raich Carter Way (E)	1464	366	1085	1290	1.136	1275	1840	5.3	52.7	93.042	F
3 - Gibraltar Road	209	52	2220	121	1.733	118	140	1.4	24.3	459.016	F

4 - A1033 Raich Carter Way (W)	1929	482	146	3128	0.617	1927	2192	1.0	1.6	3.080	A
--------------------------------	------	-----	-----	------	-------	------	------	-----	-----	-------	---

07:45 –08:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnes Way (N)	1446	361	1540	1455	0.993	1419	530	17.7	24.4	61.282	F
2 - A1033 Raich Carter Way (E)	1464	366	1111	1272	1.152	1270	1848	52.7	101.3	223.619	F
3 - Gibraltar Road	209	52	2240	107	1.956	107	141	24.3	49.9	1092.693	F
4 - A1033 Raich Carter Way (W)	1929	482	142	3131	0.616	1929	2205	1.6	1.6	3.083	A

08:00 –08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnes Way (N)	1180	295	1269	1678	0.703	1268	464	24.4	2.5	10.880	B
2 - A1033 Raich Carter Way (E)	1196	299	988	1358	0.880	1344	1549	101.3	64.1	221.192	F
3 - Gibraltar Road	171	43	2209	129	1.326	129	123	49.9	60.5	1163.825	F
4 - A1033 Raich Carter Way (W)	1575	394	156	3121	0.505	1577	2182	1.6	1.1	2.407	A

08:15 –08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnes Way (N)	988	247	1112	1807	0.547	993	432	2.5	1.2	4.505	A
2 - A1033 Raich Carter Way (E)	1001	250	777	1507	0.664	1249	1328	64.1	2.2	35.959	E
3 - Gibraltar Road	143	36	1925	333	0.429	328	101	60.5	14.3	419.727	F
4 - A1033 Raich Carter Way (W)	1319	330	224	3072	0.429	1320	2029	1.1	0.8	2.117	A

Junctions 9					
ARCADY 9 - Roundabout Module					
Version: 9.5.1.7462 © Copyright TRL Limited, 2019					
For sales and distribution information, program advice and maintenance, contact TRL: +44 (0)1344 379777 software@trl.co.uk www.trlsoftware.co.uk					
The users of this computer program for the solution of an engineering problem are in no way relieved of their responsibility for the correctness of the solution					

Filename: Interim Improvement Scheme PM Peak.j9
Path: Z:\Projects\5913 Dunswell P&R\Data\Modelling\Raich Carter Way_Barnes Way_Gibraltar Way Roundabout\Interim Improvement Scheme
Report generation date: 22/10/2024 11:54:39

- »Proposed Layout –2023 Base, PM
- »Proposed Layout –2030 Do Nothing, PM
- »Proposed Layout –2030 With Development, PM

Summary of junction performance

	PM				
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS
	Proposed Layout - 2023 Base				
1 - Barnes Way (N)	D1	1.0	6.47	0.49	A
2 - A1033 Raich Carter Way (E)		6.7	17.80	0.88	C
3 - Gibraltar Road		1.5	26.09	0.60	D
4 - A1033 Raich Carter Way (W)		3.5	5.95	0.78	A
	Proposed Layout - 2030 Do Nothing				
1 - Barnes Way (N)	D2	3.6	17.74	0.79	C
2 - A1033 Raich Carter Way (E)		92.0	174.55	1.11	F
3 - Gibraltar Road		22.2	363.34	1.22	F
4 - A1033 Raich Carter Way (W)		25.5	35.74	0.98	E
	Proposed Layout - 2030 With Development				
1 - Barnes Way (N)	D3	4.4	21.62	0.83	C
2 - A1033 Raich Carter Way (E)		104.2	196.31	1.13	F
3 - Gibraltar Road		24.3	395.01	1.25	F
4 - A1033 Raich Carter Way (W)		54.1	65.51	1.02	F

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

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

File summary

File Description

Title	J3 A1033 Raich Carter Way/Barnes Way/Gibraltar Road Roundabout Interim Improvement Scheme
Location	Kingswood, Hull
Site number	
Date	16/10/2024
Version	
Status	
Identifier	
Client	Ashcourt
Jobnumber	LTP/5913
Enumerator	LTP\MR\AC
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

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
5.75				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)	Run automatically
D1	2023 Base	PM	ONE HOUR	16:15	17:45	15	✓
D2	2030 Do Nothing	PM	ONE HOUR	16:15	17:45	15	✓
D3	2030 With Development	PM	ONE HOUR	16:15	17:45	15	✓

Analysis Set Details

ID	Name	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	Proposed Layout	✓	100.000	100.000

Proposed Layout –2023 Base, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - Barnes Way (N) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	4 - A1033 Raich Carter Way (W) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Kingswood Roundabout	Standard Roundabout		1, 2, 3, 4	10.86	B

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
1	Barnes Way (N)	
2	A1033 Raich Carter Way (E)	
3	Gibraltar Road	
4	A1033 Raich Carter Way (W)	

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	I' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
1 - Barnes Way (N)	7.16	10.50	50.0	43.4	60.0	23.5	
2 - A1033 Raich Carter Way (E)	7.30	7.30	0.0	41.5	57.0	20.0	
3 - Gibraltar Road	7.23	7.50	17.6	47.2	57.0	19.0	
4 - A1033 Raich Carter Way (W)	7.30	7.60	31.6	44.1	57.0	21.0	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1 - Barnes Way (N)	0.821	3150
2 - A1033 Raich Carter Way (E)	0.705	2345
3 - Gibraltar Road	0.720	2419
4 - A1033 Raich Carter Way (W)	0.720	2433

The slope and intercept shown above include any corrections and adjustments.

Arm Capacity Adjustments

Arm	Type	Reason	Direct capacity adjustment (PCU/hr)
1 - Barnes Way (N)	Direct	Queue Survey	-830
2 - A1033 Raich Carter Way (E)	Direct	Queue Survey	-290
3 - Gibraltar Road	Direct	Queue Survey	-790
4 - A1033 Raich Carter Way (W)	Direct	Queue Survey	480

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)	Run automatically
D1	2023 Base	PM	ONE HOUR	16:15	17:45	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	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Barnes Way (N)		ONE HOUR	✓	496	100.000
2 - A1033 Raich Carter Way (E)		ONE HOUR	✓	1290	100.000
3 - Gibraltar Road		ONE HOUR	✓	191	100.000
4 - A1033 Raich Carter Way (W)		ONE HOUR	✓	1975	100.000

Origin-Destination Data

Demand (PCU/hr)

	To				
		1 - Barnes Way (N)	2 - A1033 Raich Carter Way (E)	3 - Gibraltar Road	4 - A1033 Raich Carter Way (W)
From	1 - Barnes Way (N)	0	54	67	375
	2 - A1033 Raich Carter Way (E)	55	1	55	1179
	3 - Gibraltar Road	52	48	0	91
	4 - A1033 Raich Carter Way (W)	683	1175	114	3

Vehicle Mix

Heavy Vehicle Percentages

	To				
		1 - Barnes Way (N)	2 - A1033 Raich Carter Way (E)	3 - Gibraltar Road	4 - A1033 Raich Carter Way (W)
From	1 - Barnes Way (N)	0	2	0	1
	2 - A1033 Raich Carter Way (E)	0	0	4	2
	3 - Gibraltar Road	0	9	0	3
	4 - A1033 Raich Carter Way (W)	0	3	2	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Barnes Way (N)	0.49	6.47	1.0	A	455	683
2 - A1033 Raich Carter Way (E)	0.88	17.80	6.7	C	1184	1776
3 - Gibraltar Road	0.60	26.09	1.5	D	175	263
4 - A1033 Raich Carter Way (W)	0.78	5.95	3.5	A	1812	2718

Main Results for each time segment

16:15 – 16:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnes Way (N)	373	93	1006	1494	0.250	372	593	0.0	0.3	3.236	A
2 - A1033 Raich Carter Way (E)	971	243	419	1759	0.552	966	959	0.0	1.2	4.603	A
3 - Gibraltar Road	144	36	1209	759	0.189	143	177	0.0	0.2	6.042	A
4 - A1033 Raich Carter Way (W)	1487	372	117	2829	0.526	1482	1235	0.0	1.1	2.714	A

16:30 – 16:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnes Way (N)	446	111	1204	1332	0.335	445	709	0.3	0.5	4.098	A
2 - A1033 Raich Carter Way (E)	1160	290	502	1701	0.682	1156	1147	1.2	2.1	6.695	A
3 - Gibraltar Road	172	43	1446	588	0.292	171	212	0.2	0.4	8.924	A
4 - A1033 Raich Carter Way (W)	1775	444	140	2813	0.631	1773	1477	1.1	1.7	3.520	A

16:45 – 17:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnes Way (N)	546	137	1471	1112	0.491	544	866	0.5	1.0	6.378	A
2 - A1033 Raich Carter Way (E)	1420	355	613	1622	0.876	1404	1402	2.1	6.3	15.727	C
3 - Gibraltar Road	210	53	1759	363	0.579	207	258	0.4	1.3	23.309	C
4 - A1033 Raich Carter Way (W)	2175	544	169	2792	0.779	2167	1796	1.7	3.5	5.809	A

17:00 – 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnes Way (N)	546	137	1476	1108	0.493	546	870	1.0	1.0	6.468	A
2 - A1033 Raich Carter Way (E)	1420	355	615	1621	0.876	1419	1407	6.3	6.7	17.804	C
3 - Gibraltar Road	210	53	1774	352	0.598	210	260	1.3	1.5	26.087	D
4 - A1033 Raich Carter Way (W)	2175	544	171	2790	0.779	2174	1813	3.5	3.5	5.951	A

17:15 – 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnes Way (N)	446	111	1211	1326	0.336	448	715	1.0	0.5	4.149	A
2 - A1033 Raich Carter Way (E)	1160	290	505	1699	0.683	1178	1154	6.7	2.2	7.269	A
3 - Gibraltar Road	172	43	1469	572	0.300	176	214	1.5	0.5	9.505	A
4 - A1033 Raich Carter Way (W)	1775	444	143	2810	0.632	1783	1501	3.5	1.8	3.592	A

17:30 – 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnes Way (N)	373	93	1011	1490	0.251	374	596	0.5	0.3	3.259	A
2 - A1033 Raich Carter Way (E)	971	243	422	1757	0.553	975	964	2.2	1.3	4.717	A
3 - Gibraltar Road	144	36	1219	752	0.191	145	178	0.5	0.2	6.150	A
4 - A1033 Raich Carter Way (W)	1487	372	118	2828	0.526	1489	1245	1.8	1.1	2.743	A

Proposed Layout – 2030 Do Nothing, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - Barnes Way (N) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	4 - A1033 Raich Carter Way (W) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Kingswood Roundabout	Standard Roundabout		1, 2, 3, 4	90.78	F

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)	Run automatically
D2	2030 Do Nothing	PM	ONE HOUR	16:15	17:45	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	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Barnes Way (N)		ONE HOUR	✓	689	100.000
2 - A1033 Raich Carter Way (E)		ONE HOUR	✓	1530	100.000
3 - Gibraltar Road		ONE HOUR	✓	203	100.000
4 - A1033 Raich Carter Way (W)		ONE HOUR	✓	2420	100.000

Origin-Destination Data

Demand (PCU/hr)

	To				
		1 - Barnes Way (N)	2 - A1033 Raich Carter Way (E)	3 - Gibraltar Road	4 - A1033 Raich Carter Way (W)
From	1 - Barnes Way (N)	0	120	72	497
	2 - A1033 Raich Carter Way (E)	175	1	58	1296
	3 - Gibraltar Road	57	51	0	95
	4 - A1033 Raich Carter Way (W)	943	1354	120	3

Vehicle Mix

Heavy Vehicle Percentages

	To				
		1 - Barnes Way (N)	2 - A1033 Raich Carter Way (E)	3 - Gibraltar Road	4 - A1033 Raich Carter Way (W)
From	1 - Barnes Way (N)	0	1	0	0
	2 - A1033 Raich Carter Way (E)	0	0	4	2
	3 - Gibraltar Road	0	9	0	3
	4 - A1033 Raich Carter Way (W)	0	3	2	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Barnes Way (N)	0.79	17.74	3.6	C	632	948
2 - A1033 Raich Carter Way (E)	1.11	174.55	92.0	F	1404	2106
3 - Gibraltar Road	1.22	363.34	22.2	F	186	279
4 - A1033 Raich Carter Way (W)	0.98	35.74	25.5	E	2221	3331

Main Results for each time segment

16:15 – 16:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnes Way (N)	519	130	1146	1379	0.376	516	880	0.0	0.6	4.167	A
2 - A1033 Raich Carter Way (E)	1152	288	519	1689	0.682	1143	1144	0.0	2.1	6.617	A
3 - Gibraltar Road	153	38	1475	568	0.269	151	187	0.0	0.4	8.925	A
4 - A1033 Raich Carter Way (W)	1822	455	212	2761	0.660	1814	1414	0.0	1.9	3.839	A

16:30 – 16:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnes Way (N)	619	155	1369	1196	0.518	618	1051	0.6	1.1	6.216	A
2 - A1033 Raich Carter Way (E)	1375	344	620	1618	0.850	1363	1367	2.1	5.3	13.765	B
3 - Gibraltar Road	182	46	1759	363	0.503	180	224	0.4	1.0	20.148	C
4 - A1033 Raich Carter Way (W)	2176	544	253	2732	0.796	2168	1687	1.9	3.8	6.412	A

16:45 – 17:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnes Way (N)	759	190	1633	979	0.775	750	1236	1.1	3.2	15.227	C
2 - A1033 Raich Carter Way (E)	1685	421	752	1525	1.105	1506	1632	5.3	50.0	76.163	F
3 - Gibraltar Road	224	56	1993	195	1.149	181	264	1.0	11.6	160.539	F
4 - A1033 Raich Carter Way (W)	2664	666	270	2719	0.980	2600	1904	3.8	19.9	23.340	C

17:00 – 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnes Way (N)	759	190	1659	958	0.792	757	1254	3.2	3.6	17.741	C

2 - A1033 Raich Carter Way (E)	1685	421	760	1519	1.109	1517	1657	50.0	92.0	174.553	F
3 - Gibraltar Road	224	56	2009	183	1.220	181	268	11.6	22.2	363.344	F
4 - A1033 Raich Carter Way (W)	2664	666	271	2719	0.980	2642	1919	19.9	25.5	35.744	E

17:15 – 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnes Way (N)	619	155	1430	1146	0.541	629	1118	3.6	1.2	7.104	A
2 - A1033 Raich Carter Way (E)	1375	344	634	1608	0.856	1590	1425	92.0	38.3	149.818	F
3 - Gibraltar Road	182	46	1986	199	0.915	199	238	22.2	18.0	356.216	F
4 - A1033 Raich Carter Way (W)	2176	544	289	2705	0.804	2260	1897	25.5	4.4	9.731	A

17:30 – 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnes Way (N)	519	130	1174	1356	0.383	521	924	1.2	0.6	4.330	A
2 - A1033 Raich Carter Way (E)	1152	288	523	1686	0.683	1296	1172	38.3	2.3	13.573	B
3 - Gibraltar Road	153	38	1625	459	0.333	223	194	18.0	0.5	21.228	C
4 - A1033 Raich Carter Way (W)	1822	455	268	2721	0.670	1831	1580	4.4	2.1	4.158	A

Proposed Layout – 2030 With Development, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - Barnes Way (N) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	4 - A1033 Raich Carter Way (W) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
----------	------	---------------	-----------------------	-----------	--------------------	--------------

1	Kingswood Roundabout	Standard Roundabout		1, 2, 3, 4	113.67	F
---	----------------------	---------------------	--	------------	--------	---

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)	Run automatically
D3	2030 With Development	PM	ONE HOUR	16:15	17:45	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	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Barnes Way (N)		ONE HOUR	✓	694	100.000
2 - A1033 Raich Carter Way (E)		ONE HOUR	✓	1547	100.000
3 - Gibraltar Road		ONE HOUR	✓	205	100.000
4 - A1033 Raich Carter Way (W)		ONE HOUR	✓	2525	100.000

Origin-Destination Data

Demand (PCU/hr)

	To				
		1 - Barnes Way (N)	2 - A1033 Raich Carter Way (E)	3 - Gibraltar Road	4 - A1033 Raich Carter Way (W)
From	1 - Barnes Way (N)	0	119	71	504
	2 - A1033 Raich Carter Way (E)	174	1	57	1315
	3 - Gibraltar Road	56	50	0	99
	4 - A1033 Raich Carter Way (W)	979	1417	126	3

Vehicle Mix

Heavy Vehicle Percentages

	To				
		1 - Barnes Way (N)	2 - A1033 Raich Carter Way (E)	3 - Gibraltar Road	4 - A1033 Raich Carter Way (W)
From	1 - Barnes Way (N)	0	1	0	0
	2 - A1033 Raich Carter Way (E)	0	0	4	3
	3 - Gibraltar Road	0	9	0	3
	4 - A1033 Raich Carter Way (W)	0	2	2	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Barnes Way (N)	0.83	21.62	4.4	C	637	955
2 - A1033 Raich Carter Way (E)	1.13	196.31	104.2	F	1420	2129
3 - Gibraltar Road	1.25	395.01	24.3	F	188	282
4 - A1033 Raich Carter Way (W)	1.02	65.51	54.1	F	2317	3475

Main Results for each time segment

16:15 – 16:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnes Way (N)	522	131	1197	1338	0.391	520	905	0.0	0.6	4.397	A
2 - A1033 Raich Carter Way (E)	1165	291	527	1683	0.692	1156	1189	0.0	2.3	6.898	A
3 - Gibraltar Road	154	39	1493	554	0.278	153	190	0.0	0.4	9.244	A
4 - A1033 Raich Carter Way (W)	1901	475	210	2762	0.688	1892	1436	0.0	2.2	4.146	A

16:30 – 16:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnes Way (N)	624	156	1429	1147	0.544	622	1081	0.6	1.2	6.840	A
2 - A1033 Raich Carter Way (E)	1391	348	631	1610	0.864	1377	1420	2.3	5.8	14.976	B
3 - Gibraltar Road	184	46	1780	348	0.530	181	227	0.4	1.1	22.043	C
4 - A1033 Raich Carter Way (W)	2270	567	250	2734	0.830	2260	1712	2.2	4.7	7.529	A

16:45 – 17:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnes Way (N)	764	191	1674	946	0.808	754	1250	1.2	3.8	17.880	C
2 - A1033 Raich Carter Way (E)	1703	426	760	1519	1.121	1503	1667	5.8	55.9	83.956	F
3 - Gibraltar Road	226	56	1998	191	1.182	179	265	1.1	12.7	174.576	F

4 - A1033 Raich Carter Way (W)	2780	695	263	2724	1.020	2661	1914	4.7	34.5	34.333	D
--------------------------------	------	-----	-----	------	-------	------	------	-----	------	--------	---

17:00 – 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnes Way (N)	764	191	1699	925	0.826	762	1266	3.8	4.4	21.624	C
2 - A1033 Raich Carter Way (E)	1703	426	769	1512	1.126	1510	1692	55.9	104.2	196.306	F
3 - Gibraltar Road	226	56	2011	181	1.245	179	268	12.7	24.3	395.012	F
4 - A1033 Raich Carter Way (W)	2780	695	264	2724	1.021	2702	1927	34.5	54.1	65.507	F

17:15 – 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnes Way (N)	624	156	1558	1041	0.599	635	1187	4.4	1.5	9.129	A
2 - A1033 Raich Carter Way (E)	1391	348	652	1595	0.872	1579	1541	104.2	57.0	184.861	F
3 - Gibraltar Road	184	46	1985	200	0.922	200	246	24.3	20.4	390.826	F
4 - A1033 Raich Carter Way (W)	2270	567	282	2710	0.838	2463	1903	54.1	5.7	24.607	C

17:30 – 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnes Way (N)	522	131	1230	1310	0.399	526	961	1.5	0.7	4.618	A
2 - A1033 Raich Carter Way (E)	1165	291	534	1679	0.694	1383	1222	57.0	2.4	25.499	D
3 - Gibraltar Road	154	39	1716	394	0.392	233	200	20.4	0.7	37.144	E
4 - A1033 Raich Carter Way (W)	1901	475	277	2714	0.700	1914	1672	5.7	2.4	4.628	A

Junctions 9					
ARCADY 9 - Roundabout Module					
Version: 9.5.1.7462 © Copyright TRL Limited, 2019					
For sales and distribution information, program advice and maintenance, contact TRL: +44 (0)1344 379777 software@trl.co.uk www.trlsoftware.co.uk					
The users of this computer program for the solution of an engineering problem are in no way relieved of their responsibility for the correctness of the solution					

Filename: Interim Improvement Scheme SAT Peak.j9
Path: Z:\Projects\5913 Dunswell P&R\Data\Modelling\Raich Carter Way_Barnes Way_Gibraltar Way Roundabout\Interim Improvement Scheme
Report generation date: 22/10/2024 11:55:28

»Proposed Layout –2023 Existing, SAT
»Proposed Layout –2030 Do Nothing, SAT
»Proposed Layout –2030 With Development, SAT

Summary of junction performance

	SAT				
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS
	Proposed Layout - 2023 Existing				
1 - Barnes Way (N)	D1	1.0	6.05	0.49	A
2 - A1033 Raich Carter Way (E)		2.7	10.38	0.73	B
3 - Gibraltar Road		1.6	18.64	0.62	C
4 - A1033 Raich Carter Way (W)		1.7	3.88	0.63	A
	Proposed Layout - 2030 Do Nothing				
1 - Barnes Way (N)	D2	4.2	17.97	0.82	C
2 - A1033 Raich Carter Way (E)		30.9	91.16	1.02	F
3 - Gibraltar Road		49.5	495.45	1.43	F
4 - A1033 Raich Carter Way (W)		3.3	6.33	0.77	A
	Proposed Layout - 2030 With Development				
1 - Barnes Way (N)	D3	8.6	37.43	0.91	E
2 - A1033 Raich Carter Way (E)		47.5	129.89	1.07	F
3 - Gibraltar Road		56.2	605.97	1.48	F
4 - A1033 Raich Carter Way (W)		5.1	9.04	0.84	A

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

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

File summary

File Description

Title	J3 A1033 Raich Carter Way/Barnes Way/Gibraltar Road Roundabout Interim Improvement Scheme
Location	Kingswood, Hull
Site number	
Date	16/10/2024
Version	
Status	
Identifier	
Client	Ashcourt
Jobnumber	LTP/5913
Enumerator	LTP\MR\AC
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

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
5.75				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)	Run automatically
D1	2023 Existing	SAT	ONE HOUR	12:00	13:30	15	✓
D2	2030 Do Nothing	SAT	ONE HOUR	12:00	13:30	15	✓
D3	2030 With Development	SAT	ONE HOUR	12:00	13:30	15	✓

Analysis Set Details

ID	Name	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	Proposed Layout	✓	100.000	100.000

Proposed Layout –2023 Existing, SAT

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - Barnes Way (N) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	4 - A1033 Raich Carter Way (W) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Kingswood Roundabout	Standard Roundabout		1, 2, 3, 4	7.46	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
1	Barnes Way (N)	
2	A1033 Raich Carter Way (E)	
3	Gibraltar Road	
4	A1033 Raich Carter Way (W)	

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	I' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
1 - Barnes Way (N)	7.16	10.50	50.0	43.4	60.0	23.5	
2 - A1033 Raich Carter Way (E)	7.30	7.30	0.0	41.5	57.0	20.0	
3 - Gibraltar Road	7.23	7.50	17.6	47.2	57.0	19.0	
4 - A1033 Raich Carter Way (W)	7.30	7.60	31.6	44.1	57.0	21.0	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1 - Barnes Way (N)	0.821	3150
2 - A1033 Raich Carter Way (E)	0.705	2345
3 - Gibraltar Road	0.720	2419
4 - A1033 Raich Carter Way (W)	0.720	2433

The slope and intercept shown above include any corrections and adjustments.

Arm Capacity Adjustments

Arm	Type	Reason	Direct capacity adjustment (PCU/hr)
1 - Barnes Way (N)	Direct	Queue Survey	-1050
2 - A1033 Raich Carter Way (E)	Direct	Queue Survey	-550
3 - Gibraltar Road	Direct	Queue Survey	-900
4 - A1033 Raich Carter Way (W)	Direct	Queue Survey	200

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)	Run automatically
D1	2023 Existing	SAT	ONE HOUR	12:00	13:30	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	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Barnes Way (N)		ONE HOUR	✓	520	100.000
2 - A1033 Raich Carter Way (E)		ONE HOUR	✓	868	100.000
3 - Gibraltar Road		ONE HOUR	✓	293	100.000
4 - A1033 Raich Carter Way (W)		ONE HOUR	✓	1421	100.000

Origin-Destination Data

Demand (PCU/hr)

	To				
		1 - Barnes Way (N)	2 - A1033 Raich Carter Way (E)	3 - Gibraltar Road	4 - A1033 Raich Carter Way (W)
From	1 - Barnes Way (N)	0	45	43	432
	2 - A1033 Raich Carter Way (E)	31	0	40	797
	3 - Gibraltar Road	78	61	0	154
	4 - A1033 Raich Carter Way (W)	450	816	154	1

Vehicle Mix

Heavy Vehicle Percentages

	To				
		1 - Barnes Way (N)	2 - A1033 Raich Carter Way (E)	3 - Gibraltar Road	4 - A1033 Raich Carter Way (W)
From	1 - Barnes Way (N)	0	0	0	0
	2 - A1033 Raich Carter Way (E)	0	0	5	1
	3 - Gibraltar Road	0	5	0	3
	4 - A1033 Raich Carter Way (W)	0	1	1	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Barnes Way (N)	0.49	6.05	1.0	A	477	716
2 - A1033 Raich Carter Way (E)	0.73	10.38	2.7	B	796	1195
3 - Gibraltar Road	0.62	18.64	1.6	C	269	403
4 - A1033 Raich Carter Way (W)	0.63	3.88	1.7	A	1304	1956

Main Results for each time segment

12:00 – 12:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnes Way (N)	391	98	775	1464	0.267	390	419	0.0	0.4	3.347	A
2 - A1033 Raich Carter Way (E)	653	163	473	1462	0.447	650	692	0.0	0.8	4.470	A
3 - Gibraltar Road	221	55	945	839	0.263	219	178	0.0	0.4	5.946	A
4 - A1033 Raich Carter Way (W)	1070	267	127	2542	0.421	1067	1037	0.0	0.7	2.452	A

12:15 – 12:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnes Way (N)	467	117	927	1339	0.349	467	502	0.4	0.5	4.120	A
2 - A1033 Raich Carter Way (E)	780	195	566	1396	0.559	779	828	0.8	1.3	5.878	A
3 - Gibraltar Road	263	66	1131	705	0.374	262	213	0.4	0.6	8.331	A
4 - A1033 Raich Carter Way (W)	1277	319	152	2524	0.506	1276	1241	0.7	1.0	2.902	A

12:30 – 12:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnes Way (N)	573	143	1134	1169	0.490	571	613	0.5	0.9	5.999	A
2 - A1033 Raich Carter Way (E)	956	239	692	1307	0.731	950	1013	1.3	2.6	10.049	B
3 - Gibraltar Road	323	81	1382	524	0.615	319	260	0.6	1.6	17.637	C
4 - A1033 Raich Carter Way (W)	1565	391	185	2500	0.626	1562	1515	1.0	1.7	3.851	A

12:45 – 13:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnes Way (N)	573	143	1136	1167	0.491	572	615	0.9	1.0	6.053	A
2 - A1033 Raich Carter Way (E)	956	239	694	1306	0.732	955	1015	2.6	2.7	10.375	B
3 - Gibraltar Road	323	81	1388	520	0.621	322	261	1.6	1.6	18.641	C
4 - A1033 Raich Carter Way (W)	1565	391	187	2499	0.626	1565	1523	1.7	1.7	3.879	A

13:00 – 13:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnes Way (N)	467	117	930	1336	0.350	469	505	1.0	0.5	4.159	A
2 - A1033 Raich Carter Way (E)	780	195	568	1394	0.560	786	831	2.7	1.3	6.041	A
3 - Gibraltar Road	263	66	1140	698	0.377	267	214	1.6	0.6	8.647	A
4 - A1033 Raich Carter Way (W)	1277	319	155	2522	0.507	1280	1253	1.7	1.0	2.923	A

13:15 – 13:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnes Way (N)	391	98	778	1461	0.268	392	422	0.5	0.4	3.368	A
2 - A1033 Raich Carter Way (E)	653	163	475	1460	0.448	655	695	1.3	0.8	4.536	A
3 - Gibraltar Road	221	55	952	834	0.264	222	179	0.6	0.4	6.039	A
4 - A1033 Raich Carter Way (W)	1070	267	129	2541	0.421	1071	1045	1.0	0.7	2.469	A

Proposed Layout – 2030 Do Nothing, SAT

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - Barnes Way (N) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	4 - A1033 Raich Carter Way (W) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Kingswood Roundabout	Standard Roundabout		1, 2, 3, 4	70.99	F

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)	Run automatically
D2	2030 Do Nothing	SAT	ONE HOUR	12:00	13:30	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	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Barnes Way (N)		ONE HOUR	✓	794	100.000
2 - A1033 Raich Carter Way (E)		ONE HOUR	✓	1062	100.000
3 - Gibraltar Road		ONE HOUR	✓	312	100.000
4 - A1033 Raich Carter Way (W)		ONE HOUR	✓	1728	100.000

Origin-Destination Data

Demand (PCU/hr)

	To				
		1 - Barnes Way (N)	2 - A1033 Raich Carter Way (E)	3 - Gibraltar Road	4 - A1033 Raich Carter Way (W)
From	1 - Barnes Way (N)	0	116	47	631
	2 - A1033 Raich Carter Way (E)	99	0	42	921
	3 - Gibraltar Road	85	65	0	162
	4 - A1033 Raich Carter Way (W)	636	929	162	1

Vehicle Mix

Heavy Vehicle Percentages

	To				
		1 - Barnes Way (N)	2 - A1033 Raich Carter Way (E)	3 - Gibraltar Road	4 - A1033 Raich Carter Way (W)
From	1 - Barnes Way (N)	0	0	0	0
	2 - A1033 Raich Carter Way (E)	0	0	5	1
	3 - Gibraltar Road	0	5	0	3
	4 - A1033 Raich Carter Way (W)	0	1	1	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Barnes Way (N)	0.82	17.97	4.2	C	729	1093
2 - A1033 Raich Carter Way (E)	1.02	91.16	30.9	F	975	1462
3 - Gibraltar Road	1.43	495.45	49.5	F	286	429
4 - A1033 Raich Carter Way (W)	0.77	6.33	3.3	A	1586	2378

Main Results for each time segment

12:00 – 12:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnes Way (N)	598	149	868	1388	0.431	595	615	0.0	0.8	4.523	A
2 - A1033 Raich Carter Way (E)	800	200	630	1350	0.592	794	832	0.0	1.4	6.470	A
3 - Gibraltar Road	235	59	1236	630	0.373	232	188	0.0	0.6	9.245	A
4 - A1033 Raich Carter Way (W)	1301	325	186	2500	0.520	1297	1283	0.0	1.1	3.000	A

12:15 – 12:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnes Way (N)	714	178	1038	1248	0.572	712	735	0.8	1.3	6.683	A
2 - A1033 Raich Carter Way (E)	955	239	754	1263	0.756	949	995	1.4	3.0	11.341	B
3 - Gibraltar Road	280	70	1477	456	0.616	277	225	0.6	1.6	20.223	C
4 - A1033 Raich Carter Way (W)	1553	388	221	2474	0.628	1551	1533	1.1	1.7	3.915	A

12:30 – 12:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnes Way (N)	874	219	1251	1073	0.815	863	870	1.3	4.0	16.434	C
2 - A1033 Raich Carter Way (E)	1169	292	916	1149	1.018	1102	1199	3.0	19.8	49.367	E
3 - Gibraltar Road	344	86	1746	262	1.309	255	272	1.6	23.8	209.641	F
4 - A1033 Raich Carter Way (W)	1903	476	225	2471	0.770	1896	1775	1.7	3.3	6.229	A

12:45 – 13:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnes Way (N)	874	219	1252	1072	0.816	873	871	4.0	4.2	17.968	C

2 - A1033 Raich Carter Way (E)	1169	292	925	1142	1.023	1125	1200	19.8	30.9	91.162	F
3 - Gibraltar Road	344	86	1776	241	1.426	240	275	23.8	49.5	495.454	F
4 - A1033 Raich Carter Way (W)	1903	476	220	2475	0.769	1902	1796	3.3	3.3	6.325	A

13:00 – 13:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnes Way (N)	714	178	1061	1229	0.581	725	771	4.2	1.4	7.292	A
2 - A1033 Raich Carter Way (E)	955	239	766	1255	0.761	1064	1019	30.9	3.5	28.988	D
3 - Gibraltar Road	280	70	1599	368	0.763	360	231	49.5	29.6	373.689	F
4 - A1033 Raich Carter Way (W)	1553	388	272	2437	0.637	1559	1687	3.3	1.8	4.154	A

13:15 – 13:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnes Way (N)	598	149	897	1364	0.438	600	651	1.4	0.8	4.729	A
2 - A1033 Raich Carter Way (E)	800	200	636	1347	0.594	807	862	3.5	1.5	6.840	A
3 - Gibraltar Road	235	59	1253	617	0.381	351	190	29.6	0.6	22.045	C
4 - A1033 Raich Carter Way (W)	1301	325	244	2458	0.529	1304	1360	1.8	1.1	3.144	A

Proposed Layout – 2030 With Development, SAT

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - Barnes Way (N) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	4 - A1033 Raich Carter Way (W) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
----------	------	---------------	-----------------------	-----------	--------------------	--------------

1	Kingswood Roundabout	Standard Roundabout		1, 2, 3, 4	92.95	F
---	----------------------	---------------------	--	------------	-------	---

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)	Run automatically
D3	2030 With Development	SAT	ONE HOUR	12:00	13:30	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	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Barnes Way (N)		ONE HOUR	✓	807	100.000
2 - A1033 Raich Carter Way (E)		ONE HOUR	✓	1085	100.000
3 - Gibraltar Road		ONE HOUR	✓	319	100.000
4 - A1033 Raich Carter Way (W)		ONE HOUR	✓	1894	100.000

Origin-Destination Data

Demand (PCU/hr)

	To				
		1 - Barnes Way (N)	2 - A1033 Raich Carter Way (E)	3 - Gibraltar Road	4 - A1033 Raich Carter Way (W)
From	1 - Barnes Way (N)	0	114	45	648
	2 - A1033 Raich Carter Way (E)	98	0	41	946
	3 - Gibraltar Road	82	62	0	175
	4 - A1033 Raich Carter Way (W)	687	1027	179	1

Vehicle Mix

Heavy Vehicle Percentages

	To				
		1 - Barnes Way (N)	2 - A1033 Raich Carter Way (E)	3 - Gibraltar Road	4 - A1033 Raich Carter Way (W)
From	1 - Barnes Way (N)	0	0	0	0
	2 - A1033 Raich Carter Way (E)	0	0	5	1
	3 - Gibraltar Road	0	5	0	3
	4 - A1033 Raich Carter Way (W)	0	1	1	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Barnes Way (N)	0.91	37.43	8.6	E	741	1111
2 - A1033 Raich Carter Way (E)	1.07	129.89	47.5	F	996	1493
3 - Gibraltar Road	1.48	605.97	56.2	F	293	439
4 - A1033 Raich Carter Way (W)	0.84	9.04	5.1	A	1738	2607

Main Results for each time segment

12:00 – 12:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnes Way (N)	608	152	951	1319	0.461	604	650	0.0	0.8	5.015	A
2 - A1033 Raich Carter Way (E)	817	204	654	1334	0.612	811	902	0.0	1.6	6.874	A
3 - Gibraltar Road	240	60	1266	608	0.395	238	199	0.0	0.7	9.904	A
4 - A1033 Raich Carter Way (W)	1426	356	180	2504	0.570	1421	1323	0.0	1.3	3.329	A

12:15 – 12:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnes Way (N)	725	181	1138	1166	0.622	722	776	0.8	1.6	8.060	A
2 - A1033 Raich Carter Way (E)	975	244	782	1244	0.784	968	1078	1.6	3.5	12.852	B
3 - Gibraltar Road	287	72	1512	431	0.666	282	237	0.7	1.9	24.087	C
4 - A1033 Raich Carter Way (W)	1703	426	215	2479	0.687	1699	1579	1.3	2.2	4.626	A

12:30 – 12:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnes Way (N)	889	222	1370	975	0.911	865	916	1.6	7.4	28.351	D
2 - A1033 Raich Carter Way (E)	1195	299	940	1132	1.055	1100	1295	3.5	27.0	62.337	F
3 - Gibraltar Road	351	88	1755	256	1.372	250	286	1.9	27.2	241.289	F

4 - A1033 Raich Carter Way (W)	2085	521	212	2481	0.841	2074	1792	2.2	5.0	8.674	A
--------------------------------	------	-----	-----	------	-------	------	------	-----	-----	-------	---

12:45 – 13:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnes Way (N)	889	222	1375	971	0.915	884	917	7.4	8.6	37.428	E
2 - A1033 Raich Carter Way (E)	1195	299	957	1120	1.067	1113	1301	27.0	47.5	129.890	F
3 - Gibraltar Road	351	88	1781	237	1.484	236	288	27.2	55.9	605.968	F
4 - A1033 Raich Carter Way (W)	2085	521	207	2484	0.839	2085	1811	5.0	5.1	9.042	A

13:00 – 13:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnes Way (N)	725	181	1148	1158	0.627	753	799	8.6	1.7	9.487	A
2 - A1033 Raich Carter Way (E)	975	244	810	1224	0.797	1146	1091	47.5	4.7	70.194	F
3 - Gibraltar Road	287	72	1709	289	0.992	286	247	55.9	56.2	569.713	F
4 - A1033 Raich Carter Way (W)	1703	426	233	2466	0.690	1714	1762	5.1	2.3	4.887	A

13:15 – 13:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnes Way (N)	608	152	1001	1279	0.475	611	712	1.7	0.9	5.416	A
2 - A1033 Raich Carter Way (E)	817	204	660	1329	0.615	829	951	4.7	1.6	7.445	A
3 - Gibraltar Road	240	60	1289	591	0.406	462	200	56.2	0.7	107.337	F
4 - A1033 Raich Carter Way (W)	1426	356	283	2429	0.587	1429	1468	2.3	1.4	3.636	A

Appendix 15 – J4 Capacity Assessment – Improvement Scheme

Junctions 9
ARCADY 9 - Roundabout Module
Version: 9.5.1.7462 © Copyright TRL Limited, 2019
For sales and distribution information, program advice and maintenance, contact TRL: +44 (0)1344 379777 software@trl.co.uk www.trlsoftware.co.uk
The users of this computer program for the solution of an engineering problem are in no way relieved of their responsibility for the correctness of the solution

Filename: Full Improvement Scheme AM Peak.j9
Path: Z:\Projects\5913 Dunswell P&R\Data\Modelling\Raich Carter Way_Barnes Way_Gibraltar Way Roundabout\Full Improvement Scheme
Report generation date: 22/10/2024 11:47:05

»Proposed Layout –2030 Do Nothing, AM
»Proposed Layout –2030 With Development, AM

Summary of junction performance

	AM				
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS
	Proposed Layout - 2030 Do Nothing				
1 - Barnes Way (N)	D1	13.3	35.46	0.95	E
2 - A1033 Raich Carter Way (E)		3.5	8.74	0.77	A
3 - Gibraltar Road		88.8	9793.82	8.51	F
4 - A1033 Raich Carter Way (W)		0.8	1.58	0.44	A
	Proposed Layout - 2030 With Development				
1 - Barnes Way (N)	D2	21.1	54.18	0.98	F
2 - A1033 Raich Carter Way (E)		3.6	8.98	0.78	A
3 - Gibraltar Road		92.4	15632.90	13.10	F
4 - A1033 Raich Carter Way (W)		0.9	1.63	0.46	A

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

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

File summary

File Description

Title	J3 A1033 Raich Carter Way/Barnes Way/Gibraltar Road Roundabout Full Improvement Scheme
Location	Kingswood, Hull
Site number	
Date	16/10/2024
Version	

Status	
Identifier	
Client	Ashcourt
Jobnumber	LTP/5913
Enumerator	LTP\MRVAC
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

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
5.75				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)	Run automatically
D1	2030 Do Nothing	AM	ONE HOUR	07:15	08:45	15	✓
D2	2030 With Development	AM	ONE HOUR	07:15	08:45	15	✓

Analysis Set Details

ID	Name	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	Proposed Layout	✓	100.000	100.000

Proposed Layout – 2030 Do Nothing, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - Barnes Way (N) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	2 - A1033 Raich Carter Way (E) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	4 - A1033 Raich Carter Way (W) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Kingswood Roundabout	Standard Roundabout		1, 2, 3, 4	426.69	F

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
1	Barnes Way (N)	
2	A1033 Raich Carter Way (E)	
3	Gibraltar Road	
4	A1033 Raich Carter Way (W)	

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	I' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
1 - Barnes Way (N)	7.16	10.50	50.0	43.4	60.0	23.5	
2 - A1033 Raich Carter Way (E)	7.30	10.00	47.0	41.5	60.0	20.0	
3 - Gibraltar Road	7.23	7.50	17.6	47.2	60.0	19.0	
4 - A1033 Raich Carter Way (W)	7.30	12.00	62.0	44.1	60.0	24.0	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1 - Barnes Way (N)	0.821	3150
2 - A1033 Raich Carter Way (E)	0.811	3077
3 - Gibraltar Road	0.699	2419
4 - A1033 Raich Carter Way (W)	0.884	3518

The slope and intercept shown above include any corrections and adjustments.

Arm Capacity Adjustments

Arm	Type	Reason	Direct capacity adjustment (PCU/hr)
1 - Barnes Way (N)	Direct	Queue survey	-430
2 - A1033 Raich Carter Way (E)	Direct	Queue Survey	-290
3 - Gibraltar Road	Direct	Queue Survey	-700
4 - A1033 Raich Carter Way (W)	Direct	Queue Survey	800

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)	Run automatically
D1	2030 Do Nothing	AM	ONE HOUR	07:15	08:45	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	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Barnes Way (N)		ONE HOUR	✓	1307	100.000
2 - A1033 Raich Carter Way (E)		ONE HOUR	✓	1323	100.000
3 - Gibraltar Road		ONE HOUR	✓	190	100.000
4 - A1033 Raich Carter Way (W)		ONE HOUR	✓	1683	100.000

Origin-Destination Data

Demand (PCU/hr)

	To				
		1 - Barnes Way (N)	2 - A1033 Raich Carter Way (E)	3 - Gibraltar Road	4 - A1033 Raich Carter Way (W)
From	1 - Barnes Way (N)	0	349	63	895
	2 - A1033 Raich Carter Way (E)	107	0	12	1204
	3 - Gibraltar Road	30	44	0	116
	4 - A1033 Raich Carter Way (W)	362	1265	55	1

Vehicle Mix

Heavy Vehicle Percentages

	To				
		1 - Barnes Way (N)	2 - A1033 Raich Carter Way (E)	3 - Gibraltar Road	4 - A1033 Raich Carter Way (W)
From	1 - Barnes Way (N)	0	2	0	1
	2 - A1033 Raich Carter Way (E)	0	0	10	5
	3 - Gibraltar Road	4	11	0	4
	4 - A1033 Raich Carter Way (W)	3	3	4	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Barnes Way (N)	0.95	35.46	13.3	E	1199	1799
2 - A1033 Raich Carter Way (E)	0.77	8.74	3.5	A	1214	1821
3 - Gibraltar Road	8.51	9793.82	88.8	F	174	262
4 - A1033 Raich Carter Way (W)	0.44	1.58	0.8	A	1544	2317

Main Results for each time segment

07:15–07:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnes Way (N)	984	246	1026	1878	0.524	980	375	0.0	1.1	4.038	A
2 - A1033 Raich Carter Way (E)	996	249	760	2170	0.459	992	1245	0.0	0.9	3.188	A
3 - Gibraltar Road	143	36	1655	562	0.254	142	98	0.0	0.4	9.003	A
4 - A1033 Raich Carter Way (W)	1267	317	135	4198	0.302	1265	1661	0.0	0.4	1.265	A

07:30 –07:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnes Way (N)	1175	294	1226	1713	0.686	1171	448	1.1	2.2	6.663	A
2 - A1033 Raich Carter Way (E)	1189	297	908	2050	0.580	1187	1488	0.9	1.4	4.353	A
3 - Gibraltar Road	171	43	1979	336	0.509	168	117	0.4	1.0	22.313	C
4 - A1033 Raich Carter Way (W)	1513	378	161	4175	0.362	1512	1986	0.4	0.6	1.392	A

07:45 –08:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnes Way (N)	1439	360	1464	1518	0.948	1402	522	2.2	11.4	25.833	D
2 - A1033 Raich Carter Way (E)	1457	364	1089	1903	0.765	1449	1776	1.4	3.3	8.163	A
3 - Gibraltar Road	209	52	2397	43	4.832	43	141	1.0	42.7	1251.908	F
4 - A1033 Raich Carter Way (W)	1853	463	134	4199	0.441	1852	2306	0.6	0.8	1.580	A

08:00 –08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnes Way (N)	1439	360	1460	1521	0.946	1431	520	11.4	13.3	35.458	E
2 - A1033 Raich Carter Way (E)	1457	364	1111	1886	0.772	1456	1781	3.3	3.5	8.735	A
3 - Gibraltar Road	209	52	2424	25	8.514	25	143	42.7	88.8	9793.817	F
4 - A1033 Raich Carter Way (W)	1853	463	127	4205	0.441	1853	2321	0.8	0.8	1.576	A

08:15 –08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnes Way (N)	1175	294	1258	1687	0.697	1219	470	13.3	2.4	8.487	A
2 - A1033 Raich Carter Way (E)	1189	297	944	2022	0.588	1197	1533	3.5	1.5	4.609	A
3 - Gibraltar Road	171	43	2022	306	0.558	302	119	88.8	55.9	880.775	F
4 - A1033 Raich Carter Way (W)	1513	378	215	4128	0.367	1514	2109	0.8	0.6	1.421	A

08:30 – 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnes Way (N)	984	246	1080	1834	0.537	989	411	2.4	1.2	4.336	A
2 - A1033 Raich Carter Way (E)	996	249	767	2165	0.460	998	1301	1.5	0.9	3.234	A
3 - Gibraltar Road	143	36	1667	554	0.258	365	98	55.9	0.4	76.983	F
4 - A1033 Raich Carter Way (W)	1267	317	223	4120	0.308	1268	1810	0.6	0.5	1.299	A

Proposed Layout – 2030 With Development, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - Barnes Way (N) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	2 - A1033 Raich Carter Way (E) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	4 - A1033 Raich Carter Way (W) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Kingswood Roundabout	Standard Roundabout		1, 2, 3, 4	666.56	F

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)	Run automatically
D2	2030 With Development	AM	ONE HOUR	07:15	08:45	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	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Barnes Way (N)		ONE HOUR	✓	1313	100.000
2 - A1033 Raich Carter Way (E)		ONE HOUR	✓	1330	100.000
3 - Gibraltar Road		ONE HOUR	✓	190	100.000
4 - A1033 Raich Carter Way (W)		ONE HOUR	✓	1752	100.000

Origin-Destination Data

Demand (PCU/hr)

	To				
		1 - Barnes Way (N)	2 - A1033 Raich Carter Way (E)	3 - Gibraltar Road	4 - A1033 Raich Carter Way (W)
From	1 - Barnes Way (N)	0	345	62	906
	2 - A1033 Raich Carter Way (E)	106	0	11	1213
	3 - Gibraltar Road	29	43	0	118
	4 - A1033 Raich Carter Way (W)	375	1318	58	1

Vehicle Mix

Heavy Vehicle Percentages

	To				
		1 - Barnes Way (N)	2 - A1033 Raich Carter Way (E)	3 - Gibraltar Road	4 - A1033 Raich Carter Way (W)
From	1 - Barnes Way (N)	0	2	0	1
	2 - A1033 Raich Carter Way (E)	0	0	10	5
	3 - Gibraltar Road	4	11	0	4
	4 - A1033 Raich Carter Way (W)	3	3	4	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Barnes Way (N)	0.98	54.18	21.1	F	1205	1807
2 - A1033 Raich Carter Way (E)	0.78	8.98	3.6	A	1220	1831
3 - Gibraltar Road	13.10	15632.90	92.4	F	174	262
4 - A1033 Raich Carter Way (W)	0.46	1.63	0.9	A	1608	2411

Main Results for each time segment

07:15 –07:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnes Way (N)	988	247	1067	1844	0.536	984	383	0.0	1.2	4.214	A
2 - A1033 Raich Carter Way (E)	1001	250	770	2163	0.463	998	1281	0.0	0.9	3.224	A
3 - Gibraltar Road	143	36	1669	552	0.259	142	98	0.0	0.4	9.215	A
4 - A1033 Raich Carter Way (W)	1319	330	133	4200	0.314	1317	1678	0.0	0.5	1.287	A

07:30 –07:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnes Way (N)	1180	295	1275	1673	0.706	1176	458	1.2	2.4	7.255	A
2 - A1033 Raich Carter Way (E)	1196	299	920	2041	0.586	1193	1531	0.9	1.5	4.432	A
3 - Gibraltar Road	171	43	1996	324	0.527	168	118	0.4	1.1	23.862	C
4 - A1033 Raich Carter Way (W)	1575	394	159	4177	0.377	1574	2005	0.5	0.6	1.424	A

07:45 –08:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnes Way (N)	1446	361	1524	1469	0.984	1390	534	2.4	16.2	33.983	D
2 - A1033 Raich Carter Way (E)	1464	366	1090	1903	0.770	1457	1824	1.5	3.4	8.307	A
3 - Gibraltar Road	209	52	2405	38	5.542	37	142	1.1	44.1	1357.143	F
4 - A1033 Raich Carter Way (W)	1929	482	130	4202	0.459	1928	2312	0.6	0.9	1.630	A

08:00 –08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnes Way (N)	1446	361	1520	1472	0.982	1426	532	16.2	21.1	54.176	F
2 - A1033 Raich Carter Way (E)	1464	366	1116	1882	0.778	1464	1829	3.4	3.6	8.979	A
3 - Gibraltar Road	209	52	2436	16	13.103	16	143	44.1	92.4	15632.896	F
4 - A1033 Raich Carter Way (W)	1929	482	123	4209	0.458	1929	2330	0.9	0.9	1.625	A

08:15 –08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnes Way (N)	1180	295	1301	1652	0.715	1254	475	21.1	2.6	10.900	B
2 - A1033 Raich Carter Way (E)	1196	299	978	1994	0.600	1204	1578	3.6	1.6	4.814	A
3 - Gibraltar Road	171	43	2060	279	0.612	276	121	92.4	66.1	970.572	F
4 - A1033 Raich Carter Way (W)	1575	394	200	4140	0.380	1576	2135	0.9	0.6	1.446	A

08:30 –08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnes Way (N)	988	247	1129	1793	0.551	994	424	2.6	1.3	4.589	A
2 - A1033 Raich Carter Way (E)	1001	250	777	2157	0.464	1004	1346	1.6	0.9	3.277	A
3 - Gibraltar Road	143	36	1682	543	0.263	406	99	66.1	0.4	136.787	F
4 - A1033 Raich Carter Way (W)	1319	330	234	4111	0.321	1320	1854	0.6	0.5	1.330	A

Junctions 9
ARCADY 9 - Roundabout Module
Version: 9.5.1.7462 © Copyright TRL Limited, 2019
For sales and distribution information, program advice and maintenance, contact TRL: +44 (0)1344 379777 software@trl.co.uk www.trlsoftware.co.uk
The users of this computer program for the solution of an engineering problem are in no way relieved of their responsibility for the correctness of the solution

Filename: Full Improvement Scheme PM Peak.j9
Path: Z:\Projects\5913 Dunswell P&R\Data\Modelling\Raich Carter Way_Barnes Way_Gibraltar Way Roundabout\Full Improvement Scheme
Report generation date: 22/10/2024 11:51:11

»Proposed Layout –2030 Do Nothing, PM
»Proposed Layout –2030 With Development, PM

Summary of junction performance

	PM				
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS
	Proposed Layout - 2030 Do Nothing				
1 - Barnes Way (N)	D1	3.6	17.65	0.79	C
2 - A1033 Raich Carter Way (E)		3.5	7.54	0.78	A
3 - Gibraltar Road		55.2	1370.23	2.00	F
4 - A1033 Raich Carter Way (W)		2.4	3.30	0.71	A
	Proposed Layout - 2030 With Development				
1 - Barnes Way (N)	D2	5.1	25.15	0.85	D
2 - A1033 Raich Carter Way (E)		3.7	8.08	0.79	A
3 - Gibraltar Road		64.9	1917.00	2.42	F
4 - A1033 Raich Carter Way (W)		2.8	3.63	0.74	A

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

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

File summary

File Description

Title	J3 A1033 Raich Carter Way/Barnes Way/Gibraltar Road Roundabout Full Improvement Scheme
Location	Kingswood, Hull
Site number	
Date	16/10/2024
Version	

Status	
Identifier	
Client	Ashcourt
Jobnumber	LTP/5913
Enumerator	LTP\MRVAC
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

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
5.75				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)	Run automatically
D1	2030 Do Nothing	PM	ONE HOUR	16:15	17:45	15	✓
D2	2030 With Development	PM	ONE HOUR	16:15	17:45	15	✓

Analysis Set Details

ID	Name	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	Proposed Layout	✓	100.000	100.000

Proposed Layout – 2030 Do Nothing, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - Barnes Way (N) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	2 - A1033 Raich Carter Way (E) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	4 - A1033 Raich Carter Way (W) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Kingswood Roundabout	Standard Roundabout		1, 2, 3, 4	63.99	F

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
1	Barnes Way (N)	
2	A1033 Raich Carter Way (E)	
3	Gibraltar Road	
4	A1033 Raich Carter Way (W)	

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	I' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
1 - Barnes Way (N)	7.16	10.50	50.0	43.4	60.0	23.5	
2 - A1033 Raich Carter Way (E)	7.30	10.00	47.0	41.5	60.0	20.0	
3 - Gibraltar Road	7.23	7.50	17.6	47.2	60.0	19.0	
4 - A1033 Raich Carter Way (W)	7.30	12.00	62.0	44.1	60.0	24.0	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1 - Barnes Way (N)	0.821	3150
2 - A1033 Raich Carter Way (E)	0.811	3077
3 - Gibraltar Road	0.699	2419
4 - A1033 Raich Carter Way (W)	0.884	3518

The slope and intercept shown above include any corrections and adjustments.

Arm Capacity Adjustments

Arm	Type	Reason	Direct capacity adjustment (PCU/hr)
1 - Barnes Way (N)	Direct	Queue survey	-830
2 - A1033 Raich Carter Way (E)	Direct	Queue Survey	-290
3 - Gibraltar Road	Direct	Queue Survey	-790
4 - A1033 Raich Carter Way (W)	Direct	Queue Survey	480

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)	Run automatically
D1	2030 Do Nothing	PM	ONE HOUR	16:15	17:45	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	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Barnes Way (N)		ONE HOUR	✓	689	100.000
2 - A1033 Raich Carter Way (E)		ONE HOUR	✓	1530	100.000
3 - Gibraltar Road		ONE HOUR	✓	203	100.000
4 - A1033 Raich Carter Way (W)		ONE HOUR	✓	2420	100.000

Origin-Destination Data

Demand (PCU/hr)

	To				
		1 - Barnes Way (N)	2 - A1033 Raich Carter Way (E)	3 - Gibraltar Road	4 - A1033 Raich Carter Way (W)
From	1 - Barnes Way (N)	0	120	72	497
	2 - A1033 Raich Carter Way (E)	175	1	58	1296
	3 - Gibraltar Road	57	51	0	95
	4 - A1033 Raich Carter Way (W)	943	1354	120	3

Vehicle Mix

Heavy Vehicle Percentages

	To				
		1 - Barnes Way (N)	2 - A1033 Raich Carter Way (E)	3 - Gibraltar Road	4 - A1033 Raich Carter Way (W)
From	1 - Barnes Way (N)	0	1	0	0
	2 - A1033 Raich Carter Way (E)	0	0	4	2
	3 - Gibraltar Road	0	9	0	3
	4 - A1033 Raich Carter Way (W)	0	3	2	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Barnes Way (N)	0.79	17.65	3.6	C	632	948
2 - A1033 Raich Carter Way (E)	0.78	7.54	3.5	A	1404	2106
3 - Gibraltar Road	2.00	1370.23	55.2	F	186	279
4 - A1033 Raich Carter Way (W)	0.71	3.30	2.4	A	2221	3331

Main Results for each time segment

16:15 – 16:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnes Way (N)	519	130	1148	1377	0.377	516	882	0.0	0.6	4.177	A
2 - A1033 Raich Carter Way (E)	1152	288	519	2366	0.487	1148	1146	0.0	1.0	3.010	A
3 - Gibraltar Road	153	38	1479	595	0.257	151	188	0.0	0.4	8.376	A
4 - A1033 Raich Carter Way (W)	1822	455	213	3810	0.478	1818	1418	0.0	0.9	1.836	A

16:30 – 16:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnes Way (N)	619	155	1373	1193	0.519	618	1055	0.6	1.1	6.249	A
2 - A1033 Raich Carter Way (E)	1375	344	620	2284	0.602	1373	1370	1.0	1.5	4.017	A
3 - Gibraltar Road	182	46	1769	392	0.465	180	224	0.4	0.9	17.427	C
4 - A1033 Raich Carter Way (W)	2176	544	254	3773	0.577	2174	1696	0.9	1.4	2.289	A

16:45 – 17:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnes Way (N)	759	190	1654	962	0.789	749	1262	1.1	3.4	16.294	C
2 - A1033 Raich Carter Way (E)	1685	421	754	2176	0.774	1677	1650	1.5	3.4	7.250	A
3 - Gibraltar Road	224	56	2157	121	1.845	118	274	0.9	27.3	483.999	F
4 - A1033 Raich Carter Way (W)	2664	666	256	3771	0.706	2660	2019	1.4	2.4	3.285	A

17:00 – 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnes Way (N)	759	190	1655	961	0.790	758	1262	3.4	3.6	17.646	C
2 - A1033 Raich Carter Way (E)	1685	421	761	2169	0.777	1684	1652	3.4	3.5	7.543	A
3 - Gibraltar Road	224	56	2170	112	1.998	112	275	27.3	55.2	1370.228	F
4 - A1033 Raich Carter Way (W)	2664	666	253	3774	0.706	2664	2029	2.4	2.4	3.301	A

17:15 – 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnes Way (N)	619	155	1425	1150	0.538	629	1112	3.6	1.2	7.043	A
2 - A1033 Raich Carter Way (E)	1375	344	630	2276	0.604	1383	1423	3.5	1.6	4.141	A
3 - Gibraltar Road	182	46	1787	380	0.480	373	226	55.2	7.6	309.857	F
4 - A1033 Raich Carter Way (W)	2176	544	358	3681	0.591	2179	1802	2.4	1.5	2.446	A

17:30 – 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnes Way (N)	519	130	1160	1368	0.379	521	894	1.2	0.6	4.269	A
2 - A1033 Raich Carter Way (E)	1152	288	523	2363	0.487	1154	1158	1.6	1.0	3.038	A
3 - Gibraltar Road	153	38	1489	589	0.260	182	189	7.6	0.4	9.822	A
4 - A1033 Raich Carter Way (W)	1822	455	229	3795	0.480	1824	1441	1.5	0.9	1.862	A

Proposed Layout – 2030 With Development, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - Barnes Way (N) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	2 - A1033 Raich Carter Way (E) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	4 - A1033 Raich Carter Way (W) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Kingswood Roundabout	Standard Roundabout		1, 2, 3, 4	86.92	F

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)	Run automatically
D2	2030 With Development	PM	ONE HOUR	16:15	17:45	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	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Barnes Way (N)		ONE HOUR	✓	694	100.000
2 - A1033 Raich Carter Way (E)		ONE HOUR	✓	1547	100.000
3 - Gibraltar Road		ONE HOUR	✓	205	100.000
4 - A1033 Raich Carter Way (W)		ONE HOUR	✓	2525	100.000

Origin-Destination Data

Demand (PCU/hr)

	To				
		1 - Barnes Way (N)	2 - A1033 Raich Carter Way (E)	3 - Gibraltar Road	4 - A1033 Raich Carter Way (W)
From	1 - Barnes Way (N)	0	119	71	504
	2 - A1033 Raich Carter Way (E)	174	1	57	1315
	3 - Gibraltar Road	56	50	0	99
	4 - A1033 Raich Carter Way (W)	979	1417	126	3

Vehicle Mix

Heavy Vehicle Percentages

	To				
		1 - Barnes Way (N)	2 - A1033 Raich Carter Way (E)	3 - Gibraltar Road	4 - A1033 Raich Carter Way (W)
From	1 - Barnes Way (N)	0	1	0	0
	2 - A1033 Raich Carter Way (E)	0	0	4	3
	3 - Gibraltar Road	0	9	0	3
	4 - A1033 Raich Carter Way (W)	0	2	2	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Barnes Way (N)	0.85	25.15	5.1	D	637	955
2 - A1033 Raich Carter Way (E)	0.79	8.08	3.7	A	1420	2129
3 - Gibraltar Road	2.42	1917.00	64.9	F	188	282
4 - A1033 Raich Carter Way (W)	0.74	3.63	2.8	A	2317	3475

Main Results for each time segment

16:15 – 16:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnes Way (N)	522	131	1199	1335	0.391	520	908	0.0	0.6	4.410	A
2 - A1033 Raich Carter Way (E)	1165	291	528	2359	0.494	1161	1192	0.0	1.0	3.075	A
3 - Gibraltar Road	154	39	1498	582	0.265	153	191	0.0	0.4	8.654	A
4 - A1033 Raich Carter Way (W)	1901	475	210	3812	0.499	1897	1440	0.0	1.0	1.900	A

16:30 – 16:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnes Way (N)	624	156	1434	1143	0.546	622	1085	0.6	1.2	6.892	A
2 - A1033 Raich Carter Way (E)	1391	348	631	2275	0.611	1388	1425	1.0	1.6	4.157	A
3 - Gibraltar Road	184	46	1791	377	0.489	182	228	0.4	1.0	18.902	C
4 - A1033 Raich Carter Way (W)	2270	567	251	3776	0.601	2268	1722	1.0	1.5	2.413	A

16:45 – 17:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnes Way (N)	764	191	1725	903	0.846	750	1295	1.2	4.7	21.775	C
2 - A1033 Raich Carter Way (E)	1703	426	763	2168	0.786	1695	1712	1.6	3.6	7.688	A
3 - Gibraltar Road	226	56	2181	105	2.155	103	278	1.0	31.7	628.529	F
4 - A1033 Raich Carter Way (W)	2780	695	245	3781	0.735	2775	2038	1.5	2.8	3.604	A

17:00 – 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnes Way (N)	764	191	1726	903	0.846	763	1295	4.7	5.1	25.147	D
2 - A1033 Raich Carter Way (E)	1703	426	774	2159	0.789	1703	1715	3.6	3.7	8.081	A
3 - Gibraltar Road	226	56	2197	93	2.424	93	279	31.7	64.9	1917.004	F
4 - A1033 Raich Carter Way (W)	2780	695	241	3785	0.735	2780	2050	2.8	2.8	3.625	A

17:15 – 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnes Way (N)	624	156	1480	1105	0.565	639	1136	5.1	1.3	7.982	A
2 - A1033 Raich Carter Way (E)	1391	348	646	2263	0.614	1399	1474	3.7	1.7	4.318	A
3 - Gibraltar Road	184	46	1814	361	0.511	355	230	64.9	22.2	426.253	F
4 - A1033 Raich Carter Way (W)	2270	567	342	3695	0.614	2275	1827	2.8	1.6	2.574	A

17:30 – 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnes Way (N)	522	131	1225	1314	0.398	525	935	1.3	0.7	4.584	A
2 - A1033 Raich Carter Way (E)	1165	291	532	2355	0.494	1167	1218	1.7	1.0	3.117	A
3 - Gibraltar Road	154	39	1508	575	0.268	241	192	22.2	0.4	14.679	B
4 - A1033 Raich Carter Way (W)	1901	475	257	3770	0.504	1903	1492	1.6	1.0	1.955	A

Junctions 9					
ARCADY 9 - Roundabout Module					
Version: 9.5.1.7462 © Copyright TRL Limited, 2019					
For sales and distribution information, program advice and maintenance, contact TRL: +44 (0)1344 379777 software@trl.co.uk www.trlsoftware.co.uk					
The users of this computer program for the solution of an engineering problem are in no way relieved of their responsibility for the correctness of the solution					

Filename: Full Improvement Scheme SAT Peak.j9
Path: Z:\Projects\5913 Dunswell P&R\Data\Modelling\Raich Carter Way_Barnes Way_Gibraltar Way Roundabout\Full Improvement Scheme
Report generation date: 22/10/2024 11:51:59

»Proposed Layout –2030 Do Nothing, SAT
»Proposed Layout –2030 With Development, SAT

Summary of junction performance

	SAT				
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS
	Proposed Layout - 2030 Do Nothing				
1 - Barnes Way (N)	D1	4.2	18.08	0.82	C
2 - A1033 Raich Carter Way (E)		1.9	5.99	0.66	A
3 - Gibraltar Road		49.0	460.06	1.38	F
4 - A1033 Raich Carter Way (W)		1.2	2.24	0.54	A
	Proposed Layout - 2030 With Development				
1 - Barnes Way (N)	D2	8.5	36.94	0.91	E
2 - A1033 Raich Carter Way (E)		2.1	6.54	0.68	A
3 - Gibraltar Road		65.8	623.62	1.61	F
4 - A1033 Raich Carter Way (W)		1.4	2.50	0.59	A

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

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

File summary

File Description

Title	J3 A1033 Raich Carter Way/Barnes Way/Gibraltar Road Roundabout Full Improvement Scheme
Location	Kingswood, Hull
Site number	
Date	16/10/2024
Version	

Status	
Identifier	
Client	Ashcourt
Jobnumber	LTP/5913
Enumerator	LTP\MRVAC
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

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
5.75				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)	Run automatically
D1	2030 Do Nothing	SAT	ONE HOUR	12:00	13:30	15	✓
D2	2030 With Development	SAT	ONE HOUR	12:00	13:30	15	✓

Analysis Set Details

ID	Name	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	Proposed Layout	✓	100.000	100.000

Proposed Layout – 2030 Do Nothing, SAT

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - Barnes Way (N) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	2 - A1033 Raich Carter Way (E) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	4 - A1033 Raich Carter Way (W) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Kingswood Roundabout	Standard Roundabout		1, 2, 3, 4	43.16	E

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
1	Barnes Way (N)	
2	A1033 Raich Carter Way (E)	
3	Gibraltar Road	
4	A1033 Raich Carter Way (W)	

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	I' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
1 - Barnes Way (N)	7.16	10.50	50.0	43.4	60.0	23.5	
2 - A1033 Raich Carter Way (E)	7.30	10.00	47.0	41.5	60.0	20.0	
3 - Gibraltar Road	7.23	7.50	17.6	47.2	60.0	19.0	
4 - A1033 Raich Carter Way (W)	7.30	12.00	62.0	44.1	60.0	24.0	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1 - Barnes Way (N)	0.821	3150
2 - A1033 Raich Carter Way (E)	0.811	3077
3 - Gibraltar Road	0.699	2419
4 - A1033 Raich Carter Way (W)	0.884	3518

The slope and intercept shown above include any corrections and adjustments.

Arm Capacity Adjustments

Arm	Type	Reason	Direct capacity adjustment (PCU/hr)
1 - Barnes Way (N)	Direct	Queue survey	-1050
2 - A1033 Raich Carter Way (E)	Direct	Queue Survey	-550
3 - Gibraltar Road	Direct	Queue Survey	-900
4 - A1033 Raich Carter Way (W)	Direct	Queue Survey	200

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)	Run automatically
D1	2030 Do Nothing	SAT	ONE HOUR	12:00	13:30	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	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Barnes Way (N)		ONE HOUR	✓	794	100.000
2 - A1033 Raich Carter Way (E)		ONE HOUR	✓	1062	100.000
3 - Gibraltar Road		ONE HOUR	✓	312	100.000
4 - A1033 Raich Carter Way (W)		ONE HOUR	✓	1728	100.000

Origin-Destination Data

Demand (PCU/hr)

	To				
		1 - Barnes Way (N)	2 - A1033 Raich Carter Way (E)	3 - Gibraltar Road	4 - A1033 Raich Carter Way (W)
From	1 - Barnes Way (N)	0	116	47	631
	2 - A1033 Raich Carter Way (E)	99	0	42	921
	3 - Gibraltar Road	85	65	0	162
	4 - A1033 Raich Carter Way (W)	636	929	162	1

Vehicle Mix

Heavy Vehicle Percentages

	To				
		1 - Barnes Way (N)	2 - A1033 Raich Carter Way (E)	3 - Gibraltar Road	4 - A1033 Raich Carter Way (W)
From	1 - Barnes Way (N)	0	0	0	0
	2 - A1033 Raich Carter Way (E)	0	0	5	1
	3 - Gibraltar Road	0	5	0	3
	4 - A1033 Raich Carter Way (W)	0	1	1	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Barnes Way (N)	0.82	18.08	4.2	C	729	1093
2 - A1033 Raich Carter Way (E)	0.66	5.99	1.9	A	975	1462
3 - Gibraltar Road	1.38	460.06	49.0	F	286	429
4 - A1033 Raich Carter Way (W)	0.54	2.24	1.2	A	1586	2378

Main Results for each time segment

12:00 – 12:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnes Way (N)	598	149	869	1387	0.431	595	616	0.0	0.8	4.529	A
2 - A1033 Raich Carter Way (E)	800	200	630	2016	0.397	797	834	0.0	0.7	2.978	A
3 - Gibraltar Road	235	59	1239	653	0.360	233	188	0.0	0.6	8.733	A
4 - A1033 Raich Carter Way (W)	1301	325	186	3553	0.366	1299	1285	0.0	0.6	1.605	A

12:15 – 12:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnes Way (N)	714	178	1039	1247	0.572	712	736	0.8	1.3	6.694	A
2 - A1033 Raich Carter Way (E)	955	239	754	1915	0.498	953	996	0.7	1.0	3.777	A
3 - Gibraltar Road	280	70	1482	483	0.581	277	225	0.6	1.4	17.677	C
4 - A1033 Raich Carter Way (W)	1553	388	222	3521	0.441	1553	1537	0.6	0.8	1.840	A

12:30 – 12:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnes Way (N)	874	219	1253	1071	0.816	863	876	1.3	4.0	16.532	C
2 - A1033 Raich Carter Way (E)	1169	292	917	1784	0.656	1166	1200	1.0	1.9	5.855	A
3 - Gibraltar Road	344	86	1807	256	1.341	249	275	1.4	25.0	218.796	F
4 - A1033 Raich Carter Way (W)	1903	476	228	3516	0.541	1901	1827	0.8	1.2	2.241	A

12:45 – 13:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnes Way (N)	874	219	1254	1071	0.817	873	877	4.0	4.2	18.083	C
2 - A1033 Raich Carter Way (E)	1169	292	925	1776	0.658	1169	1202	1.9	1.9	5.989	A
3 - Gibraltar Road	344	86	1818	248	1.384	248	276	25.0	49.0	460.058	F
4 - A1033 Raich Carter Way (W)	1903	476	228	3516	0.541	1903	1838	1.2	1.2	2.244	A

13:00 – 13:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnes Way (N)	714	178	1079	1214	0.588	725	788	4.2	1.5	7.517	A
2 - A1033 Raich Carter Way (E)	955	239	766	1906	0.501	958	1038	1.9	1.0	3.854	A
3 - Gibraltar Road	280	70	1497	472	0.594	463	227	49.0	3.5	214.530	F
4 - A1033 Raich Carter Way (W)	1553	388	312	3442	0.451	1555	1648	1.2	0.8	1.920	A

13:15 – 13:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnes Way (N)	598	149	874	1382	0.432	601	621	1.5	0.8	4.621	A
2 - A1033 Raich Carter Way (E)	800	200	636	2012	0.397	801	839	1.0	0.7	3.010	A
3 - Gibraltar Road	235	59	1247	647	0.363	246	189	3.5	0.6	9.469	A
4 - A1033 Raich Carter Way (W)	1301	325	193	3547	0.367	1302	1301	0.8	0.6	1.613	A

Proposed Layout – 2030 With Development, SAT

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - Barnes Way (N) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	2 - A1033 Raich Carter Way (E) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	4 - A1033 Raich Carter Way (W) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Kingswood Roundabout	Standard Roundabout		1, 2, 3, 4	58.60	F

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)	Run automatically
D2	2030 With Development	SAT	ONE HOUR	12:00	13:30	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	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Barnes Way (N)		ONE HOUR	✓	807	100.000
2 - A1033 Raich Carter Way (E)		ONE HOUR	✓	1085	100.000
3 - Gibraltar Road		ONE HOUR	✓	319	100.000
4 - A1033 Raich Carter Way (W)		ONE HOUR	✓	1894	100.000

Origin-Destination Data

Demand (PCU/hr)

	To				
		1 - Barnes Way (N)	2 - A1033 Raich Carter Way (E)	3 - Gibraltar Road	4 - A1033 Raich Carter Way (W)
From	1 - Barnes Way (N)	0	114	45	648
	2 - A1033 Raich Carter Way (E)	98	0	41	946
	3 - Gibraltar Road	82	62	0	175
	4 - A1033 Raich Carter Way (W)	687	1027	179	1

Vehicle Mix

Heavy Vehicle Percentages

	To				
		1 - Barnes Way (N)	2 - A1033 Raich Carter Way (E)	3 - Gibraltar Road	4 - A1033 Raich Carter Way (W)
From	1 - Barnes Way (N)	0	0	0	0
	2 - A1033 Raich Carter Way (E)	0	0	5	1
	3 - Gibraltar Road	0	5	0	3
	4 - A1033 Raich Carter Way (W)	0	1	1	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Barnes Way (N)	0.91	36.94	8.5	E	741	1111
2 - A1033 Raich Carter Way (E)	0.68	6.54	2.1	A	996	1493
3 - Gibraltar Road	1.61	623.62	65.8	F	293	439
4 - A1033 Raich Carter Way (W)	0.59	2.50	1.4	A	1738	2607

Main Results for each time segment

12:00 – 12:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnes Way (N)	608	152	953	1317	0.461	604	651	0.0	0.8	5.024	A
2 - A1033 Raich Carter Way (E)	817	204	654	1996	0.409	814	903	0.0	0.7	3.071	A
3 - Gibraltar Road	240	60	1269	632	0.380	238	199	0.0	0.6	9.312	A
4 - A1033 Raich Carter Way (W)	1426	356	181	3558	0.401	1423	1326	0.0	0.7	1.695	A

12:15 – 12:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnes Way (N)	725	181	1139	1165	0.623	722	778	0.8	1.6	8.085	A
2 - A1033 Raich Carter Way (E)	975	244	782	1893	0.515	974	1080	0.7	1.1	3.953	A
3 - Gibraltar Road	287	72	1518	458	0.626	283	238	0.6	1.6	20.632	C
4 - A1033 Raich Carter Way (W)	1703	426	216	3527	0.483	1702	1585	0.7	0.9	1.984	A

12:30 – 12:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnes Way (N)	889	222	1372	974	0.913	865	922	1.6	7.5	28.565	D
2 - A1033 Raich Carter Way (E)	1195	299	941	1764	0.677	1191	1296	1.1	2.1	6.302	A
3 - Gibraltar Road	351	88	1841	232	1.514	228	290	1.6	32.5	302.517	F
4 - A1033 Raich Carter Way (W)	2085	521	210	3532	0.590	2083	1858	0.9	1.4	2.498	A

12:45 – 13:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnes Way (N)	889	222	1371	974	0.912	884	920	7.5	8.5	36.935	E
2 - A1033 Raich Carter Way (E)	1195	299	958	1750	0.683	1194	1298	2.1	2.1	6.540	A
3 - Gibraltar Road	351	88	1861	219	1.607	218	292	32.5	65.8	623.617	F
4 - A1033 Raich Carter Way (W)	2085	521	206	3535	0.590	2085	1872	1.4	1.4	2.498	A

13:00 – 13:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnes Way (N)	725	181	1170	1139	0.637	752	817	8.5	1.8	9.920	A
2 - A1033 Raich Carter Way (E)	975	244	808	1872	0.521	980	1114	2.1	1.1	4.096	A
3 - Gibraltar Road	287	72	1548	437	0.656	431	240	65.8	29.8	388.161	F
4 - A1033 Raich Carter Way (W)	1703	426	283	3467	0.491	1705	1695	1.4	1.0	2.056	A

13:15 – 13:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnes Way (N)	608	152	979	1296	0.469	611	683	1.8	0.9	5.280	A
2 - A1033 Raich Carter Way (E)	817	204	660	1991	0.410	818	929	1.1	0.7	3.105	A
3 - Gibraltar Road	240	60	1279	625	0.384	357	200	29.8	0.7	21.908	C
4 - A1033 Raich Carter Way (W)	1426	356	235	3510	0.406	1427	1401	1.0	0.7	1.742	A