

Level Developments Ltd

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**Proposed Drive-Thru Coffee Shop  
Killingwoldgraves Lane, Bishop Burton  
Transport Assessment**

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December 2021

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# Level Developments Ltd

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December 2021

### Client Commission

Client: Level Developments Ltd Date Commissioned: September 2021

### LTP Quality Control

Job No: LTP/21/4030 File Ref: Killingwoldgraves TA (2021 Update) Final Issue 1

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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.

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# PROPOSED DRIVE-THRU COFFEE SHOP KILLINGWOLDGRAVES LANE, BISHOP BURTON TRANSPORT ASSESSMENT

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## EXECUTIVE SUMMARY

This Transport Assessment (TA) provides a detailed appraisal of transport aspects associated with proposals for a drive-thru coffee shop at a site located to the west of Killingwoldgraves Lane near Bishop Burton, in the East Riding of Yorkshire. The key findings of this TA are summarised below:

- The proposed coffee shop will be provided alongside a PFS and employment (B1(c)/B8) development at the site, which benefit from outline planning consent (ref: 20/00541/OUT). Access to the proposed drive-thru will be via a spur road connecting with the main development access road at an internal simple priority T-junction. The main access road will also serve the proposed PFS, and would connect with Killingwoldgraves Lane at a priority T-junction with ghost-island right-turn lane provision, which was approved as part of the previous outline application for the development. Pedestrian access to the site will be provided via the main site access road.
- The village of Bishop Burton is located within a 2km walk of the site and is accessible via footways on Killingwoldgraves Lane and the A1079. The entire built-up area of Beverley, along with Walkington and Cherry Burton is within an 8km cycle ride of the site. There are bus stops on both sides of the A1079 that are within a 400m walk of all parts of the site which provide access to hourly bus services on the X46/X47 route between Hull and York via Pocklington.
- A road casualty study showed that 15 Personal Injury Collisions (PICs) occurred within the study area around the proposed development during the 5-year study period. Analysis of the study collisions 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 no existing road safety issues pertinent to the development of the site.
- The vehicle trip generation of the proposed development has been projected using the industry-standard TRICS database.
- The baseline traffic situation within the vicinity of the site has been established through classified vehicle turning count data obtained for Killingwoldgraves Roundabout. The traffic flow impact of the proposed development has been projected utilising traffic growth forecasts to 2027. The distribution of development traffic across the local highway network has been predicted utilising the existing proportions of approach and exit traffic at Killingwoldgraves Roundabout for the respective AM and PM peak hours.
- Junction capacity assessments have been undertaken using Junctions 9 modelling software and show that the proposed development will not have a severe impact on the operation of the local highway network, and that the proposed site access junction and improvement scheme at Killingwoldgraves Roundabout identified and approved as part of the outline application are suitable to accommodate the additional trips associated with the proposed development.

This TA demonstrates that the proposed development would not be expected to have a significant impact in terms of sustainable travel, road safety and traffic impact. 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) and ERYC Local Plan policies.

## 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 proposals for a drive-thru coffee shop at a site located to the west of Killingwoldgraves Lane near Bishop Burton, in the East Riding of Yorkshire. This TA provides a detailed appraisal of the expected transport impacts of the proposals.
- 1.1.2 The wider site benefits from outline planning consent for a mixed-use development comprising employment units (B1(c)/B8) and a Petrol Filling Station (PFS) with ancillary shop (ref: 20/00541/OUT). The proposed drive-thru coffee shop will be provided within the red line boundary of the approved outline development, and is expected to replace an element of approved employment development.
- 1.1.3 The local planning and highway authority for the site is East Riding of Yorkshire Council (ERYC).

### I.2 Scope

- 1.2.1 This report is written in accordance with the Government's 'National Planning Policy Framework' (MHCLG, 2021) and 'Planning Practice Guidance' (DCLG, 2014), with the scope summarised 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;
    - Establish baseline traffic flows during the weekday AM and PM peak hours for Killingwoldgraves Lane and the nearby Killingwoldgraves Roundabout.
  - **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, utilising suitable data from comparable sites within the latest TRICS database;

- 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;
- Calculation of suitable future traffic growing factors utilising nationally-approved models and software;
- Junction capacity assessment of the development's impact during the network AM and PM peak hours at Killingwoldgraves Roundabout and the site access junction utilising the industry-standard Junctions 9 software (PICADY/ARCADY);
- Assessment of the likely traffic impact of the proposed development on the operation of the local highway network. This will involve assessing the traffic generation of the proposals against the typical threshold for assessment (30 two-way traffic flows) and the results of the junction modelling.
- **Access, Parking & Internal Layout:** Consideration of the proposed access arrangements and internal layout of the site, including the servicing arrangements, proposed parking provision and suitability of the proposed access 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.

1.2.2 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, 2021);
- ERYC Draft Allocations Document Update 2020 - 2039 (ERYC, 2021);
- ERYC Sustainable Transport SPD (Supplementary Planning Document) (ERYC, 2016a);
- ERYC Local Plan: Allocations Document (ERYC, 2016b);
- ERYC Local Transport Plan (2015-2029) (ERYC, 2015);
- Planning Practice Guidance (DCLG, 2014);
- Guidance on Transport Assessment (DfT, 2007a); and
- Manual for Streets (DfT, 2007b).

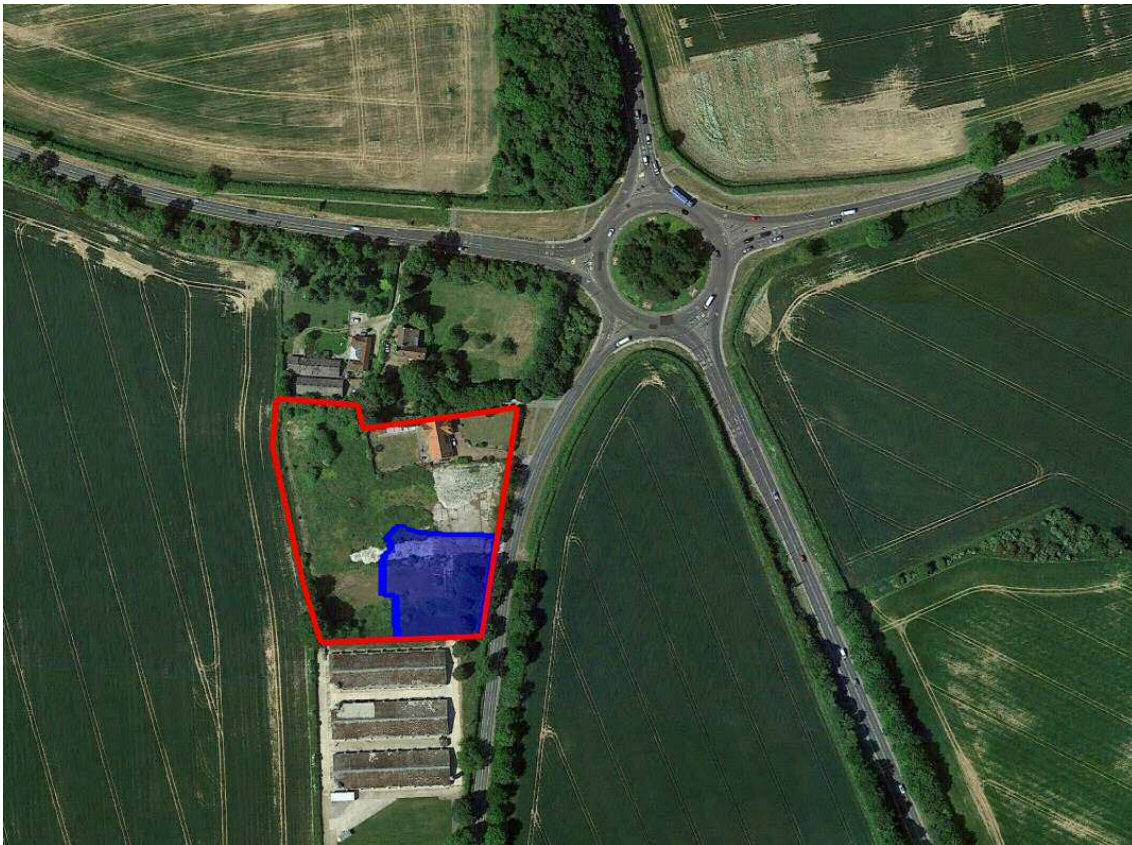


## 2. SITE BACKGROUND

### 2.1 Site Location & Existing Use

- 2.1.1 The application site is located to the west of Killingwoldgraves Lane and south-west of Killingwoldgraves Roundabout near Bishop Burton, in the East Riding of Yorkshire. The wider site is currently largely brownfield land, having formerly accommodated a wallpaper factory which was destroyed by fire in 2009 and subsequently demolished. There is a single dwelling (The Bungalow), which is located within the northern part of the wider site.
- 2.1.2 The wider site is bound by dwellings and farm buildings to the north, Killingwoldgraves Lane to the east, farm buildings to the south, and agricultural land to the west. The approximate boundary of the application site is shown in blue in Figure 1, with the wider site boundary shown in red.

**Figure 1: Site Location**



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- 2.1.3 There are two existing vehicular accesses to the site both of which connect with Killingwoldgraves Lane, including an access to The Bungalow to the north-east which measures approximately 5.0m in width and an access to the former wallpaper factory to the east which measures approximately 8.3m in width.



## 2.2 Planning History

- 2.2.1 A full planning application for the erection of a factory building for use under B1, B2 and B8 planning use classes at the proposed development site was submitted to ERYC in February 2017 (application ref: 17/00561/STPLF). The application was refused in July 2017 but was resubmitted with amendments in August 2017 (application ref: 17/02645/STPLF) and was subsequently granted planning approval in October 2017. Access to both proposed developments was proposed via the existing vehicular access which formerly served the wallpaper factory, which was accepted by ERYC Highways.
- 2.2.2 An outline planning application for a residential development of 5 dwellings at the proposed development site was submitted to ERYC in July 2018 (application ref: 18/02469/OUT). The site was proposed to be accessed via the existing vehicular access which formerly served the wallpaper factory, which was accepted by ERYC Highways. This scheme would have replaced the previously approved commercial scheme, as both developments could not have progressed in tandem. The application was refused in October 2018, however none of the reasons for refusal cited highway concerns.
- 2.2.3 An outline planning application for a mixed-use development comprising employment units (B1(c)/B8) and a Petrol Filling Station (PFS), with ancillary shop, was submitted to ERYC in February 2020 (application ref: 20/00541/OUT). The application was supported by a TA (LTP, 2020a) and supplementary Transport Note (TN) (LTP, 2020b) and received a positive recommendation from ERYC Highways. The application was approved by ERYC in July 2020, subject to a number of planning conditions.
- 2.2.4 Access to the development was considered and approved by ERYC Highways as part of the outline application, and is proposed to be taken via a new priority T-junction with ghost-island right-turn lane connecting with Killingwoldgraves Lane on the eastern boundary of the site. A preliminary design drawing showing the approved site access arrangements (including geometries and visibility splays) is included as Appendix 1.
- 2.2.5 Two reserved matters planning application for the PFS and ancillary shop were submitted to ERYC in November 2020 (ref: 20/03917/REM) and April 2021 (ref: 21/01543/REM) respectively. Both applications were refused by ERYC for non-highways reasons, although the former application is subject to a planning appeal, which is currently pending (ref: APP/E2001/W/21/3275091).

## 2.3 Development Proposals & Access Arrangements

- 2.3.1 The proposals involve the development of the south-eastern part of the wider site to accommodate a drive-thru coffee shop with a Gross Floor Area (GFA) of approximately 182m<sup>2</sup>. The proposed drive-thru coffee shop is to be provided alongside the previously approved PFS (with ancillary shop) and employment development (albeit at a reduced quantum). A proposed site layout plan is included as Appendix 2.

- 2.3.2 Access to the proposed drive-thru will be via a spur road connecting with the main development access road at an internal simple priority T-junction (this is within the development site and not on the proposed extents of the public highway). The main access road will also serve the proposed PFS, and would connect with Killingwoldgraves Lane at a priority T-junction with ghost-island right-turn lane provision. As previously outlined, access to the development from Killingwoldgraves Lane was approved as part of the previous outline application for the development (ref: 20/00541/OUT).
- 2.3.3 Pedestrian access to the site will be provided via a footway on the southern side of the main access road, and on the eastern side of the spur road. Crossing points with dropped kerbs, tactile paving and informal 'zebra' crossing markings will be provided across both the main access road and spur road. Internal pedestrian walkways between the footways and main building entrance will be demarcated within the drive-thru site.
- 2.3.4 A total of 26 car parking spaces will be provided at the site, including 2 disabled parking spaces and 2 Electric Vehicle (EV) parking spaces. Two 'Sheffield' cycle parking stands will be provided at the site, suitable to accommodate up to 4 cycles. The local parking standards applicable to the development are contained within ERYC's '*Sustainable Transport SPD*' (ERYC, 2016a) and are suggested as a starting point for the provision of vehicle parking for new developments. The standards suggest that for 'Food Retail' sites (the closest applicable land use category), 1 parking space should be provided per 14-20m<sup>2</sup> of floor space, giving a requirement of between 9 and 13 spaces based upon the proposed GFA. The proposed parking provision at the site is therefore considered to be suitable to accommodate the trips likely to be generated by the development.
- 2.3.5 As per the outline application at the site, it is proposed to amend the road markings and splitter island on the Killingwoldgraves Lane approach to Killingwoldgraves Roundabout to accommodate ahead movements to Driffield/Beverley in the nearside lane, rather than the offside lane as existing. These amendments are shown on the preliminary access drawing included as Appendix 1 and are conditioned as part of the outline application. The suitability of these amendments in the context of the revised proposals for the site is discussed further within Section 6.7.

### 3. SITE ASSESSMENT

#### 3.1 Local Highway Network

- 3.1.1 As previously outlined, the proposed development is to be accessed by vehicles via Killingwoldgraves Lane, a two-way single carriageway which measures approximately 7.3m in width. It is subject to a derestricted speed limit (60mph) throughout and there are not any existing waiting restrictions in place within the vicinity of the site.

**Photo 1: Killingwoldgraves Lane**



- 3.1.2 Killingwoldgraves Lane connects with the A1035, A1079 and A1174 at the five-arm 'Killingwoldgraves Roundabout', which is located approximately 120m north-east of the proposed site access location. The A1035 (Dog Kennel Lane) forms the northern arm of the roundabout and extends towards the B1248 and Cherry Burton, the A1079 forms the western and south-eastern arms of the roundabout and extends towards York to the west and Hull to the south-east, and the A1174 forms the eastern arm of the roundabout and extends towards Beverley town centre.

**Photo 2: Killingwoldgraves Roundabout**



- 3.1.3 Killingwoldgraves Lane continues to the south and connects with Copleflat Lane, Newbald Road and Walkington Heads at a priority crossroads approximately 850m south of the site. Copleflat Lane then continues further to the south and connects with Broadgate and East End at a four-arm signalised junction.
- 3.1.4 It is important to recognise that a drive-thru requires a roadside location in order to serve motorists needs, and the proposed development complements the uses approved by the outline planning consent covering the wider site. Notwithstanding this, appropriate opportunities to provide access to the site via sustainable modes of travel have been taken up given the development type and its location (in line with paragraph 110 of NPPF), with a summary of options for sustainable access provided within the sections below.

### 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 proposed development site is located within a 2km walking distance of the village of Bishop Burton, which is located to the west of the site. It is therefore considered that there is some potential to attract walking trips to the proposed development.
- 3.2.2 There is a footway on the western side of Killingwoldgraves Lane within the frontage of the site which extends towards Killingwoldgraves Roundabout to the north. There are dropped kerbs, tactile paving and a central island on the A1079 (W) and A1035 arms of the roundabout which facilitate pedestrian access between the footway on Killingwoldgraves Lane and a footway which runs on the northern side of the A1079 (W) and A1174. This footway extends west along the A1079 and provides pedestrian access to/from Bishop Burton and extends east along the A1174 towards Beverley.

**Photo 3: Dropped Kerbs and Tactile Paving at Killingwoldgraves Roundabout**



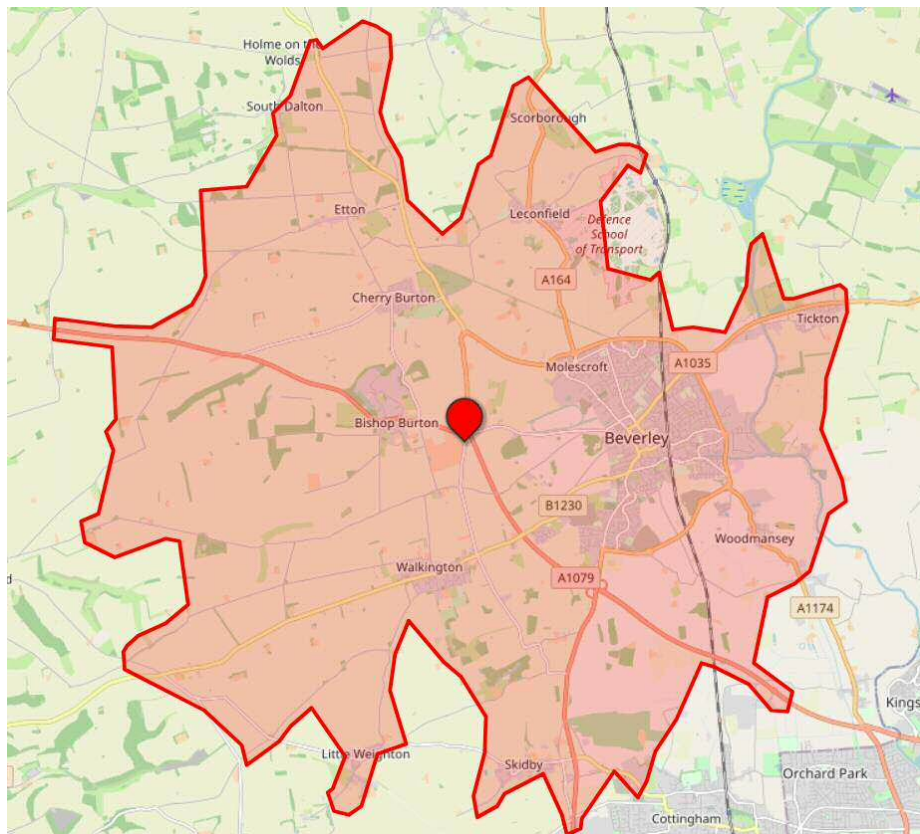


- 3.2.3 As previously approved, the footway on the western side of Killingwoldgraves Lane will be extended to the south and connect with the proposed site access junction as part of the proposals for the site.

### 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).
- 3.3.2 The proposed development site is located within a reasonable cycle ride, up to 8km (approximately 25 minutes at the average cycling speed of 12mph), of the entire built-up areas of Beverley, Bishop Burton, Cherry Burton and Walkington, as shown in Figure 2.

Figure 2: 8km Cycling Isochrone



Source: ORS, 2021

- 3.3.3 There is no dedicated cycling infrastructure within the vicinity of the site, although there are a number of quieter lanes serving nearby settlements including Walkington and Cherry Burton, which are accessible via Killingwoldgraves Lane.

3.3.4 National Cycle Network (NCN) Route 164 is accessible approximately 2.1km to the south of the site on Broadgate/East End. The NCN Route 164 is a short largely on-road route which connects Beverley with Kiplingcotes via North Newbald. NCN Route 1 is a long distance cycle routes which links Dover with the Shetland Islands, and locally serves Beverley and Driffield. NCN Route 1 is accessible via the A1035/B1248 approximately 2.1km to the north of the site.

### 3.4 Public Transport Provision

3.4.1 Advice within 'Guidelines for Public Transport in Development' (IHT, 1999) states that the generally acceptable maximum 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. The nearest bus stops to the proposed development site are located on both sides of the A1079 to the west of Killingwoldgraves Roundabout, within a 200m walk of the site access, and within a 400m walk of all parts of the site.

**Photo 4: Eastbound Bus Stop on A1079**



3.4.2 These stops are served by routes X46/X47, which operate approximately hourly in each direction between Hull and York, via Beverley, Market Weighton and Pocklington. The services operate on an evening and at weekends, including late evening services on Fridays and Saturdays.

3.4.3 The nearest railway station to the proposed development site is Beverley Rail Station, located approximately 4km travel distance to the east of the site. The station accommodates half-hourly daytime services between Hull and Bridlington, with hourly extensions to Sheffield, Doncaster, York and Scarborough. Beverley Rail Station is accessible via bus services X46 and X47, which stop within a short walk of the station.



## 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 5-year study period (01/01/2015 to 31/12/2019) was obtained via a search of the Department for Transport’s road safety data (DfT, 2020).
- 4.1.2 A total of 15 collisions occurred within the study area, which includes a section of Killingwoldgraves Lane, and Killingwoldgraves Roundabout. The study area extents and the locations of the collisions are indicated on the plan attached as Appendix 3. Table 1 below outlines the collision history of the study area.

**Table 1: Collision History**

Year	2015	2016	2017	2018	2019	Total
Fatal	-	-	-	-	-	0
Serious	-	-	1	1	-	2
Slight	3	3	3	2	2	13
<b>Total</b>	<b>3</b>	<b>3</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>15</b>

- 4.1.3 The collision records show that the number of PICs per year has remained relatively stable throughout the study period, with a slight peak in collisions in 2017. There were 2 KSI (Killed or Seriously Injured) collisions, resulting in a severity ratio of 13.3%.

### 4.2 Collision Conditions

- 4.2.1 Table 2 below summarises the collisions by road surface, weather and lighting conditions:

**Table 2: Collision Conditions**

Road Surface	Collisions	%
Dry	12	80%
Wet/Damp	3	20%
Weather	Collisions	%
Fine	14	93.3%
Rain	1	6.7%
Lighting	Collisions	%
Daylight	14	93.3%
Dark	1	6.7%

- 4.2.2 As illustrated in Table 2, the majority of collisions occurred with no adverse road surface, weather or lighting conditions.

### 4.3 Collision Times

4.3.1 Table 3 summarises the collisions by the time of year:

**Table 3: Collisions by Time of Year**

Time of Year	Collisions	%
Winter (Dec-Feb)	3	20%
Spring (Mar-May)	4	26.7%
Summer (Jun-Aug)	3	20%
Autumn (Sep-Nov)	5	33.3%

4.3.2 Table 3 shows that there was little variation in the number of collisions recorded across the seasons, albeit with a slight peak in collisions in the autumn months (33.3%).

4.3.3 Table 4 below summarises the collisions by day of week and also the time of day:

**Table 4: Collisions by Day & Time**

	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	1	1	-	-	-	2	13.3%
Tuesday	-	-	1	-	-	1	6.7%
Wednesday	-	2	1	1	-	4	26.7%
Thursday	-	-	2	-	-	2	13.3%
Friday	-	-	1	-	-	1	6.7%
Saturday	-	-	-	1	-	1	6.7%
Sunday	1	2	1	-	-	4	26.7%
<b>Total</b>	<b>2</b>	<b>5</b>	<b>6</b>	<b>2</b>	<b>0</b>	<b>15</b>	
<b>%</b>	<b>13.3%</b>	<b>33.3%</b>	<b>40%</b>	<b>13.3%</b>	<b>-</b>		

4.3.4 Table 4 shows that most collisions were recorded on a Wednesday or Sunday (26.7% each). The majority of collisions were recorded during either the lunch (11:00-14:00) or afternoon (14:00-19:00) periods, with no collisions recorded during the night.

### 4.4 Collision Locations

4.4.1 The locations of the 15 study collisions (shown on the plot attached as Appendix 3) can be summarised as follows:

- 15 PICs occurred at Killingwoldgraves Roundabout, including:
  - 6 PICs on or within the vicinity of the A1079 (SE) arm;
  - 5 PICs on or within the vicinity of the A1035 (N) arm; and
  - 4 PICs on or within the vicinity of the A1079 (W) arm.

4.4.2 Whilst it is acknowledged that a relatively high number of collisions was recorded at Killingwoldgraves Roundabout during the study period, an improvement scheme (including road safety measures) was implemented during late 2017/early 2018 which is expected to improve the road safety record at the roundabout. It is expected that the collision rate will continue to be observed by ERYC as part of ongoing monitoring.

4.4.3 No collisions were recorded on Killingwoldgraves Lane within the frontage of the site, or within the vicinity of the roundabout approach/exit.

## 4.5 Casualties

4.5.1 A total of 24 casualties occurred as a result of the 15 recorded injury collisions during the study period. Table 5 below provides a breakdown of the casualties according to the mode of travel and age group:

**Table 5: 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 +		
Cyclist	-	-	-	-	1	-	1	4.2%
Powered Two-Wheeler (PTW)	-	-	-	2	-	1	3	12.5%
Car Driver	-	-	1	3	4	1	9	37.5%
Car Passenger	-	-	-	-	1	1	2	8.3%
Minibus/Bus Passenger	4	-	-	1	1	-	6	25%
Goods Vehicle Occupant	-	-	-	3	-	-	3	12.5%
<b>Total</b>	<b>4</b>	<b>0</b>	<b>1</b>	<b>9</b>	<b>7</b>	<b>3</b>	<b>24</b>	
<b>%</b>	<b>16.7%</b>	<b>-</b>	<b>4.2%</b>	<b>37.5%</b>	<b>29.2%</b>	<b>12.5%</b>		

4.5.2 Table 5 shows that most casualties were car drivers (37.5%), with a relatively high proportion of minibus/bus passengers (25%). A total of 16.7% of casualties were vulnerable road users (pedestrians, cyclists, powered two-wheelers). The majority of casualties were aged between 26 and 45 years (37.5%), or 46 and 65 years (29.2%).

## 4.6 Road Safety Impact

4.6.1 A total of 15 collisions, resulting in 24 casualties, have occurred within the study area during the five-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 no existing road safety issues pertinent to the development of the site.

4.6.2 If the proposed access junctions and internal roads of the development are designed with due consideration to road safety, with appropriate highway design features incorporated into the detailed design of any schemes affecting the highway, 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 2020 Update

4.7.1 The DfT has subsequently released 2020 collision data, which identifies that 2 additional slight collisions and 1 additional serious collision were recorded in the following locations:

- 2 additional collisions at Killingwoldgraves roundabout (one slight, one serious), both within the vicinity of the A1035 (N) arm;

- 1 additional slight collision on Killingwoldgraves Lane, to the south of the proposed site (not at a junction).
- 4.7.2 These additional collisions are not considered to materially affect the conclusions of this TA.

## 5. TRIP GENERATION PROJECTIONS

### 5.1 Approved Trip Generation

5.1.1 As previously discussed, the outline application was supported by a TA (LTP, 2020a), which included trip generation projections for the proposed PFS and commercial development. The total approved vehicle trip generation of the outline development is shown within Table 6, considering both the mean and 85<sup>th</sup> percentile trip generation projections for the proposed PFS.

**Table 6: Total Traffic Generation (PFS & Commercial Developments)**

	AM Peak (08:00-09:00)		PM Peak (17:00-18:00)		Daily (07:00-19:00)	
	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures
PFS Trip Generation (Mean)	69	66	80	79	824	821
Commercial Unit Trip Generation (2,400m <sup>2</sup> )	21	13	14	21	178	176
<b>Total Trip Generation (Mean)</b>	<b>90</b>	<b>79</b>	<b>94</b>	<b>100</b>	<b>1,002</b>	<b>997</b>
PFS Trip Generation (85 <sup>th</sup> Percentile)	92	95	105	99	1,069	1,068
Commercial Unit Trip Generation (2,400m <sup>2</sup> )	21	13	14	21	178	176
<b>Total Trip Generation (85<sup>th</sup> Percentile)</b>	<b>113</b>	<b>108</b>	<b>119</b>	<b>120</b>	<b>1,247</b>	<b>1,244</b>

5.1.2 Table 6 demonstrates that, based upon the mean trip generation, the approved development would be expected to generate 169 two-way vehicle trips during the AM peak hour (08:00-09:00) and 194 during the PM peak hour (17:00-18:00).

5.1.3 Based upon the 85<sup>th</sup> percentile trip generation, the approved development would be expected to generate 221 two-way vehicle trips during the AM peak hour and 239 during the PM peak hour.

### 5.2 Proposed Drive-Thru Coffee Shop Trip Generation

5.2.1 The TRICS database is an industry-standard collection of traffic counts and trip generation statistics for calculating trip rates at development sites. The TRICS database has been interrogated to find suitable data to assist in projecting the trip generation of the proposed drive-thru coffee shop.

5.2.2 In order to calculate the vehicle trip generation for the proposed development, trip generation statistics within the ‘Hotel, Food & Drink – Drive Through 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, broadly consistent with the accepted criteria utilised in establishing the trip rates for the approved development (see Section 5.1 above):

- Database version: 7.8.3;
- Survey type: All survey types;
- Size: All sizes;
- TRICS location type: ‘Edge of Town’ and ‘Free Standing’;

- Regions: UK only, excluding Greater London and Ireland sites;
- Weekday survey data only (exclusion of Saturday and Sunday surveys); and
- Recent survey data only (exclusion of surveys undertaken prior to 01/01/2013).

5.2.3 As there were less than 20 comparable sites in the database after filtering (3 survey sites), mean trip rates (as weighted and calculated by the TRICS software) have been used to project the person trip generation of the proposed development, in accordance with good practice guidelines (TCL, 2021). Details of the site selection and trip rates taken from the TRICS database are attached in full within Appendix 4, with the projected vehicle trip generation shown in Table 7:

**Table 7: Projected Drive-Thru Coffee Shop Vehicle Trip Generation**

Proposed Coffee Drive-Thru	AM Peak (08:00-09:00)		PM Peak (16:00-17:00)*		Daily (07:00-19:00)	
	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures
Vehicle Trip Rates (per 100m <sup>2</sup> GFA)	13.514	11.892	11.892	12.865	134.703	133.946
Vehicle Trips (182m <sup>2</sup> GFA)	25	22	22	23	245	244

\*16:00-17:00 trip generation represents the worst-case scenario and has been applied to the network PM peak of 17:00-18:00 for robustness.

5.2.4 Table 7 indicates that the proposed drive-thru coffee shop is expected to generate 46 two-way vehicle trips during the AM peak hour (08:00-09:00) and 45 two-way vehicle trips during the PM peak hour (16:00-17:00).

### 5.3 Consented Commercial Units Trip Generation

5.3.1 The outline application included 2,400m<sup>2</sup> of employment development (B1(c)/B8), part of which was proposed to be provided in the location of the proposed drive-thru coffee shop. The proposals will therefore result in a reduction in the amount of commercial employment floorspace that can be achieved across the wider site.

5.3.2 The site area taken by the proposed drive-thru coffee shop represents approximately 28% of the total site area approved for employment use as part of the outline consent, therefore it is reasonable to assume that 72% of the previously approved employment use could be provided within the remainder of the site, equating to 1,728m<sup>2</sup>.

5.3.3 Based upon the approved employment trip rates within the original TA (LTP, 2020a), the revised trip generation of the remaining consented employment development is provided within Table 8:

**Table 8: Projected Employment Vehicle Trip Generation**

Consented Employment Development	AM Peak (08:00-09:00)		PM Peak (16:00-17:00)*		Daily (07:00-19:00)	
	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures
Vehicle Trip Rates (per 100m <sup>2</sup> GFA)	0.892	0.534	0.571	0.865	7.409	7.346
Vehicle Trips (1,728m <sup>2</sup> GFA)	15	9	10	15	128	127

\*16:00-17:00 trip generation represents the worst-case scenario and has been applied to the network PM peak of 17:00-18:00 for robustness.



5.3.4 The vehicle trip generation projections indicate that the consented employment development would be expected to generate 24 two-way vehicle trips during the AM peak hour (08:00-09:00) and 25 during the PM peak hour (16:00-18:00). This represents a reduction of 10 two-way AM peak trips and 9 two-way PM peak trips when compared to the consented 2,400m<sup>2</sup> of employment development (see Section 5.1).

5.3.5 It should be noted that a new commercial unit at the site (1,229m<sup>2</sup> GFA) and its associated trip generation was also previously approved as part of a separate planning application (ref: 17/02645/STPLF), therefore there is a level of consented commercial traffic generation associated with the site. However for robustness and as per the previous TA (LTP, 2020a), no reduction in trip generation has been made to account for the previously consented development.

## 5.4 Total Vehicle Trip Generation

5.4.1 The total consented and proposed vehicle trip generation of the development is outlined within Table 6, considering both the mean and 85<sup>th</sup> percentile trip generation projections for the proposed PFS.

**Table 9: Total Consented & Proposed Traffic Generation**

	AM Peak (08:00-09:00)		PM Peak (17:00-18:00)		Daily (07:00-19:00)	
	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures
PFS Trip Generation (Mean)	69	66	80	79	824	821
Commercial Unit Trip Generation (2,400m <sup>2</sup> )	21	13	14	21	178	176
<b>Total Consented Trip Generation (Mean)</b>	<b>91</b>	<b>79</b>	<b>94</b>	<b>100</b>	<b>1002</b>	<b>997</b>
PFS Trip Generation (Mean)	69	66	80	79	824	821
Consented Remainder Commercial Unit Trip Generation (1,728m <sup>2</sup> )	15	9	10	15	128	127
Proposed Coffee Drive-Thru Trip Generation (182m <sup>2</sup> )	25	22	22	23	245	244
<b>New Proposal Total Trip Generation (Mean)</b>	<b>109</b>	<b>97</b>	<b>112</b>	<b>117</b>	<b>1198</b>	<b>1191</b>
<b>Net Change</b>	<b>+19</b>	<b>+18</b>	<b>+18</b>	<b>+18</b>	<b>+195</b>	<b>+194</b>
PFS Trip Generation (85 <sup>th</sup> Percentile)	92	95	105	99	1069	1068
Commercial Unit Trip Generation (2,400m <sup>2</sup> )	21	13	14	21	178	176
<b>Total Trip Generation (85<sup>th</sup> Percentile)</b>	<b>113</b>	<b>108</b>	<b>119</b>	<b>120</b>	<b>1246</b>	<b>1245</b>
PFS Trip Generation (85 <sup>th</sup> Percentile)	92	95	105	99	1069	1068
Consented Remainder Commercial Unit Trip Generation (1,728m <sup>2</sup> )	15	9	10	15	128	127
Proposed Coffee Drive-Thru Trip Generation (182m <sup>2</sup> )	25	22	22	23	245	244
<b>New Proposal Total Trip Generation (85<sup>th</sup> Percentile)</b>	<b>132</b>	<b>126</b>	<b>137</b>	<b>138</b>	<b>1442</b>	<b>1439</b>
<b>Net Change</b>	<b>+19</b>	<b>+18</b>	<b>+18</b>	<b>+18</b>	<b>+195</b>	<b>+194</b>

\*Totals may not represent the sum of their parts due to rounding

5.4.2 Table 6 demonstrates that the proposals are expected to result in up to an additional 37 two-way vehicle trips during the AM peak hour, 36 during the PM peak hour and 389 across the full daily period when compared to the consented development.

## 5.5 Trip Types

- 5.5.1 Guidance from the DfT states that, *“as certain types of development, particularly retail, can have a significant effect on vehicular traffic, consideration may be given to the different types of vehicular trips that are likely to be generated”*, including new, pass-by, linked, diverted and transferred trips (DfT, 2007a). The DfT considers that, *“for many types of development, this element of generated trips (new trips) can be relatively small”*. It is therefore acknowledged that a significant proportion of the vehicle trips generated by the proposed development will not be ‘new’ to the local highway network, with a number of other trip types generated by the site.
- 5.5.2 The DfT suggest that *“the level of reduction in vehicular trip generation based on the mix of trips will be to a degree subjective and dependent on the specific characteristics and location of the proposed development”*.
- 5.5.3 The approved TA (LTP, 2020a) outlines that all trips generated by the proposed PFS would be either pass-by or diverted trips that are already on the highway network within the vicinity of the site, which was agreed with ERYC Highways. Trips that currently take place on Killingwoldgraves Lane and would therefore directly access the site without any detour would be classified as ‘pass-by’ trips, with trips taking place on the A1035, A1079 or A1174 that would require a short detour via Killingwoldgraves Lane classified as ‘diverted’ trips.
- 5.5.4 For robustness, it was assumed that all trips generated by the consented commercial units would be new to the highway network, with no pass-by or linked trip factor applied.
- 5.5.5 For the purposes of this TA, it is assumed that 50% of trips generated by the proposed drive-thru coffee shop would be pass-by or diverted trips, with 50% new trips to the local network. This is considered to be robust, particularly given that there may also be a number of linked trips with visitors to the proposed PFS and employment development. The distribution and assignment of these trips is discussed further within Section 6.3 of this TA.
- 5.5.6 The wider development would therefore be expected to generate a total of 48 new two-way vehicle trips during each of the respective AM (08:00-09:00) and PM (17:00-18:00) peak hours, associated with the proposed drive-thru coffee shop and consented remainder employment (B1(c)/B8) uses. The revised development proposals represent an increase of 14 new AM peak trips and 13 new PM peak trips when compared to the consented use of the site.

## 6. TRAFFIC IMPACT

### 6.1 Baseline Network Traffic Flows

- 6.1.1 In order to establish the baseline traffic situation within the vicinity of the site, vehicle turning count data for Killingwoldgraves Roundabout was obtained from the TA for the Lindum PFS scheme (Enzygo, 2019a). The data was collected on a neutral weekday (Tuesday 18<sup>th</sup> December 2018) during school term-time and identified that the AM peak hour is 08:00-09:00 and the PM peak hour is 17:00-18:00.
- 6.1.2 Whilst it was noted by ERYC Highways that December is not typically considered a neutral month, the dataset was considered to be representative of a suitable baseline by ERYC Highways in its response to the application, given that traffic volumes in the week before Christmas are typically higher than at other times of the year. These traffic flows have therefore been utilised within this TA and provide a consistent and accepted baseline for assessment. Given that the surveys recorded entry and exit flows from the Killingwoldgraves Lane arm of the roundabout, the data is also representative of the traffic flows on Killingwoldgraves Lane within the site frontage.
- 6.1.3 The recorded traffic flows during the peak hours are illustrated in the flow diagrams attached as Appendix 5.

### 6.2 Committed Developments

- 6.2.1 A full planning application by Lindum for the “*Erection of petrol filling station and retail store*” at land located to the north-east of Killingwoldgraves Roundabout was submitted to ERYC in April 2019 (application ref: 19/01217/PLF). The application was supported by a TA (Enzygo, 2019a) and TA Addendum (Enzygo, 2019b) and received a positive recommendation from ERYC Highways, subject to a number of suggested planning conditions. The application was refused by ERYC’s Planning Committee in November 2019, with two reasons for refusal cited, however neither of these reasons cited highway concerns. The application was allowed on appeal in August 2020 (ref: APP/E2001/W/20/3251480).
- 6.2.2 A discharge of conditions application for the development was approved by ERYC in May 2021 (application ref: 21/30220/CONDET). A variation of conditions application was submitted to ERYC in August 2021 and was approved in November 2021 (application ref: 21/03062/VAR). The site is proposed to be accessed via a new priority junction with ghost-island right-turn lane connecting with the A1174 on the southern boundary of the site.
- 6.2.3 Network diagrams showing the distribution of traffic associated with the Lindum PFS development are included as Appendix 5.

### 6.3 Traffic Distribution & Assignment

- 6.3.1 As part of the approved TA (LTP, 2020a), it was assumed that all vehicle trips generated by the proposed PFS would be pass-by or diverted trips which are already on the highway network. However it was acknowledged that the development would still be expected to increase the number of vehicle movements at Killingwoldgraves Roundabout, for example a diverted trip which currently travels from the A1079 (SE) to the A1035 would instead travel from the A1079 (SE) to Killingwoldgraves Lane, and then Killingwoldgraves Lane to the A1035 when visiting the PFS, resulting in an additional one-way movement at Killingwoldgraves Roundabout. The redistribution effect of the pass-by and diverted trips were considered as part of the assessments of the TA and were approved by ERYC Highways.
- 6.3.2 As outlined within Section 5.5, the same assertion has been made for the trips generated by the proposed drive-thru coffee shop, albeit that 50% of trips would be pass-by or diverted trips rather than 100%.
- 6.3.3 As per the approved TA, the distribution of projected traffic associated with the proposed development has been predicted utilising the existing proportions of approach and exit traffic at Killingwoldgraves Roundabout for the respective AM and PM peak hours. This is considered to be robust approach as the demand generated by the proposed drive-thru coffee shop 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 trips occur. The identified traffic flows and proportions are outlined within Table 10.

**Table 10: Proposed Traffic Distribution**

Arm	Approach Flow	Approach %	Exit Flow	Exit %
<b>AM Peak</b>				
A1035 (N)	904	32%	467	16%
A1174 (E)	307	11%	299	10%
A1079 (SE)	762	27%	1,168	41%
Killingwoldgraves Lane	286	10%	328	11%
A1079 (W)	601	21%	598	21%
<b>TOTAL</b>	<b>2,860</b>	<b>100%</b>	<b>2,860</b>	<b>100%</b>
<b>PM Peak</b>				
A1035 (N)	509	19%	749	28%
A1174 (E)	270	10%	291	11%
A1079 (SE)	931	35%	916	34%
Killingwoldgraves Lane	373	14%	255	9%
A1079 (W)	613	23%	485	18%
<b>TOTAL</b>	<b>2,696</b>	<b>100%</b>	<b>2,696</b>	<b>100%</b>

\*Totals may not represent the sum of their parts due to rounding.

- 6.3.4 The distribution of traffic associated with the proposed development is therefore expected to be in accordance with the proportions outlined within Table 10. For example, 32% of arrivals and 16% of departures during the AM peak hour are expected to be to/from the A1035, reflective of the fact that approach flow on this arm is much higher than the exit flow, and therefore the development is likely to attract more arrivals from that arm than departures. The traffic distribution associated with all elements of the site has been projected utilising the same methodology for consistency. This is considered to be reasonable approach, particularly given that the proposed PFS and drive-thru coffee shop are expected to generate the majority of trips at the site.
- 6.3.5 Table 10 demonstrates that 9%-14% of generated traffic is expected to travel to/from the south on Killingwoldgraves Lane at the proposed access locations, with 86%-91% expected to travel to/from the north via Killingwoldgraves Roundabout.
- 6.3.6 Flow diagrams illustrating the projected distribution of traffic associated with the proposed development are included as Appendix 5.

## 6.4 Assessment Scenarios

- 6.4.1 The proposals have been tested against the following weekday AM and PM peak hour traffic flow scenarios:
- **2018 Base** – Traffic flows recorded during the December 2018 traffic surveys;
  - **2027 Do Nothing** – ‘2018 Base’ network traffic flows, growthed to 2027, with the addition of committed development traffic flows (see Section 6.2) and the consented trip generation of the wider site, based on the mean trip generation of the PFS (see Section 5.4);
  - **2027 Do Nothing (Sensitivity Test)** – ‘2018 Base’ growthed to 2027, with the addition of committed development traffic flows (see Section 6.2) and the consented trip generation of the wider site, based on the 85<sup>th</sup> percentile trip generation of the PFS (see Section 5.4);
  - **2027 With Development** – ‘2027 Do Nothing’ flows with the addition of the net trip generation associated with the revised development proposals (see Section 5.4); and
  - **2027 With Development (Sensitivity Test)** – ‘2027 Do Nothing (Sensitivity Test)’ flows with the addition of the net trip generation associated with the revised development proposals (see Section 5.4).
- 6.4.2 The traffic impact of the proposals is typically assessed against the predicted traffic flows 5 years after registration of the planning application, in accordance with guidance from the DfT with respect to the local highway network (DfT, 2007a). A planning application for the proposed development is expected to be submitted in late 2021/early 2022, therefore for robustness, the proposals have been assessed against a horizon year of 2027.

6.4.3 The network traffic flows at 2027 have been predicted using the DfT’s ‘National Traffic Model’ (NTM) and ‘National Trip End Model’ (NTEM). The regional growth factor obtained from the NTM has been adjusted to reflect local circumstances using TEMPro software (Ref: Yorkshire & Humber Dataset Version 7.2), see Appendix 6.

## 6.5 Impact on Local Junctions

6.5.1 The predicted increase in traffic across the local highway network as a result of each development scenario is illustrated in the network diagrams attached as Appendix 5, and is summarised in Table 11.

**Table 11: Projected Traffic Impact at Local Junctions**

Junction	2018 Base	2027 Do Nothing	2027 Do Nothing (Sens. Tes)	2027 With Development	2027 With Development (Sens. Test)
<b>AM Peak (08:00-09:00)</b>					
Proposed Site Access/Killingwoldgraves Lane junction	614*	823	869	857	903
Killingwoldgraves Roundabout	2,860	3,190	3,216	3,212	3,237
<b>PM Peak (17:00-18:00)</b>					
Proposed Site Access/Killingwoldgraves Lane junction	628*	847	886	880	920
Killingwoldgraves Roundabout	2,696	3,054	3,072	3,076	3,094

\*Baseline flow on Killingwoldgraves Lane without the proposed access junctions

\*\*All values are expressed as Passenger Car Units (PCUs)

6.5.2 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”.

6.5.3 This national DfT guidance has now been superseded and replaced with the ‘National Planning Policy Framework’ (NPPF) (MHCLG, 2021) and its accompanying ‘Planning Practice Guidance’ (PPG) (DCLG, 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.

6.5.4 Given that more than 30 additional two-way trips are expected to be generated at the proposed site access/Killingwoldgraves Lane junction, a junction capacity assessment has been undertaken in order to test the impact of the development on the operation of the junction, as discussed further within Section 6.6 below.

6.5.5 Whilst less than 30 additional two-way trips are expected to be generated at Killingwoldgraves Roundabout (22 two-way trips during each respective peak hour), a junction capacity assessment has also been undertaken in order to test the suitability of the previously identified improvement scheme in light of the revised proposals, as discussed further within Section 6.7 below.



6.5.6 As discussed within Section 5.5, all trips generated by the proposed PFS and 50% of trips generated by the proposed drive-thru coffee shop are expected to be pass-by or diverted trips, and therefore the impact beyond Killingwoldgraves Lane and Killingwoldgraves Roundabout is expected to be negligible or none. The wider development is expected to generate up to 48 new two-way trips during each of the respective AM and PM peak hours associated with the proposed drive-thru coffee shop and commercial units (it's less when only considering the proposed drive-thru coffee shop in isolation), therefore once this traffic is distributed beyond Killingwoldgraves Lane and Roundabout, the impact at any other junction is expected to be less than 30 two-way trips. It is therefore considered that the proposed development would not be expected to have a significant impact on the operation of any other local junction.

## 6.6 Site Access/Killingwoldgraves Lane Junction Capacity Assessment

6.6.1 In order to assess the ability of the proposed site access/Killingwoldgraves Lane junction to accommodate the traffic associated with the proposed development, a junction capacity assessment has been undertaken using Junctions 9 modelling software (PICADY module), which is a software package produced by TRL that provides an industry-standard method for assessing capacity, queuing and delay at priority junctions (PICADY) and roundabouts (ARCADY).

6.6.2 The projected future peak hour traffic flows have been assessed against the proposed junction layout, as shown on the drawing attached as Appendix 1. The results of the capacity assessment are shown in full within the complete modelling output (see Appendix 7), and are summarised in Table 12.

**Table 12: Site Access/Killingwoldgraves Lane Junction Capacity Assessment**

Peak	Traffic Stream	2027 With Development		2027 With Development (Sensitivity Test)	
		Max. RFC	Max. End Q	Max. RFC	Max. End Q
AM	Site Access (Left-Turn)	15.1%	0.2	19.5%	0.2
	Site Access (Right-Turn)	3.6%	0.0	4.7%	0.0
	Killingwoldgraves Lane (N)	15.2%	0.2	18.4%	0.2
	<b>TOTAL</b>	<b>15.2%</b>	<b>0.2</b>	<b>19.5%</b>	<b>0.2</b>
PM	Site Access (Left-Turn)	19.2%	0.2	22.7%	0.3
	Site Access (Right-Turn)	3.7%	0.0	4.5%	0.0
	Killingwoldgraves Lane (N)	15.4%	0.2	18.9%	0.2
	<b>TOTAL</b>	<b>19.2%</b>	<b>0.2</b>	<b>22.7%</b>	<b>0.3</b>

6.6.3 The capacity assessment results shown in Table 12 indicate that the proposed site access junction would be expected to operate well within capacity in 2027 with the full proposed development in place, with a worst-case Ratio of Flow to Capacity (RFC) of 19.2% in the 'With Development' scenario and 22.7% in the 'Sensitivity Test' scenario (site access left-turn, PM peak), considerably below the typical 85% target threshold.

6.6.4 It is therefore considered that the proposed site access/Killingwoldgraves Lane junction is suitable to accommodate the additional trips generated by the proposed drive-thru coffee shop.

## 6.7 Killingwoldgraves Roundabout Capacity Assessment

6.7.1 In order to assess the ability of Killingwoldgraves Roundabout to accommodate the traffic associated with the proposed development, a junction capacity assessment has been undertaken using Junctions 9 modelling software (ARCADY module). In line with comments provided by ERYC Highways on the outline application, the capacity assessment has been undertaken using lane simulation mode within Junctions 9 modelling software, based on a roundabout layout supplied by ERYC and the geometries agreed with ERYC as part of the outline application. Lane simulation mode takes into account the previously stated concerns around the potential for uneven lane usage on the Killingwoldgraves Lane arm and in this instance, allows the roundabout to be modelled more accurately.

6.7.2 It is noted that the nearby Lindum PFS development was allowed on appeal since the outline application was approved (see Section 6.2), therefore the capacity assessment considers this as a committed development in the 'Do Nothing' and 'With Development' scenarios.

6.7.3 The results of the capacity assessment are shown in full within the complete modelling output (see Appendix 8), and are summarised in Table 13.

**Table 13: Killingwoldgraves Roundabout Capacity Assessment (Existing Layout)**

Peak	Traffic Stream	2018 Base		2027 Do Nothing		2027 Do Nothing (Sensitivity Test)		2027 With Development		2027 With Development (Sensitivity Test)	
		Max. RFC	Max. End Q	Max. RFC	Max. End Q	Max. RFC	Max. End Q	Max. RFC	Max. End Q	Max. RFC	Max. End Q
AM	A1174 (E)	24.9%	0.7	32.5%	0.9	33.2%	0.9	33.5%	1.0	32.8%	0.9
	A1079 (SE)	42.1%	1.7	46.5%	1.8	46.3%	1.8	47.4%	1.9	46.6%	1.8
	Killingwoldgraves Lane	67.8%	2.7	88.7%	9.6	93.8%	14.5	95.2%	13.0	95.0%	17.4
	A1079 (W)	38.7%	1.4	42.6%	1.3	43.7%	1.4	43.6%	1.4	42.5%	1.5
	A1035 Dog Kennel Lane	65.8%	3.1	71.5%	4.1	71.0%	3.9	71.1%	3.3	69.9%	3.3
	<b>TOTAL</b>	<b>67.8%</b>	<b>3.1</b>	<b>88.7%</b>	<b>9.6</b>	<b>93.8%</b>	<b>14.5</b>	<b>95.2%</b>	<b>13.0</b>	<b>95.0%</b>	<b>17.4</b>
PM	A1174 (E)	23.7%	0.5	32.0%	0.8	32.5%	0.7	33.6%	0.7	32.9%	0.8
	A1079 (SE)	55.1%	2.0	59.7%	2.5	59.1%	2.5	59.0%	2.2	58.0%	2.1
	Killingwoldgraves Lane	94.2%	13.9	96.8%	62.6	99.5%	75.1	100.3%	68.2	101.7%	80.1
	A1079 (W)	46.1%	1.4	48.6%	1.5	49.6%	1.6	49.9%	1.6	50.3%	1.7
	A1035 Dog Kennel Lane	40.4%	1.0	42.6%	1.4	42.2%	1.1	42.2%	1.0	41.4%	1.0
	<b>TOTAL</b>	<b>94.2%</b>	<b>13.9</b>	<b>98.1%</b>	<b>62.6</b>	<b>99.5%</b>	<b>75.1</b>	<b>100.3%</b>	<b>68.2</b>	<b>101.7%</b>	<b>80.1</b>

- 6.7.4 The capacity assessment results shown in Table 13 indicate that, based on lane simulation modelling, the Killingwoldgraves Lane arm of Killingwoldgraves Roundabout would be expected to operate over 85% capacity in all assessed PM peak hour scenarios, and during the AM peak hour in both the 'Do Nothing' and 'With Development' scenarios. All other arms of the roundabout would be expected to operate within capacity in all assessed scenarios.
- 6.7.5 As part of the outline application (ref: 20/00541/OUT), an improvement scheme to amend the road markings and splitter island on the Killingwoldgraves Lane approach, and the road markings on the circulatory carriageway was agreed with ERYC. The proposed improvements are shown on drawing LTP/4030/T1/02.01 Rev C (included as Appendix 1) and are conditioned to be provided as part of the outline application.
- 6.7.6 A capacity assessment of the proposed improvement scheme has been undertaken in order to assess its suitability in light of the revised development proposals, and additional trips at the roundabout associated with the Lindum PFS scheme. The capacity assessment results presented in Table 14 and included in full as Appendix 9.

**Table 14: Killingwoldgraves Roundabout Capacity Assessment (Proposed Layout)**

Peak	Traffic Stream	2027 With Development		2027 With Development (Sensitivity Test)	
		Max. RFC	Max. End Q	Max. RFC	Max. End Q
AM	A1174 (E)	32.5%	1.0	33.3%	1.0
	A1079 (SE)	46.6%	1.8	46.4%	2.1
	Killingwoldgraves Lane	48.0%	1.7	51.6%	1.8
	A1079 (W)	43.0%	1.4	43.8%	1.7
	A1035 Dog Kennel Lane	71.0%	3.5	70.2%	4.0
	<b>TOTAL</b>	<b>71.0%</b>	<b>3.5</b>	<b>70.2%</b>	<b>4.0</b>
PM	A1174 (E)	33.1%	0.8	34.0%	0.8
	A1079 (SE)	57.9%	2.2	59.2%	3.0
	Killingwoldgraves Lane	70.7%	3.2	72.3%	3.5
	A1079 (W)	52.1%	1.7	55.0%	1.9
	A1035 Dog Kennel Lane	42.8%	1.4	41.9%	1.0
	<b>TOTAL</b>	<b>70.7%</b>	<b>3.2</b>	<b>72.3%</b>	<b>3.5</b>

- 6.7.7 Table 14 demonstrates that the roundabout would be expected to operate within capacity with the proposed improvement scheme and full proposed development in place. The maximum RFC value is expected to be 72.3% (Killingwoldgraves Lane arm, PM peak), below the typical 85% capacity threshold.
- 6.7.8 It is therefore considered that the improvement scheme proposed as part of the outline application is suitable to accommodate the additional trips generated by both the proposed drive-thru coffee shop and Lindum PFS scheme.

## **6.8 Traffic Impact Summary**

- 6.8.1 Based upon the assessments outlined within this section, the proposed development will not have a significant impact on the operation of the local highway network, and certainly not anywhere near a level that could reasonably be considered as “severe” as would be required to refuse the planning application in this regard. The proposed site access junction and improvement scheme at Killingwoldgraves Roundabout identified and approved as part of the outline application are suitable to accommodate the additional trips associated with the proposed development.
- 6.8.2 Therefore the proposals are considered to be in accordance with the ‘*National Planning Policy Framework*’ (MHCLG, 2021), 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*”.

## 7. CONCLUSIONS

- 7.1.1 This TA provides a detailed appraisal of transport aspects associated with proposals for a drive-thru coffee shop at a site located to the west of Killingwoldgraves Lane near Bishop Burton, in the East Riding of Yorkshire. The proposed coffee shop will be provided alongside a PFS and employment (B1(c)/B8) development at the site, which benefit from outline planning consent (ref: 20/00541/OUT).
- 7.1.2 Access to the proposed drive-thru will be via a spur road connecting with the main development access road at an internal simple priority T-junction. The main access road will also serve the proposed PFS, and would connect with Killingwoldgraves Lane at a priority T-junction with ghost-island right-turn lane provision, which was approved as part of the previous outline application for the development (ref: 20/00541/OUT). Pedestrian access to the site will be via a footway on the southern side of the main access road, connecting with the proposed provision at the site access junction with Killingwoldgraves Lane. A total of 26 car parking spaces (including 2 disabled spaces and 2 EV spaces) will be provided at the site, along with 4 cycle parking spaces.
- 7.1.3 The village of Bishop Burton is located within a 2km walk of the site and is accessible via footways on Killingwoldgraves Lane and the A1079. The entire built-up area of Beverley, along with Walkington and Cherry Burton is within an 8km cycle ride of the site. There are bus stops on both sides of the A1079 that are within a 400m walk of all parts of the site which provide access to hourly bus services on the X46/X47 route between Hull and York via Pocklington. Beverley Rail Station is accessible via bus services X46/X47, which stop within a short walk of the station.
- 7.1.4 A road casualty study showed that 15 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 no existing road safety issues pertinent to the development of the site. If the proposed access junction and internal roads of the development are designed with due consideration to road safety, 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.
- 7.1.5 The trip generation of the proposed development has been projected using the industry-standard TRICS database. The projections demonstrate that the proposals are expected to result in an additional 37 two-way vehicle trips during the AM peak hour and 36 during the PM peak hour when compared to the consented use of the site.

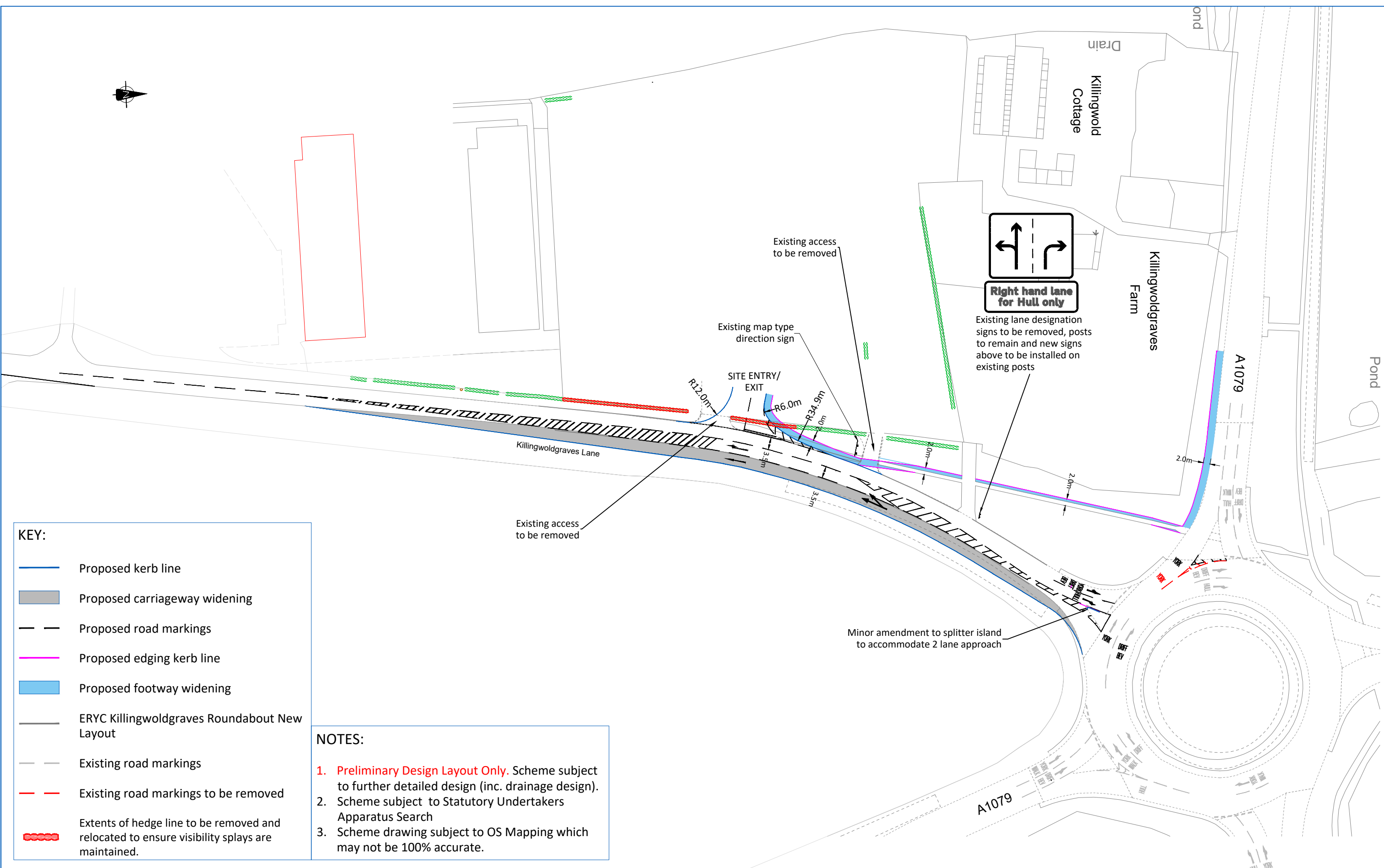
- 7.1.6 In order to establish the baseline traffic situation within the vicinity of the site, vehicle turning count data for Killingwoldgraves Roundabout was obtained from the TA for the Lindum scheme (Enzygo, 2019a). The data was collected on a neutral weekday during school term-time (Tuesday 18<sup>th</sup> December 2018) and identifies that the AM peak hour is 08:00-09:00 and the PM peak hour is 17:00-18:00. This dataset was considered to be representative of a suitable baseline by ERYC Highways in its response to the Lindum scheme, and has therefore been utilised as a consistent and accepted baseline for assessment.
- 7.1.7 The distribution of traffic associated with the proposed development has been predicted utilising the existing proportions of approach and exit traffic at Killingwoldgraves Roundabout for the respective AM and PM peak hours. This identifies that the majority of trips during both peak hours are expected to travel to/from Killingwoldgraves Roundabout, with 9%-14% travelling to/from the south on Killingwoldgraves Lane.
- 7.1.8 The redistribution effect of the pass-by and diverted trips on the local highway network has been considered as part of the assessments of this TA. Up to 14 additional AM peak trips and 13 additional PM peak trips are expected to be 'new' to the local highway network, with the remainder being pass-by or diverted trips that are already present on the network. The impact of the proposals beyond Killingwoldgraves Lane and Roundabout is therefore expected to be less than 30 two-way trips.
- 7.1.9 The traffic flow impact of the proposed development has been projected utilising traffic growth forecasts to 2027, including consideration of the Lindum PFS scheme as a committed development.
- 7.1.10 In order to assess the ability of the proposed site access junction and Killingwoldgraves Roundabout to accommodate the traffic associated with the proposed development, junction capacity assessments have been undertaken using Junctions 9 modelling software. The capacity assessments show that the proposed development will not have a severe impact on the operation of the local highway network, and that the proposed site access junction and improvement scheme at Killingwoldgraves Roundabout identified and approved as part of the outline application (ref: 20/00541/OUT) are suitable to accommodate the additional trips associated with the proposed development.
- 7.1.11 Based on the assessments of this TA, it is considered that the proposed development would not be expected to have a severe impact on the operation of the local highway network. The proposals are therefore 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, 2021).
- 7.1.12 It is concluded from the assessments within this TA that the proposed development would not be expected to have a severe impact in terms of sustainable travel, traffic impact and road safety.



## 8. REFERENCES

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## **Appendix I – Approved Site Access Arrangements**



**KEY:**

- Proposed kerb line
- Proposed carriageway widening
- Proposed road markings
- Proposed edging kerb line
- Proposed footway widening
- ERYC Killingwoldgraves Roundabout New Layout
- Existing road markings
- Existing road markings to be removed
- Extents of hedge line to be removed and relocated to ensure visibility splays are maintained.

**NOTES:**

1. Preliminary Design Layout Only. Scheme subject to further detailed design (inc. drainage design).
2. Scheme subject to Statutory Undertakers Apparatus Search
3. Scheme drawing subject to OS Mapping which may not be 100% accurate.

Client	Level Developments Ltd
Project	Proposed Petrol Filling Station & Employment Development Killingwoldgraves Lane, Bishop Burton

<b>Title</b> Proposed Ghost Island Junction Based on 70kph (40mph) Design Speed				
Rev.	Date	By	Chk	Description
B	13 05 20	OA	TK	Amended existing access annotation in response to client comment.
C	03 06 20	CW	TK	Amendments in line with ERYC comments.

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ii. Reference should be made to the project's drawing register to ensure the latest drawing is being referred to.

iii. All dimensions are to be checked by the contractor prior to commencement of work. Any discrepancy shall be reported immediately to Local Transport Projects Ltd.

iv. All work shall be carried out in accordance with local authority, statutory authority and health & safety requirements & regulations.

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Drawn	CW	Date	31 01 2020
Scale	1 : 1000	Checked	JH
		Approved	SW
Status	<b>PRELIMINARY</b>		
Drawing number	A3 LTP/4030/T1/02.01		
Project	Job	Drawing	Sheet
			Revision
			C

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traffic engineering and transport planning

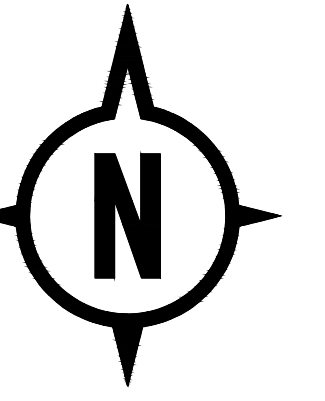
**INSTITUTE OF HIGHWAY ENGINEERS**  
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Registered No. 5295328

## **Appendix 2 – Proposed Site Layout Plan**





'Proposed Petrol Filling Station and Ancillary Shop' Reserved Matters Application  
20/03917/REM - Subject to Planning Appeal

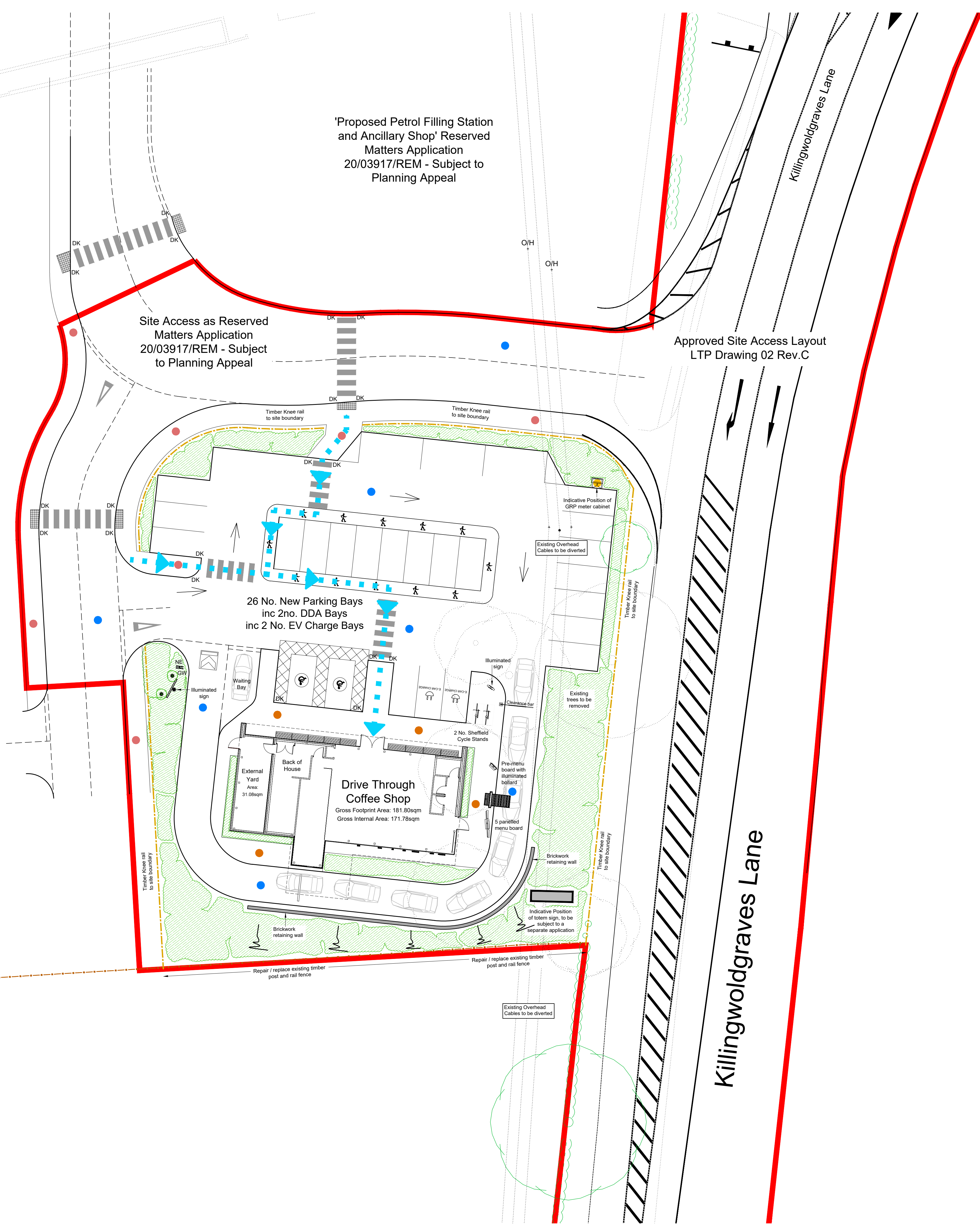
Area subject to future Reserved Matters Application

Site Access as Reserved Matters Application  
20/03917/REM - Subject to Planning Appeal

Approved Site Access Layout  
LTP Drawing 02 Rev.C

- Key**
- Planning Application Site Area 7874sqm / 1.95acres
  - Black Bitmac finish
  - Red Bitmac finish
  - Concrete
  - Terrace - Block paving grey  
Detailing - Block paving light grey
  - Kerb
  - Pin Kerb
  - DK Drop Kerb
  - Stainless steel bollard
  - Soft Landscaping  
See Rosetta Drawing 3697/1
  - Tactile paving
  - Timber knee rail
  - Existing Trees to be removed
  - Non illuminated signage
  - NE Non illuminated sign  
NO ENTRY
  - GW Non illuminated sign  
GIVE WAY
  - NE Non illuminated sign  
NO ENTRY / GIVE WAY
  - Pedestrian Route  
Tactile paving and dropped kerbs at all appropriate points along the route to DDA standards within site demise

Area subject to future Reserved Matters Application



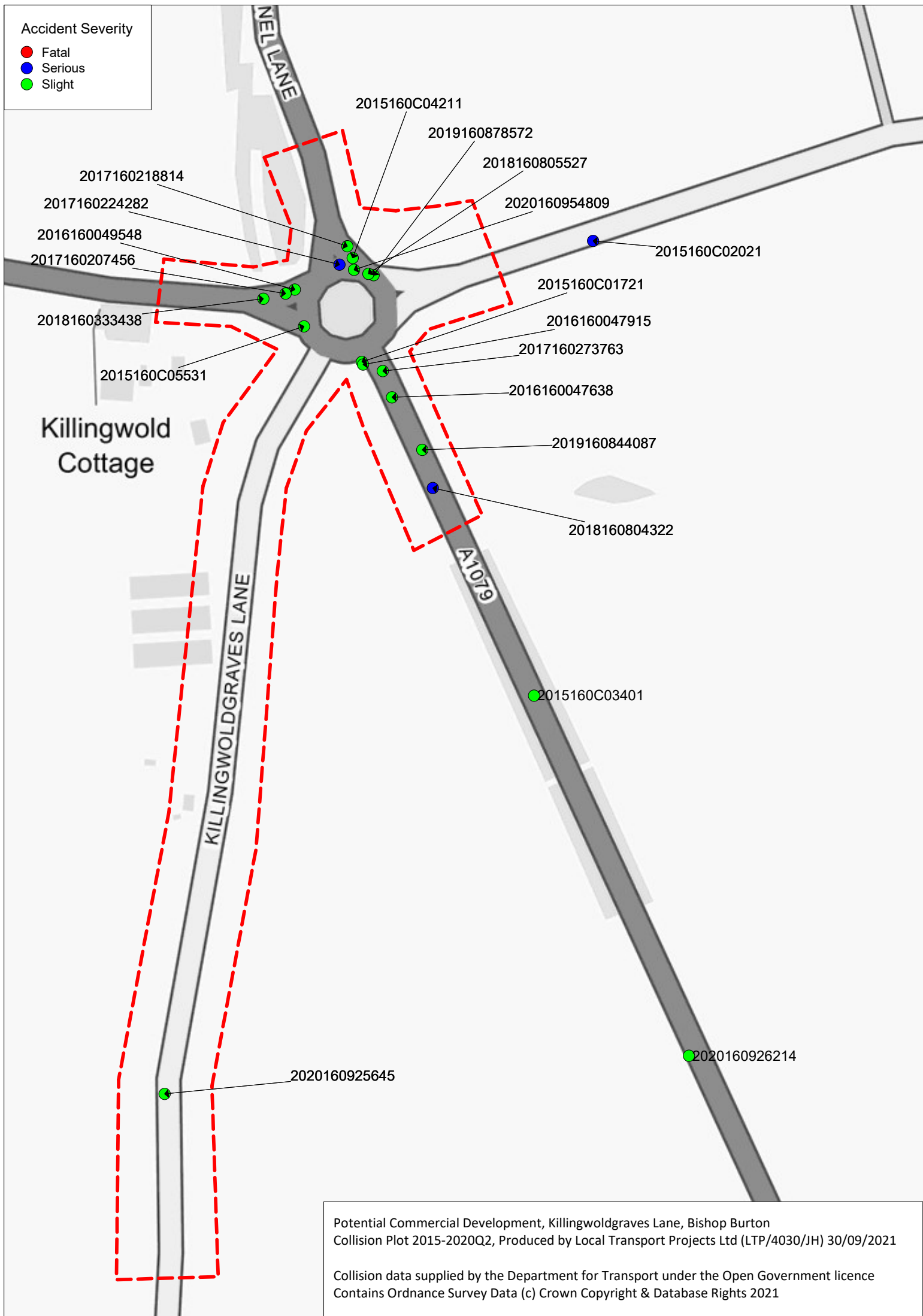
REVISIONS	
CLIENT	LEVEL CAPITAL PROJECTS LTD
PROJECT	KILLINGWOLDGRAVES LANE, BISHOP BURTON HU17 8QX
TITLE	PROPOSED COFFEE SHOP SITE PLAN
DATE	07.10.21
SCALE	1:200 @ A1
JOB ID	1781
DWG	32

## Appendix 3 – Collision Plot



Accident Severity

- Fatal
- Serious
- Slight



Potential Commercial Development, Killingwoldgraves Lane, Bishop Burton  
Collision Plot 2015-2020Q2, Produced by Local Transport Projects Ltd (LTP/4030/JH) 30/09/2021

Collision data supplied by the Department for Transport under the Open Government licence  
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## **Appendix 4 – Trip Generation Projections**

**TRIP RATE CALCULATION SELECTION PARAMETERS:**

Land Use : 06 - HOTEL, FOOD & DRINK  
 Category : J - DRIVE THROUGH COFFEE SHOP

**TOTAL VEHICLES**Selected regions and areas:

<b>04 EAST ANGLIA</b>	
SF SUFFOLK	1 days
<b>06 WEST MIDLANDS</b>	
HE HEREFORDSHIRE	1 days
WK WARWICKSHIRE	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: 200 to 420 (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: 01/01/13 to 24/11/20

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

Selected survey days:

Tuesday	1 days
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:

Edge of Town	2
Free Standing (PPS6 Out 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	1
Out of Town	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.*

**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 2005 has been used for this purpose, which can be found within the Library module of TRICS®.*

Population within 500m Range:

All Surveys Included

Population within 1 mile:

1,000 or Less	1 days
1,001 to 5,000	1 days
10,001 to 15,000	1 days

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

Population within 5 miles:

5,001 to 25,000	2 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	3 days
------------	--------

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

Travel Plan:

No	3 days
----	--------

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

PTAL Rating:

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

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

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

LIST OF SITES relevant to selection parameters

<b>1</b>	<b>HE-06-J-01</b>	<b>STARBUCKS</b>	<b>HEREFORDSHIRE</b>
	LEDBURY ROAD ROSS-ON-WYE		
	Edge of Town Retail Zone		
	Total Gross floor area:	305 sqm	
	Survey date: TUESDAY	24/11/20	Survey Type: MANUAL
<b>2</b>	<b>SF-06-J-01</b>	<b>COSTA COFFEE</b>	<b>SUFFOLK</b>
	THORNEY WAY STOWMARKET		
	Edge of Town No Sub Category		
	Total Gross floor area:	200 sqm	
	Survey date: FRIDAY	25/09/20	Survey Type: MANUAL
<b>3</b>	<b>WK-06-J-01</b>	<b>STARBUCKS</b>	<b>WARWICKSHIRE</b>
	A46 WARWICK BY PASS NEAR WARWICK BUDBROOKE SERVICES		
	Free Standing (PPS6 Out of Town) Out of Town		
	Total Gross floor area:	420 sqm	
	Survey date: WEDNESDAY	25/09/19	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.*

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	200	0.000	1	200	0.000	1	200	0.000
06:00 - 07:00	3	308	4.324	3	308	3.027	3	308	7.351
07:00 - 08:00	3	308	11.135	3	308	9.514	3	308	20.649
08:00 - 09:00	3	308	13.514	3	308	11.892	3	308	25.406
09:00 - 10:00	<b>3</b>	<b>308</b>	<b>15.459</b>	<b>3</b>	<b>308</b>	<b>15.351</b>	<b>3</b>	<b>308</b>	<b>30.810</b>
10:00 - 11:00	3	308	12.541	3	308	12.324	3	308	24.865
11:00 - 12:00	3	308	11.459	3	308	11.027	3	308	22.486
12:00 - 13:00	3	308	12.541	3	308	10.378	3	308	22.919
13:00 - 14:00	3	308	12.649	3	308	13.622	3	308	26.271
14:00 - 15:00	3	308	8.973	3	308	10.054	3	308	19.027
15:00 - 16:00	3	308	11.459	3	308	10.595	3	308	22.054
16:00 - 17:00	3	308	11.892	3	308	12.865	3	308	24.757
17:00 - 18:00	3	308	8.216	3	308	10.486	3	308	18.702
18:00 - 19:00	3	308	4.865	3	308	5.838	3	308	10.703
19:00 - 20:00	3	308	1.838	3	308	3.243	3	308	5.081
20:00 - 21:00	3	308	0.757	3	308	1.297	3	308	2.054
21:00 - 22:00	1	420	0.000	1	420	0.000	1	420	0.000
22:00 - 23:00									
23:00 - 24:00									
<b>Total Rates:</b>			141.622			141.513			283.135

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.

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**Parameter summary**

Trip rate parameter range selected: 200 - 420 (units: sqm)  
 Survey date range: 01/01/13 - 24/11/20  
 Number of weekdays (Monday-Friday): 3  
 Number of Saturdays: 0  
 Number of Sundays: 0  
 Surveys automatically removed from selection: 0  
 Surveys manually removed from selection: 0

This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are 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 Shop**

**182** m<sup>2</sup> GFA

Vehicle Trip Rates (per 100m<sup>2</sup>)

Time	IN	OUT	TOTAL
06:00-07:00	4.324	3.027	7.351
07:00-08:00	11.135	9.514	20.649
08:00-09:00	13.514	11.892	25.406
09:00-10:00	15.459	15.351	30.810
10:00-11:00	12.541	12.324	24.865
11:00-12:00	11.459	11.027	22.486
12:00-13:00	12.541	10.378	22.919
13:00-14:00	12.649	13.622	26.271
14:00-15:00	8.973	10.054	19.027
15:00-16:00	11.459	10.595	22.054
16:00-17:00	11.892	12.865	24.757
17:00-18:00	8.216	10.486	18.702
18:00-19:00	4.865	5.838	10.703
19:00-20:00	1.838	3.243	5.081
20:00-21:00	0.757	1.297	2.054

<b>TOTAL</b>	<b>141.622</b>	<b>141.513</b>	<b>283.135</b>
--------------	----------------	----------------	----------------

Vehicle Trips

IN	OUT	TOTAL
8	6	13
20	17	38
25	22	46
28	28	56
23	22	45
21	20	41
23	19	42
23	25	48
16	18	35
21	19	40
22	23	45
15	19	34
9	11	19
3	6	9
1	2	4

<b>258</b>	<b>258</b>	<b>515</b>
------------	------------	------------

Vehicles, Mean 06-J, all sizes, England (exc. GL), Wales & Scotland, Edge of Town and Free Standing only, exc. Sat & Sun, 13+ (3)

TRICS v7.8.3

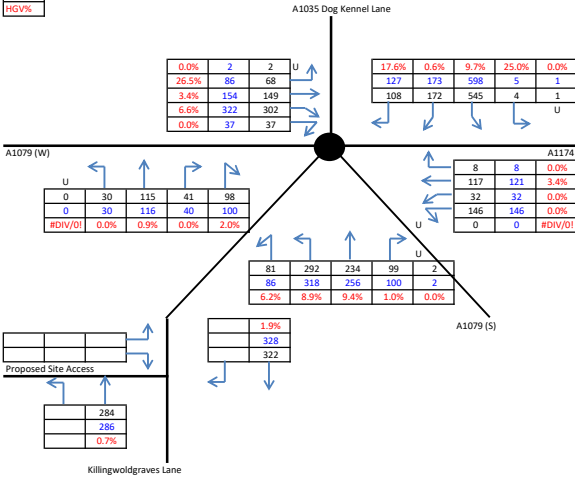
## **Appendix 5 – Network Diagrams**



2018 Existing

AM Peak (08:00-09:00)

Vehicle
PCU
HGV%

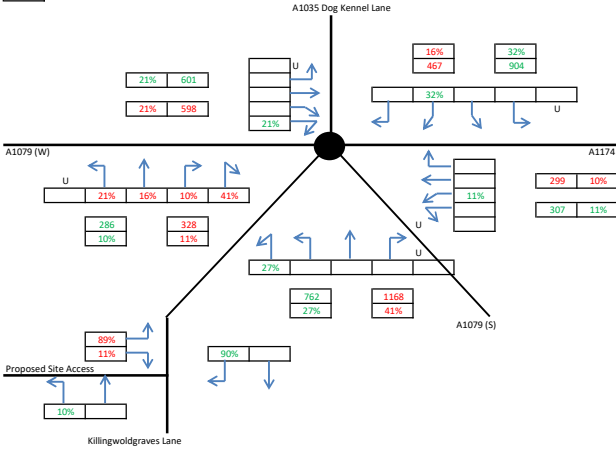


Existing Approach and Exit Proportions

AM Peak (08:00-09:00)

Used to determine the distribution of proposed development traffic

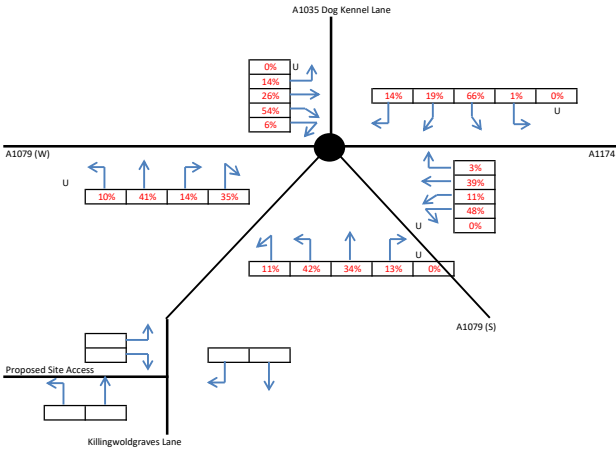
2850	Approach
2860	Exit



Existing Approach Turning Proportions

AM Peak (08:00-09:00)

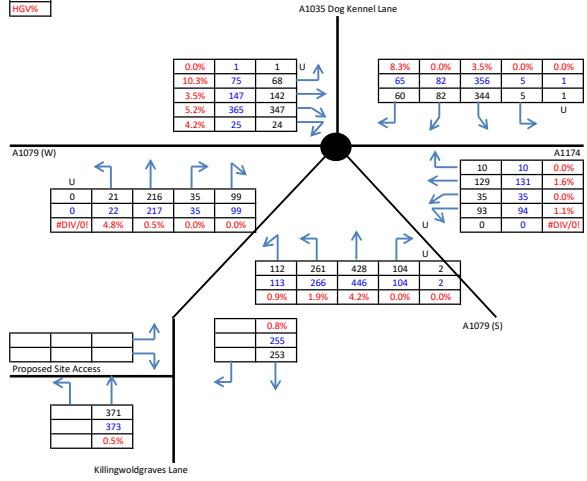
Used to determine the redistribution of pass-by/diverted PFS trips



2018 Existing

PM Peak (17:00-18:00)

PCU
Vehicle
HGV%

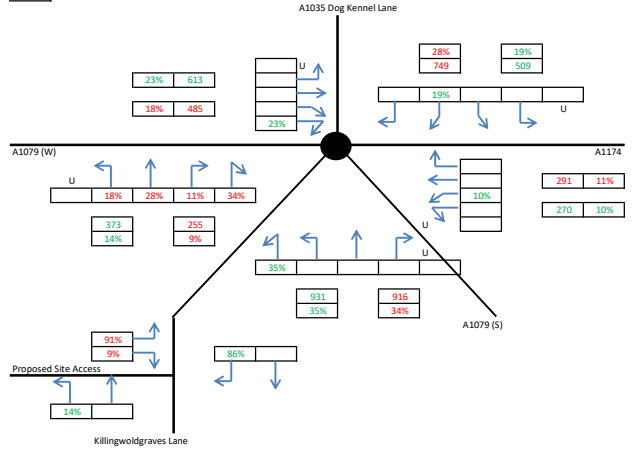


Existing Approach and Exit Proportions

PM Peak (17:00-18:00)

Used to determine the distribution of proposed development traffic

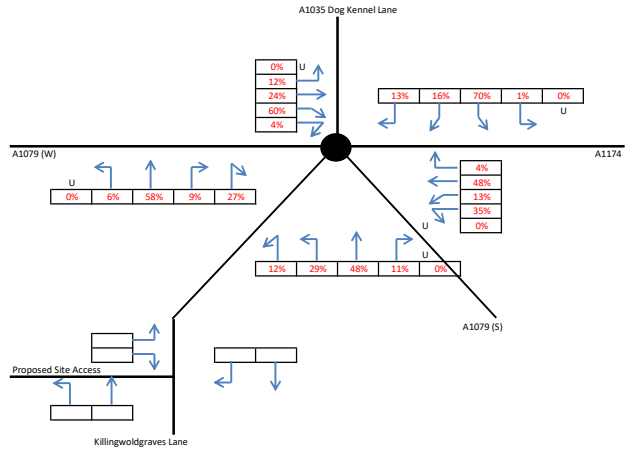
2695	Approach
2686	Exit



Existing Approach Turning Proportions

PM Peak (17:00-18:00)

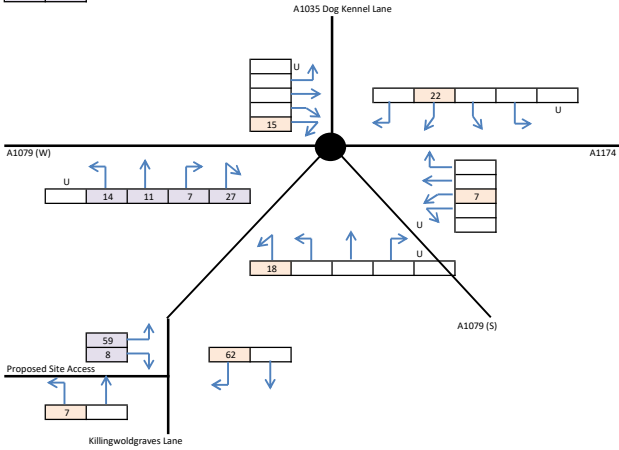
Used to determine the redistribution of pass-by/diverted PFS trips



Consented PFS Trip Generation (Mean)

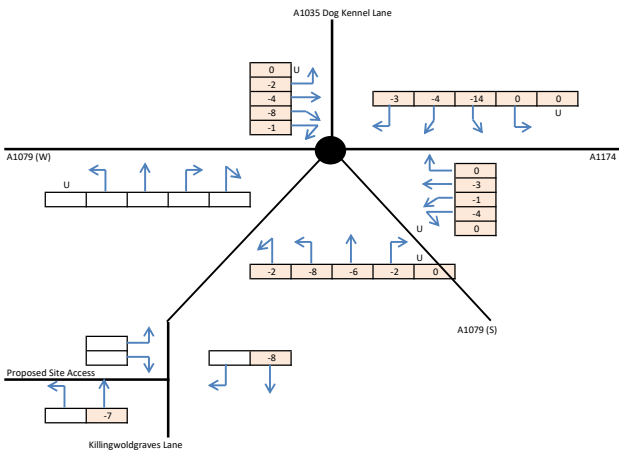
AM Peak (08:00-09:00)

IN	69
OUT	66



Consented PFS Pass-By/Diverted Trip Redistribution (Mean)

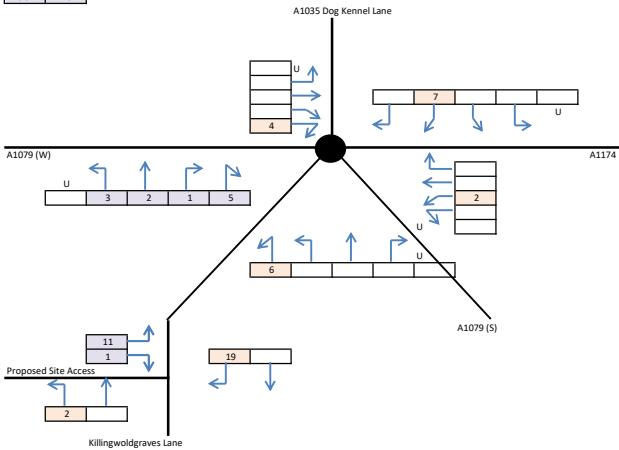
AM Peak (08:00-09:00)



Consented Employment Trip Generation (2,400m2)

AM Peak (08:00-09:00)

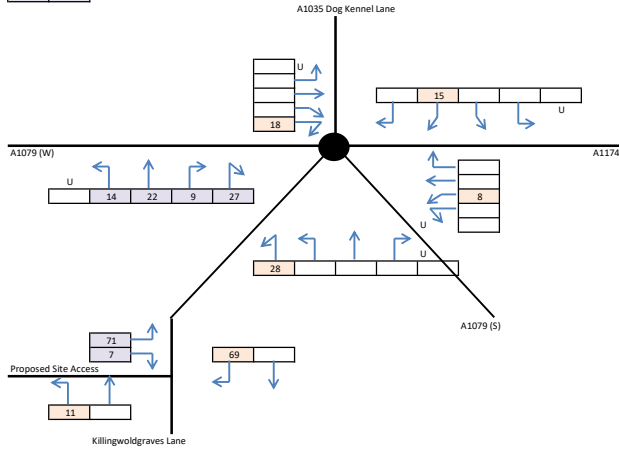
IN	21
OUT	13



Consented PFS Trip Generation (Mean)

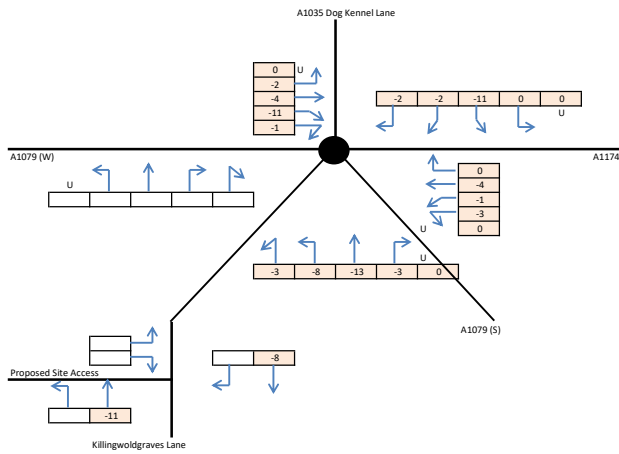
PM Peak (17:00-18:00)

IN	80
OUT	79



Consented PFS Pass-By/Diverted Trip Redistribution (Mean)

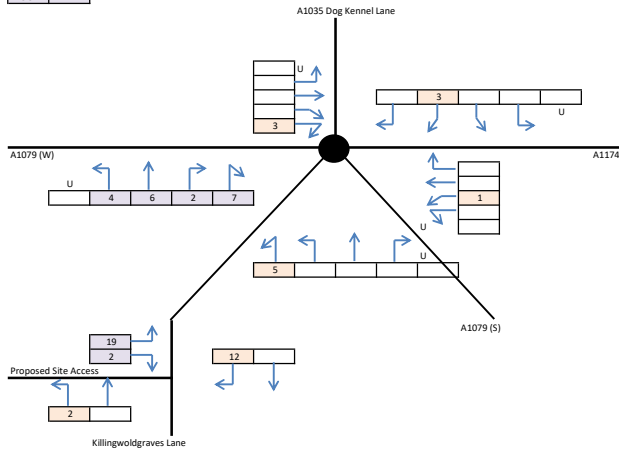
PM Peak (17:00-18:00)



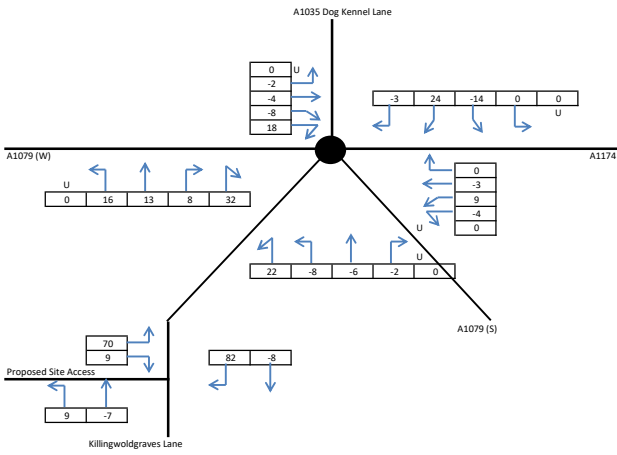
Consented Employment Trip Generation (2,400m2)

PM Peak (17:00-18:00)

IN	14
OUT	21

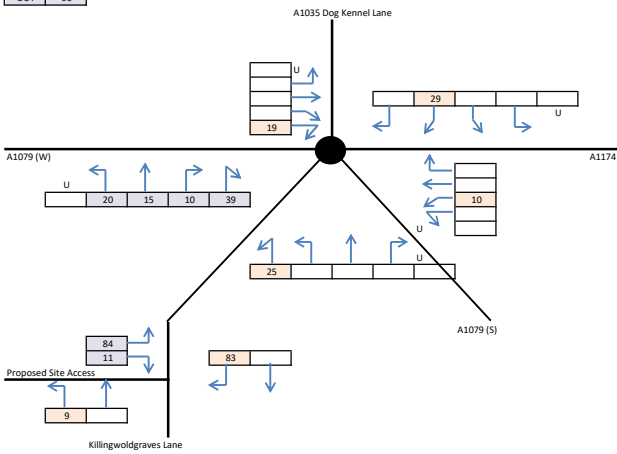


Consented Total Trip Generation (Mean)  
AM Peak (08:00-09:00)

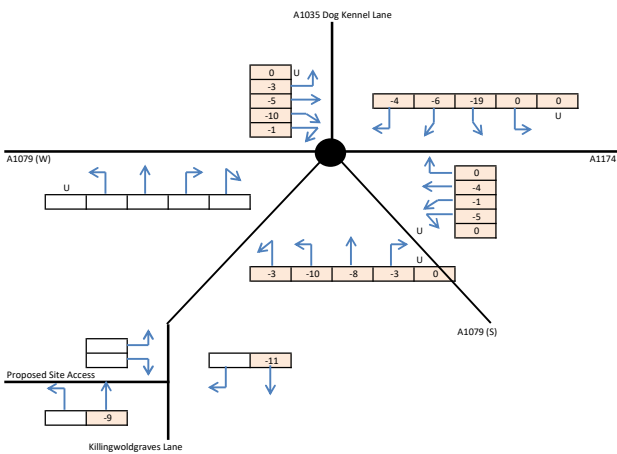


Consented PFS Trip Generation (85th %ile)  
AM Peak (08:00-09:00)

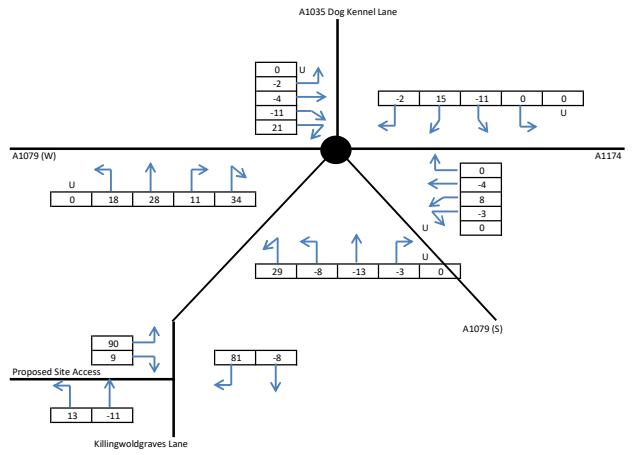
IN	92
OUT	95



Consented PFS Pass-By/Diverted Trip Redistribution (85th %ile)  
AM Peak (08:00-09:00)

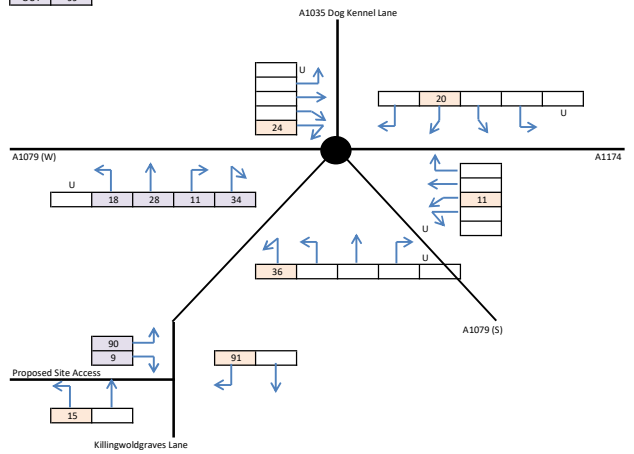


Consented Total Trip Generation (Mean)  
PM Peak (17:00-18:00)

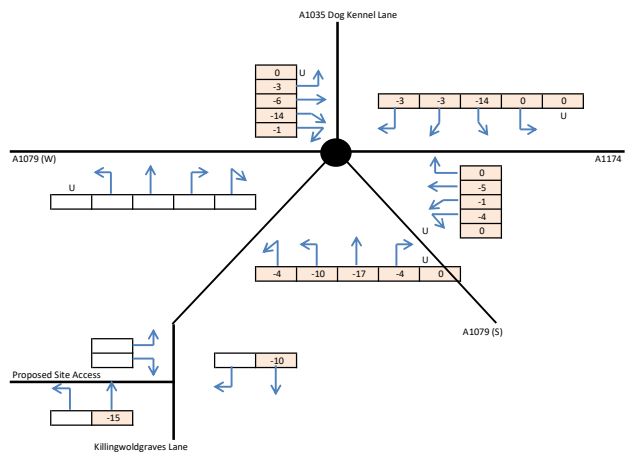


Consented PFS Trip Generation (85th %ile)  
PM Peak (17:00-18:00)

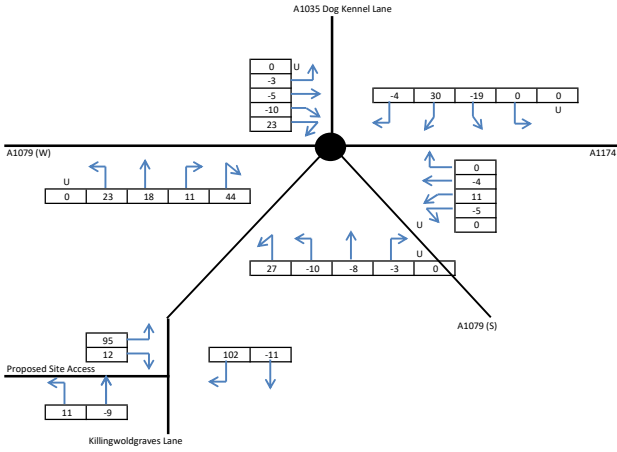
IN	105
OUT	99



Consented PFS Pass-By/Diverted Trip Redistribution (85th %ile)  
PM Peak (17:00-18:00)



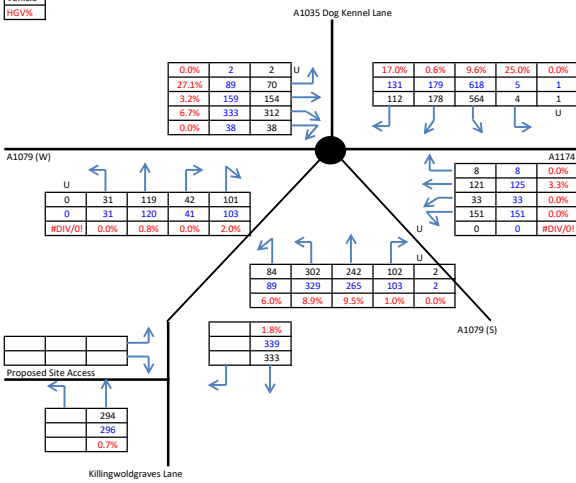
Consented Total Trip Generation (85th Mile)  
**AM Peak (08:00-09:00)**



2025 Do Nothing  
**AM Peak (08:00-09:00)**

PCU
Vehicle
HGV%

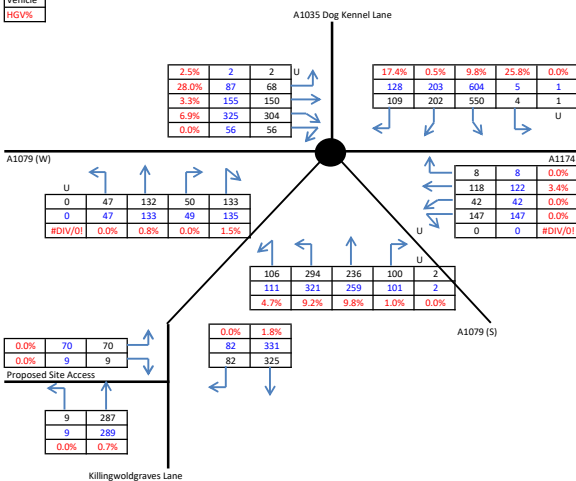
2018 to 2025 growth rate: 3.4%



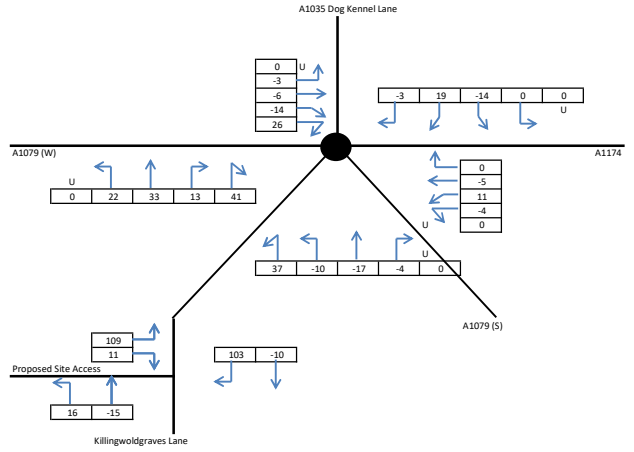
2025 With Approved Development  
**AM Peak (08:00-09:00)**

PCU
Vehicle
HGV%

2018 to 2025 growth rate: 3.4%



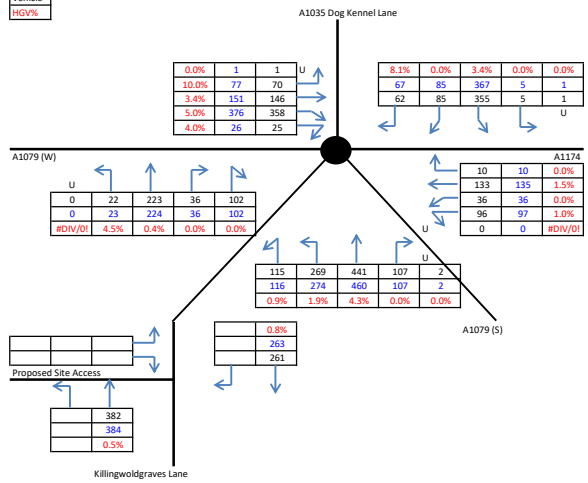
Consented Total Trip Generation (85th Mile)  
**PM Peak (17:00-18:00)**



2025 Do Nothing  
**PM Peak (17:00-18:00)**

PCU
Vehicle
HGV%

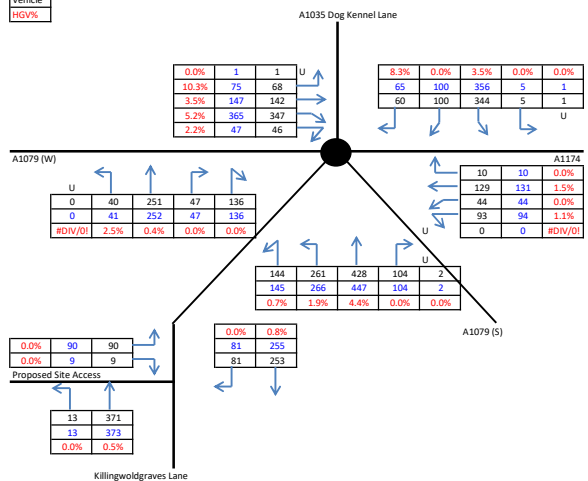
2018 to 2025 growth rate: 3.1%



2025 With Approved Development  
**PM Peak (17:00-18:00)**

PCU
Vehicle
HGV%

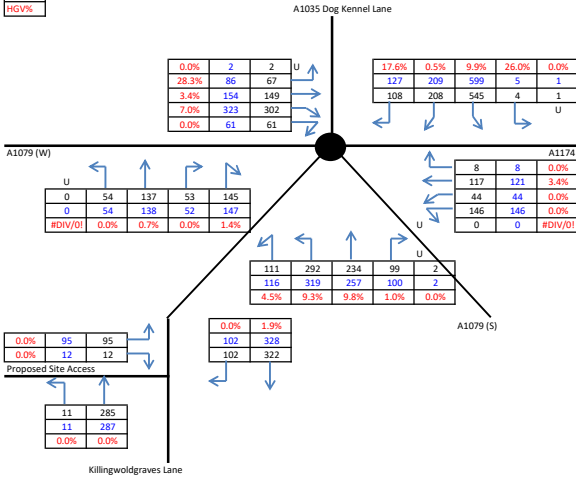
2018 to 2025 growth rate: 3.1%



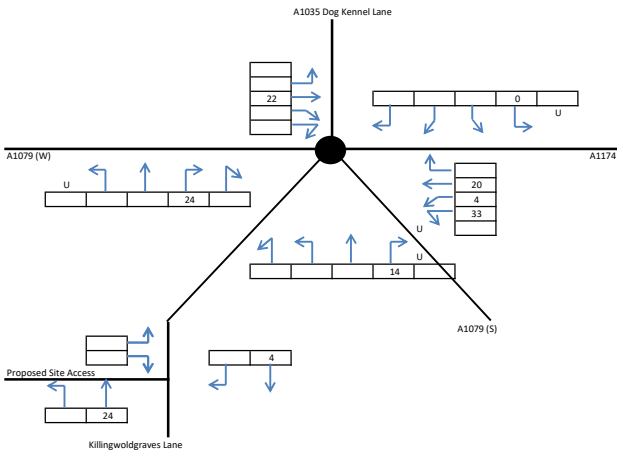
2025 With Approved Development (Sens. Test)  
AM Peak (08:00-09:00)

2018 to 2025 growth rate: 3.4%

PCU  
Vehicle  
NGV%



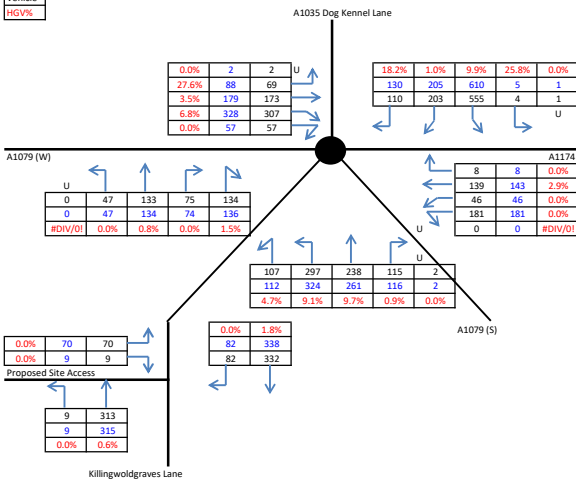
Committed Development - BP PFS (19/01217/PLF)  
AM Peak (08:00-09:00)



2027 Do Nothing  
AM Peak (08:00-09:00)

2018 to 2027 growth rate: 4.4%

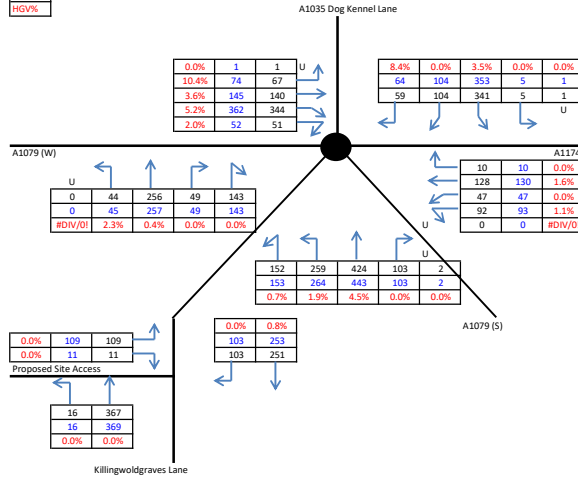
PCU  
Vehicle  
NGV%



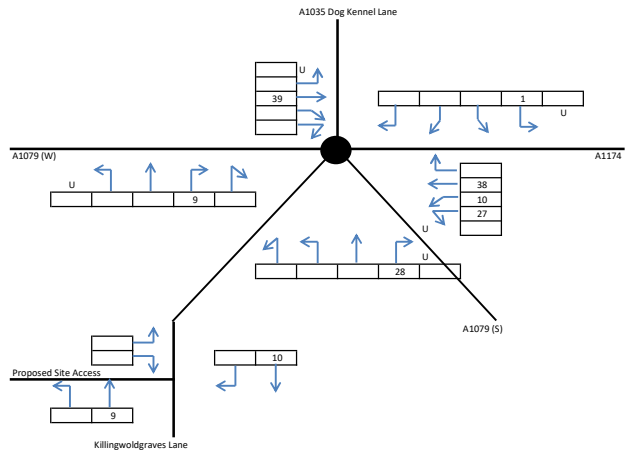
2025 With Approved Development (Sens. Test)  
PM Peak (17:00-18:00)

2018 to 2025 growth rate: 3.1%

PCU  
Vehicle  
NGV%



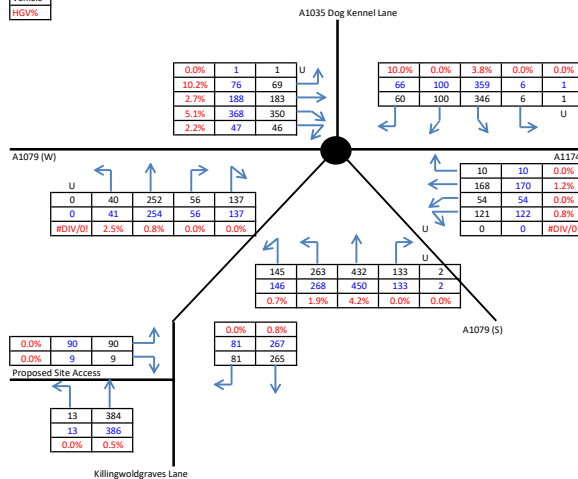
Committed Development - BP PFS (19/01217/PLF)  
PM Peak (17:00-18:00)



2027 Do Nothing  
PM Peak (17:00-18:00)

2018 to 2027 growth rate: 3.9%

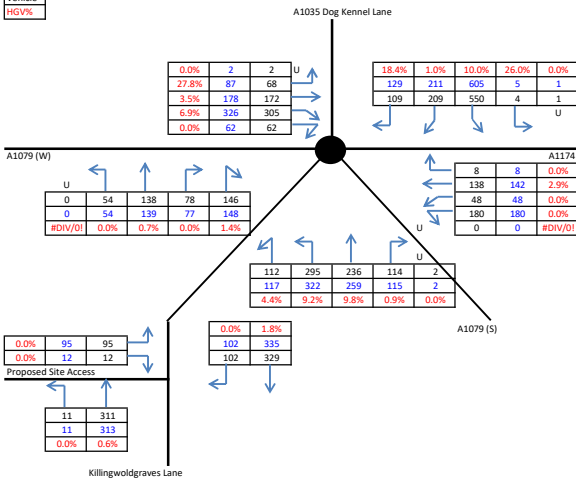
PCU  
Vehicle  
NGV%



**2027 Do Nothing (Sens. Test)**  
**AM Peak (08:00-09:00)**

2018 to 2027 growth rate: 4.4%

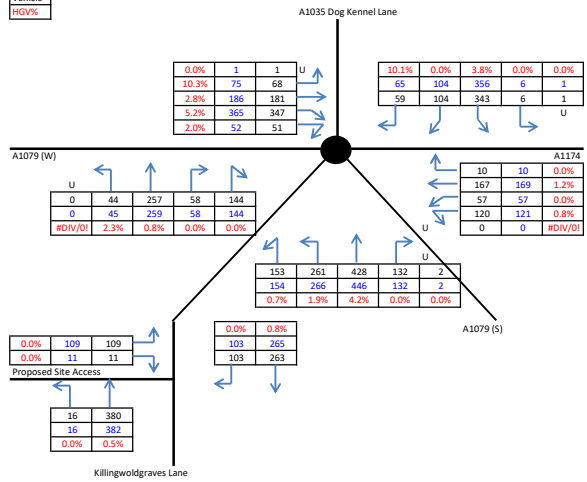
PCU  
 Vehicle  
 HGV%



**2027 Do Nothing (Sens. Test)**  
**PM Peak (17:00-18:00)**

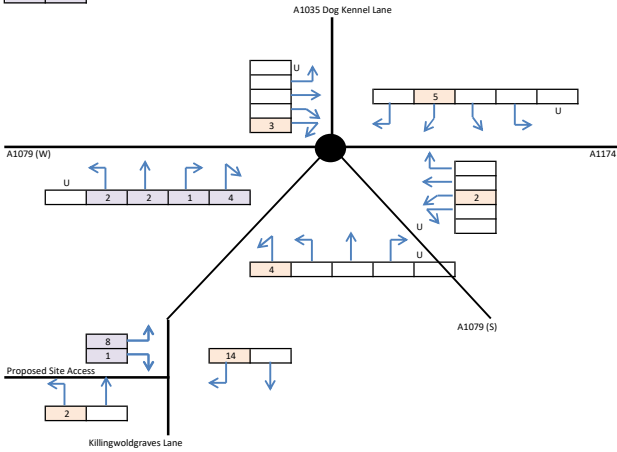
2018 to 2027 growth rate: 3.9%

PCU  
 Vehicle  
 HGV%



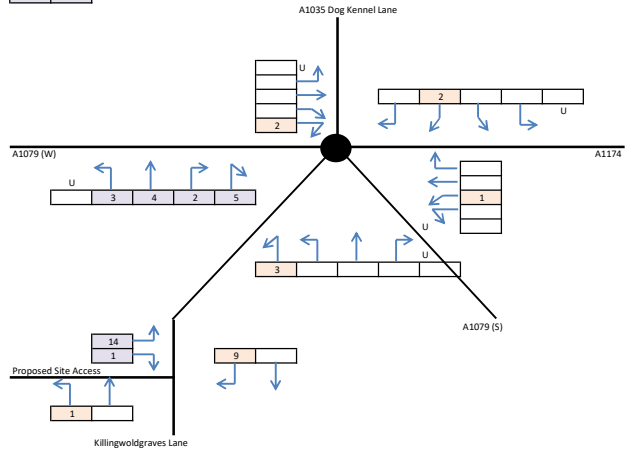
**Consented Remainder Employment Trip Generation (1,782m2)**  
**AM Peak (08:00-09:00)**

IN 15  
 OUT 9



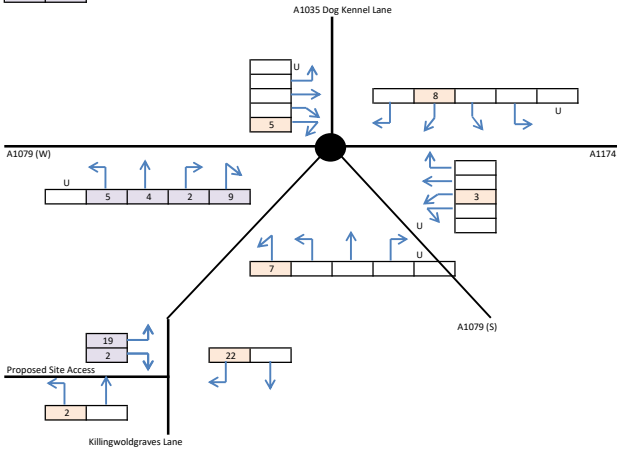
**Consented Remainder Employment Trip Generation (1,782m2)**  
**PM Peak (17:00-18:00)**

IN 10  
 OUT 15



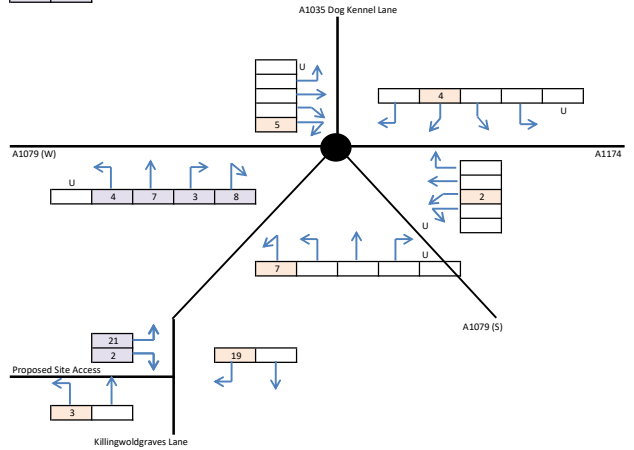
**Proposed Coffee Drive-Thru Trip Generation**  
**AM Peak (08:00-09:00)**

IN 25  
 OUT 22

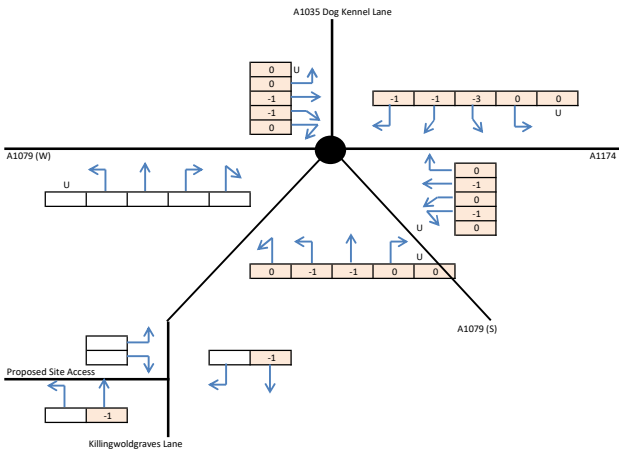


**Proposed Coffee Drive-Thru Trip Generation**  
**PM Peak (17:00-18:00)**

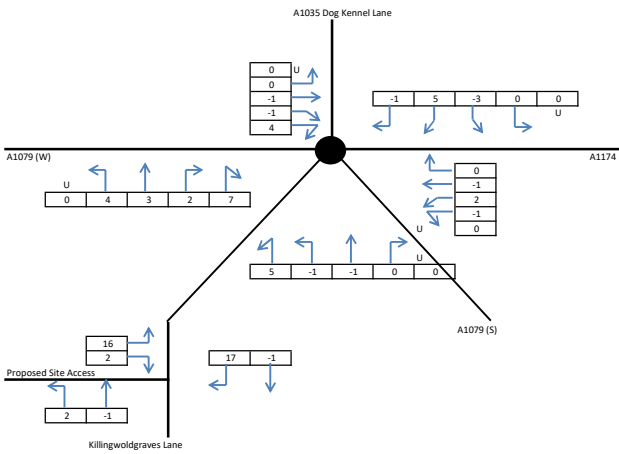
IN 22  
 OUT 23



Proposed Coffee Drive-Thru Pass-By/Diverted Trip Redistribution (50%)  
**AM Peak (08:00-09:00)**



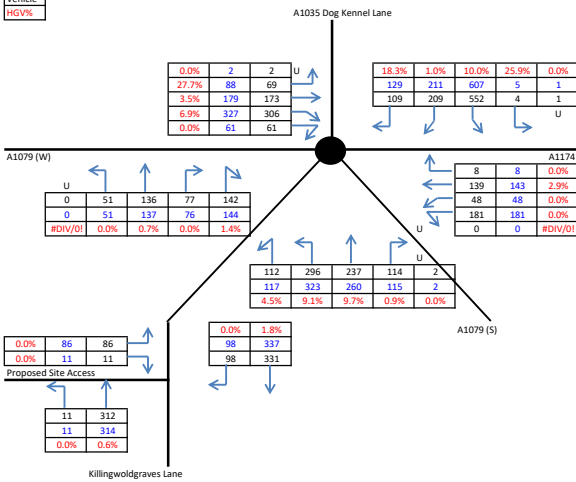
**Total Net Trip Generation**  
**AM Peak (08:00-09:00)**



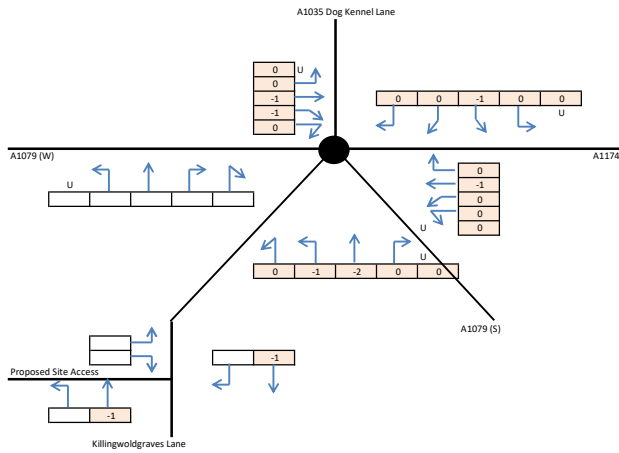
**2027 With Proposed Development**  
**AM Peak (08:00-09:00)**

2018 to 2027 growth rate: 4.4%

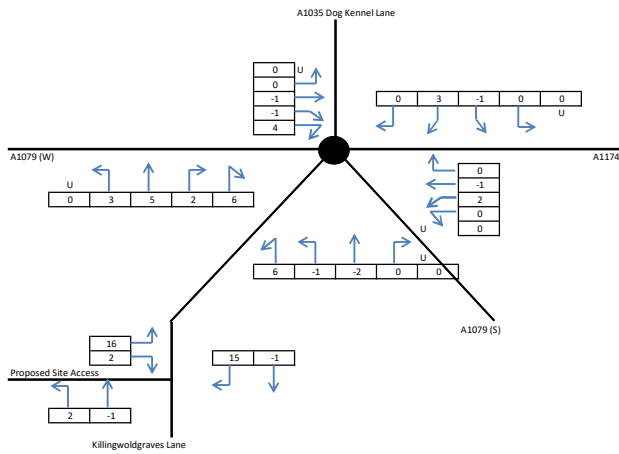
- PCU
- Vehicle
- HGV%



Proposed Coffee Drive-Thru Pass-By/Diverted Trip Redistribution (50%)  
**PM Peak (17:00-18:00)**



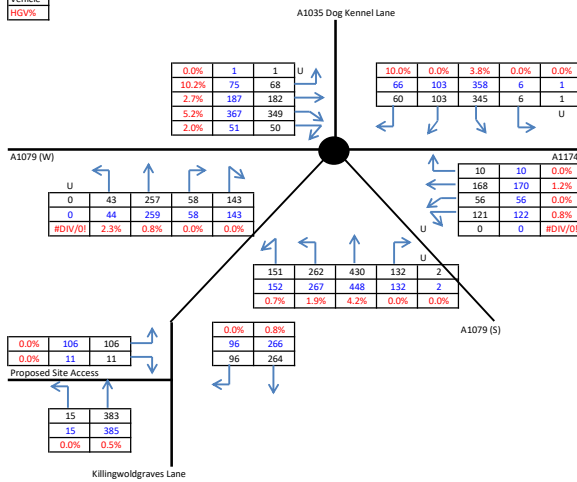
**Total Net Trip Generation**  
**PM Peak (17:00-18:00)**



**2027 With Proposed Development**  
**PM Peak (17:00-18:00)**

2018 to 2027 growth rate: 3.9%

- PCU
- Vehicle
- HGV%

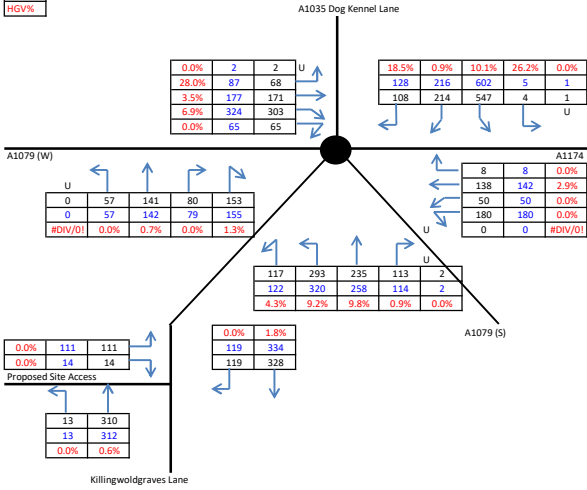




2027 With Proposed Development (Sens. Test)  
 AM Peak (08:00-09:00)

2018 to 2027 growth rate: 4.4%

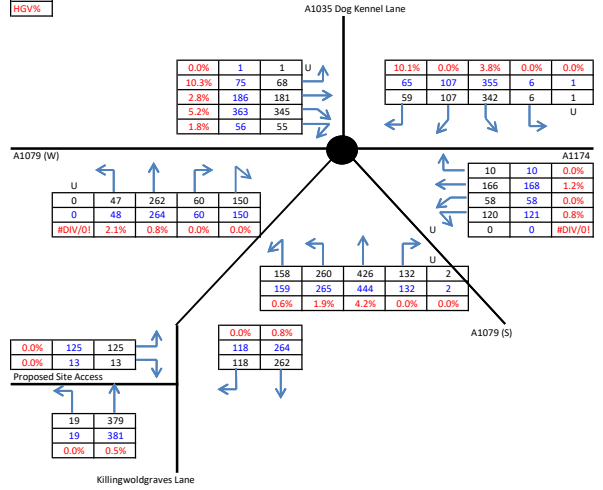
PCU
Vehicle
HGV%



2027 With Proposed Development (Sens. Test)  
 PM Peak (17:00-18:00)

2018 to 2027 growth rate: 3.9%

PCU
Vehicle
HGV%



## **Appendix 6 – TEMPro Growth**

### Traffic Growth Forecasts

**Base Year:** 2018  
**Assessment Year:** 2027  
**Period (years):** 9  
**Area Type:** N/A  
**Road Type:** Principal  
**Area Served:** N/A  
**Region Data Set Version:** Yorkshire & Humber (YH) v7.2  
**Software Version:** TEMPRO v7.2b  
**NTM Version:** RTF 2018 Scenario 1 - Reference  
**NTEM Version:** v7.2  
**Area:** East Riding of Yorkshire 020

Factor	Households (HH)	Jobs
Base Year Unadjusted	3870	3510
Forecast Year Unadjusted	4052	3583
Growth Unadjusted	182	73
Committed Developments	0	0
Do Nothing Adjusted	4052	3583
Proposed Development	0	0
Do Something Adjusted	4052	3583

Scenario	Weekday AM Peak Period (07:00-09:59)	Weekday PM Peak Period (16:00-18:59)
Unadjusted	1.0436	1.0392
Growth Factor:	4.4%	3.9%

## **Appendix 7 – Site Access Modelling**

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\_Killingwoldgraves Lane Junction (2021 Update).j9  
**Path:** Z:\Projects\4030 Killingwoldgraves Roundabout\Data\Modelling\Site Access  
**Report generation date:** 03/12/2021 12:11:27

- »Proposed Layout - 2027 With Development, AM
- »Proposed Layout - 2027 With Development, PM
- »Proposed Layout - 2027 With Development (Sensitivity Test), AM
- »Proposed Layout - 2027 With Development (Sensitivity Test), PM

### Summary of junction performance

	AM					PM				
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Set ID	Queue (PCU)	Delay (s)	RFC	LOS
Proposed Layout - 2027 With Development										
Stream B-C	D1	0.2	6.74	0.15	A	D2	0.2	7.34	0.19	A
Stream B-A		0.0	11.08	0.04	B		0.0	11.33	0.04	B
Stream C-AB		0.2	5.96	0.15	A		0.2	6.20	0.15	A
Proposed Layout - 2027 With Development (Sensitivity Test)										
Stream B-C	D3	0.2	7.12	0.19	A	D4	0.3	7.67	0.23	A
Stream B-A		0.0	11.47	0.05	B		0.0	11.71	0.04	B
Stream C-AB		0.2	6.20	0.18	A		0.2	6.47	0.19	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

<b>Title</b>	Proposed Site Access/Killingwoldgraves Lane Junction
<b>Location</b>	Bishop Burton
<b>Site number</b>	
<b>Date</b>	30/11/2021
<b>Version</b>	
<b>Status</b>	(new file)
<b>Identifier</b>	
<b>Client</b>	Lovel Developments Ltd
<b>Jobnumber</b>	4030
<b>Enumerator</b>	LTP\JackH
<b>Description</b>	

### 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	2027 With Development	AM	ONE HOUR	07:45	09:15	15	✓
D2	2027 With Development	PM	ONE HOUR	16:45	18:15	15	✓
D3	2027 With Development (Sensitivity Test)	AM	ONE HOUR	07:45	09:15	15	✓
D4	2027 With Development (Sensitivity Test)	PM	ONE HOUR	16:45	18:15	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 - 2027 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	Proposed Site Access/Killingwoldgraves Lane Junction	T-Junction	Two-way		1.50	A

### Junction Network Options

Driving side	Lighting
Left	Normal/unknown

## Arms

### Arms

Arm	Name	Description	Arm type
A	Killingwoldgraves Lane (S)		Major
B	Site Access		Minor
C	Killingwoldgraves Lane (N)		Major

### Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Width for right turn (m)	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C - Killingwoldgraves Lane (N)	7.00		✓	3.50	250.0	✓	7.00

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	Width at give-way (m)	Width at 5m (m)	Width at 10m (m)	Width at 15m (m)	Width at 20m (m)	Estimate flare length	Flare length (PCU)	Visibility to left (m)	Visibility to right (m)
B - Site Access	One lane plus flare	10.00	6.20	4.10	4.10	4.10	✓	1.00	27	20

## 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	501	0.087	0.221	0.139	0.315
B-C	730	0.107	0.270	-	-
C-B	820	0.304	0.304	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.

Streams may be combined, in which case capacity will be adjusted.

Values are shown for the first time segment only; they may differ for subsequent time segments.

## Traffic Demand

### Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2027 With Development	AM	ONE HOUR	07:45	09:15	15	✓

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

### Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Killingwoldgraves Lane (S)		ONE HOUR	✓	325	100.000
B - Site Access		ONE HOUR	✓	97	100.000
C - Killingwoldgraves Lane (N)		ONE HOUR	✓	435	100.000

## Origin-Destination Data

### Demand (PCU/hr)

		To		
		A - Killingwoldgraves Lane (S)	B - Site Access	C - Killingwoldgraves Lane (N)
From	A - Killingwoldgraves Lane (S)	0	11	314
	B - Site Access	11	0	86
	C - Killingwoldgraves Lane (N)	337	98	0

## Vehicle Mix

### Heavy Vehicle Percentages

		To		
		A - Killingwoldgraves Lane (S)	B - Site Access	C - Killingwoldgraves Lane (N)
From	A - Killingwoldgraves Lane (S)	0	0	1
	B - Site Access	0	0	0
	C - Killingwoldgraves Lane (N)	2	0	0

## Results

### Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-C	0.15	6.74	0.2	A	79	118
B-A	0.04	11.08	0.0	B	10	15
C-AB	0.15	5.96	0.2	A	90	135
C-A					309	464
AB					10	15
AC					288	432

### Main Results for each time segment

#### 07:45 - 08:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	65	16	661	0.098	64	0.0	0.1	6.027	A
B-A	8	2	389	0.021	8	0.0	0.0	9.440	A
C-AB	74	18	746	0.099	73	0.0	0.1	5.348	A
C-A	254	63			254				
A-B	8	2			8				
A-C	236	59			236				

#### 08:00 - 08:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	77	19	648	0.119	77	0.1	0.1	6.310	A
B-A	10	2	367	0.027	10	0.0	0.0	10.067	B
C-AB	88	22	732	0.120	88	0.1	0.1	5.593	A
C-A	303	76			303				
A-B	10	2			10				
A-C	282	71			282				

#### 08:15 - 08:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	95	24	629	0.151	95	0.1	0.2	6.734	A
B-A	12	3	337	0.036	12	0.0	0.0	11.076	B
C-AB	108	27	712	0.152	108	0.1	0.2	5.959	A
C-A	371	93			371				
A-B	12	3			12				
A-C	346	86			346				

#### 08:30 - 08:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	95	24	629	0.151	95	0.2	0.2	6.737	A
B-A	12	3	337	0.036	12	0.0	0.0	11.080	B
C-AB	108	27	712	0.152	108	0.2	0.2	5.962	A
C-A	371	93			371				
A-B	12	3			12				
A-C	346	86			346				

#### 08:45 - 09:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	77	19	648	0.119	77	0.2	0.1	6.316	A
B-A	10	2	367	0.027	10	0.0	0.0	10.072	B
C-AB	88	22	732	0.120	88	0.2	0.1	5.596	A
C-A	303	76			303				
A-B	10	2			10				
A-C	282	71			282				

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	65	16	661	0.098	65	0.1	0.1	6.037	A
B-A	8	2	389	0.021	8	0.0	0.0	9.451	A
C-AB	74	18	746	0.099	74	0.1	0.1	5.356	A
C-A	254	63			254				
A-B	8	2			8				
A-C	236	59			236				

# Proposed Layout - 2027 With Development, PM

## Data Errors and Warnings

No errors or warnings

## Junction Network

### Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	Proposed Site Access/Killingwoldgraves Lane Junction	T-Junction	Two-way		1.70	A

### Junction Network Options

Driving side	Lighting
Left	Normal/unknown

## Traffic Demand

### Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D2	2027 With Development	PM	ONE HOUR	16:45	18:15	15	✓

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

### Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Killingwoldgraves Lane (S)		ONE HOUR	✓	400	100.000
B - Site Access		ONE HOUR	✓	117	100.000
C - Killingwoldgraves Lane (N)		ONE HOUR	✓	362	100.000

## Origin-Destination Data

### Demand (PCU/hr)

		To		
		A - Killingwoldgraves Lane (S)	B - Site Access	C - Killingwoldgraves Lane (N)
From	A - Killingwoldgraves Lane (S)	0	15	385
	B - Site Access	11	0	106
	C - Killingwoldgraves Lane (N)	266	96	0

## Vehicle Mix

### Heavy Vehicle Percentages

		To		
		A - Killingwoldgraves Lane (S)	B - Site Access	C - Killingwoldgraves Lane (N)
From	A - Killingwoldgraves Lane (S)	0	0	1
	B - Site Access	0	0	0
	C - Killingwoldgraves Lane (N)	1	0	0

## Results

### Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-C	0.19	7.34	0.2	A	97	146
B-A	0.04	11.33	0.0	B	10	15
C-AB	0.15	6.20	0.2	A	88	132
C-A					244	366
A-B					14	21
A-C					353	530

### Main Results for each time segment

#### 16:45 - 17:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	80	20	646	0.123	79	0.0	0.1	6.342	A
B-A	8	2	385	0.022	8	0.0	0.0	9.553	A
C-AB	72	18	729	0.099	72	0.0	0.1	5.475	A
C-A	200	50			200				
A-B	11	3			11				
A-C	290	72			290				

#### 17:00 - 17:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	95	24	630	0.151	95	0.1	0.2	6.727	A
B-A	10	2	362	0.027	10	0.0	0.0	10.226	B
C-AB	86	22	711	0.121	86	0.1	0.1	5.761	A
C-A	239	60			239				
A-B	13	3			13				
A-C	346	87			346				

#### 17:15 - 17:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	117	29	607	0.192	116	0.2	0.2	7.329	A
B-A	12	3	330	0.037	12	0.0	0.0	11.326	B
C-AB	106	26	687	0.154	106	0.1	0.2	6.194	A
C-A	293	73			293				
A-B	17	4			17				
A-C	424	106			424				

#### 17:30 - 17:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	117	29	607	0.192	117	0.2	0.2	7.335	A
B-A	12	3	330	0.037	12	0.0	0.0	11.331	B
C-AB	106	26	687	0.154	106	0.2	0.2	6.197	A
C-A	293	73			293				
A-B	17	4			17				
A-C	424	106			424				

**17:45 - 18:00**

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	95	24	630	0.151	96	0.2	0.2	6.739	A
B-A	10	2	362	0.027	10	0.0	0.0	10.233	B
C-AB	86	22	711	0.121	86	0.2	0.1	5.766	A
C-A	239	60			239				
A-B	13	3			13				
A-C	346	87			346				

**18:00 - 18:15**

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	80	20	646	0.123	80	0.2	0.1	6.356	A
B-A	8	2	385	0.022	8	0.0	0.0	9.563	A
C-AB	72	18	729	0.099	72	0.1	0.1	5.484	A
C-A	200	50			200				
A-B	11	3			11				
A-C	290	72			290				



# Proposed Layout - 2027 With Development (Sensitivity Test), 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	Proposed Site Access/Killingwoldgraves Lane Junction	T-Junction	Two-way		1.87	A

### Junction Network Options

Driving side	Lighting
Left	Normal/unknown

## Traffic Demand

### Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D3	2027 With Development (Sensitivity Test)	AM	ONE HOUR	07:45	09:15	15	✓

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

### Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Killingwoldgraves Lane (S)		ONE HOUR	✓	325	100.000
B - Site Access		ONE HOUR	✓	125	100.000
C - Killingwoldgraves Lane (N)		ONE HOUR	✓	453	100.000

## Origin-Destination Data

### Demand (PCU/hr)

		To		
		A - Killingwoldgraves Lane (S)	B - Site Access	C - Killingwoldgraves Lane (N)
From	A - Killingwoldgraves Lane (S)	0	13	312
	B - Site Access	14	0	111
	C - Killingwoldgraves Lane (N)	334	119	0

## Vehicle Mix

### Heavy Vehicle Percentages

		To		
		A - Killingwoldgraves Lane (S)	B - Site Access	C - Killingwoldgraves Lane (N)
From	A - Killingwoldgraves Lane (S)	0	0	1
	B - Site Access	0	0	0
	C - Killingwoldgraves Lane (N)	2	0	0

## Results

### Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-C	0.19	7.12	0.2	A	102	153
B-A	0.05	11.47	0.0	B	13	19
C-AB	0.18	6.20	0.2	A	109	164
C-A					306	460
A-B					12	18
A-C					286	429

### Main Results for each time segment

#### 07:45 - 08:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	84	21	660	0.127	83	0.0	0.1	6.227	A
B-A	11	3	385	0.027	10	0.0	0.0	9.617	A
C-AB	90	22	746	0.120	89	0.0	0.1	5.474	A
C-A	251	63			251				
A-B	10	2			10				
A-C	235	59			235				

#### 08:00 - 08:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	100	25	647	0.154	100	0.1	0.2	6.579	A
B-A	13	3	361	0.035	13	0.0	0.0	10.318	B
C-AB	107	27	732	0.146	107	0.1	0.2	5.760	A
C-A	300	75			300				
A-B	12	3			12				
A-C	280	70			280				

#### 08:15 - 08:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	122	31	627	0.195	122	0.2	0.2	7.118	A
B-A	15	4	329	0.047	15	0.0	0.0	11.465	B
C-AB	131	33	712	0.184	131	0.2	0.2	6.197	A
C-A	368	92			368				
A-B	14	4			14				
A-C	344	86			344				

#### 08:30 - 08:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	122	31	627	0.195	122	0.2	0.2	7.124	A
B-A	15	4	329	0.047	15	0.0	0.0	11.470	B
C-AB	131	33	712	0.184	131	0.2	0.2	6.199	A
C-A	368	92			368				
A-B	14	4			14				
A-C	344	86			344				

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	100	25	647	0.154	100	0.2	0.2	6.588	A
B-A	13	3	361	0.035	13	0.0	0.0	10.325	B
C-AB	107	27	732	0.146	107	0.2	0.2	5.769	A
C-A	300	75			300				
A-B	12	3			12				
A-C	280	70			280				

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	84	21	660	0.127	84	0.2	0.1	6.244	A
B-A	11	3	384	0.027	11	0.0	0.0	9.633	A
C-AB	90	22	746	0.120	90	0.2	0.1	5.488	A
C-A	251	63			251				
A-B	10	2			10				
A-C	235	59			235				

# Proposed Layout - 2027 With Development (Sensitivity Test), PM

## Data Errors and Warnings

No errors or warnings

## Junction Network

### Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	Proposed Site Access/Killingwoldgraves Lane Junction	T-Junction	Two-way		2.04	A

### Junction Network Options

Driving side	Lighting
Left	Normal/unknown

## Traffic Demand

### Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D4	2027 With Development (Sensitivity Test)	PM	ONE HOUR	16:45	18:15	15	✓

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

### Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Killingwoldgraves Lane (S)		ONE HOUR	✓	400	100.000
B - Site Access		ONE HOUR	✓	138	100.000
C - Killingwoldgraves Lane (N)		ONE HOUR	✓	382	100.000

## Origin-Destination Data

### Demand (PCU/hr)

		To		
		A - Killingwoldgraves Lane (S)	B - Site Access	C - Killingwoldgraves Lane (N)
From	A - Killingwoldgraves Lane (S)	0	19	381
	B - Site Access	13	0	125
	C - Killingwoldgraves Lane (N)	264	118	0

## Vehicle Mix

### Heavy Vehicle Percentages

		To		
		A - Killingwoldgraves Lane (S)	B - Site Access	C - Killingwoldgraves Lane (N)
From	A - Killingwoldgraves Lane (S)	0	0	1
	B - Site Access	0	0	0
	C - Killingwoldgraves Lane (N)	1	0	0

## Results

### Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-C	0.23	7.67	0.3	A	115	172
B-A	0.04	11.71	0.0	B	12	18
C-AB	0.19	6.47	0.2	A	108	162
C-A					242	363
A-B					17	26
A-C					350	524

### Main Results for each time segment

#### 16:45 - 17:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	94	24	646	0.146	93	0.0	0.2	6.503	A
B-A	10	2	380	0.026	10	0.0	0.0	9.721	A
C-AB	89	22	729	0.122	88	0.0	0.1	5.615	A
C-A	199	50			199				
A-B	14	4			14				
A-C	287	72			287				

#### 17:00 - 17:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	112	28	630	0.178	112	0.2	0.2	6.954	A
B-A	12	3	356	0.033	12	0.0	0.0	10.465	B
C-AB	106	27	711	0.149	106	0.1	0.2	5.947	A
C-A	237	59			237				
A-B	17	4			17				
A-C	343	86			343				

#### 17:15 - 17:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	138	34	607	0.227	137	0.2	0.3	7.662	A
B-A	14	4	322	0.044	14	0.0	0.0	11.705	B
C-AB	130	32	687	0.189	130	0.2	0.2	6.461	A
C-A	291	73			291				
A-B	21	5			21				
A-C	419	105			419				

#### 17:30 - 17:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	138	34	607	0.227	138	0.3	0.3	7.671	A
B-A	14	4	322	0.045	14	0.0	0.0	11.711	B
C-AB	130	32	687	0.189	130	0.2	0.2	6.466	A
C-A	291	73			291				
A-B	21	5			21				
A-C	419	105			419				

**17:45 - 18:00**

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	112	28	630	0.178	113	0.3	0.2	6.965	A
B-A	12	3	356	0.033	12	0.0	0.0	10.472	B
C-AB	106	27	711	0.149	106	0.2	0.2	5.956	A
C-A	237	59			237				
A-B	17	4			17				
A-C	343	86			343				

**18:00 - 18:15**

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	94	24	646	0.146	94	0.2	0.2	6.524	A
B-A	10	2	380	0.026	10	0.0	0.0	9.733	A
C-AB	89	22	729	0.122	89	0.2	0.1	5.626	A
C-A	199	50			199				
A-B	14	4			14				
A-C	287	72			287				

## **Appendix 8 – Killingwoldgraves Roundabout Modelling (Existing)**

# Junctions 9

## ARCADY 9 - Roundabout Module

Version: 9.5.1.7462  
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**Filename:** Killingwoldgraves Roundabout (Lane Sim, Existing Layout, 2021 Update).j9  
**Path:** Z:\Projects\4030 Killingwoldgraves Roundabout\Data\Modelling\Killingwoldgraves Roundabout  
**Report generation date:** 03/12/2021 12:56:04

- »Existing Layout - 2018 Base, AM
- »Existing Layout - 2018 Base, PM
- »Existing Layout - 2027 Do Nothing, AM
- »Existing Layout - 2027 Do Nothing, PM
- »Existing Layout - 2027 Do Nothing (Sensitivity Test), AM
- »Existing Layout - 2027 Do Nothing (Sensitivity Test), PM
- »Existing Layout - 2027 With Development, AM
- »Existing Layout - 2027 With Development, PM
- »Existing Layout - 2027 With Development (Sensitivity Test), AM
- »Existing Layout - 2027 With Development (Sensitivity Test), PM

### Summary of junction performance

	AM					PM				
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Set ID	Queue (PCU)	Delay (s)	RFC	LOS
<b>Existing Layout [Lane Simulation] - 2018 Base</b>										
1 - A1174 (E)	D1	0.7	7.00		A	D2	0.5	5.46		A
2 - A1079 (SE)		1.7	5.94		A		2.0	6.45		A
3 - Killingwoldgraves Lane		2.7	25.39		D		13.9	109.16		F
4 - A1079 (W)		1.4	5.82		A		1.4	6.91		A
5 - A1035 Dog Kennel Lane		3.1	11.01		B		1.0	5.76		A
<b>Existing Layout [Lane Simulation] - 2027 Do Nothing</b>										
1 - A1174 (E)	D3	0.9	8.07		A	D4	0.8	6.27		A
2 - A1079 (SE)		1.8	6.73		A		2.5	7.35		A
3 - Killingwoldgraves Lane		9.6	73.32		F		62.6	471.89		F
4 - A1079 (W)		1.3	6.29		A		1.5	7.33		A
5 - A1035 Dog Kennel Lane		4.1	11.95		B		1.4	6.47		A
<b>Existing Layout [Lane Simulation] - 2027 Do Nothing (Sensitivity Test)</b>										
1 - A1174 (E)	D5	0.9	8.11		A	D6	0.7	6.22		A
2 - A1079 (SE)		1.8	6.74		A		2.5	7.24		A
3 - Killingwoldgraves Lane		14.5	105.50		F		75.1	541.36		F
4 - A1079 (W)		1.4	6.51		A		1.6	7.44		A
5 - A1035 Dog Kennel Lane		3.9	11.95		B		1.1	6.10		A



Existing Layout [Lane Simulation] - 2027 With Development										
1 - A1174 (E)	D7	1.0	8.17		A	D8	0.7	6.44		A
2 - A1079 (SE)		1.9	6.74		A		2.2	7.20		A
3 - Killingwoldgraves Lane		13.0	100.73		F		68.2	514.16		F
4 - A1079 (W)		1.4	6.37		A		1.6	7.31		A
5 - A1035 Dog Kennel Lane		3.3	12.21		B		1.0	6.35		A
Existing Layout [Lane Simulation] - 2027 With Development (Sensitivity Test)										
1 - A1174 (E)	D9	0.9	8.18		A	D10	0.8	6.34		A
2 - A1079 (SE)		1.8	6.78		A		2.1	7.22		A
3 - Killingwoldgraves Lane		17.4	124.41		F		80.1	604.64		F
4 - A1079 (W)		1.5	6.36		A		1.7	7.51		A
5 - A1035 Dog Kennel Lane		3.3	12.01		B		1.0	6.10		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. Arm and junction delays are averages for all movements, including movements with zero delay.

## File summary

### File Description

<b>Title</b>	Proposed Drive-Thru Coffee Shop, Killingwoldgraves Lane
<b>Location</b>	Killingwoldgraves Roundabout
<b>Site number</b>	
<b>Date</b>	30/11/2021
<b>Version</b>	
<b>Status</b>	(new file)
<b>Identifier</b>	
<b>Client</b>	Lovel Developments Ltd
<b>Jobnumber</b>	4030
<b>Enumerator</b>	LTP\JackH
<b>Description</b>	

## 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	✓			536534192	97	16.94

## 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	2018 Base	AM	ONE HOUR	07:45	09:15	15	✓
D2	2018 Base	PM	ONE HOUR	16:45	18:15	15	✓
D3	2027 Do Nothing	AM	ONE HOUR	07:45	09:15	15	✓
D4	2027 Do Nothing	PM	ONE HOUR	16:45	18:15	15	✓
D5	2027 Do Nothing (Sensitivity Test)	AM	ONE HOUR	07:45	09:15	15	✓
D6	2027 Do Nothing (Sensitivity Test)	PM	ONE HOUR	16:45	18:15	15	✓
D7	2027 With Development	AM	ONE HOUR	07:45	09:15	15	✓
D8	2027 With Development	PM	ONE HOUR	16:45	18:15	15	✓
D9	2027 With Development (Sensitivity Test)	AM	ONE HOUR	07:45	09:15	15	✓
D10	2027 With Development (Sensitivity Test)	PM	ONE HOUR	16:45	18:15	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 - 2018 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 (E) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	2 - A1079 (SE) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	4 - A1079 (W) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	5 - A1035 Dog Kennel Lane - 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	Killingwoldgraves Roundabout	Standard Roundabout		1, 2, 3, 4, 5	9.57	A

## Junction Network Options

Driving side	Lighting
Left	Normal/unknown

# Arms

## Arms

Arm	Name	Description
1	A1174 (E)	
2	A1079 (SE)	
3	Killingwoldgraves Lane	
4	A1079 (W)	
5	A1035 Dog Kennel Lane	

## 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 (E)	3.65	8.81	42.1	19.9	73.8	21.4	
2 - A1079 (SE)	3.54	9.19	65.7	24.5	75.8	22.1	
3 - Killingwoldgraves Lane	3.46	7.09	5.1	19.8	75.2	53.0	
4 - A1079 (W)	3.89	8.93	71.0	24.5	73.8	22.1	
5 - A1035 Dog Kennel Lane	3.34	8.70	115.4	23.4	73.6	18.0	

## Slope / Intercept / Capacity

### Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1 - A1174 (E)	0.588	2295
2 - A1079 (SE)	0.613	2503
3 - Killingwoldgraves Lane	0.403	1273
4 - A1079 (W)	0.623	2511
5 - A1035 Dog Kennel Lane	0.631	2544

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

## Lane Simulation: Arm options

Arm	Lane capacity source	Traffic considering secondary lanes (%)
1 - A1174 (E)	Evenly split	10.00
2 - A1079 (SE)	Evenly split	10.00
3 - Killingwoldgraves Lane	Evenly split	10.00
4 - A1079 (W)	Evenly split	10.00
5 - A1035 Dog Kennel Lane	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 (E)	Entry	1	1	2	✓	11.00		0	99999	
			2	1, 3, 4, 5	✓	11.00		0	99999	
	Exit	1	1	(1, 2, 3, 4, 5)		Infinity				
			1			Infinity				
2 - A1079 (SE)	Entry	1	1	3, 4	✓	12.00		0	99999	
			2	1, 2, 5	✓	12.00		0	99999	
	Exit	1	1	(1, 2, 3, 4, 5)		Infinity				
			1			Infinity				

3 - Killingwoldgraves Lane	Entry	1	1	4	✓	2.00	0	99999
		2	1	1, 2, 3, 5	✓	2.00	0	99999
	Exit	2	1	(1, 2, 3, 4, 5)		Infinity		
		1	1			Infinity		
4 - A1079 (W)	Entry	1	1	1, 5	✓	12.00	0	99999
		2	1	2, 3, 4	✓	12.00	0	99999
	Exit	2	1	(1, 2, 3, 4, 5)		Infinity		
		1	1			Infinity		
5 - A1035 Dog Kennel Lane	Entry	1	1	1, 2	✓	22.00	0	99999
		2	1	3, 4, 5	✓	22.00	0	99999
	Exit	2	1	(1, 2, 3, 4, 5)		Infinity		
		1	1			Infinity		

### Entry Lane slope and intercept

Arm	Side	Lane level	Lane	Final slope	Final intercept (PCU/hr)
1 - A1174 (E)	Entry	1	1	0.294	1147
			2	0.294	1147
2 - A1079 (SE)	Entry	1	1	0.306	1252
			2	0.306	1252
3 - Killingwoldgraves Lane	Entry	1	1	0.201	636
			2	0.201	636
4 - A1079 (W)	Entry	1	1	0.311	1256
			2	0.311	1256
5 - A1035 Dog Kennel Lane	Entry	1	1	0.316	1272
			2	0.316	1272

### Summary of Entry Lane allowed movements

Arm	Lane Level	Lane	Destination arm				
			A1174 (E)	A1079 (SE)	Killingwoldgraves Lane	A1079 (W)	A1035 Dog Kennel Lane
1 - A1174 (E)	1	1		✓			
		2	✓		✓	✓	✓
	2	1	✓	✓	✓	✓	✓
2 - A1079 (SE)	1	1			✓	✓	
		2	✓	✓			✓
	2	1	✓	✓	✓	✓	✓
3 - Killingwoldgraves Lane	1	1				✓	
		2	✓	✓	✓		✓
	2	1	✓	✓	✓	✓	✓
4 - A1079 (W)	1	1	✓				✓
		2		✓	✓	✓	
	2	1	✓	✓	✓	✓	✓
5 - A1035 Dog Kennel Lane	1	1	✓	✓			
		2			✓	✓	✓
	2	1	✓	✓	✓	✓	✓

## 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	2018 Base	AM	ONE HOUR	07:45	09:15	15	✓

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

### Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - A1174 (E)		ONE HOUR	✓	307	100.000
2 - A1079 (SE)		ONE HOUR	✓	762	100.000
3 - Killingwoldgraves Lane		ONE HOUR	✓	286	100.000
4 - A1079 (W)		ONE HOUR	✓	601	100.000
5 - A1035 Dog Kennel Lane		ONE HOUR	✓	904	100.000

## Origin-Destination Data

### Demand (PCU/hr)

		To				
		1 - A1174 (E)	2 - A1079 (SE)	3 - Killingwoldgraves Lane	4 - A1079 (W)	5 - A1035 Dog Kennel Lane
From	1 - A1174 (E)	0	146	32	121	8
	2 - A1079 (SE)	100	2	86	318	256
	3 - Killingwoldgraves Lane	40	100	0	30	116
	4 - A1079 (W)	154	322	37	2	86
	5 - A1035 Dog Kennel Lane	5	598	173	127	1

## Vehicle Mix

### Heavy Vehicle Percentages

		To				
		1 - A1174 (E)	2 - A1079 (SE)	3 - Killingwoldgraves Lane	4 - A1079 (W)	5 - A1035 Dog Kennel Lane
From	1 - A1174 (E)	0	0	0	3	0
	2 - A1079 (SE)	1	0	6	9	9
	3 - Killingwoldgraves Lane	0	2	0	0	1
	4 - A1079 (W)	3	7	0	0	27
	5 - A1035 Dog Kennel Lane	25	10	1	18	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 (E)	7.00	0.7	A	280	420
2 - A1079 (SE)	5.94	1.7	A	697	1046
3 - Killingwoldgraves Lane	25.39	2.7	D	262	392
4 - A1079 (W)	5.82	1.4	A	556	834
5 - A1035 Dog Kennel Lane	11.01	3.1	B	834	1251

## Main Results for each time segment

### 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 (E)	230	57	1041	231	232	226	0.0	0.2	5.052	A
2 - A1079 (SE)	576	144	377	578	578	894	0.0	0.7	4.637	A
3 - Killingwoldgraves Lane	210	53	706	209	217	249	0.0	0.7	11.885	B
4 - A1079 (W)	470	117	473	470	459	442	0.0	0.4	4.522	A
5 - A1035 Dog Kennel Lane	681	170	583	684	692	359	0.0	1.0	5.716	A

### 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 (E)	280	70	1231	280	274	274	0.2	0.5	5.509	A
2 - A1079 (SE)	674	168	452	671	674	1059	0.7	1.3	5.174	A
3 - Killingwoldgraves Lane	254	64	835	257	253	288	0.7	1.0	14.890	B
4 - A1079 (W)	547	137	550	548	532	542	0.4	0.7	4.891	A
5 - A1035 Dog Kennel Lane	816	204	690	815	814	408	1.0	1.5	6.647	A

### 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 (E)	329	82	1517	332	336	329	0.5	0.7	6.498	A
2 - A1079 (SE)	855	214	562	851	836	1287	1.3	1.7	5.834	A
3 - Killingwoldgraves Lane	319	80	1047	313	304	366	1.0	2.7	23.814	C
4 - A1079 (W)	658	165	694	652	656	666	0.7	1.4	5.718	A
5 - A1035 Dog Kennel Lane	1004	251	836	1009	988	509	1.5	2.6	9.396	A

### 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 (E)	334	84	1495	335	336	322	0.7	0.5	7.003	A
2 - A1079 (SE)	820	205	536	819	834	1294	1.7	1.3	5.937	A
3 - Killingwoldgraves Lane	316	79	1004	322	316	352	2.7	1.9	25.392	D
4 - A1079 (W)	652	163	672	654	667	654	1.4	0.9	5.816	A
5 - A1035 Dog Kennel Lane	992	248	821	997	998	505	2.6	3.1	11.014	B

#### 08:45 - 09:00

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 (E)	275	69	1249	276	278	276	0.5	0.3	5.740	A
2 - A1079 (SE)	696	174	441	696	682	1085	1.3	0.9	5.074	A
3 - Killingwoldgraves Lane	256	64	852	255	260	285	1.9	1.1	15.222	C
4 - A1079 (W)	553	138	563	552	544	545	0.9	0.8	4.991	A
5 - A1035 Dog Kennel Lane	838	210	690	835	818	424	3.1	1.9	7.668	A

#### 09:00 - 09:15

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 (E)	230	57	1024	230	232	227	0.3	0.3	5.046	A
2 - A1079 (SE)	564	141	370	564	567	884	0.9	0.6	4.599	A
3 - Killingwoldgraves Lane	214	54	691	214	219	243	1.1	0.7	11.866	B
4 - A1079 (W)	455	114	466	456	456	439	0.8	0.6	4.669	A
5 - A1035 Dog Kennel Lane	675	169	579	672	683	342	1.9	1.1	5.846	A

## Lane Results

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

### Lanes: Main Results for each time segment

#### 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 (E)	Entry	1	1	2	109	842	0.130	110	111	0.0	0.1	5.107	A
			2	1, 3, 4, 5	121	842	0.143	121	121	0.0	0.1	5.000	A
		2	1	(1, 2, 3, 4, 5)	230			230	232	0.0	0.0	0.000	A

	Exit	1	1		226			226	227	0.0	0.0	0.000	A
2 - A1079 (SE)	Entry	1	1	3, 4	300	1136	0.264	302	306	0.0	0.4	4.845	A
			2	1, 2, 5	276	1136	0.243	276	273	0.0	0.3	4.407	A
	2	1	(1, 2, 3, 4, 5)	576			576	581	0.0	0.0	0.000	A	
	Exit	1	1		894			894	884	0.0	0.0	0.000	A
3 - Killingwoldgraves Lane	Entry	1	1	4	21	494	0.043	21	23	0.0	0.0	7.191	A
			2	1, 2, 3, 5	188	494	0.381	188	193	0.0	0.6	10.273	B
	2	1	(1, 2, 3, 4, 5)	210			209	219	0.0	0.1	1.932	A	
	Exit	1	1		249			249	256	0.0	0.0	0.000	A
4 - A1079 (W)	Entry	1	1	1, 5	184	1109	0.166	186	183	0.0	0.1	4.318	A
			2	2, 3, 4	285	1109	0.257	284	276	0.0	0.3	4.652	A
	2	1	(1, 2, 3, 4, 5)	470			470	460	0.0	0.0	0.000	A	
	Exit	1	1		442			442	453	0.0	0.0	0.000	A
5 - A1035 Dog Kennel Lane	Entry	1	1	1, 2	457	1088	0.420	459	457	0.0	0.7	6.420	A
			2	3, 4, 5	225	1088	0.207	225	235	0.0	0.3	4.379	A
	2	1	(1, 2, 3, 4, 5)	681			681	696	0.0	0.0	0.000	A	
	Exit	1	1		359			359	357	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 (E)	Entry	1	1	2	132	786	0.168	132	130	0.1	0.2	5.307	A
			2	1, 3, 4, 5	148	786	0.188	148	144	0.1	0.3	5.697	A
	2	1	(1, 2, 3, 4, 5)	280			280	275	0.0	0.0	0.000	A	
	Exit	1	1		274			274	269	0.0	0.0	0.000	A
2 - A1079 (SE)	Entry	1	1	3, 4	360	1113	0.324	359	361	0.4	0.8	5.321	A
			2	1, 2, 5	313	1113	0.282	312	313	0.3	0.5	5.006	A
	2	1	(1, 2, 3, 4, 5)	674			674	677	0.0	0.0	0.000	A	
	Exit	1	1		1059			1059	1040	0.0	0.0	0.000	A
3 - Killingwoldgraves Lane	Entry	1	1	4	28	468	0.059	27	27	0.0	0.1	8.206	A
			2	1, 2, 3, 5	227	468	0.485	230	226	0.6	0.7	11.591	B
	2	1	(1, 2, 3, 4, 5)	254			255	254	0.1	0.2	3.661	A	
	Exit	1	1		288			288	291	0.0	0.0	0.000	A
4 - A1079 (W)	Entry	1	1	1, 5	220	1085	0.203	219	214	0.1	0.3	4.657	A



		2	2, 3, 4	327	1085	0.30 2	329	318	0.3	0.4	5.042	A		
			2	1	(1, 2, 3, 4, 5)	547			547	534	0.0	0.0	0.000	A
			Exit	1	1		542			542	537	0.0	0.0	0.000
5 - A1035 Dog Kennel Lane	Entry	1	1	1, 2	548	1054	0.51 9	549	543	0.7	1.1	7.470	A	
			2	3, 4, 5	268	1054	0.25 4	266	271	0.3	0.4	5.032	A	
	2	1	(1, 2, 3, 4, 5)	816			816	816	0.0	0.0	0.000	A		
	Exit	1	1		408			408	410	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 (E)	Entry	1	1	2	155	701	0.22 0	156	157	0.2	0.3	6.241	A
			2	1, 3, 4, 5	175	701	0.24 9	176	179	0.3	0.4	6.729	A
	2	1	(1, 2, 3, 4, 5)	329			329	337	0.0	0.0	0.000	A	
	Exit	1	1		329			329	325	0.0	0.0	0.000	A
2 - A1079 (SE)	Entry	1	1	3, 4	454	1079	0.42 1	452	442	0.8	0.9	6.085	A
			2	1, 2, 5	401	1079	0.37 1	400	395	0.5	0.8	5.555	A
	2	1	(1, 2, 3, 4, 5)	855			855	838	0.0	0.0	0.001	A	
	Exit	1	1		1287			1287	1269	0.0	0.0	0.000	A
3 - Killingwoldgraves Lane	Entry	1	1	4	27	426	0.06 4	27	29	0.1	0.1	9.312	A
			2	1, 2, 3, 5	288	426	0.67 8	286	275	0.7	1.3	13.80 7	B
	2	1	(1, 2, 3, 4, 5)	319			316	307	0.2	1.4	10.42 0	B	
	Exit	1	1		366			366	357	0.0	0.0	0.000	A
4 - A1079 (W)	Entry	1	1	1, 5	256	1040	0.24 6	255	260	0.3	0.5	5.429	A
			2	2, 3, 4	402	1040	0.38 7	398	395	0.4	1.0	5.897	A
	2	1	(1, 2, 3, 4, 5)	658			658	659	0.0	0.0	0.000	A	
	Exit	1	1		666			666	661	0.0	0.0	0.000	A
5 - A1035 Dog Kennel Lane	Entry	1	1	1, 2	663	1008	0.65 8	666	654	1.1	2.2	11.23 5	B
			2	3, 4, 5	341	1008	0.33 8	343	333	0.4	0.5	5.855	A
	2	1	(1, 2, 3, 4, 5)	1004			1004	992	0.0	0.0	0.000	A	
	Exit	1	1		509			509	509	0.0	0.0	0.000	A

### 08:30 - 08:45

Arm	Side	Lane	Lane	Destination arms	Total Demand	Capacity	RFC	Throughput (PCU/hr)	Average throughput	Start queue	End queue	Delay (s)	Unsignalised level of service
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		level		(PCU/hr)	(PCU/hr)			ut (PCU/hr)	(PCU)	(PCU)			
1 - A1174 (E)	Entry	1	1	2	160	708	0.227	160	161	0.3	0.3	6.906	A
			2	1, 3, 4, 5	174	708	0.246	175	174	0.4	0.2	7.096	A
	2	1	(1, 2, 3, 4, 5)	334			334	335	0.0	0.0	0.000	A	
	Exit	1	1		322			322	326	0.0	0.0	0.000	A
2 - A1079 (SE)	Entry	1	1	3, 4	445	1087	0.410	442	446	0.9	0.8	6.185	A
			2	1, 2, 5	374	1087	0.344	377	388	0.8	0.5	5.655	A
	2	1	(1, 2, 3, 4, 5)	820			820	833	0.0	0.0	0.001	A	
	Exit	1	1		1294			1294	1301	0.0	0.0	0.000	A
3 - Killingwoldgraves Lane	Entry	1	1	4	36	434	0.083	36	34	0.1	0.1	8.670	A
			2	1, 2, 3, 5	286	434	0.658	286	282	1.3	1.1	13.777	B
	2	1	(1, 2, 3, 4, 5)	316			322	316	1.4	0.7	12.166	B	
	Exit	1	1		352			352	353	0.0	0.0	0.000	A
4 - A1079 (W)	Entry	1	1	1, 5	257	1046	0.246	258	266	0.5	0.3	5.234	A
			2	2, 3, 4	395	1046	0.377	395	401	1.0	0.6	6.187	A
	2	1	(1, 2, 3, 4, 5)	652			652	665	0.0	0.0	0.000	A	
	Exit	1	1		654			654	656	0.0	0.0	0.000	A
5 - A1035 Dog Kennel Lane	Entry	1	1	1, 2	671	1013	0.662	673	674	2.2	2.6	13.623	B
			2	3, 4, 5	322	1013	0.317	323	324	0.5	0.4	5.622	A
	2	1	(1, 2, 3, 4, 5)	992			993	1000	0.0	0.0	0.024	A	
	Exit	1	1		505			505	514	0.0	0.0	0.000	A

08:45 - 09:00

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 (E)	Entry	1	1	2	136	780	0.174	136	137	0.3	0.2	5.643	A
			2	1, 3, 4, 5	139	780	0.179	140	142	0.2	0.2	5.835	A
	2	1	(1, 2, 3, 4, 5)	275			275	278	0.0	0.0	0.000	A	
	Exit	1	1		276			276	271	0.0	0.0	0.000	A
2 - A1079 (SE)	Entry	1	1	3, 4	367	1116	0.329	368	363	0.8	0.4	5.425	A
			2	1, 2, 5	329	1116	0.294	329	320	0.5	0.4	4.687	A
	2	1	(1, 2, 3, 4, 5)	696			696	681	0.0	0.0	0.000	A	
	Exit	1	1		1085			1085	1062	0.0	0.0	0.000	A

3 - Killingwoldgraves Lane	Entry	1	1	4	29	465	0.062	29	28	0.1	0.0	8.225	A
			2	1, 2, 3, 5	228	465	0.490	226	232	1.1	0.8	11.601	B
	Exit	1	1	(1, 2, 3, 4, 5)	256			257	258	0.7	0.2	4.015	A
			1	1		285			285	292	0.0	0.0	0.000
4 - A1079 (W)	Entry	1	1	1, 5	224	1081	0.208	223	218	0.3	0.4	4.722	A
			2	2, 3, 4	329	1081	0.304	329	325	0.6	0.4	5.164	A
	Exit	1	1	(1, 2, 3, 4, 5)	553			553	543	0.0	0.0	0.000	A
			1	1		545			545	538	0.0	0.0	0.000
5 - A1035 Dog Kennel Lane	Entry	1	1	1, 2	573	1054	0.543	570	547	2.6	1.5	9.052	A
			2	3, 4, 5	266	1054	0.252	265	270	0.4	0.3	4.929	A
	Exit	1	1	(1, 2, 3, 4, 5)	838			838	813	0.0	0.0	0.007	A
			1	1		424			424	420	0.0	0.0	0.000

09:00 - 09:15

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 (E)	Entry	1	1	2	113	846	0.134	112	111	0.2	0.2	4.971	A
			2	1, 3, 4, 5	117	846	0.138	117	121	0.2	0.2	5.117	A
	Exit	1	1	(1, 2, 3, 4, 5)	230			230	232	0.0	0.0	0.000	A
			1	1		227			227	226	0.0	0.0	0.000
2 - A1079 (SE)	Entry	1	1	3, 4	296	1138	0.260	296	299	0.4	0.4	4.807	A
			2	1, 2, 5	267	1138	0.235	269	268	0.4	0.3	4.371	A
	Exit	1	1	(1, 2, 3, 4, 5)	564			564	566	0.0	0.0	0.000	A
			1	1		884			884	888	0.0	0.0	0.000
3 - Killingwoldgraves Lane	Entry	1	1	4	21	497	0.043	22	23	0.0	0.1	8.067	A
			2	1, 2, 3, 5	192	497	0.386	192	196	0.8	0.5	10.184	B
	Exit	1	1	(1, 2, 3, 4, 5)	214			214	218	0.2	0.1	1.958	A
			1	1		243			243	246	0.0	0.0	0.000
4 - A1079 (W)	Entry	1	1	1, 5	178	1111	0.160	176	179	0.4	0.3	4.377	A
			2	2, 3, 4	278	1111	0.250	279	277	0.4	0.3	4.850	A
	Exit	1	1	(1, 2, 3, 4, 5)	455			455	455	0.0	0.0	0.000	A
			1	1		439			439	447	0.0	0.0	0.000
5 - A1035 Dog Kennel Lane	Entry	1	1	1, 2	454	1089	0.416	451	457	1.5	0.8	6.495	A

		2	3, 4, 5	221	1089	0.20 3	221	226	0.3	0.3	4.574	A
		2	1	(1, 2, 3, 4, 5)	675		675	680	0.0	0.0	0.000	A
	Exit	1	1		342		342	350	0.0	0.0	0.000	A

## Existing Layout - 2018 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 (E) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	2 - A1079 (SE) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	4 - A1079 (W) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	5 - A1035 Dog Kennel Lane - 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	Killingwoldgraves Roundabout	Standard Roundabout		1, 2, 3, 4, 5	20.48	C

### 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	2018 Base	PM	ONE HOUR	16:45	18:15	15	✓

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

### Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - A1174 (E)		ONE HOUR	✓	270	100.000

2 - A1079 (SE)		ONE HOUR	✓	931	100.000
3 - Killingwoldgraves Lane		ONE HOUR	✓	373	100.000
4 - A1079 (W)		ONE HOUR	✓	613	100.000
5 - A1035 Dog Kennel Lane		ONE HOUR	✓	509	100.000

## Origin-Destination Data

### Demand (PCU/hr)

		To				
		1 - A1174 (E)	2 - A1079 (SE)	3 - Killingwoldgraves Lane	4 - A1079 (W)	5 - A1035 Dog Kennel Lane
From	1 - A1174 (E)	0	94	35	131	10
	2 - A1079 (SE)	104	2	113	266	446
	3 - Killingwoldgraves Lane	35	99	0	22	217
	4 - A1079 (W)	147	365	25	1	75
	5 - A1035 Dog Kennel Lane	5	356	82	65	1

## Vehicle Mix

### Heavy Vehicle Percentages

		To				
		1 - A1174 (E)	2 - A1079 (SE)	3 - Killingwoldgraves Lane	4 - A1079 (W)	5 - A1035 Dog Kennel Lane
From	1 - A1174 (E)	0	1	0	2	0
	2 - A1079 (SE)	0	0	1	2	4
	3 - Killingwoldgraves Lane	0	0	0	5	1
	4 - A1079 (W)	4	5	4	0	10
	5 - A1035 Dog Kennel Lane	0	4	0	8	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 (E)	5.46	0.5	A	249	374
2 - A1079 (SE)	6.45	2.0	A	863	1294
3 - Killingwoldgraves Lane	109.16	13.9	F	343	514
4 - A1079 (W)	6.91	1.4	A	564	847
5 - A1035 Dog Kennel Lane	5.76	1.0	A	468	702

### Main Results for each time segment

**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 (E)	205	51	750	206	208	220	0.0	0.3	4.439	A
2 - A1079 (SE)	714	179	262	714	709	694	0.0	1.0	4.612	A
3 - Killingwoldgraves Lane	285	71	783	285	276	193	0.0	1.4	16.638	C
4 - A1079 (W)	461	115	697	459	463	371	0.0	0.7	4.934	A
5 - A1035 Dog Kennel Lane	384	96	586	384	386	570	0.0	0.5	4.436	A

**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 (E)	246	61	899	244	247	264	0.3	0.4	4.877	A
2 - A1079 (SE)	830	207	320	830	834	823	1.0	1.2	5.207	A
3 - Killingwoldgraves Lane	330	83	920	338	334	231	1.4	2.0	24.575	C
4 - A1079 (W)	544	136	820	544	546	438	0.7	1.0	5.421	A
5 - A1035 Dog Kennel Lane	460	115	703	460	457	661	0.5	0.7	4.868	A

**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 (E)	290	72	1086	288	293	321	0.4	0.5	5.346	A
2 - A1079 (SE)	1044	261	377	1040	1032	996	1.2	2.0	6.449	A
3 - Killingwoldgraves Lane	403	101	1138	385	381	279	2.0	9.8	66.663	F
4 - A1079 (W)	683	171	996	683	669	526	1.0	1.4	6.658	A
5 - A1035 Dog Kennel Lane	554	139	852	555	555	827	0.7	0.9	5.624	A

**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 (E)	299	75	1116	300	298	319	0.5	0.4	5.461	A
2 - A1079 (SE)	1032	258	390	1031	1025	1026	2.0	1.9	6.398	A
3 - Killingwoldgraves Lane	420	105	1137	405	402	284	9.8	13.9	109.158	F
4 - A1079 (W)	681	170	1006	684	681	536	1.4	1.1	6.912	A
5 - A1035 Dog Kennel Lane	568	142	866	569	560	824	0.9	1.0	5.764	A

**17:45 - 18:00**

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
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	(PCU/hr)	Arrivals (PCU)					e (PCU)	e (PCU)		
1 - A1174 (E)	246	61	889	245	243	266	0.4	0.4	4.976	A
2 - A1079 (SE)	852	213	320	851	844	814	1.9	1.3	5.252	A
3 - Killingwoldgraves Lane	336	84	936	355	377	235	13.9	3.9	67.352	F
4 - A1079 (W)	551	138	852	548	555	440	1.1	0.9	5.772	A
5 - A1035 Dog Kennel Lane	453	113	702	453	460	698	1.0	0.7	5.008	A

### 18:00 - 18:15

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 (E)	209	52	760	209	208	222	0.4	0.3	4.450	A
2 - A1079 (SE)	705	176	274	704	704	695	1.3	0.9	4.654	A
3 - Killingwoldgraves Lane	282	70	780	285	295	197	3.9	1.4	21.122	C
4 - A1079 (W)	465	116	691	467	461	374	0.9	0.7	5.010	A
5 - A1035 Dog Kennel Lane	388	97	596	386	383	563	0.7	0.6	4.485	A

## Lane Results

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

### Lanes: Main Results for each time segment

#### 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 (E)	Entry	1	1	2	73	927	0.079	74	73	0.0	0.1	4.228	A
			2	1, 3, 4, 5	132	927	0.142	132	134	0.0	0.2	4.553	A
		2	1	(1, 2, 3, 4, 5)	205			205	209	0.0	0.0	0.000	A
	Exit	1	1		220			220	218	0.0	0.0	0.000	A
2 - A1079 (SE)	Entry	1	1	3, 4	292	1171	0.250	293	289	0.0	0.3	4.034	A
			2	1, 2, 5	422	1171	0.361	421	420	0.0	0.7	5.014	A
		2	1	(1, 2, 3, 4, 5)	714			714	712	0.0	0.0	0.000	A
	Exit	1	1		694			694	694	0.0	0.0	0.000	A
3 - Killingwoldgraves Lane	Entry	1	1	4	17	479	0.036	17	17	0.0	0.0	7.949	A
			2	1, 2, 3, 5	267	479	0.558	268	259	0.0	0.9	11.771	B
		2	1	(1, 2, 3, 4, 5)	285			284	280	0.0	0.5	5.085	A
	Exit	1	1		193			193	192	0.0	0.0	0.000	A

4 - A1079 (W)	Entry	1	1	1, 5	165	1039	0.158	164	167	0.0	0.3	4.384	A
			2	2, 3, 4	296	1039	0.285	295	296	0.0	0.4	5.243	A
	Exit	1	1	(1, 2, 3, 4, 5)	461			461	466	0.0	0.0	0.000	A
			1	1		371			371	370	0.0	0.0	0.000
5 - A1035 Dog Kennel Lane	Entry	1	1	1, 2	271	1087	0.250	272	273	0.0	0.4	4.687	A
			2	3, 4, 5	112	1087	0.103	112	113	0.0	0.1	3.828	A
	Exit	1	1	(1, 2, 3, 4, 5)	384			384	388	0.0	0.0	0.000	A
			1	1		570			570	566	0.0	0.0	0.000

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 (E)	Entry	1	1	2	83	883	0.094	83	85	0.1	0.1	4.479	A
			2	1, 3, 4, 5	162	883	0.184	161	162	0.2	0.3	5.086	A
	Exit	1	1	(1, 2, 3, 4, 5)	246			246	247	0.0	0.0	0.000	A
			1	1		264			264	260	0.0	0.0	0.000
2 - A1079 (SE)	Entry	1	1	3, 4	338	1153	0.293	338	342	0.3	0.5	4.478	A
			2	1, 2, 5	492	1153	0.427	492	492	0.7	0.7	5.722	A
	Exit	1	1	(1, 2, 3, 4, 5)	830			830	835	0.0	0.0	0.000	A
			1	1		823			823	826	0.0	0.0	0.000
3 - Killingwoldgraves Lane	Entry	1	1	4	20	451	0.044	20	20	0.0	0.0	8.515	A
			2	1, 2, 3, 5	315	451	0.699	318	314	0.9	1.1	13.160	B
	Exit	1	1	(1, 2, 3, 4, 5)	330			335	334	0.5	0.9	11.640	B
			1	1		231			231	225	0.0	0.0	0.000
4 - A1079 (W)	Entry	1	1	1, 5	191	1000	0.191	192	194	0.3	0.3	4.887	A
			2	2, 3, 4	354	1000	0.353	352	352	0.4	0.7	5.713	A
	Exit	1	1	(1, 2, 3, 4, 5)	544			544	547	0.0	0.0	0.000	A
			1	1		438			438	442	0.0	0.0	0.000
5 - A1035 Dog Kennel Lane	Entry	1	1	1, 2	324	1050	0.308	323	326	0.4	0.5	5.164	A
			2	3, 4, 5	137	1050	0.130	137	131	0.1	0.2	4.129	A
	Exit	1	1	(1, 2, 3, 4, 5)	460			460	458	0.0	0.0	0.000	A
			1	1		661			661	664	0.0	0.0	0.000

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 (E)	Entry	1	1	2	101	828	0.122	100	102	0.1	0.2	4.844	A
			2	1, 3, 4, 5	188	828	0.227	187	191	0.3	0.4	5.615	A
	Exit	1	1	(1, 2, 3, 4, 5)	290			290	293	0.0	0.0	0.000	A
			1	1		321			321	314	0.0	0.0	0.000
2 - A1079 (SE)	Entry	1	1	3, 4	418	1136	0.368	417	413	0.5	0.5	5.089	A
			2	1, 2, 5	626	1136	0.551	623	619	0.7	1.4	7.324	A
	Exit	1	1	(1, 2, 3, 4, 5)	1044			1044	1035	0.0	0.0	0.022	A
			1	1		996			996	993	0.0	0.0	0.000
3 - Killingwoldgraves Lane	Entry	1	1	4	22	407	0.053	22	23	0.0	0.0	9.656	A
			2	1, 2, 3, 5	363	407	0.890	363	359	1.1	1.7	16.511	C
	Exit	1	1	(1, 2, 3, 4, 5)	403			384	384	0.9	8.1	50.396	F
			1	1		279			279	280	0.0	0.0	0.000
4 - A1079 (W)	Entry	1	1	1, 5	253	945	0.268	251	243	0.3	0.4	5.463	A
			2	2, 3, 4	430	945	0.455	431	427	0.7	1.0	7.333	A
	Exit	1	1	(1, 2, 3, 4, 5)	683			683	671	0.0	0.0	0.000	A
			1	1		526			526	523	0.0	0.0	0.000
5 - A1035 Dog Kennel Lane	Entry	1	1	1, 2	394	1003	0.393	394	393	0.5	0.7	6.157	A
			2	3, 4, 5	160	1003	0.160	161	161	0.2	0.2	4.327	A
	Exit	1	1	(1, 2, 3, 4, 5)	554			554	556	0.0	0.0	0.000	A
			1	1		827			827	819	0.0	0.0	0.000

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 (E)	Entry	1	1	2	105	819	0.128	105	104	0.2	0.1	5.000	A
			2	1, 3, 4, 5	194	819	0.237	195	194	0.4	0.3	5.709	A
	Exit	1	1	(1, 2, 3, 4, 5)	299			299	297	0.0	0.0	0.000	A
			1	1		319			319	315	0.0	0.0	0.000
2 - A1079 (SE)	Entry	1	1	3, 4	421	1132	0.372	420	416	0.5	0.6	5.234	A
			2	1, 2, 5	611	1132	0.540	610	609	1.4	1.3	7.198	A
	Exit	1	1	(1, 2, 3, 4, 5)	1032			1032	1025	0.0	0.0	0.009	A

	Exit	1	1		1026			1026	1011	0.0	0.0	0.000	A
3 - Killingwoldgraves Lane	Entry	1	1	4	22	407	0.054	22	23	0.0	0.0	10.315	B
			2	1, 2, 3, 5	384	407	0.942	383	379	1.7	1.9	16.924	C
	2	1	(1, 2, 3, 4, 5)	420			406	402	8.1	12.0	92.646	F	
	Exit	1	1		284			284	281	0.0	0.0	0.000	A
4 - A1079 (W)	Entry	1	1	1, 5	246	943	0.261	246	245	0.4	0.5	5.518	A
			2	2, 3, 4	435	943	0.461	438	435	1.0	0.6	7.688	A
	2	1	(1, 2, 3, 4, 5)	681			681	680	0.0	0.0	0.004	A	
	Exit	1	1		536			536	533	0.0	0.0	0.000	A
5 - A1035 Dog Kennel Lane	Entry	1	1	1, 2	404	999	0.404	403	397	0.7	0.7	6.251	A
			2	3, 4, 5	164	999	0.164	166	163	0.2	0.2	4.581	A
	2	1	(1, 2, 3, 4, 5)	568			568	560	0.0	0.0	0.000	A	
	Exit	1	1		824			824	825	0.0	0.0	0.000	A

17:45 - 18:00

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 (E)	Entry	1	1	2	82	886	0.093	82	80	0.1	0.1	4.561	A
			2	1, 3, 4, 5	163	886	0.184	163	163	0.3	0.3	5.182	A
	2	1	(1, 2, 3, 4, 5)	246			246	243	0.0	0.0	0.000	A	
	Exit	1	1		266			266	268	0.0	0.0	0.000	A
2 - A1079 (SE)	Entry	1	1	3, 4	344	1153	0.298	344	341	0.6	0.4	4.479	A
			2	1, 2, 5	508	1153	0.441	508	502	1.3	0.8	5.784	A
	2	1	(1, 2, 3, 4, 5)	852			852	841	0.0	0.0	0.001	A	
	Exit	1	1		814			814	831	0.0	0.0	0.000	A
3 - Killingwoldgraves Lane	Entry	1	1	4	22	448	0.049	22	23	0.0	0.1	9.027	A
			2	1, 2, 3, 5	333	448	0.743	333	354	1.9	1.2	15.098	C
	2	1	(1, 2, 3, 4, 5)	336			355	375	12.0	2.6	52.919	F	
	Exit	1	1		235			235	233	0.0	0.0	0.000	A
4 - A1079 (W)	Entry	1	1	1, 5	200	991	0.202	200	202	0.5	0.2	5.037	A
			2	2, 3, 4	351	991	0.355	349	353	0.6	0.7	6.185	A
	2	1	(1, 2, 3, 4, 5)	551			551	554	0.0	0.0	0.002	A	
	Exit	1	1		440			440	441	0.0	0.0	0.000	A
5 - A1035 Dog Kennel Lane	Entry	1	1	1, 2	322	1051	0.307	321	326	0.7	0.5	5.352	A

		2	3, 4, 5	131	1051	0.125	132	134	0.2	0.1	4.168	A
		2	1 (1, 2, 3, 4, 5)	453			453	459	0.0	0.0	0.000	A
	Exit	1	1		698		698	706	0.0	0.0	0.000	A

### 18:00 - 18:15

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 (E)	Entry	1	1	2	73	924	0.079	74	72	0.1	0.1	4.113	A
			2	1, 3, 4, 5	136	924	0.147	136	135	0.3	0.2	4.631	A
	Exit	1	1	(1, 2, 3, 4, 5)	209			209	207	0.0	0.0	0.000	A
					222			222	221	0.0	0.0	0.000	A
2 - A1079 (SE)	Entry	1	1	3, 4	288	1167	0.247	288	288	0.4	0.3	4.135	A
			2	1, 2, 5	417	1167	0.357	416	416	0.8	0.6	5.019	A
	Exit	1	1	(1, 2, 3, 4, 5)	705			705	702	0.0	0.0	0.000	A
					695			695	696	0.0	0.0	0.000	A
3 - Killingwoldgraves Lane	Entry	1	1	4	18	479	0.037	18	18	0.1	0.1	8.345	A
			2	1, 2, 3, 5	268	479	0.560	268	277	1.2	0.9	11.803	B
	Exit	1	1	(1, 2, 3, 4, 5)	282			286	294	2.6	0.4	9.621	A
					197			197	196	0.0	0.0	0.000	A
4 - A1079 (W)	Entry	1	1	1, 5	164	1040	0.158	166	163	0.2	0.1	4.444	A
			2	2, 3, 4	301	1040	0.290	301	298	0.7	0.5	5.322	A
	Exit	1	1	(1, 2, 3, 4, 5)	465			465	460	0.0	0.0	0.000	A
					374			374	370	0.0	0.0	0.000	A
5 - A1035 Dog Kennel Lane	Entry	1	1	1, 2	271	1084	0.250	268	270	0.5	0.5	4.771	A
			2	3, 4, 5	117	1084	0.108	117	113	0.1	0.1	3.805	A
	Exit	1	1	(1, 2, 3, 4, 5)	388			388	382	0.0	0.0	0.000	A
					563			563	567	0.0	0.0	0.000	A

## Existing Layout - 2027 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.

Warning	Geometry	1 - A1174 (E) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	2 - A1079 (SE) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	4 - A1079 (W) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	5 - A1035 Dog Kennel Lane - 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	Killingwoldgraves Roundabout	Standard Roundabout		1, 2, 3, 4, 5	16.54	C

### 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	2027 Do Nothing	AM	ONE HOUR	07:45	09:15	15	✓

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

### Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - A1174 (E)		ONE HOUR	✓	378	100.000
2 - A1079 (SE)		ONE HOUR	✓	815	100.000
3 - Killingwoldgraves Lane		ONE HOUR	✓	391	100.000
4 - A1079 (W)		ONE HOUR	✓	654	100.000
5 - A1035 Dog Kennel Lane		ONE HOUR	✓	951	100.000

## Origin-Destination Data

## Demand (PCU/hr)

		To				
		1 - A1174 (E)	2 - A1079 (SE)	3 - Killingwoldgraves Lane	4 - A1079 (W)	5 - A1035 Dog Kennel Lane
From	1 - A1174 (E)	0	181	46	143	8
	2 - A1079 (SE)	116	2	112	324	261
	3 - Killingwoldgraves Lane	74	136	0	47	134
	4 - A1079 (W)	179	328	57	2	88
	5 - A1035 Dog Kennel Lane	5	610	205	130	1

## Vehicle Mix

### Heavy Vehicle Percentages

		To				
		1 - A1174 (E)	2 - A1079 (SE)	3 - Killingwoldgraves Lane	4 - A1079 (W)	5 - A1035 Dog Kennel Lane
From	1 - A1174 (E)	0	0	0	3	0
	2 - A1079 (SE)	1	0	5	9	10
	3 - Killingwoldgraves Lane	0	2	0	0	2
	4 - A1079 (W)	4	7	0	0	28
	5 - A1035 Dog Kennel Lane	26	10	1	18	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 (E)	8.07	0.9	A	349	523
2 - A1079 (SE)	6.73	1.8	A	752	1128
3 - Killingwoldgraves Lane	73.32	9.6	F	360	540
4 - A1079 (W)	6.29	1.3	A	595	893
5 - A1035 Dog Kennel Lane	11.95	4.1	B	870	1305

### Main Results for each time segment

#### 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 (E)	291	73	1096	291	289	277	0.0	0.5	5.339	A
2 - A1079 (SE)	616	154	448	615	614	940	0.0	0.9	4.863	A

3 - Killingwoldgraves Lane	305	76	738	304	293	325	0.0	1.4	15.558	C
4 - A1079 (W)	484	121	557	481	485	486	0.0	0.8	4.685	A
5 - A1035 Dog Kennel Lane	706	177	671	703	705	367	0.0	1.2	6.112	A

#### 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 (E)	347	87	1327	347	344	334	0.5	0.7	6.300	A
2 - A1079 (SE)	740	185	537	739	734	1136	0.9	1.3	5.467	A
3 - Killingwoldgraves Lane	364	91	891	363	350	385	1.4	2.4	22.377	C
4 - A1079 (W)	585	146	666	583	594	588	0.8	1.1	5.373	A
5 - A1035 Dog Kennel Lane	861	215	804	857	852	445	1.2	2.3	7.451	A

#### 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 (E)	413	103	1596	415	412	413	0.7	0.9	7.641	A
2 - A1079 (SE)	902	226	653	902	895	1358	1.3	1.8	6.450	A
3 - Killingwoldgraves Lane	423	106	1096	414	408	459	2.4	7.0	46.255	E
4 - A1079 (W)	715	179	788	714	723	722	1.1	1.3	6.194	A
5 - A1035 Dog Kennel Lane	1034	259	973	1036	1034	528	2.3	3.8	11.525	B

#### 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 (E)	412	103	1638	411	416	396	0.9	0.9	8.066	A
2 - A1079 (SE)	894	223	648	895	889	1401	1.8	1.5	6.730	A
3 - Killingwoldgraves Lane	425	106	1090	421	419	452	7.0	9.6	73.325	F
4 - A1079 (W)	712	178	799	713	714	712	1.3	1.3	6.291	A
5 - A1035 Dog Kennel Lane	1063	266	973	1061	1056	538	3.8	4.1	11.948	B

#### 08:45 - 09:00

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 (E)	337	84	1326	337	341	334	0.9	0.7	6.453	A
2 - A1079 (SE)	741	185	544	742	746	1118	1.5	1.1	5.618	A
3 - Killingwoldgraves Lane	345	86	903	353	376	383	9.6	3.1	46.973	E
4 - A1079 (W)	587	147	668	588	588	589	1.3	0.9	5.547	A

5 - A1035 Dog Kennel Lane	860	215	800	859	864	455	4.1	1.8	8.167	A
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### 09:00 - 09:15

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 (E)	294	73	1090	293	290	279	0.7	0.4	5.381	A
2 - A1079 (SE)	619	155	448	621	619	935	1.1	0.8	4.831	A
3 - Killingwoldgraves Lane	296	74	753	294	302	315	3.1	1.3	16.680	C
4 - A1079 (W)	491	123	557	491	500	491	0.9	0.7	4.885	A
5 - A1035 Dog Kennel Lane	695	174	676	693	708	372	1.8	1.3	6.114	A

## Lane Results

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

### Lanes: Main Results for each time segment

#### 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 (E)	Entry	1	1	2	138	825	0.168	138	139	0.0	0.2	5.203	A
			2	1, 3, 4, 5	152	825	0.185	153	150	0.0	0.3	5.468	A
	Exit	1	1	(1, 2, 3, 4, 5)	291			291	291	0.0	0.0	0.000	A
			1	1		277			277	276	0.0	0.0	0.000
2 - A1079 (SE)	Entry	1	1	3, 4	335	1114	0.301	336	331	0.0	0.4	4.993	A
			2	1, 2, 5	281	1114	0.252	280	282	0.0	0.5	4.712	A
	Exit	1	1	(1, 2, 3, 4, 5)	616			616	617	0.0	0.0	0.000	A
			1	1		940			940	937	0.0	0.0	0.000
3 - Killingwoldgraves Lane	Entry	1	1	4	36	488	0.074	36	35	0.0	0.1	7.809	A
			2	1, 2, 3, 5	270	488	0.553	269	257	0.0	0.9	11.228	B
	Exit	1	1	(1, 2, 3, 4, 5)	305			306	297	0.0	0.4	4.738	A
			1	1		325			325	316	0.0	0.0	0.000
4 - A1079 (W)	Entry	1	1	1, 5	195	1082	0.180	193	196	0.0	0.4	4.361	A
			2	2, 3, 4	289	1082	0.267	288	289	0.0	0.5	4.897	A
	Exit	1	1	(1, 2, 3, 4, 5)	484			484	488	0.0	0.0	0.000	A
			1	1		486			486	487	0.0	0.0	0.000
5 - A1035 Dog Kennel Lane	Entry	1	1	1, 2	453	1060	0.428	451	455	0.0	0.9	6.851	A

			2	3, 4, 5	253	1060	0.238	252	249	0.0	0.3	4.798	A
			2	1	(1, 2, 3, 4, 5)	706		706	710	0.0	0.0	0.000	A
	Exit		1	1		367		367	368	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 (E)	Entry	1	1	2	167	757	0.220	166	165	0.2	0.4	6.242	A
			2	1, 3, 4, 5	180	757	0.238	181	179	0.3	0.3	6.354	A
		2	1	(1, 2, 3, 4, 5)	347			347	345	0.0	0.0	0.000	A
	Exit	1	1		334			334	336	0.0	0.0	0.000	A
2 - A1079 (SE)	Entry	1	1	3, 4	399	1087	0.367	399	395	0.4	0.8	5.673	A
			2	1, 2, 5	341	1087	0.314	340	339	0.5	0.5	5.219	A
		2	1	(1, 2, 3, 4, 5)	740			740	736	0.0	0.0	0.005	A
	Exit	1	1		1136			1136	1131	0.0	0.0	0.000	A
3 - Killingwoldgraves Lane	Entry	1	1	4	45	457	0.098	45	42	0.1	0.1	8.690	A
			2	1, 2, 3, 5	317	457	0.694	318	308	0.9	1.1	12.730	B
		2	1	(1, 2, 3, 4, 5)	364			362	351	0.4	1.1	10.119	B
	Exit	1	1		385			385	384	0.0	0.0	0.000	A
4 - A1079 (W)	Entry	1	1	1, 5	239	1048	0.228	238	244	0.4	0.4	5.178	A
			2	2, 3, 4	346	1048	0.330	345	350	0.5	0.6	5.503	A
		2	1	(1, 2, 3, 4, 5)	585			585	595	0.0	0.0	0.000	A
	Exit	1	1		588			588	581	0.0	0.0	0.000	A
5 - A1035 Dog Kennel Lane	Entry	1	1	1, 2	558	1018	0.548	553	548	0.9	1.8	8.606	A
			2	3, 4, 5	304	1018	0.298	304	303	0.3	0.5	5.420	A
		2	1	(1, 2, 3, 4, 5)	861			861	856	0.0	0.0	0.000	A
	Exit	1	1		445			445	442	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 (E)	Entry	1	1	2	193	678	0.284	193	193	0.4	0.5	7.435	A
			2	1, 3, 4, 5	220	678	0.325	222	219	0.3	0.4	7.825	A
		2	1	(1, 2, 3, 4, 5)	413			413	413	0.0	0.0	0.000	A



	Exit	1	1		413			413	413	0.0	0.0	0.000	A
2 - A1079 (SE)	Entry	1	1	3, 4	489	1051	0.465	486	483	0.8	1.1	6.774	A
			2	1, 2, 5	413	1051	0.393	415	412	0.5	0.7	6.069	A
	2	1	(1, 2, 3, 4, 5)	902			902	897	0.0	0.0	0.001	A	
	Exit	1	1		1358			1358	1359	0.0	0.0	0.000	A
3 - Killingwoldgraves Lane	Entry	1	1	4	51	416	0.123	50	49	0.1	0.2	9.654	A
			2	1, 2, 3, 5	362	416	0.872	363	360	1.1	1.6	15.352	C
	2	1	(1, 2, 3, 4, 5)	423			414	411	1.1	5.2	31.490	D	
	Exit	1	1		459			459	464	0.0	0.0	0.000	A
4 - A1079 (W)	Entry	1	1	1, 5	292	1010	0.289	294	299	0.4	0.4	5.556	A
			2	2, 3, 4	423	1010	0.418	420	424	0.6	0.9	6.622	A
	2	1	(1, 2, 3, 4, 5)	715			715	724	0.0	0.0	0.000	A	
	Exit	1	1		722			722	708	0.0	0.0	0.000	A
5 - A1035 Dog Kennel Lane	Entry	1	1	1, 2	664	965	0.688	667	668	1.8	2.9	14.231	B
			2	3, 4, 5	370	965	0.383	369	366	0.5	0.8	6.723	A
	2	1	(1, 2, 3, 4, 5)	1034			1034	1039	0.0	0.0	0.000	A	
	Exit	1	1		528			528	527	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 (E)	Entry	1	1	2	198	666	0.298	197	200	0.5	0.4	7.517	A
			2	1, 3, 4, 5	213	666	0.320	214	216	0.4	0.5	8.585	A
	2	1	(1, 2, 3, 4, 5)	412			412	416	0.0	0.0	0.000	A	
	Exit	1	1		396			396	404	0.0	0.0	0.000	A
2 - A1079 (SE)	Entry	1	1	3, 4	474	1053	0.451	476	474	1.1	0.9	7.195	A
			2	1, 2, 5	419	1053	0.398	419	414	0.7	0.6	6.199	A
	2	1	(1, 2, 3, 4, 5)	894			894	888	0.0	0.0	0.002	A	
	Exit	1	1		1401			1401	1391	0.0	0.0	0.000	A
3 - Killingwoldgraves Lane	Entry	1	1	4	51	417	0.122	51	50	0.2	0.1	10.205	B
			2	1, 2, 3, 5	370	417	0.887	370	369	1.6	1.7	16.105	C
	2	1	(1, 2, 3, 4, 5)	425			421	419	5.2	7.8	57.952	F	
	Exit	1	1		452			452	458	0.0	0.0	0.000	A
4 - A1079 (W)	Entry	1	1	1, 5	283	1007	0.281	285	288	0.4	0.5	5.660	A

		2	2, 3, 4	429	1007	0.426	428	426	0.9	0.8	6.700	A
		2	1 (1, 2, 3, 4, 5)	712			712	714	0.0	0.0	0.000	A
		Exit	1 1		712			712	708	0.0	0.0	0.000
5 - A1035 Dog Kennel Lane	Entry	1	1 2	690	965	0.715	690	682	2.9	3.1	14.764	B
		2	3, 4, 5	373	965	0.387	371	373	0.8	0.9	6.924	A
	2	1 (1, 2, 3, 4, 5)	1063			1063	1057	0.0	0.0	0.012	A	
	Exit	1 1		538			538	532	0.0	0.0	0.000	A

08:45 - 09:00

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 (E)	Entry	1	1	2	155	758	0.205	155	161	0.4	0.3	6.139	A
		2	1, 3, 4, 5	182	758	0.240	182	180	0.5	0.4	6.738	A	
	2	1 (1, 2, 3, 4, 5)	337			337	340	0.0	0.0	0.000	A		
	Exit	1 1		334			334	343	0.0	0.0	0.000	A	
2 - A1079 (SE)	Entry	1	1	3, 4	394	1085	0.363	393	400	0.9	0.7	5.983	A
		2	1, 2, 5	348	1085	0.320	349	346	0.6	0.5	5.202	A	
	2	1 (1, 2, 3, 4, 5)	741			741	744	0.0	0.0	0.000	A		
	Exit	1 1		1118			1118	1140	0.0	0.0	0.000	A	
3 - Killingwoldgraves Lane	Entry	1	1	4	43	455	0.094	43	46	0.1	0.1	9.257	A
		2	1, 2, 3, 5	311	455	0.684	310	331	1.7	1.2	14.618	B	
	2	1 (1, 2, 3, 4, 5)	345			354	374	7.8	1.8	33.124	D		
	Exit	1 1		383			383	378	0.0	0.0	0.000	A	
4 - A1079 (W)	Entry	1	1	1, 5	238	1048	0.228	239	238	0.5	0.2	5.265	A
		2	2, 3, 4	349	1048	0.333	348	349	0.8	0.6	5.730	A	
	2	1 (1, 2, 3, 4, 5)	587			587	586	0.0	0.0	0.000	A		
	Exit	1 1		589			589	600	0.0	0.0	0.000	A	
5 - A1035 Dog Kennel Lane	Entry	1	1	1, 2	552	1019	0.542	550	557	3.1	1.4	9.644	A
		2	3, 4, 5	307	1019	0.302	309	308	0.9	0.4	5.573	A	
	2	1 (1, 2, 3, 4, 5)	860			860	855	0.0	0.0	0.000	A		
	Exit	1 1		455			455	454	0.0	0.0	0.000	A	

09:00 - 09:15

Arm	Side	Lane	Lane	Destination arms	Total Demand	Capacity	RFC	Throughput (PCU/hr)	Average throughput	Start queue	End queue	Delay (s)	Unsignalised level of service
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		level		(PCU/hr)	(PCU/hr)			ut (PCU/hr)	(PCU)	(PCU)			
1 - A1174 (E)	Entry	1	1	2	141	827	0.170	140	139	0.3	0.2	5.322	A
			2	1, 3, 4, 5	153	827	0.185	152	151	0.4	0.2	5.436	A
	Exit	1	1	(1, 2, 3, 4, 5)	294			294	289	0.0	0.0	0.000	A
			1	1		279			279	285	0.0	0.0	0.000
2 - A1079 (SE)	Entry	1	1	3, 4	329	1114	0.295	329	328	0.7	0.4	4.955	A
			2	1, 2, 5	290	1114	0.260	292	291	0.5	0.4	4.692	A
	Exit	1	1	(1, 2, 3, 4, 5)	619			619	617	0.0	0.0	0.000	A
			1	1		935			935	947	0.0	0.0	0.000
3 - Killingwoldgraves Lane	Entry	1	1	4	36	485	0.075	35	38	0.1	0.1	8.280	A
			2	1, 2, 3, 5	260	485	0.537	259	265	1.2	0.8	11.378	B
	Exit	1	1	(1, 2, 3, 4, 5)	296			297	301	1.8	0.3	5.851	A
			1	1		315			315	318	0.0	0.0	0.000
4 - A1079 (W)	Entry	1	1	1, 5	196	1082	0.181	197	205	0.2	0.3	4.817	A
			2	2, 3, 4	294	1082	0.272	294	295	0.6	0.5	4.929	A
	Exit	1	1	(1, 2, 3, 4, 5)	491			491	499	0.0	0.0	0.000	A
			1	1		491			491	490	0.0	0.0	0.000
5 - A1035 Dog Kennel Lane	Entry	1	1	1, 2	444	1059	0.419	442	456	1.4	0.9	6.864	A
			2	3, 4, 5	252	1059	0.238	251	252	0.4	0.3	4.800	A
	Exit	1	1	(1, 2, 3, 4, 5)	695			695	706	0.0	0.0	0.000	A
			1	1		372			372	379	0.0	0.0	0.000

## Existing Layout - 2027 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	3 - Killingwoldgraves Lane - Lane Simulation	Arm 3: Queue at end of modelled period is greater than 10 PCU. Delay is likely to have been underestimated.
Warning	Geometry	1 - A1174 (E) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	2 - A1079 (SE) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Warning	Geometry	4 - A1079 (W) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	5 - A1035 Dog Kennel Lane - 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	Killingwoldgraves Roundabout	Standard Roundabout		1, 2, 3, 4, 5	81.77	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
D4	2027 Do Nothing	PM	ONE HOUR	16:45	18:15	15	✓

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

### Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - A1174 (E)		ONE HOUR	✓	356	100.000
2 - A1079 (SE)		ONE HOUR	✓	999	100.000
3 - Killingwoldgraves Lane		ONE HOUR	✓	488	100.000
4 - A1079 (W)		ONE HOUR	✓	680	100.000
5 - A1035 Dog Kennel Lane		ONE HOUR	✓	532	100.000

## Origin-Destination Data

### Demand (PCU/hr)

		To				
		1 - A1174 (E)	2 - A1079 (SE)	3 - Killingwoldgraves Lane	4 - A1079 (W)	5 - A1035 Dog Kennel Lane
From	1 - A1174 (E)	0	122	54	170	10
	2 - A1079 (SE)	133	2	146	268	450
	3 - Killingwoldgraves Lane	56	137	0	41	254
	4 - A1079 (W)	188	368	47	1	76
	5 - A1035 Dog Kennel Lane	6	359	100	66	1

## Vehicle Mix

### Heavy Vehicle Percentages

		To				
		1 - A1174 (E)	2 - A1079 (SE)	3 - Killingwoldgraves Lane	4 - A1079 (W)	5 - A1035 Dog Kennel Lane
From	1 - A1174 (E)	0	1	0	1	0
	2 - A1079 (SE)	0	0	1	2	4
	3 - Killingwoldgraves Lane	0	0	0	3	1
	4 - A1079 (W)	3	5	2	0	10
	5 - A1035 Dog Kennel Lane	0	4	0	10	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 (E)	6.27	0.8	A	325	488
2 - A1079 (SE)	7.35	2.5	A	922	1383
3 - Killingwoldgraves Lane	471.89	62.6	F	452	679
4 - A1079 (W)	7.33	1.5	A	621	932
5 - A1035 Dog Kennel Lane	6.47	1.4	A	492	738

### Main Results for each time segment

#### 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 (E)	265	66	820	266	266	295	0.0	0.3	4.799	A
2 - A1079 (SE)	750	187	340	749	746	746	0.0	1.0	4.779	A
3 - Killingwoldgraves Lane	370	92	831	372	361	258	0.0	2.2	21.721	C
4 - A1079 (W)	511	128	790	507	511	412	0.0	0.9	4.948	A
5 - A1035 Dog Kennel Lane	415	104	699	416	406	598	0.0	0.5	4.593	A

#### 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 (E)	320	80	966	320	319	343	0.3	0.5	5.223	A
2 - A1079 (SE)	914	228	411	915	901	875	1.0	1.6	5.688	A

3 - Killingwoldgraves Lane	435	109	1001	423	410	325	2.2	8.1	53.861	F
4 - A1079 (W)	611	153	931	613	610	494	0.9	0.9	5.926	A
5 - A1035 Dog Kennel Lane	476	119	834	474	480	709	0.5	0.7	5.246	A

### 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 (E)	392	98	1170	394	393	402	0.5	0.6	6.187	A
2 - A1079 (SE)	1107	277	502	1103	1098	1063	1.6	2.5	7.269	A
3 - Killingwoldgraves Lane	544	136	1212	426	433	392	8.1	33.8	178.553	F
4 - A1079 (W)	734	184	1053	735	740	585	0.9	1.3	6.965	A
5 - A1035 Dog Kennel Lane	604	151	966	606	585	822	0.7	1.0	6.187	A

### 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 (E)	391	98	1143	389	391	412	0.6	0.8	6.270	A
2 - A1079 (SE)	1088	272	489	1091	1106	1044	2.5	2.1	7.348	A
3 - Killingwoldgraves Lane	543	136	1208	417	423	373	33.8	62.6	407.510	F
4 - A1079 (W)	746	187	1037	743	748	587	1.3	1.5	7.327	A
5 - A1035 Dog Kennel Lane	584	146	976	579	587	805	1.0	1.4	6.474	A

### 17:45 - 18:00

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 (E)	318	80	980	320	322	349	0.8	0.4	5.577	A
2 - A1079 (SE)	902	226	400	902	900	900	2.1	1.5	5.805	A
3 - Killingwoldgraves Lane	443	111	995	485	467	307	62.6	57.5	471.890	F
4 - A1079 (W)	613	153	979	617	611	500	1.5	0.9	6.227	A
5 - A1035 Dog Kennel Lane	479	120	851	478	477	745	1.4	0.8	5.377	A

### 18:00 - 18:15

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 (E)	266	66	830	265	270	307	0.4	0.3	4.923	A
2 - A1079 (SE)	771	193	338	773	764	757	1.5	1.0	4.931	A
3 - Killingwoldgraves Lane	379	95	844	483	490	267	57.5	27.5	275.502	F
4 - A1079 (W)	513	128	899	515	519	428	0.9	0.6	5.506	A

5 - A1035 Dog Kennel Lane	393	98	743	393	397	671	0.8	0.5	4.831	A
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## Lane Results

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

### Lanes: Main Results for each time segment

#### 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 (E)	Entry	1	1	2	94	906	0.104	94	91	0.0	0.1	4.243	A
			2	1, 3, 4, 5	170	906	0.188	172	175	0.0	0.2	5.088	A
		2	1	(1, 2, 3, 4, 5)	265			265	267	0.0	0.0	0.000	A
	Exit	1	1		295			295	288	0.0	0.0	0.000	A
2 - A1079 (SE)	Entry	1	1	3, 4	309	1147	0.269	311	311	0.0	0.3	4.260	A
			2	1, 2, 5	441	1147	0.384	439	435	0.0	0.7	5.154	A
		2	1	(1, 2, 3, 4, 5)	750			750	750	0.0	0.0	0.000	A
	Exit	1	1		746			746	738	0.0	0.0	0.000	A
3 - Killingwoldgraves Lane	Entry	1	1	4	29	469	0.063	29	31	0.0	0.1	8.348	A
			2	1, 2, 3, 5	341	469	0.728	343	330	0.0	1.1	12.659	B
		2	1	(1, 2, 3, 4, 5)	370			371	365	0.0	1.0	9.377	A
	Exit	1	1		258			258	261	0.0	0.0	0.000	A
4 - A1079 (W)	Entry	1	1	1, 5	201	1010	0.199	200	200	0.0	0.4	4.669	A
			2	2, 3, 4	310	1010	0.307	307	311	0.0	0.6	5.127	A
		2	1	(1, 2, 3, 4, 5)	511			511	515	0.0	0.0	0.000	A
	Exit	1	1		412			412	414	0.0	0.0	0.000	A
5 - A1035 Dog Kennel Lane	Entry	1	1	1, 2	284	1051	0.270	283	276	0.0	0.4	4.913	A
			2	3, 4, 5	132	1051	0.125	132	130	0.0	0.1	3.916	A
		2	1	(1, 2, 3, 4, 5)	415			415	408	0.0	0.0	0.000	A
	Exit	1	1		598			598	588	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 (E)	Entry	1	1	2	108	864	0.125	108	107	0.1	0.1	4.715	A

			2	1, 3, 4, 5	212	864	0.246	212	212	0.2	0.3	5.479	A	
			2	1	(1, 2, 3, 4, 5)	320			320	320	0.0	0.0	0.000	A
			Exit	1	1		343			343	341	0.0	0.0	0.000
2 - A1079 (SE)	Entry	1	1	3, 4	381	1126	0.338	381	374	0.3	0.6	4.790	A	
			2	1, 2, 5	533	1126	0.473	534	527	0.7	0.9	6.337	A	
		2	1	(1, 2, 3, 4, 5)	914			914	903	0.0	0.0	0.000	A	
		Exit	1	1		875			875	875	0.0	0.0	0.000	A
3 - Killingwoldgraves Lane	Entry	1	1	4	35	435	0.081	35	34	0.1	0.2	8.715	A	
			2	1, 2, 3, 5	390	435	0.898	389	376	1.1	1.8	15.270	C	
		2	1	(1, 2, 3, 4, 5)	435			425	413	1.0	6.1	38.975	E	
		Exit	1	1		325			325	321	0.0	0.0	0.000	A
4 - A1079 (W)	Entry	1	1	1, 5	237	966	0.246	237	237	0.4	0.4	5.138	A	
			2	2, 3, 4	373	966	0.386	375	373	0.6	0.6	6.426	A	
		2	1	(1, 2, 3, 4, 5)	611			611	610	0.0	0.0	0.001	A	
		Exit	1	1		494			494	487	0.0	0.0	0.000	A
5 - A1035 Dog Kennel Lane	Entry	1	1	1, 2	320	1009	0.317	320	328	0.4	0.4	5.713	A	
			2	3, 4, 5	156	1009	0.154	154	152	0.1	0.3	4.247	A	
		2	1	(1, 2, 3, 4, 5)	476			476	480	0.0	0.0	0.000	A	
		Exit	1	1		709			709	695	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 (E)	Entry	1	1	2	138	804	0.172	137	136	0.1	0.2	5.363	A
			2	1, 3, 4, 5	254	804	0.317	257	257	0.3	0.4	6.621	A
		2	1	(1, 2, 3, 4, 5)	392			392	394	0.0	0.0	0.000	A
	Exit	1	1		402			402	406	0.0	0.0	0.000	A
2 - A1079 (SE)	Entry	1	1	3, 4	452	1098	0.412	451	454	0.6	0.8	5.668	A
			2	1, 2, 5	655	1098	0.597	652	644	0.9	1.7	8.390	A
		2	1	(1, 2, 3, 4, 5)	1107			1107	1101	0.0	0.0	0.013	A
	Exit	1	1		1063			1063	1053	0.0	0.0	0.000	A
3 - Killingwoldgraves Lane	Entry	1	1	4	37	392	0.095	38	39	0.2	0.1	10.904	B
			2	1, 2, 3, 5	388	392	0.988	388	394	1.8	2.0	17.749	C



		2	1	(1, 2, 3, 4, 5)	544			425	433	6.1	31.7	161.266	F
	Exit	1	1		392			392	386	0.0	0.0	0.000	A
4 - A1079 (W)	Entry	1	1	1, 5	292	928	0.315	290	287	0.4	0.6	5.684	A
			2	2, 3, 4	442	928	0.477	445	453	0.6	0.7	7.778	A
		2	1	(1, 2, 3, 4, 5)	734			734	742	0.0	0.0	0.000	A
	Exit	1	1		585			585	589	0.0	0.0	0.000	A
5 - A1035 Dog Kennel Lane	Entry	1	1	1, 2	412	967	0.426	413	401	0.4	0.8	6.802	A
			2	3, 4, 5	193	967	0.199	193	184	0.3	0.2	4.847	A
		2	1	(1, 2, 3, 4, 5)	604			604	586	0.0	0.0	0.000	A
	Exit	1	1		822			822	815	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 (E)	Entry	1	1	2	131	811	0.162	130	133	0.2	0.3	5.453	A
			2	1, 3, 4, 5	260	811	0.320	259	258	0.4	0.5	6.692	A
		2	1	(1, 2, 3, 4, 5)	391			391	392	0.0	0.0	0.000	A
	Exit	1	1		412			412	409	0.0	0.0	0.000	A
2 - A1079 (SE)	Entry	1	1	3, 4	447	1102	0.406	447	452	0.8	0.7	5.835	A
			2	1, 2, 5	641	1102	0.581	645	654	1.7	1.4	8.330	A
		2	1	(1, 2, 3, 4, 5)	1088			1088	1105	0.0	0.0	0.049	A
	Exit	1	1		1044			1044	1060	0.0	0.0	0.000	A
3 - Killingwoldgraves Lane	Entry	1	1	4	38	393	0.096	37	37	0.1	0.1	10.724	B
			2	1, 2, 3, 5	380	393	0.966	380	386	2.0	2.0	18.480	C
		2	1	(1, 2, 3, 4, 5)	543			418	424	31.7	60.5	390.291	F
	Exit	1	1		373			373	373	0.0	0.0	0.000	A
4 - A1079 (W)	Entry	1	1	1, 5	293	933	0.314	292	291	0.6	0.5	6.109	A
			2	2, 3, 4	454	933	0.486	451	456	0.7	1.0	8.091	A
		2	1	(1, 2, 3, 4, 5)	746			746	749	0.0	0.0	0.005	A
	Exit	1	1		587			587	595	0.0	0.0	0.000	A
5 - A1035 Dog Kennel Lane	Entry	1	1	1, 2	405	964	0.420	402	405	0.8	1.0	7.183	A
			2	3, 4, 5	180	964	0.186	177	182	0.2	0.4	4.895	A
		2	1	(1, 2, 3, 4, 5)	584			584	589	0.0	0.0	0.000	A
	Exit	1	1		805			805	819	0.0	0.0	0.000	A

17:45 - 18:00

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 (E)	Entry	1	1	2	110	859	0.128	111	111	0.3	0.1	5.081	A
			2	1, 3, 4, 5	208	859	0.242	209	211	0.5	0.3	5.838	A
	2	1	(1, 2, 3, 4, 5)	318			318	320	0.0	0.0	0.000	A	
	Exit	1	1		349			349	347	0.0	0.0	0.000	A
2 - A1079 (SE)	Entry	1	1	3, 4	375	1129	0.332	375	372	0.7	0.5	4.865	A
			2	1, 2, 5	527	1129	0.467	527	528	1.4	1.0	6.478	A
	2	1	(1, 2, 3, 4, 5)	902			902	897	0.0	0.0	0.001	A	
	Exit	1	1		900			900	903	0.0	0.0	0.000	A
3 - Killingwoldgraves Lane	Entry	1	1	4	43	436	0.098	42	40	0.1	0.2	9.568	A
			2	1, 2, 3, 5	443	436	1.015	443	427	2.0	2.0	16.726	C
	2	1	(1, 2, 3, 4, 5)	443			485	467	60.5	55.4	456.602	F	
	Exit	1	1		307			307	301	0.0	0.0	0.000	A
4 - A1079 (W)	Entry	1	1	1, 5	238	951	0.250	242	237	0.5	0.2	5.271	A
			2	2, 3, 4	376	951	0.395	376	374	1.0	0.7	6.830	A
	2	1	(1, 2, 3, 4, 5)	613			613	609	0.0	0.0	0.000	A	
	Exit	1	1		500			500	495	0.0	0.0	0.000	A
5 - A1035 Dog Kennel Lane	Entry	1	1	1, 2	330	1003	0.329	328	334	1.0	0.6	5.757	A
			2	3, 4, 5	149	1003	0.148	150	143	0.4	0.2	4.490	A
	2	1	(1, 2, 3, 4, 5)	479			479	474	0.0	0.0	0.000	A	
	Exit	1	1		745			745	730	0.0	0.0	0.000	A

18:00 - 18:15

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 (E)	Entry	1	1	2	91	904	0.101	91	94	0.1	0.1	4.531	A
			2	1, 3, 4, 5	175	904	0.193	174	176	0.3	0.2	5.133	A
	2	1	(1, 2, 3, 4, 5)	266			266	269	0.0	0.0	0.000	A	
	Exit	1	1		307			307	303	0.0	0.0	0.000	A
2 - A1079 (SE)	Entry	1	1	3, 4	324	1148	0.282	325	319	0.5	0.3	4.448	A
			2	1, 2, 5	447	1148	0.390	448	445	1.0	0.7	5.281	A

		2	1	(1, 2, 3, 4, 5)	771			771	762	0.0	0.0	0.000	A
	Exit	1	1		757			757	777	0.0	0.0	0.000	A
3 - Killingwoldgraves Lane	Entry	1	1	4	40	466	0.087	41	42	0.2	0.1	8.668	A
			2	1, 2, 3, 5	442	466	0.947	443	448	2.0	1.8	15.011	C
		2	1	(1, 2, 3, 4, 5)	379			482	489	55.4	25.6	260.713	F
	Exit	1	1		267			267	264	0.0	0.0	0.000	A
4 - A1079 (W)	Entry	1	1	1, 5	206	976	0.211	207	202	0.2	0.2	4.911	A
			2	2, 3, 4	307	976	0.314	308	318	0.7	0.4	5.883	A
		2	1	(1, 2, 3, 4, 5)	513			513	518	0.0	0.0	0.000	A
	Exit	1	1		428			428	427	0.0	0.0	0.000	A
5 - A1035 Dog Kennel Lane	Entry	1	1	1, 2	264	1038	0.254	264	272	0.6	0.3	5.142	A
			2	3, 4, 5	129	1038	0.124	129	125	0.2	0.2	4.158	A
		2	1	(1, 2, 3, 4, 5)	393			393	396	0.0	0.0	0.000	A
	Exit	1	1		671			671	670	0.0	0.0	0.000	A

## Existing Layout - 2027 Do Nothing (Sensitivity Test), 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 (E) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	2 - A1079 (SE) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	4 - A1079 (W) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	5 - A1035 Dog Kennel Lane - 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	Killingwoldgraves Roundabout	Standard Roundabout		1, 2, 3, 4, 5	21.25	C

## 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
D5	2027 Do Nothing (Sensitivity Test)	AM	ONE HOUR	07:45	09:15	15	✓

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

### Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - A1174 (E)		ONE HOUR	✓	378	100.000
2 - A1079 (SE)		ONE HOUR	✓	815	100.000
3 - Killingwoldgraves Lane		ONE HOUR	✓	418	100.000
4 - A1079 (W)		ONE HOUR	✓	655	100.000
5 - A1035 Dog Kennel Lane		ONE HOUR	✓	951	100.000

## Origin-Destination Data

### Demand (PCU/hr)

		To				
		1 - A1174 (E)	2 - A1079 (SE)	3 - Killingwoldgraves Lane	4 - A1079 (W)	5 - A1035 Dog Kennel Lane
From	1 - A1174 (E)	0	180	48	142	8
	2 - A1079 (SE)	115	2	117	322	259
	3 - Killingwoldgraves Lane	77	148	0	54	139
	4 - A1079 (W)	178	326	62	2	87
	5 - A1035 Dog Kennel Lane	5	605	211	129	1

## Vehicle Mix

### Heavy Vehicle Percentages

		To				
		1 - A1174 (E)	2 - A1079 (SE)	3 - Killingwoldgraves Lane	4 - A1079 (W)	5 - A1035 Dog Kennel Lane
From	1 - A1174 (E)	0	0	0	3	0
	2 - A1079 (SE)	1	0	4	9	10
	3 - Killingwoldgraves Lane	0	2	0	0	1
	4 - A1079 (W)	4	7	0	0	28
	5 - A1035 Dog Kennel Lane	26	10	1	18	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 (E)	8.11	0.9	A	346	519
2 - A1079 (SE)	6.74	1.8	A	747	1120
3 - Killingwoldgraves Lane	105.50	14.5	F	384	577
4 - A1079 (W)	6.51	1.4	A	600	900
5 - A1035 Dog Kennel Lane	11.95	3.9	B	875	1313

## Main Results for each time segment

### 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 (E)	279	70	1123	279	284	278	0.0	0.5	5.509	A
2 - A1079 (SE)	607	152	455	607	615	946	0.0	0.8	4.889	A
3 - Killingwoldgraves Lane	324	81	733	326	315	330	0.0	1.4	16.061	C
4 - A1079 (W)	491	123	573	490	498	485	0.0	0.7	4.830	A
5 - A1035 Dog Kennel Lane	719	180	680	720	709	383	0.0	1.1	6.106	A

### 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 (E)	339	85	1332	339	338	337	0.5	0.7	6.149	A
2 - A1079 (SE)	738	185	547	743	736	1124	0.8	0.9	5.423	A
3 - Killingwoldgraves Lane	378	95	897	378	368	393	1.4	3.2	27.205	D
4 - A1079 (W)	584	146	681	586	587	594	0.7	0.7	5.244	A
5 - A1035 Dog Kennel Lane	852	213	818	851	845	449	1.1	1.9	7.391	A

### 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 (E)	402	101	1633	403	411	406	0.7	0.9	7.606	A
2 - A1079 (SE)	889	222	659	890	900	1377	0.9	1.8	6.630	A
3 - Killingwoldgraves Lane	458	115	1065	447	434	484	3.2	10.8	67.777	F
4 - A1079 (W)	718	180	809	718	718	702	0.7	1.4	6.293	A

5 - A1035 Dog Kennel Lane	1044	261	997	1042	1036	531	1.9	3.9	10.653	B
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### 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 (E)	428	107	1644	428	422	414	0.9	0.9	8.107	A
2 - A1079 (SE)	897	224	673	900	902	1398	1.8	1.4	6.735	A
3 - Killingwoldgraves Lane	463	116	1088	449	446	485	10.8	14.5	105.498	F
4 - A1079 (W)	731	183	815	735	723	723	1.4	1.2	6.506	A
5 - A1035 Dog Kennel Lane	1058	264	1009	1049	1056	540	3.9	3.8	11.945	B

### 08:45 - 09:00

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 (E)	341	85	1353	342	346	342	0.9	0.6	6.622	A
2 - A1079 (SE)	736	184	553	734	732	1142	1.4	1.2	5.564	A
3 - Killingwoldgraves Lane	373	93	880	398	416	407	14.5	4.0	66.420	F
4 - A1079 (W)	581	145	695	582	587	583	1.2	0.9	5.453	A
5 - A1035 Dog Kennel Lane	872	218	821	873	873	456	3.8	1.9	7.812	A

### 09:00 - 09:15

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 (E)	287	72	1100	286	284	282	0.6	0.5	5.545	A
2 - A1079 (SE)	614	153	454	615	614	932	1.2	0.9	4.977	A
3 - Killingwoldgraves Lane	310	78	741	310	321	327	4.0	1.4	19.504	C
4 - A1079 (W)	494	124	554	493	497	498	0.9	0.7	4.848	A
5 - A1035 Dog Kennel Lane	705	176	677	704	711	369	1.9	1.3	6.141	A

## Lane Results

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

### Lanes: Main Results for each time segment

#### 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 (E)	Entry	1	1	2	131	817	0.160	131	136	0.0	0.2	5.541	A

			2	1, 3, 4, 5	148	817	0.18 1	148	148	0.0	0.3	5.478	A	
			2	1	(1, 2, 3, 4, 5)	279			279	286	0.0	0.0	0.000	A
			Exit	1	1		278			278	281	0.0	0.0	0.000
2 - A1079 (SE)	Entr y	1	1	3, 4	325	1112	0.29 3	325	331	0.0	0.5	5.057	A	
			2	1, 2, 5	281	1112	0.25 3	282	284	0.0	0.3	4.694	A	
		2	1	(1, 2, 3, 4, 5)	607			607	619	0.0	0.0	0.000	A	
		Exit	1	1		946			946	948	0.0	0.0	0.000	A
3 - Killingwoldgraves Lane	Entr y	1	1	4	41	489	0.08 4	41	41	0.0	0.1	8.325	A	
			2	1, 2, 3, 5	284	489	0.58 1	285	274	0.0	0.8	11.42 9	B	
		2	1	(1, 2, 3, 4, 5)	324			325	318	0.0	0.5	5.020	A	
		Exit	1	1		330			330	327	0.0	0.0	0.000	A
4 - A1079 (W)	Entr y	1	1	1, 5	202	1077	0.18 8	200	203	0.0	0.3	4.637	A	
			2	2, 3, 4	289	1077	0.26 8	289	295	0.0	0.4	4.956	A	
		2	1	(1, 2, 3, 4, 5)	491			491	501	0.0	0.0	0.000	A	
		Exit	1	1		485			485	487	0.0	0.0	0.000	A
5 - A1035 Dog Kennel Lane	Entr y	1	1	1, 2	462	1057	0.43 7	461	455	0.0	0.8	6.877	A	
			2	3, 4, 5	258	1057	0.24 4	259	254	0.0	0.4	4.767	A	
		2	1	(1, 2, 3, 4, 5)	719			719	714	0.0	0.0	0.000	A	
		Exit	1	1		383			383	377	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 (E)	Entr y	1	1	2	160	756	0.21 1	160	160	0.2	0.3	5.961	A
			2	1, 3, 4, 5	179	756	0.23 7	180	178	0.3	0.4	6.322	A
		2	1	(1, 2, 3, 4, 5)	339			339	339	0.0	0.0	0.000	A
	Exit	1	1		337			337	333	0.0	0.0	0.000	A
2 - A1079 (SE)	Entr y	1	1	3, 4	396	1084	0.36 5	400	398	0.5	0.5	5.697	A
			2	1, 2, 5	343	1084	0.31 6	343	338	0.3	0.4	5.101	A
		2	1	(1, 2, 3, 4, 5)	738			738	736	0.0	0.0	0.000	A
	Exit	1	1		1124			1124	1117	0.0	0.0	0.000	A
3 - Killingwoldgraves Lane	Entr y	1	1	4	48	456	0.10 5	49	49	0.1	0.1	9.175	A
			2	1, 2, 3, 5	329	456	0.72 2	329	319	0.8	1.2	13.51 8	B

		2	1	(1, 2, 3, 4, 5)	378			377	370	0.5	1.9	14.240	B
	Exit	1	1		393			393	392	0.0	0.0	0.000	A
4 - A1079 (W)	Entry	1	1	1, 5	233	1044	0.223	234	236	0.3	0.3	4.907	A
			2	2, 3, 4	351	1044	0.336	353	352	0.4	0.4	5.459	A
	2	1	(1, 2, 3, 4, 5)	584			584	587	0.0	0.0	0.000	A	
	Exit	1	1		594			594	589	0.0	0.0	0.000	A
5 - A1035 Dog Kennel Lane	Entry	1	1	1, 2	542	1014	0.535	541	539	0.8	1.4	8.533	A
			2	3, 4, 5	310	1014	0.306	310	306	0.4	0.5	5.424	A
	2	1	(1, 2, 3, 4, 5)	852			852	848	0.0	0.0	0.000	A	
	Exit	1	1		449			449	444	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 (E)	Entry	1	1	2	188	667	0.282	188	195	0.3	0.4	7.209	A
			2	1, 3, 4, 5	214	667	0.321	215	215	0.4	0.6	7.972	A
	2	1	(1, 2, 3, 4, 5)	402			402	412	0.0	0.0	0.000	A	
	Exit	1	1		406			406	405	0.0	0.0	0.000	A
2 - A1079 (SE)	Entry	1	1	3, 4	477	1050	0.454	478	482	0.5	1.0	7.067	A
			2	1, 2, 5	412	1050	0.393	412	418	0.4	0.8	6.126	A
	2	1	(1, 2, 3, 4, 5)	889			889	903	0.0	0.0	0.001	A	
	Exit	1	1		1377			1377	1367	0.0	0.0	0.000	A
3 - Killingwoldgraves Lane	Entry	1	1	4	59	422	0.139	59	57	0.1	0.1	10.502	B
			2	1, 2, 3, 5	387	422	0.916	387	377	1.2	1.7	16.052	C
	2	1	(1, 2, 3, 4, 5)	458			445	436	1.9	8.9	52.384	F	
	Exit	1	1		484			484	481	0.0	0.0	0.000	A
4 - A1079 (W)	Entry	1	1	1, 5	281	1004	0.280	282	287	0.3	0.4	5.642	A
			2	2, 3, 4	437	1004	0.435	436	431	0.4	0.9	6.707	A
	2	1	(1, 2, 3, 4, 5)	718			718	720	0.0	0.0	0.000	A	
	Exit	1	1		702			702	708	0.0	0.0	0.000	A
5 - A1035 Dog Kennel Lane	Entry	1	1	1, 2	674	957	0.704	671	663	1.4	3.1	12.892	B
			2	3, 4, 5	371	957	0.387	371	373	0.5	0.8	6.745	A
	2	1	(1, 2, 3, 4, 5)	1044			1044	1044	0.0	0.0	0.003	A	
	Exit	1	1		531			531	537	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 (E)	Entry	1	1	2	207	664	0.312	207	200	0.4	0.4	7.816	A
			2	1, 3, 4, 5	220	664	0.332	221	222	0.6	0.5	8.376	A
	Exit	1	1	(1, 2, 3, 4, 5)	428			428	422	0.0	0.0	0.000	A
			1	1		414			414	413	0.0	0.0	0.000
2 - A1079 (SE)	Entry	1	1	3, 4	484	1045	0.463	486	486	1.0	0.8	7.118	A
			2	1, 2, 5	413	1045	0.395	414	416	0.8	0.6	6.278	A
	Exit	1	1	(1, 2, 3, 4, 5)	897			897	901	0.0	0.0	0.006	A
			1	1		1398			1398	1389	0.0	0.0	0.000
3 - Killingwoldgraves Lane	Entry	1	1	4	58	417	0.140	59	57	0.1	0.2	10.546	B
			2	1, 2, 3, 5	391	417	0.938	391	389	1.7	1.9	16.673	C
	Exit	1	1	(1, 2, 3, 4, 5)	463			450	447	8.9	12.5	89.573	F
			1	1		485			485	486	0.0	0.0	0.000
4 - A1079 (W)	Entry	1	1	1, 5	293	1002	0.292	295	294	0.4	0.5	5.910	A
			2	2, 3, 4	438	1002	0.437	440	428	0.9	0.7	6.898	A
	Exit	1	1	(1, 2, 3, 4, 5)	731			731	722	0.0	0.0	0.000	A
			1	1		723			723	721	0.0	0.0	0.000
5 - A1035 Dog Kennel Lane	Entry	1	1	1, 2	677	953	0.710	669	675	3.1	3.1	14.874	B
			2	3, 4, 5	381	953	0.399	380	381	0.8	0.7	6.908	A
	Exit	1	1	(1, 2, 3, 4, 5)	1058			1058	1055	0.0	0.0	0.001	A
			1	1		540			540	540	0.0	0.0	0.000

08:45 - 09:00

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 (E)	Entry	1	1	2	167	750	0.222	167	167	0.4	0.3	6.464	A
			2	1, 3, 4, 5	175	750	0.233	175	179	0.5	0.3	6.772	A
	Exit	1	1	(1, 2, 3, 4, 5)	341			341	345	0.0	0.0	0.000	A
			1	1		342			342	343	0.0	0.0	0.000
2 - A1079 (SE)	Entry	1	1	3, 4	391	1082	0.361	390	392	0.8	0.6	5.760	A
			2	1, 2, 5	345	1082	0.319	344	340	0.6	0.6	5.338	A

		2	1	(1, 2, 3, 4, 5)	736			736	731	0.0	0.0	0.001	A
	Exit	1	1		1142			1142	1162	0.0	0.0	0.000	A
3 - Killingwoldgraves Lane	Entry	1	1	4	55	459	0.120	55	55	0.2	0.1	9.837	A
			2	1, 2, 3, 5	342	459	0.744	343	361	1.9	1.3	14.897	B
	2	1	(1, 2, 3, 4, 5)	373			397	414	12.5	2.6	52.482	F	
	Exit	1	1		407			407	402	0.0	0.0	0.000	A
4 - A1079 (W)	Entry	1	1	1, 5	239	1039	0.230	238	236	0.5	0.4	5.082	A
			2	2, 3, 4	342	1039	0.329	344	351	0.7	0.5	5.693	A
	2	1	(1, 2, 3, 4, 5)	581			581	586	0.0	0.0	0.000	A	
	Exit	1	1		583			583	589	0.0	0.0	0.000	A
5 - A1035 Dog Kennel Lane	Entry	1	1	1, 2	554	1013	0.547	555	559	3.1	1.4	9.058	A
			2	3, 4, 5	318	1013	0.314	318	314	0.7	0.5	5.690	A
	2	1	(1, 2, 3, 4, 5)	872			872	865	0.0	0.0	0.000	A	
	Exit	1	1		456			456	458	0.0	0.0	0.000	A

09:00 - 09:15

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 (E)	Entry	1	1	2	139	824	0.168	138	138	0.3	0.3	5.500	A
			2	1, 3, 4, 5	148	824	0.180	148	147	0.3	0.2	5.589	A
	2	1	(1, 2, 3, 4, 5)	287			287	284	0.0	0.0	0.000	A	
	Exit	1	1		282			282	286	0.0	0.0	0.000	A
2 - A1079 (SE)	Entry	1	1	3, 4	337	1113	0.303	338	334	0.6	0.5	5.268	A
			2	1, 2, 5	276	1113	0.249	277	280	0.6	0.4	4.636	A
	2	1	(1, 2, 3, 4, 5)	614			614	613	0.0	0.0	0.000	A	
	Exit	1	1		932			932	948	0.0	0.0	0.000	A
3 - Killingwoldgraves Lane	Entry	1	1	4	41	487	0.084	41	42	0.1	0.1	8.149	A
			2	1, 2, 3, 5	269	487	0.552	270	279	1.3	0.8	11.992	B
	2	1	(1, 2, 3, 4, 5)	310			310	319	2.6	0.5	8.129	A	
	Exit	1	1		327			327	329	0.0	0.0	0.000	A
4 - A1079 (W)	Entry	1	1	1, 5	202	1083	0.187	202	202	0.4	0.2	4.539	A
			2	2, 3, 4	292	1083	0.269	291	294	0.5	0.5	5.050	A
	2	1	(1, 2, 3, 4, 5)	494			494	496	0.0	0.0	0.000	A	
	Exit	1	1		498			498	492	0.0	0.0	0.000	A

5 - A1035 Dog Kennel Lane	Entry	1	1	1, 2	446	1058	0.42 2	447	452	1.4	0.9	6.823	A
			2	3, 4, 5	259	1058	0.24 5	258	259	0.5	0.4	4.984	A
	Exit	1	1	(1, 2, 3, 4, 5)	705			705	709	0.0	0.0	0.000	A
			1	1		369			369	372	0.0	0.0	0.000

## Existing Layout - 2027 Do Nothing (Sensitivity Test), 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	3 - Killingwoldgraves Lane - Lane Simulation	Arm 3: Queue at end of modelled period is greater than 10 PCU. Delay is likely to have been underestimated.
Warning	Geometry	1 - A1174 (E) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	2 - A1079 (SE) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	4 - A1079 (W) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	5 - A1035 Dog Kennel Lane - 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	Killingwoldgraves Roundabout	Standard Roundabout		1, 2, 3, 4, 5	94.27	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
D6	2027 Do Nothing (Sensitivity Test)	PM	ONE HOUR	16:45	18:15	15	✓

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

## Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - A1174 (E)		ONE HOUR	✓	357	100.000
2 - A1079 (SE)		ONE HOUR	✓	1000	100.000
3 - Killingwoldgraves Lane		ONE HOUR	✓	506	100.000
4 - A1079 (W)		ONE HOUR	✓	679	100.000
5 - A1035 Dog Kennel Lane		ONE HOUR	✓	532	100.000

## Origin-Destination Data

### Demand (PCU/hr)

		To				
		1 - A1174 (E)	2 - A1079 (SE)	3 - Killingwoldgraves Lane	4 - A1079 (W)	5 - A1035 Dog Kennel Lane
From	1 - A1174 (E)	0	121	57	169	10
	2 - A1079 (SE)	132	2	154	266	446
	3 - Killingwoldgraves Lane	58	144	0	45	259
	4 - A1079 (W)	186	365	52	1	75
	5 - A1035 Dog Kennel Lane	6	356	104	65	1

## Vehicle Mix

### Heavy Vehicle Percentages

		To				
		1 - A1174 (E)	2 - A1079 (SE)	3 - Killingwoldgraves Lane	4 - A1079 (W)	5 - A1035 Dog Kennel Lane
From	1 - A1174 (E)	0	1	0	1	0
	2 - A1079 (SE)	0	0	1	2	4
	3 - Killingwoldgraves Lane	0	0	0	2	1
	4 - A1079 (W)	3	5	2	0	10
	5 - A1035 Dog Kennel Lane	0	4	0	10	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 (E)	6.22	0.7	A	329	494
2 - A1079 (SE)	7.24	2.5	A	922	1383
3 - Killingwoldgraves Lane	541.36	75.1	F	462	692
4 - A1079 (W)	7.44	1.6	A	624	936
5 - A1035 Dog Kennel Lane	6.10	1.1	A	487	730

## Main Results for each time segment

### 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 (E)	274	69	796	274	269	288	0.0	0.3	4.827	A
2 - A1079 (SE)	754	188	347	755	750	723	0.0	1.1	4.848	A
3 - Killingwoldgraves Lane	372	93	822	374	371	280	0.0	3.1	27.891	D
4 - A1079 (W)	496	124	784	495	507	412	0.0	0.8	5.043	A
5 - A1035 Dog Kennel Lane	398	99	686	398	400	594	0.0	0.6	4.534	A

### 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 (E)	323	81	967	323	322	340	0.3	0.5	5.279	A
2 - A1079 (SE)	890	223	410	892	890	880	1.1	1.4	5.599	A
3 - Killingwoldgraves Lane	461	115	976	449	433	327	3.1	10.0	60.768	F
4 - A1079 (W)	605	151	931	604	604	493	0.8	1.1	5.839	A
5 - A1035 Dog Kennel Lane	468	117	839	468	479	696	0.6	0.6	5.018	A

### 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 (E)	386	96	1171	388	394	395	0.5	0.7	6.049	A
2 - A1079 (SE)	1105	276	497	1103	1106	1062	1.4	2.5	7.201	A
3 - Killingwoldgraves Lane	561	140	1194	420	432	406	10.0	42.2	221.274	F
4 - A1079 (W)	753	188	1037	752	749	577	1.1	1.6	7.373	A
5 - A1035 Dog Kennel Lane	593	148	975	590	588	813	0.6	1.1	6.010	A

### 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 (E)	393	98	1153	394	396	410	0.7	0.7	6.218	A
2 - A1079 (SE)	1103	276	505	1105	1105	1042	2.5	2.4	7.238	A
3 - Killingwoldgraves Lane	563	141	1201	432	428	408	42.2	75.1	490.259	F

4 - A1079 (W)	746	186	1051	743	749	582	1.6	1.6	7.444	A
5 - A1035 Dog Kennel Lane	579	145	981	582	586	814	1.1	0.9	6.103	A

### 17:45 - 18:00

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 (E)	328	82	1018	326	327	349	0.7	0.5	5.537	A
2 - A1079 (SE)	917	229	424	916	915	920	2.4	1.6	5.846	A
3 - Killingwoldgraves Lane	439	110	1005	481	477	335	75.1	67.7	541.360	F
4 - A1079 (W)	631	158	980	633	615	506	1.6	0.9	6.295	A
5 - A1035 Dog Kennel Lane	489	122	879	488	483	735	0.9	0.7	5.441	A

### 18:00 - 18:15

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 (E)	273	68	850	273	271	309	0.5	0.3	4.961	A
2 - A1079 (SE)	764	191	343	763	768	779	1.6	1.1	4.945	A
3 - Killingwoldgraves Lane	374	93	831	500	495	275	67.7	38.4	342.540	F
4 - A1079 (W)	511	128	909	513	512	423	0.9	0.7	5.512	A
5 - A1035 Dog Kennel Lane	396	99	762	397	400	659	0.7	0.6	4.728	A

## Lane Results

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

### Lanes: Main Results for each time segment

#### 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 (E)	Entry	1	1	2	90	914	0.099	91	88	0.0	0.1	4.386	A
			2	1, 3, 4, 5	184	914	0.201	183	181	0.0	0.2	5.040	A
		2	1	(1, 2, 3, 4, 5)	274			274	270	0.0	0.0	0.000	A
	Exit	1	1		288			288	284	0.0	0.0	0.000	A
2 - A1079 (SE)	Entry	1	1	3, 4	319	1145	0.279	320	318	0.0	0.4	4.394	A
			2	1, 2, 5	435	1145	0.380	435	433	0.0	0.6	5.185	A
		2	1	(1, 2, 3, 4, 5)	754			754	754	0.0	0.0	0.000	A
	Exit	1	1		723			723	737	0.0	0.0	0.000	A

3 - Killingwoldgraves Lane	Entry	1	1	4	33	471	0.069	33	32	0.0	0.1	8.713	A	
			2	1, 2, 3, 5	340	471	0.723	340	339	0.0	1.3	13.265	B	
	Exit	1	1						280	276	0.0	0.0	0.000	A
			2	1	(1, 2, 3, 4, 5)	372				373	376	0.0	1.7	14.951
4 - A1079 (W)	Entry	1	1	1, 5	195	1012	0.193	195	194	0.0	0.3	4.812	A	
			2	2, 3, 4	301	1012	0.298	301	313	0.0	0.5	5.185	A	
	Exit	1	1	(1, 2, 3, 4, 5)	496				496	510	0.0	0.0	0.000	A
			1	1		412				412	412	0.0	0.0	0.000
5 - A1035 Dog Kennel Lane	Entry	1	1	1, 2	273	1055	0.259	273	273	0.0	0.5	4.780	A	
			2	3, 4, 5	124	1055	0.118	125	126	0.0	0.1	3.999	A	
	Exit	1	1	(1, 2, 3, 4, 5)	398				398	402	0.0	0.0	0.000	A
			1	1		594				594	588	0.0	0.0	0.000

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 (E)	Entry	1	1	2	110	863	0.128	110	109	0.1	0.1	4.696	A
			2	1, 3, 4, 5	213	863	0.247	213	213	0.2	0.4	5.576	A
	Exit	1	1	(1, 2, 3, 4, 5)	323			323	323	0.0	0.0	0.000	A
			1	1		340			340	332	0.0	0.0	0.000
2 - A1079 (SE)	Entry	1	1	3, 4	377	1126	0.335	379	379	0.4	0.6	5.001	A
			2	1, 2, 5	512	1126	0.455	514	511	0.6	0.8	6.048	A
	Exit	1	1	(1, 2, 3, 4, 5)	890			890	891	0.0	0.0	0.000	A
			1	1		880			880	882	0.0	0.0	0.000
3 - Killingwoldgraves Lane	Entry	1	1	4	41	440	0.093	40	38	0.1	0.2	9.325	A
			2	1, 2, 3, 5	409	440	0.930	409	394	1.3	1.8	14.992	B
	Exit	1	1	(1, 2, 3, 4, 5)	461			450	435	1.7	8.0	46.146	E
			1	1		327			327	331	0.0	0.0	0.000
4 - A1079 (W)	Entry	1	1	1, 5	233	966	0.242	234	230	0.3	0.4	4.986	A
			2	2, 3, 4	372	966	0.385	369	374	0.5	0.7	6.362	A
	Exit	1	1	(1, 2, 3, 4, 5)	605			605	605	0.0	0.0	0.000	A
			1	1		493			493	493	0.0	0.0	0.000
5 - A1035 Dog Kennel Lane	Entry	1	1	1, 2	318	1007	0.316	319	324	0.5	0.4	5.325	A

			2	3, 4, 5	150	1007	0.149	149	155	0.1	0.2	4.375	A
		2	1	(1, 2, 3, 4, 5)	468			468	480	0.0	0.0	0.000	A
	Exit	1	1		696			696	690	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 (E)	Entry	1	1	2	135	803	0.168	136	135	0.1	0.2	5.200	A
			2	1, 3, 4, 5	251	803	0.312	252	259	0.4	0.5	6.491	A
	Exit	1	1	(1, 2, 3, 4, 5)	386			386	394	0.0	0.0	0.000	A
					395			395	405	0.0	0.0	0.000	A
2 - A1079 (SE)	Entry	1	1	3, 4	460	1099	0.419	461	468	0.6	0.8	5.676	A
			2	1, 2, 5	644	1099	0.586	642	638	0.8	1.7	8.322	A
	Exit	1	1	(1, 2, 3, 4, 5)	1105			1105	1110	0.0	0.0	0.005	A
					1062			1062	1057	0.0	0.0	0.000	A
3 - Killingwoldgraves Lane	Entry	1	1	4	37	396	0.094	37	38	0.2	0.1	10.590	B
			2	1, 2, 3, 5	384	396	0.969	384	394	1.8	2.0	17.916	C
	Exit	1	1	(1, 2, 3, 4, 5)	561			421	432	8.0	40.1	203.758	F
					406			406	405	0.0	0.0	0.000	A
4 - A1079 (W)	Entry	1	1	1, 5	290	933	0.311	290	291	0.4	0.4	5.770	A
			2	2, 3, 4	463	933	0.496	462	458	0.7	1.1	8.352	A
	Exit	1	1	(1, 2, 3, 4, 5)	753			753	751	0.0	0.0	0.018	A
					577			577	591	0.0	0.0	0.000	A
5 - A1035 Dog Kennel Lane	Entry	1	1	1, 2	407	964	0.422	405	404	0.4	0.8	6.683	A
			2	3, 4, 5	186	964	0.193	185	184	0.2	0.3	4.534	A
	Exit	1	1	(1, 2, 3, 4, 5)	593			593	590	0.0	0.0	0.000	A
					813			813	810	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 (E)	Entry	1	1	2	130	809	0.161	129	134	0.2	0.2	5.437	A
			2	1, 3, 4, 5	263	809	0.325	265	263	0.5	0.5	6.615	A
	Exit	1	1	(1, 2, 3, 4, 5)	393			393	396	0.0	0.0	0.000	A



	Exit	1	1		410			410	405	0.0	0.0	0.000	A
2 - A1079 (SE)	Entry	1	1	3, 4	455	1097	0.415	457	457	0.8	0.7	5.559	A
			2	1, 2, 5	648	1097	0.591	647	648	1.7	1.7	8.349	A
	2	1	(1, 2, 3, 4, 5)	1103			1104	1104	0.0	0.0	0.053	A	
	Exit	1	1		1042			1042	1052	0.0	0.0	0.000	A
3 - Killingwoldgraves Lane	Entry	1	1	4	40	394	0.101	40	40	0.1	0.2	11.107	B
			2	1, 2, 3, 5	392	394	0.995	392	388	2.0	2.0	18.412	C
	2	1	(1, 2, 3, 4, 5)	563			432	428	40.1	72.9	473.472	F	
	Exit	1	1		408			408	409	0.0	0.0	0.000	A
4 - A1079 (W)	Entry	1	1	1, 5	293	928	0.315	290	287	0.4	0.6	6.052	A
			2	2, 3, 4	453	928	0.488	454	462	1.1	1.0	8.299	A
	2	1	(1, 2, 3, 4, 5)	746			746	750	0.0	0.0	0.006	A	
	Exit	1	1		582			582	584	0.0	0.0	0.000	A
5 - A1035 Dog Kennel Lane	Entry	1	1	1, 2	394	963	0.409	395	397	0.8	0.7	6.681	A
			2	3, 4, 5	185	963	0.192	187	189	0.3	0.2	4.893	A
	2	1	(1, 2, 3, 4, 5)	579			579	586	0.0	0.0	0.000	A	
	Exit	1	1		814			814	815	0.0	0.0	0.000	A

17:45 - 18:00

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 (E)	Entry	1	1	2	108	848	0.127	108	112	0.2	0.2	4.803	A
			2	1, 3, 4, 5	220	848	0.260	218	214	0.5	0.4	5.922	A
	2	1	(1, 2, 3, 4, 5)	328			328	326	0.0	0.0	0.000	A	
	Exit	1	1		349			349	348	0.0	0.0	0.000	A
2 - A1079 (SE)	Entry	1	1	3, 4	385	1122	0.343	384	384	0.7	0.6	4.988	A
			2	1, 2, 5	532	1122	0.474	532	531	1.7	1.0	6.463	A
	2	1	(1, 2, 3, 4, 5)	917			917	912	0.0	0.0	0.008	A	
	Exit	1	1		920			920	908	0.0	0.0	0.000	A
3 - Killingwoldgraves Lane	Entry	1	1	4	44	434	0.101	44	43	0.2	0.1	9.470	A
			2	1, 2, 3, 5	438	434	1.008	438	434	2.0	2.0	16.472	C
	2	1	(1, 2, 3, 4, 5)	439			482	477	72.9	65.6	526.220	F	
	Exit	1	1		335			335	333	0.0	0.0	0.000	A
4 - A1079 (W)	Entry	1	1	1, 5	239	950	0.251	239	234	0.6	0.4	5.372	A

			2	2, 3, 4	392	950	0.413	394	381	1.0	0.6	6.859	A	
			2	1	(1, 2, 3, 4, 5)	631			631	612	0.0	0.0	0.001	A
			Exit	1	1		506			506	500	0.0	0.0	0.000
5 - A1035 Dog Kennel Lane	Entry	1	1	1, 2	333	995	0.335	333	330	0.7	0.5	5.852	A	
			2	3, 4, 5	156	995	0.157	155	154	0.2	0.2	4.566	A	
		2	1	(1, 2, 3, 4, 5)	489			489	482	0.0	0.0	0.000	A	
		Exit	1	1		735			735	727	0.0	0.0	0.000	A

18:00 - 18:15

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 (E)	Entry	1	1	2	90	898	0.100	90	91	0.2	0.1	4.690	A
			2	1, 3, 4, 5	183	898	0.204	183	180	0.4	0.2	5.098	A
		2	1	(1, 2, 3, 4, 5)	273			273	270	0.0	0.0	0.000	A
	Exit	1	1		309			309	303	0.0	0.0	0.000	A
2 - A1079 (SE)	Entry	1	1	3, 4	317	1146	0.277	317	326	0.6	0.4	4.445	A
			2	1, 2, 5	447	1146	0.390	446	442	1.0	0.7	5.317	A
		2	1	(1, 2, 3, 4, 5)	764			764	766	0.0	0.0	0.000	A
	Exit	1	1		779			779	777	0.0	0.0	0.000	A
3 - Killingwoldgraves Lane	Entry	1	1	4	45	469	0.096	46	44	0.1	0.1	8.949	A
			2	1, 2, 3, 5	454	469	0.969	454	451	2.0	1.9	15.198	C
		2	1	(1, 2, 3, 4, 5)	374			499	494	65.6	36.5	328.306	F
	Exit	1	1		275			275	280	0.0	0.0	0.000	A
4 - A1079 (W)	Entry	1	1	1, 5	194	973	0.200	195	196	0.4	0.2	4.876	A
			2	2, 3, 4	317	973	0.326	317	316	0.6	0.6	5.903	A
		2	1	(1, 2, 3, 4, 5)	511			511	511	0.0	0.0	0.000	A
	Exit	1	1		423			423	429	0.0	0.0	0.000	A
5 - A1035 Dog Kennel Lane	Entry	1	1	1, 2	274	1031	0.266	275	273	0.5	0.4	4.957	A
			2	3, 4, 5	122	1031	0.118	122	127	0.2	0.2	4.239	A
		2	1	(1, 2, 3, 4, 5)	396			396	399	0.0	0.0	0.000	A
	Exit	1	1		659			659	657	0.0	0.0	0.000	A

# Existing Layout - 2027 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.
Warning	Geometry	1 - A1174 (E) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	2 - A1079 (SE) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	4 - A1079 (W) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	5 - A1035 Dog Kennel Lane - 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	Killingwoldgraves Roundabout	Standard Roundabout		1, 2, 3, 4, 5	20.40	C

### 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
D7	2027 With Development	AM	ONE HOUR	07:45	09:15	15	✓

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

### Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - A1174 (E)		ONE HOUR	✓	380	100.000
2 - A1079 (SE)		ONE HOUR	✓	817	100.000
3 - Killingwoldgraves Lane		ONE HOUR	✓	408	100.000
4 - A1079 (W)		ONE HOUR	✓	657	100.000
5 - A1035 Dog Kennel Lane		ONE HOUR	✓	953	100.000

## Origin-Destination Data

Demand (PCU/hr)

		To				
		1 - A1174 (E)	2 - A1079 (SE)	3 - Killingwoldgraves Lane	4 - A1079 (W)	5 - A1035 Dog Kennel Lane
From	1 - A1174 (E)	0	181	48	143	8
	2 - A1079 (SE)	115	2	117	323	260
	3 - Killingwoldgraves Lane	76	144	0	51	137
	4 - A1079 (W)	179	327	61	2	88
	5 - A1035 Dog Kennel Lane	5	607	211	129	1

## Vehicle Mix

Heavy Vehicle Percentages

		To				
		1 - A1174 (E)	2 - A1079 (SE)	3 - Killingwoldgraves Lane	4 - A1079 (W)	5 - A1035 Dog Kennel Lane
From	1 - A1174 (E)	0	0	0	3	0
	2 - A1079 (SE)	1	0	5	9	10
	3 - Killingwoldgraves Lane	0	1	0	0	2
	4 - A1079 (W)	3	7	0	0	26
	5 - A1035 Dog Kennel Lane	26	10	1	19	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 (E)	8.17	1.0	A	343	515
2 - A1079 (SE)	6.74	1.9	A	750	1126
3 - Killingwoldgraves Lane	100.73	13.0	F	374	561
4 - A1079 (W)	6.37	1.4	A	604	906
5 - A1035 Dog Kennel Lane	12.21	3.3	B	872	1308

### Main Results for each time segment

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 (E)	286	71	1105	288	285	275	0.0	0.4	5.377	A

2 - A1079 (SE)	623	156	452	624	616	941	0.0	1.0	4.880	A
3 - Killingwoldgraves Lane	313	78	750	312	301	326	0.0	1.6	16.243	C
4 - A1079 (W)	485	121	567	485	492	495	0.0	0.7	4.706	A
5 - A1035 Dog Kennel Lane	708	177	674	706	718	378	0.0	1.5	5.980	A

### 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 (E)	327	82	1340	328	335	349	0.4	0.6	6.205	A
2 - A1079 (SE)	738	185	544	736	742	1124	1.0	1.3	5.603	A
3 - Killingwoldgraves Lane	364	91	892	370	357	388	1.6	2.2	23.027	C
4 - A1079 (W)	596	149	674	595	583	589	0.7	0.7	5.084	A
5 - A1035 Dog Kennel Lane	861	215	824	865	853	445	1.5	1.5	7.451	A

### 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 (E)	422	106	1649	424	417	405	0.6	0.8	7.643	A
2 - A1079 (SE)	903	226	669	906	895	1404	1.3	1.8	6.568	A
3 - Killingwoldgraves Lane	447	112	1084	431	420	491	2.2	9.9	61.381	F
4 - A1079 (W)	740	185	797	737	734	718	0.7	1.4	6.366	A
5 - A1035 Dog Kennel Lane	1053	263	993	1061	1038	541	1.5	3.2	11.564	B

### 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 (E)	415	104	1656	412	416	413	0.8	1.0	8.165	A
2 - A1079 (SE)	909	227	674	906	904	1394	1.8	1.9	6.742	A
3 - Killingwoldgraves Lane	447	112	1098	450	437	482	9.9	13.0	100.731	F
4 - A1079 (W)	725	181	821	727	726	727	1.4	1.3	6.234	A
5 - A1035 Dog Kennel Lane	1061	265	1006	1062	1048	542	3.2	3.3	12.213	B

### 08:45 - 09:00

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 (E)	329	82	1318	331	338	344	1.0	0.6	6.664	A
2 - A1079 (SE)	716	179	532	718	735	1116	1.9	1.0	5.556	A
3 - Killingwoldgraves Lane	370	92	869	376	401	381	13.0	3.6	53.833	F

4 - A1079 (W)	583	146	669	584	595	576	1.3	0.9	5.455	A
5 - A1035 Dog Kennel Lane	842	211	819	843	864	434	3.3	1.9	7.905	A

### 09:00 - 09:15

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 (E)	281	70	1109	280	285	279	0.6	0.3	5.475	A
2 - A1079 (SE)	612	153	447	610	617	943	1.0	0.9	4.968	A
3 - Killingwoldgraves Lane	305	76	729	307	319	327	3.6	1.3	17.269	C
4 - A1079 (W)	494	124	562	492	495	475	0.9	0.8	4.719	A
5 - A1035 Dog Kennel Lane	705	176	681	707	709	374	1.9	1.3	6.198	A

## Lane Results

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

### Lanes: Main Results for each time segment

#### 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 (E)	Entry	1	1	2	132	822	0.160	132	134	0.0	0.2	5.180	A
			2	1, 3, 4, 5	154	822	0.187	155	151	0.0	0.2	5.556	A
	Exit	1	1	(1, 2, 3, 4, 5)	286			286	287	0.0	0.0	0.000	A
			1	1		275			275	273	0.0	0.0	0.000
2 - A1079 (SE)	Entry	1	1	3, 4	340	1113	0.305	339	334	0.0	0.6	5.007	A
			2	1, 2, 5	283	1113	0.255	285	282	0.0	0.3	4.730	A
	Exit	1	1	(1, 2, 3, 4, 5)	623			623	620	0.0	0.0	0.000	A
			1	1		941			941	949	0.0	0.0	0.000
3 - Killingwoldgraves Lane	Entry	1	1	4	38	485	0.078	38	38	0.0	0.1	7.996	A
			2	1, 2, 3, 5	273	485	0.563	274	263	0.0	0.8	11.460	B
	Exit	1	1	(1, 2, 3, 4, 5)	313			311	305	0.0	0.6	5.181	A
			1	1		326			326	330	0.0	0.0	0.000
4 - A1079 (W)	Entry	1	1	1, 5	197	1079	0.183	197	197	0.0	0.3	4.470	A
			2	2, 3, 4	287	1079	0.266	288	295	0.0	0.4	4.858	A
	Exit	1	1	(1, 2, 3, 4, 5)	485			485	495	0.0	0.0	0.000	A
			1	1		495			495	490	0.0	0.0	0.000

5 - A1035 Dog Kennel Lane	Entry	1	1	1, 2	454	1059	0.429	453	461	0.0	1.0	6.629	A
			2	3, 4, 5	254	1059	0.240	253	258	0.0	0.5	4.848	A
	Exit	1	1	(1, 2, 3, 4, 5)	708			708	724	0.0	0.0	0.000	A
			1	1		378			378	371	0.0	0.0	0.000

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 (E)	Entry	1	1	2	159	754	0.212	160	160	0.2	0.3	6.150	A
			2	1, 3, 4, 5	167	754	0.222	169	175	0.2	0.3	6.256	A
	Exit	1	1	(1, 2, 3, 4, 5)	327			327	336	0.0	0.0	0.000	A
			1	1		349			349	339	0.0	0.0	0.000
2 - A1079 (SE)	Entry	1	1	3, 4	392	1085	0.362	391	396	0.6	0.7	5.730	A
			2	1, 2, 5	346	1085	0.319	346	346	0.3	0.5	5.459	A
	Exit	1	1	(1, 2, 3, 4, 5)	738			738	743	0.0	0.0	0.000	A
			1	1		1124			1124	1113	0.0	0.0	0.000
3 - Killingwoldgraves Lane	Entry	1	1	4	48	457	0.105	49	48	0.1	0.1	8.623	A
			2	1, 2, 3, 5	321	457	0.703	322	309	0.8	1.2	13.248	B
	Exit	1	1	(1, 2, 3, 4, 5)	364			369	359	0.6	1.0	10.412	B
			1	1		388			388	384	0.0	0.0	0.000
4 - A1079 (W)	Entry	1	1	1, 5	246	1046	0.236	246	240	0.3	0.3	4.742	A
			2	2, 3, 4	350	1046	0.334	349	343	0.4	0.4	5.312	A
	Exit	1	1	(1, 2, 3, 4, 5)	596			596	583	0.0	0.0	0.000	A
			1	1		589			589	589	0.0	0.0	0.000
5 - A1035 Dog Kennel Lane	Entry	1	1	1, 2	545	1012	0.538	548	549	1.0	1.1	8.579	A
			2	3, 4, 5	315	1012	0.311	316	305	0.5	0.4	5.459	A
	Exit	1	1	(1, 2, 3, 4, 5)	861			861	854	0.0	0.0	0.000	A
			1	1		445			445	446	0.0	0.0	0.000

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 (E)	Entry	1	1	2	201	663	0.303	202	199	0.3	0.3	7.282	A
			2	1, 3, 4, 5	222	663	0.335	221	218	0.3	0.5	7.980	A

		2	1	(1, 2, 3, 4, 5)	422			422	418	0.0	0.0	0.000	A
	Exit	1	1		405			405	408	0.0	0.0	0.000	A
2 - A1079 (SE)	Entry	1	1	3, 4	496	1047	0.474	497	482	0.7	1.1	6.970	A
			2	1, 2, 5	407	1047	0.389	409	413	0.5	0.7	6.100	A
	Exit	1	1	(1, 2, 3, 4, 5)	903			903	897	0.0	0.0	0.001	A
					1404			1404	1376	0.0	0.0	0.000	A
3 - Killingwoldgraves Lane	Entry	1	1	4	52	418	0.125	52	52	0.1	0.2	9.933	A
			2	1, 2, 3, 5	379	418	0.905	379	368	1.2	1.8	15.916	C
	Exit	1	1	(1, 2, 3, 4, 5)	447			431	423	1.0	7.9	46.125	E
					491			491	480	0.0	0.0	0.000	A
4 - A1079 (W)	Entry	1	1	1, 5	300	1008	0.298	299	299	0.3	0.4	5.720	A
			2	2, 3, 4	440	1008	0.436	438	436	0.4	1.0	6.777	A
	Exit	1	1	(1, 2, 3, 4, 5)	740			740	737	0.0	0.0	0.001	A
					718			718	704	0.0	0.0	0.000	A
5 - A1035 Dog Kennel Lane	Entry	1	1	1, 2	680	959	0.710	685	666	1.1	2.6	14.276	B
			2	3, 4, 5	371	959	0.387	376	371	0.4	0.5	6.623	A
	Exit	1	1	(1, 2, 3, 4, 5)	1053			1051	1044	0.0	0.1	0.044	A
					541			541	535	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 (E)	Entry	1	1	2	196	661	0.297	197	199	0.3	0.4	7.802	A
			2	1, 3, 4, 5	218	661	0.331	215	216	0.5	0.6	8.507	A
	Exit	1	1	(1, 2, 3, 4, 5)	415			415	417	0.0	0.0	0.000	A
					413			413	410	0.0	0.0	0.000	A
2 - A1079 (SE)	Entry	1	1	3, 4	492	1045	0.471	490	493	1.1	1.2	7.262	A
			2	1, 2, 5	417	1045	0.399	416	411	0.7	0.8	6.122	A
	Exit	1	1	(1, 2, 3, 4, 5)	909			909	905	0.0	0.0	0.000	A
					1394			1394	1383	0.0	0.0	0.000	A
3 - Killingwoldgraves Lane	Entry	1	1	4	54	415	0.130	54	52	0.2	0.1	9.675	A
			2	1, 2, 3, 5	395	415	0.952	396	385	1.8	1.8	16.725	C
	Exit	1	1	(1, 2, 3, 4, 5)	447			449	437	7.9	11.1	84.920	F
					482			482	483	0.0	0.0	0.000	A



4 - A1079 (W)	Entry	1	1	1, 5	293	1000	0.293	294	296	0.4	0.5	5.756	A
			2	2, 3, 4	432	1000	0.432	433	431	1.0	0.8	6.558	A
	Exit	1	1	(1, 2, 3, 4, 5)	725			725	726	0.0	0.0	0.000	A
			1	1		727			727	718	0.0	0.0	0.000
5 - A1035 Dog Kennel Lane	Entry	1	1	1, 2	679	954	0.711	677	668	2.6	2.8	15.298	C
			2	3, 4, 5	383	954	0.401	386	380	0.5	0.5	6.667	A
	Exit	1	1	(1, 2, 3, 4, 5)	1061			1061	1049	0.1	0.0	0.119	A
			1	1		542			542	537	0.0	0.0	0.000

08:45 - 09:00

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 (E)	Entry	1	1	2	154	760	0.202	153	159	0.4	0.3	6.582	A
			2	1, 3, 4, 5	175	760	0.230	178	179	0.6	0.3	6.739	A
	Exit	1	1	(1, 2, 3, 4, 5)	329			329	337	0.0	0.0	0.000	A
			1	1		344			344	351	0.0	0.0	0.000
2 - A1079 (SE)	Entry	1	1	3, 4	383	1089	0.351	385	395	1.2	0.5	5.624	A
			2	1, 2, 5	334	1089	0.307	333	340	0.8	0.5	5.478	A
	Exit	1	1	(1, 2, 3, 4, 5)	716			716	732	0.0	0.0	0.000	A
			1	1		1116			1116	1149	0.0	0.0	0.000
3 - Killingwoldgraves Lane	Entry	1	1	4	48	462	0.104	49	51	0.1	0.1	9.193	A
			2	1, 2, 3, 5	328	462	0.711	328	350	1.8	1.3	14.338	B
	Exit	1	1	(1, 2, 3, 4, 5)	370			376	399	11.1	2.2	40.374	E
			1	1		381			381	392	0.0	0.0	0.000
4 - A1079 (W)	Entry	1	1	1, 5	239	1047	0.228	240	244	0.5	0.3	5.199	A
			2	2, 3, 4	344	1047	0.329	344	351	0.8	0.6	5.626	A
	Exit	1	1	(1, 2, 3, 4, 5)	583			583	593	0.0	0.0	0.000	A
			1	1		576			576	587	0.0	0.0	0.000
5 - A1035 Dog Kennel Lane	Entry	1	1	1, 2	545	1013	0.538	544	558	2.8	1.4	9.226	A
			2	3, 4, 5	297	1013	0.294	299	306	0.5	0.5	5.581	A
	Exit	1	1	(1, 2, 3, 4, 5)	842			842	858	0.0	0.0	0.000	A
			1	1		434			434	454	0.0	0.0	0.000

09:00 - 09:15

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 (E)	Entry	1	1	2	137	821	0.167	137	136	0.3	0.2	5.428	A
			2	1, 3, 4, 5	144	821	0.175	143	149	0.3	0.2	5.519	A
	Exit	1	1	(1, 2, 3, 4, 5)	281			281	283	0.0	0.0	0.000	A
			1	1		279			279	283	0.0	0.0	0.000
2 - A1079 (SE)	Entry	1	1	3, 4	326	1115	0.292	325	331	0.5	0.4	4.991	A
			2	1, 2, 5	287	1115	0.257	285	286	0.5	0.5	4.942	A
	Exit	1	1	(1, 2, 3, 4, 5)	612			612	617	0.0	0.0	0.000	A
			1	1		943			943	947	0.0	0.0	0.000
3 - Killingwoldgraves Lane	Entry	1	1	4	37	490	0.076	38	40	0.1	0.1	8.474	A
			2	1, 2, 3, 5	269	490	0.549	270	279	1.3	0.9	11.469	B
	Exit	1	1	(1, 2, 3, 4, 5)	305			306	317	2.2	0.3	6.256	A
			1	1		327			327	331	0.0	0.0	0.000
4 - A1079 (W)	Entry	1	1	1, 5	205	1081	0.190	203	201	0.3	0.4	4.483	A
			2	2, 3, 4	289	1081	0.268	290	294	0.6	0.4	4.876	A
	Exit	1	1	(1, 2, 3, 4, 5)	494			494	495	0.0	0.0	0.000	A
			1	1		475			475	485	0.0	0.0	0.000
5 - A1035 Dog Kennel Lane	Entry	1	1	1, 2	451	1057	0.427	453	454	1.4	1.0	6.939	A
			2	3, 4, 5	254	1057	0.240	254	255	0.5	0.3	4.919	A
	Exit	1	1	(1, 2, 3, 4, 5)	705			705	707	0.0	0.0	0.000	A
			1	1		374			374	378	0.0	0.0	0.000

## Existing Layout - 2027 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	3 - Killingwoldgraves Lane - Lane Simulation	Arm 3: Queue at end of modelled period is greater than 10 PCU. Delay is likely to have been underestimated.
Warning	Geometry	1 - A1174 (E) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Warning	Geometry	2 - A1079 (SE) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	4 - A1079 (W) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	5 - A1035 Dog Kennel Lane - 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	Killingwoldgraves Roundabout	Standard Roundabout		1, 2, 3, 4, 5	89.90	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
D8	2027 With Development	PM	ONE HOUR	16:45	18:15	15	✓

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

### Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - A1174 (E)		ONE HOUR	✓	358	100.000
2 - A1079 (SE)		ONE HOUR	✓	1001	100.000
3 - Killingwoldgraves Lane		ONE HOUR	✓	504	100.000
4 - A1079 (W)		ONE HOUR	✓	681	100.000
5 - A1035 Dog Kennel Lane		ONE HOUR	✓	534	100.000

## Origin-Destination Data

## Demand (PCU/hr)

		To				
		1 - A1174 (E)	2 - A1079 (SE)	3 - Killingwoldgraves Lane	4 - A1079 (W)	5 - A1035 Dog Kennel Lane
From	1 - A1174 (E)	0	122	56	170	10
	2 - A1079 (SE)	132	2	152	267	448
	3 - Killingwoldgraves Lane	58	143	0	44	259
	4 - A1079 (W)	187	367	51	1	75
	5 - A1035 Dog Kennel Lane	6	358	103	66	1

## Vehicle Mix

### Heavy Vehicle Percentages

		To				
		1 - A1174 (E)	2 - A1079 (SE)	3 - Killingwoldgraves Lane	4 - A1079 (W)	5 - A1035 Dog Kennel Lane
From	1 - A1174 (E)	0	1	0	2	0
	2 - A1079 (SE)	0	0	1	2	4
	3 - Killingwoldgraves Lane	0	0	0	2	1
	4 - A1079 (W)	3	6	2	0	12
	5 - A1035 Dog Kennel Lane	0	4	0	8	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 (E)	6.44	0.7	A	328	492
2 - A1079 (SE)	7.20	2.2	A	923	1384
3 - Killingwoldgraves Lane	514.16	68.2	F	461	692
4 - A1079 (W)	7.31	1.6	A	621	932
5 - A1035 Dog Kennel Lane	6.35	1.0	A	487	730

### Main Results for each time segment

#### 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 (E)	269	67	803	270	269	282	0.0	0.4	4.778	A
2 - A1079 (SE)	766	192	341	767	765	731	0.0	1.1	4.927	A

3 - Killingwoldgraves Lane	377	94	838	383	370	269	0.0	3.4	31.294	D
4 - A1079 (W)	505	126	806	504	508	415	0.0	0.7	5.005	A
5 - A1035 Dog Kennel Lane	388	97	697	388	399	614	0.0	0.6	4.603	A

### 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 (E)	322	80	975	321	320	341	0.4	0.5	5.189	A
2 - A1079 (SE)	894	223	412	893	896	884	1.1	1.6	5.680	A
3 - Killingwoldgraves Lane	458	114	977	446	429	327	3.4	8.9	57.140	F
4 - A1079 (W)	605	151	941	604	608	481	0.7	1.2	5.990	A
5 - A1035 Dog Kennel Lane	483	121	831	485	480	714	0.6	0.7	5.126	A

### 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 (E)	384	96	1162	386	394	397	0.5	0.6	6.092	A
2 - A1079 (SE)	1108	277	504	1110	1104	1044	1.6	2.1	7.201	A
3 - Killingwoldgraves Lane	539	135	1213	430	429	401	8.9	38.0	206.321	F
4 - A1079 (W)	745	186	1039	745	744	603	1.2	1.6	7.251	A
5 - A1035 Dog Kennel Lane	577	144	980	579	578	805	0.7	0.9	6.085	A

### 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 (E)	401	100	1175	402	398	405	0.6	0.7	6.437	A
2 - A1079 (SE)	1109	277	522	1109	1099	1055	2.1	2.2	7.165	A
3 - Killingwoldgraves Lane	556	139	1220	433	432	411	38.0	68.2	444.560	F
4 - A1079 (W)	750	187	1047	751	749	607	1.6	1.4	7.314	A
5 - A1035 Dog Kennel Lane	594	148	985	595	593	813	0.9	1.0	6.347	A

### 17:45 - 18:00

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 (E)	321	80	1010	323	323	339	0.7	0.5	5.475	A
2 - A1079 (SE)	905	226	413	904	911	920	2.2	1.4	5.722	A
3 - Killingwoldgraves Lane	460	115	989	480	466	328	68.2	66.3	514.156	F
4 - A1079 (W)	616	154	966	615	615	503	1.4	1.1	6.285	A

5 - A1035 Dog Kennel Lane	492	123	857	492	480	724	1.0	0.8	5.326	A
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### 18:00 - 18:15

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 (E)	270	67	850	271	269	293	0.5	0.3	4.870	A
2 - A1079 (SE)	755	189	343	758	761	778	1.4	0.9	5.094	A
3 - Killingwoldgraves Lane	378	94	829	508	500	271	66.3	36.1	337.460	F
4 - A1079 (W)	507	127	913	505	507	425	1.1	0.9	5.599	A
5 - A1035 Dog Kennel Lane	387	97	756	387	397	662	0.8	0.5	4.711	A

## Lane Results

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

### Lanes: Main Results for each time segment

#### 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 (E)	Entry	1	1	2	93	911	0.102	93	92	0.0	0.2	4.393	A
			2	1, 3, 4, 5	176	911	0.193	177	177	0.0	0.2	4.979	A
	Exit	1	1	(1, 2, 3, 4, 5)	269			269	271	0.0	0.0	0.000	A
			1	1		282			282	286	0.0	0.0	0.000
2 - A1079 (SE)	Entry	1	1	3, 4	320	1147	0.279	320	321	0.0	0.4	4.440	A
			2	1, 2, 5	447	1147	0.389	446	444	0.0	0.7	5.282	A
	Exit	1	1	(1, 2, 3, 4, 5)	766			766	770	0.0	0.0	0.000	A
			1	1		731			731	737	0.0	0.0	0.000
3 - Killingwoldgraves Lane	Entry	1	1	4	31	468	0.067	31	32	0.0	0.1	8.423	A
			2	1, 2, 3, 5	351	468	0.751	352	338	0.0	1.3	13.598	B
	Exit	1	1	(1, 2, 3, 4, 5)	377			382	375	0.0	2.0	18.057	C
			1	1		269			269	275	0.0	0.0	0.000
4 - A1079 (W)	Entry	1	1	1, 5	195	1005	0.194	195	197	0.0	0.3	4.626	A
			2	2, 3, 4	310	1005	0.308	310	311	0.0	0.4	5.244	A
	Exit	1	1	(1, 2, 3, 4, 5)	505			505	510	0.0	0.0	0.000	A
			1	1		415			415	415	0.0	0.0	0.000
5 - A1035 Dog Kennel Lane	Entry	1	1	1, 2	263	1052	0.250	263	270	0.0	0.5	4.788	A

			2	3, 4, 5	125	1052	0.119	125	129	0.0	0.1	4.217	A
		2	1	(1, 2, 3, 4, 5)	388			388	401	0.0	0.0	0.000	A
	Exit	1	1		614			614	598	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 (E)	Entry	1	1	2	110	861	0.127	110	110	0.2	0.2	4.825	A
			2	1, 3, 4, 5	212	861	0.246	211	210	0.2	0.3	5.380	A
	Exit	1	1	(1, 2, 3, 4, 5)	322			322	320	0.0	0.0	0.000	A
					341			341	341	0.0	0.0	0.000	A
2 - A1079 (SE)	Entry	1	1	3, 4	365	1125	0.324	366	372	0.4	0.6	4.978	A
			2	1, 2, 5	529	1125	0.470	527	523	0.7	1.0	6.189	A
	Exit	1	1	(1, 2, 3, 4, 5)	894			894	897	0.0	0.0	0.000	A
					884			884	878	0.0	0.0	0.000	A
3 - Killingwoldgraves Lane	Entry	1	1	4	41	440	0.093	41	37	0.1	0.1	9.629	A
			2	1, 2, 3, 5	405	440	0.921	405	391	1.3	1.7	15.145	C
	Exit	1	1	(1, 2, 3, 4, 5)	458			446	430	2.0	7.1	42.374	E
					327			327	328	0.0	0.0	0.000	A
4 - A1079 (W)	Entry	1	1	1, 5	231	963	0.240	231	235	0.3	0.4	5.191	A
			2	2, 3, 4	374	963	0.388	374	373	0.4	0.7	6.492	A
	Exit	1	1	(1, 2, 3, 4, 5)	605			605	610	0.0	0.0	0.000	A
					481			481	481	0.0	0.0	0.000	A
5 - A1035 Dog Kennel Lane	Entry	1	1	1, 2	330	1010	0.327	332	326	0.5	0.5	5.555	A
			2	3, 4, 5	153	1010	0.152	153	154	0.1	0.2	4.222	A
	Exit	1	1	(1, 2, 3, 4, 5)	483			483	480	0.0	0.0	0.000	A
					714			714	704	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 (E)	Entry	1	1	2	134	806	0.166	134	134	0.2	0.2	5.349	A
			2	1, 3, 4, 5	250	806	0.310	252	260	0.3	0.4	6.475	A
	Exit	1	1	(1, 2, 3, 4, 5)	384			384	394	0.0	0.0	0.000	A

	Exit	1	1		397			397	400	0.0	0.0	0.000	A
2 - A1079 (SE)	Entry	1	1	3, 4	470	1097	0.428	471	467	0.6	0.7	5.864	A
			2	1, 2, 5	639	1097	0.582	639	637	1.0	1.4	8.165	A
		2	1	(1, 2, 3, 4, 5)	1108			1108	1106	0.0	0.0	0.017	A
	Exit	1	1		1044			1044	1049	0.0	0.0	0.000	A
3 - Killingwoldgraves Lane	Entry	1	1	4	40	392	0.101	40	37	0.1	0.1	11.136	B
			2	1, 2, 3, 5	390	392	0.993	390	393	1.7	2.0	17.762	C
		2	1	(1, 2, 3, 4, 5)	539			429	430	7.1	35.9	188.852	F
	Exit	1	1		401			401	400	0.0	0.0	0.000	A
4 - A1079 (W)	Entry	1	1	1, 5	281	932	0.302	282	282	0.4	0.6	5.873	A
			2	2, 3, 4	464	932	0.498	464	462	0.7	1.1	8.061	A
		2	1	(1, 2, 3, 4, 5)	745			745	746	0.0	0.0	0.017	A
	Exit	1	1		603			603	597	0.0	0.0	0.000	A
5 - A1035 Dog Kennel Lane	Entry	1	1	1, 2	388	963	0.403	389	393	0.5	0.7	6.662	A
			2	3, 4, 5	189	963	0.197	189	185	0.2	0.2	4.866	A
		2	1	(1, 2, 3, 4, 5)	577			577	579	0.0	0.0	0.000	A
	Exit	1	1		805			805	804	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 (E)	Entry	1	1	2	131	802	0.164	131	132	0.2	0.2	5.460	A
			2	1, 3, 4, 5	270	802	0.336	271	267	0.4	0.4	6.922	A
		2	1	(1, 2, 3, 4, 5)	401			401	399	0.0	0.0	0.000	A
	Exit	1	1		405			405	403	0.0	0.0	0.000	A
2 - A1079 (SE)	Entry	1	1	3, 4	464	1092	0.425	466	459	0.7	0.7	5.891	A
			2	1, 2, 5	645	1092	0.590	643	640	1.4	1.5	8.078	A
		2	1	(1, 2, 3, 4, 5)	1109			1109	1100	0.0	0.0	0.007	A
	Exit	1	1		1055			1055	1063	0.0	0.0	0.000	A
3 - Killingwoldgraves Lane	Entry	1	1	4	41	391	0.105	41	39	0.1	0.1	11.266	B
			2	1, 2, 3, 5	392	391	1.003	392	393	2.0	2.0	18.292	C
		2	1	(1, 2, 3, 4, 5)	556			433	432	35.9	66.1	427.529	F
	Exit	1	1		411			411	399	0.0	0.0	0.000	A
4 - A1079 (W)	Entry	1	1	1, 5	286	930	0.308	287	285	0.6	0.5	6.046	A



			2	2, 3, 4	464	930	0.499	464	464	1.1	0.9	8.092	A	
			2	1	(1, 2, 3, 4, 5)	750			750	748	0.0	0.0	0.000	A
			Exit	1	1		607			607	597	0.0	0.0	0.000
5 - A1035 Dog Kennel Lane	Entry	1	1	1, 2	405	961	0.422	406	409	0.7	0.8	6.987	A	
			2	3, 4, 5	189	961	0.196	189	184	0.2	0.3	4.940	A	
		2	1	(1, 2, 3, 4, 5)	594			594	594	0.0	0.0	0.000	A	
		Exit	1	1		813			813	810	0.0	0.0	0.000	A

17:45 - 18:00

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 (E)	Entry	1	1	2	112	850	0.132	112	110	0.2	0.2	4.864	A
			2	1, 3, 4, 5	209	850	0.246	211	213	0.4	0.4	5.792	A
		2	1	(1, 2, 3, 4, 5)	321			321	322	0.0	0.0	0.000	A
	Exit	1	1		339			339	345	0.0	0.0	0.000	A
2 - A1079 (SE)	Entry	1	1	3, 4	385	1125	0.342	385	381	0.7	0.5	4.965	A
			2	1, 2, 5	520	1125	0.462	519	529	1.5	0.9	6.274	A
		2	1	(1, 2, 3, 4, 5)	905			905	908	0.0	0.0	0.002	A
	Exit	1	1		920			920	901	0.0	0.0	0.000	A
3 - Killingwoldgraves Lane	Entry	1	1	4	42	437	0.095	42	40	0.1	0.1	10.450	B
			2	1, 2, 3, 5	437	437	1.000	437	426	2.0	2.0	16.790	C
		2	1	(1, 2, 3, 4, 5)	460			479	466	66.1	64.3	498.905	F
	Exit	1	1		328			328	324	0.0	0.0	0.000	A
4 - A1079 (W)	Entry	1	1	1, 5	233	955	0.244	232	234	0.5	0.4	5.483	A
			2	2, 3, 4	383	955	0.401	384	381	0.9	0.7	6.781	A
		2	1	(1, 2, 3, 4, 5)	616			616	614	0.0	0.0	0.000	A
	Exit	1	1		503			503	500	0.0	0.0	0.000	A
5 - A1035 Dog Kennel Lane	Entry	1	1	1, 2	337	1001	0.337	337	328	0.8	0.6	5.693	A
			2	3, 4, 5	155	1001	0.155	155	152	0.3	0.2	4.539	A
		2	1	(1, 2, 3, 4, 5)	492			492	479	0.0	0.0	0.000	A
	Exit	1	1		724			724	725	0.0	0.0	0.000	A

18:00 - 18:15

Arm	Side	Lane	Lane	Destination arms	Total Demand	Capacity	RFC	Throughput (PCU/hr)	Average throughput	Start queue	End queue	Delay (s)	Unsignalised level of service
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		level		(PCU/hr)	(PCU/hr)			ut (PCU/hr)	(PCU)	(PCU)			
1 - A1174 (E)	Entry	1	1	2	92	898	0.102	92	91	0.2	0.1	4.428	A
			2	1, 3, 4, 5	178	898	0.199	179	178	0.4	0.2	5.098	A
	Exit	1	1	(1, 2, 3, 4, 5)	270			270	269	0.0	0.0	0.000	A
			1	1		293			293	299	0.0	0.0	0.000
2 - A1079 (SE)	Entry	1	1	3, 4	318	1147	0.277	318	320	0.5	0.4	4.504	A
			2	1, 2, 5	437	1147	0.381	440	441	0.9	0.5	5.531	A
	Exit	1	1	(1, 2, 3, 4, 5)	755			755	759	0.0	0.0	0.000	A
			1	1		778			778	775	0.0	0.0	0.000
3 - Killingwoldgraves Lane	Entry	1	1	4	45	469	0.096	45	43	0.1	0.1	8.851	A
			2	1, 2, 3, 5	462	469	0.984	463	457	2.0	1.8	15.253	C
	Exit	1	1	(1, 2, 3, 4, 5)	378			507	499	64.3	34.1	322.872	F
			1	1		271			271	273	0.0	0.0	0.000
4 - A1079 (W)	Entry	1	1	1, 5	187	971	0.193	187	195	0.4	0.3	4.914	A
			2	2, 3, 4	320	971	0.329	318	312	0.7	0.6	6.024	A
	Exit	1	1	(1, 2, 3, 4, 5)	507			507	506	0.0	0.0	0.001	A
			1	1		425			425	424	0.0	0.0	0.000
5 - A1035 Dog Kennel Lane	Entry	1	1	1, 2	262	1034	0.254	262	270	0.6	0.4	5.006	A
			2	3, 4, 5	125	1034	0.121	125	127	0.2	0.2	4.092	A
	Exit	1	1	(1, 2, 3, 4, 5)	387			387	396	0.0	0.0	0.000	A
			1	1		662			662	663	0.0	0.0	0.000

## Existing Layout - 2027 With Development (Sensitivity Test), 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 (E) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	2 - A1079 (SE) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	4 - A1079 (W) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Warning	Geometry	5 - A1035 Dog Kennel Lane - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
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## Junction Network

### Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Killingwoldgraves Roundabout	Standard Roundabout		1, 2, 3, 4, 5	24.14	C

### 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
D9	2027 With Development (Sensitivity Test)	AM	ONE HOUR	07:45	09:15	15	✓

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

### Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - A1174 (E)		ONE HOUR	✓	380	100.000
2 - A1079 (SE)		ONE HOUR	✓	816	100.000
3 - Killingwoldgraves Lane		ONE HOUR	✓	433	100.000
4 - A1079 (W)		ONE HOUR	✓	655	100.000
5 - A1035 Dog Kennel Lane		ONE HOUR	✓	952	100.000

## Origin-Destination Data

### Demand (PCU/hr)

		To				
		1 - A1174 (E)	2 - A1079 (SE)	3 - Killingwoldgraves Lane	4 - A1079 (W)	5 - A1035 Dog Kennel Lane
From	1 - A1174 (E)	0	180	50	142	8
	2 - A1079 (SE)	114	2	122	320	258
	3 - Killingwoldgraves Lane	79	155	0	57	142
	4 - A1079 (W)	177	324	65	2	87
	5 - A1035 Dog Kennel Lane	5	602	216	128	1

## Vehicle Mix

### Heavy Vehicle Percentages

		To				
		1 - A1174 (E)	2 - A1079 (SE)	3 - Killingwoldgraves Lane	4 - A1079 (W)	5 - A1035 Dog Kennel Lane
From	1 - A1174 (E)	0	0	0	3	0
	2 - A1079 (SE)	1	0	4	9	10
	3 - Killingwoldgraves Lane	0	1	0	0	1
	4 - A1079 (W)	3	7	0	0	27
	5 - A1035 Dog Kennel Lane	26	10	1	19	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 (E)	8.18	0.9	A	348	522
2 - A1079 (SE)	6.78	1.8	A	745	1118
3 - Killingwoldgraves Lane	124.41	17.4	F	396	594
4 - A1079 (W)	6.36	1.5	A	600	901
5 - A1035 Dog Kennel Lane	12.01	3.3	B	870	1306

### Main Results for each time segment

#### 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 (E)	287	72	1131	288	286	277	0.0	0.4	5.436	A
2 - A1079 (SE)	612	153	478	615	618	942	0.0	0.7	4.931	A
3 - Killingwoldgraves Lane	321	80	747	322	322	346	0.0	1.5	17.572	C
4 - A1079 (W)	499	125	568	496	493	501	0.0	0.8	4.684	A
5 - A1035 Dog Kennel Lane	727	182	681	727	722	383	0.0	1.2	6.097	A

#### 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 (E)	344	86	1335	343	339	340	0.4	0.6	6.125	A
2 - A1079 (SE)	710	178	548	710	725	1130	0.7	1.2	5.458	A

3 - Killingwoldgraves Lane	393	98	856	398	389	402	1.5	2.7	25.553	D
4 - A1079 (W)	582	146	682	581	577	572	0.8	1.0	5.373	A
5 - A1035 Dog Kennel Lane	847	212	827	849	854	436	1.2	1.8	7.662	A

### 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 (E)	419	105	1613	419	416	406	0.6	0.9	7.521	A
2 - A1079 (SE)	905	226	662	904	900	1371	1.2	1.8	6.777	A
3 - Killingwoldgraves Lane	484	121	1078	442	435	487	2.7	12.9	69.201	F
4 - A1079 (W)	718	179	811	715	720	709	1.0	1.4	6.329	A
5 - A1035 Dog Kennel Lane	1031	258	984	1035	1031	542	1.8	3.2	11.160	B

### 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 (E)	409	102	1638	409	418	403	0.9	0.8	8.175	A
2 - A1079 (SE)	897	224	665	895	906	1382	1.8	1.8	6.669	A
3 - Killingwoldgraves Lane	468	117	1067	460	457	493	12.9	17.4	124.414	F
4 - A1079 (W)	710	178	818	709	714	709	1.4	1.5	6.364	A
5 - A1035 Dog Kennel Lane	1048	262	988	1052	1051	539	3.2	3.3	12.007	B

### 08:45 - 09:00

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 (E)	342	86	1344	343	347	345	0.8	0.5	6.605	A
2 - A1079 (SE)	741	185	546	741	736	1142	1.8	1.3	5.785	A
3 - Killingwoldgraves Lane	384	96	880	409	437	407	17.4	5.1	74.876	F
4 - A1079 (W)	597	149	704	595	594	584	1.5	0.9	5.460	A
5 - A1035 Dog Kennel Lane	850	213	840	849	857	459	3.3	1.9	8.011	A

### 09:00 - 09:15

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 (E)	288	72	1131	287	288	282	0.5	0.5	5.547	A
2 - A1079 (SE)	605	151	461	605	611	957	1.3	0.9	4.813	A
3 - Killingwoldgraves Lane	328	82	721	330	346	346	5.1	1.5	22.886	C
4 - A1079 (W)	496	124	576	495	498	475	0.9	0.8	4.922	A

5 - A1035 Dog Kennel Lane	719	180	696	718	725	376	1.9	1.3	6.224	A
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## Lane Results

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

### Lanes: Main Results for each time segment

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 (E)	Entry	1	1	2	135	815	0.165	136	136	0.0	0.2	5.234	A
			2	1, 3, 4, 5	152	815	0.187	153	149	0.0	0.2	5.624	A
	2	1	(1, 2, 3, 4, 5)	287			287	287	0.0	0.0	0.000	A	
	Exit	1	1		277			277	279	0.0	0.0	0.000	A
2 - A1079 (SE)	Entry	1	1	3, 4	334	1105	0.302	336	337	0.0	0.4	5.139	A
			2	1, 2, 5	279	1105	0.252	279	281	0.0	0.3	4.681	A
	2	1	(1, 2, 3, 4, 5)	612			612	621	0.0	0.0	0.000	A	
	Exit	1	1		942			942	950	0.0	0.0	0.000	A
3 - Killingwoldgraves Lane	Entry	1	1	4	40	486	0.082	40	42	0.0	0.1	8.084	A
			2	1, 2, 3, 5	282	486	0.580	283	281	0.0	0.9	11.884	B
	2	1	(1, 2, 3, 4, 5)	321			322	326	0.0	0.5	6.169	A	
	Exit	1	1		346			346	343	0.0	0.0	0.000	A
4 - A1079 (W)	Entry	1	1	1, 5	203	1079	0.189	202	200	0.0	0.3	4.445	A
			2	2, 3, 4	295	1079	0.274	294	293	0.0	0.5	4.840	A
	2	1	(1, 2, 3, 4, 5)	499			499	496	0.0	0.0	0.000	A	
	Exit	1	1		501			501	493	0.0	0.0	0.000	A
5 - A1035 Dog Kennel Lane	Entry	1	1	1, 2	454	1057	0.429	454	458	0.0	0.8	6.839	A
			2	3, 4, 5	273	1057	0.259	273	264	0.0	0.4	4.851	A
	2	1	(1, 2, 3, 4, 5)	727			727	727	0.0	0.0	0.000	A	
	Exit	1	1		383			383	376	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 (E)	Entry	1	1	2	164	755	0.217	163	161	0.2	0.3	5.867	A

		2	1, 3, 4, 5	180	755	0.239	180	178	0.2	0.3	6.366	A		
			2	1	(1, 2, 3, 4, 5)	344			344	340	0.0	0.0	0.000	A
			Exit	1	1		340			340	335	0.0	0.0	0.000
2 - A1079 (SE)	Entry	1	1	3, 4	383	1084	0.353	384	392	0.4	0.7	5.621	A	
			2	1, 2, 5	328	1084	0.302	327	333	0.3	0.5	5.268	A	
	Exit	2	1	(1, 2, 3, 4, 5)	710			710	727	0.0	0.0	0.000	A	
				1	1		1130			1130	1124	0.0	0.0	0.000
3 - Killingwoldgraves Lane	Entry	1	1	4	50	464	0.108	51	52	0.1	0.1	8.927	A	
			2	1, 2, 3, 5	345	464	0.744	347	337	0.9	1.2	13.061	B	
	Exit	2	1	(1, 2, 3, 4, 5)	393			395	390	0.5	1.4	13.024	B	
				1	1		402			402	404	0.0	0.0	0.000
4 - A1079 (W)	Entry	1	1	1, 5	235	1043	0.225	233	234	0.3	0.4	4.996	A	
			2	2, 3, 4	348	1043	0.333	347	343	0.5	0.5	5.621	A	
	Exit	2	1	(1, 2, 3, 4, 5)	582			582	578	0.0	0.0	0.000	A	
				1	1		572			572	577	0.0	0.0	0.000
5 - A1035 Dog Kennel Lane	Entry	1	1	1, 2	537	1011	0.531	540	545	0.8	1.3	8.877	A	
			2	3, 4, 5	311	1011	0.307	309	309	0.4	0.5	5.582	A	
	Exit	2	1	(1, 2, 3, 4, 5)	847			847	856	0.0	0.0	0.000	A	
				1	1		436			436	443	0.0	0.0	0.000

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 (E)	Entry	1	1	2	198	673	0.294	199	197	0.3	0.4	7.190	A
			2	1, 3, 4, 5	221	673	0.328	221	219	0.3	0.6	7.825	A
	Exit	2	1	(1, 2, 3, 4, 5)	419			419	418	0.0	0.0	0.000	A
				1	1		406			406	405	0.0	0.0
2 - A1079 (SE)	Entry	1	1	3, 4	488	1049	0.466	486	486	0.7	1.1	7.147	A
			2	1, 2, 5	417	1049	0.397	418	415	0.5	0.7	6.347	A
	Exit	2	1	(1, 2, 3, 4, 5)	905			905	903	0.0	0.0	0.000	A
				1	1		1371			1371	1365	0.0	0.0
3 - Killingwoldgraves Lane	Entry	1	1	4	58	419	0.138	58	59	0.1	0.2	10.009	B
			2	1, 2, 3, 5	385	419	0.917	384	376	1.2	1.8	15.939	C

		2	1	(1, 2, 3, 4, 5)	484			443	438	1.4	10.9	53.944	F
	Exit	1	1		487			487	485	0.0	0.0	0.000	A
4 - A1079 (W)	Entry	1	1	1, 5	291	1003	0.290	290	291	0.4	0.5	5.714	A
			2	2, 3, 4	427	1003	0.425	426	429	0.5	0.9	6.718	A
	2	1	(1, 2, 3, 4, 5)	718			718	722	0.0	0.0	0.004	A	
	Exit	1	1		709			709	713	0.0	0.0	0.000	A
5 - A1035 Dog Kennel Lane	Entry	1	1	1, 2	663	962	0.689	666	659	1.3	2.5	13.755	B
			2	3, 4, 5	368	962	0.383	369	373	0.5	0.7	6.494	A
	2	1	(1, 2, 3, 4, 5)	1031			1031	1037	0.0	0.0	0.065	A	
	Exit	1	1		542			542	536	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 (E)	Entry	1	1	2	191	666	0.287	191	198	0.4	0.4	7.661	A
			2	1, 3, 4, 5	217	666	0.326	218	220	0.6	0.5	8.649	A
	2	1	(1, 2, 3, 4, 5)	409			409	417	0.0	0.0	0.000	A	
	Exit	1	1		403			403	407	0.0	0.0	0.000	A
2 - A1079 (SE)	Entry	1	1	3, 4	488	1048	0.466	486	493	1.1	1.0	7.130	A
			2	1, 2, 5	410	1048	0.391	409	413	0.7	0.8	6.121	A
	2	1	(1, 2, 3, 4, 5)	897			898	906	0.0	0.0	0.002	A	
	Exit	1	1		1382			1382	1386	0.0	0.0	0.000	A
3 - Killingwoldgraves Lane	Entry	1	1	4	60	422	0.141	60	59	0.2	0.2	10.704	B
			2	1, 2, 3, 5	401	422	0.950	400	397	1.8	1.9	16.696	C
	2	1	(1, 2, 3, 4, 5)	468			460	457	10.9	15.3	108.575	F	
	Exit	1	1		493			493	500	0.0	0.0	0.000	A
4 - A1079 (W)	Entry	1	1	1, 5	285	1001	0.285	283	287	0.5	0.6	5.625	A
			2	2, 3, 4	426	1001	0.425	426	428	0.9	0.9	6.839	A
	2	1	(1, 2, 3, 4, 5)	710			710	715	0.0	0.0	0.000	A	
	Exit	1	1		709			709	714	0.0	0.0	0.000	A
5 - A1035 Dog Kennel Lane	Entry	1	1	1, 2	671	960	0.699	675	672	2.5	2.7	15.102	C
			2	3, 4, 5	377	960	0.393	377	379	0.7	0.7	6.630	A
	2	1	(1, 2, 3, 4, 5)	1048			1048	1052	0.0	0.0	0.015	A	
	Exit	1	1		539			539	539	0.0	0.0	0.000	A



08:45 - 09:00

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 (E)	Entry	1	1	2	164	752	0.217	165	164	0.4	0.2	6.438	A
			2	1, 3, 4, 5	179	752	0.238	178	183	0.5	0.3	6.759	A
		2	1	(1, 2, 3, 4, 5)	342			342	346	0.0	0.0	0.000	A
	Exit	1	1		345			345	349	0.0	0.0	0.000	A
2 - A1079 (SE)	Entry	1	1	3, 4	397	1084	0.366	398	398	1.0	0.7	6.053	A
			2	1, 2, 5	345	1084	0.318	343	339	0.8	0.6	5.471	A
		2	1	(1, 2, 3, 4, 5)	741			741	734	0.0	0.0	0.000	A
	Exit	1	1		1142			1142	1157	0.0	0.0	0.000	A
3 - Killingwoldgraves Lane	Entry	1	1	4	56	459	0.122	55	58	0.2	0.2	9.273	A
			2	1, 2, 3, 5	352	459	0.766	353	379	1.9	1.3	14.740	B
		2	1	(1, 2, 3, 4, 5)	384			408	435	15.3	3.7	61.117	F
	Exit	1	1		407			407	412	0.0	0.0	0.000	A
4 - A1079 (W)	Entry	1	1	1, 5	241	1036	0.233	240	240	0.6	0.4	4.997	A
			2	2, 3, 4	356	1036	0.343	355	354	0.9	0.5	5.760	A
		2	1	(1, 2, 3, 4, 5)	597			597	592	0.0	0.0	0.000	A
	Exit	1	1		584			584	588	0.0	0.0	0.000	A
5 - A1035 Dog Kennel Lane	Entry	1	1	1, 2	544	1007	0.540	540	548	2.7	1.5	9.360	A
			2	3, 4, 5	307	1007	0.305	309	309	0.7	0.4	5.693	A
		2	1	(1, 2, 3, 4, 5)	850			850	851	0.0	0.0	0.002	A
	Exit	1	1		459			459	465	0.0	0.0	0.000	A

09:00 - 09:15

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 (E)	Entry	1	1	2	137	815	0.168	136	137	0.2	0.2	5.319	A
			2	1, 3, 4, 5	152	815	0.186	151	151	0.3	0.3	5.759	A
		2	1	(1, 2, 3, 4, 5)	288			288	288	0.0	0.0	0.000	A
	Exit	1	1		282			282	285	0.0	0.0	0.000	A
2 - A1079 (SE)	Entry	1	1	3, 4	325	1110	0.293	324	328	0.7	0.5	4.917	A
			2	1, 2, 5	280	1110	0.252	281	283	0.6	0.4	4.693	A

		2	1	(1, 2, 3, 4, 5)	605			605	610	0.0	0.0	0.000	A
	Exit	1	1		957			957	971	0.0	0.0	0.000	A
3 - Killingwoldgraves Lane	Entry	1	1	4	41	491	0.08 4	41	44	0.2	0.1	8.242	A
			2	1, 2, 3, 5	288	491	0.58 5	289	302	1.3	0.8	12.21 2	B
	2	1	(1, 2, 3, 4, 5)	328			329	343	3.7	0.5	11.27 2	B	
	Exit	1	1		346			346	345	0.0	0.0	0.000	A
4 - A1079 (W)	Entry	1	1	1, 5	199	1076	0.18 5	199	198	0.4	0.3	4.673	A
			2	2, 3, 4	297	1076	0.27 6	296	300	0.5	0.5	5.079	A
	2	1	(1, 2, 3, 4, 5)	496			496	497	0.0	0.0	0.000	A	
	Exit	1	1		475			475	485	0.0	0.0	0.000	A
5 - A1035 Dog Kennel Lane	Entry	1	1	1, 2	462	1053	0.43 9	460	464	1.5	1.0	6.973	A
			2	3, 4, 5	258	1053	0.24 5	258	261	0.4	0.3	4.935	A
	2	1	(1, 2, 3, 4, 5)	719			719	722	0.0	0.0	0.000	A	
	Exit	1	1		376			376	382	0.0	0.0	0.000	A

## Existing Layout - 2027 With Development (Sensitivity Test), 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	3 - Killingwoldgraves Lane - Lane Simulation	Arm 3: Queue at end of modelled period is greater than 10 PCU. Delay is likely to have been underestimated.
Warning	Geometry	1 - A1174 (E) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	2 - A1079 (SE) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	4 - A1079 (W) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	5 - A1035 Dog Kennel Lane - 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	Killingwoldgraves Roundabout	Standard Roundabout		1, 2, 3, 4, 5	107.38	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
D10	2027 With Development (Sensitivity Test)	PM	ONE HOUR	16:45	18:15	15	✓

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

### Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - A1174 (E)		ONE HOUR	✓	357	100.000
2 - A1079 (SE)		ONE HOUR	✓	1002	100.000
3 - Killingwoldgraves Lane		ONE HOUR	✓	522	100.000
4 - A1079 (W)		ONE HOUR	✓	681	100.000
5 - A1035 Dog Kennel Lane		ONE HOUR	✓	534	100.000

## Origin-Destination Data

### Demand (PCU/hr)

		To				
		1 - A1174 (E)	2 - A1079 (SE)	3 - Killingwoldgraves Lane	4 - A1079 (W)	5 - A1035 Dog Kennel Lane
From	1 - A1174 (E)	0	121	58	168	10
	2 - A1079 (SE)	132	2	159	265	444
	3 - Killingwoldgraves Lane	60	150	0	48	264
	4 - A1079 (W)	186	363	56	1	75
	5 - A1035 Dog Kennel Lane	6	355	107	65	1

## Vehicle Mix

## Heavy Vehicle Percentages

		To				
		1 - A1174 (E)	2 - A1079 (SE)	3 - Killingwoldgraves Lane	4 - A1079 (W)	5 - A1035 Dog Kennel Lane
From	1 - A1174 (E)	0	1	0	2	0
	2 - A1079 (SE)	0	0	1	2	4
	3 - Killingwoldgraves Lane	0	0	0	2	1
	4 - A1079 (W)	3	6	2	0	12
	5 - A1035 Dog Kennel Lane	0	4	0	8	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 (E)	6.34	0.8	A	328	492
2 - A1079 (SE)	7.22	2.1	A	917	1376
3 - Killingwoldgraves Lane	604.64	80.1	F	478	716
4 - A1079 (W)	7.51	1.7	A	630	944
5 - A1035 Dog Kennel Lane	6.10	1.0	A	489	734

### Main Results for each time segment

#### 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 (E)	269	67	835	268	269	296	0.0	0.4	4.752	A
2 - A1079 (SE)	750	187	350	749	754	752	0.0	1.2	4.967	A
3 - Killingwoldgraves Lane	394	98	810	390	381	290	0.0	3.7	29.064	D
4 - A1079 (W)	531	133	792	529	523	407	0.0	0.9	5.302	A
5 - A1035 Dog Kennel Lane	390	98	740	391	405	581	0.0	0.5	4.556	A

#### 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 (E)	328	82	987	326	324	339	0.4	0.6	5.399	A
2 - A1079 (SE)	910	227	427	913	899	887	1.2	1.4	5.648	A
3 - Killingwoldgraves Lane	459	115	995	438	436	345	3.7	10.8	63.760	F
4 - A1079 (W)	612	153	943	612	616	491	0.9	1.0	6.202	A

5 - A1035 Dog Kennel Lane	481	120	845	482	475	710	0.5	0.7	5.144	A
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### 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 (E)	400	100	1176	400	393	399	0.6	0.8	6.342	A
2 - A1079 (SE)	1107	277	513	1115	1100	1062	1.4	1.8	7.061	A
3 - Killingwoldgraves Lane	575	144	1202	439	435	425	10.8	46.5	245.284	F
4 - A1079 (W)	755	189	1048	756	743	594	1.0	1.4	7.280	A
5 - A1035 Dog Kennel Lane	585	146	990	585	586	814	0.7	0.9	6.096	A

### 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 (E)	387	97	1173	386	390	411	0.8	0.8	6.244	A
2 - A1079 (SE)	1104	276	516	1107	1101	1044	1.8	2.1	7.221	A
3 - Killingwoldgraves Lane	566	142	1196	438	435	427	46.5	80.1	523.257	F
4 - A1079 (W)	746	186	1048	749	751	586	1.4	1.7	7.506	A
5 - A1035 Dog Kennel Lane	593	148	992	593	586	806	0.9	1.0	6.010	A

### 17:45 - 18:00

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 (E)	315	79	992	315	320	347	0.8	0.4	5.378	A
2 - A1079 (SE)	883	221	421	888	894	887	2.1	1.1	5.826	A
3 - Killingwoldgraves Lane	468	117	970	488	475	339	80.1	79.8	604.644	F
4 - A1079 (W)	602	151	957	600	609	500	1.7	1.2	6.177	A
5 - A1035 Dog Kennel Lane	478	120	858	481	481	698	1.0	0.7	5.154	A

### 18:00 - 18:15

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 (E)	268	67	870	269	269	310	0.4	0.4	5.033	A
2 - A1079 (SE)	750	188	352	752	752	788	1.1	1.0	4.944	A
3 - Killingwoldgraves Lane	403	101	812	507	509	292	79.8	51.0	411.788	F
4 - A1079 (W)	533	133	903	530	523	416	1.2	1.0	5.559	A
5 - A1035 Dog Kennel Lane	409	102	772	409	410	661	0.7	0.6	4.727	A

# Lane Results

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

## Lanes: Main Results for each time segment

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 (E)	Entry	1	1	2	89	902	0.099	89	92	0.0	0.1	4.478	A
			2	1, 3, 4, 5	179	902	0.199	179	177	0.0	0.2	4.896	A
	Exit	1	1	(1, 2, 3, 4, 5)	269			269	270	0.0	0.0	0.000	A
			1	1		296			296	291	0.0	0.0	0.000
2 - A1079 (SE)	Entry	1	1	3, 4	317	1144	0.277	318	322	0.0	0.4	4.520	A
			2	1, 2, 5	432	1144	0.378	431	432	0.0	0.8	5.305	A
	Exit	1	1	(1, 2, 3, 4, 5)	750			750	758	0.0	0.0	0.000	A
			1	1		752			752	753	0.0	0.0	0.000
3 - Killingwoldgraves Lane	Entry	1	1	4	36	473	0.075	36	35	0.0	0.1	8.427	A
			2	1, 2, 3, 5	354	473	0.748	354	345	0.0	1.4	13.280	B
	Exit	1	1	(1, 2, 3, 4, 5)	394			390	387	0.0	2.2	16.200	C
			1	1		290			290	288	0.0	0.0	0.000
4 - A1079 (W)	Entry	1	1	1, 5	199	1009	0.197	198	198	0.0	0.3	4.767	A
			2	2, 3, 4	332	1009	0.329	331	326	0.0	0.6	5.627	A
	Exit	1	1	(1, 2, 3, 4, 5)	531			531	527	0.0	0.0	0.000	A
			1	1		407			407	414	0.0	0.0	0.000
5 - A1035 Dog Kennel Lane	Entry	1	1	1, 2	264	1039	0.254	264	271	0.0	0.4	4.795	A
			2	3, 4, 5	126	1039	0.122	127	134	0.0	0.2	4.072	A
	Exit	1	1	(1, 2, 3, 4, 5)	390			390	407	0.0	0.0	0.000	A
			1	1		581			581	585	0.0	0.0	0.000

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 (E)	Entry	1	1	2	109	857	0.127	109	110	0.1	0.1	4.841	A
			2	1, 3, 4, 5	219	857	0.256	217	214	0.2	0.5	5.685	A
	Exit	1	1	(1, 2, 3, 4, 5)	328			328	325	0.0	0.0	0.000	A

	Exit	1	1		339			339	341	0.0	0.0	0.000	A
2 - A1079 (SE)	Entry	1	1	3, 4	379	1121	0.338	380	380	0.4	0.5	4.888	A
			2	1, 2, 5	530	1121	0.473	533	519	0.8	0.9	6.210	A
	2	1	(1, 2, 3, 4, 5)	910			910	900	0.0	0.0	0.001	A	
	Exit	1	1		887			887	883	0.0	0.0	0.000	A
3 - Killingwoldgraves Lane	Entry	1	1	4	39	436	0.091	39	41	0.1	0.1	9.413	A
			2	1, 2, 3, 5	400	436	0.917	399	396	1.4	1.8	15.132	C
	2	1	(1, 2, 3, 4, 5)	459			439	438	2.2	9.0	49.026	E	
	Exit	1	1		345			345	341	0.0	0.0	0.000	A
4 - A1079 (W)	Entry	1	1	1, 5	233	962	0.242	233	236	0.3	0.3	5.176	A
			2	2, 3, 4	379	962	0.394	379	379	0.6	0.7	6.831	A
	2	1	(1, 2, 3, 4, 5)	612			612	616	0.0	0.0	0.006	A	
	Exit	1	1		491			491	488	0.0	0.0	0.000	A
5 - A1035 Dog Kennel Lane	Entry	1	1	1, 2	320	1005	0.318	321	320	0.4	0.5	5.458	A
			2	3, 4, 5	161	1005	0.160	161	154	0.2	0.2	4.495	A
	2	1	(1, 2, 3, 4, 5)	481			481	475	0.0	0.0	0.000	A	
	Exit	1	1		710			710	697	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 (E)	Entry	1	1	2	136	802	0.170	137	132	0.1	0.2	5.433	A
			2	1, 3, 4, 5	264	802	0.329	263	261	0.5	0.6	6.806	A
	2	1	(1, 2, 3, 4, 5)	400			400	394	0.0	0.0	0.000	A	
	Exit	1	1		399			399	397	0.0	0.0	0.000	A
2 - A1079 (SE)	Entry	1	1	3, 4	477	1094	0.436	478	468	0.5	0.7	5.991	A
			2	1, 2, 5	630	1094	0.575	637	632	0.9	1.1	7.858	A
	2	1	(1, 2, 3, 4, 5)	1107			1107	1102	0.0	0.0	0.005	A	
	Exit	1	1		1062			1062	1053	0.0	0.0	0.000	A
3 - Killingwoldgraves Lane	Entry	1	1	4	39	394	0.099	39	40	0.1	0.1	10.530	B
			2	1, 2, 3, 5	400	394	1.015	401	395	1.8	2.0	17.845	C
	2	1	(1, 2, 3, 4, 5)	575			439	436	9.0	44.3	227.961	F	
	Exit	1	1		425			425	417	0.0	0.0	0.000	A
4 - A1079 (W)	Entry	1	1	1, 5	287	929	0.309	290	282	0.3	0.4	5.935	A

			2	2, 3, 4	468	929	0.50 3	466	460	0.7	1.0	8.090	A	
			2	1	(1, 2, 3, 4, 5)	755			755	745	0.0	0.0	0.007	A
			Exit	1	1		594			594	589	0.0	0.0	0.000
5 - A1035 Dog Kennel Lane	Entry	1	1	1, 2	397	959	0.41 4	396	399	0.5	0.7	6.719	A	
			2	3, 4, 5	188	959	0.19 6	188	187	0.2	0.2	4.782	A	
		2	1	(1, 2, 3, 4, 5)	585			585	586	0.0	0.0	0.000	A	
		Exit	1	1		814			814	801	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 (E)	Entry	1	1	2	129	802	0.16 0	129	130	0.2	0.2	5.409	A
			2	1, 3, 4, 5	259	802	0.32 3	257	259	0.6	0.6	6.665	A
		2	1	(1, 2, 3, 4, 5)	387			387	389	0.0	0.0	0.000	A
	Exit	1	1		411			411	409	0.0	0.0	0.000	A
2 - A1079 (SE)	Entry	1	1	3, 4	469	1093	0.42 9	472	465	0.7	0.7	5.905	A
			2	1, 2, 5	635	1093	0.58 0	635	636	1.1	1.3	8.158	A
		2	1	(1, 2, 3, 4, 5)	1104			1104	1101	0.0	0.0	0.021	A
	Exit	1	1		1044			1044	1042	0.0	0.0	0.000	A
3 - Killingwoldgraves Lane	Entry	1	1	4	36	396	0.09 1	36	38	0.1	0.1	10.80 4	B
			2	1, 2, 3, 5	402	396	1.01 7	402	397	2.0	2.0	18.04 1	C
		2	1	(1, 2, 3, 4, 5)	566			438	435	44.3	78.0	506.4 95	F
	Exit	1	1		427			427	419	0.0	0.0	0.000	A
4 - A1079 (W)	Entry	1	1	1, 5	291	929	0.31 3	291	287	0.4	0.6	5.970	A
			2	2, 3, 4	455	929	0.49 0	459	464	1.0	1.1	8.449	A
		2	1	(1, 2, 3, 4, 5)	746			746	752	0.0	0.0	0.003	A
	Exit	1	1		586			586	589	0.0	0.0	0.000	A
5 - A1035 Dog Kennel Lane	Entry	1	1	1, 2	395	959	0.41 2	397	392	0.7	0.7	6.533	A
			2	3, 4, 5	197	959	0.20 6	197	193	0.2	0.3	4.963	A
		2	1	(1, 2, 3, 4, 5)	593			593	586	0.0	0.0	0.000	A
	Exit	1	1		806			806	804	0.0	0.0	0.000	A

17:45 - 18:00

Arm	Side	Lane	Lane	Destination arms	Total Demand	Capacity	RFC	Throughput (PCU/hr)	Average throughput	Start queue	End queue	Delay (s)	Unsignalised level of service
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		level			(PCU/hr)	(PCU/hr)			ut (PCU/hr)	(PCU)	(PCU)		
1 - A1174 (E)	Entry	1	1	2	106	856	0.124	106	107	0.2	0.2	4.761	A
			2	1, 3, 4, 5	209	856	0.244	210	212	0.6	0.3	5.693	A
	2	1	(1, 2, 3, 4, 5)	315			315	318	0.0	0.0	0.000	A	
	Exit	1	1		347			347	347	0.0	0.0	0.000	A
2 - A1079 (SE)	Entry	1	1	3, 4	380	1123	0.339	384	380	0.7	0.3	5.116	A
			2	1, 2, 5	503	1123	0.448	504	515	1.3	0.8	6.354	A
	2	1	(1, 2, 3, 4, 5)	883			883	891	0.0	0.0	0.002	A	
	Exit	1	1		887			887	891	0.0	0.0	0.000	A
3 - Killingwoldgraves Lane	Entry	1	1	4	44	441	0.100	44	42	0.1	0.1	10.176	B
			2	1, 2, 3, 5	444	441	1.007	444	433	2.0	2.0	16.540	C
	2	1	(1, 2, 3, 4, 5)	468			488	475	78.0	77.7	589.646	F	
	Exit	1	1		339			339	343	0.0	0.0	0.000	A
4 - A1079 (W)	Entry	1	1	1, 5	232	958	0.242	232	234	0.6	0.4	5.224	A
			2	2, 3, 4	370	958	0.386	367	375	1.1	0.9	6.768	A
	2	1	(1, 2, 3, 4, 5)	602			602	607	0.0	0.0	0.000	A	
	Exit	1	1		500			500	491	0.0	0.0	0.000	A
5 - A1035 Dog Kennel Lane	Entry	1	1	1, 2	319	1001	0.319	321	324	0.7	0.5	5.536	A
			2	3, 4, 5	159	1001	0.159	160	157	0.3	0.2	4.377	A
	2	1	(1, 2, 3, 4, 5)	478			478	480	0.0	0.0	0.000	A	
	Exit	1	1		698			698	708	0.0	0.0	0.000	A

18:00 - 18:15

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 (E)	Entry	1	1	2	95	892	0.106	96	93	0.2	0.1	4.609	A
			2	1, 3, 4, 5	173	892	0.194	173	177	0.3	0.3	5.257	A
	2	1	(1, 2, 3, 4, 5)	268			268	269	0.0	0.0	0.000	A	
	Exit	1	1		310			310	303	0.0	0.0	0.000	A
2 - A1079 (SE)	Entry	1	1	3, 4	315	1144	0.275	317	317	0.3	0.4	4.389	A
			2	1, 2, 5	435	1144	0.381	435	435	0.8	0.6	5.356	A
	2	1	(1, 2, 3, 4, 5)	750			750	752	0.0	0.0	0.000	A	
	Exit	1	1		788			788	797	0.0	0.0	0.000	A

3 - Killingwoldgraves Lane	Entry	1	1	4	49	473	0.10 4	48	48	0.1	0.2	8.810	A
			2	1, 2, 3, 5	459	473	0.97 0	459	461	2.0	1.9	15.25 5	C
		2	1	(1, 2, 3, 4, 5)	403			508	509	77.7	48.9	397.9 13	F
	Exit	1	1		292			292	289	0.0	0.0	0.000	A
4 - A1079 (W)	Entry	1	1	1, 5	205	975	0.21 1	204	198	0.4	0.4	5.030	A
			2	2, 3, 4	327	975	0.33 6	326	325	0.9	0.6	5.882	A
		2	1	(1, 2, 3, 4, 5)	533			533	522	0.0	0.0	0.000	A
	Exit	1	1		416			416	417	0.0	0.0	0.000	A
5 - A1035 Dog Kennel Lane	Entry	1	1	1, 2	275	1028	0.26 8	275	279	0.5	0.4	4.999	A
			2	3, 4, 5	134	1028	0.13 0	134	131	0.2	0.1	4.157	A
		2	1	(1, 2, 3, 4, 5)	409			409	410	0.0	0.0	0.000	A
	Exit	1	1		661			661	657	0.0	0.0	0.000	A

## **Appendix 9 – Killingwoldgraves Roundabout Modelling (Proposed)**

Junctions 9
ARCADY 9 - Roundabout Module
Version: 9.5.1.7462 © Copyright TRL Limited, 2019
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**Filename:** Killingwoldgraves Roundabout (Lane Sim, Reallocated Lanes, 2021 Update).j9  
**Path:** Z:\Projects\4030 Killingwoldgraves Roundabout\Data\Modelling\Killingwoldgraves Roundabout  
**Report generation date:** 03/12/2021 13:05:12

- »Proposed Layout - 2027 With Development, AM
- »Proposed Layout - 2027 With Development, PM
- »Proposed Layout - 2027 With Development (Sensitivity Test), AM
- »Proposed Layout - 2027 With Development (Sensitivity Test), PM

**Summary of junction performance**

	AM					PM				
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Set ID	Queue (PCU)	Delay (s)	RFC	LOS
Proposed Layout [Lane Simulation] - 2027 With Development										
1 - A1174 (E)	D1	1.0	7.95		A	D2	0.8	6.32		A
2 - A1079 (SE)		1.8	6.67		A		2.2	7.17		A
3 - Killingwoldgraves Lane		1.7	11.57		B		3.2	20.66		C
4 - A1079 (W)		1.4	6.69		A		1.7	8.28		A
5 - A1035 Dog Kennel Lane		3.5	11.46		B		1.4	6.42		A
Proposed Layout [Lane Simulation] - 2027 With Development (Sensitivity Test)										
1 - A1174 (E)	D3	1.0	8.17		A	D4	0.8	6.47		A
2 - A1079 (SE)		2.1	6.55		A		3.0	7.49		A
3 - Killingwoldgraves Lane		1.8	10.95		B		3.5	22.22		C
4 - A1079 (W)		1.7	6.58		A		1.9	8.13		A
5 - A1035 Dog Kennel Lane		4.0	13.45		B		1.0	6.34		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. Arm and junction delays are averages for all movements, including movements with zero delay.

## File summary

### File Description

<b>Title</b>	Proposed Drive-Thru Coffee Shop, Killingwoldgraves Lane
<b>Location</b>	Killingwoldgraves Roundabout
<b>Site number</b>	
<b>Date</b>	30/11/2021
<b>Version</b>	
<b>Status</b>	(new file)
<b>Identifier</b>	
<b>Client</b>	Lovel Developments Ltd
<b>Jobnumber</b>	4030
<b>Enumerator</b>	LTP\JackH
<b>Description</b>	Proposed re-allocated lanes on Killingwoldgraves Lane arm

### 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	✓			1711624747	58	12.05

### 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	2027 With Development	AM	ONE HOUR	07:45	09:15	15	✓
D2	2027 With Development	PM	ONE HOUR	16:45	18:15	15	✓
D3	2027 With Development (Sensitivity Test)	AM	ONE HOUR	07:45	09:15	15	✓
D4	2027 With Development (Sensitivity Test)	PM	ONE HOUR	16:45	18:15	15	✓

### Analysis Set Details

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

# Proposed Layout - 2027 With Development, AM

## Data Errors and Warnings

Severity	Area	Item	Description
Warning	Lane Simulation	A1 - Proposed 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 (E) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	2 - A1079 (SE) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	3 - Killingwoldgraves Lane - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	4 - A1079 (W) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	5 - A1035 Dog Kennel Lane - 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	Killingwoldgraves Roundabout	Standard Roundabout		1, 2, 3, 4, 5	8.87	A

### Junction Network Options

Driving side	Lighting
Left	Normal/unknown

## Arms

### Arms

Arm	Name	Description
1	A1174 (E)	
2	A1079 (SE)	
3	Killingwoldgraves Lane	
4	A1079 (W)	
5	A1035 Dog Kennel Lane	

### 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 (E)	3.65	8.81	42.1	19.9	73.8	21.4	
2 - A1079 (SE)	3.54	9.19	65.7	24.5	75.8	22.1	
3 - Killingwoldgraves Lane	3.46	7.09	31.1	19.8	75.2	53.0	
4 - A1079 (W)	3.89	8.93	71.0	24.5	73.8	22.1	
5 - A1035 Dog Kennel Lane	3.34	8.70	115.4	23.4	73.6	18.0	

## Slope / Intercept / Capacity

### Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1 - A1174 (E)	0.588	2295
2 - A1079 (SE)	0.613	2503
3 - Killingwoldgraves Lane	0.467	1701
4 - A1079 (W)	0.623	2511
5 - A1035 Dog Kennel Lane	0.631	2544

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

### Lane Simulation: Arm options

Arm	Lane capacity source	Traffic considering secondary lanes (%)
1 - A1174 (E)	Evenly split	10.00
2 - A1079 (SE)	Evenly split	10.00
3 - Killingwoldgraves Lane	Evenly split	10.00
4 - A1079 (W)	Evenly split	10.00
5 - A1035 Dog Kennel Lane	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 (E)	Entry	1	1	2	✓	11.00		0	99999	
			2	1, 3, 4, 5	✓	11.00		0	99999	
	Exit	1	1	(1, 2, 3, 4, 5)		Infinity				
			1			Infinity				
2 - A1079 (SE)	Entry	1	1	3, 4	✓	12.00		0	99999	
			2	1, 2, 5	✓	12.00		0	99999	
	Exit	1	1	(1, 2, 3, 4, 5)		Infinity				
			1			Infinity				
3 - Killingwoldgraves Lane	Entry	1	1	1, 4, 5	✓	5.40		0	99999	
			2	2, 3	✓	5.40		0	99999	
	Exit	1	1	(1, 2, 3, 4, 5)		Infinity				
			1			Infinity				
4 - A1079 (W)	Entry	1	1	1, 5	✓	12.00		0	99999	
			2	2, 3, 4	✓	12.00		0	99999	
	Exit	1	1	(1, 2, 3, 4, 5)		Infinity				
			1			Infinity				
5 - A1035 Dog Kennel Lane	Entry	1	1	1, 2	✓	22.00		0	99999	
			2	3, 4, 5	✓	22.00		0	99999	
	Exit	1	1	(1, 2, 3, 4, 5)		Infinity				
			1			Infinity				

### Entry Lane slope and intercept

Arm	Side	Lane level	Lane	Final slope	Final intercept (PCU/hr)
1 - A1174 (E)	Entry	1	1	0.294	1147
			2	0.294	1147
2 - A1079 (SE)	Entry	1	1	0.306	1252
			2	0.306	1252
3 - Killingwoldgraves Lane	Entry	1	1	0.234	850
			2	0.234	850
4 - A1079 (W)	Entry	1	1	0.311	1256
			2	0.311	1256
5 - A1035 Dog Kennel Lane	Entry	1	1	0.316	1272
			2	0.316	1272

### Summary of Entry Lane allowed movements

Arm	Lane Level	Lane	Destination arm				
			A1174 (E)	A1079 (SE)	Killingwoldgraves Lane	A1079 (W)	A1035 Dog Kennel Lane
1 - A1174 (E)	1	1		✓			
		2	✓		✓	✓	✓
	2	1	✓	✓	✓	✓	✓
2 - A1079 (SE)	1	1			✓	✓	
		2	✓	✓			✓
	2	1	✓	✓	✓	✓	✓
3 - Killingwoldgraves Lane	1	1	✓			✓	✓
		2		✓	✓		
	2	1	✓	✓	✓	✓	✓
4 - A1079 (W)	1	1	✓				✓
		2		✓	✓	✓	
	2	1	✓	✓	✓	✓	✓
5 - A1035 Dog Kennel Lane	1	1	✓	✓			
		2			✓	✓	✓
	2	1	✓	✓	✓	✓	✓

## 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	2027 With Development	AM	ONE HOUR	07:45	09:15	15	✓

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

### Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - A1174 (E)		ONE HOUR	✓	380	100.000
2 - A1079 (SE)		ONE HOUR	✓	817	100.000
3 - Killingwoldgraves Lane		ONE HOUR	✓	408	100.000
4 - A1079 (W)		ONE HOUR	✓	657	100.000
5 - A1035 Dog Kennel Lane		ONE HOUR	✓	953	100.000

## Origin-Destination Data

### Demand (PCU/hr)

		To				
		1 - A1174 (E)	2 - A1079 (SE)	3 - Killingwoldgraves Lane	4 - A1079 (W)	5 - A1035 Dog Kennel Lane
From	1 - A1174 (E)	0	181	48	143	8
	2 - A1079 (SE)	115	2	117	323	260
	3 - Killingwoldgraves Lane	76	144	0	51	137
	4 - A1079 (W)	179	327	61	2	88
	5 - A1035 Dog Kennel Lane	5	607	211	129	1

## Vehicle Mix



### Heavy Vehicle Percentages

		To				
		1 - A1174 (E)	2 - A1079 (SE)	3 - Killingwoldgraves Lane	4 - A1079 (W)	5 - A1035 Dog Kennel Lane
From	1 - A1174 (E)	0	0	0	3	0
	2 - A1079 (SE)	1	0	5	9	10
	3 - Killingwoldgraves Lane	0	1	0	0	2
	4 - A1079 (W)	3	7	0	0	26
	5 - A1035 Dog Kennel Lane	26	10	1	19	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 (E)	7.95	1.0	A	345	517
2 - A1079 (SE)	6.67	1.8	A	751	1127
3 - Killingwoldgraves Lane	11.57	1.7	B	367	551
4 - A1079 (W)	6.69	1.4	A	598	897
5 - A1035 Dog Kennel Lane	11.46	3.5	B	884	1326

### Main Results for each time segment

#### 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 (E)	286	72	1149	283	284	274	0.0	0.6	5.428	A
2 - A1079 (SE)	614	153	461	614	626	971	0.0	0.9	4.927	A
3 - Killingwoldgraves Lane	305	76	741	307	303	334	0.0	0.5	7.170	A
4 - A1079 (W)	492	123	569	488	498	479	0.0	0.9	4.892	A
5 - A1035 Dog Kennel Lane	730	182	680	742	717	377	0.0	0.8	6.238	A

#### 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 (E)	341	85	1332	343	340	333	0.6	0.5	6.062	A
2 - A1079 (SE)	724	181	545	725	725	1129	0.9	0.8	5.380	A
3 - Killingwoldgraves Lane	376	94	883	375	362	388	0.5	0.9	8.083	A
4 - A1079 (W)	595	149	666	593	595	592	0.9	0.9	5.378	A
5 - A1035 Dog Kennel Lane	869	217	807	857	848	452	0.8	2.5	7.695	A

#### 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 (E)	412	103	1651	416	411	402	0.5	0.7	7.948	A
2 - A1079 (SE)	894	223	674	896	888	1393	0.8	1.5	6.416	A
3 - Killingwoldgraves Lane	439	110	1086	438	434	484	0.9	1.3	10.262	B
4 - A1079 (W)	711	178	799	708	714	725	0.9	1.3	6.304	A
5 - A1035 Dog Kennel Lane	1069	267	984	1068	1065	524	2.5	3.5	10.628	B

**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 (E)	420	105	1609	421	415	413	0.7	1.0	7.674	A
2 - A1079 (SE)	907	227	653	903	904	1381	1.5	1.8	6.667	A
3 - Killingwoldgraves Lane	430	107	1069	431	446	487	1.3	1.7	11.570	B
4 - A1079 (W)	710	177	805	711	721	695	1.3	1.4	6.694	A
5 - A1035 Dog Kennel Lane	1037	259	978	1044	1047	538	3.5	2.8	11.462	B

**08:45 - 09:00**

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 (E)	328	82	1332	331	338	334	1.0	0.4	6.235	A
2 - A1079 (SE)	747	187	533	750	745	1130	1.8	1.1	5.854	A
3 - Killingwoldgraves Lane	363	91	889	366	368	394	1.7	0.9	8.950	A
4 - A1079 (W)	574	143	671	579	596	583	1.4	0.7	5.380	A
5 - A1035 Dog Kennel Lane	860	215	798	869	868	452	2.8	1.4	7.642	A

**09:00 - 09:15**

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 (E)	280	70	1138	281	285	285	0.4	0.4	5.441	A
2 - A1079 (SE)	624	156	450	623	621	968	1.1	0.8	4.824	A
3 - Killingwoldgraves Lane	292	73	747	288	303	326	0.9	0.8	7.445	A
4 - A1079 (W)	508	127	543	509	496	492	0.7	0.7	4.820	A
5 - A1035 Dog Kennel Lane	737	184	685	737	725	366	1.4	1.3	6.136	A

## Lane Results

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

### Lanes: Main Results for each time segment

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 (E)	Entry	1	1	2	134	810	0.166	132	134	0.0	0.3	5.215	A
			2	1, 3, 4, 5	152	810	0.188	152	151	0.0	0.3	5.623	A
		2	1	(1, 2, 3, 4, 5)	286			286	287	0.0	0.0	0.000	A
	Exit	1	1		274			274	284	0.0	0.0	0.000	A
2 - A1079 (SE)	Entry	1	1	3, 4	324	1110	0.292	324	336	0.0	0.6	5.121	A
			2	1, 2, 5	290	1110	0.261	290	290	0.0	0.3	4.703	A
		2	1	(1, 2, 3, 4, 5)	614			614	629	0.0	0.0	0.000	A
	Exit	1	1		971			971	960	0.0	0.0	0.000	A
3 - Killingwoldgraves Lane	Entry	1	1	1, 4, 5	190	677	0.280	192	192	0.0	0.3	7.425	A
			2	2, 3	115	677	0.170	114	111	0.0	0.1	6.717	A
		2	1	(1, 2, 3, 4, 5)	305			305	305	0.0	0.0	0.003	A
	Exit	1	1		334			334	329	0.0	0.0	0.000	A
4 - A1079 (W)	Entry	1	1	1, 5	195	1079	0.181	193	198	0.0	0.4	4.317	A
			2	2, 3, 4	296	1079	0.275	295	300	0.0	0.4	5.258	A
		2	1	(1, 2, 3, 4, 5)	492			492	501	0.0	0.0	0.000	A
	Exit	1	1		479			479	483	0.0	0.0	0.000	A
5 - A1035 Dog Kennel Lane	Entry	1	1	1, 2	471	1057	0.445	479	465	0.0	0.5	6.918	A
			2	3, 4, 5	259	1057	0.245	264	251	0.0	0.3	5.029	A
		2	1	(1, 2, 3, 4, 5)	730			730	720	0.0	0.0	0.000	A
	Exit	1	1		377			377	371	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 (E)	Entry	1	1	2	158	756	0.210	160	158	0.3	0.2	5.800	A
			2	1, 3, 4, 5	182	756	0.241	183	182	0.3	0.2	6.295	A
		2	1	(1, 2, 3, 4, 5)	341			341	339	0.0	0.0	0.000	A
	Exit	1	1		333			333	331	0.0	0.0	0.000	A
2 - A1079 (SE)	Entry	1	1	3, 4	389	1084	0.358	389	387	0.6	0.5	5.581	A
			2	1, 2, 5	335	1084	0.309	336	338	0.3	0.3	5.153	A
		2	1	(1, 2, 3, 4, 5)	724			724	725	0.0	0.0	0.000	A
	Exit	1	1		1129			1129	1127	0.0	0.0	0.000	A
3 - Killingwoldgraves Lane	Entry	1	1	1, 4, 5	241	644	0.374	240	234	0.3	0.6	8.509	A
			2	2, 3	134	644	0.209	134	128	0.1	0.3	7.250	A
		2	1	(1, 2, 3, 4, 5)	376			376	364	0.0	0.0	0.020	A
	Exit	1	1		388			388	383	0.0	0.0	0.000	A
4 - A1079 (W)	Entry	1	1	1, 5	250	1048	0.238	253	242	0.4	0.2	4.959	A
			2	2, 3, 4	344	1048	0.329	342	353	0.4	0.7	5.650	A
		2	1	(1, 2, 3, 4, 5)	595			595	596	0.0	0.0	0.000	A
	Exit	1	1		592			592	583	0.0	0.0	0.000	A
5 - A1035 Dog Kennel Lane	Entry	1	1	1, 2	563	1017	0.553	553	547	0.5	1.9	8.934	A
			2	3, 4, 5	306	1017	0.300	305	301	0.3	0.6	5.483	A
		2	1	(1, 2, 3, 4, 5)	869			869	854	0.0	0.0	0.000	A
	Exit	1	1		452			452	446	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 (E)	Entry	1	1	2	197	662	0.297	200	195	0.2	0.3	7.387	A
			2	1, 3, 4, 5	215	662	0.325	217	216	0.2	0.4	8.467	A
		2	1	(1, 2, 3, 4, 5)	412			412	412	0.0	0.0	0.000	A
	Exit	1	1		402			402	406	0.0	0.0	0.000	A
2 - A1079 (SE)	Entry	1	1	3, 4	484	1045	0.463	487	480	0.5	0.7	6.646	A
			2	1, 2, 5	410	1045	0.392	409	408	0.3	0.7	6.149	A
		2	1	(1, 2, 3, 4, 5)	894			894	890	0.0	0.0	0.000	A
	Exit	1	1		1393			1393	1386	0.0	0.0	0.000	A
3 - Killingwoldgraves Lane	Entry	1	1	1, 4, 5	286	597	0.480	285	277	0.6	0.8	11.016	B
			2	2, 3	153	597	0.257	154	157	0.3	0.4	8.479	A
		2	1	(1, 2, 3, 4, 5)	439			439	436	0.0	0.0	0.162	A
	Exit	1	1		484			484	492	0.0	0.0	0.000	A
4 - A1079 (W)	Entry	1	1	1, 5	279	1007	0.277	278	286	0.2	0.3	5.513	A
			2	2, 3, 4	432	1007	0.430	431	428	0.7	1.0	6.813	A
		2	1	(1, 2, 3, 4, 5)	711			711	715	0.0	0.0	0.001	A
	Exit	1	1		725			725	708	0.0	0.0	0.000	A
5 - A1035 Dog Kennel Lane	Entry	1	1	1, 2	682	961	0.710	679	678	1.9	2.8	12.929	B
			2	3, 4, 5	387	961	0.403	389	388	0.6	0.7	6.738	A
		2	1	(1, 2, 3, 4, 5)	1069			1069	1069	0.0	0.0	0.000	A
	Exit	1	1		524			524	521	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 (E)	Entry	1	1	2	202	674	0.300	204	198	0.3	0.3	7.358	A
			2	1, 3, 4, 5	218	674	0.323	218	216	0.4	0.7	7.970	A
		2	1	(1, 2, 3, 4, 5)	420			420	416	0.0	0.0	0.000	A
	Exit	1	1		413			413	416	0.0	0.0	0.000	A
2 - A1079 (SE)	Entry	1	1	3, 4	490	1051	0.466	488	482	0.7	1.1	6.911	A
			2	1, 2, 5	416	1051	0.396	415	422	0.7	0.7	6.378	A
		2	1	(1, 2, 3, 4, 5)	907			907	906	0.0	0.0	0.005	A
	Exit	1	1		1381			1381	1380	0.0	0.0	0.000	A
3 - Killingwoldgraves Lane	Entry	1	1	1, 4, 5	277	601	0.461	279	292	0.8	1.1	12.054	B
			2	2, 3	153	601	0.255	152	154	0.4	0.5	8.565	A
		2	1	(1, 2, 3, 4, 5)	430			430	447	0.0	0.1	0.717	A
	Exit	1	1		487			487	479	0.0	0.0	0.000	A
4 - A1079 (W)	Entry	1	1	1, 5	296	1005	0.295	295	296	0.3	0.7	5.733	A
			2	2, 3, 4	413	1005	0.411	416	425	1.0	0.7	7.345	A
		2	1	(1, 2, 3, 4, 5)	710			710	721	0.0	0.0	0.000	A
	Exit	1	1		695			695	708	0.0	0.0	0.000	A
5 - A1035 Dog Kennel Lane	Entry	1	1	1, 2	666	963	0.691	677	670	2.8	2.1	14.229	B
			2	3, 4, 5	371	963	0.385	369	377	0.7	0.7	6.688	A
		2	1	(1, 2, 3, 4, 5)	1037			1037	1044	0.0	0.0	0.000	A
	Exit	1	1		538			538	550	0.0	0.0	0.000	A

## 08:45 - 09:00

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 (E)	Entry	1	1	2	164	756	0.218	165	163	0.3	0.2	5.958	A
			2	1, 3, 4, 5	164	756	0.217	166	176	0.7	0.2	6.497	A
		2	1	(1, 2, 3, 4, 5)	328			328	336	0.0	0.0	0.000	A
	Exit	1	1		334			334	340	0.0	0.0	0.000	A
2 - A1079 (SE)	Entry	1	1	3, 4	409	1088	0.376	409	398	1.1	0.6	6.112	A
			2	1, 2, 5	338	1088	0.310	341	347	0.7	0.5	5.561	A
		2	1	(1, 2, 3, 4, 5)	747			747	742	0.0	0.0	0.000	A
	Exit	1	1		1130			1130	1137	0.0	0.0	0.000	A
3 - Killingwoldgraves Lane	Entry	1	1	1, 4, 5	238	642	0.370	239	238	1.1	0.7	9.571	A
			2	2, 3	125	642	0.195	126	131	0.5	0.2	7.341	A
		2	1	(1, 2, 3, 4, 5)	363			363	365	0.1	0.1	0.165	A
	Exit	1	1		394			394	396	0.0	0.0	0.000	A
4 - A1079 (W)	Entry	1	1	1, 5	237	1047	0.227	239	246	0.7	0.3	5.078	A
			2	2, 3, 4	336	1047	0.321	341	350	0.7	0.4	5.583	A
		2	1	(1, 2, 3, 4, 5)	574			574	594	0.0	0.0	0.000	A
	Exit	1	1		583			583	586	0.0	0.0	0.000	A
5 - A1035 Dog Kennel Lane	Entry	1	1	1, 2	551	1020	0.540	557	554	2.1	0.9	8.890	A
			2	3, 4, 5	310	1020	0.304	311	314	0.7	0.5	5.521	A
		2	1	(1, 2, 3, 4, 5)	860			860	863	0.0	0.0	0.000	A
	Exit	1	1		452			452	457	0.0	0.0	0.000	A

09:00 - 09:15

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 (E)	Entry	1	1	2	136	813	0.167	136	137	0.2	0.1	5.417	A
			2	1, 3, 4, 5	144	813	0.177	144	148	0.2	0.3	5.463	A
		2	1	(1, 2, 3, 4, 5)	280			280	285	0.0	0.0	0.000	A
	Exit	1	1		285			285	287	0.0	0.0	0.000	A
2 - A1079 (SE)	Entry	1	1	3, 4	341	1114	0.306	339	336	0.6	0.5	5.088	A
			2	1, 2, 5	283	1114	0.255	284	284	0.5	0.3	4.515	A
		2	1	(1, 2, 3, 4, 5)	624			624	620	0.0	0.0	0.000	A
	Exit	1	1		968			968	953	0.0	0.0	0.000	A
3 - Killingwoldgraves Lane	Entry	1	1	1, 4, 5	188	676	0.278	186	195	0.7	0.5	7.930	A
			2	2, 3	103	676	0.153	102	107	0.2	0.3	6.539	A
		2	1	(1, 2, 3, 4, 5)	292			292	302	0.1	0.0	0.025	A
	Exit	1	1		326			326	330	0.0	0.0	0.000	A
4 - A1079 (W)	Entry	1	1	1, 5	208	1087	0.192	208	205	0.3	0.3	4.640	A
			2	2, 3, 4	300	1087	0.276	301	291	0.4	0.4	4.940	A
		2	1	(1, 2, 3, 4, 5)	508			508	495	0.0	0.0	0.000	A
	Exit	1	1		492			492	489	0.0	0.0	0.000	A
5 - A1035 Dog Kennel Lane	Entry	1	1	1, 2	483	1056	0.457	483	471	0.9	0.9	6.724	A
			2	3, 4, 5	255	1056	0.241	254	254	0.5	0.4	5.082	A
		2	1	(1, 2, 3, 4, 5)	737			737	725	0.0	0.0	0.000	A
	Exit	1	1		366			366	370	0.0	0.0	0.000	A

# Proposed Layout - 2027 With Development, PM

## Data Errors and Warnings

Severity	Area	Item	Description
Warning	Lane Simulation	A1 - Proposed 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 (E) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	2 - A1079 (SE) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	3 - Killingwoldgraves Lane - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	4 - A1079 (W) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	5 - A1035 Dog Kennel Lane - 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	Killingwoldgraves Roundabout	Standard Roundabout		1, 2, 3, 4, 5	9.40	A

### Junction Network Options

Driving side	Lighting
Left	Normal/unknown

## Traffic Demand

### Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D2	2027 With Development	PM	ONE HOUR	16:45	18:15	15	✓

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

### Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - A1174 (E)		ONE HOUR	✓	358	100.000
2 - A1079 (SE)		ONE HOUR	✓	1001	100.000
3 - Killingwoldgraves Lane		ONE HOUR	✓	504	100.000
4 - A1079 (W)		ONE HOUR	✓	681	100.000
5 - A1035 Dog Kennel Lane		ONE HOUR	✓	534	100.000

## Origin-Destination Data

### Demand (PCU/hr)

		To				
		1 - A1174 (E)	2 - A1079 (SE)	3 - Killingwoldgraves Lane	4 - A1079 (W)	5 - A1035 Dog Kennel Lane
From	1 - A1174 (E)	0	122	56	170	10
	2 - A1079 (SE)	132	2	152	267	448
	3 - Killingwoldgraves Lane	58	143	0	44	259
	4 - A1079 (W)	187	367	51	1	75
	5 - A1035 Dog Kennel Lane	6	358	103	66	1

## Vehicle Mix

### Heavy Vehicle Percentages

		To				
		1 - A1174 (E)	2 - A1079 (SE)	3 - Killingwoldgraves Lane	4 - A1079 (W)	5 - A1035 Dog Kennel Lane
From	1 - A1174 (E)	0	1	0	2	0
	2 - A1079 (SE)	0	0	1	2	4
	3 - Killingwoldgraves Lane	0	0	0	2	1
	4 - A1079 (W)	3	6	2	0	12
	5 - A1035 Dog Kennel Lane	0	4	0	8	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 (E)	6.32	0.8	A	333	499
2 - A1079 (SE)	7.17	2.2	A	915	1373
3 - Killingwoldgraves Lane	20.66	3.2	C	464	696
4 - A1079 (W)	8.28	1.7	A	626	939
5 - A1035 Dog Kennel Lane	6.42	1.4	A	489	733

### Main Results for each time segment

#### 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 (E)	273	68	805	274	275	293	0.0	0.3	4.780	A
2 - A1079 (SE)	764	191	340	765	754	738	0.0	1.1	4.968	A
3 - Killingwoldgraves Lane	395	99	833	390	378	273	0.0	1.2	8.798	A
4 - A1079 (W)	506	127	811	507	504	412	0.0	0.7	5.278	A
5 - A1035 Dog Kennel Lane	395	99	703	395	392	615	0.0	0.7	4.669	A

#### 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 (E)	325	81	999	325	321	337	0.3	0.5	5.268	A
2 - A1079 (SE)	884	221	421	886	893	904	1.1	1.2	5.704	A
3 - Killingwoldgraves Lane	455	114	976	460	451	331	1.2	1.4	10.834	B
4 - A1079 (W)	623	156	949	625	615	487	0.7	0.9	6.232	A
5 - A1035 Dog Kennel Lane	480	120	855	482	479	719	0.7	0.6	5.032	A



**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 (E)	400	100	1195	399	392	430	0.5	0.8	6.113	A
2 - A1079 (SE)	1100	275	505	1097	1095	1089	1.2	2.2	6.968	A
3 - Killingwoldgraves Lane	554	138	1203	567	558	399	1.4	2.6	18.509	C
4 - A1079 (W)	749	187	1162	749	747	609	0.9	1.6	7.510	A
5 - A1035 Dog Kennel Lane	589	147	1040	585	583	871	0.6	1.4	6.243	A

**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 (E)	398	99	1189	399	391	420	0.8	0.6	6.323	A
2 - A1079 (SE)	1092	273	501	1090	1101	1087	2.2	2.2	7.171	A
3 - Killingwoldgraves Lane	548	137	1194	549	555	397	2.6	3.2	20.664	C
4 - A1079 (W)	753	188	1151	753	751	592	1.6	1.7	8.283	A
5 - A1035 Dog Kennel Lane	575	144	1035	574	579	869	1.4	1.2	6.418	A

**17:45 - 18:00**

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 (E)	322	80	1002	322	323	351	0.6	0.5	5.450	A
2 - A1079 (SE)	899	225	424	905	901	899	2.2	1.2	5.686	A
3 - Killingwoldgraves Lane	446	111	988	450	453	341	3.2	1.4	12.269	B
4 - A1079 (W)	621	155	941	621	619	496	1.7	1.1	6.524	A
5 - A1035 Dog Kennel Lane	492	123	861	491	485	701	1.2	0.8	5.175	A

**18:00 - 18:15**

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 (E)	279	70	821	278	276	287	0.5	0.4	4.987	A
2 - A1079 (SE)	754	188	355	753	750	745	1.2	1.2	4.901	A
3 - Killingwoldgraves Lane	386	96	840	382	383	268	1.4	1.1	8.574	A
4 - A1079 (W)	503	126	806	503	515	417	1.1	0.7	5.319	A
5 - A1035 Dog Kennel Lane	402	100	706	402	398	603	0.8	0.5	4.569	A

## Lane Results

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

### Lanes: Main Results for each time segment

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 (E)	Entry	1	1	2	96	911	0.106	96	95	0.0	0.1	4.470	A
			2	1, 3, 4, 5	177	911	0.194	178	180	0.0	0.2	4.946	A
		2	1	(1, 2, 3, 4, 5)	273			273	276	0.0	0.0	0.000	A
	Exit	1	1		293			293	287	0.0	0.0	0.000	A
2 - A1079 (SE)	Entry	1	1	3, 4	314	1147	0.273	316	316	0.0	0.3	4.396	A
			2	1, 2, 5	450	1147	0.392	449	438	0.0	0.8	5.385	A
		2	1	(1, 2, 3, 4, 5)	764			764	758	0.0	0.0	0.000	A
	Exit	1	1		738			738	738	0.0	0.0	0.000	A
3 - Killingwoldgraves Lane	Entry	1	1	1, 4, 5	291	656	0.444	287	273	0.0	1.0	9.530	A
			2	2, 3	104	656	0.159	103	105	0.0	0.2	6.586	A
		2	1	(1, 2, 3, 4, 5)	395			395	383	0.0	0.0	0.090	A
	Exit	1	1		273			273	271	0.0	0.0	0.000	A
4 - A1079 (W)	Entry	1	1	1, 5	196	1003	0.195	198	196	0.0	0.2	4.719	A
			2	2, 3, 4	310	1003	0.309	309	309	0.0	0.5	5.631	A
		2	1	(1, 2, 3, 4, 5)	506			506	507	0.0	0.0	0.000	A
	Exit	1	1		412			412	411	0.0	0.0	0.000	A
5 - A1035 Dog Kennel Lane	Entry	1	1	1, 2	273	1050	0.260	274	271	0.0	0.5	4.973	A
			2	3, 4, 5	122	1050	0.116	122	121	0.0	0.2	3.993	A
		2	1	(1, 2, 3, 4, 5)	395			395	394	0.0	0.0	0.000	A
	Exit	1	1		615			615	595	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 (E)	Entry	1	1	2	112	854	0.131	112	111	0.1	0.2	4.636	A
			2	1, 3, 4, 5	214	854	0.250	214	210	0.2	0.4	5.600	A
		2	1	(1, 2, 3, 4, 5)	325			325	322	0.0	0.0	0.000	A
	Exit	1	1		337			337	340	0.0	0.0	0.000	A
2 - A1079 (SE)	Entry	1	1	3, 4	361	1123	0.322	363	367	0.3	0.4	4.890	A
			2	1, 2, 5	523	1123	0.466	523	526	0.8	0.8	6.282	A
		2	1	(1, 2, 3, 4, 5)	884			884	894	0.0	0.0	0.000	A
	Exit	1	1		904			904	893	0.0	0.0	0.000	A
3 - Killingwoldgraves Lane	Entry	1	1	1, 4, 5	327	622	0.525	331	324	1.0	1.0	11.607	B
			2	2, 3	130	622	0.208	129	128	0.2	0.3	7.252	A
		2	1	(1, 2, 3, 4, 5)	455			457	452	0.0	0.0	0.466	A
	Exit	1	1		331			331	324	0.0	0.0	0.000	A
4 - A1079 (W)	Entry	1	1	1, 5	234	960	0.243	232	233	0.2	0.4	5.331	A
			2	2, 3, 4	389	960	0.405	393	382	0.5	0.6	6.780	A
		2	1	(1, 2, 3, 4, 5)	623			623	616	0.0	0.0	0.000	A
	Exit	1	1		487			487	487	0.0	0.0	0.000	A
5 - A1035 Dog Kennel Lane	Entry	1	1	1, 2	323	1002	0.322	324	324	0.5	0.4	5.370	A
			2	3, 4, 5	157	1002	0.157	158	154	0.2	0.2	4.324	A
		2	1	(1, 2, 3, 4, 5)	480			480	478	0.0	0.0	0.000	A
	Exit	1	1		719			719	714	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 (E)	Entry	1	1	2	137	796	0.172	136	134	0.2	0.2	5.441	A
			2	1, 3, 4, 5	263	796	0.331	263	259	0.4	0.5	6.460	A
		2	1	(1, 2, 3, 4, 5)	400			400	393	0.0	0.0	0.000	A
	Exit	1	1		430			430	423	0.0	0.0	0.000	A
2 - A1079 (SE)	Entry	1	1	3, 4	470	1097	0.428	467	462	0.4	1.0	5.698	A
			2	1, 2, 5	630	1097	0.575	630	632	0.8	1.3	7.907	A
		2	1	(1, 2, 3, 4, 5)	1100			1100	1099	0.0	0.0	0.002	A
	Exit	1	1		1089			1089	1085	0.0	0.0	0.000	A
3 - Killingwoldgraves Lane	Entry	1	1	1, 4, 5	402	569	0.707	409	399	1.0	1.7	17.158	C
			2	2, 3	157	569	0.276	159	159	0.3	0.3	8.701	A
		2	1	(1, 2, 3, 4, 5)	554			559	561	0.0	0.6	3.718	A
	Exit	1	1		399			399	392	0.0	0.0	0.000	A
4 - A1079 (W)	Entry	1	1	1, 5	290	894	0.324	292	289	0.4	0.5	6.304	A
			2	2, 3, 4	459	894	0.513	457	458	0.6	1.2	8.269	A
		2	1	(1, 2, 3, 4, 5)	749			749	749	0.0	0.0	0.000	A
	Exit	1	1		609			609	607	0.0	0.0	0.000	A
5 - A1035 Dog Kennel Lane	Entry	1	1	1, 2	404	944	0.428	402	397	0.4	1.0	6.888	A
			2	3, 4, 5	185	944	0.196	183	186	0.2	0.4	4.877	A
		2	1	(1, 2, 3, 4, 5)	589			589	586	0.0	0.0	0.000	A
	Exit	1	1		871			871	867	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 (E)	Entry	1	1	2	136	798	0.170	136	136	0.2	0.2	5.450	A
			2	1, 3, 4, 5	262	798	0.329	263	256	0.5	0.4	6.788	A
		2	1	(1, 2, 3, 4, 5)	398			398	391	0.0	0.0	0.000	A
	Exit	1	1		420			420	422	0.0	0.0	0.000	A
2 - A1079 (SE)	Entry	1	1	3, 4	457	1098	0.416	454	458	1.0	0.9	5.628	A
			2	1, 2, 5	635	1098	0.579	635	643	1.3	1.3	8.221	A
		2	1	(1, 2, 3, 4, 5)	1092			1092	1101	0.0	0.0	0.037	A
	Exit	1	1		1087			1087	1088	0.0	0.0	0.000	A
3 - Killingwoldgraves Lane	Entry	1	1	1, 4, 5	395	571	0.692	398	400	1.7	2.1	18.757	C
			2	2, 3	153	571	0.267	151	155	0.3	0.5	9.020	A
		2	1	(1, 2, 3, 4, 5)	548			548	557	0.6	0.7	4.650	A
	Exit	1	1		397			397	396	0.0	0.0	0.000	A
4 - A1079 (W)	Entry	1	1	1, 5	286	897	0.319	284	288	0.5	0.6	6.613	A
			2	2, 3, 4	467	897	0.521	469	464	1.2	1.1	9.308	A
		2	1	(1, 2, 3, 4, 5)	753			753	751	0.0	0.0	0.003	A
	Exit	1	1		592			592	594	0.0	0.0	0.000	A
5 - A1035 Dog Kennel Lane	Entry	1	1	1, 2	396	945	0.419	395	397	1.0	0.9	7.128	A
			2	3, 4, 5	179	945	0.189	179	182	0.4	0.2	4.882	A
		2	1	(1, 2, 3, 4, 5)	575			575	578	0.0	0.0	0.000	A
	Exit	1	1		869			869	878	0.0	0.0	0.000	A

## 17:45 - 18:00

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 (E)	Entry	1	1	2	110	853	0.128	109	108	0.2	0.2	4.790	A
			2	1, 3, 4, 5	212	853	0.249	213	215	0.4	0.3	5.786	A
		2	1	(1, 2, 3, 4, 5)	322			322	322	0.0	0.0	0.000	A
	Exit	1	1		351			351	352	0.0	0.0	0.000	A
2 - A1079 (SE)	Entry	1	1	3, 4	383	1122	0.341	387	377	0.9	0.4	4.868	A
			2	1, 2, 5	516	1122	0.460	518	524	1.3	0.8	6.280	A
		2	1	(1, 2, 3, 4, 5)	899			899	897	0.0	0.0	0.002	A
	Exit	1	1		899			899	894	0.0	0.0	0.000	A
3 - Killingwoldgraves Lane	Entry	1	1	1, 4, 5	313	620	0.505	317	324	2.1	1.1	12.724	B
			2	2, 3	134	620	0.216	133	128	0.5	0.3	7.747	A
		2	1	(1, 2, 3, 4, 5)	446			447	448	0.7	0.0	1.042	A
	Exit	1	1		341			341	328	0.0	0.0	0.000	A
4 - A1079 (W)	Entry	1	1	1, 5	240	963	0.249	239	239	0.6	0.3	5.518	A
			2	2, 3, 4	381	963	0.396	382	380	1.1	0.7	7.153	A
		2	1	(1, 2, 3, 4, 5)	621			621	616	0.0	0.0	0.001	A
	Exit	1	1		496			496	497	0.0	0.0	0.000	A
5 - A1035 Dog Kennel Lane	Entry	1	1	1, 2	329	1000	0.328	327	328	0.9	0.6	5.610	A
			2	3, 4, 5	163	1000	0.163	164	157	0.2	0.1	4.276	A
		2	1	(1, 2, 3, 4, 5)	492			492	483	0.0	0.0	0.000	A
	Exit	1	1		701			701	710	0.0	0.0	0.000	A

## 18:00 - 18:15

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 (E)	Entry	1	1	2	94	906	0.103	93	92	0.2	0.1	4.577	A
			2	1, 3, 4, 5	185	906	0.204	185	184	0.3	0.2	5.193	A
		2	1	(1, 2, 3, 4, 5)	279			279	276	0.0	0.0	0.000	A
	Exit	1	1		287			287	291	0.0	0.0	0.000	A
2 - A1079 (SE)	Entry	1	1	3, 4	309	1143	0.270	307	310	0.4	0.5	4.227	A
			2	1, 2, 5	445	1143	0.389	446	440	0.8	0.7	5.384	A
		2	1	(1, 2, 3, 4, 5)	754			754	750	0.0	0.0	0.000	A
	Exit	1	1		745			745	746	0.0	0.0	0.000	A
3 - Killingwoldgraves Lane	Entry	1	1	1, 4, 5	273	654	0.417	269	273	1.1	0.8	9.248	A
			2	2, 3	113	654	0.173	112	110	0.3	0.2	6.492	A
		2	1	(1, 2, 3, 4, 5)	386			385	382	0.0	0.0	0.130	A
	Exit	1	1		268			268	271	0.0	0.0	0.000	A
4 - A1079 (W)	Entry	1	1	1, 5	192	1005	0.191	192	197	0.3	0.3	4.872	A
			2	2, 3, 4	311	1005	0.310	311	319	0.7	0.5	5.596	A
		2	1	(1, 2, 3, 4, 5)	503			503	514	0.0	0.0	0.000	A
	Exit	1	1		417			417	416	0.0	0.0	0.000	A
5 - A1035 Dog Kennel Lane	Entry	1	1	1, 2	271	1049	0.259	271	269	0.6	0.4	4.826	A
			2	3, 4, 5	130	1049	0.124	131	129	0.1	0.1	4.037	A
		2	1	(1, 2, 3, 4, 5)	402			402	397	0.0	0.0	0.000	A
	Exit	1	1		603			603	599	0.0	0.0	0.000	A

# Proposed Layout - 2027 With Development (Sensitivity Test), AM

## Data Errors and Warnings

Severity	Area	Item	Description
Warning	Lane Simulation	A1 - Proposed 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 (E) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	2 - A1079 (SE) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	3 - Killingwoldgraves Lane - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	4 - A1079 (W) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	5 - A1035 Dog Kennel Lane - 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	Killingwoldgraves Roundabout	Standard Roundabout		1, 2, 3, 4, 5	9.35	A

### Junction Network Options

Driving side	Lighting
Left	Normal/unknown

## Traffic Demand

### Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D3	2027 With Development (Sensitivity Test)	AM	ONE HOUR	07:45	09:15	15	✓

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

### Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - A1174 (E)		ONE HOUR	✓	380	100.000
2 - A1079 (SE)		ONE HOUR	✓	816	100.000
3 - Killingwoldgraves Lane		ONE HOUR	✓	433	100.000
4 - A1079 (W)		ONE HOUR	✓	655	100.000
5 - A1035 Dog Kennel Lane		ONE HOUR	✓	952	100.000

## Origin-Destination Data

### Demand (PCU/hr)

		To				
		1 - A1174 (E)	2 - A1079 (SE)	3 - Killingwoldgraves Lane	4 - A1079 (W)	5 - A1035 Dog Kennel Lane
From	1 - A1174 (E)	0	180	50	142	8
	2 - A1079 (SE)	114	2	122	320	258
	3 - Killingwoldgraves Lane	79	155	0	57	142
	4 - A1079 (W)	177	324	65	2	87
	5 - A1035 Dog Kennel Lane	5	602	216	128	1

## Vehicle Mix

### Heavy Vehicle Percentages

		To				
		1 - A1174 (E)	2 - A1079 (SE)	3 - Killingwoldgraves Lane	4 - A1079 (W)	5 - A1035 Dog Kennel Lane
From	1 - A1174 (E)	0	0	0	3	0
	2 - A1079 (SE)	1	0	4	9	10
	3 - Killingwoldgraves Lane	0	1	0	0	1
	4 - A1079 (W)	3	7	0	0	27
	5 - A1035 Dog Kennel Lane	26	10	1	19	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 (E)	8.17	1.0	A	354	531
2 - A1079 (SE)	6.55	2.1	A	750	1125
3 - Killingwoldgraves Lane	10.95	1.8	B	398	598
4 - A1079 (W)	6.58	1.7	A	608	911
5 - A1035 Dog Kennel Lane	13.45	4.0	B	871	1306

### Main Results for each time segment

#### 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 (E)	287	72	1133	287	287	289	0.0	0.5	5.466	A
2 - A1079 (SE)	640	160	459	637	626	961	0.0	1.1	4.830	A
3 - Killingwoldgraves Lane	327	82	752	326	324	343	0.0	0.8	7.646	A
4 - A1079 (W)	488	122	586	489	490	493	0.0	0.7	4.868	A
5 - A1035 Dog Kennel Lane	720	180	701	721	713	374	0.0	1.2	6.185	A

#### 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 (E)	357	89	1371	354	347	334	0.5	0.7	6.224	A
2 - A1079 (SE)	748	187	569	748	731	1156	1.1	1.2	5.456	A
3 - Killingwoldgraves Lane	385	96	885	384	380	431	0.8	0.9	8.492	A
4 - A1079 (W)	604	151	677	605	596	592	0.7	0.8	5.487	A
5 - A1035 Dog Kennel Lane	858	215	840	865	853	442	1.2	1.8	7.577	A

**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 (E)	427	107	1628	426	419	428	0.7	1.0	7.645	A
2 - A1079 (SE)	865	216	670	862	887	1384	1.2	1.6	6.505	A
3 - Killingwoldgraves Lane	472	118	1032	473	475	501	0.9	1.1	10.701	B
4 - A1079 (W)	742	186	812	743	721	693	0.8	1.4	6.227	A
5 - A1035 Dog Kennel Lane	1035	259	1029	1027	1029	527	1.8	4.0	11.224	B

**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 (E)	422	105	1635	421	420	420	1.0	1.0	8.170	A
2 - A1079 (SE)	901	225	665	899	895	1391	1.6	2.1	6.548	A
3 - Killingwoldgraves Lane	478	120	1068	477	477	496	1.1	1.8	10.946	B
4 - A1079 (W)	726	181	835	721	726	711	1.4	1.7	6.578	A
5 - A1035 Dog Kennel Lane	1033	258	1018	1038	1043	537	4.0	3.8	13.451	B

**08:45 - 09:00**

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 (E)	340	85	1355	338	341	350	1.0	0.6	6.463	A
2 - A1079 (SE)	732	183	550	732	741	1143	2.1	1.2	5.507	A
3 - Killingwoldgraves Lane	400	100	868	399	399	413	1.8	0.9	8.951	A
4 - A1079 (W)	597	149	686	601	595	580	1.7	0.7	5.368	A
5 - A1035 Dog Kennel Lane	859	215	845	859	860	442	3.8	1.7	7.654	A

**09:00 - 09:15**

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 (E)	290	73	1135	287	290	275	0.6	0.5	5.368	A
2 - A1079 (SE)	615	154	465	616	619	957	1.2	0.8	4.845	A
3 - Killingwoldgraves Lane	329	82	740	330	332	341	0.9	0.7	7.098	A
4 - A1079 (W)	488	122	583	492	497	487	0.7	0.6	4.844	A
5 - A1035 Dog Kennel Lane	720	180	686	724	721	389	1.7	1.0	6.255	A



## Lane Results

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

### Lanes: Main Results for each time segment

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 (E)	Entry	1	1	2	136	814	0.167	137	137	0.0	0.3	5.334	A
			2	1, 3, 4, 5	151	814	0.185	150	149	0.0	0.2	5.590	A
		2	1	(1, 2, 3, 4, 5)	287			287	288	0.0	0.0	0.000	A
	Exit	1	1		289			289	286	0.0	0.0	0.000	A
2 - A1079 (SE)	Entry	1	1	3, 4	344	1111	0.309	340	335	0.0	0.7	5.034	A
			2	1, 2, 5	297	1111	0.267	297	291	0.0	0.4	4.595	A
		2	1	(1, 2, 3, 4, 5)	640			640	630	0.0	0.0	0.000	A
	Exit	1	1		961			961	947	0.0	0.0	0.000	A
3 - Killingwoldgraves Lane	Entry	1	1	1, 4, 5	210	674	0.311	209	209	0.0	0.5	8.026	A
			2	2, 3	117	674	0.174	117	115	0.0	0.2	6.691	A
		2	1	(1, 2, 3, 4, 5)	327			327	327	0.0	0.0	0.091	A
	Exit	1	1		343			343	340	0.0	0.0	0.000	A
4 - A1079 (W)	Entry	1	1	1, 5	190	1073	0.177	193	198	0.0	0.2	4.655	A
			2	2, 3, 4	298	1073	0.278	296	292	0.0	0.6	5.005	A
		2	1	(1, 2, 3, 4, 5)	488			488	493	0.0	0.0	0.000	A
	Exit	1	1		493			493	489	0.0	0.0	0.000	A
5 - A1035 Dog Kennel Lane	Entry	1	1	1, 2	461	1051	0.439	460	453	0.0	0.8	6.873	A
			2	3, 4, 5	259	1051	0.246	260	259	0.0	0.4	5.018	A
		2	1	(1, 2, 3, 4, 5)	720			720	717	0.0	0.0	0.000	A
	Exit	1	1		374			374	378	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 (E)	Entry	1	1	2	172	744	0.231	170	165	0.3	0.4	5.800	A
			2	1, 3, 4, 5	185	744	0.248	184	182	0.2	0.4	6.617	A
		2	1	(1, 2, 3, 4, 5)	357			357	348	0.0	0.0	0.000	A
	Exit	1	1		334			334	336	0.0	0.0	0.000	A
2 - A1079 (SE)	Entry	1	1	3, 4	411	1077	0.381	410	397	0.7	0.7	5.729	A
			2	1, 2, 5	337	1077	0.313	337	334	0.4	0.6	5.135	A
		2	1	(1, 2, 3, 4, 5)	748			748	731	0.0	0.0	0.000	A
	Exit	1	1		1156			1156	1132	0.0	0.0	0.000	A
3 - Killingwoldgraves Lane	Entry	1	1	1, 4, 5	245	643	0.381	244	242	0.5	0.7	9.208	A
			2	2, 3	140	643	0.217	140	138	0.2	0.3	6.904	A
		2	1	(1, 2, 3, 4, 5)	385			385	381	0.0	0.0	0.112	A
	Exit	1	1		431			431	417	0.0	0.0	0.000	A
4 - A1079 (W)	Entry	1	1	1, 5	238	1045	0.228	238	239	0.2	0.4	5.047	A
			2	2, 3, 4	365	1045	0.350	367	357	0.6	0.5	5.770	A
		2	1	(1, 2, 3, 4, 5)	604			604	596	0.0	0.0	0.000	A
	Exit	1	1		592			592	582	0.0	0.0	0.000	A
5 - A1035 Dog Kennel Lane	Entry	1	1	1, 2	540	1007	0.537	547	538	0.8	1.3	8.765	A
			2	3, 4, 5	318	1007	0.316	317	315	0.4	0.6	5.600	A
		2	1	(1, 2, 3, 4, 5)	858			858	855	0.0	0.0	0.000	A
	Exit	1	1		442			442	440	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 (E)	Entry	1	1	2	204	669	0.305	202	198	0.4	0.6	7.317	A
			2	1, 3, 4, 5	222	669	0.333	224	221	0.4	0.4	7.946	A
		2	1	(1, 2, 3, 4, 5)	427			427	420	0.0	0.0	0.000	A
	Exit	1	1		428			428	414	0.0	0.0	0.000	A
2 - A1079 (SE)	Entry	1	1	3, 4	475	1046	0.454	473	478	0.7	0.9	6.953	A
			2	1, 2, 5	390	1046	0.373	390	409	0.6	0.6	5.983	A
		2	1	(1, 2, 3, 4, 5)	865			865	889	0.0	0.0	0.000	A
	Exit	1	1		1384			1384	1375	0.0	0.0	0.000	A
3 - Killingwoldgraves Lane	Entry	1	1	1, 4, 5	303	609	0.498	304	304	0.7	0.7	11.278	B
			2	2, 3	168	609	0.276	170	170	0.3	0.4	8.690	A
		2	1	(1, 2, 3, 4, 5)	472			472	475	0.0	0.0	0.346	A
	Exit	1	1		501			501	496	0.0	0.0	0.000	A
4 - A1079 (W)	Entry	1	1	1, 5	306	1003	0.305	310	293	0.4	0.4	5.710	A
			2	2, 3, 4	437	1003	0.436	433	428	0.5	1.0	6.563	A
		2	1	(1, 2, 3, 4, 5)	742			742	723	0.0	0.0	0.000	A
	Exit	1	1		693			693	702	0.0	0.0	0.000	A
5 - A1035 Dog Kennel Lane	Entry	1	1	1, 2	665	947	0.702	656	657	1.3	3.2	13.801	B
			2	3, 4, 5	369	947	0.390	371	373	0.6	0.8	6.723	A
		2	1	(1, 2, 3, 4, 5)	1035			1034	1038	0.0	0.0	0.016	A
	Exit	1	1		527			527	544	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 (E)	Entry	1	1	2	201	667	0.301	199	201	0.6	0.5	7.731	A
			2	1, 3, 4, 5	221	667	0.332	222	219	0.4	0.5	8.582	A
		2	1	(1, 2, 3, 4, 5)	422			422	420	0.0	0.0	0.000	A
	Exit	1	1		420			420	419	0.0	0.0	0.000	A
2 - A1079 (SE)	Entry	1	1	3, 4	486	1048	0.464	487	481	0.9	1.2	6.838	A
			2	1, 2, 5	415	1048	0.396	412	414	0.6	0.8	6.211	A
		2	1	(1, 2, 3, 4, 5)	901			901	897	0.0	0.0	0.000	A
	Exit	1	1		1391			1391	1393	0.0	0.0	0.000	A
3 - Killingwoldgraves Lane	Entry	1	1	1, 4, 5	310	601	0.516	309	304	0.7	1.2	11.958	B
			2	2, 3	167	601	0.278	168	174	0.4	0.5	8.315	A
		2	1	(1, 2, 3, 4, 5)	478			477	479	0.0	0.2	0.298	A
	Exit	1	1		496			496	497	0.0	0.0	0.000	A
4 - A1079 (W)	Entry	1	1	1, 5	290	996	0.291	290	294	0.4	0.5	5.697	A
			2	2, 3, 4	437	996	0.438	431	432	1.0	1.2	7.150	A
		2	1	(1, 2, 3, 4, 5)	726			726	728	0.0	0.0	0.000	A
	Exit	1	1		711			711	711	0.0	0.0	0.000	A
5 - A1035 Dog Kennel Lane	Entry	1	1	1, 2	662	951	0.696	668	662	3.2	2.9	17.217	C
			2	3, 4, 5	371	951	0.390	370	381	0.8	0.9	7.017	A
		2	1	(1, 2, 3, 4, 5)	1033			1033	1042	0.0	0.0	0.024	A
	Exit	1	1		537			537	541	0.0	0.0	0.000	A

## 08:45 - 09:00

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 (E)	Entry	1	1	2	164	749	0.219	163	160	0.5	0.3	6.265	A
			2	1, 3, 4, 5	176	749	0.235	176	181	0.5	0.3	6.641	A
		2	1	(1, 2, 3, 4, 5)	340			340	340	0.0	0.0	0.000	A
	Exit	1	1		350			350	345	0.0	0.0	0.000	A
2 - A1079 (SE)	Entry	1	1	3, 4	399	1083	0.368	398	395	1.2	0.8	5.726	A
			2	1, 2, 5	333	1083	0.308	334	346	0.8	0.4	5.260	A
		2	1	(1, 2, 3, 4, 5)	732			732	737	0.0	0.0	0.000	A
	Exit	1	1		1143			1143	1150	0.0	0.0	0.000	A
3 - Killingwoldgraves Lane	Entry	1	1	1, 4, 5	261	647	0.403	261	257	1.2	0.6	9.587	A
			2	2, 3	139	647	0.215	138	142	0.5	0.3	7.260	A
		2	1	(1, 2, 3, 4, 5)	400			400	396	0.2	0.0	0.200	A
	Exit	1	1		413			413	408	0.0	0.0	0.000	A
4 - A1079 (W)	Entry	1	1	1, 5	237	1042	0.228	240	235	0.5	0.3	5.061	A
			2	2, 3, 4	360	1042	0.345	361	360	1.2	0.5	5.560	A
		2	1	(1, 2, 3, 4, 5)	597			597	591	0.0	0.0	0.000	A
	Exit	1	1		580			580	582	0.0	0.0	0.000	A
5 - A1035 Dog Kennel Lane	Entry	1	1	1, 2	545	1005	0.542	547	551	2.9	1.3	8.916	A
			2	3, 4, 5	313	1005	0.311	313	309	0.9	0.5	5.482	A
		2	1	(1, 2, 3, 4, 5)	859			859	851	0.0	0.0	0.000	A
	Exit	1	1		442			442	450	0.0	0.0	0.000	A

09:00 - 09:15

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 (E)	Entry	1	1	2	136	814	0.167	135	136	0.3	0.2	5.194	A
			2	1, 3, 4, 5	154	814	0.189	152	154	0.3	0.3	5.525	A
		2	1	(1, 2, 3, 4, 5)	290			290	290	0.0	0.0	0.000	A
	Exit	1	1		275			275	285	0.0	0.0	0.000	A
2 - A1079 (SE)	Entry	1	1	3, 4	325	1109	0.293	324	330	0.8	0.5	5.066	A
			2	1, 2, 5	290	1109	0.261	292	289	0.4	0.3	4.594	A
		2	1	(1, 2, 3, 4, 5)	615			615	617	0.0	0.0	0.000	A
	Exit	1	1		957			957	957	0.0	0.0	0.000	A
3 - Killingwoldgraves Lane	Entry	1	1	1, 4, 5	213	677	0.314	212	215	0.6	0.5	7.344	A
			2	2, 3	116	677	0.172	117	117	0.3	0.2	6.627	A
		2	1	(1, 2, 3, 4, 5)	329			329	331	0.0	0.0	0.004	A
	Exit	1	1		341			341	345	0.0	0.0	0.000	A
4 - A1079 (W)	Entry	1	1	1, 5	196	1074	0.183	197	199	0.3	0.3	4.599	A
			2	2, 3, 4	292	1074	0.272	295	298	0.5	0.3	5.001	A
		2	1	(1, 2, 3, 4, 5)	488			488	497	0.0	0.0	0.000	A
	Exit	1	1		487			487	488	0.0	0.0	0.000	A
5 - A1035 Dog Kennel Lane	Entry	1	1	1, 2	461	1056	0.437	465	462	1.3	0.5	6.911	A
			2	3, 4, 5	259	1056	0.245	259	259	0.5	0.4	5.124	A
		2	1	(1, 2, 3, 4, 5)	720			720	718	0.0	0.0	0.000	A
	Exit	1	1		389			389	384	0.0	0.0	0.000	A

# Proposed Layout - 2027 With Development (Sensitivity Test), PM

## Data Errors and Warnings

Severity	Area	Item	Description
Warning	Lane Simulation	A1 - Proposed 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 (E) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	2 - A1079 (SE) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	3 - Killingwoldgraves Lane - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	4 - A1079 (W) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	5 - A1035 Dog Kennel Lane - 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	Killingwoldgraves Roundabout	Standard Roundabout		1, 2, 3, 4, 5	9.82	A

### Junction Network Options

Driving side	Lighting
Left	Normal/unknown

## Traffic Demand

### Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D4	2027 With Development (Sensitivity Test)	PM	ONE HOUR	16:45	18:15	15	✓

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

### Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - A1174 (E)		ONE HOUR	✓	357	100.000
2 - A1079 (SE)		ONE HOUR	✓	1002	100.000
3 - Killingwoldgraves Lane		ONE HOUR	✓	522	100.000
4 - A1079 (W)		ONE HOUR	✓	681	100.000
5 - A1035 Dog Kennel Lane		ONE HOUR	✓	534	100.000

## Origin-Destination Data

### Demand (PCU/hr)

		To				
		1 - A1174 (E)	2 - A1079 (SE)	3 - Killingwoldgraves Lane	4 - A1079 (W)	5 - A1035 Dog Kennel Lane
From	1 - A1174 (E)	0	121	58	168	10
	2 - A1079 (SE)	132	2	159	265	444
	3 - Killingwoldgraves Lane	60	150	0	48	264
	4 - A1079 (W)	186	363	56	1	75
	5 - A1035 Dog Kennel Lane	6	355	107	65	1

## Vehicle Mix

### Heavy Vehicle Percentages

		To				
		1 - A1174 (E)	2 - A1079 (SE)	3 - Killingwoldgraves Lane	4 - A1079 (W)	5 - A1035 Dog Kennel Lane
From	1 - A1174 (E)	0	1	0	2	0
	2 - A1079 (SE)	0	0	1	2	4
	3 - Killingwoldgraves Lane	0	0	0	2	1
	4 - A1079 (W)	3	6	2	0	12
	5 - A1035 Dog Kennel Lane	0	4	0	8	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 (E)	6.47	0.8	A	329	494
2 - A1079 (SE)	7.49	3.0	A	917	1375
3 - Killingwoldgraves Lane	22.22	3.5	C	482	723
4 - A1079 (W)	8.13	1.9	A	624	936
5 - A1035 Dog Kennel Lane	6.34	1.0	A	488	732

### Main Results for each time segment

#### 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 (E)	267	67	819	266	267	297	0.0	0.5	5.007	A
2 - A1079 (SE)	738	184	353	741	739	732	0.0	1.0	4.892	A
3 - Killingwoldgraves Lane	398	99	805	399	399	289	0.0	0.9	8.880	A
4 - A1079 (W)	500	125	801	504	505	404	0.0	0.7	5.201	A
5 - A1035 Dog Kennel Lane	403	101	711	405	403	593	0.0	0.4	4.548	A

#### 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 (E)	318	79	989	319	315	355	0.5	0.4	5.424	A
2 - A1079 (SE)	905	226	417	901	908	891	1.0	1.7	5.698	A
3 - Killingwoldgraves Lane	479	120	974	474	469	344	0.9	1.8	10.885	B
4 - A1079 (W)	621	155	954	624	623	494	0.7	1.1	6.417	A
5 - A1035 Dog Kennel Lane	477	119	862	482	476	715	0.4	0.6	5.216	A

**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 (E)	401	100	1235	400	391	432	0.4	0.8	6.319	A
2 - A1079 (SE)	1113	278	536	1115	1109	1099	1.7	2.0	7.064	A
3 - Killingwoldgraves Lane	568	142	1218	569	563	434	1.8	3.5	19.290	C
4 - A1079 (W)	781	195	1173	777	757	614	1.1	1.9	8.065	A
5 - A1035 Dog Kennel Lane	589	147	1077	589	591	873	0.6	1.0	6.281	A

**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 (E)	402	101	1207	404	396	430	0.8	0.5	6.467	A
2 - A1079 (SE)	1106	276	522	1098	1094	1089	2.0	3.0	7.488	A
3 - Killingwoldgraves Lane	581	145	1205	582	586	416	3.5	3.5	22.223	C
4 - A1079 (W)	744	186	1179	747	747	607	1.9	1.6	8.129	A
5 - A1035 Dog Kennel Lane	590	147	1047	590	587	879	1.0	1.0	6.344	A

**17:45 - 18:00**

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 (E)	319	80	966	319	321	342	0.5	0.5	5.648	A
2 - A1079 (SE)	883	221	401	882	906	885	3.0	1.5	5.913	A
3 - Killingwoldgraves Lane	472	118	949	472	480	334	3.5	1.5	13.753	B
4 - A1079 (W)	600	150	944	600	605	478	1.6	1.0	6.331	A
5 - A1035 Dog Kennel Lane	467	117	842	466	475	701	1.0	0.7	5.331	A

**18:00 - 18:15**

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 (E)	268	67	820	267	269	291	0.5	0.4	4.956	A
2 - A1079 (SE)	754	188	356	753	754	731	1.5	1.0	5.096	A
3 - Killingwoldgraves Lane	396	99	813	392	398	296	1.5	1.0	9.007	A
4 - A1079 (W)	498	125	799	500	505	407	1.0	0.7	5.131	A
5 - A1035 Dog Kennel Lane	403	101	708	403	402	590	0.7	0.5	4.689	A

## Lane Results

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

### Lanes: Main Results for each time segment

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 (E)	Entry	1	1	2	89	907	0.098	89	90	0.0	0.2	4.380	A
			2	1, 3, 4, 5	178	907	0.197	177	177	0.0	0.4	5.327	A
		2	1	(1, 2, 3, 4, 5)	267			267	269	0.0	0.0	0.000	A
	Exit	1	1		297			297	286	0.0	0.0	0.000	A
2 - A1079 (SE)	Entry	1	1	3, 4	312	1143	0.273	313	313	0.0	0.4	4.548	A
			2	1, 2, 5	425	1143	0.372	428	426	0.0	0.6	5.148	A
		2	1	(1, 2, 3, 4, 5)	738			738	743	0.0	0.0	0.000	A
	Exit	1	1		732			732	741	0.0	0.0	0.000	A
3 - Killingwoldgraves Lane	Entry	1	1	1, 4, 5	283	662	0.427	284	284	0.0	0.7	9.635	A
			2	2, 3	114	662	0.173	115	115	0.0	0.2	6.597	A
		2	1	(1, 2, 3, 4, 5)	398			397	403	0.0	0.0	0.122	A
	Exit	1	1		289			289	285	0.0	0.0	0.000	A
4 - A1079 (W)	Entry	1	1	1, 5	200	1006	0.199	201	195	0.0	0.3	4.702	A
			2	2, 3, 4	300	1006	0.298	302	311	0.0	0.3	5.512	A
		2	1	(1, 2, 3, 4, 5)	500			500	508	0.0	0.0	0.000	A
	Exit	1	1		404			404	407	0.0	0.0	0.000	A
5 - A1035 Dog Kennel Lane	Entry	1	1	1, 2	272	1048	0.260	274	272	0.0	0.3	4.840	A
			2	3, 4, 5	130	1048	0.124	131	131	0.0	0.1	3.948	A
		2	1	(1, 2, 3, 4, 5)	403			403	405	0.0	0.0	0.000	A
	Exit	1	1		593			593	594	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 (E)	Entry	1	1	2	111	857	0.130	111	108	0.2	0.2	5.059	A
			2	1, 3, 4, 5	207	857	0.241	208	207	0.4	0.2	5.615	A
		2	1	(1, 2, 3, 4, 5)	318			318	315	0.0	0.0	0.000	A
	Exit	1	1		355			355	353	0.0	0.0	0.000	A
2 - A1079 (SE)	Entry	1	1	3, 4	387	1124	0.344	385	386	0.4	0.6	5.083	A
			2	1, 2, 5	518	1124	0.461	515	522	0.6	1.1	6.157	A
		2	1	(1, 2, 3, 4, 5)	905			905	911	0.0	0.0	0.000	A
	Exit	1	1		891			891	884	0.0	0.0	0.000	A
3 - Killingwoldgraves Lane	Entry	1	1	1, 4, 5	342	623	0.550	339	336	0.7	1.3	11.593	B
			2	2, 3	136	623	0.218	134	133	0.2	0.3	7.271	A
		2	1	(1, 2, 3, 4, 5)	479			478	472	0.0	0.1	0.513	A
	Exit	1	1		344			344	347	0.0	0.0	0.000	A
4 - A1079 (W)	Entry	1	1	1, 5	245	959	0.256	247	243	0.3	0.3	5.667	A
			2	2, 3, 4	376	959	0.392	377	380	0.3	0.8	6.891	A
		2	1	(1, 2, 3, 4, 5)	621			621	625	0.0	0.0	0.000	A
	Exit	1	1		494			494	490	0.0	0.0	0.000	A
5 - A1035 Dog Kennel Lane	Entry	1	1	1, 2	325	1000	0.325	328	319	0.3	0.5	5.652	A
			2	3, 4, 5	152	1000	0.152	154	157	0.1	0.1	4.331	A
		2	1	(1, 2, 3, 4, 5)	477			477	477	0.0	0.0	0.000	A
	Exit	1	1		715			715	719	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 (E)	Entry	1	1	2	134	785	0.170	134	131	0.2	0.2	5.453	A
			2	1, 3, 4, 5	267	785	0.340	266	260	0.2	0.6	6.756	A
		2	1	(1, 2, 3, 4, 5)	401			401	393	0.0	0.0	0.000	A
	Exit	1	1		432			432	425	0.0	0.0	0.000	A
2 - A1079 (SE)	Entry	1	1	3, 4	470	1087	0.432	469	469	0.6	0.8	5.779	A
			2	1, 2, 5	643	1087	0.592	647	640	1.1	1.2	7.972	A
		2	1	(1, 2, 3, 4, 5)	1113			1113	1111	0.0	0.0	0.026	A
	Exit	1	1		1099			1099	1083	0.0	0.0	0.000	A
3 - Killingwoldgraves Lane	Entry	1	1	1, 4, 5	404	566	0.713	404	403	1.3	2.3	17.827	C
			2	2, 3	168	566	0.297	165	160	0.3	0.5	9.262	A
		2	1	(1, 2, 3, 4, 5)	568			571	568	0.1	0.7	3.853	A
	Exit	1	1		434			434	426	0.0	0.0	0.000	A
4 - A1079 (W)	Entry	1	1	1, 5	291	891	0.327	291	289	0.3	0.5	6.366	A
			2	2, 3, 4	490	891	0.550	486	468	0.8	1.4	9.097	A
		2	1	(1, 2, 3, 4, 5)	781			781	760	0.0	0.0	0.005	A
	Exit	1	1		614			614	604	0.0	0.0	0.000	A
5 - A1035 Dog Kennel Lane	Entry	1	1	1, 2	388	932	0.417	389	393	0.5	0.7	6.883	A
			2	3, 4, 5	201	932	0.215	201	197	0.1	0.3	5.089	A
		2	1	(1, 2, 3, 4, 5)	589			589	592	0.0	0.0	0.000	A
	Exit	1	1		873			873	874	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 (E)	Entry	1	1	2	136	792	0.172	137	133	0.2	0.2	5.464	A
			2	1, 3, 4, 5	266	792	0.335	267	263	0.6	0.4	6.978	A
		2	1	(1, 2, 3, 4, 5)	402			402	395	0.0	0.0	0.000	A
	Exit	1	1		430			430	426	0.0	0.0	0.000	A
2 - A1079 (SE)	Entry	1	1	3, 4	468	1091	0.428	464	464	0.8	1.1	6.022	A
			2	1, 2, 5	637	1091	0.584	634	631	1.2	1.9	8.502	A
		2	1	(1, 2, 3, 4, 5)	1106			1105	1098	0.0	0.1	0.039	A
	Exit	1	1		1089			1089	1091	0.0	0.0	0.000	A
3 - Killingwoldgraves Lane	Entry	1	1	1, 4, 5	411	569	0.723	412	413	2.3	2.2	18.899	C
			2	2, 3	170	569	0.299	170	172	0.5	0.5	9.509	A
		2	1	(1, 2, 3, 4, 5)	581			581	585	0.7	0.9	6.112	A
	Exit	1	1		416			416	420	0.0	0.0	0.000	A
4 - A1079 (W)	Entry	1	1	1, 5	293	888	0.330	295	289	0.5	0.5	6.295	A
			2	2, 3, 4	451	888	0.508	452	458	1.4	1.1	9.271	A
		2	1	(1, 2, 3, 4, 5)	744			744	745	0.0	0.0	0.005	A
	Exit	1	1		607			607	600	0.0	0.0	0.000	A
5 - A1035 Dog Kennel Lane	Entry	1	1	1, 2	394	942	0.419	393	394	0.7	0.8	7.042	A
			2	3, 4, 5	195	942	0.207	196	193	0.3	0.2	4.927	A
		2	1	(1, 2, 3, 4, 5)	590			590	587	0.0	0.0	0.000	A
	Exit	1	1		879			879	872	0.0	0.0	0.000	A

## 17:45 - 18:00

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 (E)	Entry	1	1	2	114	863	0.132	114	109	0.2	0.2	5.047	A
			2	1, 3, 4, 5	205	863	0.237	205	212	0.4	0.3	5.959	A
		2	1	(1, 2, 3, 4, 5)	319			319	321	0.0	0.0	0.000	A
	Exit	1	1		342			342	347	0.0	0.0	0.000	A
2 - A1079 (SE)	Entry	1	1	3, 4	375	1129	0.333	375	384	1.1	0.5	5.223	A
			2	1, 2, 5	508	1129	0.450	507	522	1.9	0.9	6.416	A
		2	1	(1, 2, 3, 4, 5)	883			883	900	0.1	0.0	0.013	A
	Exit	1	1		885			885	891	0.0	0.0	0.000	A
3 - Killingwoldgraves Lane	Entry	1	1	1, 4, 5	333	629	0.530	336	342	2.2	1.0	13.463	B
			2	2, 3	139	629	0.221	136	139	0.5	0.4	7.849	A
		2	1	(1, 2, 3, 4, 5)	472			472	475	0.9	0.2	2.005	A
	Exit	1	1		334			334	342	0.0	0.0	0.000	A
4 - A1079 (W)	Entry	1	1	1, 5	233	962	0.242	234	232	0.5	0.4	5.602	A
			2	2, 3, 4	368	962	0.382	366	373	1.1	0.6	6.786	A
		2	1	(1, 2, 3, 4, 5)	600			600	603	0.0	0.0	0.000	A
	Exit	1	1		478			478	489	0.0	0.0	0.000	A
5 - A1035 Dog Kennel Lane	Entry	1	1	1, 2	317	1006	0.315	317	322	0.8	0.5	5.697	A
			2	3, 4, 5	150	1006	0.149	149	153	0.2	0.2	4.577	A
		2	1	(1, 2, 3, 4, 5)	467			467	474	0.0	0.0	0.000	A
	Exit	1	1		701			701	719	0.0	0.0	0.000	A

## 18:00 - 18:15

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 (E)	Entry	1	1	2	92	906	0.102	91	90	0.2	0.2	4.500	A
			2	1, 3, 4, 5	175	906	0.193	176	179	0.3	0.2	5.187	A
		2	1	(1, 2, 3, 4, 5)	268			268	269	0.0	0.0	0.000	A
	Exit	1	1		291			291	290	0.0	0.0	0.000	A
2 - A1079 (SE)	Entry	1	1	3, 4	320	1142	0.281	319	321	0.5	0.5	4.633	A
			2	1, 2, 5	433	1142	0.379	434	433	0.9	0.6	5.444	A
		2	1	(1, 2, 3, 4, 5)	754			754	753	0.0	0.0	0.000	A
	Exit	1	1		731			731	743	0.0	0.0	0.000	A
3 - Killingwoldgraves Lane	Entry	1	1	1, 4, 5	280	660	0.423	276	280	1.0	0.7	9.756	A
			2	2, 3	116	660	0.175	116	117	0.4	0.3	6.809	A
		2	1	(1, 2, 3, 4, 5)	396			395	396	0.2	0.0	0.160	A
	Exit	1	1		296			296	293	0.0	0.0	0.000	A
4 - A1079 (W)	Entry	1	1	1, 5	196	1007	0.195	197	195	0.4	0.3	4.668	A
			2	2, 3, 4	302	1007	0.300	303	310	0.6	0.4	5.421	A
		2	1	(1, 2, 3, 4, 5)	498			498	504	0.0	0.0	0.000	A
	Exit	1	1		407			407	409	0.0	0.0	0.000	A
5 - A1035 Dog Kennel Lane	Entry	1	1	1, 2	267	1049	0.255	267	270	0.5	0.4	4.976	A
			2	3, 4, 5	136	1049	0.129	136	133	0.2	0.1	4.114	A
		2	1	(1, 2, 3, 4, 5)	403			403	401	0.0	0.0	0.000	A
	Exit	1	1		590			590	594	0.0	0.0	0.000	A