Project

Newtownmoyaghy SHD

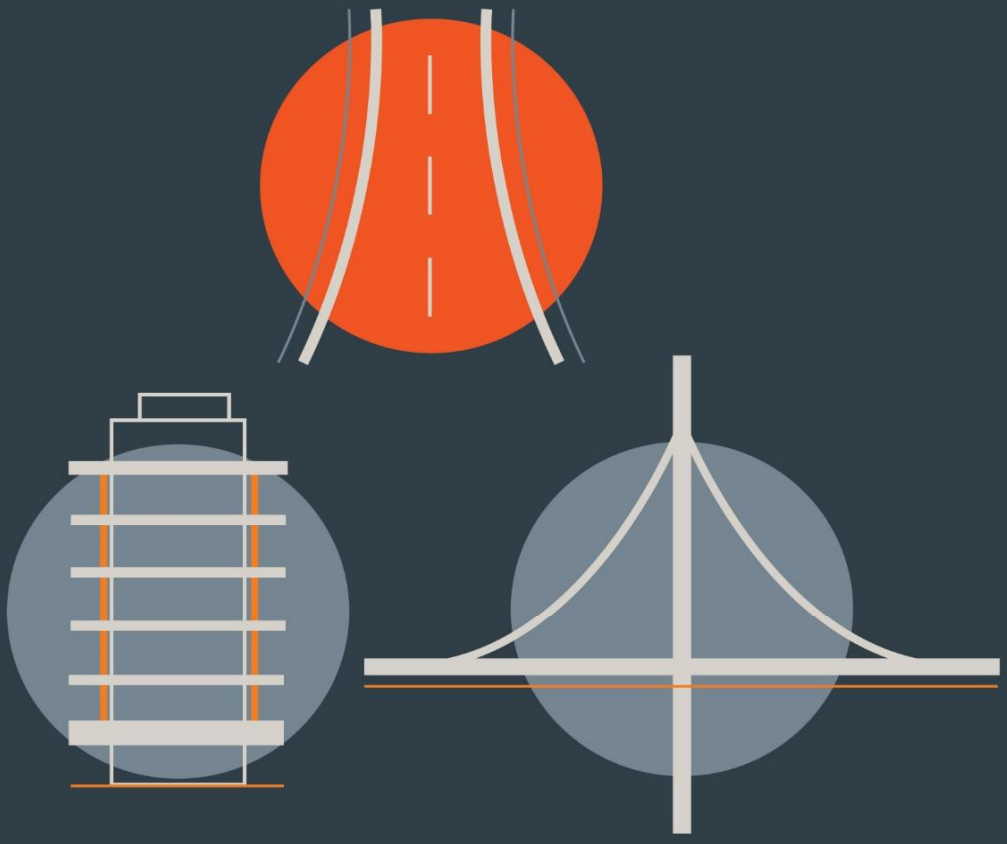
Report Title

TRAFFIC AND TRANSPORT ASSESSMENT REPORT

Client

McGarrell Reilly Homes

TRANSPORTATION



DBFL CONSULTING ENGINEERS

Document Control

Job Title: Newtownmoyaghy SHD

Job Number: p190009

Report Ref: p190009-Rep-003

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Reviewed by: Dan Reilly

Date: April 2019

Distribution: DBFL Consulting Engineers
Client Design Team
An Bord Pleanála

Revision	Issue Date	Description	Prepared	Reviewed	Approved
1st Draft	05/04/2019	Design Team Review	MMK	DR	DR
2nd Draft	23/04/2019	Design Team Review	MMK	DR	DR
Final	25/04/2019	Pre-Planning	MMK	DR	DR
Draft	16/10/2019	Planning Review	MMK	DR	DR
Draft Final	20/11/2019	Planning Review	MMK	DR	DR
Final	16/12/2019	Planning	MMK	DR	DR

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1.0 INTRODUCTION

1.1 BACKGROUND

1.1.1 DBFL Consulting Engineers (DBFL) have been commissioned by McGarrell Reilly Homes to prepare a Traffic and Transport Assessment (TTA) for a proposed residential development on 2 no. greenfield sites located at Newtownmoyaghy, Kilcock, Co. Meath.

1.1.2 The subject proposals seek permission for a 575 unit residential development comprising 388 no. houses and 187 no. apartments / duplex apartments. A 623m^2 neighbourhood focused Crèche is also included in the proposals.

1.1.3 The purpose of this TTA is to quantify the existing transport environment and to detail the results of assessment work undertaken to identify the potential level of transport impact generated as a result of the proposed 575 residential units.

1.1.4 The scope of the assessment covers transport and sustainability issues including access, pedestrian, cyclist and public transport connections. Recommendations contained within this report are based on existing and proposed road layout plans, site visits, on site traffic observations and junction survey data.

1.1.5 This TTA has been prepared in reference to the requirements of the National Roads Authority (TII) "Traffic and Transportation Assessment Guidelines". Reference has also been made to the "Meath County Development Plan 2013-2019", "Kildare County Development Plan 2017-2023" and the "Kilcock Local Area Plan 2015-2021".

1.2 METHODOLOGY

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

- '*Traffic and Transport Assessment Guidelines*' (May 2014) TII
- *'Traffic Management Guidelines'* Dublin Transportation Office & Department of the Environment and Local Government (May 2003)

- *'Guidelines for Traffic Impact Assessments'* The Institution of Highways and Transportation
- Kilcock Local Area Plan 2015-2021
- Kildare County Council Development Plan 2017-2023
- Meath County Development Plan 2013-2019

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

- Site Audit: A site audit was undertaken to quantify existing road network issues and identify local infrastructure characteristics, in addition to establishing the level of accessibility to the site in terms of walking, cycling and public transport. An inventory of the local road network was also developed during this stage of the assessment.
- Traffic Counts: Junction turning counts were commissioned and the results analysed with the objective of establishing local traffic characteristics in the immediate area of the proposed residential development.
- Trip Generation: A trip generation exercise has been carried out to establish the potential level of vehicle trips generated by both third party committed development and the proposed residential development.
- Trip Distribution: Based upon the 2021, 2026 and 2036 transport network provision and associated junction layout / control characteristics, in addition to the spatial / land use configuration of the urban environment across the catchment area of the development site, a distribution exercise has been undertaken to assign both committed development and the applicant's proposed development's site generated vehicle trips across the local road network in each of the three future design year scenarios.
- Network Impact: Ascertain the specific level of influence generated by the proposed development upon the local road network and subsequently identify which junctions need to be assessed in greater detail in accordance with the appropriate TII guidelines.

- Network Assessment: Drawing upon the findings of the previous stages, an operational assessment of the local road network has been undertaken to evaluate the performance of key local junctions following the implementation and occupation of the proposed development.

1.3 REPORT STRUCTURE

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

1.3.2 Chapter 2 of this report describes the receiving environment at the proposed development's location and surrounding area, whilst the local planning framework and associated transport objectives and policies that influence the design and appraisal of the subject residential proposals are highlighted within Chapter 3.

1.3.3 Chapter 4 provides a summary of the proposed residential development's key characteristics whilst Chapter 5 outlines the trip generation exercise carried out and the potential network impact of the proposals assessed for the 2021 Opening Year and the 2026 and 2036 Future Design Years.

1.3.4 The operational performance of key local junctions for a range of different development / traffic scenarios both prior to and following the commissioning of the proposed residential development are investigated and reported within Chapter 6.

1.3.5 The main conclusions and recommendations derived from the analysis are summarised in Chapter 7.

2.0 RECEIVING ENVIRONMENT

2.1 LOCATION

2.1.1 The proposed development site is located approximately 800m to the east of Kilcock Town Centre, north of the R148 Maynooth Road corridor. The subject scheme is proposed to be implemented on two individual plots (Northern and Southern sites) of land within the Meath County Local Area Plan Boundary as per the Kilcock LAP (2015-2021).

2.1.2 The general location of the subject site in relation to the surrounding road network is illustrated in Figure 2.1 below whilst Figure 2.2 indicatively shows the full extent of the subject lands in the context of the urban environment.

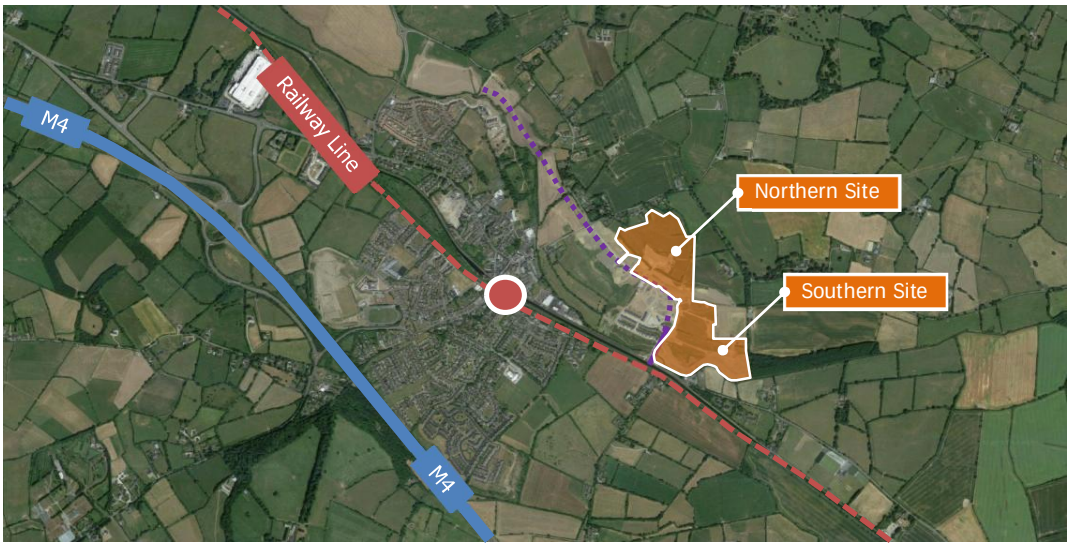


Figure 2.1: Site Location (Source: google maps)

Figure 2.2: Indicative Site Boundary (Source: google maps)

2.2 LAND USE

2.2.1 The subject lands are zoned "*A2 – To provide for new residential communities with ancillary community facilities, neighbourhood facilities and employment uses as considered appropriate for the status of the centre in the Settlement Hierarchy*" within the Meath County Development Plan 2013-2019.

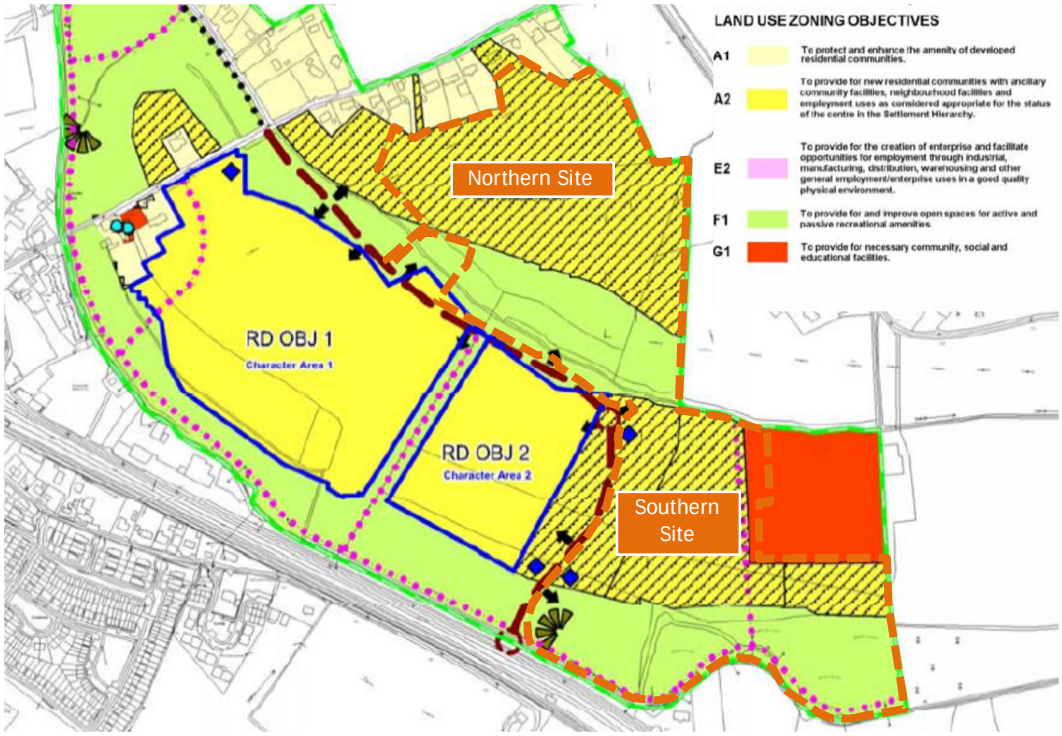


Figure 2.3: Land Use Zoning Objectives (Source: Map 1 Kilcock LAP 2015-2021)

2.2.2 The surrounding area to the west and south of the subject southern and northern development sites comprises the emerging 150 unit residential development on the Character Area 2 lands (as designated within the Kilcock LAP 2015-2021) of which 33 no. units are currently occupied (Pl. Ref. RA171230 / 150205) and the permitted 130 unit residential development on the Character Area 1 lands (Pl. Ref. 161443).

2.3 EXISTING TRANSPORTATION INFRASTRUCTURE

Road Network

2.3.1 The proposed northern site is located to the north of the emerging Distributor Road corridor whilst the southern site is located to the east of this emerging road infrastructure.

2.3.2 Currently the initial 160m of the emerging Distributor Road has been completed from the recently constructed roundabout on the R148 Maynooth Road to just north of the existing access to the partially constructed (33 units out of a total 150 units currently occupied) Character Area 2 development.

2.3.3 Travelling southeast on the R148, from the recently constructed roundabout, leads to Maynooth located approximately 5km to the east. Travelling northwest on the R148 for approximately 800m leads to Kilcock Town Centre and the R125 / R148 signal controlled junction. Travelling southwest on the R125, this corridor terminates at the R407 which subsequently provides access to the M4 strategic road network to the west and destinations to the south including Clane, Naas and the strategic M7 road network.

2.3.4 Travelling north on the R125 provides access to Dunboyne (15km via Moyglare Road), Dunshaughlin (19km) and the strategic M3 road network.

Existing Pedestrian and Cycling Facilities

2.3.5 The R148 Maynooth Road (Figure 2.4) is subject to a speed limit of 50kph. It benefits from recently upgraded pedestrian and cycle infrastructure including a good quality footway along the northern side of the corridor between the new R148 roundabout junction and Kilcock Town Centre. A shared cycle / pedestrian facility, which forms part of the Royal Canal Greenway, is available to the south of the road corridor along the Royal Canal bank.

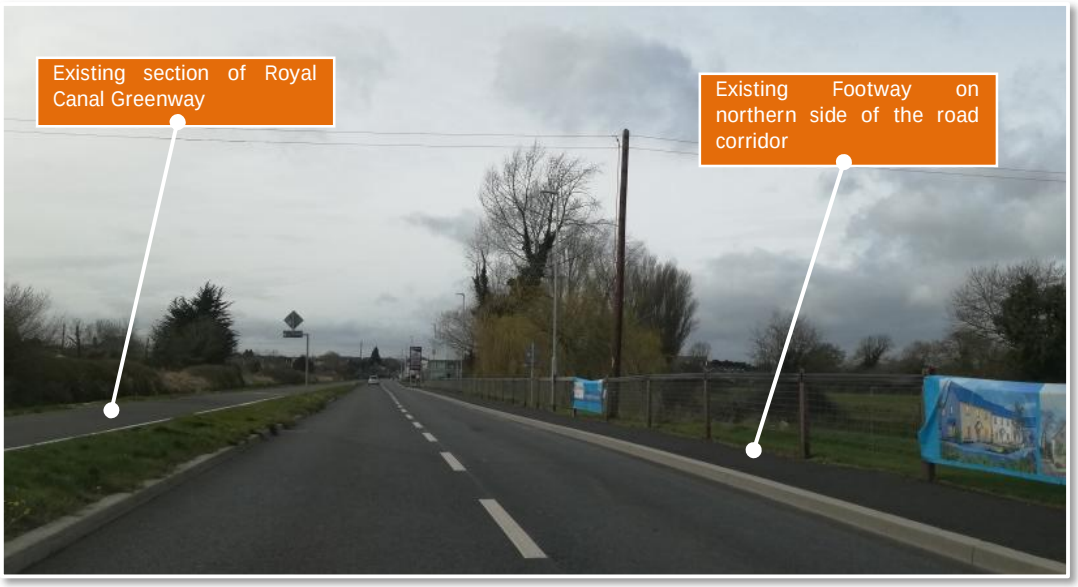


Figure 2.4: Existing Pedestrian & cycle Facilities on the R148 Maynooth Road

2.3.6 Along the R125 road corridor (Figure 2.5), pedestrians can benefit from the provision of a footway along the western side of the corridor between the Town Centre and the upgraded R125 / Distributor Road junction which benefits from pedestrian footways on both sides of the road in the immediate facility of the emerging upgraded junction. In addition, there is a southbound raised cycle lane in place over a distance of approximately 50m after which cyclists share the carriageway with vehicular traffic on approach to Kilcock Town Centre.

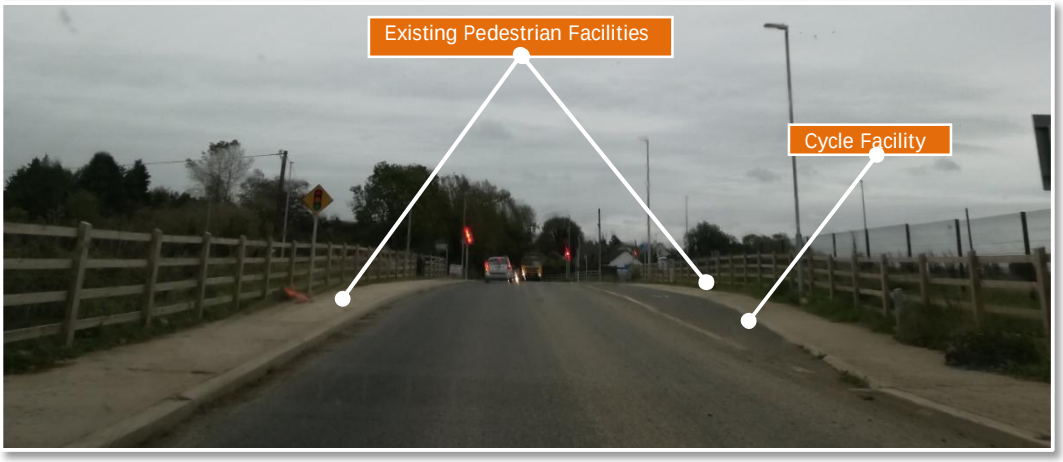


Figure 2.5: Existing Pedestrian & Cycle Facilities on the R125 Road Corridor

Public Transport – Bus

2.3.7 Kilcock is located on the 'Longford - Mullingar – Dublin' Bus Eireann service (Route 115) which connects the town to areas such as Longford, Edgeworthstown, Mullingar, Kinnegad, Enfield, Maynooth, Leixlip and various parts of Dublin. The nearest bus stop is located on Harbour Street which is located approximately 800m from the subject site.

Direction	Mon-Fri	Sat	Sun
Dublin to Kilcock	33	32	18
Kilcock to Dublin	32	31	16

Table 2.1: Bus Eireann Route 115 (No. of Services)

2.3.8 This service links Kilcock to Maynooth and Dublin with 33 services from the city centre and 32 services from Kilcock every weekday as presented in Table 2.1 above. The journey time is approximately 30 minutes from Kilcock to Dublin (Heuston).

Public Transport - Rail

2.3.9 Kilcock is located on the 'Dublin – Sligo' rail line, with services running daily, connecting Kilcock to areas such as Longford, Mullingar, Maynooth, Leixlip, Castleknock and various destinations in Dublin City. Kilcock station is fully accessible and benefits from car-parking facilities. The subject development site is located approximately 1.2km from Kilcock Train Station. Table 2.2 provides a summary of the number of rail services available at Kilcock on each day of the week.

Direction	Mon-Fri	Sat	Sun
Dublin to Sligo / Longford	11	7	6
Sligo / Longford to Dublin	10	7	6

Table 2.2: Rail Services available at Kilcock Train Station (Number of Services)

2.4 LOCAL AMENITIES

2.4.1 As illustrated in Figure 2.6, the proposed development site is well placed in terms of the availability of and access to local amenities. There are a number of schools within 5km of the site including St. Josephs Boys NS, Gaelscoil Chill Coca, Clochar Coca Nofa NS and Scoil Dara post primary school. Furthermore, the subject site benefits from good access to local retail and leisure facilities.

Figure 2.6: Local Amenities

2.5 ROAD SAFETY REVIEW

2.5.1 With the objective of ascertaining the road safety record of the immediate routes leading to/from the subject site, the collision statistics as detailed on the Road Safety Authority's (RSA) website (www.rsa.ie) have been examined. The RSA website includes basic information relating to reported collisions over the most recent twelve-year period, from 2005 to 2016 inclusive.

2.5.2 The RSA database records detail where collision events has been officially recorded such as the when the Garda being present to formally record details of the incident.

2.5.3 Table 2.3 below summarises the RSA Collision Data in the vicinity of the proposed development.

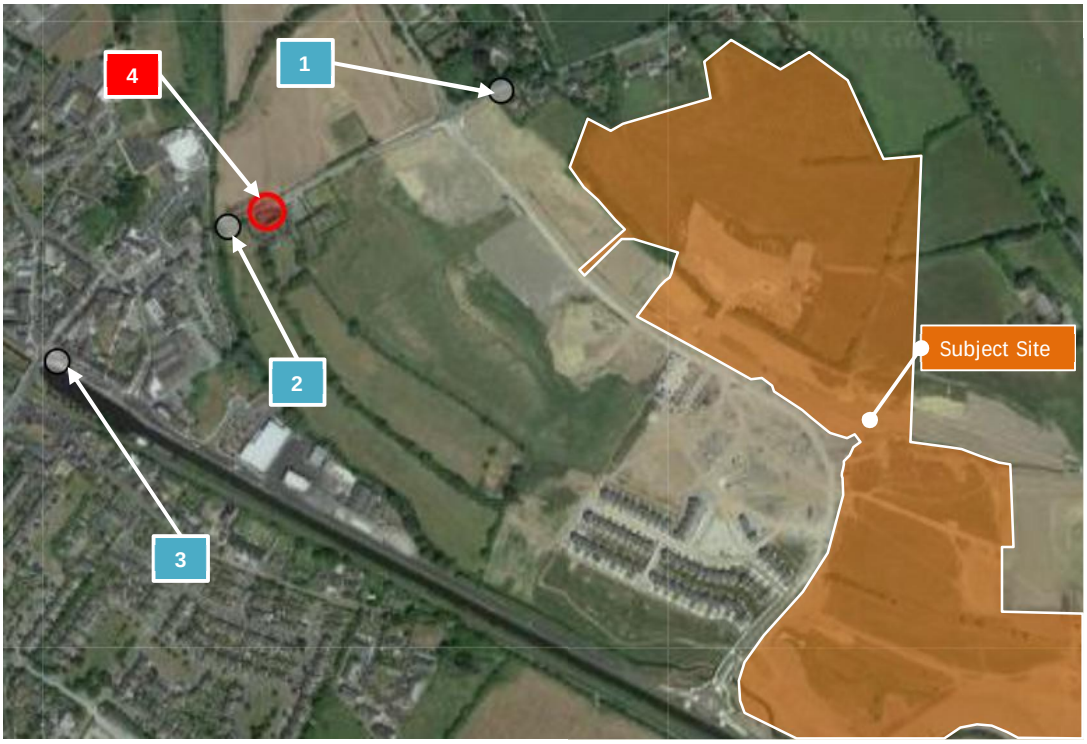


FIGURE 2.7: RSA Collision Data (www.rsa.ie)

2.5.4 The review of the RSA data reveals that the local road network exhibits a good safety record considering the volume of traffic travelling across the local road network.

2.5.5 In summary the review confirms that no significant incident trends or significant safety concerns are evident across the local road network.

Ref	Severity	Year	Vehicle	Circumstances	Day	Time	Casualty
1	Minor	2012	Car	Head-on conflict	Fri	0700-1000	1
2	Minor	2010	Car	Other	Thurs	1600-1900	2
3	Minor	2012	Bus	Pedestrian	Sat	1900-2300	1
4	Fatal	2005	Car	Other	Sun	0300-0700	1

TABLE 2.3: RSA Collision Data (www.rsa.ie)

2.6 PROPOSED TRANSPORT INFRASTRUCTURE

Road Infrastructure Proposals

Distributor Road

2.6.1 A number of road objectives are proposed within the Kilcock Local Area Plan (LAP) 2015-2021 as presented in Figure 2.8 below.

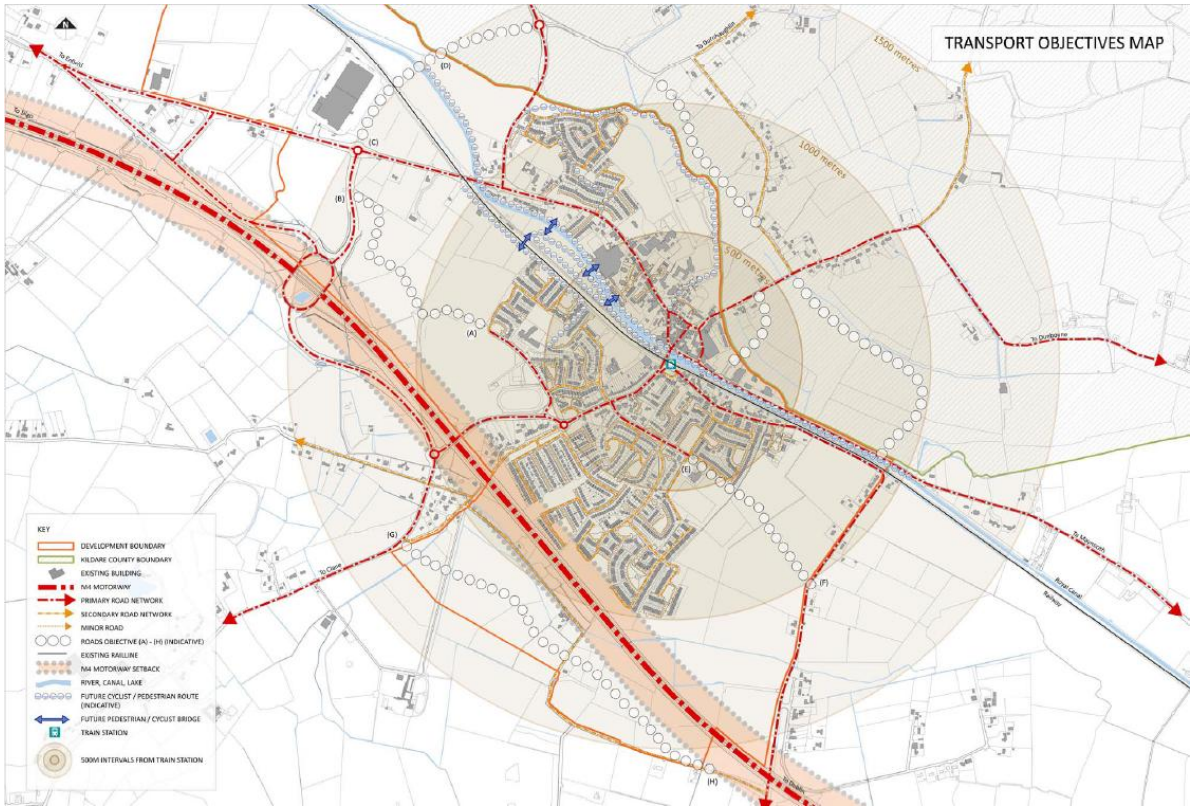


Figure 2.8: Transport Objectives Map (Kilcock LAP 2015-2021)

2.6.2 In addition to the Distributor Road proposals through the subject masterplan lands, as discussed in greater detail in the following paragraphs, further road proposals within the LAP include the extension of the aforementioned distributor road to the R148 / R158 roundabout thereby providing a complete route between the Maynooth Road in the east and the M4 motorway in the west which avoids Kilcock Town Centre.

2.6.3 The section of the Distributor Road which runs through the Masterplan Lands, (and approved by An Bord Pleanala under PL17.239375, PL17.238370 and PL09.238818) is approximately 0.86km in length and will consist of a 7.3m wide carriageway, with a 1.5m wide verge, 1.5m cycletrack and a 2.0 m wide footpath on each side of the road. This road will run in a north-west direction from a new roundabout on the R148, Maynooth Road. The road will form approximately 32% of the overall distributor road identified in the Kilcock LAP (approximately 2.7 km in length) and will stretch from the R148 Maynooth Road to the R125 Dunshaughlin Road. We note that all other sections of the distributor road outside the subject masterplan lands between the R148 and R158 have been granted planning permission by An Bord Pleanla. Works on the approved sections of Distributor Road within the overall Masterplan lands have commenced.

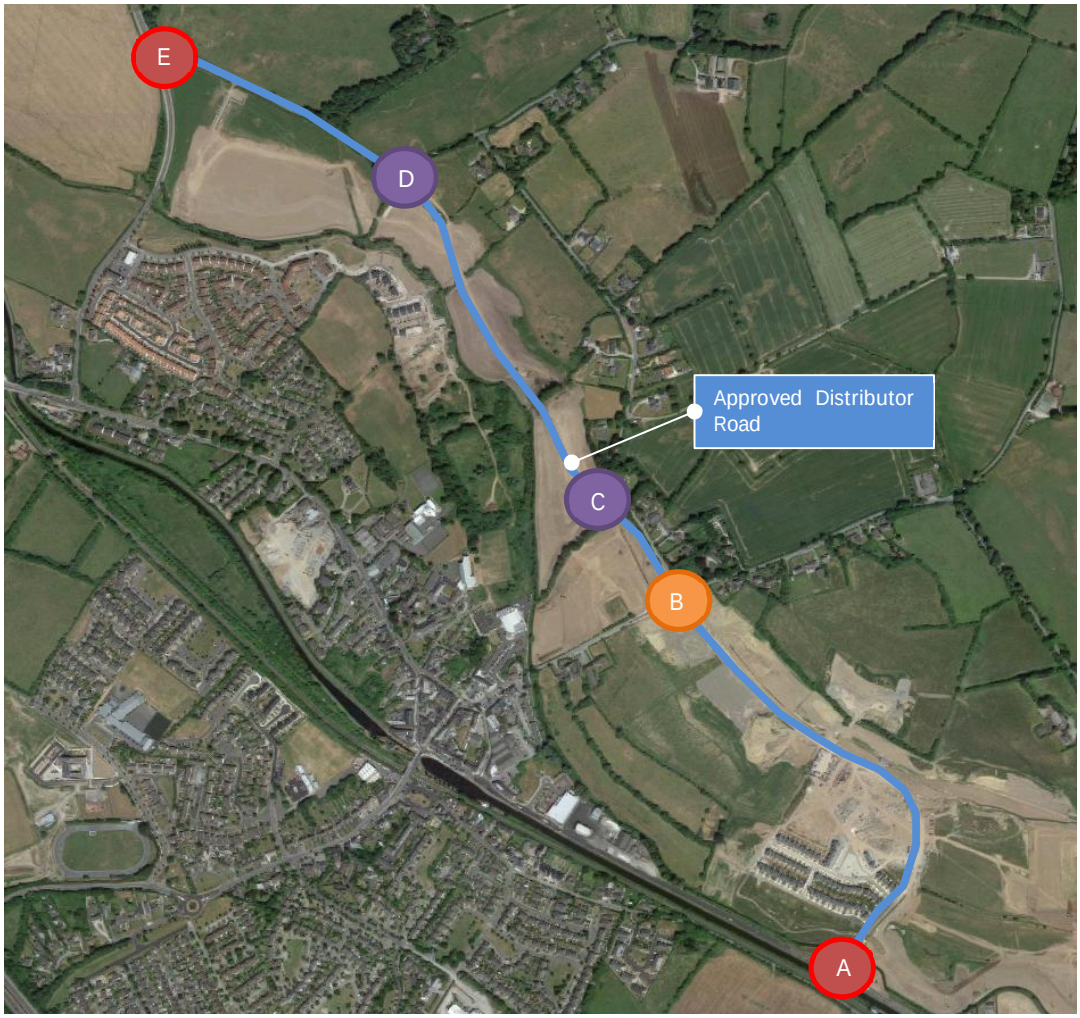


Figure 2.9: Approved Distributor Road / Existing Road Junctions

2.6.4 The approved Kilcock LAP Distributor Road (to be completed by others) will connect to the existing road network at five locations as described below and illustrated in Figure 2.9.

A. The first is the recently constructed 3-arm roundabout junction with the R148 Maynooth Road to the southeast of the town centre;
B. The second is the recently upgraded 4-arm signalised junction with the existing R125 Dolanstown / Newtownmoyaghy junction;
C. The third is the approved priority junction with the R125 Dolanstown at the location of the existing bend in the road approximately 250m north west of Newtownmoyaghy;
D. The fourth junction is the priority junction with the existing county road linking the R158 and R125, at the location of the ninety degree bend in the road;
E. Finally, the tie-in to the existing R158 / county road roundabout junction.

2.6.5 As part of the subject assessment, whilst the recently constructed Junctions A (Maynooth Road roundabout) and Junction B (R125 Dunshaughlin Road Signal-controlled junction) are operational, it has been assumed that a through route will not be complete between these two junctions by the 2021 Opening Year. By the 2026 Future Design Year, it has been assumed that the entire section of Distributor Road between the R148 Maynooth Road and the R125 will be complete whilst the remaining sections of Distributor Road will be complete by the 2036 Future Design Year.

New Road / Harbour Street Junction Upgrade

2.6.6 As part of the emerging permitted development, the existing New Road / Harbour Street junction is proposed to be upgraded from the current priority controlled junction arrangement to a signal controlled junction arrangement. The proposals will also facilitate two-way traffic along New Road between Harbour Street and the R125 Dunshaughlin Road. In summary, the following enhancements (which do not form part of the subject planning application) are proposed at this junction;

- New signal controls at New Road / Harbour Street including pedestrian crossings on the New Road and Harbour Street (E) arms,
- Introduction of a northbound lane along New Road (currently one-way),

- Right turn pocket on Harbour Street for traffic travelling north on New Road, and
- Two-lane approach to Harbour Street / Shaw bridge signalised junction on Harbour Street arm.

2.6.7 For the purposes of this assessment, it has been assumed that this proposed junction upgrade will be operational sometime before the subject development's adopted 2021 Opening Year.

3.0 POLICY FRAMEWORK

3.1 MEATH COUNTY DEVELOPMENT PLAN 2013-2019

3.1.1 The Meath County Development Plan 2013-2019 sets out the policies for sustainable development within the council area up to 2019.

3.1.2 The Meath County Development Plan 2013 – 2019 intends to promote and facilitate the provision of the necessary infrastructure to fully accommodate the demand for development and future population increases in an environmentally sustainable manner. The following policies are considered relevant to the proposed development:

Movement and Access

MA POL 2: *To promote and facilitate the development of cycling and walking facilities in the Kilcock Environs by securing the development of a network of safe cycle routes and footpaths on new and existing roads and on routes reserved exclusively for pedestrians and cyclists.*

MA POL 3: *To provide clear delineation between road hierarchy and their functions through the design process.*

MA POL 4: *To ensure that traffic safety measures are incorporated into the design of all new roads.*

MA POL 5: *To require the provision of good public lighting standards on all routes and extension of footpaths and public lighting to the development boundaries on public roads in association with further development.*

MA POL 6: *To provide for an integrated network of cycle ways throughout the Environs in order to promote more sustainable modes of transportation.*

MA POL 7: *To ensure that cycleways and footpaths are overlooked by adjoining development and are provided with an adequate level of public lighting.*

MA OBJ 1: *To reserve free from development the permitted Local Distributor Road within the Kilcock Environs area extending from the R148 (Maynooth Road) to the southeast, to the roundabout along the R158 (Summerhill Road) with provisions for suitable links and tie in provisions to the adjoining road network in County Kildare. The permitted alignment of this road is shown on the land use zoning objectives map.*

MA OBJ 2: *To facilitate the provision, in tandem with development, of the section of the Local Distributor Road extending from the R148 (Maynooth Road) to the existing R125 (Dunshaughlin Road) with provisions for suitable links and tie in provisions to the adjoining*

road network in County Kildare. Any planning application seeking consent to construct this section of roadway shall be accompanied by an appropriately detailed Flood Risk Assessment considering the existing un-defended flood extents. Furthermore, any development within the subject lands shall be subject to Appropriate Assessment pursuant to the Habitats Directive to ensure that the proposed development will not adversely impact upon the qualifying interests of any Natura 2000 sites.

MA OBJ 3: *To carry out general road improvements in the Kilcock Environs, including junction tie in works and upgrades to facilitate the provision of a new spinal road.*

Public Transport

Trans Pol 7: *To support the improvement of existing rail transport infrastructure including the Dublin/Sligo route with increased suburban services to Enfield and Kilcock, the existing Dublin.*

Trans Pol 11: *To ensure that new developments in Large Growth Towns I and II and Moderate Sustainable Grown Towns are laid out so as to facilitate the provision of local bus services.*

Walking and Cycling

Trans Pol 22: *To ensure, where possible, that cycleways and footpaths are effectively delineated from major vehicular carriageways.*
Trans Pol 23: *To require planning applications for major developments to demonstrate proposals to address accessibility for pedestrians and cyclists.*
Trans Pol 24: *To require planning applications for major developments to demonstrate proposals to address accessibility for pedestrians and cyclists.*

Residential Development

RD OBJ 1: *To accommodate, on the lands identified on the land use zoning objectives map to the east of the R125 (Dunshaughlin road), a maximum of 250 residential units and a neighbourhood centre and to reserve a site of 1.6 hectares for a primary school within these lands. The primary school site and neighbourhood centre shall be located adjacent to each other. Any application for development on these lands shall be accompanied by a Master Plan illustrating the layout for the site in its entirety as illustrated on the land use zoning objectives map. The layout shall make provision for connections, particularly pedestrian and cyclist, between Character Area 1 and Character Area 2.*

RD OBJ 2: *To accommodate, on the lands identified on the land use zoning objectives map to the north of the Rye Water River, a maximum of 150 residential units. Any planning application for development on these lands should include a Master Plan showing the proposed layout for the entire site as illustrated on the land use zoning objectives map.*

This should make provision for connectivity between Character Area 1 and Character Area 2.

INF POL 24: *To require planning applications to demonstrate the development proposal's accessibility for pedestrians and cyclists.*

3.2 KILCOCK LOCAL AREA PLAN 2015-2021

3.2.1 The Kilcock Local Area Plan (LAP) 2015-2021 sets out the policies for sustainable development in the town of Kilcock up to 2021.

3.2.2 In the context of the subject development site and the proposed residential scheme a number of the most relevant objectives of the LAP include;

Movement and Transport – Integrated Land-Use and Transportation

MTO 2: *"To maximise the use of public transport infrastructure, walking and cycling and minimise car dependence."*

MTO 3: *"To promote pedestrian and cycling movements for local trips."*

MTO 4: *" To avoid severance within local catchments."*

Movement and Transport – Public Transport

MTO 5: *"To seek to develop a park and ride facility at a location close to the M4 interchange and provide car parking for rail services on 'the island' adjacent to the train station in order to remove commuter related parking in the town centre."*

MTO 6: *"To investigate the provision of bus transport facilities throughout the town and to seek to ensure an increase in the provision of bus stops, bus shelters and bus bays with appropriate timetable information."*

Movement and Transport –Cycling

MTO 7: *"To develop a local cycle network for Kilcock connecting key destinations to the wider catchment and national cycle network."*

MTO 8: *"To provide additional cycle and pedestrian bridges across the Royal Canal and railway line to form part of strategic cycling and walking routes."*

MTO 10: *"To develop a direct cycle linkage system away from the primary traffic network including on and off-road cycle lanes designed and constructed to minimise conflict with other road users."*

MTO 11: *"To develop new cycle links to a high standard for utility cycling including:*

- *The Royal Canal Route,*
- *The Bawnogues to the Train Station using 'the Island' as a route along the Railway linking to the Royal Canal Cycle Track Route,*
- *To enhance the outer orbital walking and cycling route from Courtown Demesne to Connaught Street and the Courtown Road,*
- *Develop a pedestrian and cyclist bridges connecting the Ryebridge area to the schools in Bawnogues crossing the Royal Canal and Railway,*
- *The Ryebridge area to the Town Centre along the Rye Water River,*
- *Branganstown to the Train station and to the outer orbital route.*

Movement and Transport –Walking

MTO 12: *"To create and support a network of pedestrian infrastructure to promote and facilitate walking and provide improved levels of priority and lighting for pedestrians and cyclists along key desire lines"*

MTO 14: *"To provide increased priority for pedestrians particularly at the entrances to the town centre through the introduction of increased pedestrian crossing points and other measures as appropriate. Traffic calming within the Market Square as well as pedestrian and cyclist crossing points over the Royal Canal and railway line and will be prioritised."*

MTO 15: *"To develop a high quality pedestrian environment in the vicinity of the railway station."*

Movement and Transport - Roads Capacity Improvements

MTO 25: *"To facilitate the future construction of the following roads and in the interim protect their routes from development:*

- *From Mollyware Street (Royal Meadows) to the Branganstown Road,*
- *From the Enfield Road to the County boundary,*
- *From the Bawnogues to the M4 interchange"*

MTO 26: *"To coordinate and co-operate with Meath County Council in the design and construction of the road network serving Kilcock."*

MTO 27: *"To agree in consultation with Meath County Council the detail alignment and design of a local distributor road…to facilitate a vehicular circulation route from the Dunshaughlin Road and adjoining development lands to the Maynooth Road."*

MTO 28: *"To consult and co-ordinate with Meath County Council in the design and construction of new bridges connecting zoned lands in County Meath to the town in order to relieve pressure on the existing Meath Bridge and improve connectivity."*

3.3 DEVELOPMENT CONTROL

Car Parking Standards

3.3.1 Reference has been made to Table 11.9 of the Meath County Council Development Plan (2013-2019) which outlines the car parking standards for the county.

3.3.2 Furthermore, reference is made to Chapter 4 of Sustainable Urban Housing: Design Standards for New Apartments Guidelines for Planning Authorities, as published by the Department of Housing, Planning and Local Government (DHPLG), March 2018. The subject site location, can be classified as '*Peripheral and/or Less Accessible Urban Locations'.*

3.3.3 In relation to car parking, within 'Peripheral and/or Less Accessible Urban Locations', the DHPLG document states:

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

3.3.4 With regard to the proposed development schedule and the location of the subject site, the associated car parking requirements are outlined in Table 3.1 below.

3.3.5 In response to the above MCC development management standards the scheme is permitted to provide 1111 on-site car parking spaces comprising 518 within the Southern site boundary and 593 within the Northern site boundary. Nevertheless, the DHPLG guidance suggests that a lower quantum should be provided ranging from a total provision of 1053 to 1067 car parking spaces.

Site	Unit Type		Development Standard		No. of Units / GFA	Quantum Permitted/ Required	
			MCC	DHPLG		MCC	DHPLG
Southern Site	Apartment	1-2 bed	1.25 / unit + 1 visitor space / 4 units	1 / unit plus 1 visitor / 3-4 units	115	144 resident, 29 visitor	115 resident, 29-38 visitor
		3 bed	2 / unit + 1 visitor space / 4 units		4	8 resident, 1 visitor	4 resident, 1-2 visitor
	House		2 / unit	As MCC	147	294	As MCC
	Crèche (623m^2)		1 / staff, 1set down / 5 children	As MCC	18 staff, 119 children	18 staff, 24 set down	As MCC
	Total Southern Site					518	485-495
Northern Site	Apartment / Duplex	1-2 bed	1.25 / unit + 1 visitor space / 4 units	1 / unit plus 1 visitor / 3-4 units	58	73 resident, 15 visitor	58 resident, 15-19 visitor
		3 bed	2 / unit + 1 visitor space / 4 units		10	20 resident, 3 visitor	10 resident, 3 visitor
	House		2 / unit	As MCC	241	482	As MCC
	Total Northern Site					593	568-572
Overall Total						1111	1053-1067

Table 3.1: Car Parking Standards

Mobility Impaired Car Parking

3.3.6 Note 4 of Table 11.9 of the Meath County Council Development Plan (2013-2019) specifies that *"Parking facilities for mobility impaired drivers and their vehicles shall be provided at the general rate of 2 per 100 spaces".*

Cycle Parking Standards

3.3.7 Reference has been made to both Section 11.9.2 of the Meath County Development Plan (2013-2019) which outlines the minimum cycle parking provision sought for new developments within the area governed by MCC, and Section 4.17 of the aforementioned DHPLG requirements. The cycle parking standards applicable to the subject development are detailed in Table 3.2 below.

3.3.8 In response to the above MCC development management standards the scheme is required to provide a minimum of 115 on-site cycle parking spaces comprising 75 within the Southern site boundary and 40 within the Northern site boundary. Nevertheless, the DHPLG guidance suggests that a higher quantum of 432 cycle parking spaces should be provided comprising 270 cycle parking spaces within the Southern site and 162 within the Northern site.

Site	Unit	MCC Standard		DHPLG Standard		MCC Requirement		DHPLG Requirement	
		Long Stay	Short Stay	Long Stay	Short Stay	Long Stay	Short Stay	Long Stay	Short Stay
Southern Site	Apartment	1 / 3 car parking		1 / bed	1/2 apts	51	10	196	60
	House*	NA		NA	NA	NA		NA	
	Crèche	1 / 3 car parking		As MCC	As MCC	6	8	As MCC	
	Total Southern Site					75		270	
Northern Site	Apartment	1 / 3 car parking		1 / bed	1/2 apts	31	9	128	34
	House*	NA		NA	NA	NA		NA	
	Total Northern Site					40		162	
Overall Total						115		432	

* Cycle parking opportunities available in-curtilage

Table 3.2: Cycle Parking Standards

4.0 CHARACTERISTICS OF PROPOSALS

4.1 OVERVIEW

4.1.1 The proposals seek permission for the provision of a 575 unit residential development over 2 no. individual sites. The Southern site comprises a total of 266 residential units including 147 no. houses and 119 apartments / duplex apartments. The Northern site comprises a total of 309 residential units including 241 no. houses and 68 no. apartments / duplex apartments. A 623m^2 creche facility is also proposed within the Southern site which is predicted to accommodate 18 staff and 119 children. A summary of the residential development proposals is presented in Table 4.1 below.

Description	Northern Site	Southern Site	Total
1-Bed Apartment	3	17	20
2-bed Apartment	11	35	46
1-Bed Duplex / Maisonette / Simplex	15	29	44
2-bed Duplex / Maisonette / Simplex	29	34	63
3-Bed Duplex / Maisonette / Simplex	10	4	14
2-Bed House	22	21	43
3-Bed House	163	107	270
4-Bed House	56	19	75
Total	309	266	575

Table 4.1: Proposed Development Schedule

4.1.2 The proposed development site layout is presented in Figure 4.1 below and further details of the proposals are illustrated in the architects' scheme drawings as submitted with this planning application.

4.2 SITE ACCESS

Vehicles

4.2.1 Both the southern and northern development lands will be accessed off the emerging Distributor Road corridor. The southern development lands will be accessible via a new roundabout junction and priority controlled junction with the emerging permitted Distributor Road. The northern development lands will be accessible via 2 no. priority controlled junctions with the Distributor Road as presented in Figure 4.1.

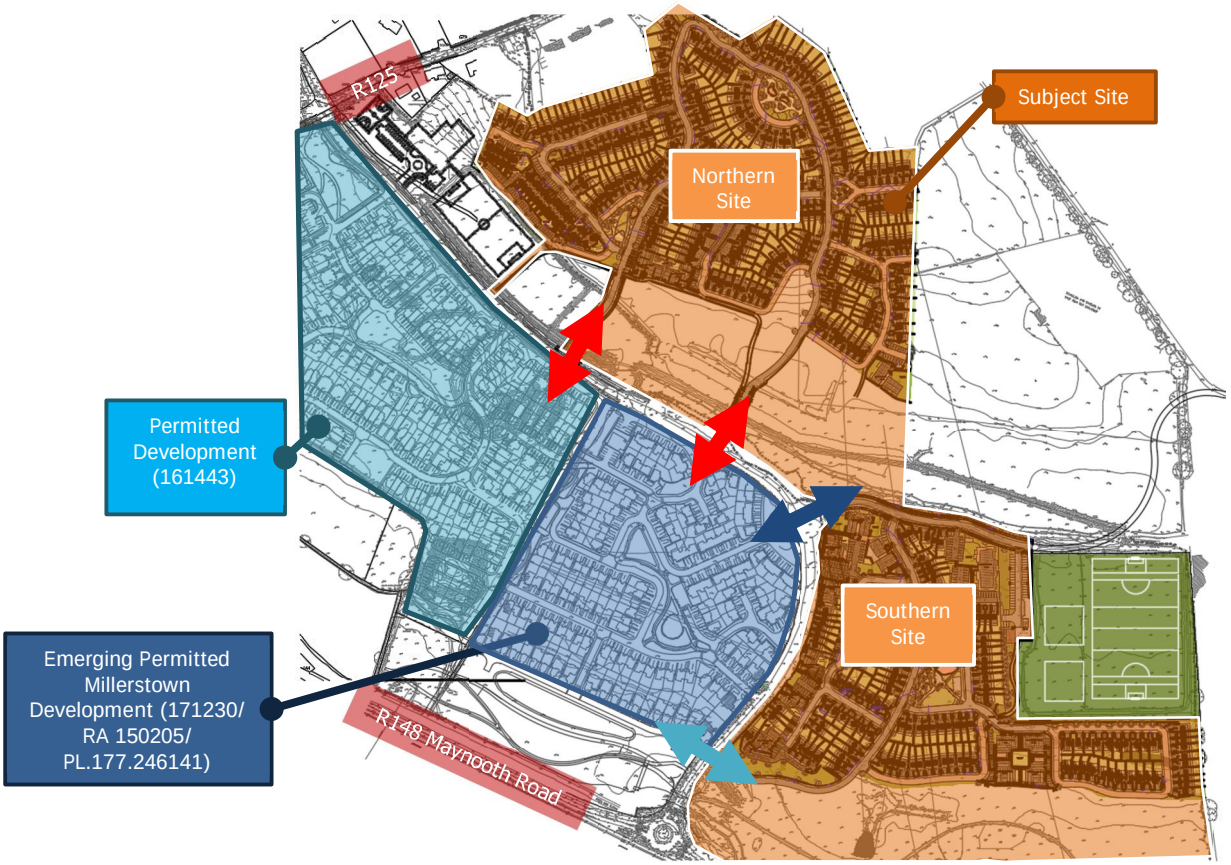


Figure 4.1: Proposed Development Site Layout and Access Locations

Pedestrians and Cyclists

4.2.2 The subject development will be highly accessible to both pedestrians and cyclists via a range of convenient connection points including all of the aforementioned vehicle access locations. Furthermore, the permitted Distributor Road scheme will, once complete, provide dedicated segregated pedestrian / cycle facilities on both sides of the road corridor.

4.2.3 Internally, dedicated pedestrian footways will be provided on all streets which will connect with the existing / future pedestrian facilities on the external network thereby facilitating excellent pedestrian connectivity.

4.2.4 Map 1 of the Kilcock LAP 2015-2021 indicatively illustrates future pedestrian walkway proposals in the vicinity of the subject site, which, once complete would provide convenient pedestrian / cycle access to the Maynooth Road corridor and the Royal Canal Greenway and subsequently result in shorter walking / cycling distances between the subject development lands and Kilcock Town Centre, Public Transport interchange locations (bus and train).

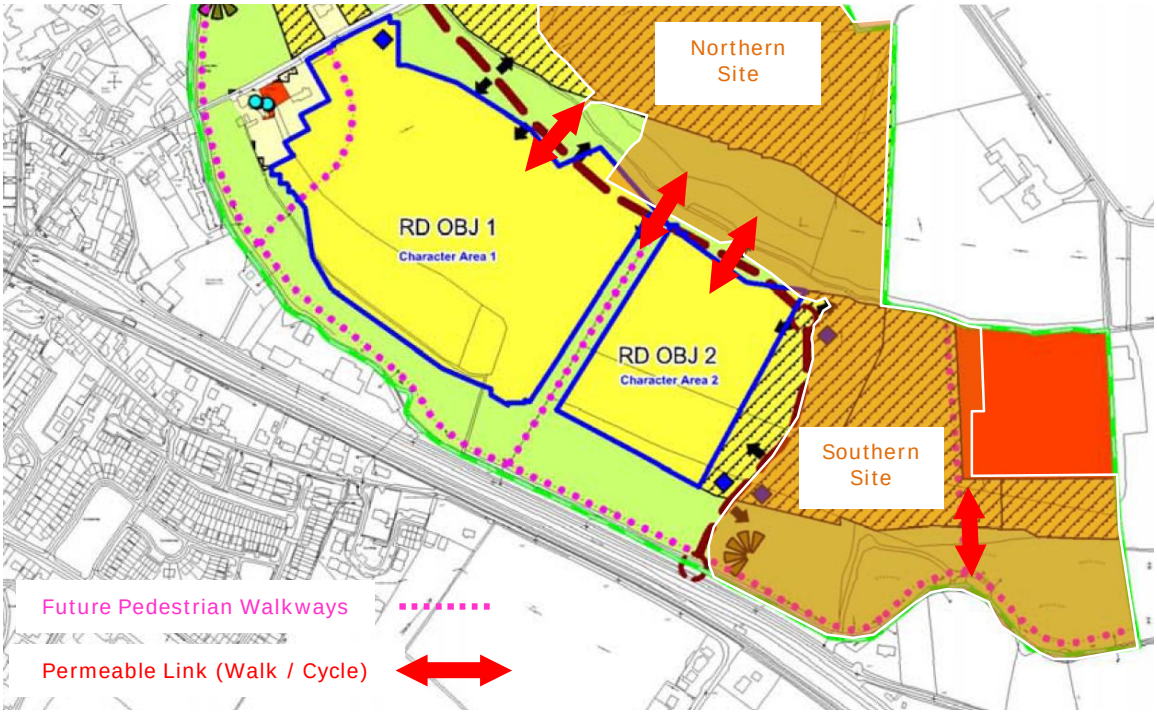


Figure 4.2 : Future Kilcock LAP 2015-2021 Proposed Pedestrian Walkways

4.3 PARKING

Car Parking

4.3.1 The development proposals include the provision of 1019 car parking spaces on-site comprising 561 no. within the Northern site and 458 no. within the Southern (including 40 no. GAA changing room car parking spaces) site as summarised in Table 4.3 below.

Description	Northern Site	Southern Site	Total
Houses	460	273	733
Apartments	14 resident / 2 visitor	52 resident / 6 visitor	74
Duplex	42 resident / 28 visitor	-	70
Corner Blocks	12 resident / 3 visitor	67 resident / 6 visitor	88
Creche	-	14	14
GAA Club	-	40	40
Total	561	458	1019

Table 4.3: Proposed Car Parking Provision

4.3.2 The subject scheme proposes the following dedicated car parking provision ratio's per residential unit type with the remaining spaces assigned as visitor spaces;

- 2 spaces per 3+ bed house,

- 1 space per 2 bed house,
- 1 space per apartment unit, and
- 1 space per duplex apartment unit.

4.3.3 The proposed car parking provision for the three and four bedroom houses is fully compliant with the MCC development management standards (i.e. 2 spaces per unit).

4.3.4 The scheme proposals include for 1 space per 2 bedroom house which is lower than the development plan requirement for residential houses. Furthermore, apartment and duplex car parking provision is proposed at a rate of 1 per unit (excluding visitor spaces) which is also slightly lower than the development plan requirement. Accordingly, a management regime will be implemented by the development's management company to control access to these on-site apartment car parking bays thereby actively managing the availability of on-site car parking for residents / visitors.

4.3.5 The residents within one of the proposed residential apartments will NOT include the ownership of a designated parking space. Nevertheless, all residents of the proposed residential apartment scheme will have the opportunity to apply to the management company for both (i) a residents car parking permit (updated annually or upon return of same permit) to the management company to gain access to a dedicated (assigned) on-site car parking space or (ii) a visitor's car parking permit (which will be issued electronically and subject to time restrictions). A nominal charge will be applied to obtain a permit with the objective of covering the associated management and enforcement costs.

4.3.6 Each permit will enable the resident (or visitor) to park a vehicle within a specific assigned parking bay for a defined period of time. This management regime will enhance the availability of on-site car parking, ensuring that every resident who needs car parking can avail of an on-site car parking space whilst residents that actually don't own a car are not unnecessarily assigned a car parking space.

4.3.7 Notwithstanding the above car parking management regime, whilst the proposed car parking provision to be assigned to the apartment units (and 2 bed houses) is slightly lower than the allowable development plan provision, this is considered appropriate due to;

i. the subject scheme proposals include for a high provision of cycle parking at the apartment units which is significantly higher than the development management standards,

ii. the convenient location of the Royal Canal Greenway facility to the south of the subject site (particularly accessible from the southern site), and

iii. The proximity of the subject development site to Kilcock Train Station (approx. 1.2km),

iv. The DHPLG requires only 1 car parking space per unit plus 1 visitor space per 3-4 units (it is assumed that a 2 bed house would have a similar car parking demand to that of an apartment), and

v. A review of the Census (Sapmap) 2016 data has been undertaken for 4 no. small areas with similar characteristics to the subject development site. The analysis revealed that, on average, there is a car parking availability of 0.86 per residential unit. Table 4.4 below presents a summary of the car availability data at the adopted Census 2016 small areas.

Small Area	Locations	Ratio
Sa2017_087047018	Connaught St / Rochford Ct / Rochford Row	0.87
Sa2017_087047016	Village Gr / Fair Gr / Molly Ware St	0.90
Sa2017_087047010	Chapel View / The Paddocks	0.71
Sa2017_087047017	Rochford Gr / Rochford Pk / Rochford Ave	0.96
Average		0.86

Table 4.4: Summary of Census 2016 Car Availability

4.3.8 Accordingly, based on a cumulation of the above reasons, the opportunity exists to provide car parking at a rate slightly lower than the recommended development standards.

4.3.9 The subject proposals promote the provision of 14 no. neighbourhood focused crèche car parking spaces comprising 8 no. staff spaces and 6 no. drop of spaces. Whilst this proposed provision is less than the development plan maximum requirements (18 staff and 24 set down), the proposed crèche facility is expected to primarily cater for the subject development since the approved / emerging adjoining residential developments (Pl. Ref. RA 171230 / RA 150205 / Pl.177.246141 and Pl. Ref. RA161443) incorporate a crèche facility as part of their

proposals. Accordingly, the vast majority of trips to / from the proposed crèche facility will be walking trips to / from within the proposed development.

4.3.10 In addition to the above car parking proposals, the subject scheme includes for the allocation of 40 no. car parking spaces at the playing pitches located to the east of the southern site boundary.

Mobility Impaired Parking Provision

4.3.11 The subject scheme is required to provide 2 no. mobility impaired car parking spaces per 100 car parking spaces. It is assumed that housing units can accommodate mobility impaired parking in curtilage. Accordingly, dedicated mobility impaired car parking is provided for the apartment / duplex units and the crèche only. Applying the development plan requirement to the subject apartment / duplex units necessitates the provision of 2 no. dedicated mobility impaired car parking spaces in both the northern and southern development sites. Additionally, 1 no. dedicated mobility impaired car parking space is required at the proposed crèche facility.

4.3.12 The subject proposals include for the provision of 4 no. dedicated mobility impaired apartment / duplex car parking spaces in the northern site and 6 no. in the southern site comprising 5 apartment spaces and 1 no. crèche space.

Cycle Parking

4.3.13 The proposals include the provision of a total 314 cycle parking spaces including 242 no. residential, 40 no. crèche and 32 no. GAA club cycle parking spaces on-site. The 242 no. residential cycle parking spaces comprise 163 long stay parking spaces and 97 short stay parking spaces. Residents of residential housing units can accommodate long and short stay bicycle parking in-curtilage. It is expected that duplex units can accommodate long stay cycle parking in-curtilage however 24 no. dedicated short stay cycle parking spaces have been provided. A summary of the cycle parking provision is presented in Table 4.4 below.

4.3.14 The provision of 242 no. residential cycle parking spaces is significantly higher than the development plan minimum requirement of 101 no. spaces and represents a good compromise between the development plan and generous DHPLG requirements (416).

4.3.15 A total of 40 no. cycle parking spaces are proposed to be provided at the crèche facility comprising 18 no. long stay (1 per staff) and 22 no. short stay spaces

(approximately 1 per 5 children). The proposed overall provision of 40 no. crèche cycle parking spaces is 26 no. spaces higher than the minimum development plan requirement.

Description	Northern Site		Southern Site		Total	
	Long Stay	Short Stay	Long Stay	Short Stay	Long Stay	Short Stay
Houses	-	-	-	-	-	-
Apartments	14	7	52	26	66	33
Duplex	-	24	-	-	-	24
Corner Blocks	12	6	67	34	79	40
Creche	-	-	18	22	18	22
GAA Club	-	-	-	32	-	32
Sub-Total	26	37	137	114	163	151
Total	63		251		314	

Table 4.4: Summary of Cycle Parking Provision

4.4 DESIGN APPROACH

Internal Roads Layout

4.4.1 The proposed development is consistent with both the principles and guidance outlined within the Design Manual for Urban Roads and Streets (DMURS) 2013 (Updated May 2019). The scheme proposals are the outcome of an integrated design approach that incorporates traditional road design along with elements of urban design and landscaping to create lower traffic speeds and thereby facilitate a safer road environment for pedestrians and cyclists. The proposed layout provides for a package of self-regulating design measures including: -

- Horizontal deflections through 'tight' corner radii
- Vertical deflections through the inclusion of raise tables
- Narrow residential streets and a meandering alignment to actively influence vehicle speeds.

Development Phasing

4.4.2 The southern development site is proposed to be constructed first with the initial 100 housing units within the southern site assumed to be built and occupied by the adopted 2021 Opening Year. The remaining units of the southern site and the full northern development site is assumed to be complete and occupied by the 2026 Future Design Year.

5.0 TRIP GENERATION AND DISTRIBUTION

5.1 BASELINE TRAFFIC SURVEYS

5.1.1 Both AM and PM peak period weekday traffic counts (classified junction turning counts) were conducted over a 6-hour period from 07:00 - 10:00 and again from 16:00 - 19:00 on Wednesday 14th March 2019. The surveys, undertaken by IDASO Ltd., established that the local networks AM and PM peak hours occur between 08:15 – 09:15 and 17:45 - 18:45, respectively.

5.1.2 In order to analyse and assess the impact of the potential future development upon the local road network, a traffic model of the following junctions was created;

Junction 1 – Harbour St / Bridge St / School St Junction,
Junction 2 – Harbour St / New Rd Junction,
Junction 3 – Distributor Rd / Maynooth Rd Junction,
Junction 4 – Distributor Rd / Moyglare Rd / Dunshaughlin Rd Junction,
Junction 5 – School St / New Lane Junction, and
Junction 6 – New Lane / The Square Junction.

Figure 5.1: Junctions included within DBFL Traffic Model

5.2 MODAL SPLIT

5.2.1 The Central Statistics Office 2016 SAPMAP (Small Areas Population Map) was examined in order to determine travel patterns within the local vicinity of the subject residential development. Figure 5.2 below illustrates the areas that were selected for the analysis based on their proximity to the subject site and because they best represent the development's future trends.

Figure 5.2: Areas of Interest for Trend Analysis (source: Census 2016)

5.2.2 The analysis reveals the mode of travel used by the residents when travelling to/from work from their homes as illustrated in Figure 5.3. It is revealed that the car was the primary mode of transport to work in the study area with 78.9% (76.1% travelling as a vehicle driver and 2.8% travelling as a car passenger) in 2016. Travel by public transport represents the next most popular mode of travel (5.7% by bus and 8.8% by train) whilst the remaining 6.6% travel to work using active modes of travel (5.7% by bicycle and 0.9% on foot).

5.2.3 The mode of travel for educational purposes differs significantly to that observed in the travel to work analysis as illustrated in Figure 5.4. It is revealed that travel my sustainable modes of travel represent the majority of recorded trips accounting for a total of 54.6% of all trips to education. 38.6% of all education trips were undertaken using active travel modes whilst 16.0% were undertaken using public transport. The remaining 45.5% of education trips were undertaken by car (i.e. 43.1% as car passenger and 1.4% as car driver).

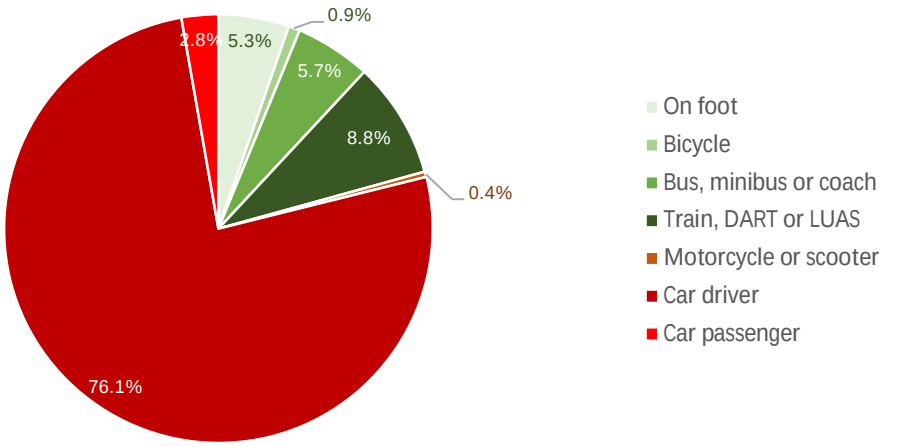


Figure 5.3: Proposed Developments Housing Units Modal Split (2021) – Travel to Work

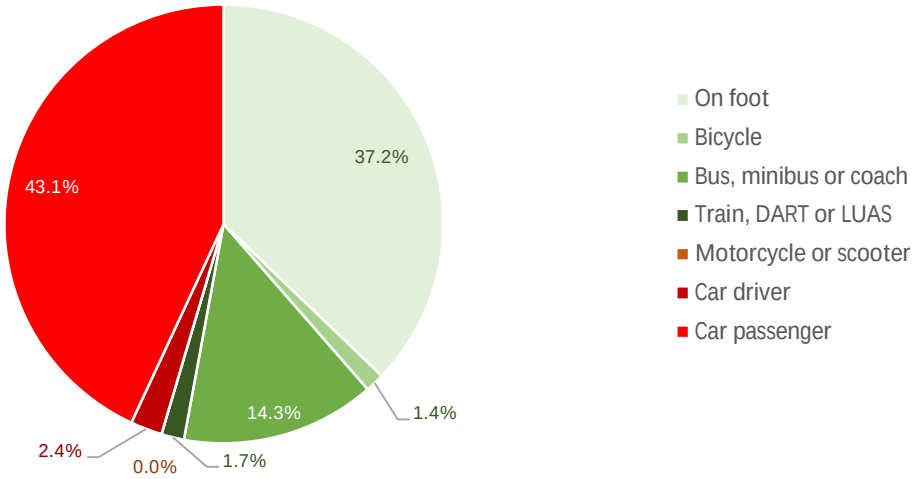


Figure 5.4: Proposed Developments Housing Units Modal Split – Travel to Education

5.3 TRIP GENERATION

Proposed Development

5.3.1 A review of trip generation factors contained within the TRICS database was carried out. TRICS data is primarily UK based, although a number of Irish sites have recently been included and the number of Irish sites continues to expand. Nevertheless, we consider that TRICS will provide a reasonable indication of traffic generation from the proposed development.

5.3.2 Notwithstanding the above, internal research undertaken by TRICS has shown that there is no direct evidence of trip rate variation by country or region. The use of English, Scottish or Welsh data can be equally applicable to Ireland if users take into account important site selection filtering factors such as levels of population,

location type, local public transport provision, and development size and car ownership level, amongst others.

5.3.3 Data supplied for inclusion in TRICS undergoes a procedure of validation testing, and there is no evidence from this procedure suggesting that data from Ireland bears any significant fundamental differences to that from the other countries included. Consequently, we consider that TRICS will provide a reasonable indication of traffic generation from the proposed development.

5.3.4 Table 5.1 includes the predicted TRICS derived trip rates during the morning and evening peak hour periods. The TRICS output files are included in Appendix B of this report.

Description	Unit	AM Peak Hour		PM Peak Hour	
		Arr	Dep	Arr	Dep
Residential Houses	Per Unit	0.150	0.372	0.317	0.217
Residential Apartments/Duplexes	Per Unit	0.084	0.173	0.190	0.149
Crèche	Per 100m^2	5.811	4.155	0.966	2.493

Table 5.1: Proposed Development Vehicle Trip Rates

5.3.5 Based on the above trip rates, the potential peak hour vehicle trip generation for both development sites is calculated as presented in Table 5.2.

Description	Southern Site				Northern Site			
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
	Arr	Dep	Arr	Dep	Arr	Dep	Arr	Dep
Houses	22	55	47	32	36	90	76	52
Apartments/Duplexes	10	21	23	18	6	12	13	10
Crèche	18	13	3	8	-	-	-	-
Total	50	88	72	57	42	101	89	62

Table 5.2: Potential Development Vehicle Trip Generation

5.3.6 It is expected that a large proportion of trips generated by the proposed crèche facility will be internal trips with a high level of walk / cycle trips due to crèche facility located in close proximity to the residential units and the availability of creche facilities in adjoining emerging / permitted development schemes (Pl. Ref. RA 171230 / RA 150205 / Pl.177.246141 and Pl. Ref. RA161443). Accordingly, the TRICS predicted development trips have been discounted by 50%. In reality, it is expected that this discounted proportion could actually be much greater and therefore the assumed 50% discount is considered robust.

5.3.7 As introduced in Section 4.2.2 above, it is estimated that 100 housing units within the Southern site will be constructed and occupied by the adopted 2021 Opening Year, with the entire development constructed and occupied by the 2026 Future Design Year (i.e. Opening year plus 5 years). Table 5.3 presents the predicted development vehicle trip generation during each of the adopted design year scenarios.

Design Year	Southern Site				Northern Site			
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
	Arr	Dep	Arr	Dep	Arr	Dep	Arr	Dep
2021 Opening Year	15	37	32	22	0	0	0	0
2026 Future Design Year	50	88	72	57	42	101	89	62
2036 Future Design Year	50	88	72	57	42	101	89	62

Table 5.3: Predicted Development Design Year Vehicular Trip Generation

5.4 COMMITTED DEVELOPMENT

5.4.1 Following a review of MCC / KCC on-line planning portal DBFL have established the existing third-party sites, as located within the area of influence of the subject development site, which currently benefit from a valid planning permission but have yet to be constructed and / or occupied. DBFL have subsequently included the following third-party developments proposals (as indicated on Figure 5.5) as 'committed development' within the subject developments network assessment.

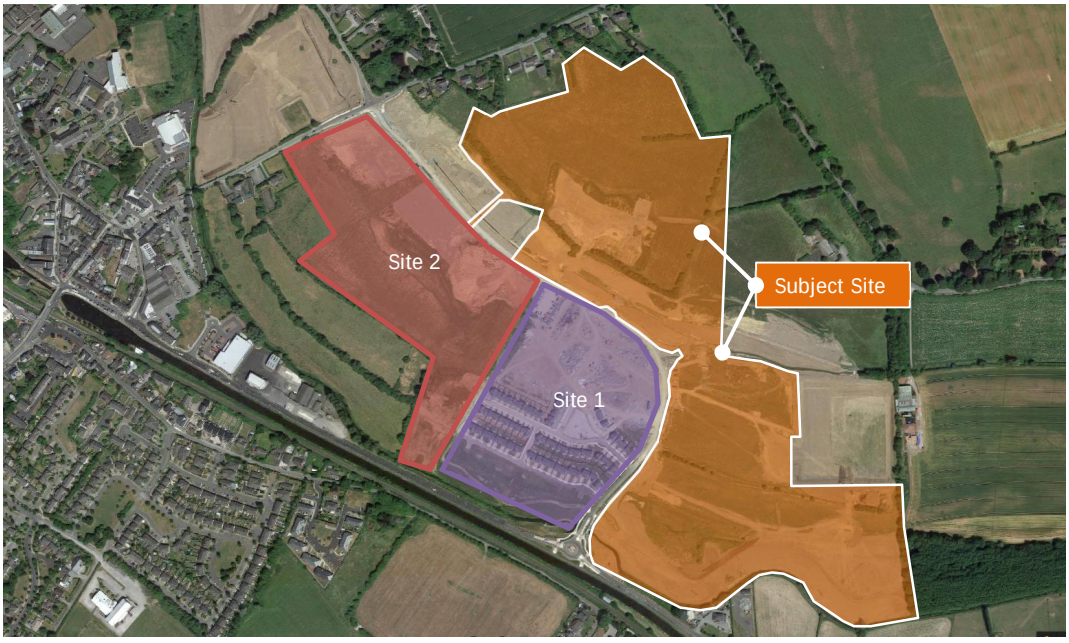


Figure 5.5: Existing Third Party Committed Developments

Site 1 - Residential Development (Pl. Ref. RA 171230 / RA 150205 / PL.177.246141)

5.4.2 Planning permission was granted for 150 residential units in June 2016 (Pl. Ref. RA 150205 / PL.177.246141). Subsequently, a change of unit types for 2 no. sites was approved in January 2018 (Pl. Ref. RA 171230).

5.4.3 The site for this committed residential development is known as 'Character Area 2' within the Kilcock LAP. The development is currently under construction and at the time of the traffic surveys (March 2019), 33 no. residential houses where occupied.

5.4.4 In order to determine the level of traffic generated from this permitted development reference was made to the original planning application (Ref. RA 150205) which included a TTA containing the predicted vehicle trips that could be generated by this predicted development. The existing vehicle flows from the 33 no. currently occupied units has been recorded in the traffic surveys and therefore have been subtracted from the predicted vehicle trip generation as summarised in Table 5.4 below.

Land Use	AM Peak Hour		PM Peak Hour	
	Arr	Dep	Arr	Dep
Trip Generation	20	44	50	33

Table 5.4: Committed Development Site 1 Peak Hour Vehicle Trip Generation

5.4.5 As this development is partially completed, in order to provide a robust assessment DBFL have assumed that all of the proposed 150 residential units will be occupied by the subject residential developments 2021 Opening Year.

Site 2 - Residential Development (Pl. Ref. RA161443)

5.4.6 Planning permission was granted for 130 residential units in December 2017. The site for the proposed residential development is located adjacent to the aforementioned permitted development and is known as Character Area 1 within the Kilcock LAP.

5.4.7 In order to determine the level of traffic generated from the permitted development, reference was made to the original planning application (Ref. RA161443). The TTA submitted with this application estimated traffic generation for the residential units as presented in Table 5.5.

Land Use	AM Peak Hour		PM Peak Hour	
	Arr	Dep	Arr	Dep
Trip Generation	24	54	62	41

Table 5.5: Committed Development Vehicle Trip Generation

5.4.8 As this development has yet to be constructed, in order to provide a robust assessment, DBFL have assumed that all of the proposed 130 residential units will be occupied by the subject residential developments 2021 Opening Year.

5.5 TRIP DISTRIBUTION

Base Traffic Redistribution

5.5.1 For the purposes of this assessment, it has been assumed that, in the 2021 Opening Year scenario, the section of Distributor Road between the existing Maynooth Road roundabout and the future roundabout junction providing access to the subject southern site and the section between the committed "Character Area 1" development access and the Dunboyne / Dunshaughlin Road recently upgraded signal controlled junction will be constructed. Accordingly, it has been assumed that there will be no through road in place resulting in no redistribution of base traffic in the 2021 Opening Year.

5.5.2 By the adopted 2026 Future Design Year, the complete section of the permitted Distributor Road between the R148 Maynooth Road and the R125 Dunboyne / Dunshaughlin Road will be complete and operational. Accordingly, a proportion of the base (growthed) traffic flows as recorded in the 2019 traffic surveys will reassign onto this new piece of road infrastructure thereby reducing the potential future traffic flow through Kilcock Town Centre. By the 2036 Future Design Year, the full length of Distributor Road between the R148 Maynooth Road and the R158 roundabout is assumed to be complete and therefore an additional redistribution exercise has been undertaken to reflect the potential diverted traffic currently travelling between the R158 and Maynooth onto the future Distributor Road.

5.5.3 The permitted Kilcock LAP Character Area sites TTA's incorporated a vehicle registration survey which was carried out between 08:00 - 10:00 and 16:30 -18:30. This survey involved recording all vehicle registration plates at the following locations:

- R158 / Church Street;

- County Meath Bridge (R125); and
- Harbour Road / New Road.

5.5.4 The information contained in this survey was used to determine (i) The percentage of vehicles that travel from the R125 / R158 and exit left onto Harbour Street at New Road in the morning peak and (ii) the percentage of vehicles that travel along Harbour Street at New Road and use the R158 / R125 in the evening peak.

5.5.5 The results of the surveys indicated that some 3.1% of the traffic travelling south along the R158 and 35.58% of the traffic travelling south along the R125 is likely to divert east along the proposed distributor road to exit at the new roundabout on R148 Maynooth Road, thus avoiding Kilcock Town Centre. 20.62% of the traffic travelling west along R148 Maynooth Road is likely to divert north along the new distributor road to avoid Kilcock Town Centre, with 5.35% exiting at the R125 and 15.27% at the R158.

5.5.6 We consider that the above figures should still be representative of the traffic likely to be diverted from the Town Centre and its environs onto the proposed new Distributor Road, when completed, and therefore, the same redistribution proportions have been incorporated into the subject assessment. The predicted level of redistributed vehicular flows are presented within Figures 2b (2026 Future Design Year) and 2c (2036 Future Design Year) within Appendix A.

Development Trip Distribution

5.5.7 The assumed subject development trip distribution for the adopted 2021 Opening Year, 2026 Future Design Year and 2036 Future Design Years are presented in Figures 6a, 6b and 6c respectively as located in Appendix A. Generally, the predicted development trips are assumed to have the following origin / destination distribution characteristics;

- Dublin / Motorway – 50%,
- Maynooth – 10%,
- Dunshaughlin / Dunboyne – 10%,
- Trim – 10%,
- Kilcock – 10%, and
- Naas / Sallins – 10%

5.6 TRAFFIC GROWTH

5.6.1 The TTA adopts an Opening Year of 2021. In accordance with TII Guidance, Future Design years (+5 and +15 years) of 2026 and 2036 have therefore been adopted. We note that this TII defined 15-year future year projection is significantly larger when compared to international best practice.

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

5.6.1 Table 6.2 within the PAG provides Annual National Traffic Growth Factors for the different regions within Ireland. The subject site in Kilcock lies within 'Meath' with the growth factors as outlined within Table 5.6 below.

Name	Low Sensitivity Growth				Central Growth				High sensitivity Growth			
	2016-2030		2030-2040		2016-2030		2030-2040		2016-2030		2030-2040	
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
Meath	1.0156	1.0349	1.0052	1.0164	1.0173	1.0365	1.0070	1.0174	1.0205	1.0400	1.0108	1.0226

Table 5.6: Link-Based Growth Rates: Annual Growth Factors (Source: PAG)

5.6.2 In order to provide a robust assessment DBFL have assumed 'Central Growth' rates for the adopted Opening Year of 2021 and Future Design Years of 2026 & 2036. As such, applying the annual factors as outlined in Table 5.6 above, the following growth rates were adopted to establish corresponding 2021, 2026 and 2036 baseline network flows:-

- 2019 to 2021 – 1.035 (or 3.5%);
- 2019 to 2026 – 1.128 (or 12.8%); and
- 2019 to 2036 – 1.247 (or 24.7%).

Assessment Scenarios

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

5.6.4 The 'Base' (Do Minimum) traffic scenario comprises the existing traffic characteristics growthed accordingly for each of the adopted design years, the aforementioned committed development traffic and the implementation of the emerging distributor road and subsequent redistribution of base traffic.

5.6.5 The proposed development traffic flows are then added to the network's Do Minimum traffic flows to establish the new 'Post Development' traffic flows whilst consideration has been given to the potential reassignment of baseline (and committed development) traffic movements as a result of the introduction of alternative vehicle routing options following the delivery of new road infrastructure through the site.

5.6.6 In summary the following development scenarios are considered: -

- Do Minimum A1 – 2021 Base Flows + Committed Developments
- Do Minimum A2 – 2026 Redistributed Base Flows + Committed Developments
- Do Minimum A3 – 2036 Base Flows Redistributed Base Flows + Committed Developments
- Do Something C1 - 2021 Do Minimum + Proposed Development Flows
- Do Something C2 - 2026 Do Minimum + Proposed Development Flows
- Do Something C3 - 2036 Do Minimum + Proposed Development Flows

Assessment Period

5.6.7 The weekday AM and PM peak hour flows have been identified as occurring between 08:15 - 09:15 and 17:45 – 18:45 respectively. These peak hours form the basis of the 2021, 2026 and 2036 network assessments.

Network Vehicle Flows

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

- Figure 5a – 2021 Do Minimum
- Figure 8a – 2021 Do Something
- Figure 5b – 2026 Do Minimum
- Figure 8b – 2026 Do Something
- Figure 5c – 2036 Do Minimum
- Figure 8c – 2036 Do Something

5.7 NETWORK IMPACT

5.7.1 The Institution of Highways and Transportation document '*Guidelines for Traffic Impact Assessments*' states that the impact of a proposed development upon the local road network is considered material when the level of traffic it generates

surpasses 10% and 5% on normal and congested networks respectively. When such levels of impact are generated a more detailed assessment should be undertaken to ascertain the specific impact upon the network's operational performance. These same thresholds are reproduced in the NRA (TII) document entitled *'Traffic and Transport Assessment Guidelines'* (2014).

5.7.2 In accordance with the IHT and NRA (TII) guidelines we have undertaken an assessment to establish the potential level of impact upon the key junctions of the local road network. To enable this calculation to be undertaken we have based the analysis upon the 2021 Opening Year and 2036 Future Design Year scenarios.

5.7.3 The analysis has demonstrated that whilst the proposals will generate a subthreshold impact upon the key off-site junctions 4, 5 and 6, a material impact (>10%) is noted at Junctions 1, 2 & 3 in the 2036 Future Design Year.

5.7.4 Table 5.7 below details the specific scale of network impact predicted at each of the key local off-site junctions during the 2021 and 2036 Design Years.

Ref	Junction	Design Year	AM Peak Hour	PM Peak Hour
1	R148 Harbour St / R125 Bridge St Signal Controlled Junction	2021	2.9%	2.5%
		2036	12.5%	11.1%
2	R148 Harbour St / New Lane Priority Controlled Junction	2021	3.3%	4.0%
		2036	13.9%	15.5%
3	R148 Maynooth Rd / Distributor Road Roundabout	2021	6.6%	9.5%
		2036	20.4%	28.9%
4	Distributor Road / R125 / Moyglare Rd Junction	2021	1.1%	2.4%
		2036	8.8%	9.2%
5	School Street / New Lane Junction	2021	0.5%	1.0%
		2036	1.1%	3.3%
6	New Lane / The Square Junction	2021	0.6%	1.8%
		2036	1.2%	3.4%

Table 5.7: Proposed Developments Network Impact

5.7.5 In Table 5.8 (AM Peak Hour) and Table 5.9 (PM Peak Hour) the predicted impacts have been categorised for the 2036 Future Design Year. At the off-site junctions, negligible impacts are predicted at Junctions 5 & 6 whilst a low impact is predicted at Junction 4. Medium impacts are predicted at Junctions 1 & 2 whilst a high impact is predicted at Junction 3.

	Junction - Nature of Impact (Additional Vehicular Traffic on key Junctions)	Impact Scale	Impact Level
1	R148 Harbour St / R125 Bridge St Signal Controlled Junction	12.5%	Medium
2	R148 Harbour St / New Lane Priority Controlled Junction	13.9%	Medium
3	R148 Maynooth Rd / Distributor Road Roundabout	20.5%	High
4	Distributor Road / R125 / Moyglare Rd Junction	8.8%	Low
5	School Street / New Lane Junction	1.1%	Negligible
6	New Lane / The Square Junction	1.2%	Negligible

Table 5.8: Network Impact Categorisation 2036 AM Peak Hour

	Junction - Nature of Impact (Additional Vehicular Traffic on key Junctions)	Impact Scale	Impact Level
1	R148 Harbour St / R125 Bridge St Signal Controlled Junction	11.1%	Medium
2	R148 Harbour St / New Lane Priority Controlled Junction	15.5%	Medium
3	R148 Maynooth Rd / Distributor Road Roundabout	29.0%	High
4	Distributor Road / R125 / Moyglare Rd Junction	9.2%	Low
5	School Street / New Lane Junction	3.4%	Negligible
6	New Lane / The Square Junction	3.4%	Negligible

Table 5.9: Network Impact Categorisation 2036 PM Peak Hour

5.7.6 Based on the network impact categorisation discussed above, the following junctions will be subject to further detailed analysis. Whilst the impact level at Junction 4 is predicted to be less than 10%, this junction will also be subject to further assessment due to its close proximity to the subject development site;

- Junction 1: R148 Harbour St / R125 Bridge St Signal Controlled Junction
- Junction 2: R148 Harbour St / New Lane Priority Controlled Junction
- Junction 3: R148 Maynooth Rd / Distributor Road Roundabout
- Junction 4: Distributor Road / R125 / Moyglare Rd Junction

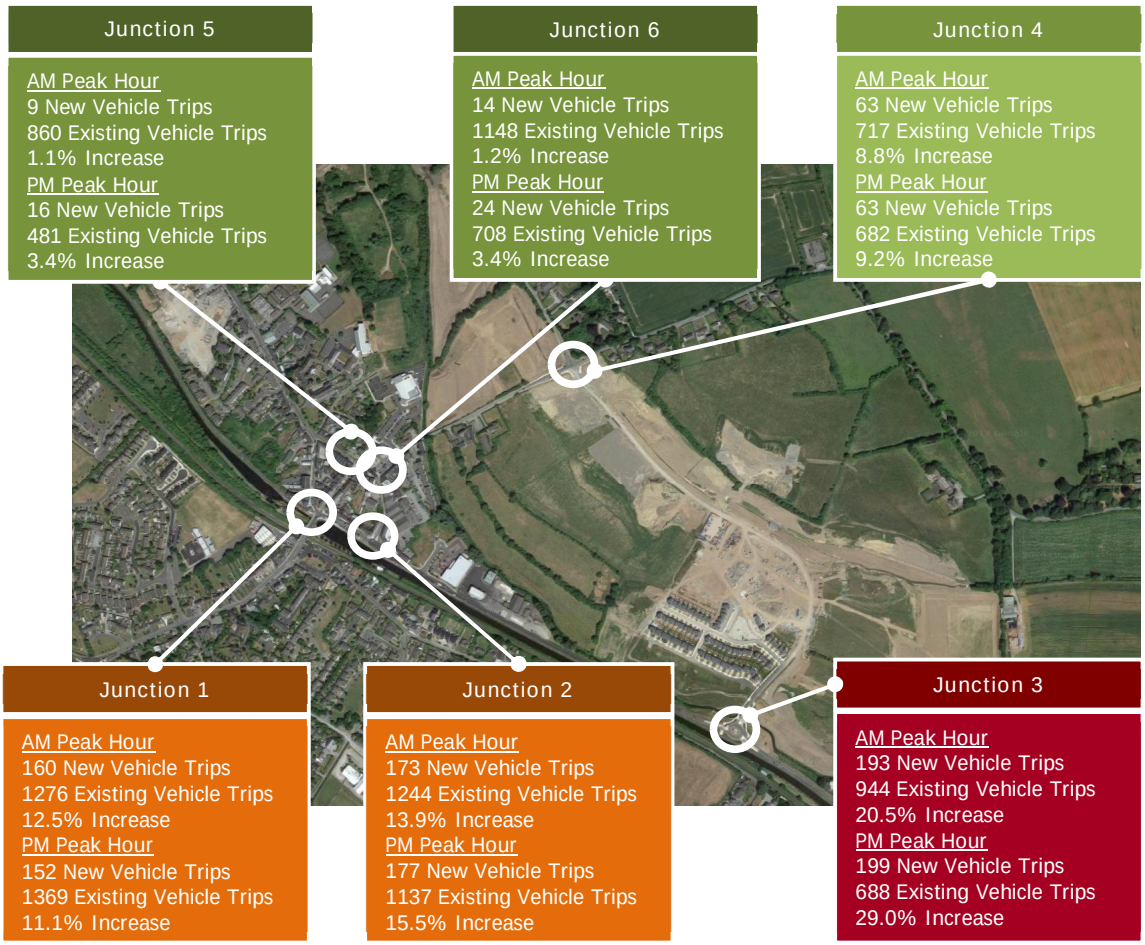


Figure 5.3: Increase in Vehicle Trips Generated Through Key Local Junctions (2036 Future Design Year)

5.8 MITIGATION STRATEGY

5.8.1 A package of integrated mitigation measures has been identified to off-set the additional local demand that the proposed residential development on the subject zoned lands could potentially generate as a result of the forecast increase in vehicle movements by residents of the scheme. The strategy includes specific measures for both the construction and operational stages of the proposed development.

Construction Stage

5.8.2 The Construction Management Plan (an outline CMP accompanies the application) and the associated Construction Traffic Management Plan (CTMP) in addition to the applications accompanying Construction and Waste Management Plan will incorporate a range of integrated control measures and associated management initiatives with the objective of mitigating the impact of the proposed developments on-site construction activities.

Operational Stage

5.8.3 With the objective of mitigating the potential impact of the proposed development as predicted in Section 5.7 above during its operational stage, the following initiatives and associated timescale for their implementation have been identified and subsequently form an integral part of the subject development proposals.

- Infrastructure (constructed by others) 2026 – Completion of the Distributor Road between the R148 Maynooth Road and the R125 as per details presented previously in Figure 2.9. Whilst the completion of this section of the corridor provides benefits for the proposed development, it will also result in potential notable decreases in base and development traffic travelling through the town centre. Furthermore, the design of this emerging Distributor Road incorporates dedicated segregated cycle and pedestrian facilities on both sides of the corridor.
- Infrastructure (constructed by others) 2036 – Completion of the Distributor Road between the R148 Maynooth Road and the R158 as per details presented previously in Figure 2.9. Whilst the completion of this section of the corridor provides benefits for the proposed development, it will also result in potential notable decreases in base and development traffic travelling through the town centre.
- Infrastructure (permitted development) Before 2021 Opening Year – Upgrade of the existing New Road / Harbour Street from the current priority controlled junction arrangement to a signal controlled junction arrangement. This junction enhancement will result it reduced queues and delays at this junction which have been observed during the morning and evening peak hours.
- Infrastructure (Connectivity) – The design of the scheme proposals has sought to maximise the ability to provide attractive connections to surrounding pedestrian / cycle network. Internally, dedicated pedestrian footways will be provided on all streets which will connect with the existing / future pedestrian facilities on the external network thereby facilitating excellent pedestrian permeability. As introduced previously, Map 1 of the Kilcock LAP 2015-2021 indicatively illustrates future pedestrian walkway proposals in the vicinity of the subject site, which, once complete would

provide convenient pedestrian / cycle access to the Maynooth Road corridor and the Royal Canal Greenway and subsequently result in shorter walking / cycling distances between the subject development lands and Kilcock Town Centre, Public Transport interchange locations (bus and train) and the Royal Canal Greenway facility.

- Facilities – Cycle parking has been provided at a much higher rate to that proposed within the development management standards. Accordingly, this generous provision of cycle parking will help ensure cycling is a viable alternative mode of transport to private car travel thereby helping minimise private car trips generated by future.
- Management – A Mobility Management (MMP) is to be compiled with the aim of guiding the delivery and management of coordinated initiatives by the scheme promotor. The MMP ultimately seeks to encourage sustainable travel practices for all journeys to and from the proposed development.

6.0 NETWORK ANALYSIS

6.1 INTRODUCTION

6.1.1 The operational assessment of the local road network has been undertaken using the Transport Research Laboratory (TRL) computer packages TRANSYT for signal-controlled junctions and Junctions 9.0 (ARCADY) for roundabout controlled junctions.

6.1.2 When considering signalised junctions, a Degree of Saturation (DoS) of greater than 90% (0.90) would indicate a junction to be approaching capacity, as operation above this DoS value is poor and deteriorates quickly. Similarly, roundabout controlled junctions, a Ratio of Flow to Capacity (RFC) of greater than 85% (0.85) would indicate a junction to be approaching capacity, as operation above this RFC value is poor and deteriorates quickly.

6.1.3 For the TRANSYT analysis a one-hour AM and PM period has been simulated from 08:15 to 09:15 and 17:45 to 18:45. For the ARCADY analysis, a 90-minute AM period has been simulated; from 08:00 to 09:30 and 17:30 to 19:00. For both the ARCADY and TRANSYT analyses traffic flows were entered using an Origin-Destination table for the peak hours.

6.1.4 In order to analyse and assess the impact of the proposed development on the surrounding road network, a traffic model of the junctions was created and analysed for the schemes following Opening and Future Design Years:

- 2021 Opening Year
- 2026 Future Design Year (Opening Year +5 years)
- 2036 Future Design Year (Opening Year +15 years)

6.1.5 As introduced previously, the following key junctions have been considered for further analysis: -

- Junction 1: R148 Harbour St / R125 Bridge St Signal Controlled Junction
- Junction 2: R148 Harbour St / New Lane Junction
- Junction 3: R148 Maynooth Rd / Distributor Road Roundabout
- Junction 4: Distributor Road / R125 / Moyglare Rd Junction

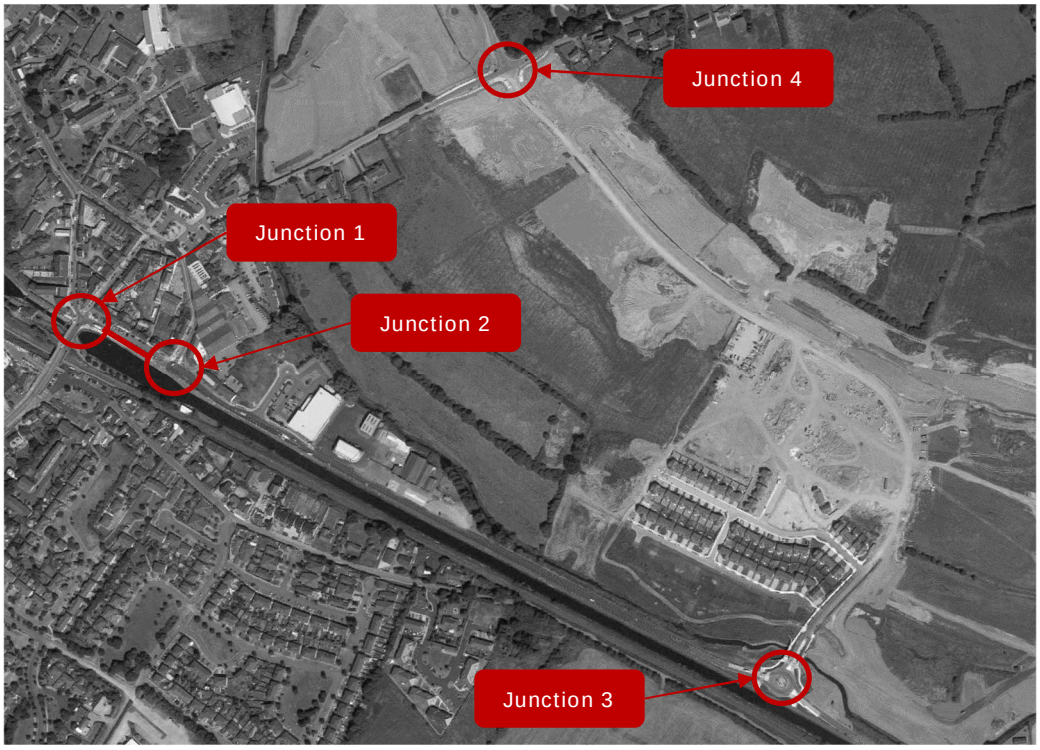


Figure 6.1: Junctions Assessed

6.2 JUNCTION 1 AND 2: R148 HARBOUR ST / SHAW BRIDGE / NEW ROAD JUNCTION

6.2.1 Junctions 1 and 2 have been modelled as one junction due the close proximity of both junctions to one another. As introduced in Section 2.6 of this report, there are future proposals to upgrade the existing New Road / Harbour Street priority controlled junction to a signal controlled junction and therefore both the Do-Minimum and Do-Something scenarios incorporate the upgraded New Road / Harbour Street junction layout.

6.2.2 Notwithstanding the above, a model of the existing junction arrangement has been constructed and calibrated in order to establish the existing junction's operational performance within the 2019 base traffic scenario (Table 6.1). The arms were labelled as follows within the existing layout TRANSYT model:

Arm A: Shaw Bridge
Arm B: Bridge Street
Arm C: School Street
Arm D: Harbour Street (W)
Arm E: New Road

Arm F: Harbour Street (E)

Arm	Movement	AM Peak Hour			PM Peak Hour		
		DoS (%)	Delay (s)	MMQ (pcu)	DoS (%)	Delay (s)	MMQ (pcu)
A	S,L,R	69	18.78	9.86	62	22.69	6.67
D	S,L,R	95	144.75	21.89	95	88.06	22.15
E	L	17	0.18	0.02	6	0.06	0.00
	R	100	207.44	16.29	101	163.16	17.19
F	S	0	16.41	3.31	114	267.09	40.09

Table 6.1: 2019 TRANSYT Analysis – Existing Junction Arrangement

6.2.3 The results of this 2019 base assessment (Table 6.1) reveal that, i) before the application of growth factors to the base traffic and ii) the introduction of the proposed and committed development traffic, the existing junction arrangement is currently approaching or operating over capacity during the morning (100%) and evening (114%) peak hours. Queuing is observed on the Harbour Street approach during the peak hours which extend beyond the New Road junction thereby causing queuing to occur along New Road. Accordingly, it is envisioned that the future enhancements at this junction will alleviate the observed queuing levels with the existing layout.

6.2.4 The principal results of the operational assessment of the future upgraded signal-controlled junction layout during the weekday morning and evening peaks are summarised in Tables 6.2 to 6.4 below. The arms were labelled as follows within the TRANSYT model:

Arm A: Shaw Bridge
Arm B: Bridge Street
Arm C: School Street
Arm D: Harbour Street (W-Westbound)
Arm E: Harbour Street (E)
Arm F: New Road
Arm G: Harbour Street (W-Eastbound)

2021 Opening Year

6.2.5 The 'Do-Minimum' 2021 AM peak hour TRANSYT results (Table 6.2) indicate that this junction is predicted to be operating with significant reserve capacity with a maximum Degree of Saturation (DoS) value of 60% and a maximum MMQ of 12.90 pcu's being recorded. For the 'Do-Something' scenario, with the introduction of the

proposed development traffic (100 housing units in the 2021 Opening Year), this junction is predicted to continue to be operating with significant reserve capacity with a maximum DoS value of 60% and a maximum MMQ of 13.44 pcu's being recorded. This represents zero increase in the maximum DoS value and 0.54 pcu increase in predicted maximum MMQ length.

Peak Hour	Arm	Movement	Do-Minimum			Do-Something		
			DoS (%)	Delay (s)	MMQ (pcu)	DoS (%)	Delay (s)	MMQ (pcu)
AM Peak	A	S,L,R	58	18.67	12.90	60	19.63	13.44
	D	L	21	0.91	0.40	22	0.97	0.45
		S,R	46	32.33	4.13	46	30.75	4.12
	E	S	50	46.21	6.58	54	46.38	7.38
		R	4	38.19	0.48	6	37.69	0.74
	F	L	40	15.71	5.93	42	16.19	5.95
		R	28	14.38	4.58	29	14.81	4.54
	G	S, L	60	52.09	8.40	59	51.25	8.66
PM Peak	A	S,L,R	54	27.99	10.57	58	29.49	11.38
	D	L	32	1.39	1.52	33	1.42	1.53
		S,R	40	19.66	4.61	40	18.84	4.60
	E	S	62	36.39	12.74	63	36.09	13.32
		R	1	25.71	0.22	2	25.08	0.32
	F	L	20	22.90	3.03	22	23.82	3.34
		R	43	26.68	7.68	44	27.47	7.75
	G	S, L	23	34.69	5.30	25	34.22	5.86

Table 6.2: 2021 TRANSYT Analysis

6.2.6 The PM peak hour 'Do-Minimum' TRANSYT results indicate that this junction is predicted to be again operating well within capacity with a maximum DoS value of 62% and a maximum MMQ of 12.74 pcu's being recorded. Similarly, the PM peak hour 'Do-Something' TRANSYT results indicate that this junction is predicted to continue to operate well within capacity with a maximum DoS value of 63% and a maximum queue of 13.32 pcu's being recorded. This represents an increase in the maximum DoS value of only 1% and 0.58 pcu increase in predicted maximum MMQ length.

2026 Future Design Year

6.2.7 The 'Do-Minimum' 2026 AM peak hour TRANSYT results (Table 6.3) indicate that this junction is again predicted to be operating with significant reserve capacity with a maximum Degree of Saturation (DoS) value of 65% and a maximum MMQ of 14.59 pcu's being recorded. For the 'Do-Something' scenario, with the

introduction of the proposed development traffic (full development complete), this junction is predicted to continue to be operating with significant reserve capacity with a maximum DoS value of 71% and a maximum MMQ of 17.86 pcu's being recorded. This represents an increase in the maximum DoS value of 6% and 3.27 pcu increase in predicted maximum MMQ length.

Peak Hour	Arm	Movement	Do-Minimum			Do-Something		
			DoS (%)	Delay (s)	MMQ (pcu)	DoS (%)	Delay (s)	MMQ (pcu)
AM Peak	A	S,L,R	63	19.90	14.59	71	25.16	17.86
	D	L	22	0.89	0.40	28	1.18	1.50
		S,R	41	33.06	3.88	39	26.89	3.59
	E	S	46	45.16	5.94	62	46.44	9.65
		R	5	38.22	0.53	6	35.31	0.74
	F	L	37	15.66	5.88	41	17.79	5.94
		R	31	14.86	5.33	33	16.83	5.23
	G	S, L	65	53.57	9.28	66	50.71	10.82
PM Peak	A	S,L,R	57	28.15	11.54	69	32.66	15.10
	D	L	35	1.43	1.54	39	1.61	1.57
		S,R	36	20.22	4.17	36	18.73	4.05
	E	S	61	36.86	12.27	70	39.13	15.09
		R	2	26.38	0.24	2	25.74	0.37
	F	L	11	21.10	1.58	14	22.13	2.09
		R	45	26.55	8.19	46	27.38	8.30
	G	S, L	26	35.48	5.85	38	36.38	8.58

Table 6.3: 2026 Future Design Year TRANSYT Analysis

6.2.8 The PM peak hour 'Do-Minimum' TRANSYT results indicate that this junction is predicted to be again operating well within capacity with a maximum DoS value of 61% and a maximum MMQ of 12.27 pcu's being recorded. Similarly, the PM peak hour 'Do-Something' TRANSYT results indicate that this junction is predicted to continue to operate well within capacity with a maximum DoS value of 70% and a maximum queue of 15.10 pcu's being recorded. This represents an increase in the maximum DoS value of 9% and 2.83 pcu increase in predicted maximum MMQ length.

2036 Future Design Year

6.2.9 The 'Do-Minimum' 2036 AM peak hour TRANSYT results (Table 6.4) indicate that this junction is again predicted to be operating with significant reserve capacity with a maximum Degree of Saturation (DoS) value of 70% and a maximum MMQ of 17.71 pcu's being recorded. For the 'Do-Something' scenario, with the introduction of the proposed development traffic (full development complete), this

junction is predicted to continue to be operating with significant reserve capacity with a maximum DoS value of 78% and a maximum MMQ of 21.25 pcu's being recorded. This represents an increase in the maximum DoS value of 8% and 3.54 pcu increase in predicted maximum MMQ length.

Peak Hour	Arm	Movement	Do-Minimum			Do-Something		
			DoS (%)	Delay (s)	MMQ (pcu)	DoS (%)	Delay (s)	MMQ (pcu)
AM Peak	A	S,L,R	70	22.88	17.71	78	28.46	21.25
	D	L	24	0.92	0.43	30	1.21	1.52
		S,R	43	32.74	4.24	42	27.20	3.98
	E	S	48	44.76	6.37	66	47.92	10.44
		R	5	37.46	0.58	6	35.37	0.79
	F	L	43	16.17	5.96	46	17.56	6.00
		R	34	15.24	5.24	36	16.47	5.10
	G	S, L	70	54.59	10.49	73	53.15	12.17
PM Peak	A	S,L,R	63	29.77	13.15	75	35.18	17.02
	D	L	38	1.53	1.57	42	1.72	1.60
		S,R	39	20.42	4.66	40	18.98	4.55
	E	S	67	38.85	13.99	75	41.93	16.94
		R	2	26.38	0.26	3	25.74	0.39
	F	L	13	21.40	1.96	17	22.47	2.48
		R	50	27.42	8.90	51	28.22	8.94
	G	S, L	29	35.34	6.39	40	36.12	9.14

Table 6.4: 2036 Future Design TRANSYT Analysis

6.2.10 The PM peak hour 'Do-Minimum' TRANSYT results indicate that this junction is predicted to be again operating well within capacity with a maximum DoS value of 67% and a maximum MMQ of 13.99 pcu's being recorded. Similarly, the PM peak hour 'Do-Something' TRANSYT results indicate that this junction is predicted to continue to operate well within capacity with a maximum DoS value of 75% and a maximum queue of 17.02 pcu's being recorded. This represents an increase in the maximum DoS value of 8% and 3.03 pcu increase in predicted maximum MMQ length.

6.3 JUNCTION 3: R125 MAYNOTH RD / DISTRIBUTOR RD JUNCTION

6.3.1 The principal results of the operational assessment of this roundabout controlled junction during the weekday morning and evening peaks are summarised in Tables 6.5 to 6.7 below. The three arms were labelled as follows within the ARCADY model:

Arm A: Maynooth Road (East)

Arm B: Dstributor Road

Arm C: Maynooth Road (West)

2021 Opening Year

6.3.2 The 'Do-Minimum' 2021 AM peak hour ARCADY results (Table 6.5) indicate that this junction is predicted to be operating with significant reserve capacity with a maximum Ratio of Flow to Capacity (RFC) value of 0.54 and a maximum queue of 1.3 pcu's being recorded. For the 'Do-Something' scenario, with the introduction of the proposed development traffic (100 housing units in the 2021 Opening Year), this junction is predicted to continue to be operating with significant reserve capacity with a maximum RFC value of 0.56 and a maximum queue of 1.4 pcu's being recorded. This represents an increase in the maximum RFC value of only 0.02 and no change in the predicted maximum queue length.

6.3.3 The PM peak hour 'Do-Minimum' ARCADY results indicate that this junction is predicted to be again operating well within capacity with a maximum RFC value of 0.28 and a maximum queue of 0.4 pcu's being recorded. Similarly, the PM peak hour 'Do-Something' ARCADY results indicate that this junction is predicted to continue to operate well within capacity with a maximum RFC value of 0.29 and a maximum queue of 0.4 pcu's being recorded. This represents an increase in the maximum RFC value of only 0.01 and no change in the predicted maximum queue length.

Peak Hour	Stream	Do-Minimum			Do-Something		
		Queue (pcu)	Delay (s)	RFC	Queue (pcu)	Delay (s)	RFC
AM Peak	A	0.2	4.38	0.17	0.2	4.48	0.17
	B	1.3	7.59	0.54	1.4	7.80	0.56
	C	0.1	4.36	0.08	0.1	4.58	0.13
PM Peak	A	0.4	5.06	0.28	0.4	5.15	0.29
	B	0.3	4.45	0.23	0.4	4.59	0.26
	C	0.0	3.39	0.04	0.1	3.47	0.06

Table 6.5: 2021 Opening Year ARCADY Analysis

2026 Future Design Year

6.3.4 The 'Do-Minimum' 2026 AM peak hour ARCADY results (Table 6.6) indicate that this junction is predicted to again be operating with significant reserve capacity with a maximum Ratio of Flow to Capacity (RFC) value of 0.53 and a maximum

queue of 1.2 pcu's being recorded (slight reduction in maximum queue length compared to the 2021 'Do-Minimum' scenario due to the assumed completion of the emerging Distributor Road between the R148 and R125 and associated diverted base traffic). For the 'Do-Something' scenario, with the introduction of the proposed development traffic (fully complete), this junction is predicted to be operating well within capacity with a maximum RFC value of 0.60 and a maximum queue of 1.6 pcu's being recorded. This represents an increase in the maximum RFC value of 0.07 and maximum queue length of 0.4 pcu.

6.3.5 The PM peak hour 'Do-Minimum' ARCADY results indicate that this junction is again predicted to be operating well within capacity with a maximum RFC value of 0.31 and a maximum queue of 0.5 pcu's being recorded. Similarly, PM peak hour 'Do-Something' ARCADY results indicate that this junction is predicted to continue to operate within capacity with a maximum RFC value of 0.34 and a maximum queue of 0.5 pcu's being recorded. This represents an increase in the maximum RFC value of only 0.03 and no change in the predicted maximum queue length.

Peak Hour	Stream	Do-Minimum			Do-Something		
		Queue (pcu)	Delay (s)	RFC	Queue (pcu)	Delay (s)	RFC
AM Peak	A	0.2	4.38	0.18	0.3	4.73	0.20
	B	1.2	7.57	0.53	1.6	8.68	0.60
	C	0.2	4.78	0.18	0.5	5.84	0.32
PM Peak	A	0.5	5.16	0.31	0.5	5.55	0.34
	B	0.3	4.38	0.20	0.5	4.99	0.31
	C	0.1	3.61	0.12	0.2	3.95	0.20

Table 6.6: 2026 Future Design Year ARCADY Analysis

2036 Future Design Year

6.3.6 The 'Do-Minimum' 2026 AM peak hour ARCADY results (Table 6.7) indicate that this junction is predicted to again be operating with significant reserve capacity with a maximum Ratio of Flow to Capacity (RFC) value of 0.60 and a maximum queue of 1.6 pcu's being. For the 'Do-Something' scenario, with the introduction of the proposed development traffic (fully complete), this junction is predicted to be operating well within capacity with a maximum RFC value of 0.67 and a maximum queue of 2.1 pcu's being recorded. This represents an increase in the maximum RFC value of 0.07 and maximum queue length of 0.5 pcu.

6.3.7 The PM peak hour 'Do-Minimum' ARCADY results indicate that this junction is again

predicted to be operating well within capacity with a maximum RFC value of 0.34 and a maximum queue of 0.6 pcu's being recorded. Similarly, PM peak hour 'Do-Something' ARCADY results indicate that this junction is predicted to continue to operate within capacity with a maximum RFC value of 0.37 and a maximum queue of 0.6 pcu's being recorded. This represents an increase in the maximum RFC value of only 0.03 and no change in the predicted maximum queue length.

Peak Hour	Stream	Do-Minimum			Do-Something		
		Queue (pcu)	Delay (s)	RFC	Queue (pcu)	Delay (s)	RFC
AM Peak	A	0.3	4.48	0.20	0.3	4.85	0.22
	B	1.6	8.91	0.60	2.1	10.52	0.67
	C	0.2	5.00	0.17	0.5	6.17	0.33
PM Peak	A	0.6	5.42	0.34	0.6	5.85	0.37
	B	0.3	4.56	0.23	0.5	5.23	0.34
	C	0.1	3.65	0.12	0.2	4.00	0.20

Table 6.7: 2036 Future Design Year ARCADY Analysis

6.4 JUNCTION 4: R125 / DISTRIBUTOR RD / MOYGLARE RD JUNCTION

6.4.1 The principal results of the operational assessment of this signal-controlled junction and priority-controlled junction during the weekday morning and evening peaks are summarised in Tables 6.8 to 6.10 below. The arms were labelled as follows within the TRANSYT model:

Arm A: Distributor Road
Arm B: R125 (South)
Arm C: R125 (West)
Arm D: Moyglare Road

2021 Opening Year

6.4.2 The 'Do-Minimum' 2021 AM peak hour TRANSYT results (Table 6.8) indicate that this junction is predicted to be operating with significant reserve capacity with a maximum Degree of Saturation (DoS) value of 54% and a maximum MMQ of 4.21 pcu's being recorded. For the 'Do-Something' scenario, with the introduction of the proposed development traffic (100 housing units in the 2021 Opening Year), this junction is predicted to continue to be operating with significant reserve capacity

with a maximum DoS value of 55% and a maximum MMQ of 4.29 pcu's being recorded. This represents an increase in the maximum DoS value of only 1% and 0.8 pcu increase predicted maximum MMQ length.

6.4.3 The PM peak hour 'Do-Minimum' TRANSYT results indicate that this junction is predicted to be again operating well within capacity with a maximum DoS value of 54% and a maximum MMQ of 4.20 pcu's being recorded. Similarly, the PM peak hour 'Do-Something' TRANSYT results indicate that this junction is predicted to continue to operate well within capacity with a maximum DoS value of 56% and a maximum queue of 4.29 pcu's being recorded. This represents an increase in the maximum DoS value of only 2% and 0.09 pcu increase predicted maximum MMQ length.

Peak Hour	Arm	Movement	Do-Minimum			Do-Something		
			DoS (%)	Delay (s)	MMQ (pcu)	DoS (%)	Delay (s)	MMQ (pcu)
AM Peak	A	S,L	9	19.01	0.65	9	19.01	0.65
		R	26	19.60	2.39	26	19.64	2.42
	B	S,L,R	30	25.59	1.28	30	25.66	1.30
	C	S,L	11	19.15	0.81	11	19.15	0.81
		R	1	17.81	0.00	1	17.81	0.00
	D	S,L,R	54	24.89	4.21	55	25.11	4.29
PM Peak	A	S,L	4	21.02	0.20	4	21.02	0.20
		R	7	19.97	0.45	8	20.03	0.52
	B	S,L,R	53	25.84	4.18	53	25.72	4.14
	C	S,L	11	21.47	0.62	11	21.47	0.62
		R	0	20.03	0.00	0	20.03	0.00
	D	S,L,R	54	26.97	4.20	56	27.27	4.29

Table 6.8: 2021 TRANSYT Analysis

2026 Future Design Year

6.4.4 The 'Do-Minimum' 2026 AM peak hour TRANSYT results (Table 6.9) indicate that this junction is predicted to again be operating with significant reserve capacity with a maximum Degree of Saturation (DoS) value of 55% and a maximum MMQ of 4.44 pcu's being recorded. For the 'Do-Something' scenario, with the introduction of the proposed development traffic (100 housing units in the 2021 Opening Year), this junction is predicted to continue to be operating with significant reserve capacity with a maximum DoS value of 56% and a maximum MMQ of 4.61 pcu's being recorded. This represents an increase in the maximum DoS value of only 1% and 0.17 pcu increase predicted maximum MMQ length.

6.4.5 The PM peak hour 'Do-Minimum' TRANSYT results indicate that this junction is predicted to be again operating well within capacity with a maximum DoS value of 54% and a maximum MMQ of 4.45 pcu's being recorded. Similarly, the PM peak hour 'Do-Something' TRANSYT results indicate that this junction is predicted to continue to operate well within capacity with a maximum DoS value of 54% and a maximum queue of 4.61 pcu's being recorded. This represents zero increase in the maximum DoS value and 0.16 pcu increase predicted maximum MMQ length.

Peak Hour	Arm	Movement	Do-Minimum			Do-Something		
			DoS (%)	Delay (s)	MMQ (pcu)	DoS (%)	Delay (s)	MMQ (pcu)
AM Peak	A	S,L	21	19.92	1.70	23	19.87	1.94
		R	23	19.00	2.15	22	18.65	2.14
	B	S,L,R	35	27.23	1.52	39	28.64	1.65
	C	S,L	16	19.38	1.30	23	19.77	1.95
		R	3	17.61	0.24	4	17.35	0.31
	D	S,L,R	55	25.21	4.44	56	25.59	4.61
PM Peak	A	S,L	21	22.58	1.19	27	23.44	1.60
		R	6	19.92	0.37	6	19.92	0.37
	B	S,L,R	52	24.12	4.45	54	25.25	4.61
	C	S,L	23	22.88	1.41	30	23.72	1.83
		R	5	20.23	0.31	6	20.27	0.35
	D	S,L,R	54	28.65	3.75	54	28.07	3.88

Table 6.9: 2026 Future Design Year TRANSYT Analysis

2036 Future Design Year

6.4.6 The 'Do-Minimum' 2036 AM peak hour TRANSYT results (Table 6.10) indicate that this junction is predicted to again be operating with significant reserve capacity with a maximum Degree of Saturation (DoS) value of 60% and a maximum MMQ of 4.91 pcu's being recorded. For the 'Do-Something' scenario, with the introduction of the proposed development traffic (100 housing units in the 2021 Opening Year), this junction is predicted to continue to be operating with significant reserve capacity with a maximum DoS value of 61% and a maximum MMQ of 5.18 pcu's being recorded. This represents an increase in the maximum DoS value of only 1% and 0.27 pcu increase predicted maximum MMQ length.

6.4.7 The PM peak hour 'Do-Minimum' TRANSYT results indicate that this junction is predicted to be again operating well within capacity with a maximum DoS value of 59% and a maximum MMQ of 5.03 pcu's being recorded. Similarly, the PM peak hour 'Do-Something' TRANSYT results indicate that this junction is predicted to continue to operate well within capacity with a maximum DoS value of 60% and a

maximum queue of 5.32 pcu's being recorded. This represents a 1% increase in the maximum DoS value and 0.29 pcu increase predicted maximum MMQ length.

Peak Hour	Arm	Movement	Do-Minimum			Do-Something		
			DoS (%)	Delay (s)	MMQ (pcu)	DoS (%)	Delay (s)	MMQ (pcu)
AM Peak	A	S,L	21	20.16	1.57	23	20.11	1.84
		R	26	19.64	2.42	26	19.27	2.42
	B	S,L,R	37	26.82	1.65	40	28.23	1.78
	C	S,L	17	19.80	1.36	24	20.22	2.01
		R	3	17.90	0.26	4	17.64	0.32
	D	S,L,R	60	26.51	4.91	61	27.04	5.18
PM Peak	A	S,L	18	22.27	1.02	25	23.09	1.44
		R	6	19.94	0.40	6	19.94	0.40
	B	S,L,R	57	25.38	5.03	60	26.97	5.32
	C	S,L	25	23.01	1.47	31	23.92	1.92
		R	5	20.26	0.34	6	20.29	0.38
	D	S,L,R	59	30.15	4.17	59	29.63	4.42

Table 6.10: 2036 Future Design TRANSYT Analysis

6.5 NETWORK PERFORMANCE SUMMARY

6.5.1 The maximum recorded peak hour DoS (Signalised Junctions) RFC (Roundabout Junction) values at each of the four local key junctions are summarised for the AM and PM peak hours in Figures s 6.2 and 6.3 respectively.

6.5.2 The analysis reveals that all junctions will operate within acceptable operational thresholds in all adopted design year scenarios. Negligible impacts as a result of the subject development proposals are predicted compared to the Do-Minimum scenario.

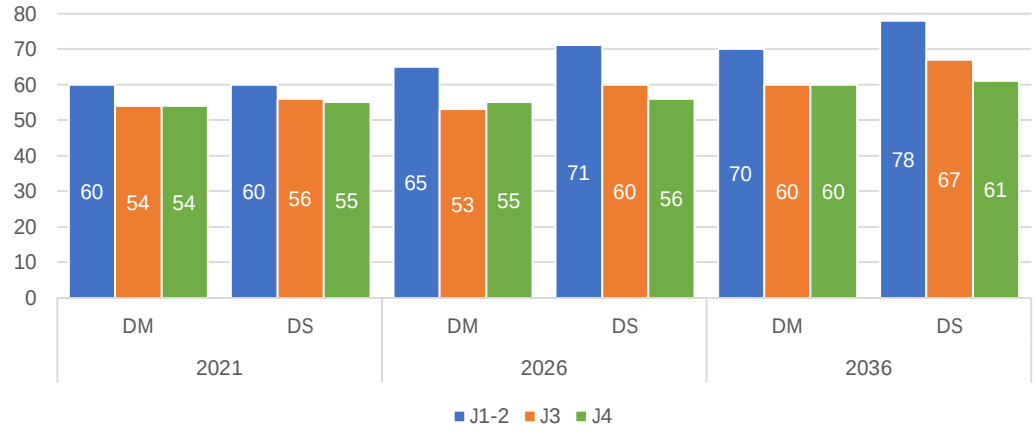


Figure 6.2: Summary of AM Peak Hour Network Assessment

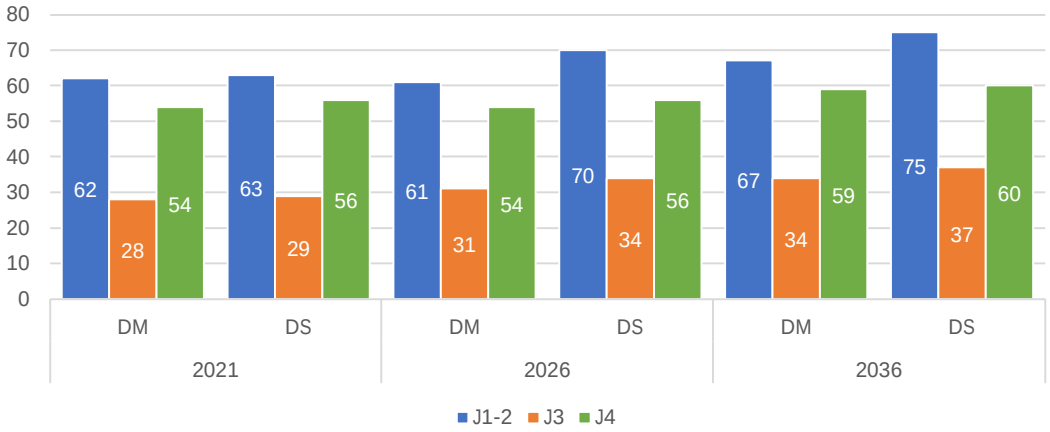


Figure 6.3: Summary of PM Peak Hour Network Assessment

6.6 DISTRIBUTOR ROAD / SITE ACCESS JUNCTION ASSESSMENT

6.6.1 In order to assess the appropriateness of the proposed site access junctions with the emerging Distributor Road corridor internal junctions, the predicted 2036 Future Design Year AADT values for the Distributor and site access links have been determined.

Figure 6.3: Masterplans Internal Junctions Location

6.6.2 In reference to Figure 6.4 below (extract of Diagram 8.1 from the Traffic Management Guidelines), it is possible to establish that, for the 2036 Future Design Year, a simple priority-controlled junction is more than acceptable to serve the predicted levels of traffic movements travelling through all site access junctions. Accordingly, it can be concluded that all site access junctions along the emerging Distributor Road will operate well within capacity in the 2036 Future Design Year.

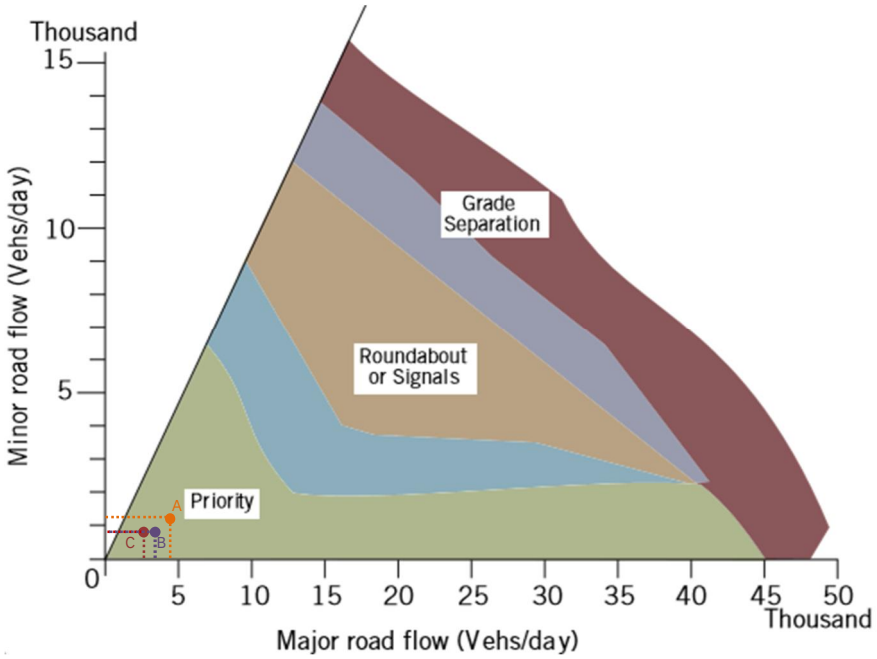


Figure 6.4: Identification of Junction Type (Extract from Figure 8.1 of the Traffic Management Guidelines)

7.0 SUMMARY AND CONCLUSION

7.1 OVERVIEW

7.1.1 DBFL Consulting Engineers (DBFL) have been commissioned by McGarrell Reilly Homes to prepare a Traffic and Transport Assessment (TTA) for a proposed residential development on 2 no. greenfield sites located at Newtownmoyaghy, Kilcock, Co. Meath.

7.1.2 The proposals seek permission for a 575 unit residential development comprising 388 no. houses and 187 no. apartments / duplex apartments. A 623m^2 neighbourhood focused Creche is also included in the proposals.

7.1.3 The Southern site comprises a total of 266 residential units including 147 no. houses and 103 apartments / duplex apartments. The Northern site comprises a total of 309 residential units including 241 no. houses and 68 no. apartments / duplex apartments. A 623m^2 creche facility is also proposed within the Southern site which is predicted to accommodate 18 staff and 119 children.

7.1.4 The purpose of this TTA is to quantify the existing transport environment and to detail the results of assessment work undertaken to identify the potential level of transport impact generated as a result of the proposed 575 residential units.

7.2 SUMMARY

7.2.1 The R148 Maynooth Road is subject to a speed limit of 50kph. It benefits from recently upgraded pedestrian and cycle infrastructure including a good quality footway along the northern side of the R148 road corridor between the new roundabout junction and the Kilcock Town Centre. A shared cycle / pedestrian facility, which forms part of the royal Canal Greenway, is available to the south of the R148 Road corridor along the Royal Canal bank.

7.2.2 Along the R145 Road corridor, pedestrians can benefit from the provision of a footway along the western side of the corridor between the Town Centre and the upgraded R145 / Distributor Road junction which benefits from pedestrian footways on both sides of the road in the immediate facility of the upgraded junction.

7.2.3 The development proposals include the provision of 1019 car parking spaces on-site comprising 561 no. within the Northern site and 458 no. within the Southern (including 40 no. GAA changing room car parking spaces).

7.2.4 The proposals include the provision of a total 314 cycle parking spaces including 242 no. residential, 40 no. crèche and 32 no. GAA club cycle parking spaces on-site. The 242 no. residential cycle parking spaces comprise 163 long stay parking spaces and 97 short stay parking spaces. Residents of residential housing units can accommodate long and short stay bicycle parking in-curtilage. It is expected that duplex units can accommodate long stay cycle parking in-curtilage however 24 no. dedicated short stay cycle parking spaces have been provided.

7.2.5 The provision of 242 no. residential cycle parking spaces is significantly higher than the development plan minimum requirement of 101 no. spaces and represents a good compromise between the development plan and generous DHPLG requirements (416). A total of 40 no. cycle parking spaces are proposed to be provided at the crèche facility comprising 18 no. long stay (1 per staff) and 22 no. short stay spaces (approximately 1 per 5 children). The proposed overall provision of 40 no. crèche cycle parking spaces is 26 no. spaces higher than the minimum development plan requirement.

7.2.6 The review of the RSA data reveals that the local road network exhibits a good safety record considering the volume of traffic traveling across the local road network. The review confirms that no significant incident trends or significant safety concerns are evident across the local road network.

7.2.7 The section of the distributor road which runs through the Masterplan Lands, (and approved by An Bord Pleanala under PL17.239375, PL17.238370 and PL09.238818, is approximately 0.86km in length and will consist of a 7.3m wide carriageway, with a 1.5m wide verge, 1.5m cycle track and a 2.0 m wide footpath on each side of the road. This road will run in a north-west direction from a new roundabout on the R148, Maynooth Road. The road will form approximately 32% of the overall distributor road identified in the Kilcock LAP (approximately 2.7 km in length) and will stretch from the R148 Maynooth Road to the R125 Dunshaughlin Road. We note that all other sections of the distributor road outside the subject masterplan lands between the R148 and R158 have been granted planning permission by An Bord Pleanla. Works on the approved sections of distributor road within the overall Masterplan lands have commenced.

7.2.8 The purpose of this TTA is to quantify the existing transport environment and to detail the results of assessment work undertaken to identify the potential level of transport impact generated as a result of the proposed residential development. Accordingly, the TTA has carried out a range of assessments; specifically investigating the proposed developments adopted Opening Year of 2021, and the subsequent future design year assessments of 2026 (plus 5 years) and 2036 (plus 15 years) in accordance with best practice guidance.

7.2.9 The TTA adopted the following construction schedule which seeks to allow an appropriate period of time for the proposed development to be rolled out (gain planning permission, construction etc) and occupied;

- 2021 – The first 100 residential houses are built and occupied on the southern site.
- 2026 – The remaining elements of the proposed scheme are completed and occupied.

7.2.10 Based on the TRICS derived trip rates, the potential peak hour vehicle trip generation for both development sites is calculated as presented in Table 7.1.

Description	Southern Site				Northern Site			
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
	Arr	Dep	Arr	Dep	Arr	Dep	Arr	Dep
Houses	22	55	47	32	36	90	76	52
Apartments/Duplexes	10	21	23	18	6	12	13	10
Crèche	18	13	3	8	-	-	-	-
Total	50	88	72	57	42	101	89	62

Table 7.1: Potential Development Vehicle Trip Generation

7.2.11 It is expected that a large proportion of trips generated by the proposed crèche development will be internal trips with a high level of walk / cycle trips due to crèche facility located in close proximity to the residential units. Accordingly, the TRICS predicted development trips have been discounted by 50%. In reality, it is expected that this discounted proportion could actually be much greater and therefore the assumed 50% discount is considered robust.

7.3 CONCLUSIONS

7.3.1 Based upon the information and analysis detailed within this Traffic and Transport Assessment it has been demonstrated that: -

- The proposed mixed-use development complies fully with the sites land use zoning as detailed within the Meath County Development Plan 2013-2019.
- The design and internal layout of the proposed development has actively sought to provide real viable opportunities for future pedestrian / cycle connections to the external cycle / pedestrian network.
- The subject site is highly accessible by sustainable modes of travel being within a convenient walking / cycle distance of Kilcock town centre, and a range of public transport interchange opportunities which provide access to a number of Bus Eireann and Irish Rail services.

7.3.2 Based on the network impact as a result of the subject proposals at key off-site junctions in the 2036 Future Design Year (Figure 7.1), the following junctions have been subject to further analysis. Whilst the impact level at Junction 4 is predicted to be less than 10%, this junction has also been subject to further assessment in order to determine this junction's performance once the existing priority controlled junction is upgraded to a signal controlled junction;

- Junction 1: R148 Harbour St / R125 Bridge St Signal Controlled Junction
- Junction 2: R148 Harbour St / New Lane Priority Controlled Junction
- Junction 3: R148 Maynooth Rd / Distributor Road Roundabout
- Junction 4: Distributor Road / R125 / Moyglare Rd Junction

7.3.3 Based on the network analysis undertaken it is concluded that a modest impact is predicted on the surrounding road network as a result of the implementation of the proposed residential development.

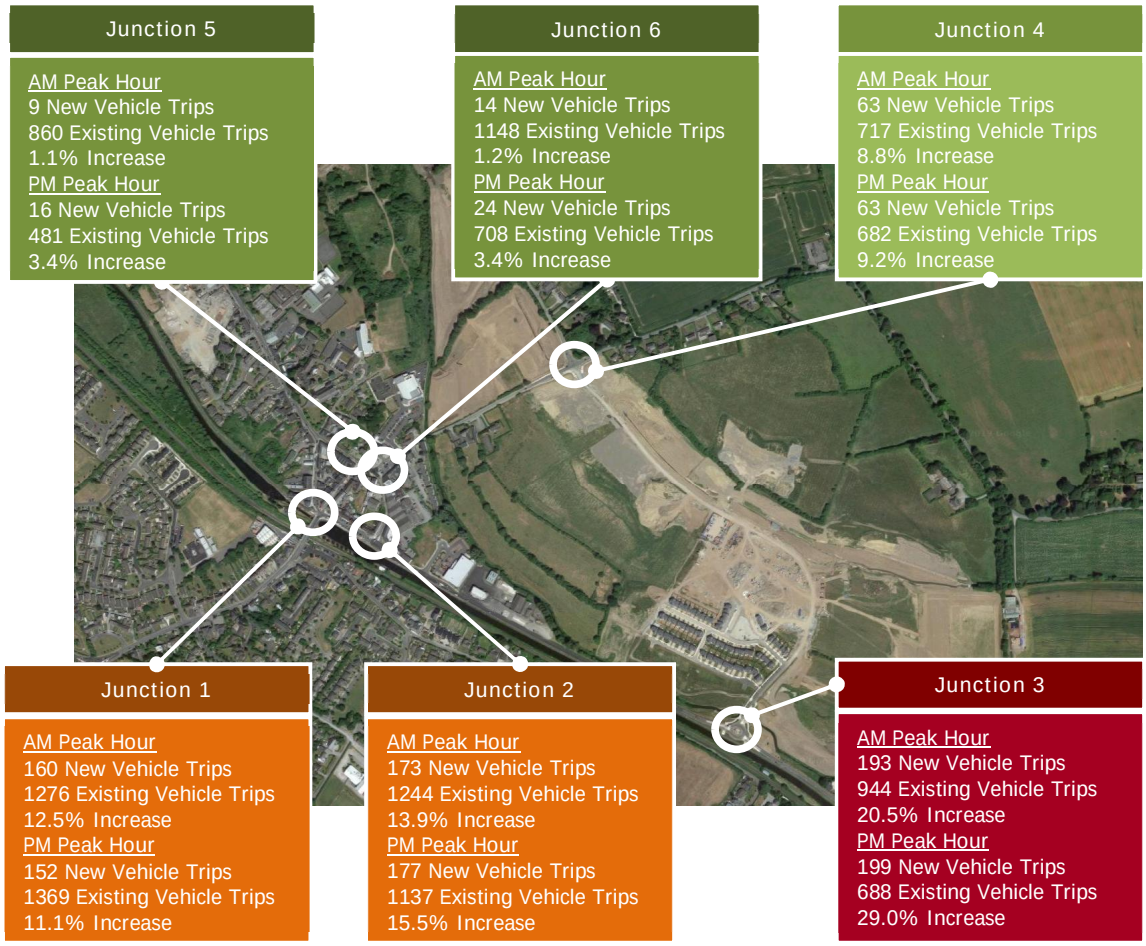


Figure 7.1: Increase in Vehicle Trips Generated Through Key Local Junctions (2036 Future Design Year)

7.3.4 There are future proposals to upgrade the existing New Road / Harbour Street priority controlled junction to a signal controlled junction and therefore both the Do-Minimum and Do-Something scenarios incorporate the upgraded New Road / Harbour Street junction layout. Whilst the results of this 2019 base assessment reveal that, i) before the application of growth factors to the base traffic and ii) the introduction of the proposed and committed development traffic, the existing junction arrangement is currently operating over capacity during the morning and evening peak hours. Nevertheless, with the introduction of the aforementioned future junction enhancements, the upgraded junction arrangement is predicted to operate well within capacity during all assessment scenarios.

7.3.5 An assessment has been undertaken to assess the appropriateness of the proposed site access junctions with the emerging Distributor Road. it has been established that, for the 2036 Future Design Year, a simple priority-controlled junction is more

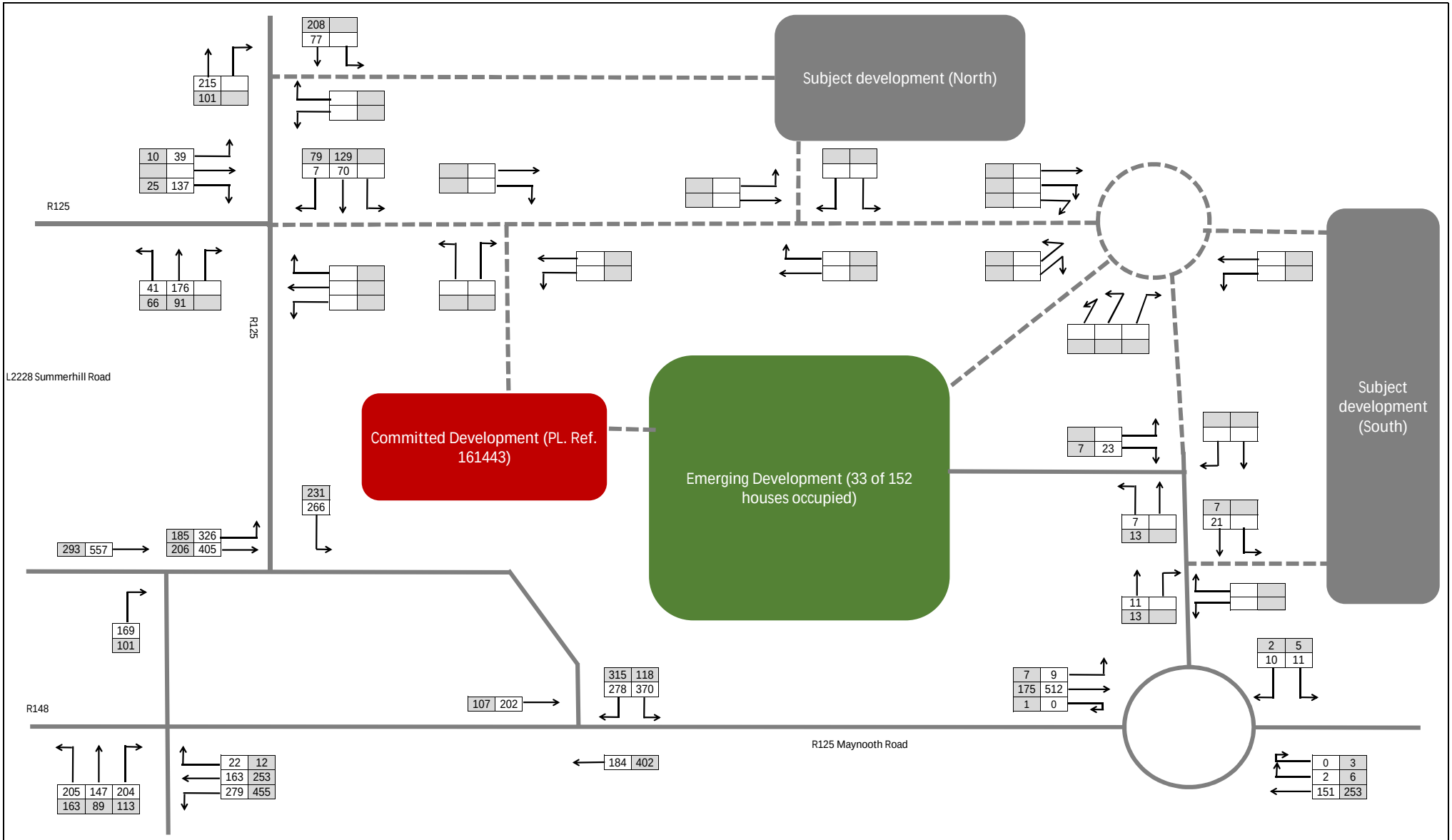
than acceptable to serve the predicted levels of traffic movements travelling through all site access junctions.

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

APPENDICES

APPENDIX A

Traffic Flow Diagrams



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Newtownmoyaghy, Kilcock

DRG. Title :
Network Traffic Flows - PCU's
2019 Base Flows

Key:
AM Peak Hour (0815-0915)
PM Peak Hour (1745-1845)

Dwn:	Ckd:	Date:
MMK	DR	25/03/2019

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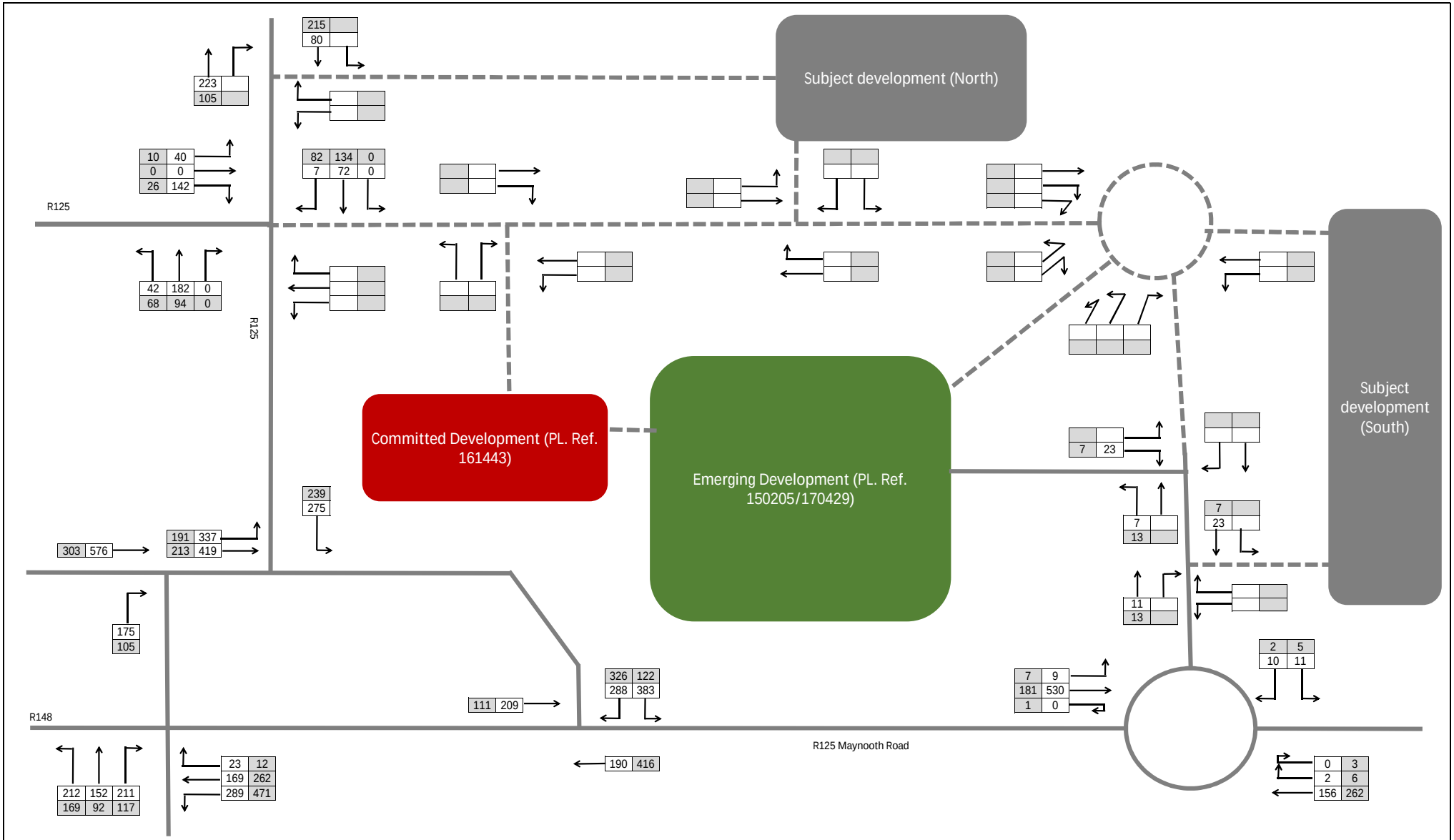

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Dwn:	Ckd:	Date:
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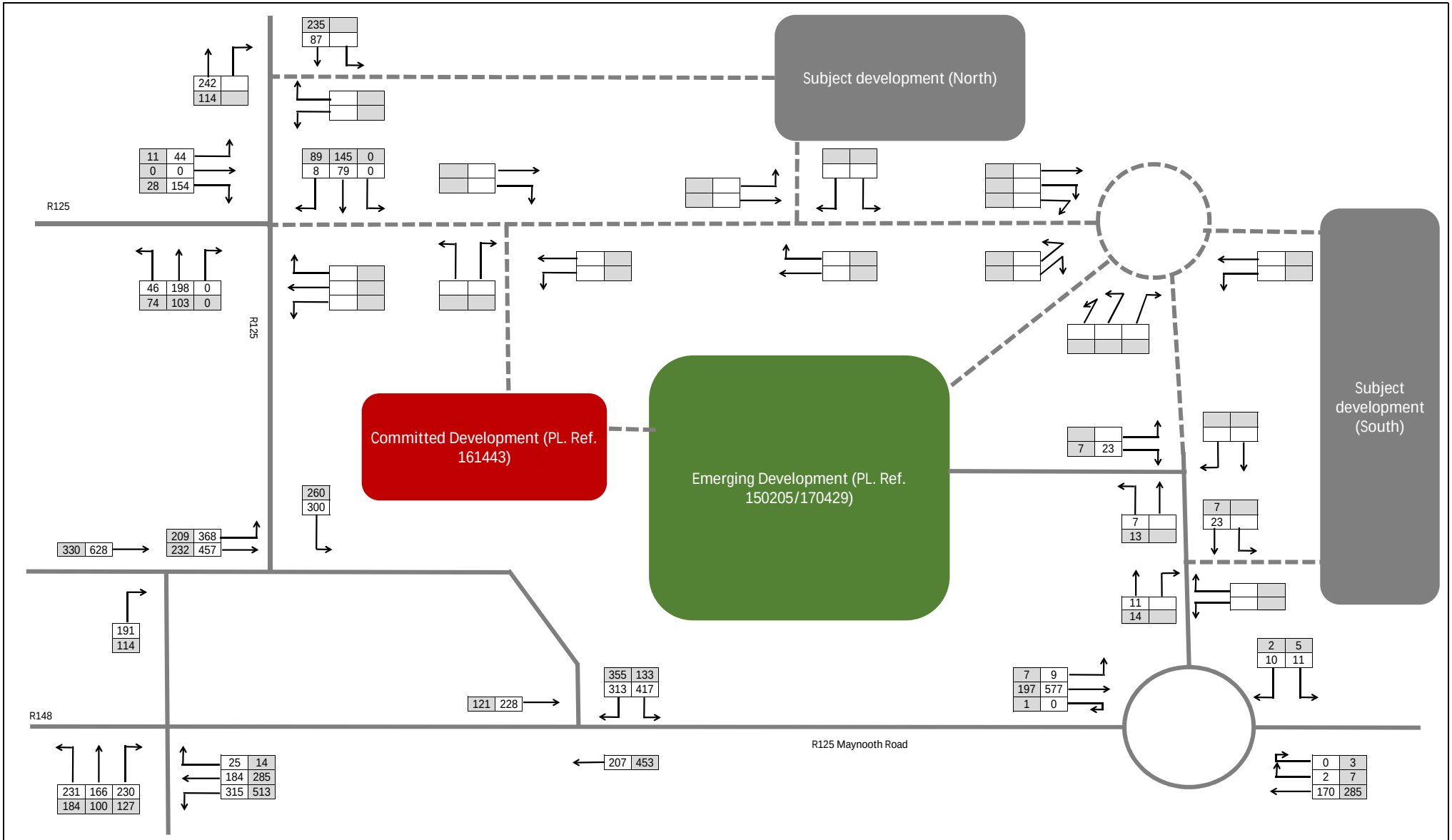

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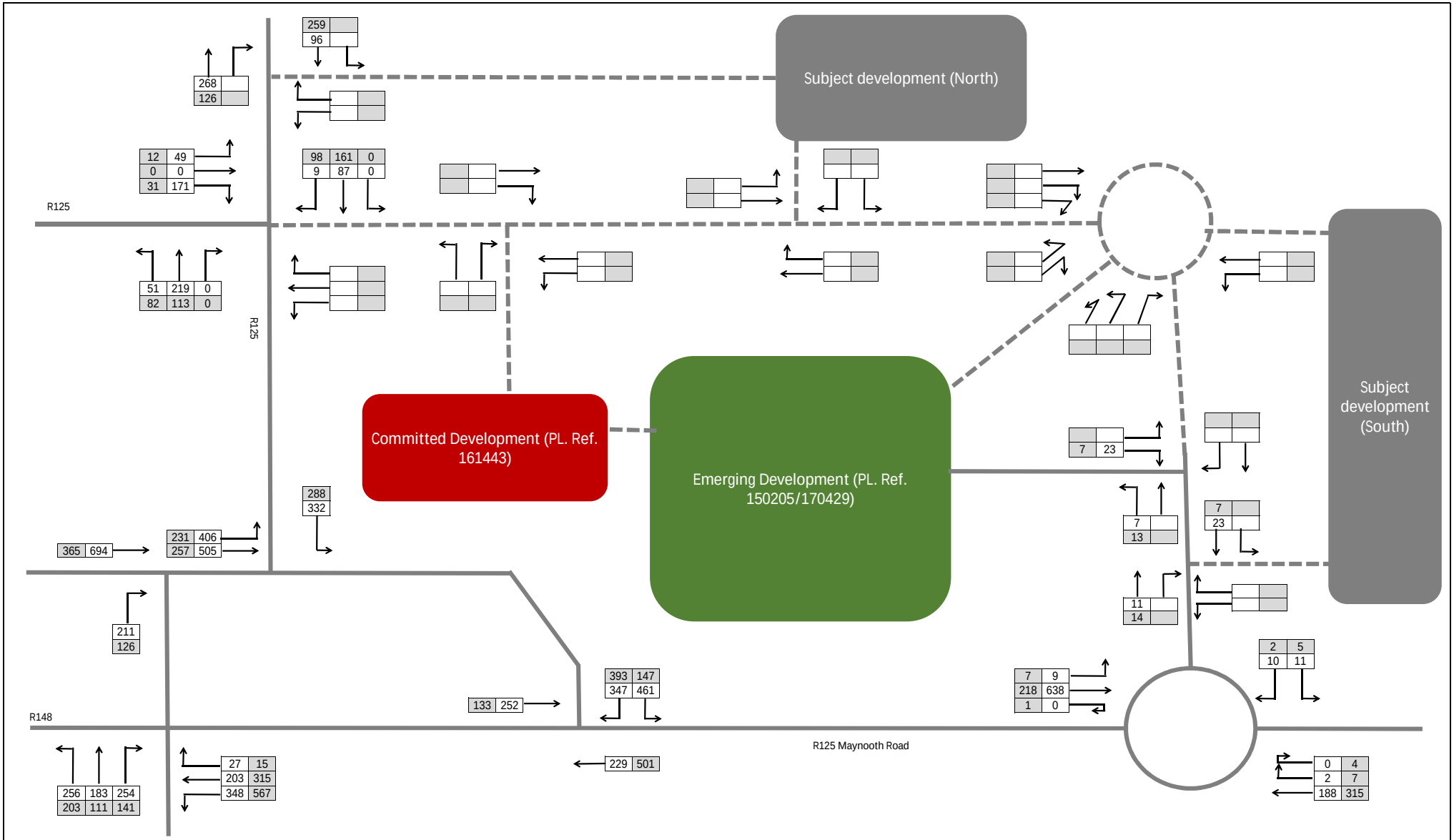

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PM Peak Hour (1745-1845)

Dwn:	Ckd:	Date:
MMK	DR	25/03/2019

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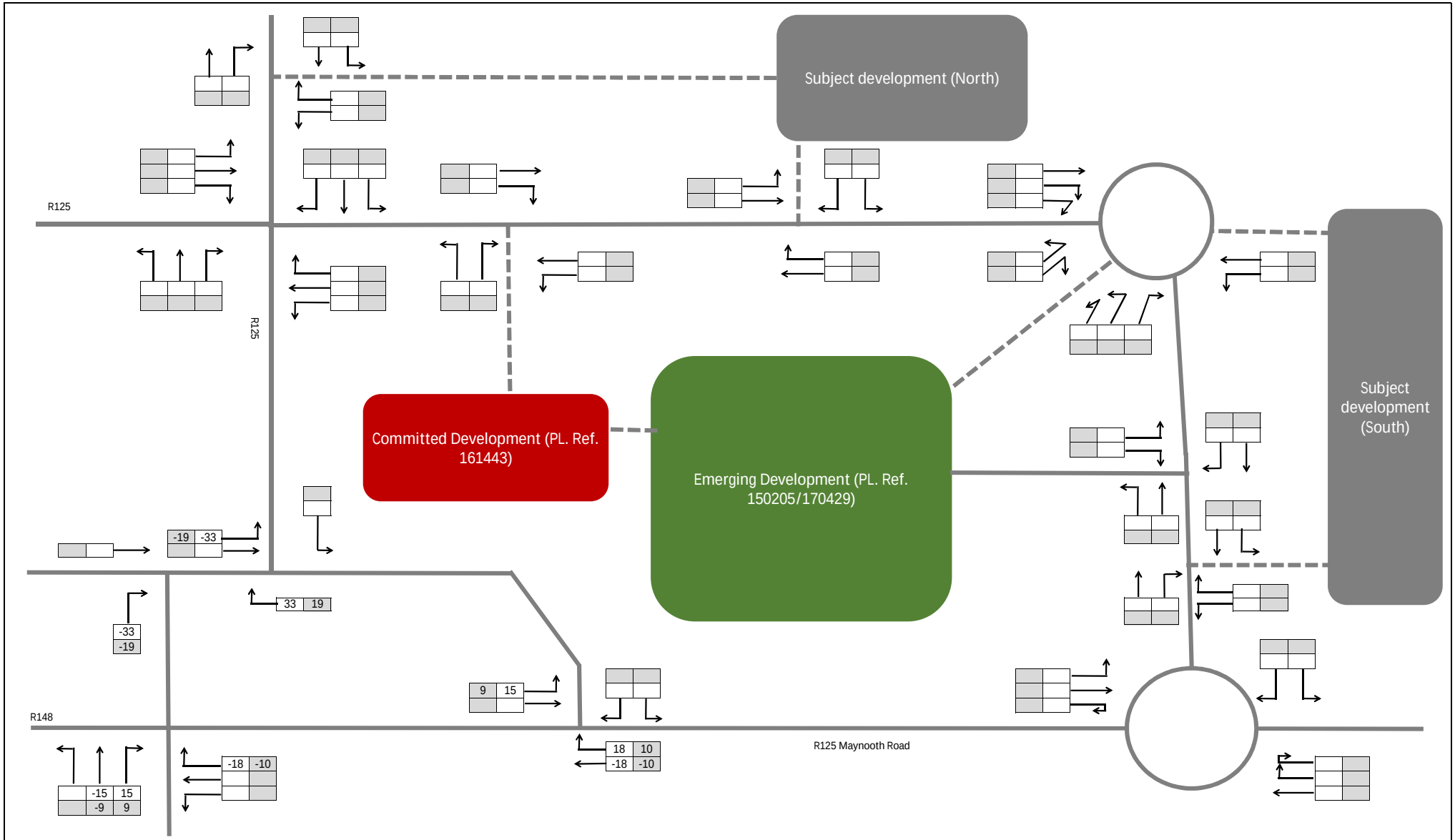

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2021 Future Design Year

Key:
AM Peak Hour (0815-0915)
PM Peak Hour (1745-1845)

Dwn:	Ckd:	Date:
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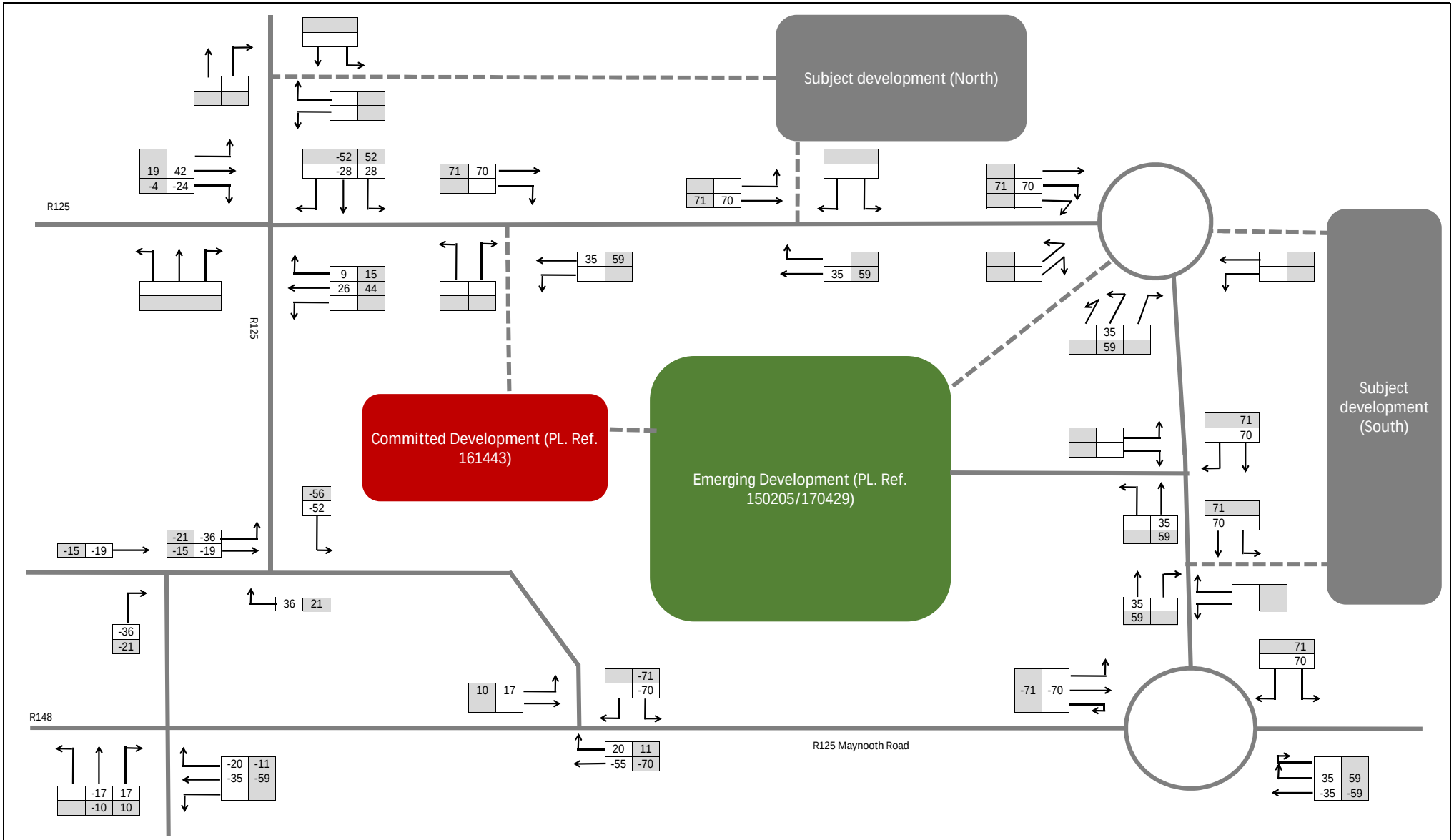

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Diverted Network Traffic Flows - PCU's
2026 Future Design Year

Key:
AM Peak Hour (0815-0915)
PM Peak Hour (1745-1845)

Dwn:	Ckd:	Date:
MMK	DR	25/03/2019

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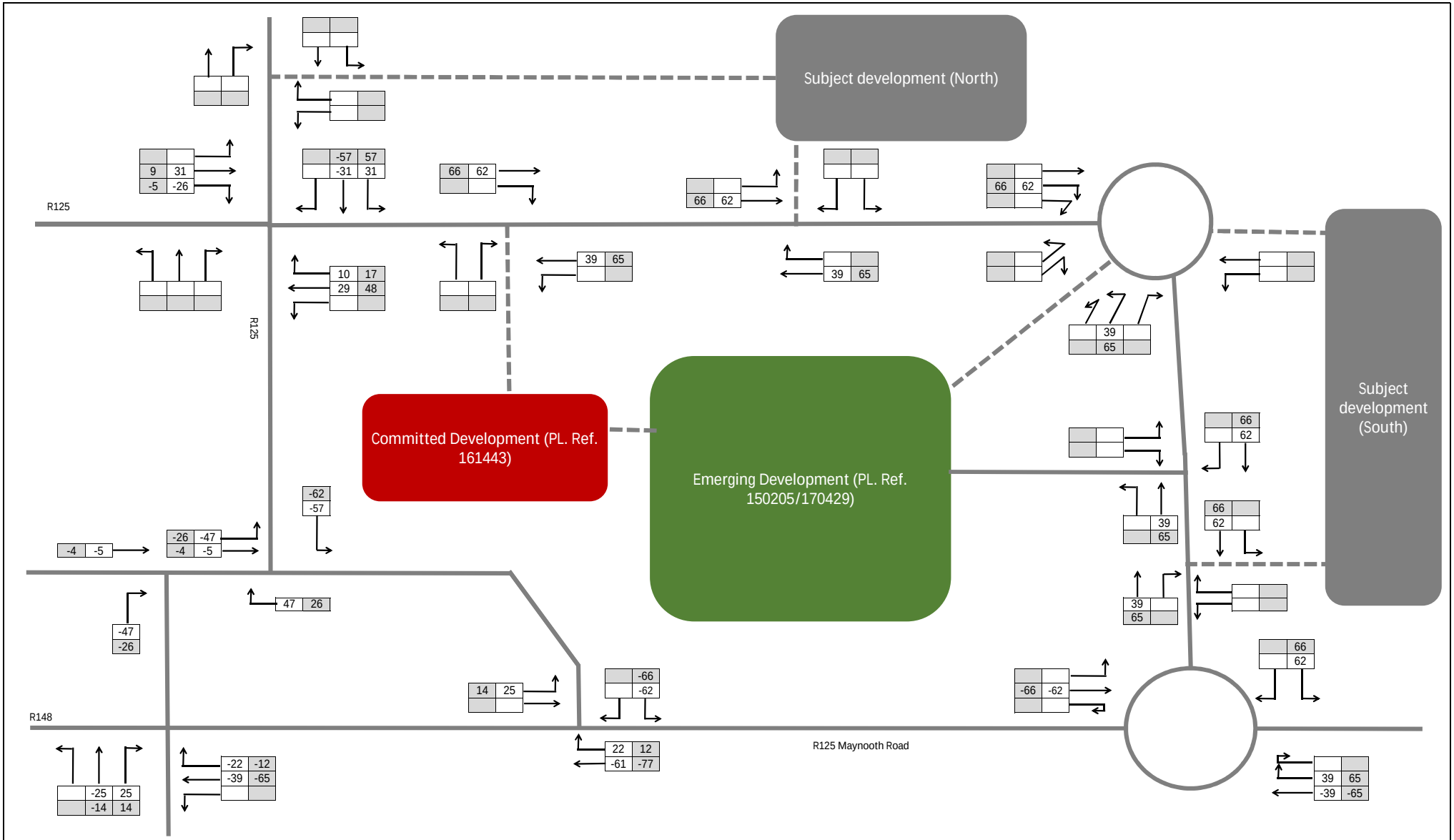

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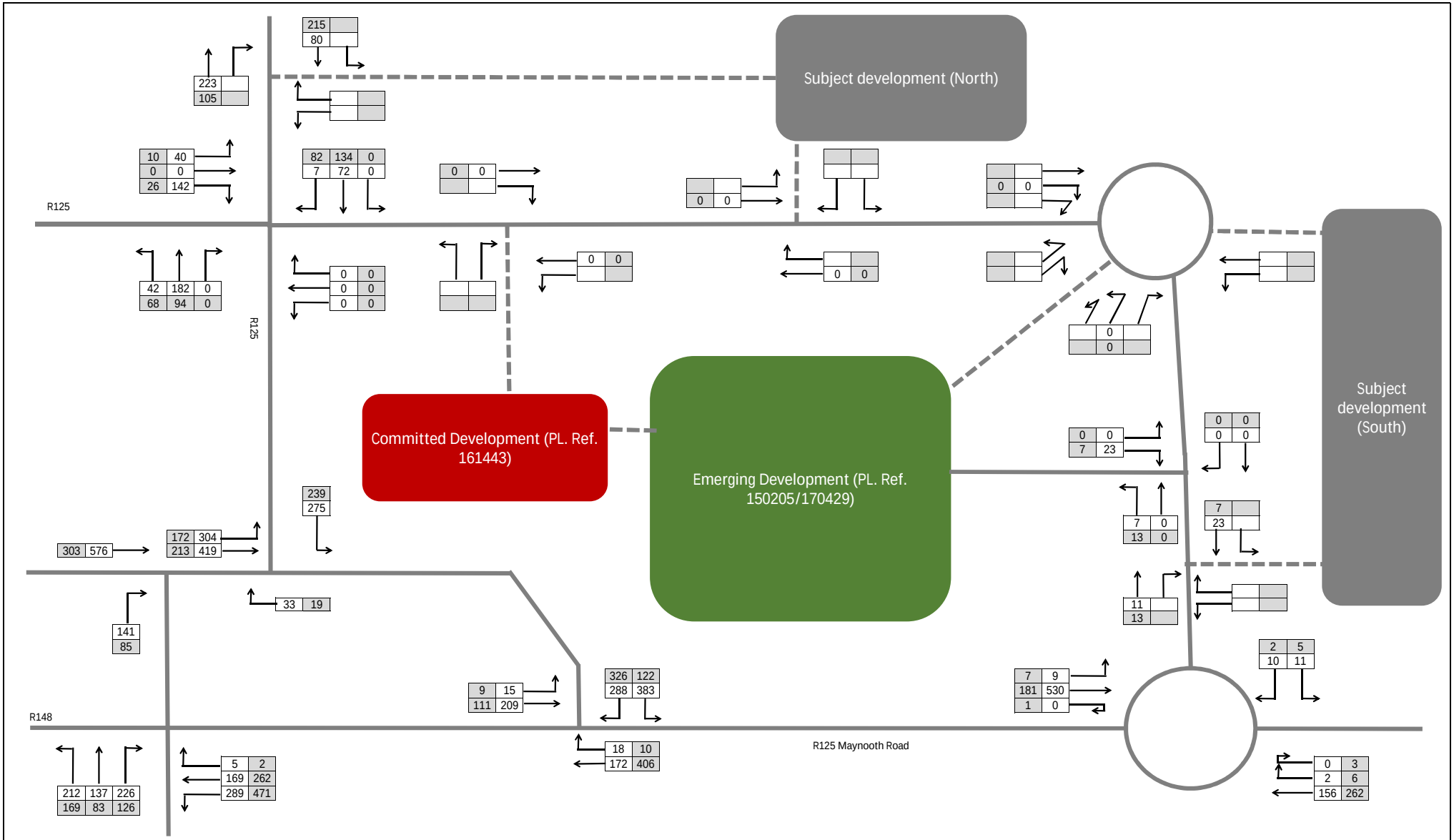
Figure: 2c

Rev: -



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website: www.dbfl.ie

Project :
Proposed Residential Development
Newtownmoyaghy, Kilcock

DRG. Title :
2021 Adjusted Base Flows

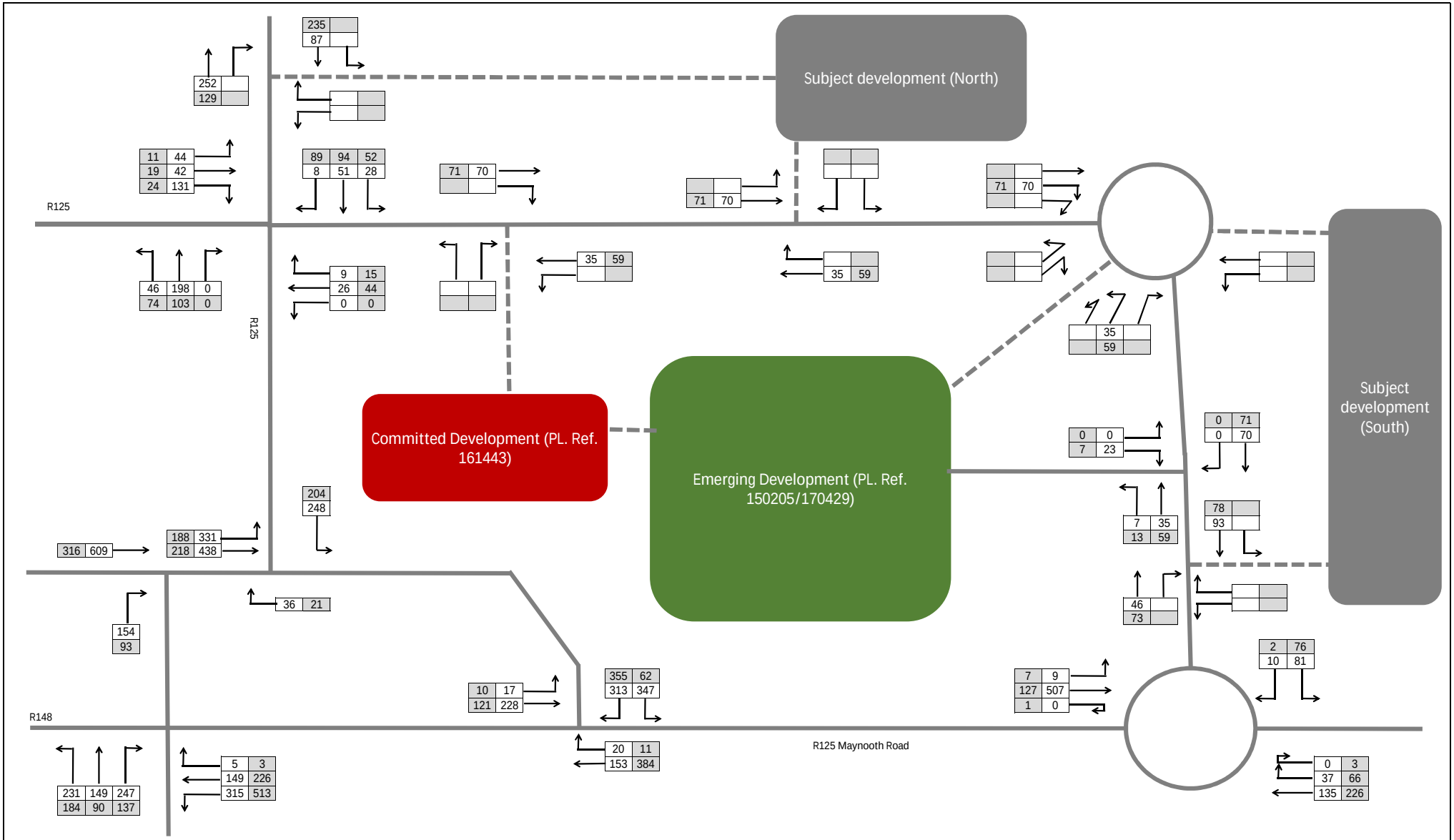
Key:
AM Peak Hour (0815-0915)
PM Peak Hour (1745-1845)

Dwn:	Ckd:	Date:
MMK	DR	25/03/2019

Ref: p190009\calcs\excel\190009-Traffic Model-001

Figure: 3a

Rev: -



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Project :
Proposed Residential Development
Newtownmoyaghy, Kilcock

DRG. Title :
2026 Adjusted Base Flows

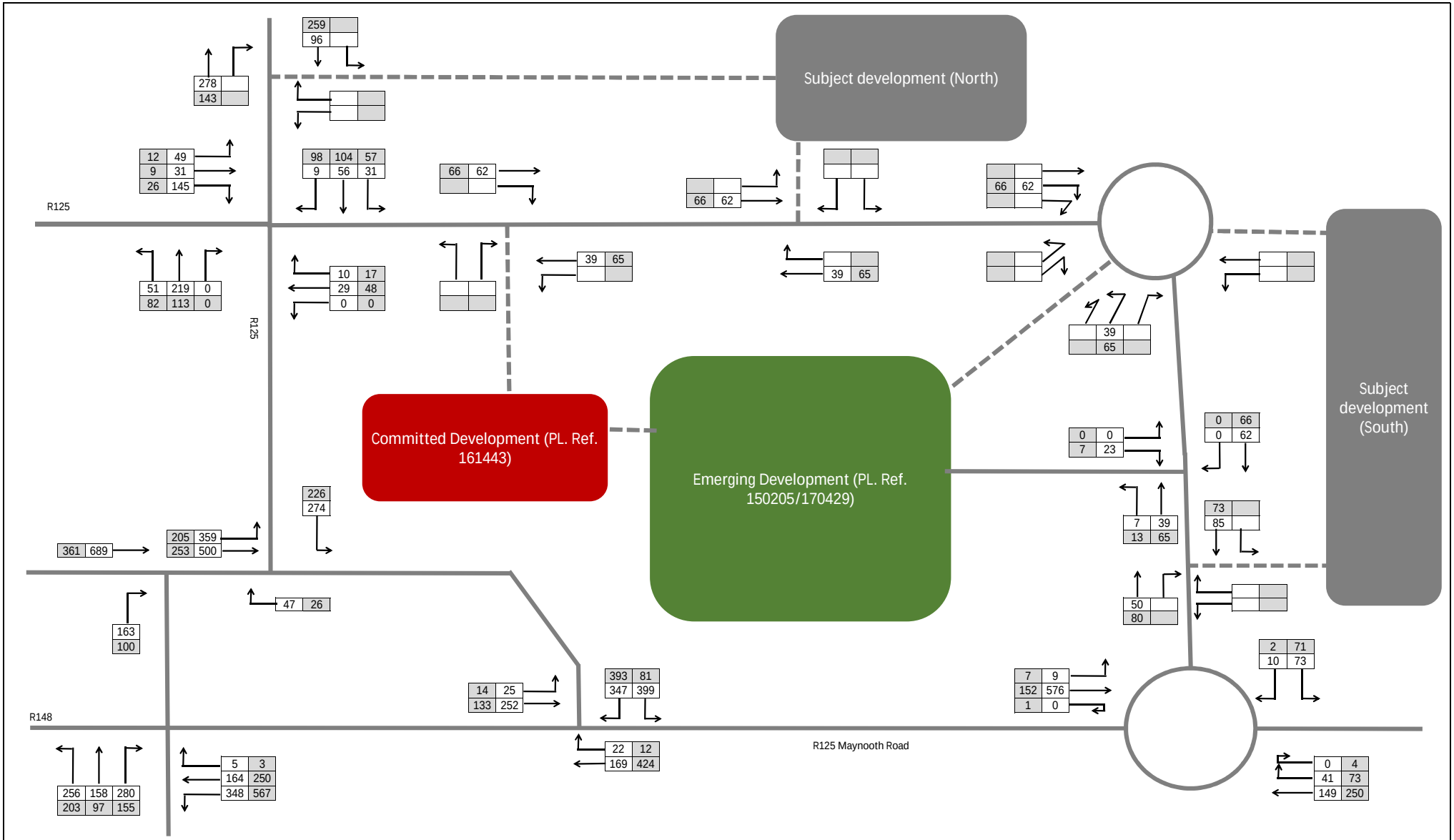
Key:
AM Peak Hour (0815-0915)
PM Peak Hour (1745-1845)

Dwn:	Ckd:	Date:
MMK	DR	25/03/2019

Ref:
p190009\calcs\excel\190009-Traffic Model-001

Figure: 3b

Rev: -



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Project :
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Newtownmoyaghy, Kilcock

DRG. Title :
2036 Adjusted Base Flows

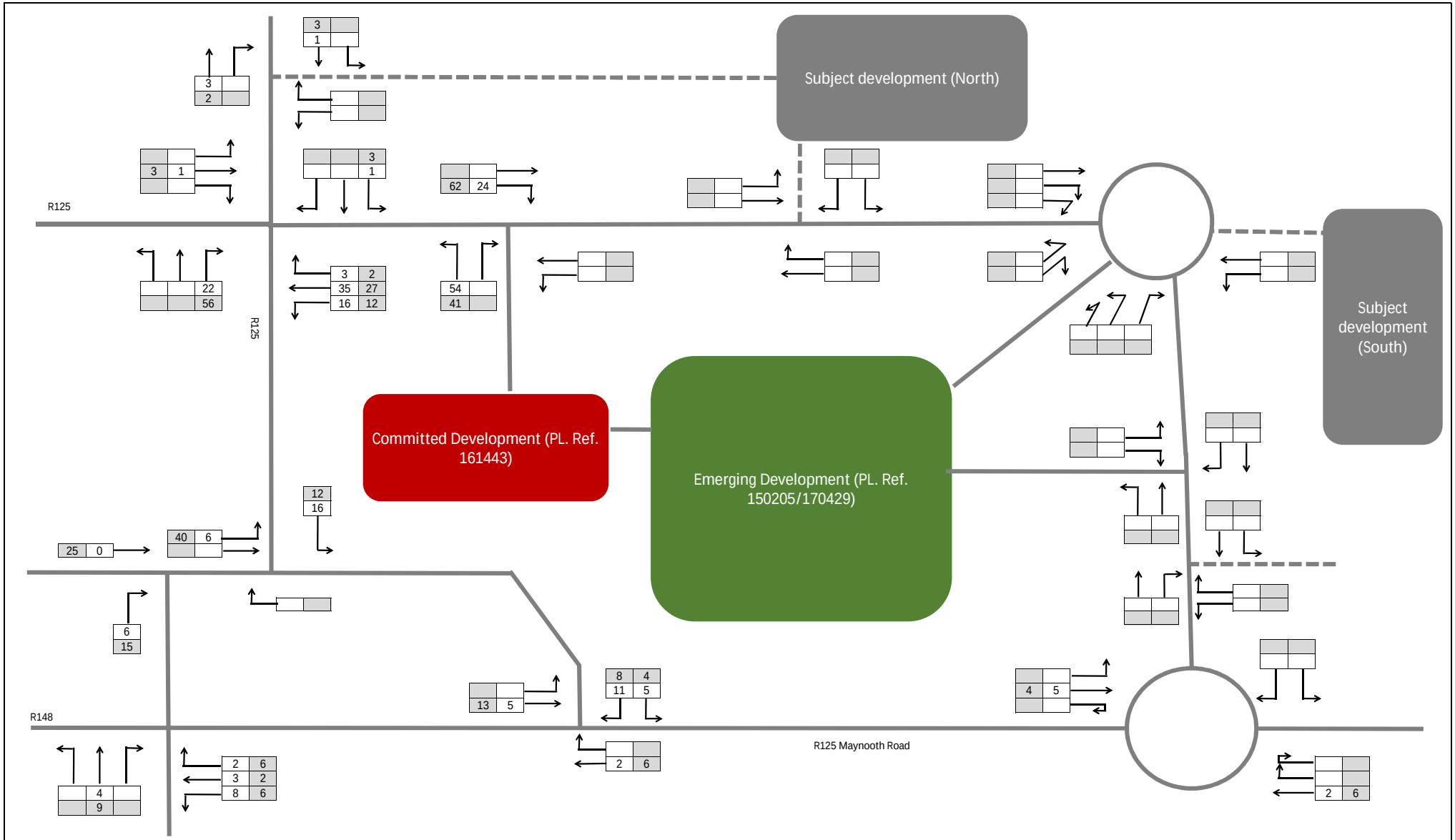
Key:
AM Peak Hour (0815-0915)
PM Peak Hour (1745-1845)

Dwn:	Ckd:	Date:
MMK	DR	25/03/2019

Ref: p190009\calcs\excel\190009-Traffic Model-001

Figure: 3c

Rev: -



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website: www.dbfl.ie

Project :
Proposed Residential Development
Newtownmoyaghy, Kilcock

DRG. Title :
Committed Development Flows - 2021 OY
(RA161443)

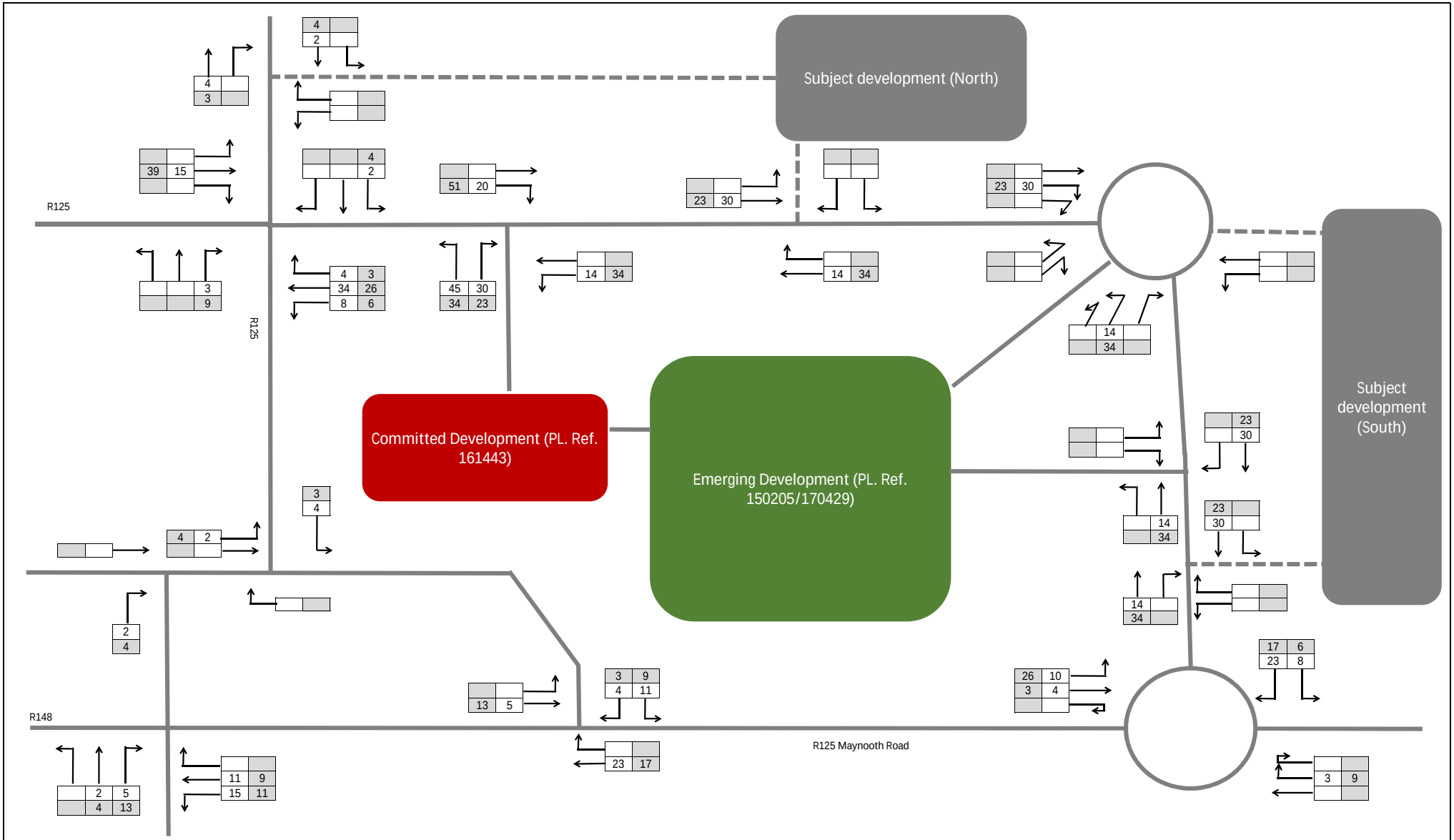
Key:
AM Peak Hour (0815-0915)
PM Peak Hour (1745-1845)

Dwn:	Ckd:	Date:
MMK	DR	25/03/2019

Ref: p190009\calcs\excel\190009-Traffic Model-001

Figure: 4a

Rev: -



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website: www.dbfl.ie

Project :
Proposed Residential Development
Newtownmoyaghy, Kilcock

DRG. Title :
Committed Development Flows - 2026/2036 DY
(RA161443)

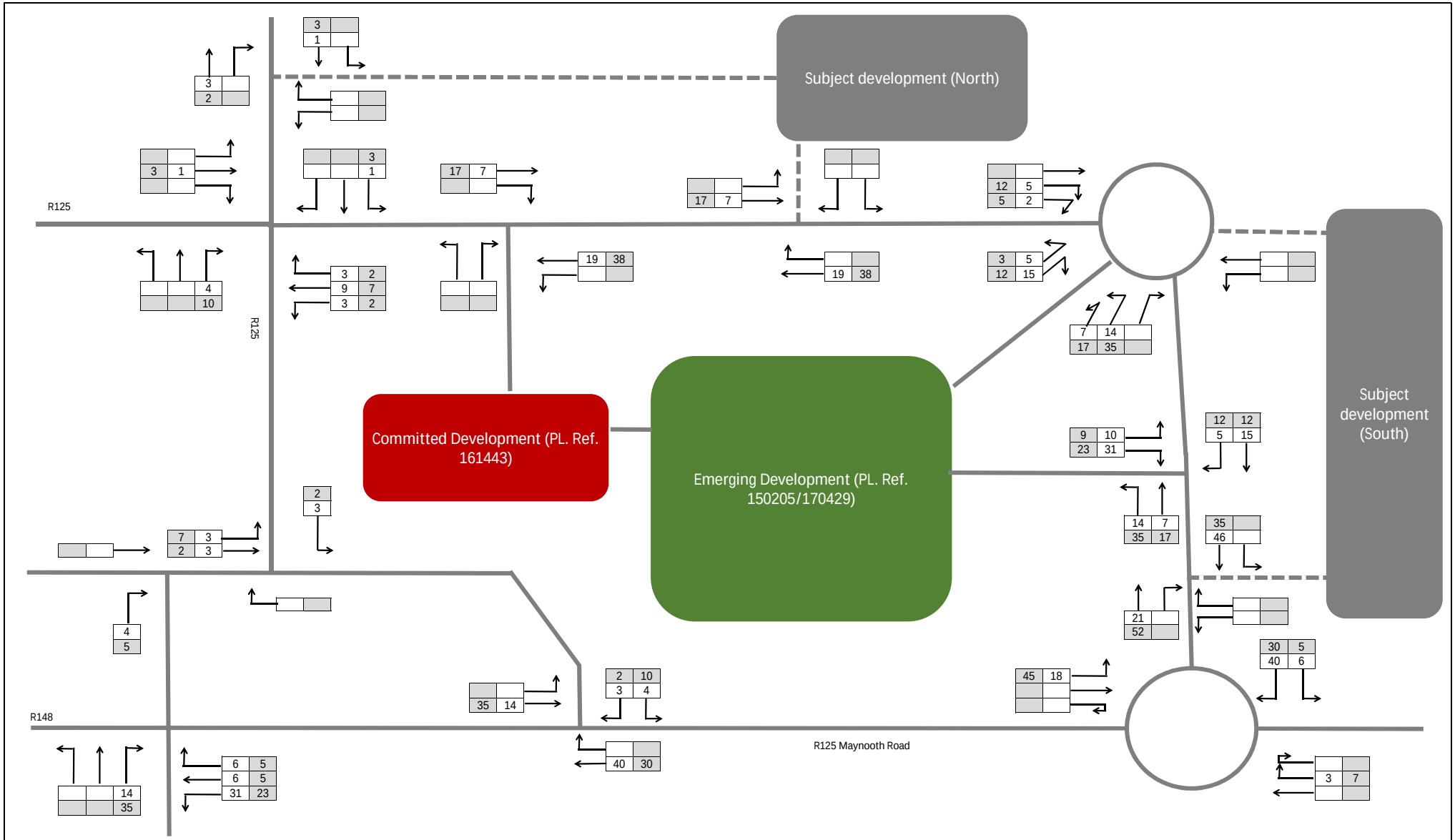
Key:
AM Peak Hour (0815-0915)
PM Peak Hour (1745-1845)

Dwn:	Ckd:	Date:
MMK	DR	25/03/2019

Ref: p190009\calcs\excel\190009-Traffic Model-001

Figure: 4b

Rev: -



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website: www.dbfl.ie

Project :
Proposed Residential Development
Newtownmoyaghy, Kilcock

DRG. Title :
Emerging Development Flows
(RA171230/150205)

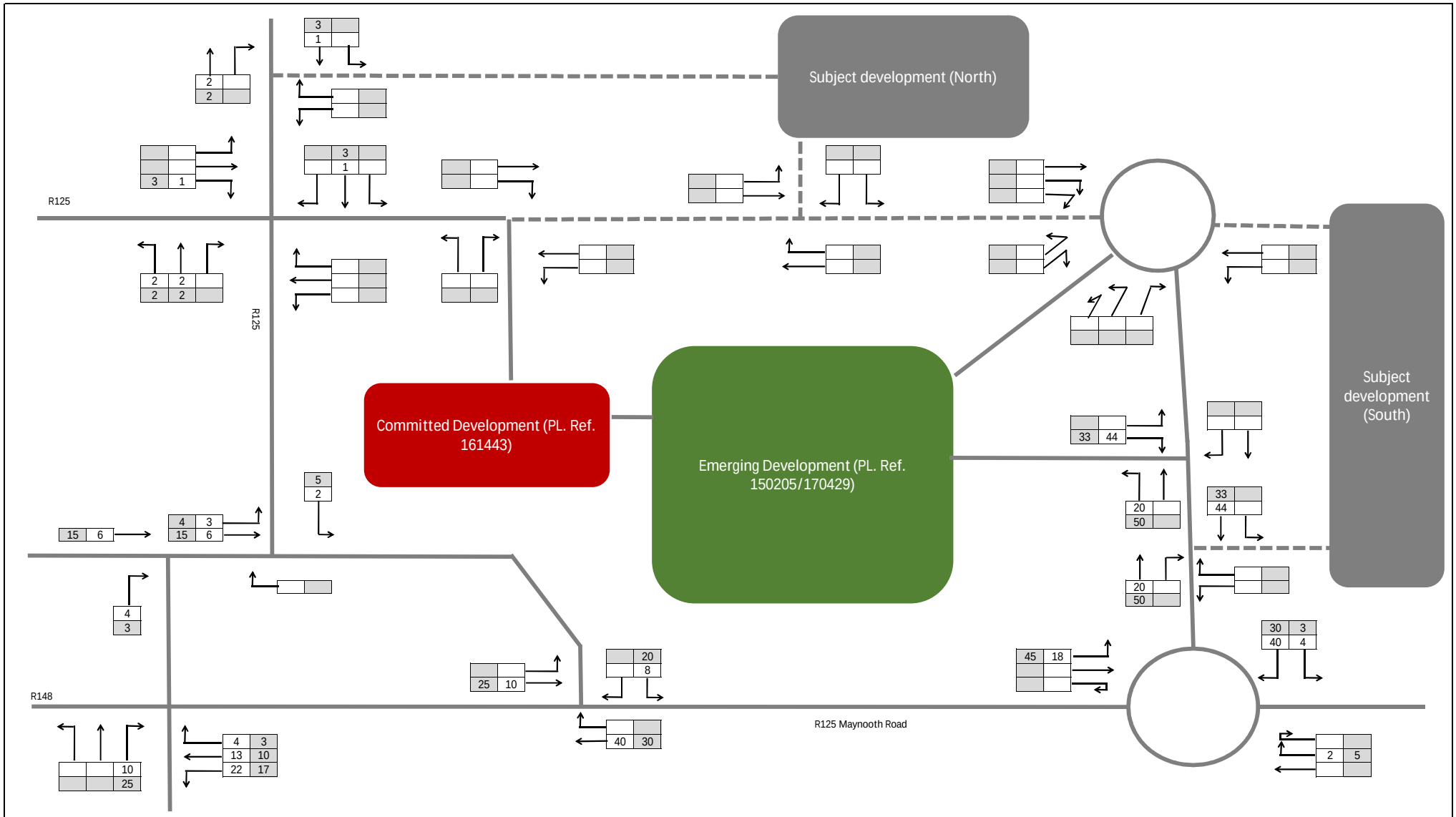
Key:
AM Peak Hour (0815-0915)
PM Peak Hour (1745-1845)

Dwn:	Ckd:	Date:
MMK	DR	25/03/2019

Ref:
p190009\calcs\excel\190009-Traffic Model-001

Figure: 4c

Rev: -



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Project :
Proposed Residential Development
Newtownmoyaghy, Kilcock

DRG. Title :
Adjusted Emerging Development Flows (33 houses occupied in survey)
(RA171230/150205)

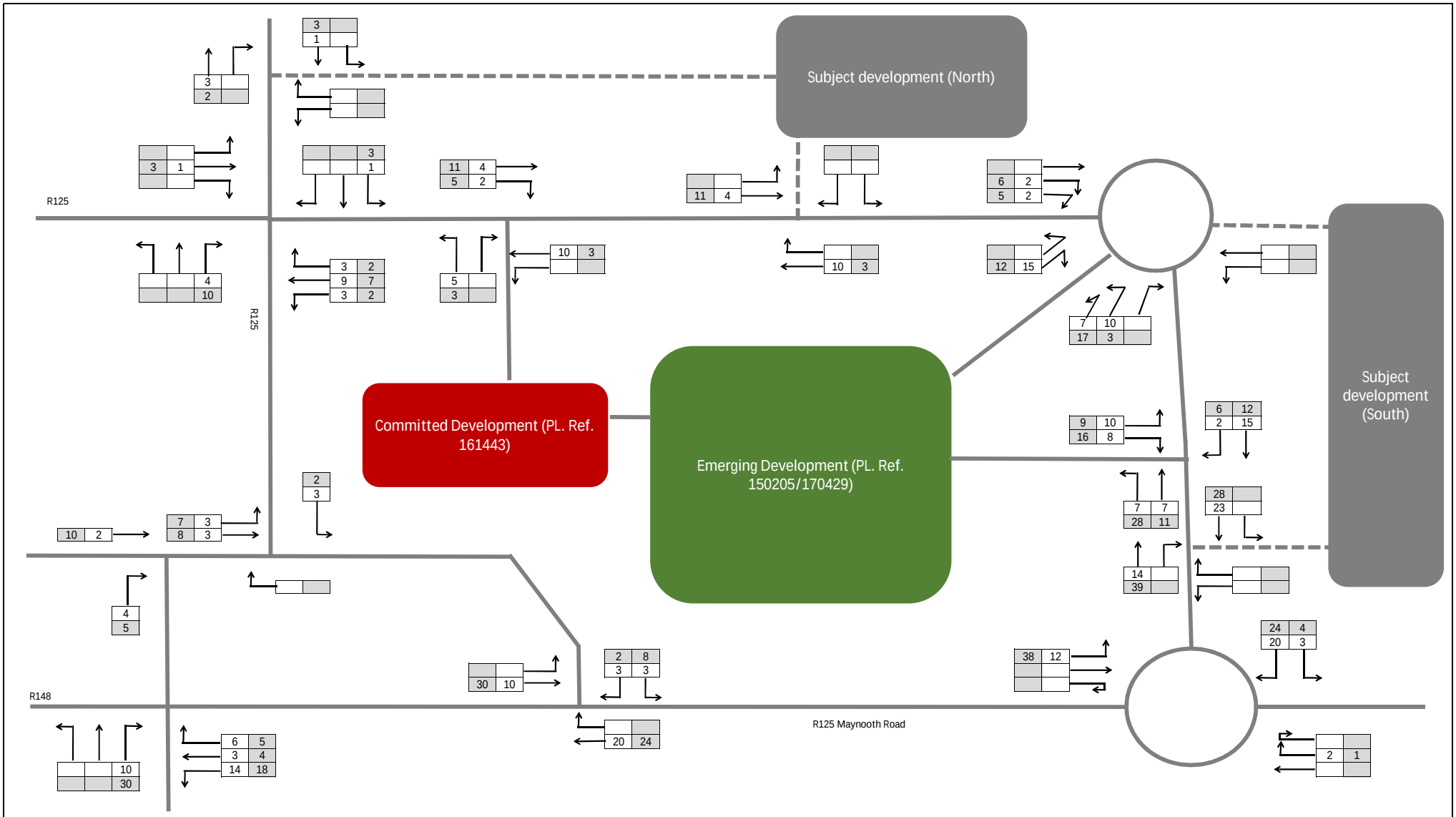
Key:
AM Peak Hour (0815-0915)
PM Peak Hour (1745-1845)

Dwn:	Ckd:	Date:
MMK	DR	25/03/2019

Ref: p190009\calcs\excel\190009-Traffic Model-001

Figure: 4d

Rev: -



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Newtownmoyaghy, Kilcock

DRG. Title :
Adjusted Emerging Development Flows (33 houses occupied in survey)
(RA171230/150205)

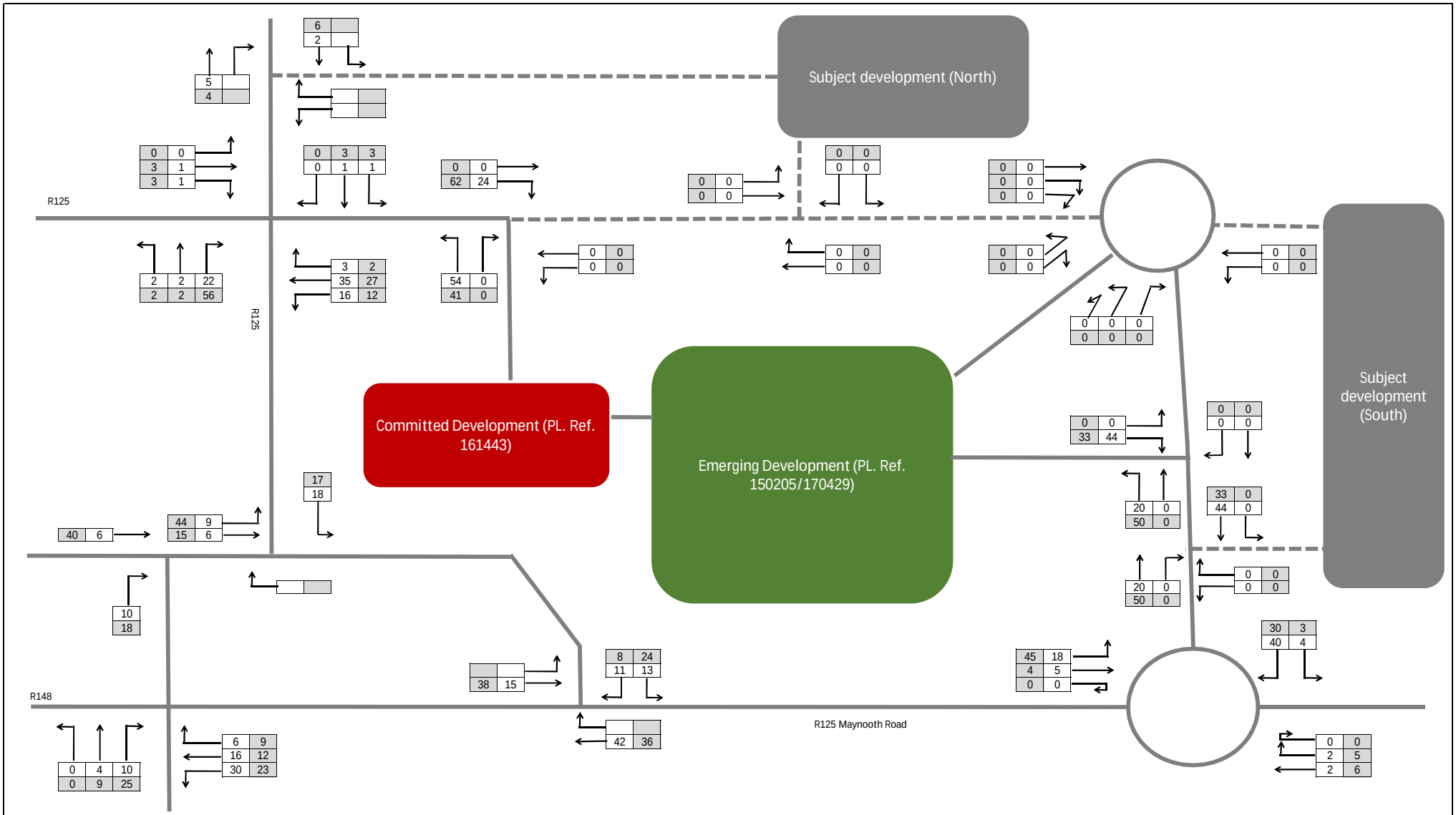
Key:
AM Peak Hour (0815-0915)
PM Peak Hour (1745-1845)

Dwn:	Ckd:	Date:
MMK	DR	25/03/2019

Ref: p190009\calcs\excel\190009-Traffic Model-001

Figure: 4e

Rev: -



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Newtownmoyaghy, Kilcock

DRG. Title :
Combimed Committed and Emerging Development
2021 Opening Year

Key:
AM Peak Hour (0815-0915)
PM Peak Hour (1745-1845)

Dwn:	Ckd:	Date:
MMK	DR	25/03/2019

Ref:
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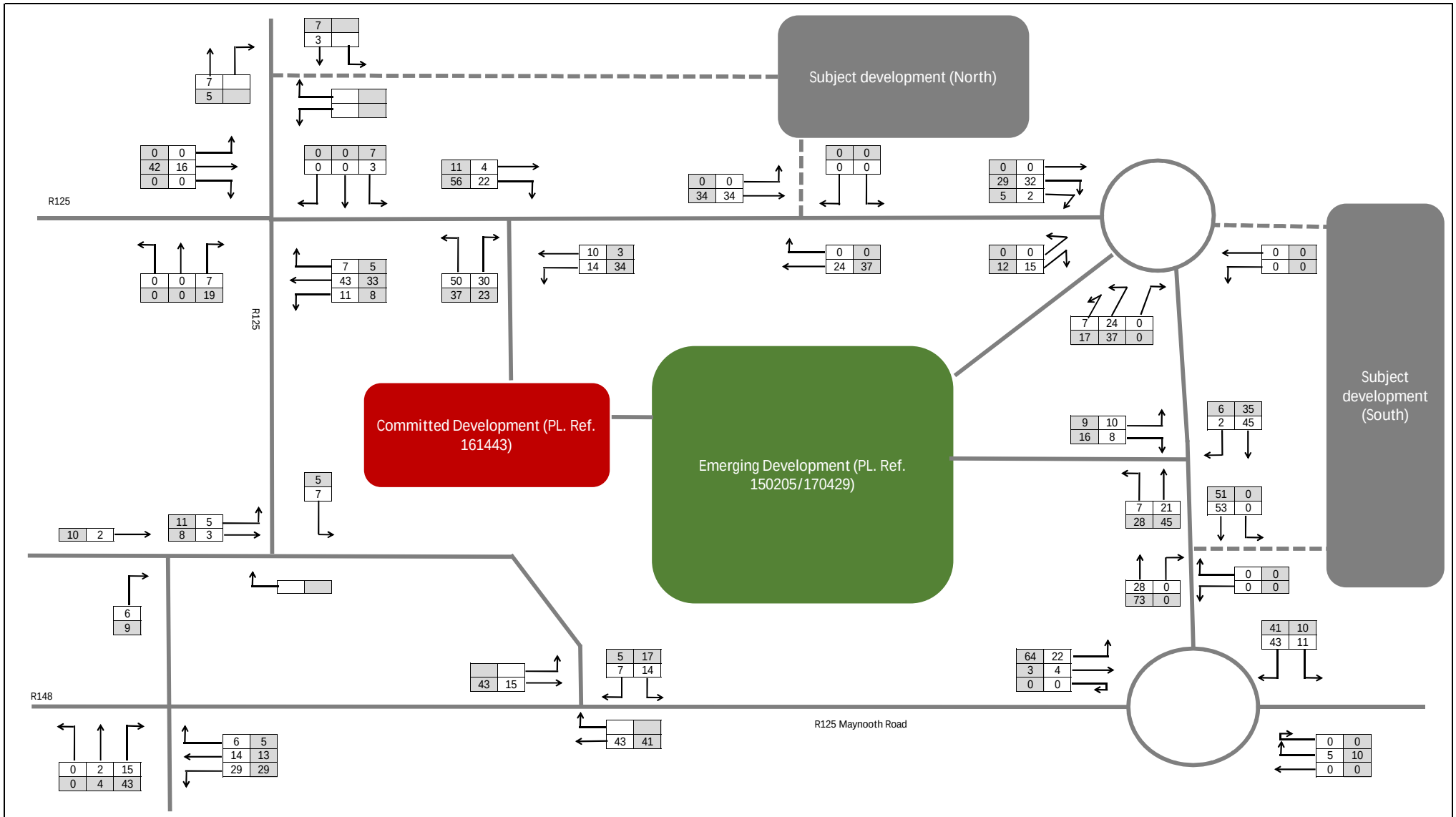
Figure: 4f

Rev: -



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Project :
Proposed Residential Development
Newtownmoyaghy, Kilcock

DRG. Title :
Combimed Committed and Emerging Development
2026-2036 Future Design Years

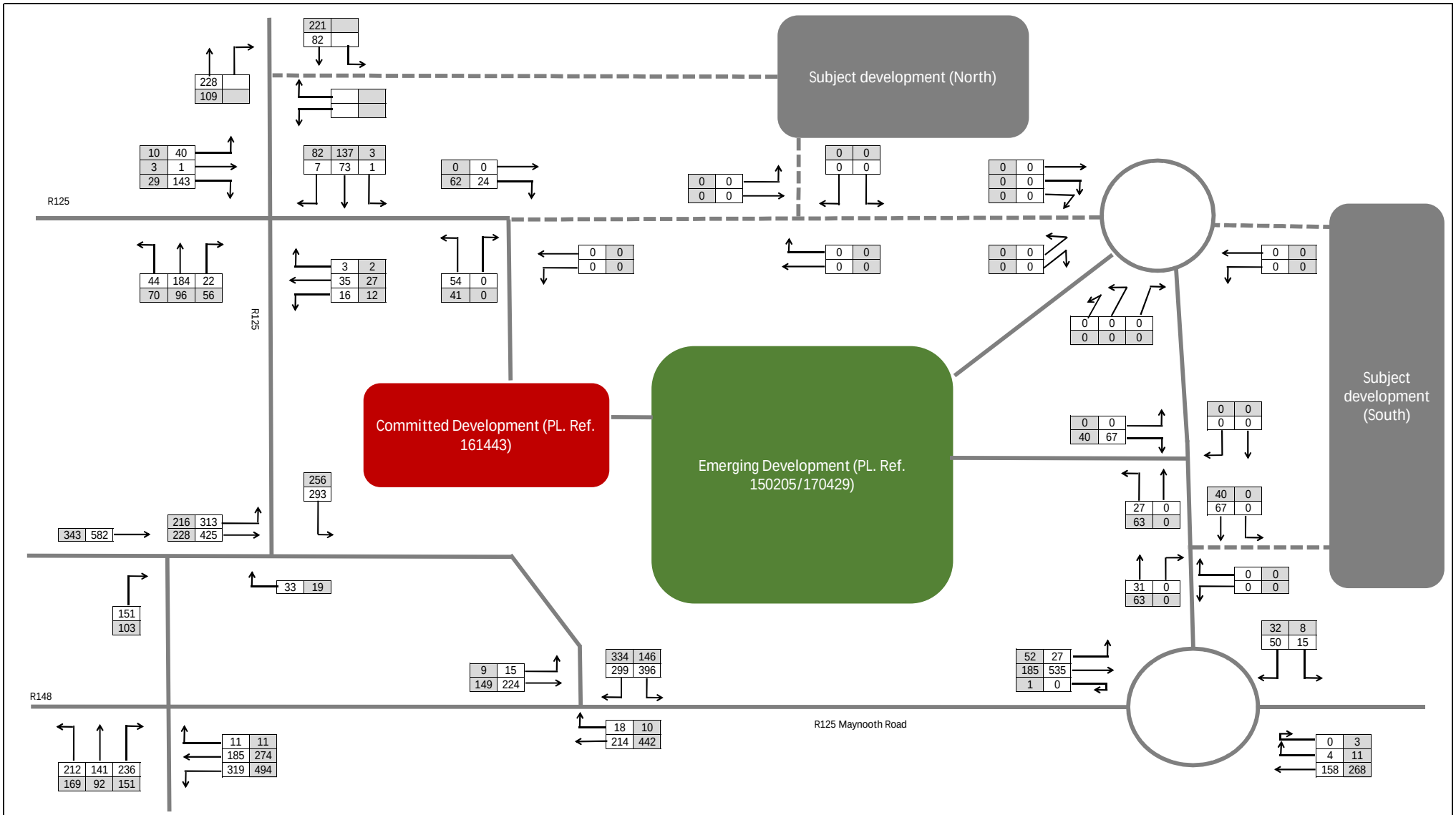
Key:
AM Peak Hour (0815-0915)
PM Peak Hour (1745-1845)

Dwn:	Ckd:	Date:
MMK	DR	25/03/2019

Ref: p190009\calcs\excel\190009-Traffic Model-001

Figure: 4g

Rev: -



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Project :
Proposed Residential Development
Newtownmoyaghy, Kilcock

DRG. Title :
2021 Do Minimum

Key:
AM Peak Hour (0815-0915)
PM Peak Hour (1745-1845)

Dwn:	Ckd:	Date:
MMK	DR	25/03/2019

Ref:
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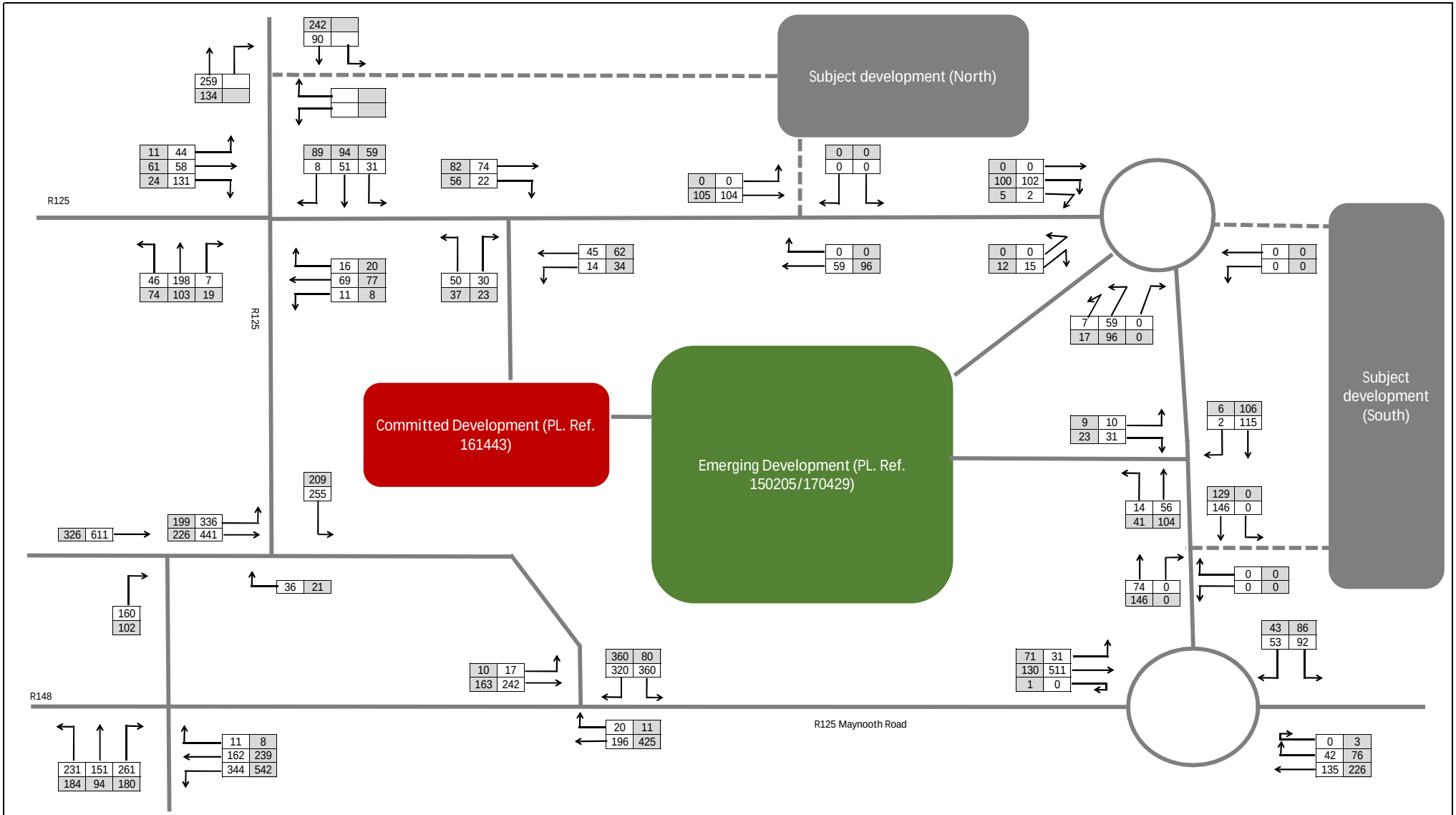
Figure:
5a

Rev:
-



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Project :
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Newtownmoyaghy, Kilcock

DRG. Title :
2026 Do Minimum

Key:
AM Peak Hour (0815-0915)
PM Peak Hour (1745-1845)

Dwn:	Ckd:	Date:
MMK	DR	25/03/2019

Ref:
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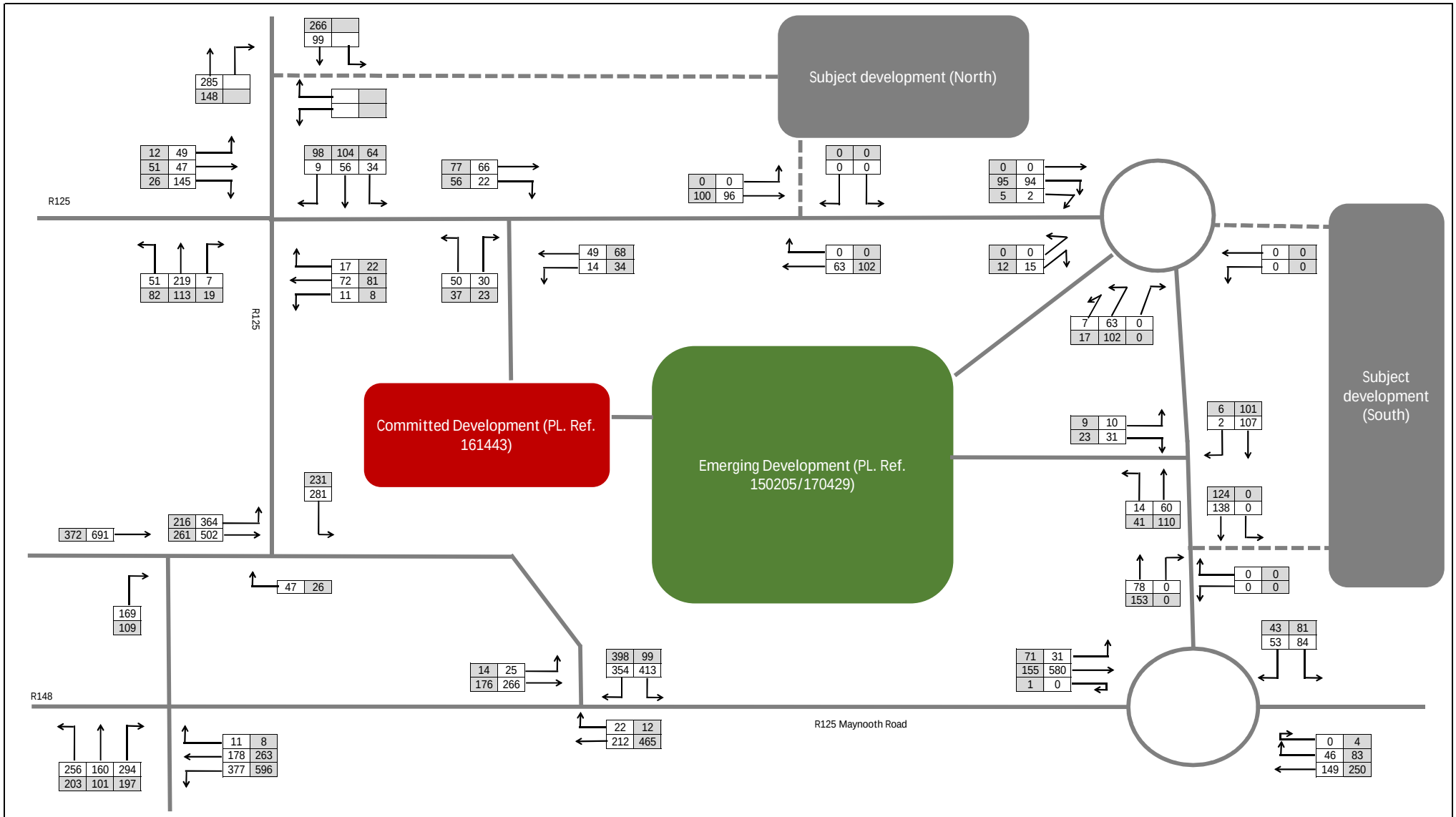
Figure:
5b

Rev:
-



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Project :
Proposed Residential Development
Newtownmoyaghy, Kilcock

DRG. Title :
2036 Do Minimum

Key:
AM Peak Hour (0815-0915)
PM Peak Hour (1745-1845)

Dwn:	Ckd:	Date:
MMK	DR	25/03/2019

Ref:
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Figure:
5c

Rev:
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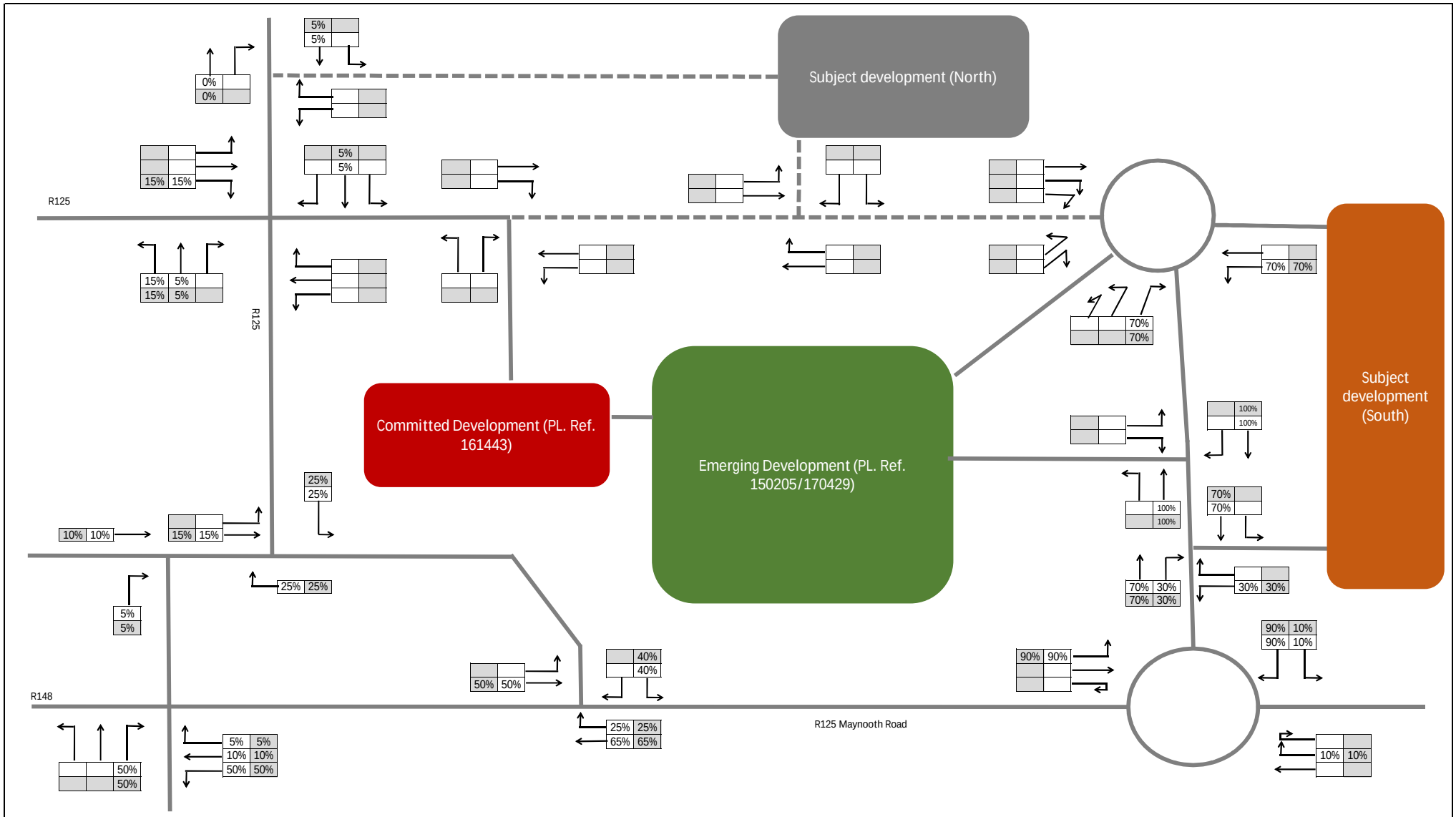

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Project :
Proposed Residential Development
Newtownmoyaghy, Kilcock

DRG. Title :
Proposed Development Vehicle Trip Distribution (Southern Site) - 2021 OY

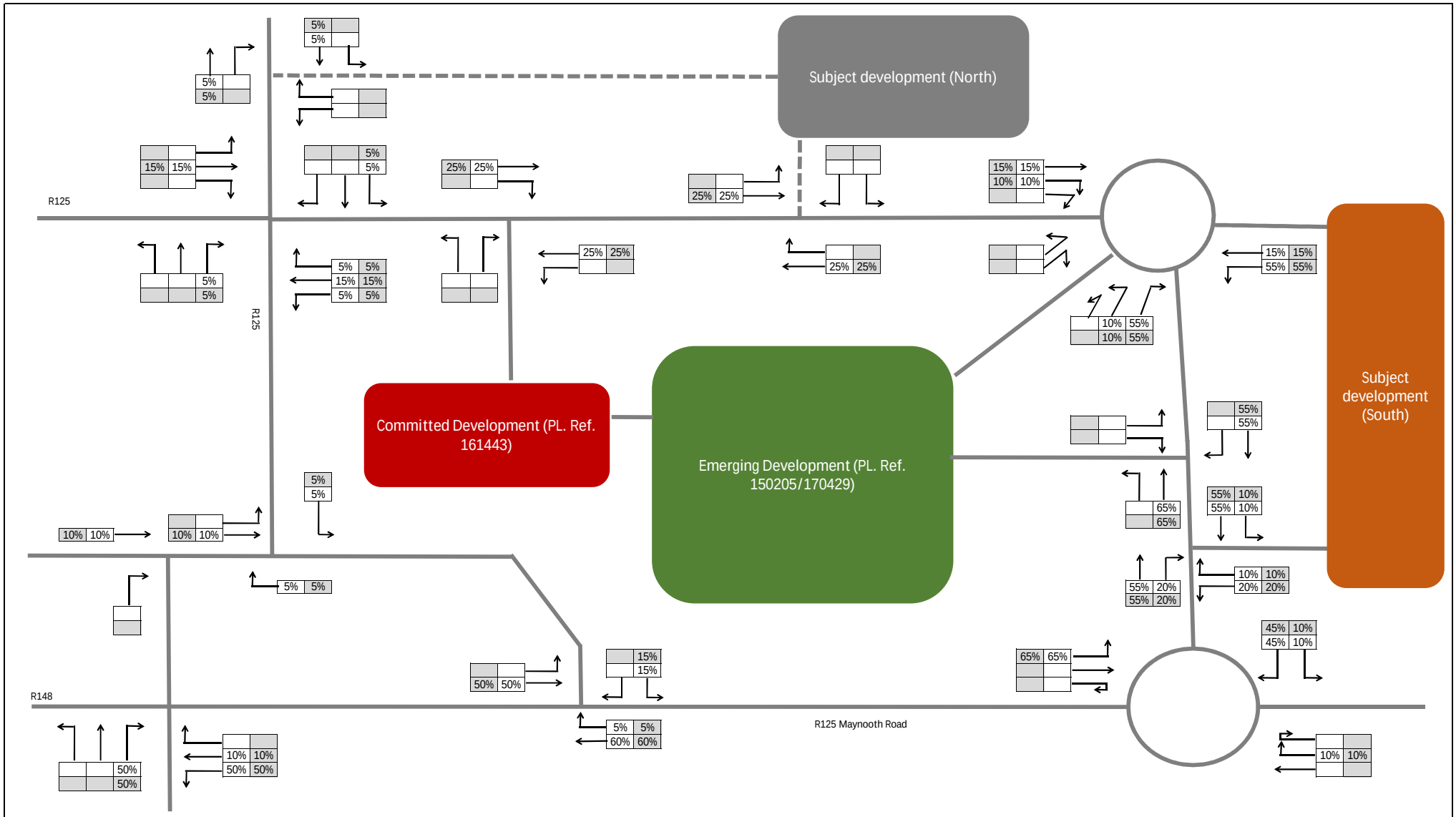
Key:
AM Peak Hour (0815-0915)
PM Peak Hour (1745-1845)

Dwn:	Ckd:	Date:
MMK	DR	25/03/2019

Ref: p190009\calcs\excel\190009-Traffic Model-001

Figure: 6a

Rev: -



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Project :
Proposed Residential Development
Newtownmoyaghy, Kilcock

DRG. Title :
Proposed Development Vehicle Trip Distribution (Southern Site) - 2026/2036 Design Years

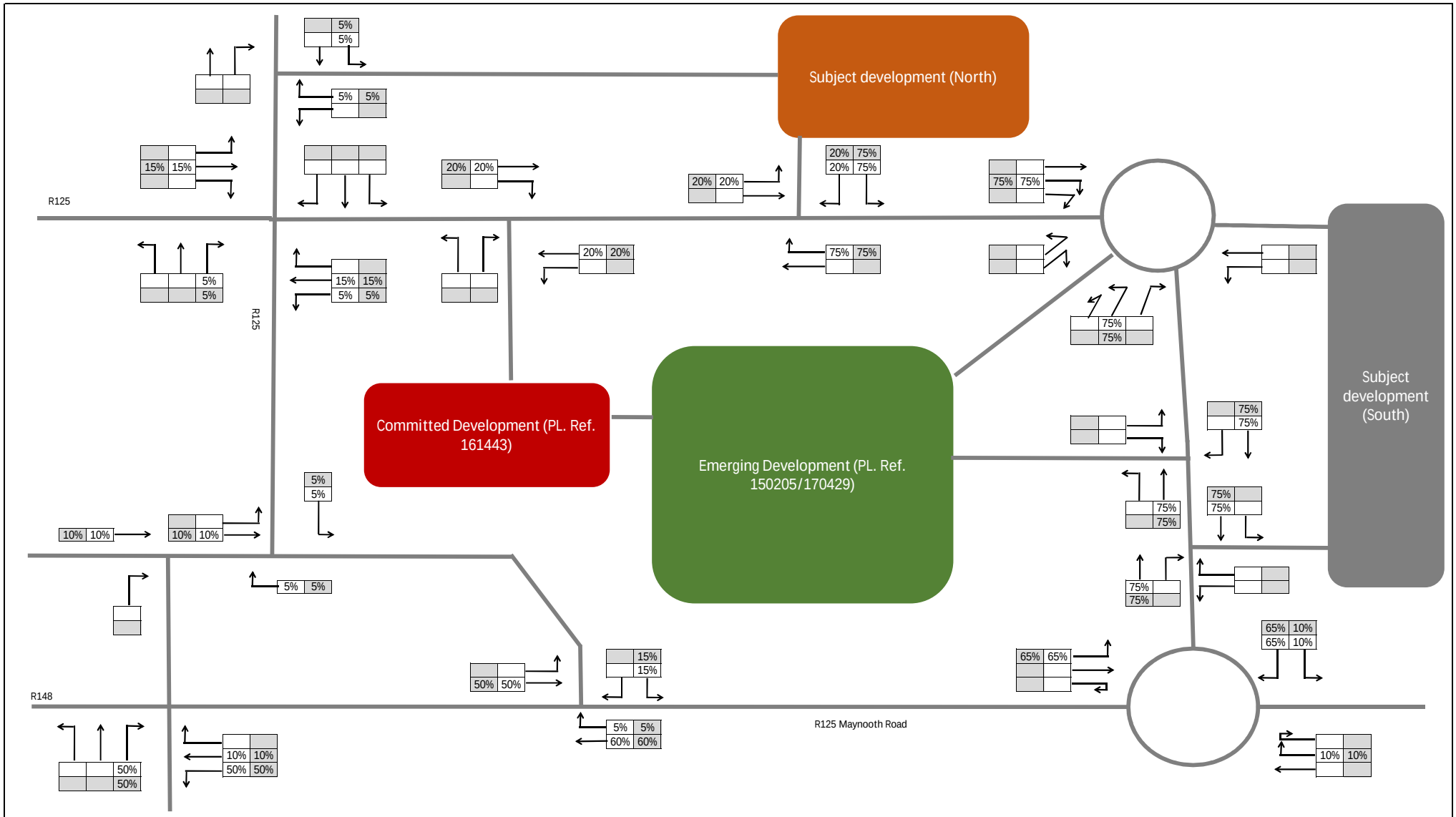
Key:
AM Peak Hour (0815-0915)
PM Peak Hour (1745-1845)

Dwn:	Ckd:	Date:
MMK	DR	25/03/2019

Ref: p190009\calcs\excel\190009-Traffic Model-001

Figure: 6b

Rev: -



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Project :
Proposed Residential Development
Newtownmoyaghy, Kilcock

DRG. Title :
Proposed Development Vehicle Trip Distribution (Northern Site)

Key:
AM Peak Hour (0815-0915)
PM Peak Hour (1745-1845)

Dwn:	Ckd:	Date:
MMK	DR	25/03/2019

Ref:
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Figure:
6c

Rev:
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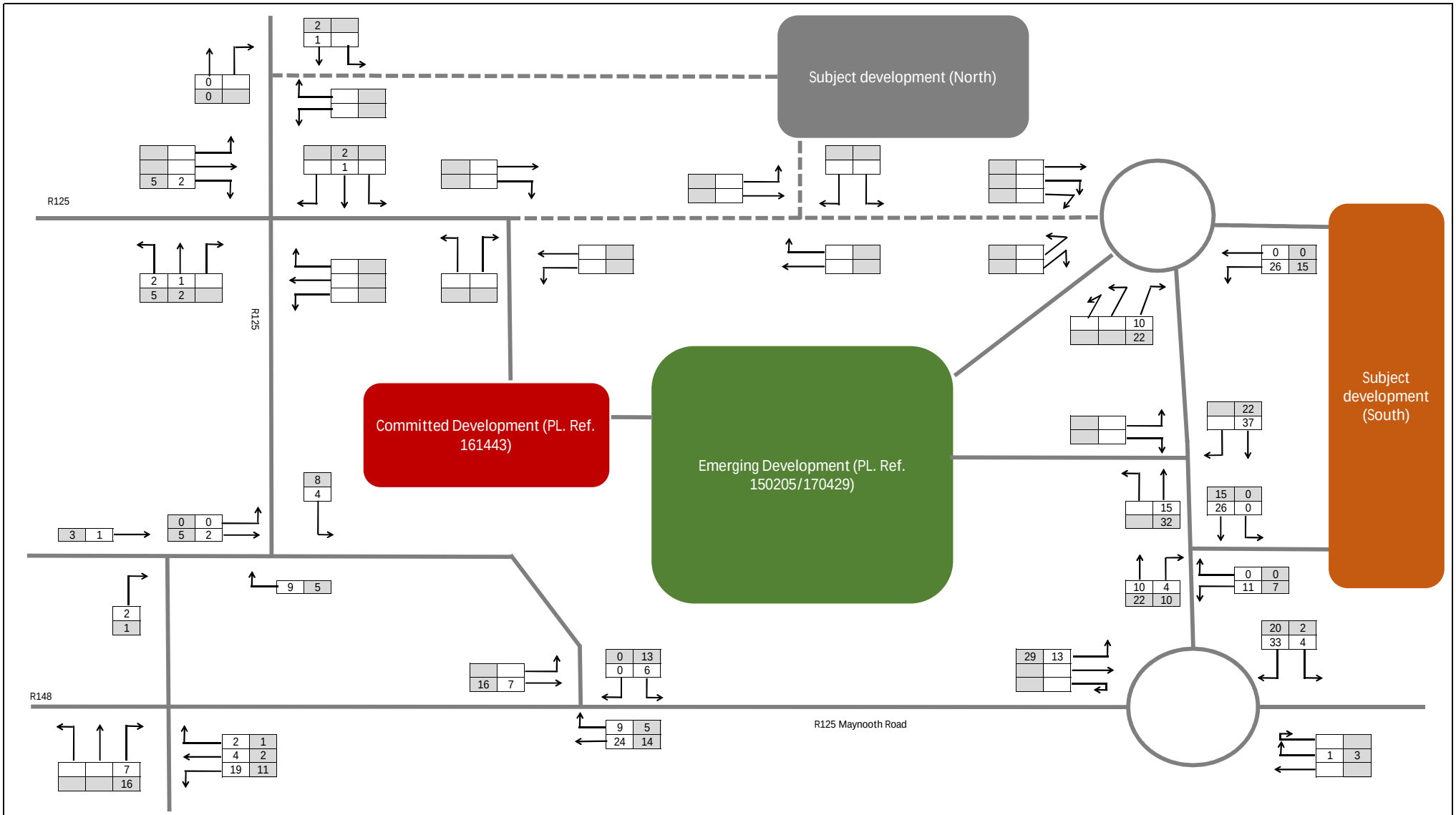

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Project :
Proposed Residential Development
Newtownmoyaghy, Kilcock

DRG. Title :
Proposed Development Vehicle Trip Generation (Southern Site) - 2021 Opening Year

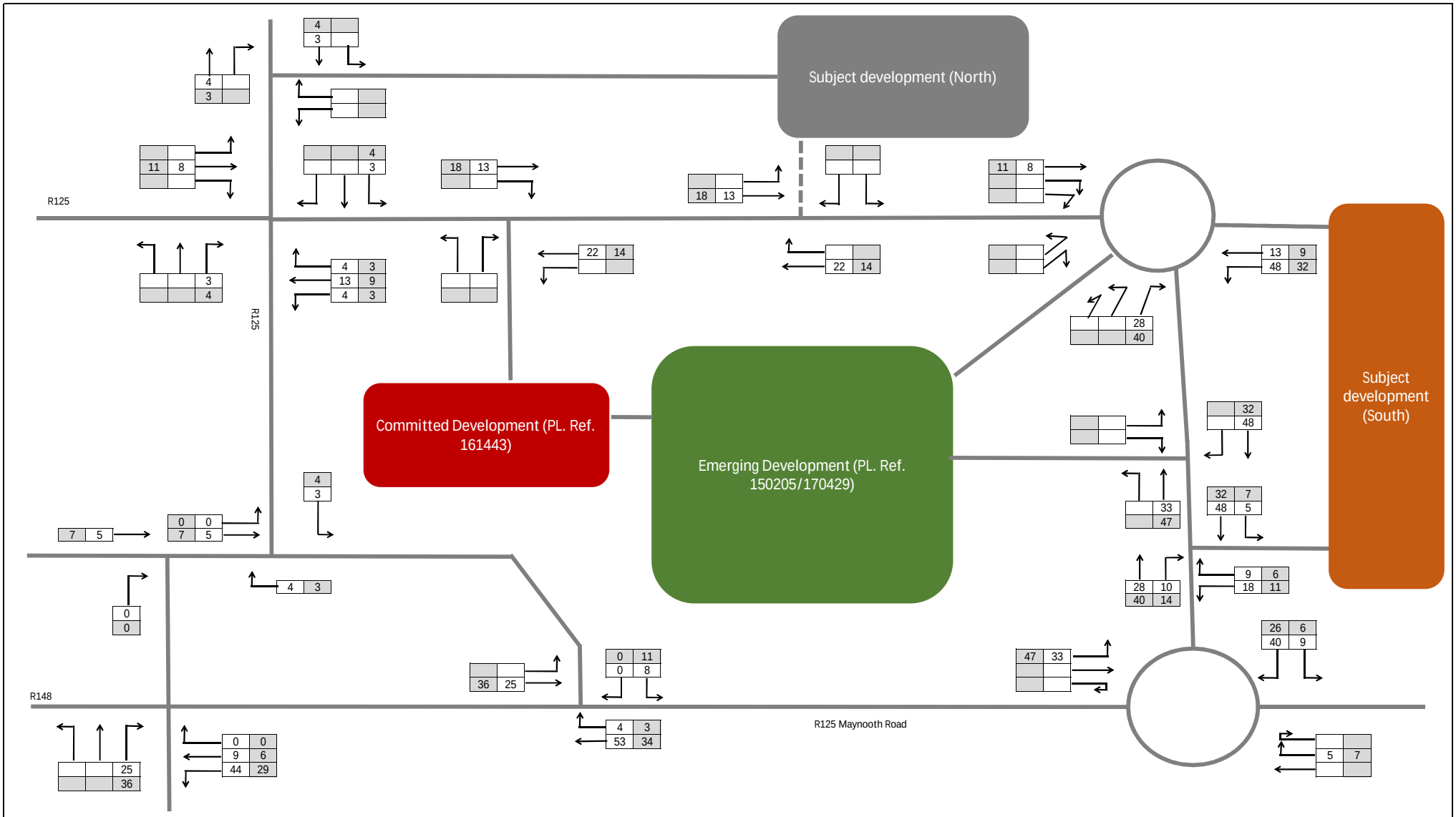
Key:
AM Peak Hour (0815-0915)
PM Peak Hour (1745-1845)

Dwn:	Ckd:	Date:
MMK	DR	25/03/2019

Ref: p190009\calcs\excel\190009-Traffic Model-001

Figure: 7a

Rev: -



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Project :
Proposed Residential Development
Newtownmoyaghy, Kilcock

DRG. Title :
Proposed Development Vehicle Trip Generation (Southern Site) - 2026 & 2026 Future Design Years

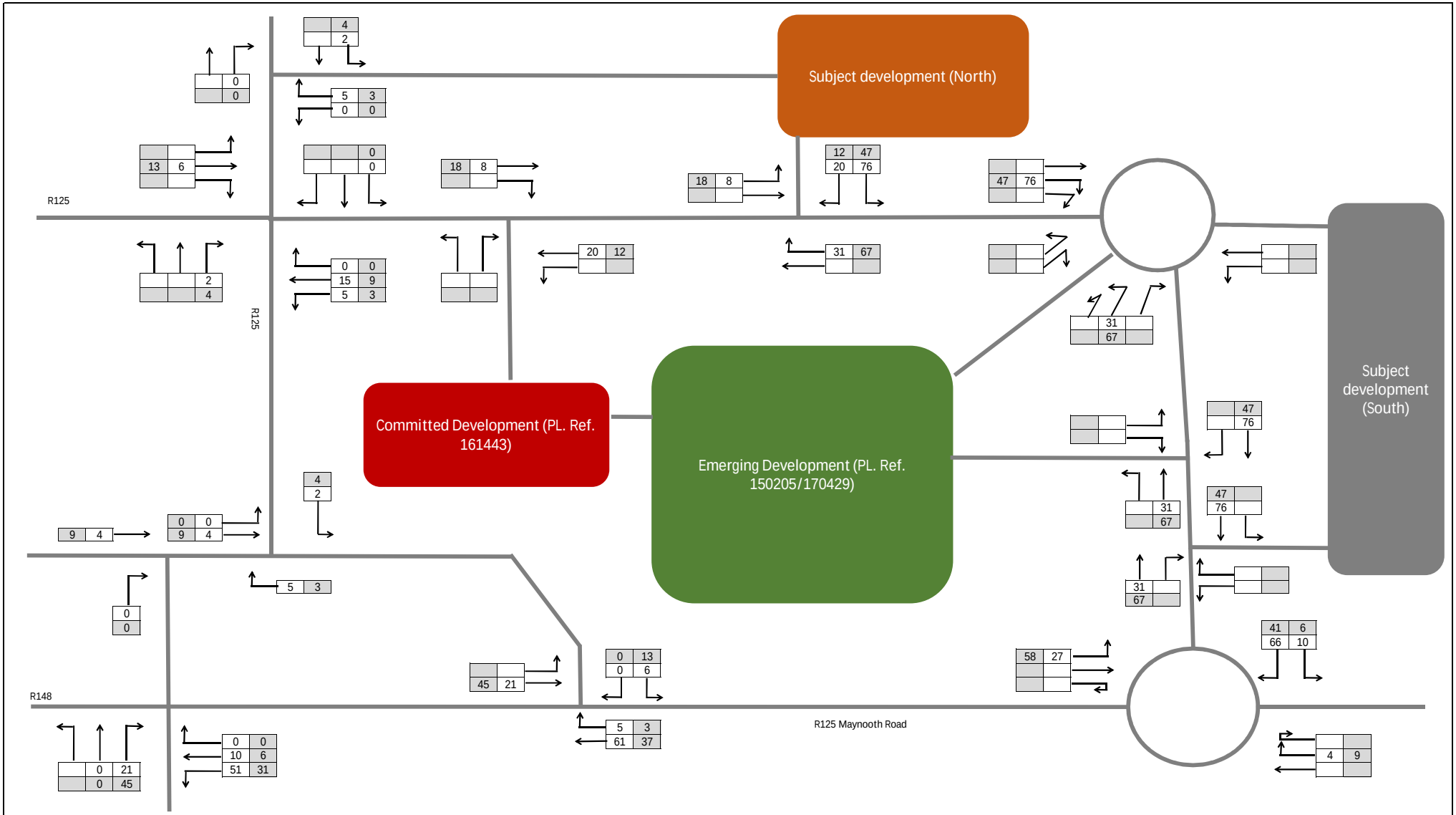
Key:
AM Peak Hour (0815-0915)
PM Peak Hour (1745-1845)

Dwn:	Ckd:	Date:
MMK	DR	25/03/2019

Ref: p190009\calcs\excel\190009-Traffic Model-001

Figure: 7b

Rev: -



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Project :
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Newtownmoyaghy, Kilcock

DRG. Title :
Proposed Development Vehicle Trip Generation (Northern Site) - 2026 & 2026 Future Design Years

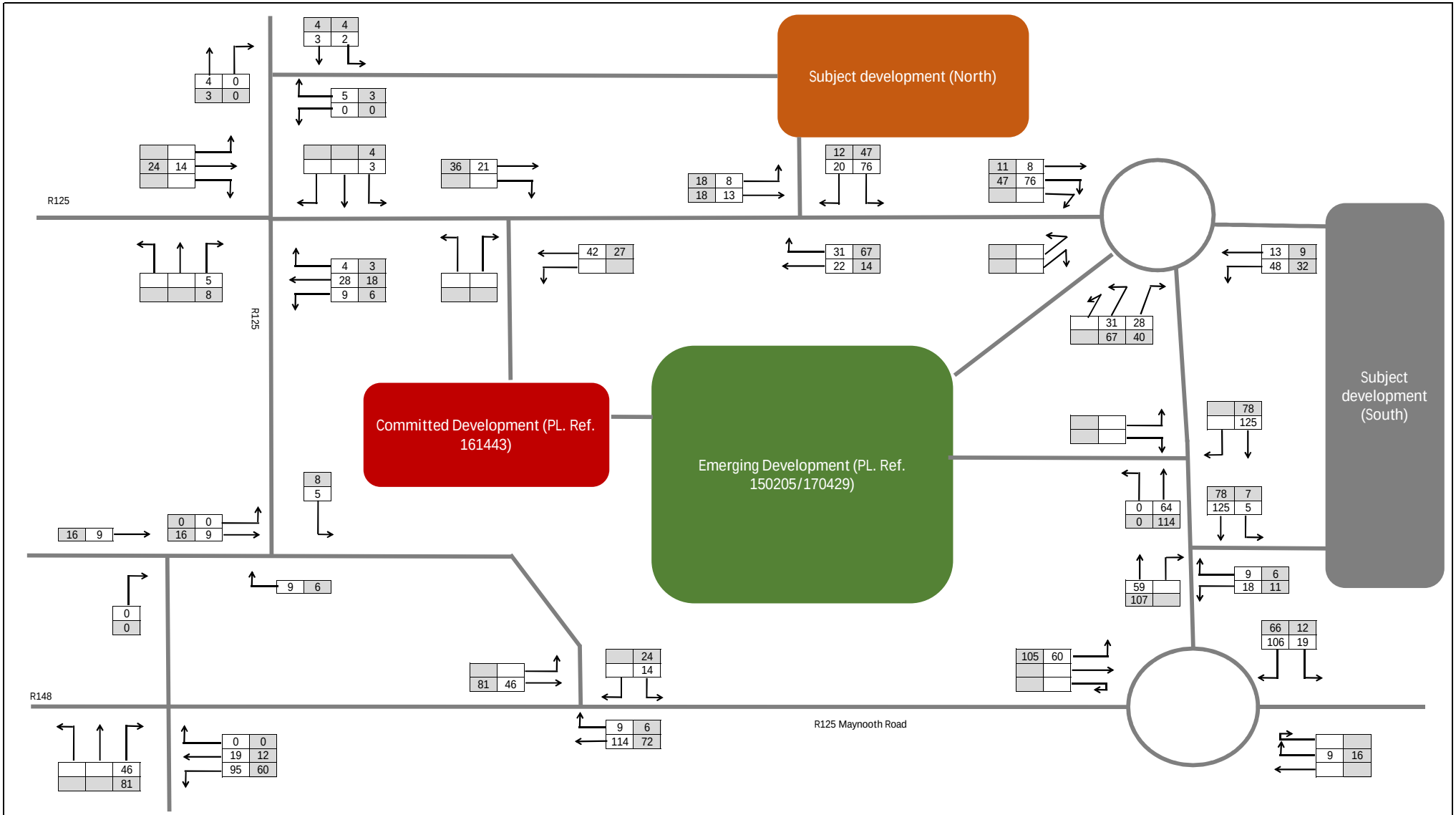
Key:
AM Peak Hour (0815-0915)
PM Peak Hour (1745-1845)

Dwn:	Ckd:	Date:
MMK	DR	25/03/2019

Ref: p190009\calcs\excel\190009-Traffic Model-001

Figure: 7c

Rev: -



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Project :
Proposed Residential Development
Newtownmoyaghy, Kilcock

DRG. Title :
Proposed Development Vehicle Trip Generation (Total) - 2026 & 2026 Future Design Years

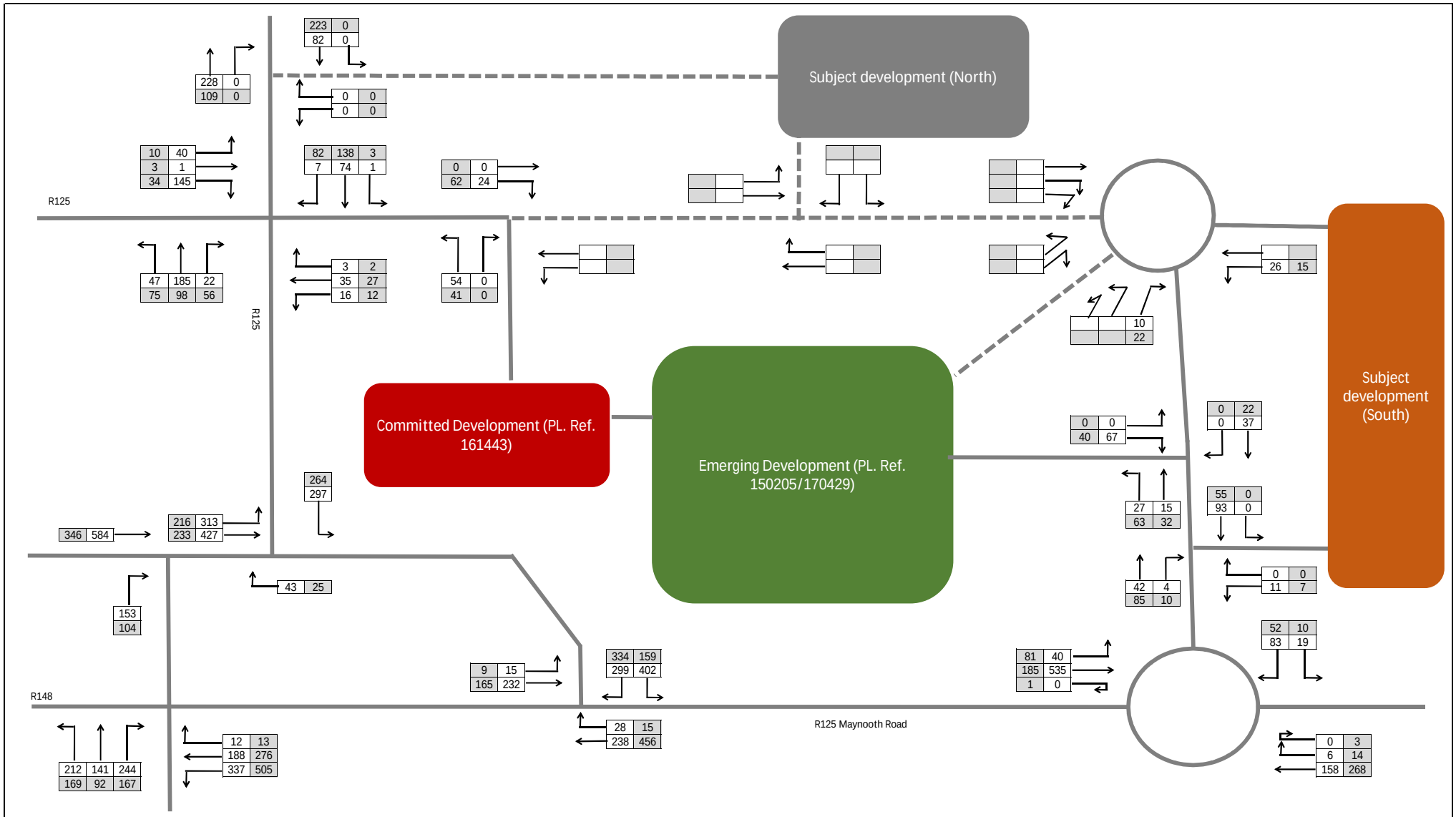
Key:
AM Peak Hour (0815-0915)
PM Peak Hour (1745-1845)

Dwn:	Ckd:	Date:
MMK	DR	25/03/2019

Ref: p190009\calcs\excel\190009-Traffic Model-001

Figure: 7d

Rev: -



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Project :
Proposed Residential Development
Newtownmoyaghy, Kilcock

DRG. Title :
2021 Opening Year Do Something

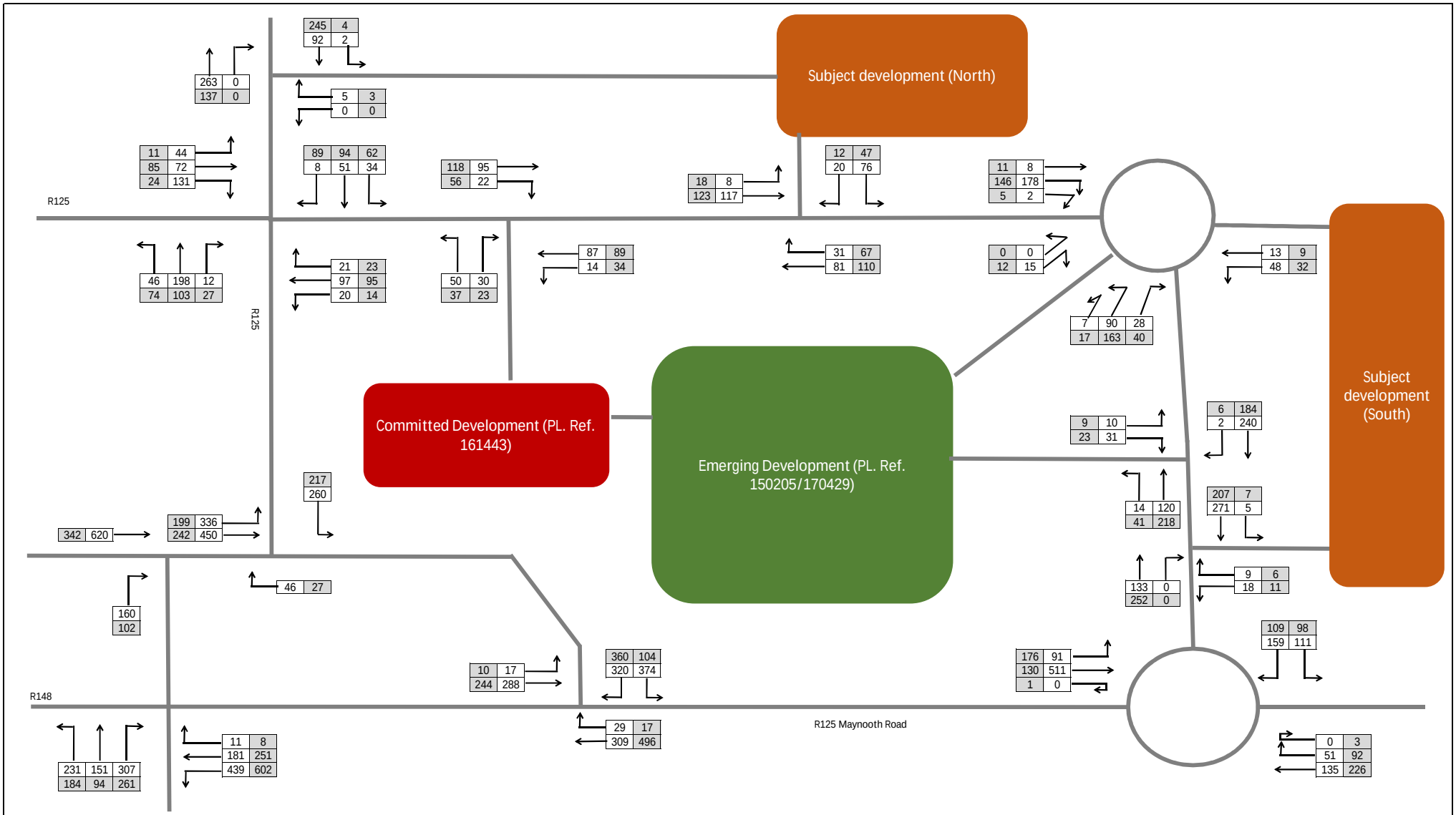
Key:
AM Peak Hour (0815-0915)
PM Peak Hour (1745-1845)

Dwn:	Ckd:	Date:
MMK	DR	25/03/2019

Ref: p190009\calcs\excel\190009-Traffic Model-001

Figure: 8a

Rev: -



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Project :
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Newtownmoyaghy, Kilcock

DRG. Title :
2026 Future Design Year Do Something

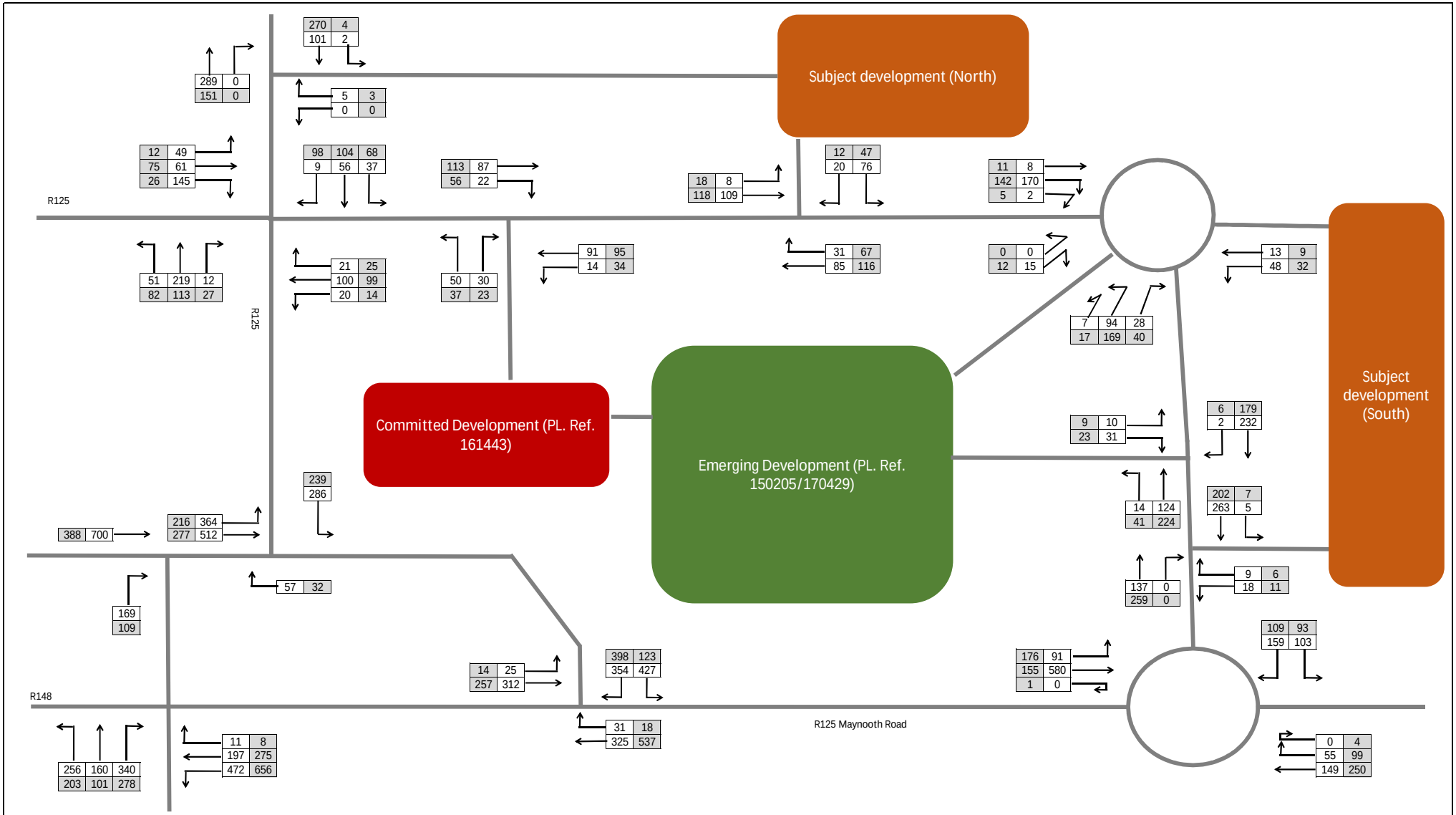
Key:
AM Peak Hour (0815-0915)
PM Peak Hour (1745-1845)

Dwn:	Ckd:	Date:
MMK	DR	25/03/2019

Ref: p190009\calcs\excel\190009-Traffic Model-001

Figure: 8b

Rev: -



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Project :
Proposed Residential Development
Newtownmoyaghy, Kilcock

DRG. Title :
2036 Future Design Year Do Something

Key:
AM Peak Hour (0815-0915)
PM Peak Hour (1745-1845)

Dwn:	Ckd:	Date:
MMK	DR	25/03/2019

Ref:
p190009\calcs\excel\190009-Traffic Model-001

Figure:
8c

Rev:
-

APPENDIX B

TRICS Database Outputs

Calculation Reference: AUDIT-638801-190325-0320

TRIP RATE CALCULATION SELECTION PARAMETERS:

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

Selected regions and areas:

03	SOUTH WEST		
	DC	DORSET	1 days
04	EAST ANGLIA		
	SF	SUFFOLK	1 days
07	YORKSHIRE & NORTH LINCOLNSHIRE		
	RI	EAST RIDING OF YORKSHIRE	1 days
09	NORTH		
	CB	CUMBRIA	1 days
12	CONNAUGHT		
	GA	GALWAY	1 days
13	MUNSTER		
	WA	WATERFORD	1 days

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

Secondary Filtering selection:

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

Parameter: Number of dwellings
Actual Range: 14 to 51 (units:)
Range Selected by User: 8 to 215 (units:)

Parking Spaces Range: Selected: 0 to 140 Actual: 0 to 140

Percentage of dwellings privately owned: All Surveys Included

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/10 to 26/03/18

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	2 days
Wednesday	2 days
Thursday	1 days
Friday	1 days

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

Selected survey types:

Manual count	6 days
Directional ATC Count	0 days

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

Selected Locations:

Suburban Area (PPS6 Out of Centre)	4
Edge of Town	2

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

Selected Location Sub Categories:

Residential Zone	4
No Sub Category	2

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

Secondary Filtering selection:

Use Class:

C3	6 days

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

Population within 1 mile:

5,001 to 10,000	1 days
10,001 to 15,000	4 days
15,001 to 20,000	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	1 days
50,001 to 75,000	5 days

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

Car ownership within 5 miles:

0.6 to 1.0	2 days
1.1 to 1.5	4 days

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

Travel Plan:

No	6 days

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

PTAL Rating:

No PTAL Present	6 days

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

LIST OF SITES relevant to selection parameters

1 CB-03-C-02 BLOCK OF FLATS CUMBRIA
BRIDGE LANE
PENRITH

Edge of Town
No Sub Category
Total Number of dwellings: 35
Survey date: WEDNESDAY 11/06/14 Survey Type: MANUAL

2 DC-03-C-02 FLATS IN BLOCKS DORSET
PALM COURT
WEYMOUTH
SPA ROAD
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 14
Survey date: FRIDAY 28/03/14 Survey Type: MANUAL

3 GA-03-C-01 FLATS GALWAY
BALLYLOUGHANE ROAD
GALWAY

Suburban Area (PPS6 Out of Centre)
No Sub Category
Total Number of dwellings: 34
Survey date: THURSDAY 31/10/13 Survey Type: MANUAL

4 RI-03-C-01 FLATS EAST RIDING OF YORKSHIRE
465 PRIORY ROAD
HULL

Edge of Town
Residential Zone
Total Number of dwellings: 20
Survey date: TUESDAY 13/05/14 Survey Type: MANUAL

5 SF-03-C-03 BLOCKS OF FLATS SUFFOLK
TOLLGATE LANE
BURY ST EDMUNDS

Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 30
Survey date: WEDNESDAY 03/12/14 Survey Type: MANUAL

6 WA-03-C-01 BLOCKS OF FLATS WATERFORD
UPPER YELLOW ROAD
WATERFORD

Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 51
Survey date: TUESDAY 12/05/15 Survey Type: MANUAL

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

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

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	6	31	0.054	6	31	0.125	6	31	0.179
08:00 - 09:00	6	31	0.076	6	31	0.174	6	31	0.250
09:00 - 10:00	6	31	0.109	6	31	0.168	6	31	0.277
10:00 - 11:00	6	31	0.049	6	31	0.065	6	31	0.114
11:00 - 12:00	6	31	0.109	6	31	0.120	6	31	0.229
12:00 - 13:00	6	31	0.103	6	31	0.071	6	31	0.174
13:00 - 14:00	6	31	0.103	6	31	0.109	6	31	0.212
14:00 - 15:00	6	31	0.109	6	31	0.103	6	31	0.212
15:00 - 16:00	6	31	0.136	6	31	0.147	6	31	0.283
16:00 - 17:00	6	31	0.120	6	31	0.109	6	31	0.229
17:00 - 18:00	6	31	0.255	6	31	0.120	6	31	0.375
18:00 - 19:00	6	31	0.168	6	31	0.158	6	31	0.326
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			1.391			1.469			2.860

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:	14 - 51 (units:)
Survey date date range:	01/01/10 - 26/03/18
Number of weekdays (Monday-Friday):	6
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	0

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

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

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	6	31	0.000	6	31	0.000	6	31	0.000
08:00 - 09:00	6	31	0.000	6	31	0.000	6	31	0.000
09:00 - 10:00	6	31	0.005	6	31	0.005	6	31	0.010
10:00 - 11:00	6	31	0.000	6	31	0.000	6	31	0.000
11:00 - 12:00	6	31	0.005	6	31	0.005	6	31	0.010
12:00 - 13:00	6	31	0.000	6	31	0.000	6	31	0.000
13:00 - 14:00	6	31	0.000	6	31	0.000	6	31	0.000
14:00 - 15:00	6	31	0.000	6	31	0.000	6	31	0.000
15:00 - 16:00	6	31	0.000	6	31	0.000	6	31	0.000
16:00 - 17:00	6	31	0.000	6	31	0.000	6	31	0.000
17:00 - 18:00	6	31	0.000	6	31	0.000	6	31	0.000
18:00 - 19:00	6	31	0.000	6	31	0.000	6	31	0.000
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.010			0.010			0.020

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.*

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

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	6	31	0.005	6	31	0.011	6	31	0.016
08:00 - 09:00	6	31	0.000	6	31	0.000	6	31	0.000
09:00 - 10:00	6	31	0.011	6	31	0.011	6	31	0.022
10:00 - 11:00	6	31	0.000	6	31	0.000	6	31	0.000
11:00 - 12:00	6	31	0.000	6	31	0.000	6	31	0.000
12:00 - 13:00	6	31	0.000	6	31	0.000	6	31	0.000
13:00 - 14:00	6	31	0.000	6	31	0.000	6	31	0.000
14:00 - 15:00	6	31	0.005	6	31	0.005	6	31	0.010
15:00 - 16:00	6	31	0.000	6	31	0.000	6	31	0.000
16:00 - 17:00	6	31	0.000	6	31	0.000	6	31	0.000
17:00 - 18:00	6	31	0.000	6	31	0.000	6	31	0.000
18:00 - 19:00	6	31	0.000	6	31	0.000	6	31	0.000
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.021			0.027			0.048

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.*

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

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	6	31	0.005	6	31	0.000	6	31	0.005
08:00 - 09:00	6	31	0.000	6	31	0.000	6	31	0.000
09:00 - 10:00	6	31	0.000	6	31	0.005	6	31	0.005
10:00 - 11:00	6	31	0.005	6	31	0.000	6	31	0.005
11:00 - 12:00	6	31	0.000	6	31	0.005	6	31	0.005
12:00 - 13:00	6	31	0.005	6	31	0.000	6	31	0.005
13:00 - 14:00	6	31	0.000	6	31	0.011	6	31	0.011
14:00 - 15:00	6	31	0.000	6	31	0.000	6	31	0.000
15:00 - 16:00	6	31	0.000	6	31	0.000	6	31	0.000
16:00 - 17:00	6	31	0.005	6	31	0.005	6	31	0.010
17:00 - 18:00	6	31	0.005	6	31	0.000	6	31	0.005
18:00 - 19:00	6	31	0.000	6	31	0.000	6	31	0.000
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.025			0.026			0.051

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.

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

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	6	31	0.016	6	31	0.038	6	31	0.054
08:00 - 09:00	6	31	0.022	6	31	0.082	6	31	0.104
09:00 - 10:00	6	31	0.022	6	31	0.038	6	31	0.060
10:00 - 11:00	6	31	0.033	6	31	0.033	6	31	0.066
11:00 - 12:00	6	31	0.027	6	31	0.060	6	31	0.087
12:00 - 13:00	6	31	0.043	6	31	0.033	6	31	0.076
13:00 - 14:00	6	31	0.065	6	31	0.054	6	31	0.119
14:00 - 15:00	6	31	0.043	6	31	0.038	6	31	0.081
15:00 - 16:00	6	31	0.038	6	31	0.043	6	31	0.081
16:00 - 17:00	6	31	0.071	6	31	0.054	6	31	0.125
17:00 - 18:00	6	31	0.082	6	31	0.043	6	31	0.125
18:00 - 19:00	6	31	0.065	6	31	0.060	6	31	0.125
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.527			0.576			1.103

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.

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

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	6	31	0.011	6	31	0.011	6	31	0.022
08:00 - 09:00	6	31	0.022	6	31	0.022	6	31	0.044
09:00 - 10:00	6	31	0.038	6	31	0.022	6	31	0.060
10:00 - 11:00	6	31	0.000	6	31	0.011	6	31	0.011
11:00 - 12:00	6	31	0.043	6	31	0.033	6	31	0.076
12:00 - 13:00	6	31	0.005	6	31	0.011	6	31	0.016
13:00 - 14:00	6	31	0.005	6	31	0.011	6	31	0.016
14:00 - 15:00	6	31	0.016	6	31	0.011	6	31	0.027
15:00 - 16:00	6	31	0.022	6	31	0.033	6	31	0.055
16:00 - 17:00	6	31	0.005	6	31	0.016	6	31	0.021
17:00 - 18:00	6	31	0.033	6	31	0.016	6	31	0.049
18:00 - 19:00	6	31	0.022	6	31	0.027	6	31	0.049
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.222			0.224			0.446

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.*

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

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	6	31	0.000	6	31	0.000	6	31	0.000
08:00 - 09:00	6	31	0.000	6	31	0.000	6	31	0.000
09:00 - 10:00	6	31	0.000	6	31	0.000	6	31	0.000
10:00 - 11:00	6	31	0.000	6	31	0.000	6	31	0.000
11:00 - 12:00	6	31	0.000	6	31	0.000	6	31	0.000
12:00 - 13:00	6	31	0.000	6	31	0.000	6	31	0.000
13:00 - 14:00	6	31	0.000	6	31	0.000	6	31	0.000
14:00 - 15:00	6	31	0.000	6	31	0.000	6	31	0.000
15:00 - 16:00	6	31	0.005	6	31	0.005	6	31	0.010
16:00 - 17:00	6	31	0.000	6	31	0.000	6	31	0.000
17:00 - 18:00	6	31	0.005	6	31	0.005	6	31	0.010
18:00 - 19:00	6	31	0.000	6	31	0.000	6	31	0.000
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.010			0.010			0.020

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.*

Calculation Reference: AUDIT-638801-190325-0312

TRIP RATE CALCULATION SELECTION PARAMETERS:

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

Selected regions and areas:

03	SOUTH WEST		
	DV	DEVON	2 days
	SM	SOMERSET	1 days
04	EAST ANGLIA		
	NF	NORFOLK	2 days
	SF	SUFFOLK	1 days
06	WEST MIDLANDS		
	SH	SHROPSHIRE	1 days
07	YORKSHIRE & NORTH LINCOLNSHIRE		
	NE	NORTH EAST LINCOLNSHIRE	1 days
	NY	NORTH YORKSHIRE	1 days
10	WALES		
	PS	POWYS	1 days
11	SCOTLAND		
	AG	ANGUS	1 days
	HI	HIGHLAND	1 days
	PK	PERTH & KINROSS	1 days
12	CONNAUGHT		
	MA	MAYO	1 days
13	MUNSTER		
	WA	WATERFORD	1 days
14	LEINSTER		
	CC	CARLOW	1 days
	WX	WEXFORD	1 days
16	ULSTER (REPUBLIC OF IRELAND)		
	CV	CAVAN	2 days
	DN	DONEGAL	3 days

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

Secondary Filtering selection:

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

Parameter: Number of dwellings
Actual Range: 7 to 432 (units:)
Range Selected by User: 4 to 792 (units:)

Parking Spaces Range: Selected: 12 to 982 Actual: 12 to 982

Percentage of dwellings privately owned: All Surveys Included

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/10 to 22/06/18

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

Selected survey days:

Monday	6 days
Tuesday	3 days
Wednesday	7 days
Thursday	3 days
Friday	3 days

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

Selected survey types:

Manual count	22 days
Directional ATC Count	0 days

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

Selected Locations:

Suburban Area (PPS6 Out of Centre)	11
Edge of Town	11

This data displays the number of surveys per main location category within the selected set. The main location categories

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

Secondary Filtering selection:

Use Class:

C3	22 days

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

Population within 1 mile:

5,001 to 10,000	7 days
10,001 to 15,000	9 days
15,001 to 20,000	5 days
20,001 to 25,000	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	9 days
25,001 to 50,000	6 days
50,001 to 75,000	7 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	8 days
1.1 to 1.5	14 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	22 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	22 days

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

LIST OF SITES relevant to selection parameters

1 AG-03-A-01 BUNGALOWS/DET. ANGUS
KEPTIE ROAD
ARBROATH

Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 7
Survey date: TUESDAY 22/05/12 Survey Type: MANUAL

2 CC-03-A-01 DETACHED HOUSES CARLOW
R417 ANTHY ROAD
CARLOW

Edge of Town
Residential Zone
Total Number of dwellings: 23
Survey date: WEDNESDAY 25/05/16 Survey Type: MANUAL

3 CV-03-A-02 DETACHED & SEMI DETACHED CAVAN
R212 DUBLIN ROAD
CAVAN
KILLYNEBBER
Edge of Town
No Sub Category
Total Number of dwellings: 80
Survey date: MONDAY 22/05/17 Survey Type: MANUAL

4 CV-03-A-03 DETACHED HOUSES CAVAN
R212 DUBLIN ROAD
CAVAN
PULLAMORE NEAR
Edge of Town
No Sub Category
Total Number of dwellings: 37
Survey date: MONDAY 22/05/17 Survey Type: MANUAL

5 DN-03-A-03 DETACHED/SEMI-DETACHED DONEGAL
THE GRANGE
LETTERKENNY
GLENCAR IRISH
Edge of Town
Residential Zone
Total Number of dwellings: 50
Survey date: MONDAY 01/09/14 Survey Type: MANUAL

6 DN-03-A-04 SEMI-DETACHED DONEGAL
GORTLEE ROAD
LETTERKENNY
GORTLEE
Edge of Town
Residential Zone
Total Number of dwellings: 83
Survey date: FRIDAY 26/09/14 Survey Type: MANUAL

7 DN-03-A-05 DETACHED/SEMI-DETACHED DONEGAL
GORTLEE ROAD
LETTERKENNY
GORTLEE
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 146
Survey date: WEDNESDAY 03/09/14 Survey Type: MANUAL

8 DV-03-A-02 HOUSES & BUNGALOWS DEVON
MILLHEAD ROAD
HONITON

Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 116
Survey date: FRIDAY 25/09/15 Survey Type: MANUAL

LIST OF SITES relevant to selection parameters (Cont.)

9 DV-03-A-03 TERRACED & SEMI DETACHED DEVON
LOWER BRAND LANE
HONITON

Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 70
Survey date: MONDAY 28/09/15 Survey Type: MANUAL

10 HI-03-A-14 SEMI-DETACHED & TERRACED HIGHLAND
KING BRUDE ROAD
INVERNESS
SCORGUIE
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 40
Survey date: WEDNESDAY 23/03/16 Survey Type: MANUAL

11 MA-03-A-01 SEMI-DET. & TERRACED MAYO
N26 STATION ROAD
BALLINA

Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 74
Survey date: FRIDAY 15/07/11 Survey Type: MANUAL

12 NE-03-A-02 SEMI DETACHED & DETACHED NORTH EAST LINCOLNSHIRE
HANOVER WALK
SCUNTHORPE

Edge of Town
No Sub Category
Total Number of dwellings: 432
Survey date: MONDAY 12/05/14 Survey Type: MANUAL

13 NF-03-A-01 SEMI DET. & BUNGALOWS NORFOLK
YARMOUTH ROAD
CAISTER-ON-SEA

Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 27
Survey date: TUESDAY 16/10/12 Survey Type: MANUAL

14 NF-03-A-03 DETACHED HOUSES NORFOLK
HALING WAY
THETFORD

Edge of Town
Residential Zone
Total Number of dwellings: 10
Survey date: WEDNESDAY 16/09/15 Survey Type: MANUAL

15 NY-03-A-13 TERRACED HOUSES NORTH YORKSHIRE
CATTERICK ROAD
CATTERICK GARRISON
OLD HOSPITAL COMPOUND
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 10
Survey date: WEDNESDAY 10/05/17 Survey Type: MANUAL

16 PK-03-A-01 DETAC. & BUNGALOWS PERTH & KINROSS
TULLYLUMB TERRACE
PERTH
GORNHILL
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 36
Survey date: WEDNESDAY 11/05/11 Survey Type: MANUAL

LIST OF SITES relevant to selection parameters (Cont.)

17 PS-03-A-02 DETACHED/SEMI-DETACHED POWYS
GUNROG ROAD
WELSHPOOL

Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 28
Survey date: MONDAY 11/05/15 Survey Type: MANUAL

18 SF-03-A-05 DETACHED HOUSES SUFFOLK
VALE LANE
BURY ST EDMUNDS

Edge of Town
Residential Zone
Total Number of dwellings: 18
Survey date: WEDNESDAY 09/09/15 Survey Type: MANUAL

19 SH-03-A-05 SEMI-DETACHED/TERRACED SHROPSHIRE
SANDCROFT
TELFORD
SUTTON HILL
Edge of Town
Residential Zone
Total Number of dwellings: 54
Survey date: THURSDAY 24/10/13 Survey Type: MANUAL

20 SM-03-A-01 DETACHED & SEMI SOMERSET
WEMBDON ROAD
BRIDGWATER
NORTHFIELD
Edge of Town
Residential Zone
Total Number of dwellings: 33
Survey date: THURSDAY 24/09/15 Survey Type: MANUAL

21 WA-03-A-04 DETACHED WATERFORD
MAYPARK LANE
WATERFORD

Edge of Town
Residential Zone
Total Number of dwellings: 280
Survey date: TUESDAY 24/06/14 Survey Type: MANUAL

22 WX-03-A-01 SEMI-DETACHED WEXFORD
CLONARD ROAD
WEXFORD

Suburban Area (PPS6 Out of Centre)
No Sub Category
Total Number of dwellings: 34
Survey date: THURSDAY 25/09/14 Survey Type: MANUAL

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

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

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	22	77	0.048	22	77	0.215	22	77	0.263
08:00 - 09:00	22	77	0.139	22	77	0.431	22	77	0.570
09:00 - 10:00	22	77	0.182	22	77	0.195	22	77	0.377
10:00 - 11:00	22	77	0.149	22	77	0.177	22	77	0.326
11:00 - 12:00	22	77	0.136	22	77	0.169	22	77	0.305
12:00 - 13:00	22	77	0.211	22	77	0.200	22	77	0.411
13:00 - 14:00	22	77	0.193	22	77	0.211	22	77	0.404
14:00 - 15:00	22	77	0.230	22	77	0.239	22	77	0.469
15:00 - 16:00	22	77	0.299	22	77	0.200	22	77	0.499
16:00 - 17:00	22	77	0.315	22	77	0.204	22	77	0.519
17:00 - 18:00	22	77	0.358	22	77	0.219	22	77	0.577
18:00 - 19:00	22	77	0.303	22	77	0.216	22	77	0.519
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			2.563			2.676			5.239

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:	7 - 432 (units:)
Survey date date range:	01/01/10 - 22/06/18
Number of weekdays (Monday-Friday):	22
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	0

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

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

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	22	77	0.002	22	77	0.002	22	77	0.004
08:00 - 09:00	22	77	0.004	22	77	0.004	22	77	0.008
09:00 - 10:00	22	77	0.003	22	77	0.003	22	77	0.006
10:00 - 11:00	22	77	0.002	22	77	0.002	22	77	0.004
11:00 - 12:00	22	77	0.005	22	77	0.005	22	77	0.010
12:00 - 13:00	22	77	0.004	22	77	0.003	22	77	0.007
13:00 - 14:00	22	77	0.003	22	77	0.002	22	77	0.005
14:00 - 15:00	22	77	0.002	22	77	0.002	22	77	0.004
15:00 - 16:00	22	77	0.003	22	77	0.004	22	77	0.007
16:00 - 17:00	22	77	0.005	22	77	0.005	22	77	0.010
17:00 - 18:00	22	77	0.004	22	77	0.004	22	77	0.008
18:00 - 19:00	22	77	0.007	22	77	0.007	22	77	0.014
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.044			0.043			0.087

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.*

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

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	22	77	0.000	22	77	0.000	22	77	0.000
08:00 - 09:00	22	77	0.002	22	77	0.001	22	77	0.003
09:00 - 10:00	22	77	0.004	22	77	0.004	22	77	0.008
10:00 - 11:00	22	77	0.003	22	77	0.004	22	77	0.007
11:00 - 12:00	22	77	0.001	22	77	0.001	22	77	0.002
12:00 - 13:00	22	77	0.000	22	77	0.000	22	77	0.000
13:00 - 14:00	22	77	0.001	22	77	0.001	22	77	0.002
14:00 - 15:00	22	77	0.002	22	77	0.002	22	77	0.004
15:00 - 16:00	22	77	0.003	22	77	0.003	22	77	0.006
16:00 - 17:00	22	77	0.002	22	77	0.001	22	77	0.003
17:00 - 18:00	22	77	0.001	22	77	0.001	22	77	0.002
18:00 - 19:00	22	77	0.000	22	77	0.000	22	77	0.000
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.019			0.018			0.037

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.*

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

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	22	77	0.000	22	77	0.000	22	77	0.000
08:00 - 09:00	22	77	0.007	22	77	0.007	22	77	0.014
09:00 - 10:00	22	77	0.001	22	77	0.001	22	77	0.002
10:00 - 11:00	22	77	0.000	22	77	0.000	22	77	0.000
11:00 - 12:00	22	77	0.002	22	77	0.002	22	77	0.004
12:00 - 13:00	22	77	0.000	22	77	0.000	22	77	0.000
13:00 - 14:00	22	77	0.000	22	77	0.000	22	77	0.000
14:00 - 15:00	22	77	0.004	22	77	0.004	22	77	0.008
15:00 - 16:00	22	77	0.005	22	77	0.005	22	77	0.010
16:00 - 17:00	22	77	0.001	22	77	0.001	22	77	0.002
17:00 - 18:00	22	77	0.000	22	77	0.000	22	77	0.000
18:00 - 19:00	22	77	0.000	22	77	0.000	22	77	0.000
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.020			0.020			0.040

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.*

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

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	22	77	0.001	22	77	0.005	22	77	0.006
08:00 - 09:00	22	77	0.001	22	77	0.008	22	77	0.009
09:00 - 10:00	22	77	0.002	22	77	0.003	22	77	0.005
10:00 - 11:00	22	77	0.003	22	77	0.004	22	77	0.007
11:00 - 12:00	22	77	0.004	22	77	0.003	22	77	0.007
12:00 - 13:00	22	77	0.004	22	77	0.004	22	77	0.008
13:00 - 14:00	22	77	0.004	22	77	0.004	22	77	0.008
14:00 - 15:00	22	77	0.005	22	77	0.005	22	77	0.010
15:00 - 16:00	22	77	0.004	22	77	0.004	22	77	0.008
16:00 - 17:00	22	77	0.007	22	77	0.002	22	77	0.009
17:00 - 18:00	22	77	0.008	22	77	0.005	22	77	0.013
18:00 - 19:00	22	77	0.004	22	77	0.002	22	77	0.006
19:00 - 20:00	1	7	0.000	1	7	0.000	1	7	0.000
20:00 - 21:00	1	7	0.000	1	7	0.000	1	7	0.000
21:00 - 22:00	1	7	0.000	1	7	0.000	1	7	0.000
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.047			0.049			0.096

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.*

Calculation Reference: AUDIT-638801-190328-0350

TRIP RATE CALCULATION SELECTION PARAMETERS:

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

Selected regions and areas:

06	WEST MIDLANDS		
	WK	WARWICKSHIRE	1 days
09	NORTH		
	TV	TEES VALLEY	1 days
10	WALES		
	BG	BRIDGEND	1 days
11	SCOTLAND		
	SR	STIRLING	1 days
12	CONNAUGHT		
	RO	ROSCOMMON	1 days

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

Secondary Filtering selection:

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

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

Parking Spaces Range: All Surveys Included

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/11 to 12/07/18

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

Selected survey days:

Monday	2 days
Friday	3 days

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

Selected survey types:

Manual count	5 days
Directional ATC Count	0 days

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

Selected Locations:

Edge of Town	5

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

Selected Location Sub Categories:

Industrial Zone	1
Residential Zone	3
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:

D1	5 days

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

Population within 1 mile:

1,001 to 5,000	1 days
5,001 to 10,000	2 days
10,001 to 15,000	1 days
15,001 to 20,000	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	1 days
50,001 to 75,000	1 days
75,001 to 100,000	3 days

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

Car ownership within 5 miles:

0.6 to 1.0	1 days
1.1 to 1.5	4 days

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

Travel Plan:

No	5 days

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

PTAL Rating:

No PTAL Present	5 days

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

LIST OF SITES relevant to selection parameters

1 BG-04-D-01 NURSERY BRIDGEND
GEORGE STREET
BRIDGEND
BRIDGEND IND. ESTATE
Edge of Town
Industrial Zone
Total Gross floor area: 210 sqm
Survey date: MONDAY *13/10/14* *Survey Type: MANUAL*

2 RO-04-D-01 NURSERY ROSCOMMON
PARK VIEW
ROSCOMMON
CRUBY HILL
Edge of Town
Residential Zone
Total Gross floor area: 500 sqm
Survey date: FRIDAY *26/09/14* *Survey Type: MANUAL*

3 SR-04-D-01 NURSERY STIRLING
HENDERSON STREET
STIRLING
BRIDGE OF ALLAN
Edge of Town
No Sub Category
Total Gross floor area: 250 sqm
Survey date: MONDAY *16/06/14* *Survey Type: MANUAL*

4 TV-04-D-01 NURSERY TEES VALLEY
COTSWOLD DRIVE
REDCAR

Edge of Town
Residential Zone
Total Gross floor area: 150 sqm
Survey date: FRIDAY *19/05/17* *Survey Type: MANUAL*

5 WK-04-D-01 NURSERY WARWICKSHIRE
THE RIDGEWAY
STRATFORD UPON AVON

Edge of Town
Residential Zone
Total Gross floor area: 340 sqm
Survey date: FRIDAY *29/06/18* *Survey Type: MANUAL*

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

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

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	5	290	2.552	5	290	0.690	5	290	3.242
08:00 - 09:00	5	290	6.621	5	290	4.414	5	290	11.035
09:00 - 10:00	5	290	3.379	5	290	3.379	5	290	6.758
10:00 - 11:00	5	290	1.586	5	290	1.103	5	290	2.689
11:00 - 12:00	5	290	1.310	5	290	0.759	5	290	2.069
12:00 - 13:00	5	290	2.828	5	290	3.931	5	290	6.759
13:00 - 14:00	5	290	1.448	5	290	2.207	5	290	3.655
14:00 - 15:00	5	290	1.862	5	290	1.517	5	290	3.379
15:00 - 16:00	5	290	1.241	5	290	2.069	5	290	3.310
16:00 - 17:00	5	290	2.000	5	290	2.069	5	290	4.069
17:00 - 18:00	5	290	3.862	5	290	5.586	5	290	9.448
18:00 - 19:00	4	325	0.000	4	325	1.462	4	325	1.462
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			28.689			29.186			57.875

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:	150 - 500 (units: sqm)
Survey date date range:	01/01/11 - 12/07/18
Number of weekdays (Monday-Friday):	5
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	0

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

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

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	5	290	0.000	5	290	0.000	5	290	0.000
08:00 - 09:00	5	290	0.276	5	290	0.138	5	290	0.414
09:00 - 10:00	5	290	0.000	5	290	0.138	5	290	0.138
10:00 - 11:00	5	290	0.000	5	290	0.000	5	290	0.000
11:00 - 12:00	5	290	0.069	5	290	0.069	5	290	0.138
12:00 - 13:00	5	290	0.000	5	290	0.000	5	290	0.000
13:00 - 14:00	5	290	0.000	5	290	0.000	5	290	0.000
14:00 - 15:00	5	290	0.000	5	290	0.000	5	290	0.000
15:00 - 16:00	5	290	0.000	5	290	0.000	5	290	0.000
16:00 - 17:00	5	290	0.000	5	290	0.000	5	290	0.000
17:00 - 18:00	5	290	0.069	5	290	0.069	5	290	0.138
18:00 - 19:00	4	325	0.000	4	325	0.000	4	325	0.000
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.414			0.414			0.828

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.*

TRIP RATE for Land Use 04 - EDUCATION/D - NURSERY
OGVS
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									
06:00 - 07:00									
07:00 - 08:00	5	290	0.000	5	290	0.000	5	290	0.000
08:00 - 09:00	5	290	0.000	5	290	0.000	5	290	0.000
09:00 - 10:00	5	290	0.069	5	290	0.069	5	290	0.138
10:00 - 11:00	5	290	0.069	5	290	0.000	5	290	0.069
11:00 - 12:00	5	290	0.000	5	290	0.069	5	290	0.069
12:00 - 13:00	5	290	0.069	5	290	0.069	5	290	0.138
13:00 - 14:00	5	290	0.000	5	290	0.000	5	290	0.000
14:00 - 15:00	5	290	0.000	5	290	0.000	5	290	0.000
15:00 - 16:00	5	290	0.000	5	290	0.000	5	290	0.000
16:00 - 17:00	5	290	0.000	5	290	0.000	5	290	0.000
17:00 - 18:00	5	290	0.000	5	290	0.000	5	290	0.000
18:00 - 19:00	4	325	0.000	4	325	0.000	4	325	0.000
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.207			0.207			0.414

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.*

TRIP RATE for Land Use 04 - EDUCATION/D - NURSERY
CYCLISTS
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									
06:00 - 07:00									
07:00 - 08:00	5	290	0.000	5	290	0.000	5	290	0.000
08:00 - 09:00	5	290	0.069	5	290	0.069	5	290	0.138
09:00 - 10:00	5	290	0.000	5	290	0.000	5	290	0.000
10:00 - 11:00	5	290	0.000	5	290	0.000	5	290	0.000
11:00 - 12:00	5	290	0.000	5	290	0.000	5	290	0.000
12:00 - 13:00	5	290	0.000	5	290	0.000	5	290	0.000
13:00 - 14:00	5	290	0.000	5	290	0.000	5	290	0.000
14:00 - 15:00	5	290	0.000	5	290	0.000	5	290	0.000
15:00 - 16:00	5	290	0.000	5	290	0.000	5	290	0.000
16:00 - 17:00	5	290	0.069	5	290	0.069	5	290	0.138
17:00 - 18:00	5	290	0.069	5	290	0.069	5	290	0.138
18:00 - 19:00	4	325	0.000	4	325	0.000	4	325	0.000
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.207			0.207			0.414

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.*

TRIP RATE for Land Use 04 - EDUCATION/D - NURSERY
CARS
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									
06:00 - 07:00									
07:00 - 08:00	5	290	2.483	5	290	0.690	5	290	3.173
08:00 - 09:00	5	290	6.345	5	290	4.207	5	290	10.552
09:00 - 10:00	5	290	3.172	5	290	3.103	5	290	6.275
10:00 - 11:00	5	290	1.310	5	290	0.897	5	290	2.207
11:00 - 12:00	5	290	1.034	5	290	0.483	5	290	1.517
12:00 - 13:00	5	290	2.621	5	290	3.655	5	290	6.276
13:00 - 14:00	5	290	1.448	5	290	2.207	5	290	3.655
14:00 - 15:00	5	290	1.793	5	290	1.517	5	290	3.310
15:00 - 16:00	5	290	1.103	5	290	1.931	5	290	3.034
16:00 - 17:00	5	290	2.000	5	290	2.000	5	290	4.000
17:00 - 18:00	5	290	3.724	5	290	5.448	5	290	9.172
18:00 - 19:00	4	325	0.000	4	325	1.385	4	325	1.385
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			27.033			27.523			54.556

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.

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TRIP RATE for Land Use 04 - EDUCATION/D - NURSERY
LGVS
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									
06:00 - 07:00									
07:00 - 08:00	5	290	0.069	5	290	0.000	5	290	0.069
08:00 - 09:00	5	290	0.000	5	290	0.069	5	290	0.069
09:00 - 10:00	5	290	0.138	5	290	0.069	5	290	0.207
10:00 - 11:00	5	290	0.207	5	290	0.207	5	290	0.414
11:00 - 12:00	5	290	0.207	5	290	0.138	5	290	0.345
12:00 - 13:00	5	290	0.138	5	290	0.207	5	290	0.345
13:00 - 14:00	5	290	0.000	5	290	0.000	5	290	0.000
14:00 - 15:00	5	290	0.069	5	290	0.000	5	290	0.069
15:00 - 16:00	5	290	0.138	5	290	0.138	5	290	0.276
16:00 - 17:00	5	290	0.000	5	290	0.069	5	290	0.069
17:00 - 18:00	5	290	0.069	5	290	0.069	5	290	0.138
18:00 - 19:00	4	325	0.000	4	325	0.077	4	325	0.077
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			1.035			1.043			2.078

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.*

APPENDIX C

TRANSYT Output Files

TRANSYT 15

Version: 15.5.2.7994
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Filename: Junction 1-2 Do Minimum_Signalised.t15
Path: G:\2019\p190009\calcs\transyt\Oct 2019
Report generation date: 08/10/2019 12:56:20

»A1 - 2021 DM AM : D1 - 2021 AM* :
»A2 - 2021 DM PM : D2 - 2021 PM* :
»A3 - 2026 DM AM : D3 - 2026 AM* :
»A4 - 2026 DM PM : D4 - 2026 PM* :
»A5 - 2036 DM AM : D5 - 2036 AM* :
»A6 - 2036 DM PM : D6 - 2036 PM* :

File summary

File description

File title	Do Minimum
Location	Kilcock
Site number	Junction 1-2
UTCRegion	
Driving side	Left
Date	05/04/2019
Version	
Status	TTA
Identifier	
Client	MGR
Jobnumber	190009
Enumerator	HEADOFFICE\mckennam
Description	

Model and Results

Enable controller offsets	Enable fuel consumption	Enable quick flares	Display journey time results	Display level of service results	Display blocking and starvation results	Display end of red and green queue results	Display excess queue results	Display separate uniform and random results	Display unweighted results	Display TRANSYT 12 style timings	Display effective greens in results	Display Red-With-Amber	Display End-Of-Green Amber
			✓		✓	✓	✓	✓	✓	✓	✓		

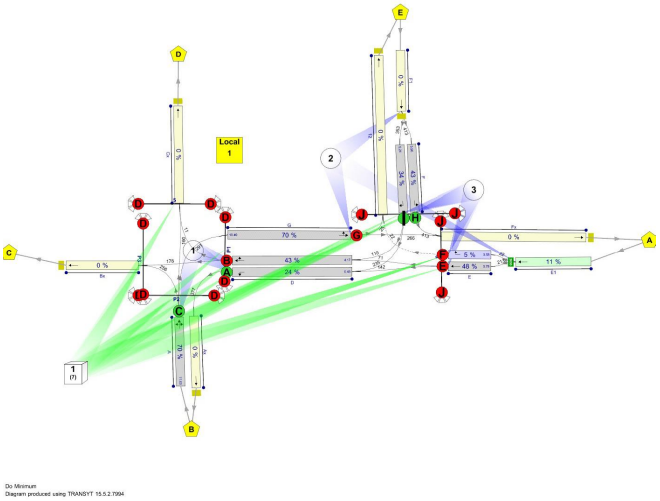
Units

Cost units	Speed units	Distance units	Fuel economy units	Fuel rate units	Mass units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
£	kph	m	mpg	l/h	kg	PCU	PCU	perHour	s	-Hour	perHour

Sorting

Show names instead of IDs	Sorting direction	Sorting type	Ignore prefixes when sorting	Analysis/demand set sorting	Link grouping	Source grouping	Colour Analysis/Demand Sets
	Ascending	Numerical		ID	Normal	Normal	✓

Network Diagrams



Do Minimum
Diagram produced using TRANSYT 15.5.2.7994

A1 - 2021 DM AM
D1 - 2021 AM*

Summary

Data Errors and Warnings

No errors or warnings

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (£ per hr)	Total network delay (PCU-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Ite wit wor over PR
1	08/10/2019 12:55:21	08/10/2019 12:55:25	08:15	120	220.96	14.36	59.72	G/1	0	0	G/1	E1/1	G/

Analysis Set Details

Name	Description	Demand set	Include in report	Locked
2021 DM AM		D1	✓	

Demand Set Details

Name	Description	Composite	Demand sets	Start time (HH:mm)	Locked
2021 AM				08:15	

Signal Timings

Network Default: 120s cycle time; 120 steps

Controller Stream

Controller stream	Name	Description	Use sequence	Cycle time source	Cycle time (s)
1	(untitled)		9	NetworkDefault	120

Controller Stream - Properties

Controller stream	Manufacturer name	Type	Model number	(Telephone) Line Number	Site number	Grid reference	Gaining delay type
1	Unspecified						Absolute

Controller Stream - Optimisation

Controller stream	Allow offset optimisation	Allow green split optimisation	Optimisation level	Auto redistribute	Enable stage constraint
1	✓	✓	Offsets And Green Splits	✓	

Phases

Controller stream	Phase	Name	Minimum green (s)	Maximum green (s)	Relative start displacement (s)	Relative end displacement (s)	Type	Blackout Time (s)
1	A	(untitled)	7	300	0	0	Traffic	
	B	(untitled)	7	300	0	0	Traffic	
	C	(untitled)	6	300	0	0	Traffic	
	D	(untitled)	7	300	0	0	Pedestrian	0
	E	(untitled)	7	300	0	0	Traffic	
	F	(untitled)	7	300	0	0	Traffic	
	G	(untitled)	7	300	0	0	Traffic	
	H	(untitled)	7	300	0	0	Traffic	
	I	(untitled)	7	300	0	0	Traffic	
	J	(untitled)	7	300	0	0	Pedestrian	0

Library Stages

Controller stream	Library stage	Phases in stage	User stage minimum (s)
1	1	A, B, E, F, G	1
	2	A, B, E, F, H	1
	3	A, B, H, I	1
	4	A, B, J	1
	5	A, C, E, F, G	1
	6	A, C, E, F, H	1
	7	A, C, H, I	1
	8	A, C, J	1
	9	D, E, F, G	1
	10	D, E, F, H	1
	11	D, H, I	1
	12	D, J	1

Stage Sequences

Controller stream	Sequence	Name	Multiple cycling	Stage IDs	Stage ends
1	1	(untitled)	Single	4, 11, 5	38, 82, 19
	2	(untitled)	Single	4, 9, 7	40, 72, 20
	3	(untitled)	Single	4, 7, 9	19, 90, 115
	4	(untitled)	Single	3, 12, 5	62, 75, 18
	5	(untitled)	Single	3, 8, 9	28, 79, 109
	6	(untitled)	Single	3, 9, 8	52, 75, 10
	7	(untitled)	Single	1, 7, 12	8, 80, 94
	8	(untitled)	Single	1, 11, 8	43, 79, 12
	9	(untitled)	Single	1, 12, 7	62, 76, 33
	10	(untitled)	Single	4, 5, 11	35, 92, 11

Intergreen Matrix for Controller Stream 1

From \ To	A	B	C	D	E	F	G	H	I	J
A				6						
B			5	5						
C		5		7						
D	9	9	9							
E									5	5
F									5	7
G								5	5	7
H							5			6
I					5	5	5			5
J					11	11	11	11	11	

Interstage Matrix for Controller Stream 1

		To										
		1	2	3	4	5	6	7	8	9	10	11	12
From	1	0	5	5	7	5	5	5	7	6	6	6	7
	2	5	0	5	7	5	5	5	7	6	6	6	7
	3	5	5	0	6	5	5	5	6	6	6	6	6
	4	11	11	11	0	11	11	11	5	11	11	11	6
	5	5	5	5	7	0	5	5	7	7	7	7	7
	6	5	5	5	7	5	0	5	7	7	7	7	7
	7	5	5	5	6	5	5	0	6	7	7	7	7
	8	11	11	11	5	11	11	11	0	11	11	11	7
	9	9	9	9	9	9	9	9	9	0	5	5	7
	10	9	9	9	9	9	9	9	9	5	0	5	7
	11	9	9	9	9	9	9	9	9	5	5	0	6
	12	11	11	11	9	11	11	11	9	11	11	11	0

Resultant Stages

Controller stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	1	✓	1	A,B,E,F,G	38	62	24	1	7
	2	✓	12	D,J	69	76	7	1	7
	3	✓	7	A,C,H,I	87	33	66	1	7

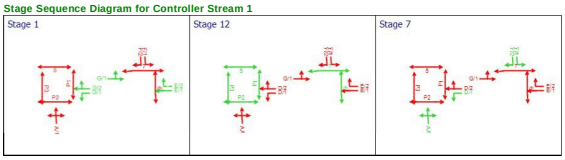
Resultant Phase Green Periods

Controller stream	Phase	Green period	Is base green period	Start time (s)	End time (s)	Duration (s)
1	A	1	✓	85	62	97
	B	1	✓	38	62	24
	C	1	✓	85	33	68
	D	1	✓	68	76	8
	E	1	✓	38	62	24
	F	1	✓	38	62	24
	G	1	✓	38	62	24
	H	1	✓	87	33	66
	I	1	✓	87	33	66
	J	1	✓	69	76	7

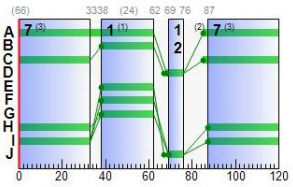
Traffic Stream Green Times

Arm	Traffic Stream	Traffic Node	Controller Stream	Phase	Green Period 1		
					Start	End	Duration
A	1	1	1	C	85	33	68
D	1	1	1	A	85	62	97
D	2	1	1	B	38	62	24
E	1	3	1	E	38	62	24
E	2	3	1	F	38	62	24
F	1	3	1	H	87	33	66
F	2	3	1	I	87	33	66
G	1	2	1	G	38	62	24

Stage Sequence Diagram for Controller Stream 1



Phase Timings Diagram for Controller Stream 1



Traffic Stream Results

Traffic Stream Results: Vehicle summary

Time Segment	Arm	Traffic Stream	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Mean Delay per Veh (s)	Mean max queue (PCU)	Utilised storage (%)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
08:15-09:15	A	1	58	55	592	1777	68	18.67	12.90	49.43	43.60	4.73	48.32
	Ax	1	0	Unrestricted	319	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	Bx	1	0	Unrestricted	396	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	Cx	1	0	Unrestricted	151	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	D	1	21	337	319	1897	97	0.91	0.40	2.55	1.15	0.15	1.30
		2	46	97	194	2036	24	32.33	4.13	29.68	24.74	1.56	26.30
	E	1	50	79	215	2055	24	46.21	6.58	315.39	39.19	2.44	41.63
		2	4	1996	18	2013	24	38.19	0.48	22.81	2.71	0.18	2.89
	F	1	40	122	396	1752	66	15.71	5.93	85.30	24.55	2.23	26.78
		2	28	216	298	1874	66	14.38	4.58	52.71	16.90	1.72	18.62
	Fx	1	0	Unrestricted	620	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	G	1	60	51	239	1921	24	52.09	8.40	53.69	49.11	3.16	52.26
	E1	1	11	694	233	2055	120	0.11	0.01	0.02	0.10	0.00	0.10
	F1	1	0	Unrestricted	694	Unrestricted	120	0.66	3.08	16.12	1.81	0.95	2.75
	12	1	0	Unrestricted	33	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00

Traffic Stream Results: Flows and signals

Time Segment	Arm	Traffic Stream	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Calculated sat flow (PCU/hr)	Calculated capacity (PCU/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))	Effec gree (pe cycl
08:15-09:15	A	1	592	592	0		1777	1022	58		55	0.00	68	69
	Ax	1	319	319	0		Unrestricted	Unrestricted	0		Unrestricted	0.62	120	12
	Bx	1	396	396	0		Unrestricted	Unrestricted	0		Unrestricted	0.63	120	12
	Cx	1	151	151	0		Unrestricted	Unrestricted	0		Unrestricted	0.70	120	12
	D	1	319	319	0		1897	1549	21		337	0.98	97	98
		2	194	194	0		2036	424	46		97	0.98	24	25
	E	1	215	215	0		2055	428	50		79	0.00	24	25
		2	18	18	0		2013	419	4		1996	0.00	24	25
	F	1	396	396	0		1752	978	40		122	0.15	66	67
		2	298	298	0		1874	1046	28		216	0.15	66	67
	Fx	1	620	620	0		Unrestricted	Unrestricted	0		Unrestricted	0.29	120	12
	G	1	239	239	0		1921	400	60		51	0.85	24	25
	E1	1	233	233	0		2055	2055	11		694	0.00	120	12
	F1	1	694	694	0		Unrestricted	Unrestricted	0		Unrestricted	0.00	120	12
	12	1	33	33	0		Unrestricted	Unrestricted	0		Unrestricted	1.18	120	12

Traffic Stream Results: Stops and delays

Time Segment	Arm	Traffic Stream	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Uniform delay (PCU-hr/hr)	Random plus oversat delay (PCU-hr/hr)	Unweighted cost of delay (£ per hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Uniform stops (Stops per hr)	Random stops (Stops per hr)	Unweighted cost of stops (£ per hr)	Weighted cost of stops (£ per hr)
08:15-09:15	A	1	18.00	18.67	2.67	0.40	43.60	43.60	63.72	365.35	11.86	4.73	4.73
	Ax	1	24.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Bx	1	18.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Cx	1	13.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	D	1	10.80	0.91	0.05	0.03	1.15	1.15	3.75	11.17	0.80	0.15	0.15
		2	9.60	32.33	1.55	0.19	24.74	24.74	63.94	118.34	5.71	1.56	1.56
	E	1	1.44	46.21	2.51	0.25	39.19	39.19	90.39	186.85	7.48	2.44	2.44
		2	1.44	38.19	0.19	0.00	2.71	2.71	78.34	14.07	0.03	0.18	0.18
	F	1	4.80	15.71	1.59	0.14	24.55	24.55	44.95	173.90	4.11	2.23	2.23
		2	6.00	14.38	1.13	0.06	16.90	16.90	46.13	135.76	1.70	1.72	1.72
	Fx	1	72.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	G	1	10.80	52.09	3.02	0.44	49.11	49.11	105.41	239.00	12.93	3.16	3.16
	E1	1	24.00	0.11	0.00	0.01	0.10	0.10	0.00	0.00	0.00	0.00	0.00
	F1	1	13.20	0.66	0.13	0.00	1.81	1.81	10.86	75.40	0.00	0.95	0.95
	12	1	46.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Traffic Stream Results: Queues and blocking

Time Segment	Arm	Traffic Stream	Initial queue (PCU)	Mean max queue (PCU)	Max queue storage (PCU)	Utilised storage (%)	Average storage excess queue (PCU)	Average limit excess queue (PCU)	Excess queue penalty (£ per hr)	Max end of green queue (PCU)	Max end of red queue (PCU)	Wasted time starvation (s (per cycle))	Wasted time blocking back (s (per cycle))	Wasted time total (s (per cycle))	Estimated blocking
08:15-09:15	A	1	0.00	12.90	26.09	49.43	0.00	0.00	0.00	0.40	8.78	0.00	0.00	0.00	
	Ax	1	0.00	0.00	34.78	0.00	0.00	0.00	0.00			8.00	0.00	8.00	
	Bx	1	0.00	0.00	26.09	0.00	0.00	0.00	0.00			13.00	0.00	13.00	
	Cx	1	0.00	0.00	19.13	0.00	0.00	0.00	0.00			39.00	0.00	39.00	
	D	1	0.00	0.40	15.65	2.55	0.00	0.00	0.00	0.03	0.40	16.00	0.00	16.00	
		2	0.00	4.13	13.91	29.68	0.00	0.00	0.00	0.19	4.07	1.00	0.00	1.00	
	E	1	0.00	6.58	2.09	315.39	1.43	0.00	0.00	0.25	5.93	0.00	0.00	0.00	
		2	0.00	0.48	2.09	22.81	0.00	0.00	0.00	0.00	0.48	24.00	0.00	24.00	
	F	1	0.00	5.93	6.96	85.30	0.00	0.00	0.00	0.14	5.93	0.00	0.00	0.00	
		2	0.00	4.58	8.70	52.71	0.00	0.00	0.00	0.06	4.57	1.00	0.00	1.00	
	Fx	1	0.00	0.00	104.35	0.00	0.00	0.00	0.00			0.00	0.00	0.00	
	G	1	0.00	8.40	15.65	53.69	0.00	0.00	0.00	0.44	8.34	9.00	0.00	9.00	
	E1	1	0.00	0.01	34.78	0.02	0.00	0.00	0.00			0.00	76.00	76.00	
	F1	1	0.00	3.08	19.13	16.12	0.00	0.00	0.00			0.00	16.00	16.00	
	12	1	0.00	0.00	67.65	0.00	0.00	0.00	0.00			92.00	0.00	92.00	

Final Prediction Table

Traffic Stream Results

			SIGNALS			FLOWS		PERFORMANCE				PER PCU			QUEUE	
Arm	Traffic Stream	Name	Traffic node	Controller stream	Phase	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Wasted time total (s (per cycle))	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Veh (s)	Mean stops per Veh (%)	Mean max queue (PCU)	M e of qu (P
A	1	(unfilled)	1	1	C	592	1777	68	0.00	58	55	36.67	18.67	63.72	12.90	8.
Ax	1	(unfilled)				319	Unrestricted	120	8.00	0	Unrestricted	24.00	0.00	0.00	0.00	
Bx	1	(unfilled)				396	Unrestricted	120	13.00	0	Unrestricted	18.00	0.00	0.00	0.00	
Cx	1	(unfilled)				151	Unrestricted	120	39.00	0	Unrestricted	13.20	0.00	0.00	0.00	
D	1	(unfilled)	1	1	A	319	1897	97	16.00	21	337	11.71	0.91	3.75	0.40	0.
	2	(unfilled)	1	1	B	194	2036	24	1.00	46	97	41.93	32.33	63.94	4.13	4.
E	1	(unfilled)	3	1	E	215 <	2055	24	0.00	50	79	47.65	46.21	90.39	6.58 +	5.
	2	(unfilled)	3	1	F	18	2013	24	24.00	4	1996	39.63	38.19	78.34	0.48	0.
F	1	(unfilled)	3	1	H	396	1752	66	0.00	40	122	20.51	15.71	44.95	5.93	5.
	2	(unfilled)	3	1	I	298	1874	66	1.00	28	216	20.38	14.38	46.13	4.58	4.
Fx	1	(unfilled)				620	Unrestricted	120	0.00	0	Unrestricted	72.00	0.00	0.00	0.00	
G	1	(unfilled)	2	1	G	239	1921	24	9.00	60	51	62.89	52.09	105.41	8.40	8.
E1	1	(unfilled)	2			233	2055	120	76.00	11	694	24.11	0.11	0.00	0.01	
F1	1	(unfilled)	2			694	Unrestricted	120	16.00	0	Unrestricted	13.86	0.66	10.86	3.08	
12	1	(unfilled)				33	Unrestricted	120	92.00	0	Unrestricted	46.68	0.00	0.00	0.00	

Network Results

	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	Uniform delay (PCU-hr/hr)	Random plus oversat delay (PCU-hr/hr)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Excess queue penalty (£ per hr)	Performance Index (£ per hr)
Normal traffic	835.66	42.21	19.80	12.85	1.51	203.85	17.11	0.00	220.96
Bus	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tram	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pedestrians	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	835.66	42.21	19.80	12.85	1.51	203.85	17.11	0.00	220.96

- *< = adjusted flow warning (upstream links/traffic streams are over-saturated)*
- ** = Traffic Stream - Normal, Bus or Tram Stop or Delay weighting has been set to a value other than 100%*
- *^ = Traffic Stream - Normal, Bus or Tram Stop or Delay Path weighting has been set to a value other than 100%*
- *+ = average link/traffic stream excess queue is greater than 0*
- ***P.I. = PERFORMANCE INDEX***

A2 - 2021 DM PM
D2 - 2021 PM*

Summary

Data Errors and Warnings

No errors or warnings

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (£ per hr)	Total network delay (PCU-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Ite wit wor over PR
2	08/10/2019 12:55:25	08/10/2019 12:55:28	17:45	120	223.12	14.53	61.87	E/1	0	0	E/1	E1/1	E/

Analysis Set Details

Name	Description	Demand set	Include in report	Locked
2021 DM PM		D2	✓	

Demand Set Details

Name	Description	Composite	Demand sets	Start time (HH:mm)	Locked
2021 PM				17:45	

Signal Timings

Network Default: 120s cycle time; 120 steps

Controller Stream

Controller stream	Name	Description	Use sequence	Cycle time source	Cycle time (s)
1	(untitled)		9	NetworkDefault	120

Controller Stream - Properties

Controller stream	Manufacturer name	Type	Model number	(Telephone) Line Number	Site number	Grid reference	Gaining delay type
1	Unspecified						Absolute

Controller Stream - Optimisation

Controller stream	Allow offset optimisation	Allow green split optimisation	Optimisation level	Auto redistribute	Enable stage constraint
1	✓	✓	Offsets And Green Splits	✓	

Phases

Controller stream	Phase	Name	Minimum green (s)	Maximum green (s)	Relative start displacement (s)	Relative end displacement (s)	Type	Blackout Time (s)
1	A	(untitled)	7	300	0	0	Traffic	
	B	(untitled)	7	300	0	0	Traffic	
	C	(untitled)	6	300	0	0	Traffic	
	D	(untitled)	7	300	0	0	Pedestrian	0
	E	(untitled)	7	300	0	0	Traffic	
	F	(untitled)	7	300	0	0	Traffic	
	G	(untitled)	7	300	0	0	Traffic	
	H	(untitled)	7	300	0	0	Traffic	
	I	(untitled)	7	300	0	0	Traffic	
	J	(untitled)	7	300	0	0	Pedestrian	0

Library Stages

Controller stream	Library stage	Phases in stage	User stage minimum (s)
1	1	A, B, E, F, G	1
	2	A, B, E, F, H	1
	3	A, B, H, I	1
	4	A, B, J	1
	5	A, C, E, F, G	1
	6	A, C, E, F, H	1
	7	A, C, H, I	1
	8	A, C, J	1
	9	D, E, F, G	1
	10	D, E, F, H	1
	11	D, H, I	1
	12	D, J	1

Stage Sequences

Controller stream	Sequence	Name	Multiple cycling	Stage IDs	Stage ends
1	1	(untitled)	Single	4, 11, 5	38, 82, 19
	2	(untitled)	Single	4, 9, 7	40, 72, 20
	3	(untitled)	Single	4, 7, 9	19, 90, 115
	4	(untitled)	Single	3, 12, 5	62, 75, 18
	5	(untitled)	Single	3, 8, 9	28, 79, 109
	6	(untitled)	Single	3, 9, 8	52, 75, 10
	7	(untitled)	Single	1, 7, 12	8, 80, 94
	8	(untitled)	Single	1, 11, 8	43, 79, 12
	9	(untitled)	Single	1, 12, 7	62, 76, 16
	10	(untitled)	Single	4, 5, 11	35, 92, 11

Intergreen Matrix for Controller Stream 1

From \ To	A	B	C	D	E	F	G	H	I	J
A				6						
B			5	5						
C		5		7						
D	9	9	9							
E									5	5
F									5	7
G								5	5	7
H							5			6
I					5	5	5			5
J					11	11	11	11	11	

Interstage Matrix for Controller Stream 1

From \ To	1	2	3	4	5	6	7	8	9	10	11	12
1	0	5	5	7	5	5	5	7	6	6	6	7
2	5	0	5	7	5	5	5	7	6	6	6	7
3	5	5	0	6	5	5	5	6	6	6	6	6
4	11	11	11	0	11	11	11	5	11	11	11	6
5	5	5	5	7	0	5	5	7	7	7	7	7
6	5	5	5	7	5	0	5	7	7	7	7	7
7	5	5	5	6	5	5	0	6	7	7	7	7
8	11	11	11	5	11	11	11	0	11	11	11	7
9	9	9	9	9	9	9	9	9	0	5	5	7
10	9	9	9	9	9	9	9	9	5	0	5	7
11	9	9	9	9	9	9	9	9	5	5	0	6
12	11	11	11	9	11	11	11	9	11	11	11	0

Resultant Stages

Controller stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	1	✓	1	A,B,E,F,G	21	62	41	1	7
	2	✓	12	D,J	69	76	7	1	7
	3	✓	7	A,C,H,I	87	16	49	1	7

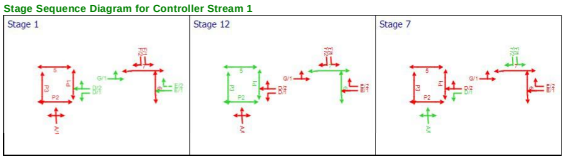
Resultant Phase Green Periods

Controller stream	Phase	Green period	Is base green period	Start time (s)	End time (s)	Duration (s)
1	A	1	✓	85	62	97
	B	1	✓	21	62	41
	C	1	✓	85	16	51
	D	1	✓	68	76	8
	E	1	✓	21	62	41
	F	1	✓	21	62	41
	G	1	✓	21	62	41
	H	1	✓	87	16	49
	I	1	✓	87	16	49
	J	1	✓	69	76	7

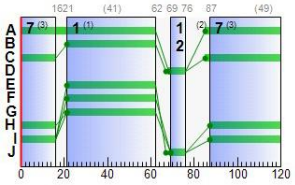
Traffic Stream Green Times

Arm	Traffic Stream	Traffic Node	Controller Stream	Phase	Green Period 1		
					Start	End	Duration
A	1	1	1	C	85	16	51
D	1	1	1	A	85	62	97
D	2	1	1	B	21	62	41
E	1	3	1	E	21	62	41
E	2	3	1	F	21	62	41
F	1	3	1	H	87	16	49
F	2	3	1	I	87	16	49
G	1	2	1	G	21	62	41

Stage Sequence Diagram for Controller Stream 1



Phase Timings Diagram for Controller Stream 1



Traffic Stream Results

Traffic Stream Results: Vehicle summary

Time Segment	Arm	Traffic Stream	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Mean Delay per Veh (s)	Mean max queue (PCU)	Utilised storage (%)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
17:45-18:45	A	1	54	65	419	1777	51	27.99	10.57	40.50	46.26	3.91	50.17
	Ax	1	0	Unrestricted	494	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	Bx	1	0	Unrestricted	442	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	Cx	1	0	Unrestricted	104	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	D	1	32	182	494	1897	97	1.39	1.52	9.74	2.71	0.32	3.03
		2	40	125	285	2036	41	19.66	4.61	33.12	22.10	1.73	23.83
	E	1	62	45	445	2055	41	36.39	12.74	610.24	63.87	4.72	68.59
		2	1	6281	10	2026	41	25.71	0.22	10.39	1.01	0.08	1.09
	F	1	20	350	146	1752	49	22.90	3.03	43.54	13.19	1.13	14.32
		2	43	110	334	1874	49	26.68	7.68	88.29	35.15	2.87	38.02
	Fx	1	0	Unrestricted	295	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	G	1	23	283	158	1921	41	34.69	5.30	33.88	21.62	1.99	23.61
	E1	1	22	306	455	2055	120	0.25	0.03	0.09	0.45	0.00	0.45
	F1	1	0	Unrestricted	480	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	12	1	0	Unrestricted	19	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00

Traffic Stream Results: Flows and signals

Time Segment	Arm	Traffic Stream	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Calculated sat flow (PCU/hr)	Calculated capacity (PCU/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))	Effec gree (pe cycl
17:45-18:45	A	1	419	419	0		1777	770	54		65	0.00	51	52
	Ax	1	494	494	0		Unrestricted	Unrestricted	0		Unrestricted	0.64	120	12
	Bx	1	442	442	0		Unrestricted	Unrestricted	0		Unrestricted	0.68	120	12
	Cx	1	104	104	0		Unrestricted	Unrestricted	0		Unrestricted	0.88	120	12
	D	1	494	494	0		1897	1549	32		182	0.93	97	98
		2	285	285	0		2036	713	40		125	0.93	41	42
	E	1	445	445	0		2055	719	62		45	0.00	41	42
		2	10	10	0		2026	709	1		6281	0.00	41	42
	F	1	146	146	0		1752	730	20		350	0.00	49	50
		2	334	334	0		1874	781	43		110	0.00	49	50
	Fx	1	295	295	0		Unrestricted	Unrestricted	0		Unrestricted	0.46	120	12
	G	1	158	158	0		1921	672	23		283	1.13	41	42
	E1	1	455	455	0		2055	2055	22		306	0.00	120	12
	F1	1	480	480	0		Unrestricted	Unrestricted	0		Unrestricted	0.00	120	12
	12	1	19	19	0		Unrestricted	Unrestricted	0		Unrestricted	1.10	120	12

Traffic Stream Results: Stops and delays

Time Segment	Arm	Traffic Stream	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Uniform delay (PCU-hr/hr)	Random plus oversat delay (PCU-hr/hr)	Unweighted cost of delay (£ per hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Uniform stops (Stops per hr)	Random stops (Stops per hr)	Unweighted cost of stops (£ per hr)	Weighted cost of stops (£ per hr)
17:45-18:45	A	1	18.00	27.99	2.93	0.32	46.26	46.26	74.48	302.42	9.64	3.91	3.91
	Ax	1	24.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Bx	1	18.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Cx	1	13.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	D	1	10.80	1.39	0.12	0.07	2.71	2.71	5.21	23.50	2.23	0.32	0.32
		2	9.60	19.66	1.42	0.13	22.10	22.10	48.48	134.19	3.97	1.73	1.73
	E	1	1.44	36.39	4.00	0.50	63.87	63.87	84.56	361.49	14.81	4.72	4.72
		2	1.44	25.71	0.07	0.00	1.01	1.01	64.04	6.40	0.00	0.08	0.08
	F	1	4.80	22.90	0.90	0.02	13.19	13.19	61.97	89.72	0.75	1.13	1.13
		2	6.00	26.68	2.32	0.16	35.15	35.15	68.52	224.09	4.77	2.87	2.87
	Fx	1	72.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	G	1	10.80	34.69	1.49	0.04	21.62	21.62	100.68	158.00	1.08	1.99	1.99
	E1	1	24.00	0.25	0.00	0.03	0.45	0.45	0.00	0.00	0.00	0.00	0.00
	F1	1	13.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	12	1	46.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Traffic Stream Results: Queues and blocking

Time Segment	Arm	Traffic Stream	Initial queue (PCU)	Mean max queue (PCU)	Max queue storage (PCU)	Utilised storage (%)	Average storage excess queue (PCU)	Average limit excess queue (PCU)	Excess queue penalty (£ per hr)	Max end of green queue (PCU)	Max end of red queue (PCU)	Wasted time starvation (s (per cycle))	Wasted time blocking back (s (per cycle))	Wasted time total (s (per cycle))	Estimated blocking
17:45-18:45	A	1	0.00	10.57	26.09	40.50	0.00	0.00	0.00	0.32	8.24	0.00	0.00	0.00	
	Ax	1	0.00	0.00	34.78	0.00	0.00	0.00	0.00			7.00	0.00	7.00	
	Bx	1	0.00	0.00	26.09	0.00	0.00	0.00	0.00			15.00	0.00	15.00	
	Cx	1	0.00	0.00	19.13	0.00	0.00	0.00	0.00			60.00	0.00	60.00	
	D	1	0.00	1.52	15.65	9.74	0.00	0.00	0.00	0.07	0.86	14.00	0.00	14.00	
		2	0.00	4.61	13.91	33.12	0.00	0.00	0.00	0.13	4.53	0.00	0.00	0.00	
	E	1	0.00	12.74	2.09	610.24	3.87	0.00	0.00	0.50	10.14	0.00	0.00	0.00	
		2	0.00	0.22	2.09	10.39	0.00	0.00	0.00	0.00	0.22	41.00	0.00	41.00	
	F	1	0.00	3.03	6.96	43.54	0.00	0.00	0.00	0.02	2.93	0.00	0.00	0.00	
		2	0.00	7.68	8.70	88.29	0.00	0.00	0.00	0.16	7.02	0.00	0.00	0.00	
	Fx	1	0.00	0.00	104.35	0.00	0.00	0.00	0.00			3.00	0.00	3.00	
	G	1	0.00	5.30	15.65	33.88	0.00	0.00	0.00	0.04	5.17	31.00	0.00	31.00	
	E1	1	0.00	0.03	34.78	0.09	0.00	0.00	0.00			0.00	87.00	87.00	
	F1	1	0.00	0.00	19.13	0.00	0.00	0.00	0.00			0.00	0.00	0.00	
	12	1	0.00	0.00	67.65	0.00	0.00	0.00	0.00			104.00	0.00	104.00	

Final Prediction Table

Traffic Stream Results

				SIGNALS		FLOWS		PERFORMANCE				PER PCU			QUEUE	
Arm	Traffic Stream	Name	Traffic node	Controller stream	Phase	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Wasted time total (s (per cycle))	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Veh (s)	Mean stops per Veh (%)	Mean max queue (PCU)	M e of qu (P
A	1	(untitled)	1	1	C	419	1777	51	0.00	54	65	45.99	27.99	74.48	10.57	8.
Ax	1	(untitled)				494	Unrestricted	120	7.00	0	Unrestricted	24.00	0.00	0.00	0.00	
Bx	1	(untitled)				442	Unrestricted	120	15.00	0	Unrestricted	18.00	0.00	0.00	0.00	
Cx	1	(untitled)				104	Unrestricted	120	60.00	0	Unrestricted	13.20	0.00	0.00	0.00	
D	1	(untitled)	1	1	A	494	1897	97	14.00	32	182	12.19	1.39	5.21	1.52	0.
	2	(untitled)	1	1	B	285	2036	41	0.00	40	125	29.26	19.66	48.48	4.61	4.
E	1	(untitled)	3	1	E	445 <	2055	41	0.00	62	45	37.83	36.39	84.56	12.74 +	10
	2	(untitled)	3	1	F	10	2026	41	41.00	1	6281	27.15	25.71	64.04	0.22	0.
F	1	(untitled)	3	1	H	146	1752	49	0.00	20	350	27.70	22.90	61.97	3.03	2.
	2	(untitled)	3	1	I	334	1874	49	0.00	43	110	32.68	26.68	68.52	7.68	7.
Fx	1	(untitled)				295	Unrestricted	120	3.00	0	Unrestricted	72.00	0.00	0.00	0.00	
G	1	(untitled)	2	1	G	158	1921	41	31.00	23	283	45.49	34.69	100.68	5.30	5.
E1	1	(untitled)	2			455	2055	120	87.00	22	306	24.25	0.25	0.00	0.03	
F1	1	(untitled)	2			480	Unrestricted	120	0.00	0	Unrestricted	13.20	0.00	0.00	0.00	
12	1	(untitled)				19	Unrestricted	120	104.00	0	Unrestricted	46.68	0.00	0.00	0.00	

Network Results

	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	Uniform delay (PCU-hr/hr)	Random plus oversat delay (PCU-hr/hr)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Excess queue penalty (£ per hr)	Performance Index (£ per hr)
Normal traffic	677.06	37.10	18.25	13.25	1.28	206.36	16.76	0.00	223.12
Bus	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tram	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pedestrians	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	677.06	37.10	18.25	13.25	1.28	206.36	16.76	0.00	223.12

- *< = adjusted flow warning (upstream links/traffic streams are over-saturated)*
- ** = Traffic Stream - Normal, Bus or Tram Stop or Delay weighting has been set to a value other than 100%*
- *^ = Traffic Stream - Normal, Bus or Tram Stop or Delay Path weighting has been set to a value other than 100%*
- *+ = average link/traffic stream excess queue is greater than 0*
- ***P.I. = PERFORMANCE INDEX***

A3 - 2026 DM AM
D3 - 2026 AM*

Summary

Data Errors and Warnings

No errors or warnings

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (£ per hr)	Total network delay (PCU-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Ite wit wor over PR
3	08/10/2019 12:55:29	08/10/2019 12:55:32	08:15	120	226.02	14.69	64.72	G/1	0	0	G/1	E1/1	G/

Analysis Set Details

Name	Description	Demand set	Include in report	Locked
2026 DM AM		D3	✓	

Demand Set Details

Name	Description	Composite	Demand sets	Start time (HH:mm)	Locked
2026 AM				08:15	

Signal Timings

Network Default: 120s cycle time; 120 steps

Controller Stream

Controller stream	Name	Description	Use sequence	Cycle time source	Cycle time (s)
1	(untitled)		9	NetworkDefault	120

Controller Stream - Properties

Controller stream	Manufacturer name	Type	Model number	(Telephone) Line Number	Site number	Grid reference	Gaining delay type
1	Unspecified						Absolute

Controller Stream - Optimisation

Controller stream	Allow offset optimisation	Allow green split optimisation	Optimisation level	Auto redistribute	Enable stage constraint
1	✓	✓	Offsets And Green Splits	✓	

Phases

Controller stream	Phase	Name	Minimum green (s)	Maximum green (s)	Relative start displacement (s)	Relative end displacement (s)	Type	Blackout Time (s)
1	A	(untitled)	7	300	0	0	Traffic	
	B	(untitled)	7	300	0	0	Traffic	
	C	(untitled)	6	300	0	0	Traffic	
	D	(untitled)	7	300	0	0	Pedestrian	0
	E	(untitled)	7	300	0	0	Traffic	
	F	(untitled)	7	300	0	0	Traffic	
	G	(untitled)	7	300	0	0	Traffic	
	H	(untitled)	7	300	0	0	Traffic	
	I	(untitled)	7	300	0	0	Traffic	
	J	(untitled)	7	300	0	0	Pedestrian	0

Library Stages

Controller stream	Library stage	Phases in stage	User stage minimum (s)
1	1	A, B, E, F, G	1
	2	A, B, E, F, H	1
	3	A, B, H, I	1
	4	A, B, J	1
	5	A, C, E, F, G	1
	6	A, C, E, F, H	1
	7	A, C, H, I	1
	8	A, C, J	1
	9	D, E, F, G	1
	10	D, E, F, H	1
	11	D, H, I	1
	12	D, J	1

Stage Sequences

Controller stream	Sequence	Name	Multiple cycling	Stage IDs	Stage ends
1	1	(untitled)	Single	4, 11, 5	38, 82, 19
	2	(untitled)	Single	4, 9, 7	40, 72, 20
	3	(untitled)	Single	4, 7, 9	19, 90, 115
	4	(untitled)	Single	3, 12, 5	62, 75, 18
	5	(untitled)	Single	3, 8, 9	28, 79, 109
	6	(untitled)	Single	3, 9, 8	52, 75, 10
	7	(untitled)	Single	1, 7, 12	8, 80, 94
	8	(untitled)	Single	1, 11, 8	43, 79, 12
	9	(untitled)	Single	1, 12, 7	62, 76, 33
	10	(untitled)	Single	4, 5, 11	35, 92, 11

Intergreen Matrix for Controller Stream 1

		To									
		A	B	C	D	E	F	G	H	I	J
From	A				6						
	B			5	5						
	C		5		7						
	D	9	9	9							
	E									5	5
	F									5	7
	G								5	5	7
	H							5			6
	I					5	5	5			5
	J					11	11	11	11	11	

Interstage Matrix for Controller Stream 1

		To										
		1	2	3	4	5	6	7	8	9	10	11	12
From	1	0	5	5	7	5	5	5	7	6	6	6	7
	2	5	0	5	7	5	5	5	7	6	6	6	7
	3	5	5	0	6	5	5	5	6	6	6	6	6
	4	11	11	11	0	11	11	11	5	11	11	11	6
	5	5	5	5	7	0	5	5	7	7	7	7	7
	6	5	5	5	7	5	0	5	7	7	7	7	7
	7	5	5	5	6	5	5	0	6	7	7	7	7
	8	11	11	11	5	11	11	11	0	11	11	11	7
	9	9	9	9	9	9	9	9	9	0	5	5	7
	10	9	9	9	9	9	9	9	9	5	0	5	7
	11	9	9	9	9	9	9	9	9	5	5	0	6
	12	11	11	11	9	11	11	11	9	11	11	11	0

Resultant Stages

Controller stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	1	✓	1	A,B,E,F,G	38	62	24	1	7
	2	✓	12	D,J	69	76	7	1	7
	3	✓	7	A,C,H,I	87	33	66	1	7

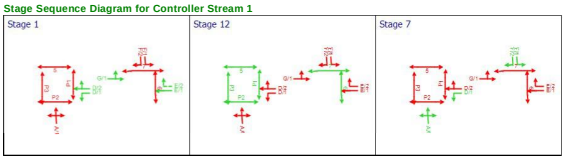
Resultant Phase Green Periods

Controller stream	Phase	Green period	Is base green period	Start time (s)	End time (s)	Duration (s)
1	A	1	✓	85	62	97
	B	1	✓	38	62	24
	C	1	✓	85	33	68
	D	1	✓	68	76	8
	E	1	✓	38	62	24
	F	1	✓	38	62	24
	G	1	✓	38	62	24
	H	1	✓	87	33	66
	I	1	✓	87	33	66
	J	1	✓	69	76	7

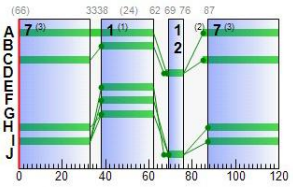
Traffic Stream Green Times

Arm	Traffic Stream	Traffic Node	Controller Stream	Phase	Green Period 1		
					Start	End	Duration
A	1	1	1	C	85	33	68
D	1	1	1	A	85	62	97
D	2	1	1	B	38	62	24
E	1	3	1	E	38	62	24
E	2	3	1	F	38	62	24
F	1	3	1	H	87	33	66
F	2	3	1	I	87	33	66
G	1	2	1	G	38	62	24

Stage Sequence Diagram for Controller Stream 1



Phase Timings Diagram for Controller Stream 1



Traffic Stream Results

Traffic Stream Results: Vehicle summary

Time Segment	Arm	Traffic Stream	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Mean Delay per Veh (s)	Mean max queue (PCU)	Utilised storage (%)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
08:15-09:15	A	1	63	43	641	1777	68	19.90	14.59	55.93	50.32	5.36	55.68
	Ax	1	0	Unrestricted	344	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	Bx	1	0	Unrestricted	394	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	Cx	1	0	Unrestricted	162	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	D	1	22	305	344	1897	97	0.89	0.40	2.53	1.20	0.15	1.35
		2	41	119	174	2036	24	33.06	3.88	27.87	22.69	1.46	24.15
	E	1	46	96	197	2055	24	45.16	5.94	284.66	35.09	2.20	37.29
		2	5	1784	20	2010	24	38.22	0.53	25.35	3.01	0.20	3.21
	F	1	37	145	360	1752	66	15.66	5.88	84.56	22.23	2.21	24.44
		2	31	193	321	1874	66	14.86	5.33	61.28	18.82	2.00	20.82
	Fx	1	0	Unrestricted	602	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	G	1	65	39	259	1921	24	53.57	9.28	59.29	54.73	3.46	58.19
	E1	1	11	752	217	2055	120	0.10	0.01	0.02	0.09	0.00	0.09
	F1	1	0	Unrestricted	681	Unrestricted	120	0.15	1.51	7.91	0.40	0.38	0.78
	12	1	0	Unrestricted	37	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00

Traffic Stream Results: Flows and signals

Time Segment	Arm	Traffic Stream	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Calculated sat flow (PCU/hr)	Calculated capacity (PCU/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))	Effec gree (pe cycl
08:15-09:15	A	1	641	641	0		1777	1022	63		43	0.00	68	69
	Ax	1	344	344	0		Unrestricted	Unrestricted	0		Unrestricted	0.61	120	12
	Bx	1	394	394	0		Unrestricted	Unrestricted	0		Unrestricted	0.60	120	12
	Cx	1	162	162	0		Unrestricted	Unrestricted	0		Unrestricted	0.69	120	12
	D	1	344	344	0		1897	1549	22		305	0.95	97	98
		2	174	174	0		2036	424	41		119	0.95	24	25
	E	1	197	197	0		2055	428	46		96	0.00	24	25
		2	20	20	0		2010	419	5		1784	0.00	24	25
	F	1	360	360	0		1752	978	37		145	0.06	66	67
		2	321	321	0		1874	1046	31		193	0.06	66	67
	Fx	1	602	602	0		Unrestricted	Unrestricted	0		Unrestricted	0.30	120	12
	G	1	259	259	0		1921	400	65		39	0.85	24	25
	E1	1	217	217	0		2055	2055	11		752	0.00	120	12
	F1	1	681	681	0		Unrestricted	Unrestricted	0		Unrestricted	0.00	120	12
	12	1	37	37	0		Unrestricted	Unrestricted	0		Unrestricted	1.17	120	12

Traffic Stream Results: Stops and delays

Time Segment	Arm	Traffic Stream	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Uniform delay (PCU-hr/hr)	Random plus oversat delay (PCU-hr/hr)	Unweighted cost of delay (£ per hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Uniform stops (Stops per hr)	Random stops (Stops per hr)	Unweighted cost of stops (£ per hr)	Weighted cost of stops (£ per hr)
08:15-09:15	A	1	18.00	19.90	3.02	0.52	50.32	50.32	66.73	412.09	15.65	5.36	5.36
	Ax	1	24.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Bx	1	18.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Cx	1	13.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	D	1	10.80	0.89	0.05	0.03	1.20	1.20	3.45	10.92	0.95	0.15	0.15
		2	9.60	33.06	1.46	0.14	22.69	22.69	66.83	112.05	4.24	1.46	1.46
	E	1	1.44	45.16	2.28	0.20	35.09	35.09	88.94	169.41	5.81	2.20	2.20
		2	1.44	38.22	0.21	0.00	3.01	3.01	78.36	15.64	0.04	0.20	0.20
	F	1	4.80	15.66	1.46	0.11	22.23	22.23	49.02	173.26	3.20	2.21	2.21
		2	6.00	14.86	1.26	0.07	18.82	18.82	49.80	157.82	2.03	2.00	2.00
	Fx	1	72.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	G	1	10.80	53.57	3.27	0.58	54.73	54.73	106.66	259.04	17.21	3.46	3.46
	E1	1	24.00	0.10	0.00	0.01	0.09	0.09	0.00	0.00	0.00	0.00	0.00
	F1	1	13.20	0.15	0.03	0.00	0.40	0.40	4.50	30.63	0.00	0.38	0.38
	12	1	46.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Traffic Stream Results: Queues and blocking

Time Segment	Arm	Traffic Stream	Initial queue (PCU)	Mean max queue (PCU)	Max queue storage (PCU)	Utilised storage (%)	Average storage excess queue (PCU)	Average limit excess queue (PCU)	Excess queue penalty (£ per hr)	Max end of green queue (PCU)	Max end of red queue (PCU)	Wasted time starvation (s (per cycle))	Wasted time blocking back (s (per cycle))	Wasted time total (s (per cycle))	Estimated blocking
08:15-09:15	A	1	0.00	14.59	26.09	55.93	0.00	0.00	0.00	0.52	9.61	0.00	0.00	0.00	
	Ax	1	0.00	0.00	34.78	0.00	0.00	0.00	0.00			9.00	0.00	9.00	
	Bx	1	0.00	0.00	26.09	0.00	0.00	0.00	0.00			14.00	0.00	14.00	
	Cx	1	0.00	0.00	19.13	0.00	0.00	0.00	0.00			38.00	0.00	38.00	
	D	1	0.00	0.40	15.65	2.53	0.00	0.00	0.00	0.03	0.40	15.00	0.00	15.00	
		2	0.00	3.88	13.91	27.87	0.00	0.00	0.00	0.14	3.82	1.00	0.00	1.00	
	E	1	0.00	5.94	2.09	284.66	1.15	0.00	0.00	0.20	5.39	0.00	0.00	0.00	
		2	0.00	0.53	2.09	25.35	0.00	0.00	0.00	0.00	0.53	24.00	0.00	24.00	
	F	1	0.00	5.88	6.96	84.56	0.00	0.00	0.00	0.11	5.71	0.00	0.00	0.00	
		2	0.00	5.33	8.70	61.28	0.00	0.00	0.00	0.07	5.06	0.00	0.00	0.00	
	Fx	1	0.00	0.00	104.35	0.00	0.00	0.00	0.00			0.00	0.00	0.00	
	G	1	0.00	9.28	15.65	59.29	0.00	0.00	0.00	0.58	9.15	8.00	0.00	8.00	
	E1	1	0.00	0.01	34.78	0.02	0.00	0.00	0.00			0.00	71.00	71.00	
	F1	1	0.00	1.51	19.13	7.91	0.00	0.00	0.00			0.00	8.00	8.00	
	12	1	0.00	0.00	67.65	0.00	0.00	0.00	0.00			90.00	0.00	90.00	

Final Prediction Table

Traffic Stream Results

			SIGNALS			FLOWS		PERFORMANCE				PER PCU			QUEUE	
Arm	Traffic Stream	Name	Traffic node	Controller stream	Phase	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Wasted time total (s (per cycle))	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Veh (s)	Mean stops per Veh (%)	Mean max queue (PCU)	M e of qu (P
A	1	(untitled)	1	1	C	641	1777	68	0.00	63	43	37.90	19.90	66.73	14.59	9.
Ax	1	(untitled)				344	Unrestricted	120	9.00	0	Unrestricted	24.00	0.00	0.00	0.00	
Bx	1	(untitled)				394	Unrestricted	120	14.00	0	Unrestricted	18.00	0.00	0.00	0.00	
Cx	1	(untitled)				162	Unrestricted	120	38.00	0	Unrestricted	13.20	0.00	0.00	0.00	
D	1	(untitled)	1	1	A	344	1897	97	15.00	22	305	11.69	0.89	3.45	0.40	0.
	2	(untitled)	1	1	B	174	2036	24	1.00	41	119	42.66	33.06	66.83	3.88	3.
E	1	(untitled)	3	1	E	197 <	2055	24	0.00	46	96	46.60	45.16	88.94	5.94 +	5.
	2	(untitled)	3	1	F	20	2010	24	24.00	5	1784	39.66	38.22	78.36	0.53	0.
F	1	(untitled)	3	1	H	360	1752	66	0.00	37	145	20.46	15.66	49.02	5.88	5.
	2	(untitled)	3	1	I	321	1874	66	0.00	31	193	20.86	14.86	49.80	5.33	5.
Fx	1	(untitled)				602	Unrestricted	120	0.00	0	Unrestricted	72.00	0.00	0.00	0.00	
G	1	(untitled)	2	1	G	259	1921	24	8.00	65	39	64.37	53.57	106.66	9.28	9.
E1	1	(untitled)	2			217	2055	120	71.00	11	752	24.10	0.10	0.00	0.01	
F1	1	(untitled)	2			681	Unrestricted	120	8.00	0	Unrestricted	13.35	0.15	4.50	1.51	
12	1	(untitled)				37	Unrestricted	120	90.00	0	Unrestricted	46.68	0.00	0.00	0.00	

Network Results

	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	Uniform delay (PCU-hr/hr)	Random plus oversat delay (PCU-hr/hr)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Excess queue penalty (£ per hr)	Performance Index (£ per hr)
Normal traffic	837.02	42.59	19.65	13.03	1.66	208.59	17.43	0.00	226.02
Bus	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tram	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pedestrians	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	837.02	42.59	19.65	13.03	1.66	208.59	17.43	0.00	226.02

- *< = adjusted flow warning (upstream links/traffic streams are over-saturated)*
- ** = Traffic Stream - Normal, Bus or Tram Stop or Delay weighting has been set to a value other than 100%*
- *^ = Traffic Stream - Normal, Bus or Tram Stop or Delay Path weighting has been set to a value other than 100%*
- *+ = average link/traffic stream excess queue is greater than 0*
- ***P.I. = PERFORMANCE INDEX***

A4 - 2026 DM PM
D4 - 2026 PM*

Summary

Data Errors and Warnings

No errors or warnings

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (£ per hr)	Total network delay (PCU-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Ite wit wor over PR
4	08/10/2019 12:55:33	08/10/2019 12:55:36	17:45	120	222.03	14.46	61.10	E/1	0	0	E/1	E1/1	E/

Analysis Set Details

Name	Description	Demand set	Include in report	Locked
2026 DM PM		D4	✓	

Demand Set Details

Name	Description	Composite	Demand sets	Start time (HH:mm)	Locked
2026 PM				17:45	

Signal Timings

Network Default: 120s cycle time; 120 steps

Controller Stream

Controller stream	Name	Description	Use sequence	Cycle time source	Cycle time (s)
1	(untitled)		9	NetworkDefault	120

Controller Stream - Properties

Controller stream	Manufacturer name	Type	Model number	(Telephone) Line Number	Site number	Grid reference	Gaining delay type
1	Unspecified						Absolute

Controller Stream - Optimisation

Controller stream	Allow offset optimisation	Allow green split optimisation	Optimisation level	Auto redistribute	Enable stage constraint
1	✓	✓	Offsets And Green Splits	✓	

Phases

Controller stream	Phase	Name	Minimum green (s)	Maximum green (s)	Relative start displacement (s)	Relative end displacement (s)	Type	Blackout Time (s)
1	A	(untitled)	7	300	0	0	Traffic	
	B	(untitled)	7	300	0	0	Traffic	
	C	(untitled)	6	300	0	0	Traffic	
	D	(untitled)	7	300	0	0	Pedestrian	0
	E	(untitled)	7	300	0	0	Traffic	
	F	(untitled)	7	300	0	0	Traffic	
	G	(untitled)	7	300	0	0	Traffic	
	H	(untitled)	7	300	0	0	Traffic	
	I	(untitled)	7	300	0	0	Traffic	
	J	(untitled)	7	300	0	0	Pedestrian	0

Library Stages

Controller stream	Library stage	Phases in stage	User stage minimum (s)
1	1	A, B, E, F, G	1
	2	A, B, E, F, H	1
	3	A, B, H, I	1
	4	A, B, J	1
	5	A, C, E, F, G	1
	6	A, C, E, F, H	1
	7	A, C, H, I	1
	8	A, C, J	1
	9	D, E, F, G	1
	10	D, E, F, H	1
	11	D, H, I	1
	12	D, J	1

Stage Sequences

Controller stream	Sequence	Name	Multiple cycling	Stage IDs	Stage ends
1	1	(untitled)	Single	4, 11, 5	38, 82, 19
	2	(untitled)	Single	4, 9, 7	40, 72, 20
	3	(untitled)	Single	4, 7, 9	19, 90, 115
	4	(untitled)	Single	3, 12, 5	62, 75, 18
	5	(untitled)	Single	3, 8, 9	28, 79, 109
	6	(untitled)	Single	3, 9, 8	52, 75, 10
	7	(untitled)	Single	1, 7, 12	8, 80, 94
	8	(untitled)	Single	1, 11, 8	43, 79, 12
	9	(untitled)	Single	1, 12, 7	62, 76, 17
	10	(untitled)	Single	4, 5, 11	35, 92, 11

Intergreen Matrix for Controller Stream 1

From \ To	A	B	C	D	E	F	G	H	I	J
A				6						
B			5	5						
C		5		7						
D	9	9	9							
E									5	5
F									5	7
G								5	5	7
H							5			6
I					5	5	5			5
J					11	11	11	11	11	

Interstage Matrix for Controller Stream 1

From \ To	1	2	3	4	5	6	7	8	9	10	11	12
1	0	5	5	7	5	5	5	7	6	6	6	7
2	5	0	5	7	5	5	5	7	6	6	6	7
3	5	5	0	6	5	5	5	6	6	6	6	6
4	11	11	11	0	11	11	11	5	11	11	11	6
5	5	5	5	7	0	5	5	7	7	7	7	7
6	5	5	5	7	5	0	5	7	7	7	7	7
7	5	5	5	6	5	5	0	6	7	7	7	7
8	11	11	11	5	11	11	11	0	11	11	11	7
9	9	9	9	9	9	9	9	9	0	5	5	7
10	9	9	9	9	9	9	9	9	5	0	5	7
11	9	9	9	9	9	9	9	9	5	5	0	6
12	11	11	11	9	11	11	11	9	11	11	11	0

Resultant Stages

Controller stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	1	✓	1	A,B,E,F,G	22	62	40	1	7
	2	✓	12	D,J	69	76	7	1	7
	3	✓	7	A,C,H,I	87	17	50	1	7

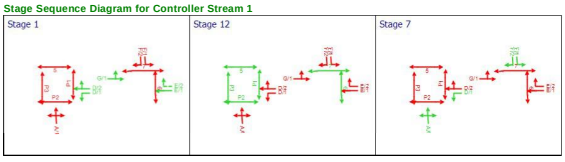
Resultant Phase Green Periods

Controller stream	Phase	Green period	Is base green period	Start time (s)	End time (s)	Duration (s)
1	A	1	✓	85	62	97
	B	1	✓	22	62	40
	C	1	✓	85	17	52
	D	1	✓	68	76	8
	E	1	✓	22	62	40
	F	1	✓	22	62	40
	G	1	✓	22	62	40
	H	1	✓	87	17	50
	I	1	✓	87	17	50
	J	1	✓	69	76	7

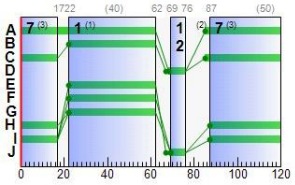
Traffic Stream Green Times

Arm	Traffic Stream	Traffic Node	Controller Stream	Phase	Green Period 1		
					Start	End	Duration
A	1	1	1	C	85	17	52
D	1	1	1	A	85	62	97
D	2	1	1	B	22	62	40
E	1	3	1	E	22	62	40
E	2	3	1	F	22	62	40
F	1	3	1	H	87	17	50
F	2	3	1	I	87	17	50
G	1	2	1	G	22	62	40

Stage Sequence Diagram for Controller Stream 1



Phase Timings Diagram for Controller Stream 1



Traffic Stream Results

Traffic Stream Results: Vehicle summary

Time Segment	Arm	Traffic Stream	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Mean Delay per Veh (s)	Mean max queue (PCU)	Utilised storage (%)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
17:45-18:45	A	1	57	57	451	1777	52	28.15	11.54	44.22	50.07	4.27	54.34
	Ax	1	0	Unrestricted	542	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	Bx	1	0	Unrestricted	423	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	Cx	1	0	Unrestricted	102	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	D	1	35	157	542	1897	97	1.43	1.54	9.86	3.07	0.34	3.41
		2	36	153	247	2036	40	20.22	4.17	29.96	19.70	1.57	21.27
	E	1	61	47	429	2055	40	36.86	12.27	588.11	62.38	4.55	66.93
		2	2	5560	11	2025	40	26.38	0.24	11.57	1.14	0.09	1.23
	F	1	11	738	80	1752	50	21.10	1.58	22.78	6.66	0.60	7.25
		2	45	99	360	1874	50	26.55	8.19	94.23	37.70	3.08	40.78
	Fx	1	0	Unrestricted	243	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	G	1	26	241	173	1921	40	35.48	5.85	37.38	24.21	2.19	26.40
	E1	1	21	320	440	2055	120	0.24	0.03	0.08	0.41	0.00	0.41
	F1	1	0	Unrestricted	440	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	12	1	0	Unrestricted	21	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00

Traffic Stream Results: Flows and signals

Time Segment	Arm	Traffic Stream	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Calculated sat flow (PCU/hr)	Calculated capacity (PCU/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))	Effec gree (pe cycl
17:45-18:45	A	1	451	451	0		1777	785	57		57	0.00	52	53
	Ax	1	542	542	0		Unrestricted	Unrestricted	0		Unrestricted	0.63	120	12
	Bx	1	423	423	0		Unrestricted	Unrestricted	0		Unrestricted	0.65	120	12
	Cx	1	102	102	0		Unrestricted	Unrestricted	0		Unrestricted	0.92	120	12
	D	1	542	542	0		1897	1549	35		157	0.93	97	98
		2	247	247	0		2036	696	36		153	0.93	40	41
	E	1	429	429	0		2055	702	61		47	0.00	40	41
		2	11	11	0		2025	692	2		5560	0.00	40	41
	F	1	80	80	0		1752	745	11		738	0.00	50	51
		2	360	360	0		1874	796	45		99	0.00	50	51
	Fx	1	243	243	0		Unrestricted	Unrestricted	0		Unrestricted	0.56	120	12
	G	1	173	173	0		1921	656	26		241	1.12	40	41
	E1	1	440	440	0		2055	2055	21		320	0.00	120	12
	F1	1	440	440	0		Unrestricted	Unrestricted	0		Unrestricted	0.00	120	12
	12	1	21	21	0		Unrestricted	Unrestricted	0		Unrestricted	1.11	120	12

Traffic Stream Results: Stops and delays

Time Segment	Arm	Traffic Stream	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Uniform delay (PCU-hr/hr)	Random plus oversat delay (PCU-hr/hr)	Unweighted cost of delay (£ per hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Uniform stops (Stops per hr)	Random stops (Stops per hr)	Unweighted cost of stops (£ per hr)	Weighted cost of stops (£ per hr)
17:45-18:45	A	1	18.00	28.15	3.14	0.39	50.07	50.07	75.46	328.83	11.50	4.27	4.27
	Ax	1	24.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Bx	1	18.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Cx	1	13.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	D	1	10.80	1.43	0.12	0.09	3.07	3.07	5.06	24.58	2.82	0.34	0.34
		2	9.60	20.22	1.29	0.10	19.70	19.70	50.62	122.11	2.92	1.57	1.57
	E	1	1.44	36.86	3.92	0.48	62.38	62.38	84.66	349.01	14.16	4.55	4.55
		2	1.44	26.38	0.08	0.00	1.14	1.14	64.88	7.13	0.00	0.09	0.09
	F	1	4.80	21.10	0.46	0.01	6.66	6.66	59.39	47.32	0.19	0.60	0.60
		2	6.00	26.55	2.47	0.19	37.70	37.70	68.26	240.19	5.55	3.08	3.08
	Fx	1	72.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	G	1	10.80	35.48	1.66	0.05	24.21	24.21	100.82	173.00	1.41	2.19	2.19
	E1	1	24.00	0.24	0.00	0.03	0.41	0.41	0.00	0.00	0.00	0.00	0.00
	F1	1	13.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	12	1	46.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Traffic Stream Results: Queues and blocking

Time Segment	Arm	Traffic Stream	Initial queue (PCU)	Mean max queue (PCU)	Max queue storage (PCU)	Utilised storage (%)	Average storage excess queue (PCU)	Average limit excess queue (PCU)	Excess queue penalty (£ per hr)	Max end of green queue (PCU)	Max end of red queue (PCU)	Wasted time starvation (s (per cycle))	Wasted time blocking back (s (per cycle))	Wasted time total (s (per cycle))	Estimated blocking
17:45-18:45	A	1	0.00	11.54	26.09	44.22	0.00	0.00	0.00	0.39	8.78	0.00	0.00	0.00	
	Ax	1	0.00	0.00	34.78	0.00	0.00	0.00	0.00			7.00	0.00	7.00	
	Bx	1	0.00	0.00	26.09	0.00	0.00	0.00	0.00			16.00	0.00	16.00	
	Cx	1	0.00	0.00	19.13	0.00	0.00	0.00	0.00			66.00	0.00	66.00	
	D	1	0.00	1.54	15.65	9.86	0.00	0.00	0.00	0.09	0.91	14.00	0.00	14.00	
		2	0.00	4.17	13.91	29.96	0.00	0.00	0.00	0.10	4.11	1.00	0.00	1.00	
	E	1	0.00	12.27	2.09	588.11	3.67	0.00	0.00	0.48	9.89	0.00	0.00	0.00	
		2	0.00	0.24	2.09	11.57	0.00	0.00	0.00	0.00	0.24	40.00	0.00	40.00	
	F	1	0.00	1.58	6.96	22.78	0.00	0.00	0.00	0.01	1.56	0.00	0.00	0.00	
		2	0.00	8.19	8.70	94.23	0.00	0.00	0.00	0.19	7.57	0.00	0.00	0.00	
	Fx	1	0.00	0.00	104.35	0.00	0.00	0.00	0.00			1.00	0.00	1.00	
	G	1	0.00	5.85	15.65	37.38	0.00	0.00	0.00	0.05	5.67	29.00	0.00	29.00	
	E1	1	0.00	0.03	34.78	0.08	0.00	0.00	0.00			0.00	86.00	86.00	
	F1	1	0.00	0.00	19.13	0.00	0.00	0.00	0.00			0.00	0.00	0.00	
	12	1	0.00	0.00	67.65	0.00	0.00	0.00	0.00			102.00	0.00	102.00	

Final Prediction Table

Traffic Stream Results

				SIGNALS		FLOWS		PERFORMANCE				PER PCU			QUEUE	
Arm	Traffic Stream	Name	Traffic node	Controller stream	Phase	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Wasted time total (s (per cycle))	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Veh (s)	Mean stops per Veh (%)	Mean max queue (PCU)	M e of qu (P
A	1	(untitled)	1	1	C	451	1777	52	0.00	57	57	46.15	28.15	75.46	11.54	8.
Ax	1	(untitled)				542	Unrestricted	120	7.00	0	Unrestricted	24.00	0.00	0.00	0.00	
Bx	1	(untitled)				423	Unrestricted	120	16.00	0	Unrestricted	18.00	0.00	0.00	0.00	
Cx	1	(untitled)				102	Unrestricted	120	66.00	0	Unrestricted	13.20	0.00	0.00	0.00	
D	1	(untitled)	1	1	A	542	1897	97	14.00	35	157	12.23	1.43	5.06	1.54	0.
	2	(untitled)	1	1	B	247	2036	40	1.00	36	153	29.82	20.22	50.62	4.17	4.
E	1	(untitled)	3	1	E	429 <	2055	40	0.00	61	47	38.30	36.86	84.66	12.27 +	9.
	2	(untitled)	3	1	F	11	2025	40	40.00	2	5560	27.82	26.38	64.88	0.24	0.
F	1	(untitled)	3	1	H	80	1752	50	0.00	11	738	25.90	21.10	59.39	1.58	1.
	2	(untitled)	3	1	I	360	1874	50	0.00	45	99	32.55	26.55	68.26	8.19	7.
Fx	1	(untitled)				243	Unrestricted	120	1.00	0	Unrestricted	72.00	0.00	0.00	0.00	
G	1	(untitled)	2	1	G	173	1921	40	29.00	26	241	46.28	35.48	100.82	5.85	5.
E1	1	(untitled)	2			440	2055	120	86.00	21	320	24.24	0.24	0.00	0.03	
F1	1	(untitled)	2			440	Unrestricted	120	0.00	0	Unrestricted	13.20	0.00	0.00	0.00	
12	1	(untitled)				21	Unrestricted	120	102.00	0	Unrestricted	46.68	0.00	0.00	0.00	

Network Results

	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	Uniform delay (PCU-hr/hr)	Random plus oversat delay (PCU-hr/hr)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Excess queue penalty (£ per hr)	Performance Index (£ per hr)
Normal traffic	651.68	36.18	18.01	13.14	1.32	205.34	16.69	0.00	222.03
Bus	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tram	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pedestrians	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	651.68	36.18	18.01	13.14	1.32	205.34	16.69	0.00	222.03

- *< = adjusted flow warning (upstream links/traffic streams are over-saturated)*
- ** = Traffic Stream - Normal, Bus or Tram Stop or Delay weighting has been set to a value other than 100%*
- *^ = Traffic Stream - Normal, Bus or Tram Stop or Delay Path weighting has been set to a value other than 100%*
- *+ = average link/traffic stream excess queue is greater than 0*
- ***P.I. = PERFORMANCE INDEX***

A5 - 2036 DM AM
D5 - 2036 AM*

Summary

Data Errors and Warnings

No errors or warnings

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (£ per hr)	Total network delay (PCU-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Ite wit wor over PR
5	08/10/2019 12:55:36	08/10/2019 12:55:41	08:15	120	264.57	17.20	70.21	A/1	0	0	A/1	E1/1	A/

Analysis Set Details

Name	Description	Demand set	Include in report	Locked
2036 DM AM		D5	✓	

Demand Set Details

Name	Description	Composite	Demand sets	Start time (HH:mm)	Locked
2036 AM				08:15	

Signal Timings

Network Default: 120s cycle time; 120 steps

Controller Stream

Controller stream	Name	Description	Use sequence	Cycle time source	Cycle time (s)
1	(untitled)		9	NetworkDefault	120

Controller Stream - Properties

Controller stream	Manufacturer name	Type	Model number	(Telephone) Line Number	Site number	Grid reference	Gaining delay type
1	Unspecified						Absolute

Controller Stream - Optimisation

Controller stream	Allow offset optimisation	Allow green split optimisation	Optimisation level	Auto redistribute	Enable stage constraint
1	✓	✓	Offsets And Green Splits	✓	

Phases

Controller stream	Phase	Name	Minimum green (s)	Maximum green (s)	Relative start displacement (s)	Relative end displacement (s)	Type	Blackout Time (s)
1	A	(untitled)	7	300	0	0	Traffic	
	B	(untitled)	7	300	0	0	Traffic	
	C	(untitled)	6	300	0	0	Traffic	
	D	(untitled)	7	300	0	0	Pedestrian	0
	E	(untitled)	7	300	0	0	Traffic	
	F	(untitled)	7	300	0	0	Traffic	
	G	(untitled)	7	300	0	0	Traffic	
	H	(untitled)	7	300	0	0	Traffic	
	I	(untitled)	7	300	0	0	Traffic	
	J	(untitled)	7	300	0	0	Pedestrian	0

Library Stages

Controller stream	Library stage	Phases in stage	User stage minimum (s)
1	1	A, B, E, F, G	1
	2	A, B, E, F, H	1
	3	A, B, H, I	1
	4	A, B, J	1
	5	A, C, E, F, G	1
	6	A, C, E, F, H	1
	7	A, C, H, I	1
	8	A, C, J	1
	9	D, E, F, G	1
	10	D, E, F, H	1
	11	D, H, I	1
	12	D, J	1

Stage Sequences

Controller stream	Sequence	Name	Multiple cycling	Stage IDs	Stage ends
1	1	(untitled)	Single	4, 11, 5	38, 82, 19
	2	(untitled)	Single	4, 9, 7	40, 72, 20
	3	(untitled)	Single	4, 7, 9	19, 90, 115
	4	(untitled)	Single	3, 12, 5	62, 75, 18
	5	(untitled)	Single	3, 8, 9	28, 79, 109
	6	(untitled)	Single	3, 9, 8	52, 75, 10
	7	(untitled)	Single	1, 7, 12	8, 80, 94
	8	(untitled)	Single	1, 11, 8	43, 79, 12
	9	(untitled)	Single	1, 12, 7	62, 76, 32
	10	(untitled)	Single	4, 5, 11	35, 92, 11

Intergreen Matrix for Controller Stream 1

From \ To	A	B	C	D	E	F	G	H	I	J
A				6						
B			5	5						
C		5		7						
D	9	9	9							
E									5	5
F									5	7
G								5	5	7
H							5			6
I					5	5	5			5
J					11	11	11	11	11	

Interstage Matrix for Controller Stream 1

		To										
		1	2	3	4	5	6	7	8	9	10	11	12
From	1	0	5	5	7	5	5	5	7	6	6	6	7
	2	5	0	5	7	5	5	5	7	6	6	6	7
	3	5	5	0	6	5	5	5	6	6	6	6	6
	4	11	11	11	0	11	11	11	5	11	11	11	6
	5	5	5	5	7	0	5	5	7	7	7	7	7
	6	5	5	5	7	5	0	5	7	7	7	7	7
	7	5	5	5	6	5	5	0	6	7	7	7	7
	8	11	11	11	5	11	11	11	0	11	11	11	7
	9	9	9	9	9	9	9	9	9	0	5	5	7
	10	9	9	9	9	9	9	9	9	5	0	5	7
	11	9	9	9	9	9	9	9	9	5	5	0	6
	12	11	11	11	9	11	11	11	9	11	11	11	0

Resultant Stages

Controller stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	1	✓	1	A,B,E,F,G	37	62	25	1	7
	2	✓	12	D,J	69	76	7	1	7
	3	✓	7	A,C,H,I	87	32	65	1	7

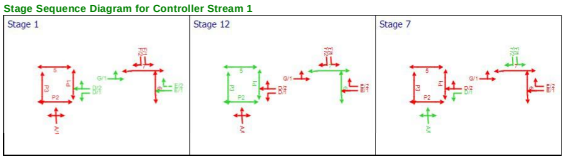
Resultant Phase Green Periods

Controller stream	Phase	Green period	Is base green period	Start time (s)	End time (s)	Duration (s)
1	A	1	✓	85	62	97
	B	1	✓	37	62	25
	C	1	✓	85	32	67
	D	1	✓	68	76	8
	E	1	✓	37	62	25
	F	1	✓	37	62	25
	G	1	✓	37	62	25
	H	1	✓	87	32	65
	I	1	✓	87	32	65
	J	1	✓	69	76	7

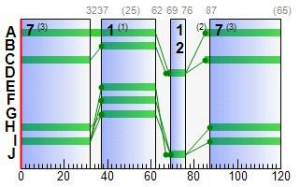
Traffic Stream Green Times

Arm	Traffic Stream	Traffic Node	Controller Stream	Phase	Green Period 1		
					Start	End	Duration
A	1	1	1	C	85	32	67
D	1	1	1	A	85	62	97
D	2	1	1	B	37	62	25
E	1	3	1	E	37	62	25
E	2	3	1	F	37	62	25
F	1	3	1	H	87	32	65
F	2	3	1	I	87	32	65
G	1	2	1	G	37	62	25

Stage Sequence Diagram for Controller Stream 1



Phase Timings Diagram for Controller Stream 1



Traffic Stream Results

Traffic Stream Results: Vehicle summary

Time Segment	Arm	Traffic Stream	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Mean Delay per Veh (s)	Mean max queue (PCU)	Utilised storage (%)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
08:15-09:15	A	1	70	28	707	1777	67	22.88	17.71	67.88	63.82	6.48	70.30
	Ax	1	0	Unrestricted	377	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	Bx	1	0	Unrestricted	434	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	Cx	1	0	Unrestricted	171	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	D	1	24	270	377	1897	97	0.92	0.43	2.77	1.37	0.16	1.54
		2	43	110	189	2036	25	32.74	4.24	30.46	24.41	1.59	26.00
	E	1	48	88	213	2055	25	44.76	6.37	305.30	37.61	2.37	39.98
		2	5	1680	22	2008	25	37.46	0.58	27.88	3.25	0.22	3.47
	F	1	43	110	413	1752	65	16.17	5.96	85.64	26.34	2.24	28.58
		2	34	163	353	1874	65	15.24	5.24	60.26	21.22	1.97	23.19
	Fx	1	0	Unrestricted	679	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	G	1	70	29	291	1921	25	54.59	10.49	67.04	62.66	3.94	66.60
	E1	1	11	687	235	2055	120	0.11	0.01	0.02	0.10	0.00	0.10
	F1	1	0	Unrestricted	766	Unrestricted	120	1.13	4.47	23.36	3.42	1.40	4.83
	12	1	0	Unrestricted	47	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00

Traffic Stream Results: Flows and signals

Time Segment	Arm	Traffic Stream	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Calculated sat flow (PCU/hr)	Calculated capacity (PCU/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))	Effec gree (pe cycl
08:15-09:15	A	1	707	707	0		1777	1007	70		28	0.00	67	68
	Ax	1	377	377	0		Unrestricted	Unrestricted	0		Unrestricted	0.60	120	12
	Bx	1	434	434	0		Unrestricted	Unrestricted	0		Unrestricted	0.57	120	12
	Cx	1	171	171	0		Unrestricted	Unrestricted	0		Unrestricted	0.71	120	12
	D	1	377	377	0		1897	1549	24		270	0.93	97	98
		2	189	189	0		2036	441	43		110	0.93	25	26
	E	1	213	213	0		2055	445	48		88	0.00	25	26
		2	22	22	0		2008	435	5		1680	0.00	25	26
	F	1	413	413	0		1752	964	43		110	0.20	65	66
		2	353	353	0		1874	1031	34		163	0.20	65	66
	Fx	1	679	679	0		Unrestricted	Unrestricted	0		Unrestricted	0.29	120	12
	G	1	291	291	0		1921	416	70		29	0.87	25	26
	E1	1	235	235	0		2055	2055	11		687	0.00	120	12
	F1	1	766	766	0		Unrestricted	Unrestricted	0		Unrestricted	0.00	120	12
	12	1	47	47	0		Unrestricted	Unrestricted	0		Unrestricted	1.15	120	12

Traffic Stream Results: Stops and delays

Time Segment	Arm	Traffic Stream	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Uniform delay (PCU-hr/hr)	Random plus oversat delay (PCU-hr/hr)	Unweighted cost of delay (£ per hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Uniform stops (Stops per hr)	Random stops (Stops per hr)	Unweighted cost of stops (£ per hr)	Weighted cost of stops (£ per hr)
08:15-09:15	A	1	18.00	22.88	3.67	0.82	63.82	63.82	73.10	492.44	24.36	6.48	6.48
	Ax	1	24.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Bx	1	18.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Cx	1	13.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	D	1	10.80	0.92	0.06	0.04	1.37	1.37	3.45	11.83	1.17	0.16	0.16
		2	9.60	32.74	1.56	0.16	24.41	24.41	67.25	122.34	4.76	1.59	1.59
	E	1	1.44	44.76	2.43	0.22	37.61	37.61	88.72	182.48	6.49	2.37	2.37
		2	1.44	37.46	0.23	0.00	3.25	3.25	78.27	17.18	0.04	0.22	0.22
	F	1	4.80	16.17	1.69	0.16	26.34	26.34	43.27	173.91	4.80	2.24	2.24
		2	6.00	15.24	1.41	0.09	21.22	21.22	44.53	154.53	2.67	1.97	1.97
	Fx	1	72.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	G	1	10.80	54.59	3.62	0.79	62.66	62.66	108.02	291.00	23.33	3.94	3.94
	E1	1	24.00	0.11	0.00	0.01	0.10	0.10	0.00	0.00	0.00	0.00	0.00
	F1	1	13.20	1.13	0.24	0.00	3.42	3.42	14.61	111.92	0.00	1.40	1.40
	12	1	46.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Traffic Stream Results: Queues and blocking

Time Segment	Arm	Traffic Stream	Initial queue (PCU)	Mean max queue (PCU)	Max queue storage (PCU)	Utilised storage (%)	Average storage excess queue (PCU)	Average limit excess queue (PCU)	Excess queue penalty (£ per hr)	Max end of green queue (PCU)	Max end of red queue (PCU)	Wasted time starvation (s (per cycle))	Wasted time blocking back (s (per cycle))	Wasted time total (s (per cycle))	Estimated blocking
08:15-09:15	A	1	0.00	17.71	26.09	67.88	0.00	0.00	0.00	0.82	11.03	0.00	0.00	0.00	
	Ax	1	0.00	0.00	34.78	0.00	0.00	0.00	0.00			9.00	0.00	9.00	
	Bx	1	0.00	0.00	26.09	0.00	0.00	0.00	0.00			14.00	0.00	14.00	
	Cx	1	0.00	0.00	19.13	0.00	0.00	0.00	0.00			37.00	0.00	37.00	
	D	1	0.00	0.43	15.65	2.77	0.00	0.00	0.00	0.04	0.43	15.00	0.00	15.00	
		2	0.00	4.24	13.91	30.46	0.00	0.00	0.00	0.16	4.17	1.00	0.00	1.00	
	E	1	0.00	6.37	2.09	305.30	1.31	0.00	0.00	0.22	5.78	0.00	0.00	0.00	
		2	0.00	0.58	2.09	27.88	0.00	0.00	0.00	0.00	0.58	24.00	0.00	24.00	
	F	1	0.00	5.96	6.96	85.64	0.00	0.00	0.00	0.16	5.96	0.00	0.00	0.00	
		2	0.00	5.24	8.70	60.26	0.00	0.00	0.00	0.09	5.24	0.00	0.00	0.00	
	Fx	1	0.00	0.00	104.35	0.00	0.00	0.00	0.00			0.00	0.00	0.00	
	G	1	0.00	10.49	15.65	67.04	0.00	0.00	0.00	0.79	10.49	6.00	0.00	6.00	
	E1	1	0.00	0.01	34.78	0.02	0.00	0.00	0.00			0.00	73.00	73.00	
	F1	1	0.00	4.47	19.13	23.36	0.00	0.00	0.00			0.00	21.00	21.00	
	12	1	0.00	0.00	67.65	0.00	0.00	0.00	0.00			86.00	0.00	86.00	

Final Prediction Table

Traffic Stream Results

			SIGNALS			FLOWS		PERFORMANCE				PER PCU			QUEUE	
Arm	Traffic Stream	Name	Traffic node	Controller stream	Phase	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Wasted time total (s (per cycle))	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Veh (s)	Mean stops per Veh (%)	Mean max queue (PCU)	M e of qu (P
A	1	(untitled)	1	1	C	707	1777	67	0.00	70	28	40.88	22.88	73.10	17.71	11
Ax	1	(untitled)				377	Unrestricted	120	9.00	0	Unrestricted	24.00	0.00	0.00	0.00	
Bx	1	(untitled)				434	Unrestricted	120	14.00	0	Unrestricted	18.00	0.00	0.00	0.00	
Cx	1	(untitled)				171	Unrestricted	120	37.00	0	Unrestricted	13.20	0.00	0.00	0.00	
D	1	(untitled)	1	1	A	377	1897	97	15.00	24	270	11.72	0.92	3.45	0.43	0.
	2	(untitled)	1	1	B	189	2036	25	1.00	43	110	42.34	32.74	67.25	4.24	4.
E	1	(untitled)	3	1	E	213 <	2055	25	0.00	48	88	46.20	44.76	88.72	6.37 +	5.
	2	(untitled)	3	1	F	22	2008	25	24.00	5	1680	38.90	37.46	78.27	0.58	0.
F	1	(untitled)	3	1	H	413	1752	65	0.00	43	110	20.97	16.17	43.27	5.96	5.
	2	(untitled)	3	1	I	353	1874	65	0.00	34	163	21.24	15.24	44.53	5.24	5.
Fx	1	(untitled)				679	Unrestricted	120	0.00	0	Unrestricted	72.00	0.00	0.00	0.00	
G	1	(untitled)	2	1	G	291	1921	25	6.00	70	29	65.39	54.59	108.02	10.49	10
E1	1	(untitled)	2			235	2055	120	73.00	11	687	24.11	0.11	0.00	0.01	
F1	1	(untitled)	2			766	Unrestricted	120	21.00	0	Unrestricted	14.33	1.13	14.61	4.47	
12	1	(untitled)				47	Unrestricted	120	86.00	0	Unrestricted	46.68	0.00	0.00	0.00	

Network Results

	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	Uniform delay (PCU-hr/hr)	Random plus oversat delay (PCU-hr/hr)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Excess queue penalty (£ per hr)	Performance Index (£ per hr)
Normal traffic	934.53	48.35	19.33	14.91	2.29	244.19	20.38	0.00	264.57
Bus	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tram	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pedestrians	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	934.53	48.35	19.33	14.91	2.29	244.19	20.38	0.00	264.57

- *< = adjusted flow warning (upstream links/traffic streams are over-saturated)*
- ** = Traffic Stream - Normal, Bus or Tram Stop or Delay weighting has been set to a value other than 100%*
- *^ = Traffic Stream - Normal, Bus or Tram Stop or Delay Path weighting has been set to a value other than 100%*
- *+ = average link/traffic stream excess queue is greater than 0*
- ***P.I. = PERFORMANCE INDEX***

A6 - 2036 DM PM
D6 - 2036 PM*

Summary

Data Errors and Warnings

No errors or warnings

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (£ per hr)	Total network delay (PCU-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Ite wit wor over PR
6	08/10/2019 12:55:41	08/10/2019 12:55:45	17:45	120	254.67	16.59	66.94	E/1	0	0	E/1	E1/1	E/

Analysis Set Details

Name	Description	Demand set	Include in report	Locked
2036 DM PM		D6	✓	

Demand Set Details

Name	Description	Composite	Demand sets	Start time (HH:mm)	Locked
2036 PM				17:45	

Signal Timings

Network Default: 120s cycle time; 120 steps

Controller Stream

Controller stream	Name	Description	Use sequence	Cycle time source	Cycle time (s)
1	(untitled)		9	NetworkDefault	120

Controller Stream - Properties

Controller stream	Manufacturer name	Type	Model number	(Telephone) Line Number	Site number	Grid reference	Gaining delay type
1	Unspecified						Absolute

Controller Stream - Optimisation

Controller stream	Allow offset optimisation	Allow green split optimisation	Optimisation level	Auto redistribute	Enable stage constraint
1	✓	✓	Offsets And Green Splits	✓	

Phases

Controller stream	Phase	Name	Minimum green (s)	Maximum green (s)	Relative start displacement (s)	Relative end displacement (s)	Type	Blackout Time (s)
1	A	(untitled)	7	300	0	0	Traffic	
	B	(untitled)	7	300	0	0	Traffic	
	C	(untitled)	6	300	0	0	Traffic	
	D	(untitled)	7	300	0	0	Pedestrian	0
	E	(untitled)	7	300	0	0	Traffic	
	F	(untitled)	7	300	0	0	Traffic	
	G	(untitled)	7	300	0	0	Traffic	
	H	(untitled)	7	300	0	0	Traffic	
	I	(untitled)	7	300	0	0	Traffic	
	J	(untitled)	7	300	0	0	Pedestrian	0

Library Stages

Controller stream	Library stage	Phases in stage	User stage minimum (s)
1	1	A, B, E, F, G	1
	2	A, B, E, F, H	1
	3	A, B, H, I	1
	4	A, B, J	1
	5	A, C, E, F, G	1
	6	A, C, E, F, H	1
	7	A, C, H, I	1
	8	A, C, J	1
	9	D, E, F, G	1
	10	D, E, F, H	1
	11	D, H, I	1
	12	D, J	1

Stage Sequences

Controller stream	Sequence	Name	Multiple cycling	Stage IDs	Stage ends
1	1	(untitled)	Single	4, 11, 5	38, 82, 19
	2	(untitled)	Single	4, 9, 7	40, 72, 20
	3	(untitled)	Single	4, 7, 9	19, 90, 115
	4	(untitled)	Single	3, 12, 5	62, 75, 18
	5	(untitled)	Single	3, 8, 9	28, 79, 109
	6	(untitled)	Single	3, 9, 8	52, 75, 10
	7	(untitled)	Single	1, 7, 12	8, 80, 94
	8	(untitled)	Single	1, 11, 8	43, 79, 12
	9	(untitled)	Single	1, 12, 7	62, 76, 17
	10	(untitled)	Single	4, 5, 11	35, 92, 11

Intergreen Matrix for Controller Stream 1

From \ To	A	B	C	D	E	F	G	H	I	J
A				6						
B			5	5						
C		5		7						
D	9	9	9							
E									5	5
F									5	7
G								5	5	7
H							5			6
I					5	5	5			5
J					11	11	11	11	11	

Interstage Matrix for Controller Stream 1

From \ To	1	2	3	4	5	6	7	8	9	10	11	12
1	0	5	5	7	5	5	5	7	6	6	6	7
2	5	0	5	7	5	5	5	7	6	6	6	7
3	5	5	0	6	5	5	5	6	6	6	6	6
4	11	11	11	0	11	11	11	5	11	11	11	6
5	5	5	5	7	0	5	5	7	7	7	7	7
6	5	5	5	7	5	0	5	7	7	7	7	7
7	5	5	5	6	5	5	0	6	7	7	7	7
8	11	11	11	5	11	11	11	0	11	11	11	7
9	9	9	9	9	9	9	9	9	0	5	5	7
10	9	9	9	9	9	9	9	9	5	0	5	7
11	9	9	9	9	9	9	9	9	5	5	0	6
12	11	11	11	9	11	11	11	9	11	11	11	0

Resultant Stages

Controller stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	1	✓	1	A,B,E,F,G	22	62	40	1	7
	2	✓	12	D,J	69	76	7	1	7
	3	✓	7	A,C,H,I	87	17	50	1	7

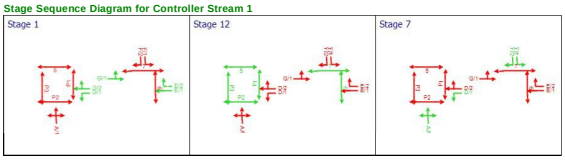
Resultant Phase Green Periods

Controller stream	Phase	Green period	Is base green period	Start time (s)	End time (s)	Duration (s)
1	A	1	✓	85	62	97
	B	1	✓	22	62	40
	C	1	✓	85	17	52
	D	1	✓	68	76	8
	E	1	✓	22	62	40
	F	1	✓	22	62	40
	G	1	✓	22	62	40
	H	1	✓	87	17	50
	I	1	✓	87	17	50
	J	1	✓	69	76	7

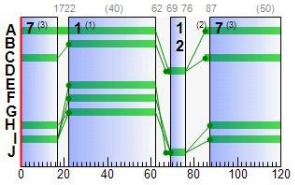
Traffic Stream Green Times

Arm	Traffic Stream	Traffic Node	Controller Stream	Phase	Green Period 1		
					Start	End	Duration
A	1	1	1	C	85	17	52
D	1	1	1	A	85	62	97
D	2	1	1	B	22	62	40
E	1	3	1	E	22	62	40
E	2	3	1	F	22	62	40
F	1	3	1	H	87	17	50
F	2	3	1	I	87	17	50
G	1	2	1	G	22	62	40

Stage Sequence Diagram for Controller Stream 1



Phase Timings Diagram for Controller Stream 1



Traffic Stream Results

Traffic Stream Results: Vehicle summary

Time Segment	Arm	Traffic Stream	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Mean Delay per Veh (s)	Mean max queue (PCU)	Utilised storage (%)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
17:45-18:45	A	1	63	43	494	1777	52	29.77	13.15	50.43	58.01	4.87	62.88
	Ax	1	0	Unrestricted	596	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	Bx	1	0	Unrestricted	467	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	Cx	1	0	Unrestricted	109	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	D	1	38	134	596	1897	97	1.53	1.57	10.03	3.61	0.38	3.99
		2	39	130	272	2036	40	20.42	4.66	33.49	21.91	1.75	23.66
	E	1	67	34	470	2055	40	38.85	13.99	670.19	72.02	5.18	77.20
		2	2	5086	12	2024	40	26.38	0.26	12.63	1.25	0.10	1.35
	F	1	13	577	99	1752	50	21.40	1.96	28.21	8.36	0.74	9.10
		2	50	80	398	1874	50	27.42	8.90	102.39	43.04	3.35	46.39
	Fx	1	0	Unrestricted	275	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	G	1	29	211	190	1921	40	35.34	6.39	40.84	26.49	2.40	28.89
	E1	1	23	284	482	2055	120	0.27	0.04	0.10	0.51	0.00	0.51
	F1	1	0	Unrestricted	497	Unrestricted	120	0.19	1.38	7.22	0.37	0.34	0.71
	12	1	0	Unrestricted	26	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00

Traffic Stream Results: Flows and signals

Time Segment	Arm	Traffic Stream	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Calculated sat flow (PCU/hr)	Calculated capacity (PCU/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))	Effec gree (pe cycl
17:45-18:45	A	1	494	494	0		1777	785	63		43	0.00	52	53
	Ax	1	596	596	0		Unrestricted	Unrestricted	0		Unrestricted	0.60	120	12
	Bx	1	467	467	0		Unrestricted	Unrestricted	0		Unrestricted	0.61	120	12
	Cx	1	109	109	0		Unrestricted	Unrestricted	0		Unrestricted	0.93	120	12
	D	1	596	596	0		1897	1549	38		134	0.88	97	98
		2	272	272	0		2036	696	39		130	0.88	40	41
	E	1	470	470	0		2055	702	67		34	0.00	40	41
		2	12	12	0		2024	692	2		5086	0.00	40	41
	F	1	99	99	0		1752	745	13		577	0.07	50	51
		2	398	398	0		1874	796	50		80	0.07	50	51
	Fx	1	275	275	0		Unrestricted	Unrestricted	0		Unrestricted	0.52	120	12
	G	1	190	190	0		1921	656	29		211	1.12	40	41
	E1	1	482	482	0		2055	2055	23		284	0.00	120	12
	F1	1	497	497	0		Unrestricted	Unrestricted	0		Unrestricted	0.00	120	12
	12	1	26	26	0		Unrestricted	Unrestricted	0		Unrestricted	1.11	120	12

Traffic Stream Results: Stops and delays

Time Segment	Arm	Traffic Stream	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Uniform delay (PCU-hr/hr)	Random plus oversat delay (PCU-hr/hr)	Unweighted cost of delay (£ per hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Uniform stops (Stops per hr)	Random stops (Stops per hr)	Unweighted cost of stops (£ per hr)	Weighted cost of stops (£ per hr)
17:45-18:45	A	1	18.00	29.77	3.56	0.53	58.01	58.01	78.56	372.29	15.78	4.87	4.87
	Ax	1	24.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Bx	1	18.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Cx	1	13.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	D	1	10.80	1.53	0.13	0.12	3.61	3.61	5.12	26.92	3.60	0.38	0.38
		2	9.60	20.42	1.42	0.13	21.91	21.91	51.38	136.01	3.74	1.75	1.75
	E	1	1.44	38.85	4.40	0.67	72.02	72.02	87.86	393.04	19.89	5.18	5.18
		2	1.44	26.38	0.09	0.00	1.25	1.25	64.89	7.78	0.00	0.10	0.10
	F	1	4.80	21.40	0.58	0.01	8.36	8.36	59.48	58.58	0.31	0.74	0.74
		2	6.00	27.42	2.78	0.25	43.04	43.04	67.11	259.65	7.42	3.35	3.35
	Fx	1	72.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	G	1	10.80	35.34	1.81	0.06	26.49	26.49	100.93	190.00	1.76	2.40	2.40
	E1	1	24.00	0.27	0.00	0.04	0.51	0.51	0.00	0.00	0.00	0.00	0.00
	F1	1	13.20	0.19	0.03	0.00	0.37	0.37	5.39	26.79	0.00	0.34	0.34
	12	1	46.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Traffic Stream Results: Queues and blocking

Time Segment	Arm	Traffic Stream	Initial queue (PCU)	Mean max queue (PCU)	Max queue storage (PCU)	Utilised storage (%)	Average storage excess queue (PCU)	Average limit excess queue (PCU)	Excess queue penalty (£ per hr)	Max end of green queue (PCU)	Max end of red queue (PCU)	Wasted time starvation (s (per cycle))	Wasted time blocking back (s (per cycle))	Wasted time total (s (per cycle))	Estimated blocking
17:45-18:45	A	1	0.00	13.15	26.09	50.43	0.00	0.00	0.00	0.53	9.72	0.00	0.00	0.00	
	Ax	1	0.00	0.00	34.78	0.00	0.00	0.00	0.00			5.00	0.00	5.00	
	Bx	1	0.00	0.00	26.09	0.00	0.00	0.00	0.00			15.00	0.00	15.00	
	Cx	1	0.00	0.00	19.13	0.00	0.00	0.00	0.00			65.00	0.00	65.00	
	D	1	0.00	1.57	15.65	10.03	0.00	0.00	0.00	0.12	1.02	14.00	0.00	14.00	
		2	0.00	4.66	13.91	33.49	0.00	0.00	0.00	0.13	4.59	0.00	0.00	0.00	
	E	1	0.00	13.99	2.09	670.19	4.57	0.00	0.00	0.67	10.98	0.00	0.00	0.00	
		2	0.00	0.26	2.09	12.63	0.00	0.00	0.00	0.00	0.26	40.00	0.00	40.00	
	F	1	0.00	1.96	6.96	28.21	0.00	0.00	0.00	0.01	1.94	5.00	0.00	5.00	
		2	0.00	8.90	8.70	102.39	0.01	0.00	0.00	0.25	8.43	0.00	0.00	0.00	
	Fx	1	0.00	0.00	104.35	0.00	0.00	0.00	0.00			0.00	0.00	0.00	
	G	1	0.00	6.39	15.65	40.84	0.00	0.00	0.00	0.06	6.29	28.00	0.00	28.00	
	E1	1	0.00	0.04	34.78	0.10	0.00	0.00	0.00			0.00	92.00	92.00	
	F1	1	0.00	1.38	19.13	7.22	0.00	0.00	0.00			0.00	10.00	10.00	
	12	1	0.00	0.00	67.65	0.00	0.00	0.00	0.00			97.00	0.00	97.00	

Final Prediction Table

Traffic Stream Results

				SIGNALS		FLOWS		PERFORMANCE				PER PCU			QUEUE	
Arm	Traffic Stream	Name	Traffic node	Controller stream	Phase	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Wasted time total (s (per cycle))	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Veh (s)	Mean stops per Veh (%)	Mean max queue (PCU)	M e of qu (P
A	1	(untitled)	1	1	C	494	1777	52	0.00	63	43	47.77	29.77	78.56	13.15	9.
Ax	1	(untitled)				596	Unrestricted	120	5.00	0	Unrestricted	24.00	0.00	0.00	0.00	
Bx	1	(untitled)				467	Unrestricted	120	15.00	0	Unrestricted	18.00	0.00	0.00	0.00	
Cx	1	(untitled)				109	Unrestricted	120	65.00	0	Unrestricted	13.20	0.00	0.00	0.00	
D	1	(untitled)	1	1	A	596	1897	97	14.00	38	134	12.33	1.53	5.12	1.57	1.
	2	(untitled)	1	1	B	272	2036	40	0.00	39	130	30.02	20.42	51.38	4.66	4.
E	1	(untitled)	3	1	E	470 <	2055	40	0.00	67	34	40.29	38.85	87.86	13.99 +	10
	2	(untitled)	3	1	F	12	2024	40	40.00	2	5086	27.82	26.38	64.89	0.26	0.
F	1	(untitled)	3	1	H	99	1752	50	5.00	13	577	26.20	21.40	59.48	1.96	1.
	2	(untitled)	3	1	I	398 <	1874	50	0.00	50	80	33.42	27.42	67.11	8.90 +	8.
Fx	1	(untitled)				275	Unrestricted	120	0.00	0	Unrestricted	72.00	0.00	0.00	0.00	
G	1	(untitled)	2	1	G	190	1921	40	28.00	29	211	46.14	35.34	100.93	6.39	6.
E1	1	(untitled)	2			482	2055	120	92.00	23	284	24.27	0.27	0.00	0.04	
F1	1	(untitled)	2			497	Unrestricted	120	10.00	0	Unrestricted	13.39	0.19	5.39	1.38	
12	1	(untitled)				26	Unrestricted	120	97.00	0	Unrestricted	46.68	0.00	0.00	0.00	

Network Results

	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	Uniform delay (PCU-hr/hr)	Random plus oversat delay (PCU-hr/hr)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Excess queue penalty (£ per hr)	Performance Index (£ per hr)
Normal traffic	723.67	40.71	17.78	14.79	1.80	235.57	19.10	0.00	254.67
Bus	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tram	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pedestrians	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	723.67	40.71	17.78	14.79	1.80	235.57	19.10	0.00	254.67

- *< = adjusted flow warning (upstream links/traffic streams are over-saturated)*
- ** = Traffic Stream - Normal, Bus or Tram Stop or Delay weighting has been set to a value other than 100%*
- *^ = Traffic Stream - Normal, Bus or Tram Stop or Delay Path weighting has been set to a value other than 100%*

- ***P.I. = PERFORMANCE INDEX***

TRANSYT 15

Version: 15.5.2.7994
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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: Junction 1-2 Do Something_Signalised.t15
Path: G:\2019\p190009\calcs\transyt\Oct 2019
Report generation date: 08/10/2019 13:48:23

»A1 - 2021 DS AM : D1 - 2021 AM* :
»A2 - 2021 DS PM : D2 - 2021 PM* :
»A3 - 2026 DS AM : D3 - 2026 AM* :
»A4 - 2026 DS PM : D4 - 2026 PM* :
»A5 - 2036 DS AM : D5 - 2036 AM* :
»A6 - 2036 DS PM : D6 - 2036 PM* :

File summary

File description

File title	Do Something
Location	Kilcock
Site number	Junction 1-2
UTCRegion	
Driving side	Left
Date	05/04/2019
Version	
Status	TTA
Identifier	
Client	MGR
Jobnumber	190009
Enumerator	HEADOFFICE\mckennam
Description	

Model and Results

Enable controller offsets	Enable fuel consumption	Enable quick flares	Display journey time results	Display level of service results	Display blocking and starvation results	Display end of red and green queue results	Display excess queue results	Display separate uniform and random results	Display unweighted results	Display TRANSYT 12 style timings	Display effective greens in results	Display Red-With-Amber	Display End-Of-Green Amber
			✓		✓	✓	✓	✓	✓	✓	✓		

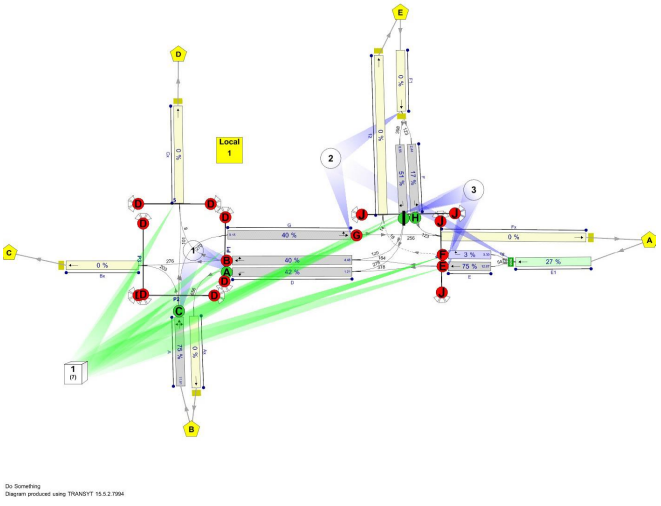
Units

Cost units	Speed units	Distance units	Fuel economy units	Fuel rate units	Mass units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
£	kph	m	mpg	l/h	kg	PCU	PCU	perHour	s	-Hour	perHour

Sorting

Show names instead of IDs	Sorting direction	Sorting type	Ignore prefixes when sorting	Analysis/demand set sorting	Link grouping	Source grouping	Colour Analysis/Demand Sets
	Ascending	Numerical		ID	Normal	Normal	✓

Network Diagrams



A1 - 2021 DS AM
D1 - 2021 AM*

Summary

Data Errors and Warnings

No errors or warnings

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (£ per hr)	Total network delay (PCU-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Ite wit wor over PR
1	08/10/2019 13:47:29	08/10/2019 13:47:32	08:15	120	234.08	15.22	59.58	A/1	0	0	A/1	E1/1	A/

Analysis Set Details

Name	Description	Demand set	Include in report	Locked
2021 DS AM		D1	✓	

Demand Set Details

Name	Description	Composite	Demand sets	Start time (HH:mm)	Locked
2021 AM				08:15	

Signal Timings

Network Default: 120s cycle time; 120 steps

Controller Stream

Controller stream	Name	Description	Use sequence	Cycle time source	Cycle time (s)
1	(untitled)		9	NetworkDefault	120

Controller Stream - Properties

Controller stream	Manufacturer name	Type	Model number	(Telephone) Line Number	Site number	Grid reference	Gaining delay type
1	Unspecified						Absolute

Controller Stream - Optimisation

Controller stream	Allow offset optimisation	Allow green split optimisation	Optimisation level	Auto redistribute	Enable stage constraint
1	✓	✓	Offsets And Green Splits	✓	

Phases

Controller stream	Phase	Name	Minimum green (s)	Maximum green (s)	Relative start displacement (s)	Relative end displacement (s)	Type	Blackout Time (s)
1	A	(untitled)	7	300	0	0	Traffic	
	B	(untitled)	7	300	0	0	Traffic	
	C	(untitled)	6	300	0	0	Traffic	
	D	(untitled)	7	300	0	0	Pedestrian	0
	E	(untitled)	7	300	0	0	Traffic	
	F	(untitled)	7	300	0	0	Traffic	
	G	(untitled)	7	300	0	0	Traffic	
	H	(untitled)	7	300	0	0	Traffic	
	I	(untitled)	7	300	0	0	Traffic	
	J	(untitled)	7	300	0	0	Pedestrian	0

Library Stages

Controller stream	Library stage	Phases in stage	User stage minimum (s)
1	1	A, B, E, F, G	1
	2	A, B, E, F, H	1
	3	A, B, H, I	1
	4	A, B, J	1
	5	A, C, E, F, G	1
	6	A, C, E, F, H	1
	7	A, C, H, I	1
	8	A, C, J	1
	9	D, E, F, G	1
	10	D, E, F, H	1
	11	D, H, I	1
	12	D, J	1

Stage Sequences

Controller stream	Sequence	Name	Multiple cycling	Stage IDs	Stage ends
1	1	(untitled)	Single	4, 11, 5	38, 82, 19
	2	(untitled)	Single	4, 9, 7	40, 72, 20
	3	(untitled)	Single	4, 7, 9	19, 90, 115
	4	(untitled)	Single	3, 12, 5	62, 75, 18
	5	(untitled)	Single	3, 8, 9	28, 79, 109
	6	(untitled)	Single	3, 9, 8	52, 75, 10
	7	(untitled)	Single	1, 7, 12	8, 80, 94
	8	(untitled)	Single	1, 11, 8	43, 79, 12
	9	(untitled)	Single	1, 12, 7	62, 76, 32
	10	(untitled)	Single	4, 5, 11	35, 92, 11

Intergreen Matrix for Controller Stream 1

From \ To	A	B	C	D	E	F	G	H	I	J
A				6						
B			5	5						
C		5		7						
D	9	9	9							
E									5	5
F									5	7
G								5	5	7
H							5			6
I					5	5	5			5
J					11	11	11	11	11	

Interstage Matrix for Controller Stream 1

From \ To	1	2	3	4	5	6	7	8	9	10	11	12
1	0	5	5	7	5	5	5	7	6	6	6	7
2	5	0	5	7	5	5	5	7	6	6	6	7
3	5	5	0	6	5	5	5	6	6	6	6	6
4	11	11	11	0	11	11	11	5	11	11	11	6
5	5	5	5	7	0	5	5	7	7	7	7	7
6	5	5	5	7	5	0	5	7	7	7	7	7
7	5	5	5	6	5	5	0	6	7	7	7	7
8	11	11	11	5	11	11	11	0	11	11	11	7
9	9	9	9	9	9	9	9	9	0	5	5	7
10	9	9	9	9	9	9	9	9	5	0	5	7
11	9	9	9	9	9	9	9	9	5	5	0	6
12	11	11	11	9	11	11	11	9	11	11	11	0

Resultant Stages

Controller stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	1	✓	1	A,B,E,F,G	37	62	25	1	7
	2	✓	12	D,J	69	76	7	1	7
	3	✓	7	A,C,H,I	87	32	65	1	7

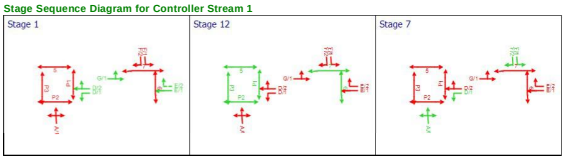
Resultant Phase Green Periods

Controller stream	Phase	Green period	Is base green period	Start time (s)	End time (s)	Duration (s)
1	A	1	✓	85	62	97
	B	1	✓	37	62	25
	C	1	✓	85	32	67
	D	1	✓	68	76	8
	E	1	✓	37	62	25
	F	1	✓	37	62	25
	G	1	✓	37	62	25
	H	1	✓	87	32	65
	I	1	✓	87	32	65
	J	1	✓	69	76	7

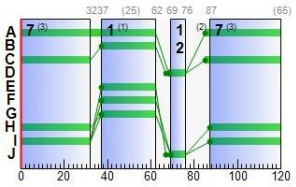
Traffic Stream Green Times

Arm	Traffic Stream	Traffic Node	Controller Stream	Phase	Green Period 1		
					Start	End	Duration
A	1	1	1	C	85	32	67
D	1	1	1	A	85	62	97
D	2	1	1	B	37	62	25
E	1	3	1	E	37	62	25
E	2	3	1	F	37	62	25
F	1	3	1	H	87	32	65
F	2	3	1	I	87	32	65
G	1	2	1	G	37	62	25

Stage Sequence Diagram for Controller Stream 1



Phase Timings Diagram for Controller Stream 1



Traffic Stream Results

Traffic Stream Results: Vehicle summary

Time Segment	Arm	Traffic Stream	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Mean Delay per Veh (s)	Mean max queue (PCU)	Utilised storage (%)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
08:15-09:15	A	1	60	51	600	1777	67	19.63	13.44	51.51	46.47	4.93	51.40
	Ax	1	0	Unrestricted	337	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	Bx	1	0	Unrestricted	401	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	Cx	1	0	Unrestricted	154	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	D	1	22	314	337	1897	97	0.97	0.45	2.86	1.29	0.17	1.46
		2	46	97	202	2036	25	30.75	4.12	29.61	24.50	1.55	26.06
	E	1	54	67	240	2055	25	46.38	7.38	353.59	43.91	2.74	46.65
		2	6	1301	28	2012	25	37.69	0.74	35.51	4.16	0.28	4.44
	F	1	42	116	402	1752	65	16.19	5.95	85.47	25.68	2.24	27.92
		2	29	210	299	1874	65	14.81	4.54	52.17	17.47	1.71	19.18
	Fx	1	0	Unrestricted	634	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	G	1	59	52	247	1921	25	51.25	8.66	55.34	49.93	3.26	53.19
	E1	1	13	590	268	2055	120	0.13	0.01	0.03	0.14	0.00	0.14
	F1	1	0	Unrestricted	701	Unrestricted	120	0.91	3.51	18.32	2.51	1.15	3.66
	12	1	0	Unrestricted	43	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00

Traffic Stream Results: Flows and signals

Time Segment	Arm	Traffic Stream	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Calculated sat flow (PCU/hr)	Calculated capacity (PCU/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))	Effec gree (pe cycl
08:15-09:15	A	1	600	600	0		1777	1007	60		51	0.00	67	68
	Ax	1	337	337	0		Unrestricted	Unrestricted	0		Unrestricted	0.62	120	12
	Bx	1	401	401	0		Unrestricted	Unrestricted	0		Unrestricted	0.62	120	12
	Cx	1	154	154	0		Unrestricted	Unrestricted	0		Unrestricted	0.68	120	12
	D	1	337	337	0		1897	1549	22		314	0.98	97	98
		2	202	202	0		2036	441	46		97	0.98	25	26
	E	1	240	240	0		2055	445	54		67	0.00	25	26
		2	28	28	0		2012	436	6		1301	0.00	25	26
	F	1	402	402	0		1752	964	42		116	0.18	65	66
		2	299	299	0		1874	1031	29		210	0.18	65	66
	Fx	1	634	634	0		Unrestricted	Unrestricted	0		Unrestricted	0.30	120	12
	G	1	247	247	0		1921	416	59		52	0.87	25	26
	E1	1	268	268	0		2055	2055	13		590	0.00	120	12
	F1	1	701	701	0		Unrestricted	Unrestricted	0		Unrestricted	0.00	120	12
	12	1	43	43	0		Unrestricted	Unrestricted	0		Unrestricted	1.18	120	12

Traffic Stream Results: Stops and delays

Time Segment	Arm	Traffic Stream	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Uniform delay (PCU-hr/hr)	Random plus oversat delay (PCU-hr/hr)	Unweighted cost of delay (£ per hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Uniform stops (Stops per hr)	Random stops (Stops per hr)	Unweighted cost of stops (£ per hr)	Weighted cost of stops (£ per hr)
08:15-09:15	A	1	18.00	19.63	2.84	0.44	46.47	46.47	65.57	380.37	13.04	4.93	4.93
	Ax	1	24.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Bx	1	18.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Cx	1	13.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	D	1	10.80	0.97	0.06	0.03	1.29	1.29	3.98	12.50	0.91	0.17	0.17
		2	9.60	30.75	1.53	0.19	24.50	24.50	61.26	118.02	5.73	1.55	1.55
	E	1	1.44	46.38	2.78	0.31	43.91	43.91	91.07	209.29	9.29	2.74	2.74
		2	1.44	37.69	0.29	0.00	4.16	4.16	78.42	21.89	0.07	0.28	0.28
	F	1	4.80	16.19	1.66	0.15	25.68	25.68	44.37	173.91	4.46	2.24	2.24
		2	6.00	14.81	1.17	0.06	17.47	17.47	45.51	134.31	1.77	1.71	1.71
	Fx	1	72.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	G	1	10.80	51.25	3.09	0.43	49.93	49.93	105.13	247.00	12.67	3.26	3.26
	E1	1	24.00	0.13	0.00	0.01	0.14	0.14	0.00	0.00	0.00	0.00	0.00
	F1	1	13.20	0.91	0.18	0.00	2.51	2.51	13.04	91.43	0.00	1.15	1.15
	12	1	46.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Traffic Stream Results: Queues and blocking

Time Segment	Arm	Traffic Stream	Initial queue (PCU)	Mean max queue (PCU)	Max queue storage (PCU)	Utilised storage (%)	Average storage excess queue (PCU)	Average limit excess queue (PCU)	Excess queue penalty (£ per hr)	Max end of green queue (PCU)	Max end of red queue (PCU)	Wasted time starvation (s (per cycle))	Wasted time blocking back (s (per cycle))	Wasted time total (s (per cycle))	Estimated blocking
08:15-09:15	A	1	0.00	13.44	26.09	51.51	0.00	0.00	0.00	0.44	9.10	0.00	0.00	0.00	
	Ax	1	0.00	0.00	34.78	0.00	0.00	0.00	0.00			7.00	0.00	7.00	
	Bx	1	0.00	0.00	26.09	0.00	0.00	0.00	0.00			12.00	0.00	12.00	
	Cx	1	0.00	0.00	19.13	0.00	0.00	0.00	0.00			36.00	0.00	36.00	
	D	1	0.00	0.45	15.65	2.86	0.00	0.00	0.00	0.03	0.45	16.00	0.00	16.00	
		2	0.00	4.12	13.91	29.61	0.00	0.00	0.00	0.19	4.06	1.00	0.00	1.00	
	E	1	0.00	7.38	2.09	353.59	1.77	0.00	0.00	0.31	6.58	0.00	0.00	0.00	
		2	0.00	0.74	2.09	35.51	0.00	0.00	0.00	0.00	0.73	24.00	0.00	24.00	
	F	1	0.00	5.95	6.96	85.47	0.00	0.00	0.00	0.15	5.94	0.00	0.00	0.00	
		2	0.00	4.54	8.70	52.17	0.00	0.00	0.00	0.06	4.53	1.00	0.00	1.00	
	Fx	1	0.00	0.00	104.35	0.00	0.00	0.00	0.00			0.00	0.00	0.00	
	G	1	0.00	8.66	15.65	55.34	0.00	0.00	0.00	0.43	8.59	9.00	0.00	9.00	
	E1	1	0.00	0.01	34.78	0.03	0.00	0.00	0.00			0.00	80.00	80.00	
	F1	1	0.00	3.51	19.13	18.32	0.00	0.00	0.00			0.00	18.00	18.00	
	12	1	0.00	0.00	67.65	0.00	0.00	0.00	0.00			89.00	0.00	89.00	

Final Prediction Table

Traffic Stream Results

				SIGNALS		FLOWS		PERFORMANCE				PER PCU			QUEUE	
Arm	Traffic Stream	Name	Traffic node	Controller stream	Phase	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Wasted time total (s (per cycle))	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Veh (s)	Mean stops per Veh (%)	Mean max queue (PCU)	M e of qu (P
A	1	(untitled)	1	1	C	600	1777	67	0.00	60	51	37.63	19.63	65.57	13.44	9.
Ax	1	(untitled)				337	Unrestricted	120	7.00	0	Unrestricted	24.00	0.00	0.00	0.00	
Bx	1	(untitled)				401	Unrestricted	120	12.00	0	Unrestricted	18.00	0.00	0.00	0.00	
Cx	1	(untitled)				154	Unrestricted	120	36.00	0	Unrestricted	13.20	0.00	0.00	0.00	
D	1	(untitled)	1	1	A	337	1897	97	16.00	22	314	11.77	0.97	3.98	0.45	0.
	2	(untitled)	1	1	B	202	2036	25	1.00	46	97	40.35	30.75	61.26	4.12	4.
E	1	(untitled)	3	1	E	240 <	2055	25	0.00	54	67	47.82	46.38	91.07	7.38 +	6.
	2	(untitled)	3	1	F	28	2012	25	24.00	6	1301	39.13	37.69	78.42	0.74	0.
F	1	(untitled)	3	1	H	402	1752	65	0.00	42	116	20.99	16.19	44.37	5.95	5.
	2	(untitled)	3	1	I	299	1874	65	1.00	29	210	20.81	14.81	45.51	4.54	4.
Fx	1	(untitled)				634	Unrestricted	120	0.00	0	Unrestricted	72.00	0.00	0.00	0.00	
G	1	(untitled)	2	1	G	247	1921	25	9.00	59	52	62.05	51.25	105.13	8.66	8.
E1	1	(untitled)	2			268	2055	120	80.00	13	590	24.13	0.13	0.00	0.01	
F1	1	(untitled)	2			701	Unrestricted	120	18.00	0	Unrestricted	14.11	0.91	13.04	3.51	
12	1	(untitled)				43	Unrestricted	120	89.00	0	Unrestricted	46.68	0.00	0.00	0.00	

Network Results

	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	Uniform delay (PCU-hr/hr)	Random plus oversat delay (PCU-hr/hr)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Excess queue penalty (£ per hr)	Performance Index (£ per hr)
Normal traffic	865.29	44.06	19.64	13.60	1.62	216.06	18.01	0.00	234.08
Bus	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tram	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pedestrians	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	865.29	44.06	19.64	13.60	1.62	216.06	18.01	0.00	234.08

- *< = adjusted flow warning (upstream links/traffic streams are over-saturated)*
- ** = Traffic Stream - Normal, Bus or Tram Stop or Delay weighting has been set to a value other than 100%*
- *^ = Traffic Stream - Normal, Bus or Tram Stop or Delay Path weighting has been set to a value other than 100%*
- *+ = average link/traffic stream excess queue is greater than 0*
- ***P.I. = PERFORMANCE INDEX***

A2 - 2021 DS PM
D2 - 2021 PM*

Summary

Data Errors and Warnings

No errors or warnings

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (£ per hr)	Total network delay (PCU-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Ite wit wor over PR
2	08/10/2019 13:47:32	08/10/2019 13:47:35	17:45	120	235.63	15.35	63.15	E/1	0	0	E/1	E1/1	E/

Analysis Set Details

Name	Description	Demand set	Include in report	Locked
2021 DS PM		D2	✓	

Demand Set Details

Name	Description	Composite	Demand sets	Start time (HH:mm)	Locked
2021 PM				17:45	

Signal Timings

Network Default: 120s cycle time; 120 steps

Controller Stream

Controller stream	Name	Description	Use sequence	Cycle time source	Cycle time (s)
1	(untitled)		9	NetworkDefault	120

Controller Stream - Properties

Controller stream	Manufacturer name	Type	Model number	(Telephone) Line Number	Site number	Grid reference	Gaining delay type
1	Unspecified						Absolute

Controller Stream - Optimisation

Controller stream	Allow offset optimisation	Allow green split optimisation	Optimisation level	Auto redistribute	Enable stage constraint
1	✓	✓	Offsets And Green Splits	✓	

Phases

Controller stream	Phase	Name	Minimum green (s)	Maximum green (s)	Relative start displacement (s)	Relative end displacement (s)	Type	Blackout Time (s)
1	A	(untitled)	7	300	0	0	Traffic	
	B	(untitled)	7	300	0	0	Traffic	
	C	(untitled)	6	300	0	0	Traffic	
	D	(untitled)	7	300	0	0	Pedestrian	0
	E	(untitled)	7	300	0	0	Traffic	
	F	(untitled)	7	300	0	0	Traffic	
	G	(untitled)	7	300	0	0	Traffic	
	H	(untitled)	7	300	0	0	Traffic	
	I	(untitled)	7	300	0	0	Traffic	
	J	(untitled)	7	300	0	0	Pedestrian	0

Library Stages

Controller stream	Library stage	Phases in stage	User stage minimum (s)
1	1	A, B, E, F, G	1
	2	A, B, E, F, H	1
	3	A, B, H, I	1
	4	A, B, J	1
	5	A, C, E, F, G	1
	6	A, C, E, F, H	1
	7	A, C, H, I	1
	8	A, C, J	1
	9	D, E, F, G	1
	10	D, E, F, H	1
	11	D, H, I	1
	12	D, J	1

Stage Sequences

Controller stream	Sequence	Name	Multiple cycling	Stage IDs	Stage ends
1	1	(untitled)	Single	4, 11, 5	38, 82, 19
	2	(untitled)	Single	4, 9, 7	40, 72, 20
	3	(untitled)	Single	4, 7, 9	19, 90, 115
	4	(untitled)	Single	3, 12, 5	62, 75, 18
	5	(untitled)	Single	3, 8, 9	28, 79, 109
	6	(untitled)	Single	3, 9, 8	52, 75, 10
	7	(untitled)	Single	1, 7, 12	8, 80, 94
	8	(untitled)	Single	1, 11, 8	43, 79, 12
	9	(untitled)	Single	1, 12, 7	62, 76, 15
	10	(untitled)	Single	4, 5, 11	35, 92, 11

Intergreen Matrix for Controller Stream 1

From \ To	A	B	C	D	E	F	G	H	I	J
A				6						
B			5	5						
C		5		7						
D	9	9	9							
E									5	5
F									5	7
G								5	5	7
H							5			6
I					5	5	5			5
J					11	11	11	11	11	

Interstage Matrix for Controller Stream 1

From \ To	1	2	3	4	5	6	7	8	9	10	11	12
1	0	5	5	7	5	5	5	7	6	6	6	7
2	5	0	5	7	5	5	5	7	6	6	6	7
3	5	5	0	6	5	5	5	6	6	6	6	6
4	11	11	11	0	11	11	11	5	11	11	11	6
5	5	5	5	7	0	5	5	7	7	7	7	7
6	5	5	5	7	5	0	5	7	7	7	7	7
7	5	5	5	6	5	5	0	6	7	7	7	7
8	11	11	11	5	11	11	11	0	11	11	11	7
9	9	9	9	9	9	9	9	9	0	5	5	7
10	9	9	9	9	9	9	9	9	5	0	5	7
11	9	9	9	9	9	9	9	9	5	5	0	6
12	11	11	11	9	11	11	11	9	11	11	11	0

Resultant Stages

Controller stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	1	✓	1	A,B,E,F,G	20	62	42	1	7
	2	✓	12	D,J	69	76	7	1	7
	3	✓	7	A,C,H,I	87	15	48	1	7

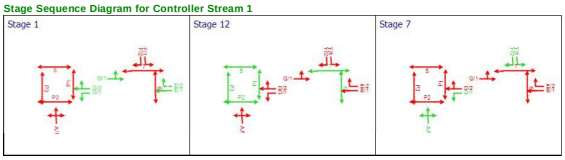
Resultant Phase Green Periods

Controller stream	Phase	Green period	Is base green period	Start time (s)	End time (s)	Duration (s)
1	A	1	✓	85	62	97
	B	1	✓	20	62	42
	C	1	✓	85	15	50
	D	1	✓	68	76	8
	E	1	✓	20	62	42
	F	1	✓	20	62	42
	G	1	✓	20	62	42
	H	1	✓	87	15	48
	I	1	✓	87	15	48
	J	1	✓	69	76	7

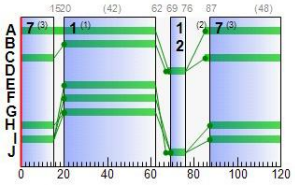
Traffic Stream Green Times

Arm	Traffic Stream	Traffic Node	Controller Stream	Phase	Green Period 1		
					Start	End	Duration
A	1	1	1	C	85	15	50
D	1	1	1	A	85	62	97
D	2	1	1	B	20	62	42
E	1	3	1	E	20	62	42
E	2	3	1	F	20	62	42
F	1	3	1	H	87	15	48
F	2	3	1	I	87	15	48
G	1	2	1	G	20	62	42

Stage Sequence Diagram for Controller Stream 1



Phase Timings Diagram for Controller Stream 1



Traffic Stream Results

Traffic Stream Results: Vehicle summary

Time Segment	Arm	Traffic Stream	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Mean Delay per Veh (s)	Mean max queue (PCU)	Utilised storage (%)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
17:45-18:45	A	1	58	56	435	1777	50	29.49	11.38	43.64	50.60	4.20	54.80
	Ax	1	0	Unrestricted	504	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	Bx	1	0	Unrestricted	445	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	Cx	1	0	Unrestricted	110	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	D	1	33	177	504	1897	97	1.42	1.53	9.76	2.83	0.33	3.16
		2	40	123	294	2036	42	18.84	4.60	33.08	21.84	1.73	23.57
	E	1	63	43	465	2055	42	36.09	13.32	638.44	66.19	4.93	71.12
		2	2	4254	15	2025	42	25.08	0.32	15.38	1.48	0.12	1.60
	F	1	22	305	159	1752	48	23.82	3.34	48.07	14.94	1.26	16.20
		2	44	107	333	1874	48	27.47	7.75	89.17	36.08	2.91	38.99
	Fx	1	0	Unrestricted	324	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	G	1	25	256	174	1921	42	34.22	5.86	37.47	23.49	2.20	25.68
	E1	1	23	285	480	2055	120	0.27	0.04	0.10	0.51	0.00	0.51
	F1	1	0	Unrestricted	492	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	12	1	0	Unrestricted	24	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00

Traffic Stream Results: Flows and signals

Time Segment	Arm	Traffic Stream	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Calculated sat flow (PCU/hr)	Calculated capacity (PCU/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))	Effec gree (pe cycl
17:45-18:45	A	1	435	435	0		1777	755	58		56	0.00	50	51
	Ax	1	504	504	0		Unrestricted	Unrestricted	0		Unrestricted	0.63	120	12
	Bx	1	445	445	0		Unrestricted	Unrestricted	0		Unrestricted	0.66	120	12
	Cx	1	110	110	0		Unrestricted	Unrestricted	0		Unrestricted	0.81	120	12
	D	1	504	504	0		1897	1549	33		177	0.93	97	98
		2	294	294	0		2036	730	40		123	0.93	42	43
	E	1	465	465	0		2055	736	63		43	0.00	42	43
		2	15	15	0		2025	726	2		4254	0.00	42	43
	F	1	159	159	0		1752	715	22		305	0.00	48	49
		2	333	333	0		1874	765	44		107	0.00	48	49
	Fx	1	324	324	0		Unrestricted	Unrestricted	0		Unrestricted	0.46	120	12
	G	1	174	174	0		1921	688	25		256	1.15	42	43
	E1	1	480	480	0		2055	2055	23		285	0.00	120	12
	F1	1	492	492	0		Unrestricted	Unrestricted	0		Unrestricted	0.00	120	12
	12	1	24	24	0		Unrestricted	Unrestricted	0		Unrestricted	1.07	120	12

Traffic Stream Results: Stops and delays

Time Segment	Arm	Traffic Stream	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Uniform delay (PCU-hr/hr)	Random plus oversat delay (PCU-hr/hr)	Unweighted cost of delay (£ per hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Uniform stops (Stops per hr)	Random stops (Stops per hr)	Unweighted cost of stops (£ per hr)	Weighted cost of stops (£ per hr)
17:45-18:45	A	1	18.00	29.49	3.17	0.39	50.60	50.60	77.05	323.58	11.59	4.20	4.20
	Ax	1	24.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Bx	1	18.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Cx	1	13.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	D	1	10.80	1.42	0.12	0.08	2.83	2.83	5.29	24.33	2.35	0.33	0.33
		2	9.60	18.84	1.40	0.14	21.84	21.84	46.94	133.94	4.06	1.73	1.73
	E	1	1.44	36.09	4.12	0.54	66.19	66.19	84.62	377.52	15.95	4.93	4.93
		2	1.44	25.08	0.10	0.00	1.48	1.48	63.22	9.48	0.01	0.12	0.12
	F	1	4.80	23.82	1.02	0.03	14.94	14.94	63.10	99.37	0.95	1.26	1.26
		2	6.00	27.47	2.37	0.17	36.08	36.08	69.60	226.77	5.00	2.91	2.91
	Fx	1	72.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	G	1	10.80	34.22	1.61	0.04	23.49	23.49	100.73	174.00	1.28	2.20	2.20
	E1	1	24.00	0.27	0.00	0.04	0.51	0.51	0.00	0.00	0.00	0.00	0.00
	F1	1	13.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	12	1	46.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Traffic Stream Results: Queues and blocking

Time Segment	Arm	Traffic Stream	Initial queue (PCU)	Mean max queue (PCU)	Max queue storage (PCU)	Utilised storage (%)	Average storage excess queue (PCU)	Average limit excess queue (PCU)	Excess queue penalty (£ per hr)	Max end of green queue (PCU)	Max end of red queue (PCU)	Wasted time starvation (s (per cycle))	Wasted time blocking back (s (per cycle))	Wasted time total (s (per cycle))	Estimated blocking
17:45-18:45	A	1	0.00	11.38	26.09	43.64	0.00	0.00	0.00	0.39	8.73	0.00	0.00	0.00	
	Ax	1	0.00	0.00	34.78	0.00	0.00	0.00	0.00			7.00	0.00	7.00	
	Bx	1	0.00	0.00	26.09	0.00	0.00	0.00	0.00			15.00	0.00	15.00	
	Cx	1	0.00	0.00	19.13	0.00	0.00	0.00	0.00			56.00	0.00	56.00	
	D	1	0.00	1.53	15.65	9.76	0.00	0.00	0.00	0.08	0.89	14.00	0.00	14.00	
		2	0.00	4.60	13.91	33.08	0.00	0.00	0.00	0.14	4.53	0.00	0.00	0.00	
	E	1	0.00	13.32	2.09	638.44	4.12	0.00	0.00	0.54	10.48	0.00	0.00	0.00	
		2	0.00	0.32	2.09	15.38	0.00	0.00	0.00	0.00	0.32	42.00	0.00	42.00	
	F	1	0.00	3.34	6.96	48.07	0.00	0.00	0.00	0.03	3.26	0.00	0.00	0.00	
		2	0.00	7.75	8.70	89.17	0.00	0.00	0.00	0.17	7.10	0.00	0.00	0.00	
	Fx	1	0.00	0.00	104.35	0.00	0.00	0.00	0.00			2.00	0.00	2.00	
	G	1	0.00	5.86	15.65	37.47	0.00	0.00	0.00	0.04	5.70	31.00	0.00	31.00	
	E1	1	0.00	0.04	34.78	0.10	0.00	0.00	0.00			0.00	87.00	87.00	
	F1	1	0.00	0.00	19.13	0.00	0.00	0.00	0.00			0.00	0.00	0.00	
	12	1	0.00	0.00	67.65	0.00	0.00	0.00	0.00			100.00	0.00	100.00	

Final Prediction Table

Traffic Stream Results

			SIGNALS			FLOWS		PERFORMANCE				PER PCU			QUEUE	
Arm	Traffic Stream	Name	Traffic node	Controller stream	Phase	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Wasted time total (s (per cycle))	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Veh (s)	Mean stops per Veh (%)	Mean max queue (PCU)	M e of qu (P
A	1	(untitled)	1	1	C	435	1777	50	0.00	58	56	47.49	29.49	77.05	11.38	8.
Ax	1	(untitled)				504	Unrestricted	120	7.00	0	Unrestricted	24.00	0.00	0.00	0.00	
Bx	1	(untitled)				445	Unrestricted	120	15.00	0	Unrestricted	18.00	0.00	0.00	0.00	
Cx	1	(untitled)				110	Unrestricted	120	56.00	0	Unrestricted	13.20	0.00	0.00	0.00	
D	1	(untitled)	1	1	A	504	1897	97	14.00	33	177	12.22	1.42	5.29	1.53	0.
	2	(untitled)	1	1	B	294	2036	42	0.00	40	123	28.44	18.84	46.94	4.60	4.
E	1	(untitled)	3	1	E	465 <	2055	42	0.00	63	43	37.53	36.09	84.62	13.32 +	10
	2	(untitled)	3	1	F	15	2025	42	42.00	2	4254	26.52	25.08	63.22	0.32	0.
F	1	(untitled)	3	1	H	159	1752	48	0.00	22	305	28.62	23.82	63.10	3.34	3.
	2	(untitled)	3	1	I	333	1874	48	0.00	44	107	33.47	27.47	69.60	7.75	7.
Fx	1	(untitled)				324	Unrestricted	120	2.00	0	Unrestricted	72.00	0.00	0.00	0.00	
G	1	(untitled)	2	1	G	174	1921	42	31.00	25	256	45.02	34.22	100.73	5.86	5.
E1	1	(untitled)	2			480	2055	120	87.00	23	285	24.27	0.27	0.00	0.04	
F1	1	(untitled)	2			492	Unrestricted	120	0.00	0	Unrestricted	13.20	0.00	0.00	0.00	
12	1	(untitled)				24	Unrestricted	120	100.00	0	Unrestricted	46.68	0.00	0.00	0.00	

Network Results

	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	Uniform delay (PCU-hr/hr)	Random plus oversat delay (PCU-hr/hr)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Excess queue penalty (£ per hr)	Performance Index (£ per hr)
Normal traffic	712.07	39.08	18.22	13.93	1.42	217.95	17.68	0.00	235.63
Bus	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tram	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pedestrians	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	712.07	39.08	18.22	13.93	1.42	217.95	17.68	0.00	235.63

- *< = adjusted flow warning (upstream links/traffic streams are over-saturated)*
- ** = Traffic Stream - Normal, Bus or Tram Stop or Delay weighting has been set to a value other than 100%*
- *^ = Traffic Stream - Normal, Bus or Tram Stop or Delay Path weighting has been set to a value other than 100%*
- *+ = average link/traffic stream excess queue is greater than 0*
- ***P.I. = PERFORMANCE INDEX***

A3 - 2026 DS AM
D3 - 2026 AM*

Summary

Data Errors and Warnings

No errors or warnings

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (£ per hr)	Total network delay (PCU-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Ite wit wor over PR
3	08/10/2019 13:47:35	08/10/2019 13:47:39	08:15	120	283.09	18.44	71.37	A/1	0	0	A/1	E1/1	A/

Analysis Set Details

Name	Description	Demand set	Include in report	Locked
2026 DS AM		D3	✓	

Demand Set Details

Name	Description	Composite	Demand sets	Start time (HH:mm)	Locked
2026 AM				08:15	

Signal Timings

Network Default: 120s cycle time; 120 steps

Controller Stream

Controller stream	Name	Description	Use sequence	Cycle time source	Cycle time (s)
1	(untitled)		9	NetworkDefault	120

Controller Stream - Properties

Controller stream	Manufacturer name	Type	Model number	(Telephone) Line Number	Site number	Grid reference	Gaining delay type
1	Unspecified						Absolute

Controller Stream - Optimisation

Controller stream	Allow offset optimisation	Allow green split optimisation	Optimisation level	Auto redistribute	Enable stage constraint
1	✓	✓	Offsets And Green Splits	✓	

Phases

Controller stream	Phase	Name	Minimum green (s)	Maximum green (s)	Relative start displacement (s)	Relative end displacement (s)	Type	Blackout Time (s)
1	A	(untitled)	7	300	0	0	Traffic	
	B	(untitled)	7	300	0	0	Traffic	
	C	(untitled)	6	300	0	0	Traffic	
	D	(untitled)	7	300	0	0	Pedestrian	0
	E	(untitled)	7	300	0	0	Traffic	
	F	(untitled)	7	300	0	0	Traffic	
	G	(untitled)	7	300	0	0	Traffic	
	H	(untitled)	7	300	0	0	Traffic	
	I	(untitled)	7	300	0	0	Traffic	
	J	(untitled)	7	300	0	0	Pedestrian	0

Library Stages

Controller stream	Library stage	Phases in stage	User stage minimum (s)
1	1	A, B, E, F, G	1
	2	A, B, E, F, H	1
	3	A, B, H, I	1
	4	A, B, J	1
	5	A, C, E, F, G	1
	6	A, C, E, F, H	1
	7	A, C, H, I	1
	8	A, C, J	1
	9	D, E, F, G	1
	10	D, E, F, H	1
	11	D, H, I	1
	12	D, J	1

Stage Sequences

Controller stream	Sequence	Name	Multiple cycling	Stage IDs	Stage ends
1	1	(untitled)	Single	4, 11, 5	38, 82, 19
	2	(untitled)	Single	4, 9, 7	40, 72, 20
	3	(untitled)	Single	4, 7, 9	19, 90, 115
	4	(untitled)	Single	3, 12, 5	62, 75, 18
	5	(untitled)	Single	3, 8, 9	28, 79, 109
	6	(untitled)	Single	3, 9, 8	52, 75, 10
	7	(untitled)	Single	1, 7, 12	8, 80, 94
	8	(untitled)	Single	1, 11, 8	43, 79, 12
	9	(untitled)	Single	1, 12, 7	62, 76, 29
	10	(untitled)	Single	4, 5, 11	35, 92, 11

Intergreen Matrix for Controller Stream 1

From \ To	A	B	C	D	E	F	G	H	I	J
A				6						
B			5	5						
C		5		7						
D	9	9	9							
E									5	5
F									5	7
G								5	5	7
H							5			6
I					5	5	5			5
J					11	11	11	11	11	

Interstage Matrix for Controller Stream 1

From \ To	1	2	3	4	5	6	7	8	9	10	11	12
1	0	5	5	7	5	5	5	7	6	6	6	7
2	5	0	5	7	5	5	5	7	6	6	6	7
3	5	5	0	6	5	5	5	6	6	6	6	6
4	11	11	11	0	11	11	11	5	11	11	11	6
5	5	5	5	7	0	5	5	7	7	7	7	7
6	5	5	5	7	5	0	5	7	7	7	7	7
7	5	5	5	6	5	5	0	6	7	7	7	7
8	11	11	11	5	11	11	11	0	11	11	11	7
9	9	9	9	9	9	9	9	9	0	5	5	7
10	9	9	9	9	9	9	9	9	5	0	5	7
11	9	9	9	9	9	9	9	9	5	5	0	6
12	11	11	11	9	11	11	11	9	11	11	11	0

Resultant Stages

Controller stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	1	✓	1	A,B,E,F,G	34	62	28	1	7
	2	✓	12	D,J	69	76	7	1	7
	3	✓	7	A,C,H,I	87	29	62	1	7

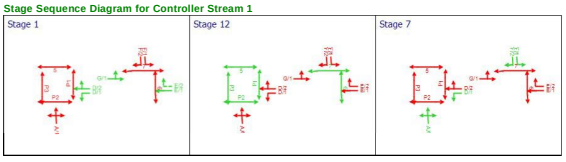
Resultant Phase Green Periods

Controller stream	Phase	Green period	Is base green period	Start time (s)	End time (s)	Duration (s)
1	A	1	✓	85	62	97
	B	1	✓	34	62	28
	C	1	✓	85	29	64
	D	1	✓	68	76	8
	E	1	✓	34	62	28
	F	1	✓	34	62	28
	G	1	✓	34	62	28
	H	1	✓	87	29	62
	I	1	✓	87	29	62
	J	1	✓	69	76	7

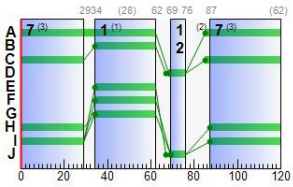
Traffic Stream Green Times

Arm	Traffic Stream	Traffic Node	Controller Stream	Phase	Green Period 1		
					Start	End	Duration
A	1	1	1	C	85	29	64
D	1	1	1	A	85	62	97
D	2	1	1	B	34	62	28
E	1	3	1	E	34	62	28
E	2	3	1	F	34	62	28
F	1	3	1	H	87	29	62
F	2	3	1	I	87	29	62
G	1	2	1	G	34	62	28

Stage Sequence Diagram for Controller Stream 1



Phase Timings Diagram for Controller Stream 1



Traffic Stream Results

Traffic Stream Results: Vehicle summary

Time Segment	Arm	Traffic Stream	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Mean Delay per Veh (s)	Mean max queue (PCU)	Utilised storage (%)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
08:15-09:15	A	1	71	26	687	1777	64	25.16	17.86	68.48	68.18	6.57	74.75
	Ax	1	0	Unrestricted	438	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	Bx	1	0	Unrestricted	412	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	Cx	1	0	Unrestricted	161	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	D	1	28	218	438	1897	97	1.18	1.50	9.62	2.04	0.25	2.28
		2	39	132	191	2036	28	26.89	3.59	25.84	20.26	1.35	21.61
	E	1	62	45	308	2055	28	46.44	9.65	462.63	56.42	3.56	59.98
		2	6	1407	29	2010	28	35.31	0.74	35.60	4.04	0.28	4.32
	F	1	41	121	374	1752	62	17.79	5.94	85.33	26.25	2.23	28.48
		2	33	176	321	1874	62	16.83	5.23	60.17	21.31	1.97	23.28
	Fx	1	0	Unrestricted	662	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	G	1	66	37	305	1921	28	50.71	10.82	69.12	61.00	4.07	65.07
	E1	1	16	449	337	2055	120	0.17	0.02	0.05	0.23	0.00	0.23
	F1	1	0	Unrestricted	695	Unrestricted	120	0.76	3.28	17.16	2.08	1.01	3.10
	12	1	0	Unrestricted	46	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00

Traffic Stream Results: Flows and signals

Time Segment	Arm	Traffic Stream	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Calculated sat flow (PCU/hr)	Calculated capacity (PCU/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))	Effec gree (pe cycl
08:15-09:15	A	1	687	687	0		1777	963	71		26	0.00	64	65
	Ax	1	438	438	0		Unrestricted	Unrestricted	0		Unrestricted	0.63	120	12
	Bx	1	412	412	0		Unrestricted	Unrestricted	0		Unrestricted	0.54	120	12
	Cx	1	161	161	0		Unrestricted	Unrestricted	0		Unrestricted	0.76	120	12
	D	1	438	438	0		1897	1549	28		218	0.97	97	98
		2	191	191	0		2036	492	39		132	0.96	28	29
	E	1	308	308	0		2055	497	62		45	0.00	28	29
		2	29	29	0		2010	486	6		1407	0.00	28	29
	F	1	374	374	0		1752	920	41		121	0.16	62	63
		2	321	321	0		1874	984	33		176	0.16	62	63
	Fx	1	662	662	0		Unrestricted	Unrestricted	0		Unrestricted	0.31	120	12
	G	1	305	305	0		1921	464	66		37	0.92	28	29
	E1	1	337	337	0		2055	2055	16		449	0.00	120	12
	F1	1	695	695	0		Unrestricted	Unrestricted	0		Unrestricted	0.00	120	12
	12	1	46	46	0		Unrestricted	Unrestricted	0		Unrestricted	1.15	120	12

Traffic Stream Results: Stops and delays

Time Segment	Arm	Traffic Stream	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Uniform delay (PCU-hr/hr)	Random plus oversat delay (PCU-hr/hr)	Unweighted cost of delay (£ per hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Uniform stops (Stops per hr)	Random stops (Stops per hr)	Unweighted cost of stops (£ per hr)	Weighted cost of stops (£ per hr)
08:15-09:15	A	1	18.00	25.16	3.92	0.88	68.18	68.18	76.29	497.98	26.14	6.57	6.57
	Ax	1	24.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Bx	1	18.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Cx	1	13.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	D	1	10.80	1.18	0.09	0.06	2.04	2.04	4.47	17.92	1.67	0.25	0.25
		2	9.60	26.89	1.30	0.12	20.26	20.26	56.45	104.16	3.66	1.35	1.35
	E	1	1.44	46.44	3.47	0.50	56.42	56.42	92.24	269.27	14.83	3.56	3.56
		2	1.44	35.31	0.28	0.00	4.04	4.04	75.88	21.95	0.06	0.28	0.28
	F	1	4.80	17.79	1.71	0.14	26.25	26.25	47.61	173.91	4.16	2.23	2.23
		2	6.00	16.83	1.42	0.08	21.31	21.31	48.90	154.59	2.36	1.97	1.97
	Fx	1	72.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	G	1	10.80	50.71	3.68	0.62	61.00	61.00	106.32	305.98	18.30	4.07	4.07
	E1	1	24.00	0.17	0.00	0.02	0.23	0.23	0.00	0.00	0.00	0.00	0.00
	F1	1	13.20	0.76	0.15	0.00	2.08	2.08	11.64	80.93	0.00	1.01	1.01
	12	1	46.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Traffic Stream Results: Queues and blocking

Time Segment	Arm	Traffic Stream	Initial queue (PCU)	Mean max queue (PCU)	Max queue storage (PCU)	Utilised storage (%)	Average storage excess queue (PCU)	Average limit excess queue (PCU)	Excess queue penalty (£ per hr)	Max end of green queue (PCU)	Max end of red queue (PCU)	Wasted time starvation (s (per cycle))	Wasted time blocking back (s (per cycle))	Wasted time total (s (per cycle))	Estimated blocking
08:15-09:15	A	1	0.00	17.86	26.09	68.48	0.00	0.00	0.00	0.88	11.38	0.00	0.00	0.00	
	Ax	1	0.00	0.00	34.78	0.00	0.00	0.00	0.00			3.00	0.00	3.00	
	Bx	1	0.00	0.00	26.09	0.00	0.00	0.00	0.00			13.00	0.00	13.00	
	Cx	1	0.00	0.00	19.13	0.00	0.00	0.00	0.00			44.00	0.00	44.00	
	D	1	0.00	1.50	15.65	9.62	0.00	0.00	0.00	0.06	0.65	14.00	0.00	14.00	
		2	0.00	3.59	13.91	25.84	0.00	0.00	0.00	0.12	3.54	2.00	0.00	2.00	
	E	1	0.00	9.65	2.09	462.63	2.82	0.00	0.00	0.50	8.29	0.00	0.00	0.00	
		2	0.00	0.74	2.09	35.60	0.00	0.00	0.00	0.00	0.73	27.00	0.00	27.00	
	F	1	0.00	5.94	6.96	85.33	0.00	0.00	0.00	0.14	5.93	0.00	0.00	0.00	
		2	0.00	5.23	8.70	60.17	0.00	0.00	0.00	0.08	5.22	0.00	0.00	0.00	
	Fx	1	0.00	0.00	104.35	0.00	0.00	0.00	0.00			0.00	0.00	0.00	
	G	1	0.00	10.82	15.65	69.12	0.00	0.00	0.00	0.62	10.77	8.00	0.00	8.00	
	E1	1	0.00	0.02	34.78	0.05	0.00	0.00	0.00			0.00	89.00	89.00	
	F1	1	0.00	3.28	19.13	17.16	0.00	0.00	0.00			0.00	17.00	17.00	
	12	1	0.00	0.00	67.65	0.00	0.00	0.00	0.00			86.00	0.00	86.00	

Final Prediction Table

Traffic Stream Results

				SIGNALS		FLOWS		PERFORMANCE				PER PCU			QUEUE	
Arm	Traffic Stream	Name	Traffic node	Controller stream	Phase	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Wasted time total (s (per cycle))	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Veh (s)	Mean stops per Veh (%)	Mean max queue (PCU)	M e of qu (P
A	1	(untitled)	1	1	C	687	1777	64	0.00	71	26	43.16	25.16	76.29	17.86	11
Ax	1	(untitled)				438	Unrestricted	120	3.00	0	Unrestricted	24.00	0.00	0.00	0.00	
Bx	1	(untitled)				412	Unrestricted	120	13.00	0	Unrestricted	18.00	0.00	0.00	0.00	
Cx	1	(untitled)				161	Unrestricted	120	44.00	0	Unrestricted	13.20	0.00	0.00	0.00	
D	1	(untitled)	1	1	A	438	1897	97	14.00	28	218	11.98	1.18	4.47	1.50	0.
	2	(untitled)	1	1	B	191	2036	28	2.00	39	132	36.49	26.89	56.45	3.59	3.
E	1	(untitled)	3	1	E	308 <	2055	28	0.00	62	45	47.88	46.44	92.24	9.65 +	8.
	2	(untitled)	3	1	F	29	2010	28	27.00	6	1407	36.75	35.31	75.88	0.74	0.
F	1	(untitled)	3	1	H	374	1752	62	0.00	41	121	22.59	17.79	47.61	5.94	5.
	2	(untitled)	3	1	I	321	1874	62	0.00	33	176	22.83	16.83	48.90	5.23	5.
Fx	1	(untitled)				662	Unrestricted	120	0.00	0	Unrestricted	72.00	0.00	0.00	0.00	
G	1	(untitled)	2	1	G	305	1921	28	8.00	66	37	61.51	50.71	106.32	10.82	10
E1	1	(untitled)	2			337	2055	120	89.00	16	449	24.17	0.17	0.00	0.02	
F1	1	(untitled)	2			695	Unrestricted	120	17.00	0	Unrestricted	13.96	0.76	11.64	3.28	
12	1	(untitled)				46	Unrestricted	120	86.00	0	Unrestricted	46.68	0.00	0.00	0.00	

Network Results

	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	Uniform delay (PCU-hr/hr)	Random plus oversat delay (PCU-hr/hr)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Excess queue penalty (£ per hr)	Performance Index (£ per hr)
Normal traffic	946.31	49.98	18.93	16.02	2.41	261.81	21.29	0.00	283.09
Bus	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tram	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pedestrians	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	946.31	49.98	18.93	16.02	2.41	261.81	21.29	0.00	283.09

- *< = adjusted flow warning (upstream links/traffic streams are over-saturated)*
- ** = Traffic Stream - Normal, Bus or Tram Stop or Delay weighting has been set to a value other than 100%*
- *^ = Traffic Stream - Normal, Bus or Tram Stop or Delay Path weighting has been set to a value other than 100%*
- *+ = average link/traffic stream excess queue is greater than 0*
- ***P.I. = PERFORMANCE INDEX***

A4 - 2026 DS PM
D4 - 2026 PM*

Summary

Data Errors and Warnings

No errors or warnings

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (£ per hr)	Total network delay (PCU-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Ite wit wor over PR
4	08/10/2019 13:47:39	08/10/2019 13:47:42	17:45	120	275.63	17.98	69.52	E/1	0	0	E/1	E1/1	E/

Analysis Set Details

Name	Description	Demand set	Include in report	Locked
2026 DS PM		D4	✓	

Demand Set Details

Name	Description	Composite	Demand sets	Start time (HH:mm)	Locked
2026 PM				17:45	

Signal Timings

Network Default: 120s cycle time; 120 steps

Controller Stream

Controller stream	Name	Description	Use sequence	Cycle time source	Cycle time (s)
1	(untitled)		9	NetworkDefault	120

Controller Stream - Properties

Controller stream	Manufacturer name	Type	Model number	(Telephone) Line Number	Site number	Grid reference	Gaining delay type
1	Unspecified						Absolute

Controller Stream - Optimisation

Controller stream	Allow offset optimisation	Allow green split optimisation	Optimisation level	Auto redistribute	Enable stage constraint
1	✓	✓	Offsets And Green Splits	✓	

Phases

Controller stream	Phase	Name	Minimum green (s)	Maximum green (s)	Relative start displacement (s)	Relative end displacement (s)	Type	Blackout Time (s)
1	A	(untitled)	7	300	0	0	Traffic	
	B	(untitled)	7	300	0	0	Traffic	
	C	(untitled)	6	300	0	0	Traffic	
	D	(untitled)	7	300	0	0	Pedestrian	0
	E	(untitled)	7	300	0	0	Traffic	
	F	(untitled)	7	300	0	0	Traffic	
	G	(untitled)	7	300	0	0	Traffic	
	H	(untitled)	7	300	0	0	Traffic	
	I	(untitled)	7	300	0	0	Traffic	
	J	(untitled)	7	300	0	0	Pedestrian	0

Library Stages

Controller stream	Library stage	Phases in stage	User stage minimum (s)
1	1	A, B, E, F, G	1
	2	A, B, E, F, H	1
	3	A, B, H, I	1
	4	A, B, J	1
	5	A, C, E, F, G	1
	6	A, C, E, F, H	1
	7	A, C, H, I	1
	8	A, C, J	1
	9	D, E, F, G	1
	10	D, E, F, H	1
	11	D, H, I	1
	12	D, J	1

Stage Sequences

Controller stream	Sequence	Name	Multiple cycling	Stage IDs	Stage ends
1	1	(untitled)	Single	4, 11, 5	38, 82, 19
	2	(untitled)	Single	4, 9, 7	40, 72, 20
	3	(untitled)	Single	4, 7, 9	19, 90, 115
	4	(untitled)	Single	3, 12, 5	62, 75, 18
	5	(untitled)	Single	3, 8, 9	28, 79, 109
	6	(untitled)	Single	3, 9, 8	52, 75, 10
	7	(untitled)	Single	1, 7, 12	8, 80, 94
	8	(untitled)	Single	1, 11, 8	43, 79, 12
	9	(untitled)	Single	1, 12, 7	62, 76, 16
	10	(untitled)	Single	4, 5, 11	35, 92, 11

Intergreen Matrix for Controller Stream 1

From \ To	A	B	C	D	E	F	G	H	I	J
A				6						
B			5	5						
C		5		7						
D	9	9	9							
E									5	5
F									5	7
G								5	5	7
H							5			6
I					5	5	5			5
J					11	11	11	11	11	

Interstage Matrix for Controller Stream 1

From \ To	1	2	3	4	5	6	7	8	9	10	11	12
1	0	5	5	7	5	5	5	7	6	6	6	7
2	5	0	5	7	5	5	5	7	6	6	6	7
3	5	5	0	6	5	5	5	6	6	6	6	6
4	11	11	11	0	11	11	11	5	11	11	11	6
5	5	5	5	7	0	5	5	7	7	7	7	7
6	5	5	5	7	5	0	5	7	7	7	7	7
7	5	5	5	6	5	5	0	6	7	7	7	7
8	11	11	11	5	11	11	11	0	11	11	11	7
9	9	9	9	9	9	9	9	9	0	5	5	7
10	9	9	9	9	9	9	9	9	5	0	5	7
11	9	9	9	9	9	9	9	9	5	5	0	6
12	11	11	11	9	11	11	11	9	11	11	11	0

Resultant Stages

Controller stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	1	✓	1	A,B,E,F,G	21	62	41	1	7
	2	✓	12	D,J	69	76	7	1	7
	3	✓	7	A,C,H,I	87	16	49	1	7

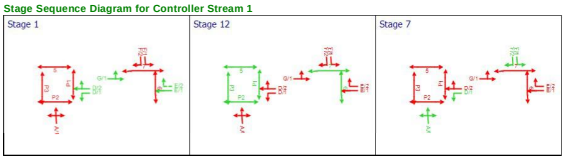
Resultant Phase Green Periods

Controller stream	Phase	Green period	Is base green period	Start time (s)	End time (s)	Duration (s)
1	A	1	✓	85	62	97
	B	1	✓	21	62	41
	C	1	✓	85	16	51
	D	1	✓	68	76	8
	E	1	✓	21	62	41
	F	1	✓	21	62	41
	G	1	✓	21	62	41
	H	1	✓	87	16	49
	I	1	✓	87	16	49
	J	1	✓	69	76	7

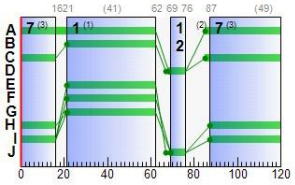
Traffic Stream Green Times

Arm	Traffic Stream	Traffic Node	Controller Stream	Phase	Green Period 1		
					Start	End	Duration
A	1	1	1	C	85	16	51
D	1	1	1	A	85	62	97
D	2	1	1	B	21	62	41
E	1	3	1	E	21	62	41
E	2	3	1	F	21	62	41
F	1	3	1	H	87	16	49
F	2	3	1	I	87	16	49
G	1	2	1	G	21	62	41

Stage Sequence Diagram for Controller Stream 1



Phase Timings Diagram for Controller Stream 1



Traffic Stream Results

Traffic Stream Results: Vehicle summary

Time Segment	Arm	Traffic Stream	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Mean Delay per Veh (s)	Mean max queue (PCU)	Utilised storage (%)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
17:45-18:45	A	1	69	30	532	1777	51	32.66	15.10	57.87	68.54	5.54	74.08
	Ax	1	0	Unrestricted	602	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	Bx	1	0	Unrestricted	435	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	Cx	1	0	Unrestricted	101	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	D	1	39	132	602	1897	97	1.61	1.57	10.05	3.82	0.41	4.23
		2	36	149	258	2036	41	18.73	4.05	29.09	19.06	1.52	20.58
	E	1	70	29	500	2055	41	39.13	15.09	722.95	77.18	5.55	82.73
		2	2	3644	17	2021	41	25.74	0.37	17.66	1.73	0.14	1.86
	F	1	14	532	104	1752	49	22.13	2.09	30.07	9.08	0.79	9.87
		2	46	95	360	1874	49	27.38	8.30	95.50	38.88	3.12	42.00
	Fx	1	0	Unrestricted	348	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	G	1	38	138	254	1921	41	36.38	8.58	54.82	36.45	3.23	39.67
	E1	1	25	258	517	2055	120	0.29	0.04	0.12	0.60	0.00	0.60
	F1	1	0	Unrestricted	464	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	12	1	0	Unrestricted	27	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00

Traffic Stream Results: Flows and signals

Time Segment	Arm	Traffic Stream	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Calculated sat flow (PCU/hr)	Calculated capacity (PCU/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))	Effec gree (pe cycl
17:45-18:45	A	1	532	532	0		1777	770	69		30	0.00	51	52
	Ax	1	602	602	0		Unrestricted	Unrestricted	0		Unrestricted	0.61	120	12
	Bx	1	435	435	0		Unrestricted	Unrestricted	0		Unrestricted	0.57	120	12
	Cx	1	101	101	0		Unrestricted	Unrestricted	0		Unrestricted	0.95	120	12
	D	1	602	602	0		1897	1549	39		132	0.89	97	98
		2	258	258	0		2036	713	36		149	0.89	41	42
	E	1	500	500	0		2055	719	70		29	0.00	41	42
		2	17	17	0		2021	707	2		3644	0.00	41	42
	F	1	104	104	0		1752	730	14		532	0.00	49	50
		2	360	360	0		1874	781	46		95	0.00	49	50
	Fx	1	348	348	0		Unrestricted	Unrestricted	0		Unrestricted	0.55	120	12
	G	1	254	254	0		1921	672	38		138	1.13	41	42
	E1	1	517	517	0		2055	2055	25		258	0.00	120	12
	F1	1	464	464	0		Unrestricted	Unrestricted	0		Unrestricted	0.00	120	12
	12	1	27	27	0		Unrestricted	Unrestricted	0		Unrestricted	1.07	120	12

Traffic Stream Results: Stops and delays

Time Segment	Arm	Traffic Stream	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Uniform delay (PCU-hr/hr)	Random plus oversat delay (PCU-hr/hr)	Unweighted cost of delay (£ per hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Uniform stops (Stops per hr)	Random stops (Stops per hr)	Unweighted cost of stops (£ per hr)	Weighted cost of stops (£ per hr)
17:45-18:45	A	1	18.00	32.66	4.06	0.76	68.54	68.54	83.05	419.18	22.64	5.54	5.54
	Ax	1	24.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Bx	1	18.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Cx	1	13.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	D	1	10.80	1.61	0.15	0.12	3.82	3.82	5.46	29.17	3.69	0.41	0.41
		2	9.60	18.73	1.24	0.10	19.06	19.06	47.06	118.35	3.07	1.52	1.52
	E	1	1.44	39.13	4.65	0.78	77.18	77.18	88.61	419.84	23.19	5.55	5.55
		2	1.44	25.74	0.12	0.00	1.73	1.73	64.07	10.88	0.01	0.14	0.14
	F	1	4.80	22.13	0.63	0.01	9.08	9.08	60.34	62.40	0.35	0.79	0.79
		2	6.00	27.38	2.54	0.20	38.88	38.88	69.19	243.21	5.87	3.12	3.12
	Fx	1	72.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	G	1	10.80	36.38	2.45	0.11	36.45	36.45	101.35	254.00	3.42	3.23	3.23
	E1	1	24.00	0.29	0.00	0.04	0.60	0.60	0.00	0.00	0.00	0.00	0.00
	F1	1	13.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	12	1	46.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Traffic Stream Results: Queues and blocking

Time Segment	Arm	Traffic Stream	Initial queue (PCU)	Mean max queue (PCU)	Max queue storage (PCU)	Utilised storage (%)	Average storage excess queue (PCU)	Average limit excess queue (PCU)	Excess queue penalty (£ per hr)	Max end of green queue (PCU)	Max end of red queue (PCU)	Wasted time starvation (s (per cycle))	Wasted time blocking back (s (per cycle))	Wasted time total (s (per cycle))	Estimated blocking
17:45-18:45	A	1	0.00	15.10	26.09	57.87	0.00	0.00	0.00	0.76	10.81	0.00	0.00	0.00	
	Ax	1	0.00	0.00	34.78	0.00	0.00	0.00	0.00			4.00	0.00	4.00	
	Bx	1	0.00	0.00	26.09	0.00	0.00	0.00	0.00			14.00	0.00	14.00	
	Cx	1	0.00	0.00	19.13	0.00	0.00	0.00	0.00			67.00	0.00	67.00	
	D	1	0.00	1.57	15.65	10.05	0.00	0.00	0.00	0.12	1.10	14.00	0.00	14.00	
		2	0.00	4.05	13.91	29.09	0.00	0.00	0.00	0.10	3.99	1.00	0.00	1.00	
	E	1	0.00	15.09	2.09	722.95	5.12	0.00	0.00	0.78	11.62	0.00	0.00	0.00	
		2	0.00	0.37	2.09	17.66	0.00	0.00	0.00	0.00	0.37	41.00	0.00	41.00	
	F	1	0.00	2.09	6.96	30.07	0.00	0.00	0.00	0.01	2.06	0.00	0.00	0.00	
		2	0.00	8.30	8.70	95.50	0.00	0.00	0.00	0.20	7.69	0.00	0.00	0.00	
	Fx	1	0.00	0.00	104.35	0.00	0.00	0.00	0.00			0.00	0.00	0.00	
	G	1	0.00	8.58	15.65	54.82	0.00	0.00	0.00	0.11	8.51	25.00	0.00	25.00	
	E1	1	0.00	0.04	34.78	0.12	0.00	0.00	0.00			0.00	94.00	94.00	
	F1	1	0.00	0.00	19.13	0.00	0.00	0.00	0.00			0.00	0.00	0.00	
	12	1	0.00	0.00	67.65	0.00	0.00	0.00	0.00			96.00	0.00	96.00	

Final Prediction Table

Traffic Stream Results

			SIGNALS			FLOWS		PERFORMANCE				PER PCU			QUEUE	
Arm	Traffic Stream	Name	Traffic node	Controller stream	Phase	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Wasted time total (s (per cycle))	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Veh (s)	Mean stops per Veh (%)	Mean max queue (PCU)	M e of qu (P
A	1	(untitled)	1	1	C	532	1777	51	0.00	69	30	50.66	32.66	83.05	15.10	10
Ax	1	(untitled)				602	Unrestricted	120	4.00	0	Unrestricted	24.00	0.00	0.00	0.00	
Bx	1	(untitled)				435	Unrestricted	120	14.00	0	Unrestricted	18.00	0.00	0.00	0.00	
Cx	1	(untitled)				101	Unrestricted	120	67.00	0	Unrestricted	13.20	0.00	0.00	0.00	
D	1	(untitled)	1	1	A	602	1897	97	14.00	39	132	12.41	1.61	5.46	1.57	1.
	2	(untitled)	1	1	B	258	2036	41	1.00	36	149	28.33	18.73	47.06	4.05	3.
E	1	(untitled)	3	1	E	500 <	2055	41	0.00	70	29	40.57	39.13	88.61	15.09 +	11
	2	(untitled)	3	1	F	17	2021	41	41.00	2	3644	27.18	25.74	64.07	0.37	0.
F	1	(untitled)	3	1	H	104	1752	49	0.00	14	532	26.93	22.13	60.34	2.09	2.
	2	(untitled)	3	1	I	360	1874	49	0.00	46	95	33.38	27.38	69.19	8.30	7.
Fx	1	(untitled)				348	Unrestricted	120	0.00	0	Unrestricted	72.00	0.00	0.00	0.00	
G	1	(untitled)	2	1	G	254	1921	41	25.00	38	138	47.18	36.38	101.35	8.58	8.
E1	1	(untitled)	2			517	2055	120	94.00	25	258	24.29	0.29	0.00	0.04	
F1	1	(untitled)	2			464	Unrestricted	120	0.00	0	Unrestricted	13.20	0.00	0.00	0.00	
12	1	(untitled)				27	Unrestricted	120	96.00	0	Unrestricted	46.68	0.00	0.00	0.00	

Network Results

	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	Uniform delay (PCU-hr/hr)	Random plus oversat delay (PCU-hr/hr)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Excess queue penalty (£ per hr)	Performance Index (£ per hr)
Normal traffic	776.35	43.86	17.70	15.84	2.14	255.32	20.30	0.00	275.63
Bus	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tram	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pedestrians	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	776.35	43.86	17.70	15.84	2.14	255.32	20.30	0.00	275.63

- *< = adjusted flow warning (upstream links/traffic streams are over-saturated)*
- ** = Traffic Stream - Normal, Bus or Tram Stop or Delay weighting has been set to a value other than 100%*
- *^ = Traffic Stream - Normal, Bus or Tram Stop or Delay Path weighting has been set to a value other than 100%*
- *+ = average link/traffic stream excess queue is greater than 0*
- ***P.I. = PERFORMANCE INDEX***

A5 - 2036 DS AM
D5 - 2036 AM*

Summary

Data Errors and Warnings

No errors or warnings

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (£ per hr)	Total network delay (PCU-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Ite wit wor over PR
5	08/10/2019 13:47:42	08/10/2019 13:47:45	08:15	120	329.27	21.47	78.23	A/1	0	0	A/1	E1/1	A/

Analysis Set Details

Name	Description	Demand set	Include in report	Locked
2036 DS AM		D5	✓	

Demand Set Details

Name	Description	Composite	Demand sets	Start time (HH:mm)	Locked
2036 AM				08:15	

Signal Timings

Network Default: 120s cycle time; 120 steps

Controller Stream

Controller stream	Name	Description	Use sequence	Cycle time source	Cycle time (s)
1	(untitled)		9	NetworkDefault	120

Controller Stream - Properties

Controller stream	Manufacturer name	Type	Model number	(Telephone) Line Number	Site number	Grid reference	Gaining delay type
1	Unspecified						Absolute

Controller Stream - Optimisation

Controller stream	Allow offset optimisation	Allow green split optimisation	Optimisation level	Auto redistribute	Enable stage constraint
1	✓	✓	Offsets And Green Splits	✓	

Phases

Controller stream	Phase	Name	Minimum green (s)	Maximum green (s)	Relative start displacement (s)	Relative end displacement (s)	Type	Blackout Time (s)
1	A	(untitled)	7	300	0	0	Traffic	
	B	(untitled)	7	300	0	0	Traffic	
	C	(untitled)	6	300	0	0	Traffic	
	D	(untitled)	7	300	0	0	Pedestrian	0
	E	(untitled)	7	300	0	0	Traffic	
	F	(untitled)	7	300	0	0	Traffic	
	G	(untitled)	7	300	0	0	Traffic	
	H	(untitled)	7	300	0	0	Traffic	
	I	(untitled)	7	300	0	0	Traffic	
	J	(untitled)	7	300	0	0	Pedestrian	0

Library Stages

Controller stream	Library stage	Phases in stage	User stage minimum (s)
1	1	A, B, E, F, G	1
	2	A, B, E, F, H	1
	3	A, B, H, I	1
	4	A, B, J	1
	5	A, C, E, F, G	1
	6	A, C, E, F, H	1
	7	A, C, H, I	1
	8	A, C, J	1
	9	D, E, F, G	1
	10	D, E, F, H	1
	11	D, H, I	1
	12	D, J	1

Stage Sequences

Controller stream	Sequence	Name	Multiple cycling	Stage IDs	Stage ends
1	1	(untitled)	Single	4, 11, 5	38, 82, 19
	2	(untitled)	Single	4, 9, 7	40, 72, 20
	3	(untitled)	Single	4, 7, 9	19, 90, 115
	4	(untitled)	Single	3, 12, 5	62, 75, 18
	5	(untitled)	Single	3, 8, 9	28, 79, 109
	6	(untitled)	Single	3, 9, 8	52, 75, 10
	7	(untitled)	Single	1, 7, 12	8, 80, 94
	8	(untitled)	Single	1, 11, 8	43, 79, 12
	9	(untitled)	Single	1, 12, 7	62, 76, 29
	10	(untitled)	Single	4, 5, 11	35, 92, 11

Intergreen Matrix for Controller Stream 1

From \ To	A	B	C	D	E	F	G	H	I	J
A				6						
B			5	5						
C		5		7						
D	9	9	9							
E									5	5
F									5	7
G								5	5	7
H							5			6
I					5	5	5			5
J					11	11	11	11	11	

Interstage Matrix for Controller Stream 1

From \ To	1	2	3	4	5	6	7	8	9	10	11	12
1	0	5	5	7	5	5	5	7	6	6	6	7
2	5	0	5	7	5	5	5	7	6	6	6	7
3	5	5	0	6	5	5	5	6	6	6	6	6
4	11	11	11	0	11	11	11	5	11	11	11	6
5	5	5	5	7	0	5	5	7	7	7	7	7
6	5	5	5	7	5	0	5	7	7	7	7	7
7	5	5	5	6	5	5	0	6	7	7	7	7
8	11	11	11	5	11	11	11	0	11	11	11	7
9	9	9	9	9	9	9	9	9	0	5	5	7
10	9	9	9	9	9	9	9	9	5	0	5	7
11	9	9	9	9	9	9	9	9	5	5	0	6
12	11	11	11	9	11	11	11	9	11	11	11	0

Resultant Stages

Controller stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	1	✓	1	A,B,E,F,G	34	62	28	1	7
	2	✓	12	D,J	69	76	7	1	7
	3	✓	7	A,C,H,I	87	29	62	1	7

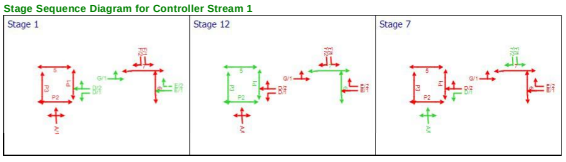
Resultant Phase Green Periods

Controller stream	Phase	Green period	Is base green period	Start time (s)	End time (s)	Duration (s)
1	A	1	✓	85	62	97
	B	1	✓	34	62	28
	C	1	✓	85	29	64
	D	1	✓	68	76	8
	E	1	✓	34	62	28
	F	1	✓	34	62	28
	G	1	✓	34	62	28
	H	1	✓	87	29	62
	I	1	✓	87	29	62
	J	1	✓	69	76	7

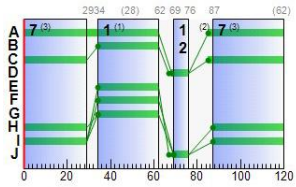
Traffic Stream Green Times

Arm	Traffic Stream	Traffic Node	Controller Stream	Phase	Green Period 1		
					Start	End	Duration
A	1	1	1	C	85	29	64
D	1	1	1	A	85	62	97
D	2	1	1	B	34	62	28
E	1	3	1	E	34	62	28
E	2	3	1	F	34	62	28
F	1	3	1	H	87	29	62
F	2	3	1	I	87	29	62
G	1	2	1	G	34	62	28

Stage Sequence Diagram for Controller Stream 1



Phase Timings Diagram for Controller Stream 1



Traffic Stream Results

Traffic Stream Results: Vehicle summary

Time Segment	Arm	Traffic Stream	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Mean Delay per Veh (s)	Mean max queue (PCU)	Utilised storage (%)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
08:15-09:15	A	1	78	15	753	1777	64	28.46	21.25	81.45	84.53	7.79	92.32
	Ax	1	0	Unrestricted	471	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	Bx	1	0	Unrestricted	453	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	Cx	1	0	Unrestricted	172	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	D	1	30	196	471	1897	97	1.21	1.52	9.68	2.25	0.26	2.52
		2	42	112	209	2036	28	27.20	3.98	28.60	22.42	1.50	23.92
	E	1	66	37	327	2055	28	47.92	10.44	500.02	61.81	3.87	65.68
		2	6	1308	31	2007	28	35.37	0.79	38.07	4.32	0.29	4.62
	F	1	46	94	426	1752	62	17.56	6.00	86.20	29.51	2.26	31.77
		2	36	151	353	1874	62	16.47	5.10	58.65	22.93	1.92	24.85
	Fx	1	0	Unrestricted	738	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	G	1	73	24	337	1921	28	53.15	12.17	77.75	70.65	4.57	75.22
	E1	1	17	417	358	2055	120	0.18	0.02	0.05	0.26	0.00	0.26
	F1	1	0	Unrestricted	779	Unrestricted	120	2.01	5.63	29.41	6.18	1.94	8.12
	12	1	0	Unrestricted	56	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00

Traffic Stream Results: Flows and signals

Time Segment	Arm	Traffic Stream	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Calculated sat flow (PCU/hr)	Calculated capacity (PCU/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))	Effec gree (pe cycl
08:15-09:15	A	1	753	753	0		1777	963	78		15	0.00	64	65
	Ax	1	471	471	0		Unrestricted	Unrestricted	0		Unrestricted	0.59	120	12
	Bx	1	453	453	0		Unrestricted	Unrestricted	0		Unrestricted	0.50	120	12
	Cx	1	172	172	0		Unrestricted	Unrestricted	0		Unrestricted	0.74	120	12
	D	1	471	471	0		1897	1549	30		196	0.93	97	98
		2	209	209	0		2036	492	42		112	0.93	28	29
	E	1	327	327	0		2055	497	66		37	0.00	28	29
		2	31	31	0		2007	485	6		1308	0.00	28	29
	F	1	426	426	0		1752	920	46		94	0.28	62	63
		2	353	353	0		1874	984	36		151	0.28	62	63
	Fx	1	738	738	0		Unrestricted	Unrestricted	0		Unrestricted	0.29	120	12
	G	1	337	337	0		1921	464	73		24	0.92	28	29
	E1	1	358	358	0		2055	2055	17		417	0.00	120	12
	F1	1	779	779	0		Unrestricted	Unrestricted	0		Unrestricted	0.00	120	12
	12	1	56	56	0		Unrestricted	Unrestricted	0		Unrestricted	1.13	120	12

Traffic Stream Results: Stops and delays

Time Segment	Arm	Traffic Stream	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Uniform delay (PCU-hr/hr)	Random plus oversat delay (PCU-hr/hr)	Unweighted cost of delay (£ per hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Uniform stops (Stops per hr)	Random stops (Stops per hr)	Unweighted cost of stops (£ per hr)	Weighted cost of stops (£ per hr)
08:15-09:15	A	1	18.00	28.46	4.58	1.38	84.53	84.53	82.54	580.74	40.76	7.79	7.79
	Ax	1	24.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Bx	1	18.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Cx	1	13.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	D	1	10.80	1.21	0.09	0.07	2.25	2.25	4.42	18.83	1.99	0.26	0.26
		2	9.60	27.20	1.42	0.16	22.42	22.42	57.10	114.68	4.66	1.50	1.50
	E	1	1.44	47.92	3.73	0.63	61.81	61.81	94.29	289.84	18.49	3.87	3.87
		2	1.44	35.37	0.30	0.00	4.32	4.32	75.89	23.46	0.07	0.29	0.29
	F	1	4.80	17.56	1.88	0.20	29.51	29.51	42.22	173.91	5.96	2.26	2.26
		2	6.00	16.47	1.51	0.10	22.93	22.93	43.34	149.99	3.00	1.92	1.92
	Fx	1	72.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	G	1	10.80	53.15	4.04	0.94	70.65	70.65	108.17	337.00	27.53	4.57	4.57
	E1	1	24.00	0.18	0.00	0.02	0.26	0.26	0.00	0.00	0.00	0.00	0.00
	F1	1	13.20	2.01	0.44	0.00	6.18	6.18	19.86	154.71	0.00	1.94	1.94
	12	1	46.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Traffic Stream Results: Queues and blocking

Time Segment	Arm	Traffic Stream	Initial queue (PCU)	Mean max queue (PCU)	Max queue storage (PCU)	Utilised storage (%)	Average storage excess queue (PCU)	Average limit excess queue (PCU)	Excess queue penalty (£ per hr)	Max end of green queue (PCU)	Max end of red queue (PCU)	Wasted time starvation (s (per cycle))	Wasted time blocking back (s (per cycle))	Wasted time total (s (per cycle))	Estimated blocking
08:15-09:15	A	1	0.00	21.25	26.09	81.45	0.00	0.00	0.00	1.38	12.88	0.00	0.00	0.00	
	Ax	1	0.00	0.00	34.78	0.00	0.00	0.00	0.00			2.00	0.00	2.00	
	Bx	1	0.00	0.00	26.09	0.00	0.00	0.00	0.00			12.00	0.00	12.00	
	Cx	1	0.00	0.00	19.13	0.00	0.00	0.00	0.00			42.00	0.00	42.00	
	D	1	0.00	1.52	15.65	9.68	0.00	0.00	0.00	0.07	0.69	14.00	0.00	14.00	
		2	0.00	3.98	13.91	28.60	0.00	0.00	0.00	0.16	3.92	1.00	0.00	1.00	
	E	1	0.00	10.44	2.09	500.02	3.23	0.00	0.00	0.63	8.89	0.00	0.00	0.00	
		2	0.00	0.79	2.09	38.07	0.00	0.00	0.00	0.00	0.79	27.00	0.00	27.00	
	F	1	0.00	6.00	6.96	86.20	0.00	0.00	0.00	0.20	6.00	0.00	0.00	0.00	
		2	0.00	5.10	8.70	58.65	0.00	0.00	0.00	0.10	5.10	0.00	0.00	0.00	
	Fx	1	0.00	0.00	104.35	0.00	0.00	0.00	0.00			0.00	0.00	0.00	
	G	1	0.00	12.17	15.65	77.75	0.00	0.00	0.00	0.94	12.17	6.00	0.00	6.00	
	E1	1	0.00	0.02	34.78	0.05	0.00	0.00	0.00			0.00	92.00	92.00	
	F1	1	0.00	5.63	19.13	29.41	0.00	0.00	0.00			0.00	26.00	26.00	
	12	1	0.00	0.00	67.65	0.00	0.00	0.00	0.00			82.00	0.00	82.00	

Final Prediction Table

Traffic Stream Results

				SIGNALS		FLOWS		PERFORMANCE				PER PCU			QUEUE	
Arm	Traffic Stream	Name	Traffic node	Controller stream	Phase	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Wasted time total (s (per cycle))	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Veh (s)	Mean stops per Veh (%)	Mean max queue (PCU)	M e of qu (P
A	1	(untitled)	1	1	C	753	1777	64	0.00	78	15	46.46	28.46	82.54	21.25	12
Ax	1	(untitled)				471	Unrestricted	120	2.00	0	Unrestricted	24.00	0.00	0.00	0.00	
Bx	1	(untitled)				453	Unrestricted	120	12.00	0	Unrestricted	18.00	0.00	0.00	0.00	
Cx	1	(untitled)				172	Unrestricted	120	42.00	0	Unrestricted	13.20	0.00	0.00	0.00	
D	1	(untitled)	1	1	A	471	1897	97	14.00	30	196	12.01	1.21	4.42	1.52	0.
	2	(untitled)	1	1	B	209	2036	28	1.00	42	112	36.80	27.20	57.10	3.98	3.
E	1	(untitled)	3	1	E	327 <	2055	28	0.00	66	37	49.36	47.92	94.29	10.44 +	8.
	2	(untitled)	3	1	F	31	2007	28	27.00	6	1308	36.81	35.37	75.89	0.79	0.
F	1	(untitled)	3	1	H	426	1752	62	0.00	46	94	22.36	17.56	42.22	6.00	6.
	2	(untitled)	3	1	I	353	1874	62	0.00	36	151	22.47	16.47	43.34	5.10	5.
Fx	1	(untitled)				738	Unrestricted	120	0.00	0	Unrestricted	72.00	0.00	0.00	0.00	
G	1	(untitled)	2	1	G	337	1921	28	6.00	73	24	63.95	53.15	108.17	12.17	12
E1	1	(untitled)	2			358	2055	120	92.00	17	417	24.18	0.18	0.00	0.02	
F1	1	(untitled)	2			779	Unrestricted	120	26.00	0	Unrestricted	15.21	2.01	19.86	5.63	
12	1	(untitled)				56	Unrestricted	120	82.00	0	Unrestricted	46.68	0.00	0.00	0.00	

Network Results

	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	Uniform delay (PCU-hr/hr)	Random plus oversat delay (PCU-hr/hr)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Excess queue penalty (£ per hr)	Performance Index (£ per hr)
Normal traffic	1044.32	56.28	18.56	17.99	3.48	304.87	24.40	0.00	329.27
Bus	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tram	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pedestrians	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	1044.32	56.28	18.56	17.99	3.48	304.87	24.40	0.00	329.27

- *< = adjusted flow warning (upstream links/traffic streams are over-saturated)*
- ** = Traffic Stream - Normal, Bus or Tram Stop or Delay weighting has been set to a value other than 100%*
- *^ = Traffic Stream - Normal, Bus or Tram Stop or Delay Path weighting has been set to a value other than 100%*
- *+ = average link/traffic stream excess queue is greater than 0*
- ***P.I. = PERFORMANCE INDEX***

A6 - 2036 DS PM
D6 - 2036 PM*

Summary

Data Errors and Warnings

No errors or warnings

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (£ per hr)	Total network delay (PCU-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Ite wit wor over PR
6	08/10/2019 13:47:45	08/10/2019 13:47:48	17:45	120	314.78	20.55	75.36	E/1	0	0	E/1	E1/1	E/

Analysis Set Details

Name	Description	Demand set	Include in report	Locked
2036 DS PM		D6	✓	

Demand Set Details

Name	Description	Composite	Demand sets	Start time (HH:mm)	Locked
2036 PM				17:45	

Signal Timings

Network Default: 120s cycle time; 120 steps

Controller Stream

Controller stream	Name	Description	Use sequence	Cycle time source	Cycle time (s)
1	(untitled)		9	NetworkDefault	120

Controller Stream - Properties

Controller stream	Manufacturer name	Type	Model number	(Telephone) Line Number	Site number	Grid reference	Gaining delay type
1	Unspecified						Absolute

Controller Stream - Optimisation

Controller stream	Allow offset optimisation	Allow green split optimisation	Optimisation level	Auto redistribute	Enable stage constraint
1	✓	✓	Offsets And Green Splits	✓	

Phases

Controller stream	Phase	Name	Minimum green (s)	Maximum green (s)	Relative start displacement (s)	Relative end displacement (s)	Type	Blackout Time (s)
1	A	(untitled)	7	300	0	0	Traffic	
	B	(untitled)	7	300	0	0	Traffic	
	C	(untitled)	6	300	0	0	Traffic	
	D	(untitled)	7	300	0	0	Pedestrian	0
	E	(untitled)	7	300	0	0	Traffic	
	F	(untitled)	7	300	0	0	Traffic	
	G	(untitled)	7	300	0	0	Traffic	
	H	(untitled)	7	300	0	0	Traffic	
	I	(untitled)	7	300	0	0	Traffic	
	J	(untitled)	7	300	0	0	Pedestrian	0

Library Stages

Controller stream	Library stage	Phases in stage	User stage minimum (s)
1	1	A, B, E, F, G	1
	2	A, B, E, F, H	1
	3	A, B, H, I	1
	4	A, B, J	1
	5	A, C, E, F, G	1
	6	A, C, E, F, H	1
	7	A, C, H, I	1
	8	A, C, J	1
	9	D, E, F, G	1
	10	D, E, F, H	1
	11	D, H, I	1
	12	D, J	1

Stage Sequences

Controller stream	Sequence	Name	Multiple cycling	Stage IDs	Stage ends
1	1	(untitled)	Single	4, 11, 5	38, 82, 19
	2	(untitled)	Single	4, 9, 7	40, 72, 20
	3	(untitled)	Single	4, 7, 9	19, 90, 115
	4	(untitled)	Single	3, 12, 5	62, 75, 18
	5	(untitled)	Single	3, 8, 9	28, 79, 109
	6	(untitled)	Single	3, 9, 8	52, 75, 10
	7	(untitled)	Single	1, 7, 12	8, 80, 94
	8	(untitled)	Single	1, 11, 8	43, 79, 12
	9	(untitled)	Single	1, 12, 7	62, 76, 16
	10	(untitled)	Single	4, 5, 11	35, 92, 11

Intergreen Matrix for Controller Stream 1

		To									
		A	B	C	D	E	F	G	H	I	J
From	A				6						
	B			5	5						
	C		5		7						
	D	9	9	9							
	E									5	5
	F									5	7
	G								5	5	7
	H							5			6
	I					5	5	5			5
	J					11	11	11	11	11	

Interstage Matrix for Controller Stream 1

From \ To	1	2	3	4	5	6	7	8	9	10	11	12
1	0	5	5	7	5	5	5	7	6	6	6	7
2	5	0	5	7	5	5	5	7	6	6	6	7
3	5	5	0	6	5	5	5	6	6	6	6	6
4	11	11	11	0	11	11	11	5	11	11	11	6
5	5	5	5	7	0	5	5	7	7	7	7	7
6	5	5	5	7	5	0	5	7	7	7	7	7
7	5	5	5	6	5	5	0	6	7	7	7	7
8	11	11	11	5	11	11	11	0	11	11	11	7
9	9	9	9	9	9	9	9	9	0	5	5	7
10	9	9	9	9	9	9	9	9	5	0	5	7
11	9	9	9	9	9	9	9	9	5	5	0	6
12	11	11	11	9	11	11	11	9	11	11	11	0

Resultant Stages

Controller stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	1	✓	1	A,B,E,F,G	21	62	41	1	7
	2	✓	12	D,J	69	76	7	1	7
	3	✓	7	A,C,H,I	87	16	49	1	7

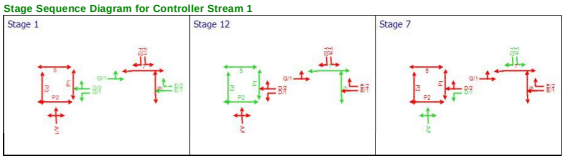
Resultant Phase Green Periods

Controller stream	Phase	Green period	Is base green period	Start time (s)	End time (s)	Duration (s)
1	A	1	✓	85	62	97
	B	1	✓	21	62	41
	C	1	✓	85	16	51
	D	1	✓	68	76	8
	E	1	✓	21	62	41
	F	1	✓	21	62	41
	G	1	✓	21	62	41
	H	1	✓	87	16	49
	I	1	✓	87	16	49
	J	1	✓	69	76	7

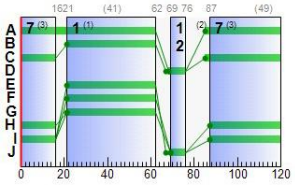
Traffic Stream Green Times

Arm	Traffic Stream	Traffic Node	Controller Stream	Phase	Green Period 1		
					Start	End	Duration
A	1	1	1	C	85	16	51
D	1	1	1	A	85	62	97
D	2	1	1	B	21	62	41
E	1	3	1	E	21	62	41
E	2	3	1	F	21	62	41
F	1	3	1	H	87	16	49
F	2	3	1	I	87	16	49
G	1	2	1	G	21	62	41

Stage Sequence Diagram for Controller Stream 1



Phase Timings Diagram for Controller Stream 1



Traffic Stream Results

Traffic Stream Results: Vehicle summary

Time Segment	Arm	Traffic Stream	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Mean Delay per Veh (s)	Mean max queue (PCU)	Utilised storage (%)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
17:45-18:45	A	1	75	21	574	1777	51	35.18	17.02	65.23	79.66	6.28	85.93
	Ax	1	0	Unrestricted	656	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	Bx	1	0	Unrestricted	479	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	Cx	1	0	Unrestricted	109	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	D	1	42	113	656	1897	97	1.72	1.60	10.25	4.44	0.45	4.89
		2	40	126	284	2036	41	18.98	4.55	32.67	21.26	1.71	22.97
	E	1	75	19	542	2055	41	41.93	16.94	811.54	89.63	6.28	95.91
		2	3	3435	18	2020	41	25.74	0.39	18.70	1.83	0.14	1.97
	F	1	17	434	123	1752	49	22.47	2.48	35.61	10.90	0.93	11.83
		2	51	77	398	1874	49	28.22	8.94	102.81	44.30	3.36	47.66
	Fx	1	0	Unrestricted	379	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	G	1	40	124	270	1921	41	36.12	9.14	58.37	38.46	3.44	41.90
	E1	1	27	230	560	2055	120	0.33	0.05	0.15	0.72	0.00	0.72
	F1	1	0	Unrestricted	521	Unrestricted	120	0.27	1.59	8.32	0.55	0.43	0.98
	12	1	0	Unrestricted	32	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00

Traffic Stream Results: Flows and signals

Time Segment	Arm	Traffic Stream	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Calculated sat flow (PCU/hr)	Calculated capacity (PCU/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))	Effec gree (pe cycl
17:45-18:45	A	1	574	574	0		1777	770	75		21	0.00	51	52
	Ax	1	656	656	0		Unrestricted	Unrestricted	0		Unrestricted	0.58	120	12
	Bx	1	479	479	0		Unrestricted	Unrestricted	0		Unrestricted	0.53	120	12
	Cx	1	109	109	0		Unrestricted	Unrestricted	0		Unrestricted	0.94	120	12
	D	1	656	656	0		1897	1549	42		113	0.85	97	98
		2	284	284	0		2036	713	40		126	0.85	41	42
	E	1	542	542	0		2055	719	75		19	0.00	41	42
		2	18	18	0		2020	707	3		3435	0.00	41	42
	F	1	123	123	0		1752	730	17		434	0.08	49	50
		2	398	398	0		1874	781	51		77	0.08	49	50
	Fx	1	379	379	0		Unrestricted	Unrestricted	0		Unrestricted	0.51	120	12
	G	1	270	270	0		1921	672	40		124	1.13	41	42
	E1	1	560	560	0		2055	2055	27		230	0.00	120	12
	F1	1	521	521	0		Unrestricted	Unrestricted	0		Unrestricted	0.00	120	12
	12	1	32	32	0		Unrestricted	Unrestricted	0		Unrestricted	1.07	120	12

Traffic Stream Results: Stops and delays

Time Segment	Arm	Traffic Stream	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Uniform delay (PCU-hr/hr)	Random plus oversat delay (PCU-hr/hr)	Unweighted cost of delay (£ per hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Uniform stops (Stops per hr)	Random stops (Stops per hr)	Unweighted cost of stops (£ per hr)	Weighted cost of stops (£ per hr)
17:45-18:45	A	1	18.00	35.18	4.54	1.07	79.66	79.66	87.24	469.05	31.70	6.28	6.28
	Ax	1	24.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Bx	1	18.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Cx	1	13.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	D	1	10.80	1.72	0.16	0.16	4.44	4.44	5.51	31.50	4.65	0.45	0.45
		2	9.60	18.98	1.37	0.13	21.26	21.26	47.92	132.17	3.94	1.71	1.71
	E	1	1.44	41.93	5.18	1.13	89.63	89.63	92.42	467.61	33.32	6.28	6.28
		2	1.44	25.74	0.13	0.00	1.83	1.83	64.07	11.52	0.01	0.14	0.14
	F	1	4.80	22.47	0.75	0.02	10.90	10.90	60.42	73.80	0.51	0.93	0.93
		2	6.00	28.22	2.86	0.26	44.30	44.30	67.38	260.29	7.88	3.36	3.36
	Fx	1	72.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	G	1	10.80	36.12	2.57	0.13	38.46	38.46	101.51	270.05	4.02	3.44	3.44
	E1	1	24.00	0.33	0.00	0.05	0.72	0.72	0.00	0.00	0.00	0.00	0.00
	F1	1	13.20	0.27	0.04	0.00	0.55	0.55	6.55	34.12	0.00	0.43	0.43
	12	1	46.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Traffic Stream Results: Queues and blocking

Time Segment	Arm	Traffic Stream	Initial queue (PCU)	Mean max queue (PCU)	Max queue storage (PCU)	Utilised storage (%)	Average storage excess queue (PCU)	Average limit excess queue (PCU)	Excess queue penalty (£ per hr)	Max end of green queue (PCU)	Max end of red queue (PCU)	Wasted time starvation (s (per cycle))	Wasted time blocking back (s (per cycle))	Wasted time total (s (per cycle))	Estimated blocking
17:45-18:45	A	1	0.00	17.02	26.09	65.23	0.00	0.00	0.00	1.07	11.91	0.00	0.00	0.00	
	Ax	1	0.00	0.00	34.78	0.00	0.00	0.00	0.00			2.00	0.00	2.00	
	Bx	1	0.00	0.00	26.09	0.00	0.00	0.00	0.00			13.00	0.00	13.00	
	Cx	1	0.00	0.00	19.13	0.00	0.00	0.00	0.00			66.00	0.00	66.00	
	D	1	0.00	1.60	15.65	10.25	0.00	0.00	0.00	0.16	1.21	14.00	0.00	14.00	
		2	0.00	4.55	13.91	32.67	0.00	0.00	0.00	0.13	4.46	0.00	0.00	0.00	
	E	1	0.00	16.94	2.09	811.54	6.16	0.00	0.00	1.13	12.87	0.00	0.00	0.00	
		2	0.00	0.39	2.09	18.70	0.00	0.00	0.00	0.00	0.39	41.00	0.00	41.00	
	F	1	0.00	2.48	6.96	35.61	0.00	0.00	0.00	0.02	2.44	6.00	0.00	6.00	
		2	0.00	8.94	8.70	102.81	0.01	0.00	0.00	0.26	8.56	0.00	0.00	0.00	
	Fx	1	0.00	0.00	104.35	0.00	0.00	0.00	0.00			0.00	0.00	0.00	
	G	1	0.00	9.14	15.65	58.37	0.00	0.00	0.00	0.13	9.13	24.00	0.00	24.00	
	E1	1	0.00	0.05	34.78	0.15	0.00	0.00	0.00			0.00	99.00	99.00	
	F1	1	0.00	1.59	19.13	8.32	0.00	0.00	0.00			0.00	11.00	11.00	
	12	1	0.00	0.00	67.65	0.00	0.00	0.00	0.00			92.00	0.00	92.00	

Final Prediction Table

Traffic Stream Results

			SIGNALS			FLOWS		PERFORMANCE				PER PCU			QUEUE	
Arm	Traffic Stream	Name	Traffic node	Controller stream	Phase	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Wasted time total (s (per cycle))	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Veh (s)	Mean stops per Veh (%)	Mean max queue (PCU)	M e of qu (P
A	1	(untitled)	1	1	C	574	1777	51	0.00	75	21	53.18	35.18	87.24	17.02	11
Ax	1	(untitled)				656	Unrestricted	120	2.00	0	Unrestricted	24.00	0.00	0.00	0.00	
Bx	1	(untitled)				479	Unrestricted	120	13.00	0	Unrestricted	18.00	0.00	0.00	0.00	
Cx	1	(untitled)				109	Unrestricted	120	66.00	0	Unrestricted	13.20	0.00	0.00	0.00	
D	1	(untitled)	1	1	A	656	1897	97	14.00	42	113	12.52	1.72	5.51	1.60	1.
	2	(untitled)	1	1	B	284	2036	41	0.00	40	126	28.58	18.98	47.92	4.55	4.
E	1	(untitled)	3	1	E	542 <	2055	41	0.00	75	19	43.37	41.93	92.42	16.94 +	12
	2	(untitled)	3	1	F	18	2020	41	41.00	3	3435	27.18	25.74	64.07	0.39	0.
F	1	(untitled)	3	1	H	123	1752	49	6.00	17	434	27.27	22.47	60.42	2.48	2.
	2	(untitled)	3	1	I	398 <	1874	49	0.00	51	77	34.22	28.22	67.38	8.94 +	8.
Fx	1	(untitled)				379	Unrestricted	120	0.00	0	Unrestricted	72.00	0.00	0.00	0.00	
G	1	(untitled)	2	1	G	270	1921	41	24.00	40	124	46.92	36.12	101.51	9.14	9.
E1	1	(untitled)	2			560	2055	120	99.00	27	230	24.33	0.33	0.00	0.05	
F1	1	(untitled)	2			521	Unrestricted	120	11.00	0	Unrestricted	13.47	0.27	6.55	1.59	
12	1	(untitled)				32	Unrestricted	120	92.00	0	Unrestricted	46.68	0.00	0.00	0.00	

Network Results

	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	Uniform delay (PCU-hr/hr)	Random plus oversat delay (PCU-hr/hr)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Excess queue penalty (£ per hr)	Performance Index (£ per hr)
Normal traffic	847.90	48.81	17.37	17.59	2.95	291.76	23.02	0.00	314.78
Bus	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tram	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pedestrians	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	847.90	48.81	17.37	17.59	2.95	291.76	23.02	0.00	314.78

- *< = adjusted flow warning (upstream links/traffic streams are over-saturated)*
- ** = Traffic Stream - Normal, Bus or Tram Stop or Delay weighting has been set to a value other than 100%*
- *+ = average link/traffic stream excess queue is greater than 0*
- ***P.I. = PERFORMANCE INDEX***

TRANSYT 15

Version: 15.5.2.7994
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Filename: Junction 4 Do Minimum.t15
Path: G:\2019\p190009\calcs\transyt\Oct 2019
Report generation date: 08/10/2019 13:56:07

»A1 - 2021 AM Do Minimum : D1 - 2021 AM Peak* :
»A2 - 2021 PM Do Minimum : D2 - 2021 PM Peak* :
»A3 - 2026 AM Do Minimum : D3 - 2026 AM Peak* :
»A4 - 2026 PM Do Minimum : D4 - 2026 PM Peak* :
»A5 - 2036 AM Do Minimum : D5 - 2036 AM Peak* :
»A6 - 2036 PM Do Minimum : D6 - 2036 PM Peak* :

File summary

File description

File title	Millerstown Phase 2
Location	Kilcock
Site number	Junction 4
UTCRegion	
Driving side	Left
Date	01/04/2018
Version	
Status	TTA
Identifier	
Client	MGR
Jobnumber	190009
Enumerator	HEADOFFICE\mckennam
Description	

Model and Results

Enable controller offsets	Enable fuel consumption	Enable quick flares	Display journey time results	Display level of service results	Display blocking and starvation results	Display end of red and green queue results	Display excess queue results	Display separate uniform and random results	Display unweighted results	Display TRANSYT 12 style timings	Display effective greens in results	Display Red-With-Amber	Display End-Of-Green Amber
			✓		✓	✓	✓	✓	✓	✓	✓		

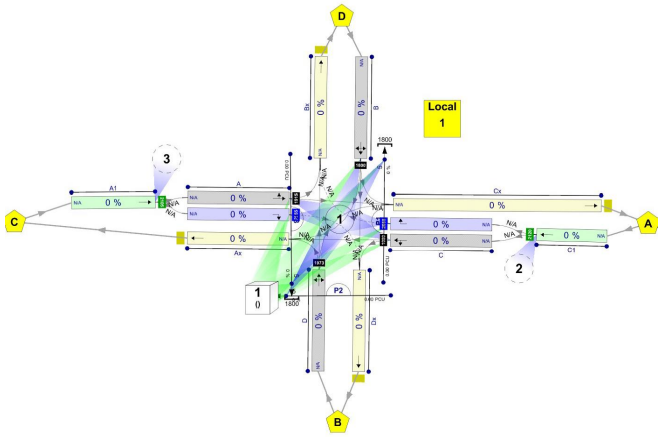
Units

Cost units	Speed units	Distance units	Fuel economy units	Fuel rate units	Mass units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
£	kph	m	mpg	l/h	kg	PCU	PCU	perHour	s	-Hour	perHour

Sorting

Show names instead of IDs	Sorting direction	Sorting type	Ignore prefixes when sorting	Analysis/demand set sorting	Link grouping	Source grouping	Colour Analysis/Demand Sets
	Ascending	Numerical		ID	Normal	Normal	✓

Network Diagrams



Millerstown Phase 2
Cyclotime 0s / 120s . Timesteps 119 / 120
5, 6
Diagram produced using TRANSYT 15.5.2.7994

A1 - 2021 AM Do Minimum
D1 - 2021 AM Peak*

Summary

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Give-Way Data	Arm A - Traffic Stream 2 - All movements	Traffic Stream A/2: Opposed Saturation Flow is the same as or greater than Unopposed Saturation Flow.
Warning	Give-Way Data	Arm C - Traffic Stream 2 - All movements	Traffic Stream C/2: Opposed Saturation Flow is the same as or greater than Unopposed Saturation Flow.
Info	Link Signals	Link P1 - Signals (1, G)	Link P1 and Phase G phase type both expected to be pedestrian.
Info	Link Signals	Link P2 - Signals (1, G)	Link P2 and Phase G phase type both expected to be pedestrian.
Info	Link Signals	Link P3 - Signals (1, G)	Link P3 and Phase G phase type both expected to be pedestrian.

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (£ per hr)	Total network delay (PCU-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Ite wit wor over PR
1	08/10/2019 13:55:47	08/10/2019 13:55:48	08:30	120	60.58	3.82	54.30	D/1	0	0	D/1	A1/1	D/

Analysis Set Details

Name	Description	Demand set	Include in report	Locked
2021 AM Do Minimum		D1	✓	

Demand Set Details

Name	Description	Composite	Demand sets	Start time (HH:mm)	Locked
2021 AM Peak				08:30	

Links

Links

Link	Name	Description	Traffic node	Length (m)	Has Saturation Flow	Use RR67	Saturation flow (PCU/hr)	Is signal controlled	Is give way	Traffic type	Is minor shared	Allow Nearside Turn On Red
(ALL)	(untitled)		1	11.50	✓		1800	✓		Normal		

Modelling

Link	Traffic model	Stop weighting (%)	Delay weighting (%)	Assignment Cost Weighting (%)	Exclude from results calculation	Max queue storage (PCU)	Has queue limit	Has degree of saturation limit
(ALL)	NetworkDefault	100	100	100		0.00		

Modelling - Normal traffic - Advanced

Link	Dispersion type for Normal Traffic	Initial queue (PCU)	Type of Vehicle-in-Service	Vehicle-in-Service	Type of random parameter	Random parameter	Auto cycle time	Cycle time
(ALL)	NetworkDefault	0.00	NetworkDefault	Not-Included	NetworkDefault	0.50	✓	120

Flows

Link	Total flow (PCU/hr)	PCU Factor
(ALL)	5	1.00

Flows - Advanced

Link	Detectors
(ALL)	

Signals

Link	Controller stream	Phase	Second phase enabled
(ALL)	1	G	

Arms and Traffic Streams

Arms

Arm	Name	Description	Traffic node
A	(untitled)		1
Ax	(untitled)		
B	(untitled)		1
Bx	(untitled)		
C	(untitled)		1
Cx	(untitled)		
D	(untitled)		1
Dx	(untitled)		
A1	(untitled)		3
C1	(untitled)		2

Traffic Streams

Arm	Traffic Stream	Name	Description	Auto length	Length (m)	Has Saturation Flow	Saturation flow source	Saturation flow (PCU/hr)	Is signal controlled	Is give way	Traffic type	Allow Nearside Turn On Red
A	1	(untitled)			100.00	✓	Sum of lanes	1915	✓		Normal	
	2	(untitled)			100.00	✓	Sum of lanes	2055	✓	✓	Normal	
Ax	1	(untitled)			100.00						Normal	
B	1	(untitled)			100.00	✓	Sum of lanes	1800	✓		Normal	
Bx	1	(untitled)			100.00						Normal	
C	1	(untitled)			20.00	✓	Sum of lanes	1980	✓		Normal	
	2	(untitled)			20.00	✓	Sum of lanes	2055	✓	✓	Normal	
Cx	1	(untitled)			100.00						Normal	
D	1	(untitled)			200.00	✓	Sum of lanes	1973	✓		Normal	
Dx	1	(untitled)			100.00						Normal	
A1	1	(untitled)			200.00	✓	Sum of lanes	2105			Normal	
C1	1	(untitled)			500.00	✓	Sum of lanes	2120			Normal	

Lanes

Arm	Traffic Stream	Lane	Name	Description	Use RR67	Surface condition	Site quality factor	Gradient (%)	Width (m)	Use connector turning radius	Proportion that turn (%)	Turning radius (m)	Nearside lane	Saturation flow (PCU/hr)
A	1	1	(untitled)		✓	N/A	N/A	0	3.00		0	15.00	✓	1915
	2	1	(untitled)		✓	N/A	N/A	0	3.00		0	20.50		2055
Ax	1	1	(untitled)											
B	1	1	(untitled)											1800
Bx	1	1	(untitled)											
C	1	1	(untitled)		✓	N/A	N/A	0	3.65		0	15.00	✓	1980
	2	1	(untitled)		✓	N/A	N/A	0	3.00		0	20.00		2055
Cx	1	1	(untitled)											
D	1	1	(untitled)		✓	N/A	N/A	0	3.50		67	15.00		1973
Dx	1	1	(untitled)											
A1	1	1	(untitled)		✓	N/A	N/A	0	3.50		0	100.00		2105
C1	1	1	(untitled)		✓	N/A	N/A	0	3.65	✓	0	99999.00		2120

Modelling

Arm	Traffic Stream	Traffic model	Stop weighting multiplier (%)	Delay weighting multiplier (%)	Assignment Cost Weighting (%)	Exclude from results calculation	Max queue storage (PCU)	Has queue limit	Has degree of saturation limit
(ALL)	(ALL)	NetworkDefault	100	100	100		0.00		

Modelling - Advanced

Arm	Traffic Stream	Initial queue (PCU)	Type of Vehicle-in-Service	Vehicle-in-Service	Type of random parameter	Random parameter	Auto cycle time	Cycle time
(ALL)	(ALL)	0.00	NetworkDefault	Not-Included	NetworkDefault	0.50	✓	120

Normal traffic - Modelling

Arm	Traffic Stream	Stop weighting (%)	Delay weighting (%)
(ALL)	(ALL)	100	100

Normal traffic - Advanced

Arm	Traffic Stream	Dispersion type for Normal Traffic
(ALL)	(ALL)	NetworkDefault

Flows

Arm	Traffic Stream	Total Flow (PCU/hr)	Normal Flow (PCU/hr)
A	1	41	41
	2	143	143
Ax	1	86	86
B	1	81	81
Bx	1	227	227
C	1	51	51
	2	3	3
Cx	1	24	24
D	1	250	250
Dx	1	232	232
A1	1	184	184
C1	1	54	54

Signals

Arm	Traffic Stream	Controller stream	Phase	Second phase enabled
A	1	1	E	
	2	1	D	
B	1	1	F	
C	1	1	B	
	2	1	A	
D	1	1	C	

Signal Timings

Network Default: 120s cycle time; 120 steps

Phases

Controller stream	Phase	Name	Minimum green (s)	Maximum green (s)	Relative start displacement (s)	Relative end displacement (s)	Type	Blackout Time (s)
1	A	(untitled)	7	300	0	0	Unknown	
	B	(untitled)	7	300	0	0	Unknown	
	C	(untitled)	7	300	0	0	Unknown	
	D	(untitled)	7	300	0	0	Unknown	
	E	(untitled)	7	300	0	0	Unknown	
	F	(untitled)	7	300	0	0	Unknown	
	G	(untitled)	6	300	0	0	Pedestrian	0

Library Stages

Controller stream	Library stage	Phases in stage	User stage minimum (s)
1	1	E, B, A, D	1
	2	D, A	1
	3	C	1
	4	F	1
	5	G	1

Stage Sequences

Controller stream	Sequence	Name	Multiple cycling	Stage IDs	Stage ends
1	1	(untitled)	Single	1, 2, 3, 4, 5, 1, 2, 3, 4	19, 20, 41, 53, 66, 85, 86, 101, 115

Intergreen Matrix for Controller Stream 1

From \ To	A	B	C	D	E	F	G
A			5			5	7
B			5			5	7
C	5	5		6	6	5	7
D			5			5	7
E			5			5	7
F	6	6	5	5	6		7
G	10	10	10	10	10	10	

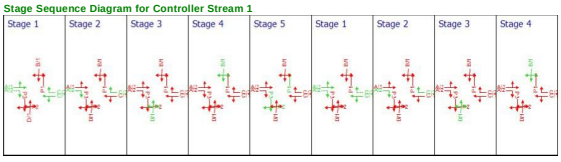
Resultant Stages

Controller stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	1	✓	1	E,B,A,D	1	19	18	1	7
	2	✓	2	D,A	19	20	1	1	1
	3	✓	3	C	25	41	16	1	7
	4	✓	4	F	46	53	7	1	7
	5	✓	5	G	60	66	6	1	6
	6	✓	1	E,B,A,D	76	85	9	1	7
	7	✓	2	D,A	85	86	1	1	1
	8	✓	3	C	91	101	10	1	7
	9	✓	4	F	106	115	9	1	7

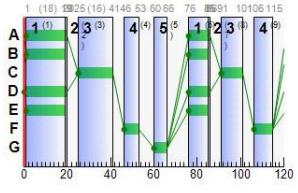
Resultant Phase Green Periods

Controller stream	Phase	Green period	Is base green period	Start time (s)	End time (s)	Duration (s)
1	A	1	✓	76	86	10
		2	✓	1	20	19
	B	1	✓	76	85	9
		2	✓	1	19	18
	C	1	✓	25	41	16
		2	✓	91	101	10
	D	1	✓	76	86	10
		2	✓	0	20	20
	E	1	✓	76	85	9
		2	✓	1	19	18
	F	1	✓	46	53	7
		2	✓	106	115	9
	G	1	✓	60	66	6

Stage Sequence Diagram for Controller Stream 1



Phase Timings Diagram for Controller Stream 1



Link Results

Link Results: Vehicle summary

Time Segment	Link	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Mean Delay per Veh (s)	Mean max queue (PCU)	Utilised storage (%)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
08:30-09:30	(ALL)	6	1520	5	1800	6	55.80	0.16	8.22	1.10	0.06	1.16

Link Results: Flows and signals

Time Segment	Link	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Calculated sat flow (PCU/hr)	Calculated capacity (PCU/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))	Effective green (s (per cycle))
08:30-09:30	(ALL)	5	5	0		1800	90	6		1520	0.00	6	6

Link Results: Stops and delays

Time Segment	Link	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Uniform delay (PCU-hr/hr)	Random plus oversat delay (PCU-hr/hr)	Unweighted cost of delay (£ per hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Uniform stops (Stops per hr)	Random stops (Stops per hr)	Unweighted cost of stops (£ per hr)	Weighted cost of stops (£ per hr)
08:30-09:30	(ALL)	1.38	55.80	0.08	0.00	1.10	1.10	94.99	4.70	0.05	0.06	0.06

Link Results: Queues and blocking

Time Segment	Link	Initial queue (PCU)	Mean max queue (PCU)	Max queue storage (PCU)	Utilised storage (%)	Average storage excess queue (PCU)	Average limit excess queue (PCU)	Excess queue penalty (£ per hr)	Max end of green queue (PCU)	Max end of red queue (PCU)	Wasted time starvation (s (per cycle))	Wasted time blocking back (s (per cycle))	Wasted time total (s (per cycle))	Estimated blocking
08:30-09:30	(ALL)	0.00	0.16	1.95	8.22	0.00	0.00	0.00	0.00	0.16	5.00	0.00	5.00	

Traffic Stream Results

Traffic Stream Results: Vehicle summary

Time Segment	Arm	Traffic Stream	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Mean Delay per Veh (s)	Mean max queue (PCU)	Utilised storage (%)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
08:30-09:30	A	1	9	916	41	1915	27	19.01	0.65	3.76	3.07	0.39	3.46
		2	26	245	143	2055	30	19.60	2.39	13.74	11.06	1.40	12.45
	Ax	1	0	Unrestricted	86	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	B	1	30	200	81	1800	16	25.59	1.28	7.35	8.18	0.92	9.10
	Bx	1	0	Unrestricted	227	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	C	1	11	744	51	1980	27	19.15	0.81	23.40	3.85	0.48	4.33
		2	1	15826	3	2055	29	17.81	0.00	0.00	0.21	0.03	0.24
	Cx	1	0	Unrestricted	24	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	D	1	54	66	250	1973	26	24.89	4.21	12.10	24.55	2.89	27.44
	Dx	1	0	Unrestricted	232	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	A1	1	9	930	184	2105	120	0.08	0.00	0.01	0.06	0.00	0.06
	C1	1	3	3433	54	2120	120	0.02	0.00	0.00	0.00	0.00	0.00

Traffic Stream Results: Flows and signals

Time Segment	Arm	Traffic Stream	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Calculated sat flow (PCU/hr)	Calculated capacity (PCU/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))	Effec gree (pe cycl
08:30-09:30	A	1	41	41	0		1915	463	9		916	0.00	27	29
		2	143	143	0		2055	548	26		245	0.00	30	32
	Ax	1	86	86	0		Unrestricted	Unrestricted	0		Unrestricted	0.82	120	12
	B	1	81	81	0		1800	270	30		200	0.00	16	18
	Bx	1	227	227	0		Unrestricted	Unrestricted	0		Unrestricted	1.06	120	12
	C	1	51	51	0		1980	479	11		744	0.00	27	29
		2	3	3	0		2055	531	1		15826	0.00	29	31
	Cx	1	24	24	0		Unrestricted	Unrestricted	0		Unrestricted	1.18	120	12
	D	1	250	250	0		1973	460	54		66	0.00	26	28
	Dx	1	232	232	0		Unrestricted	Unrestricted	0		Unrestricted	1.00	120	12
	A1	1	184	184	0		2105	2105	9		930	0.00	120	12
	C1	1	54	54	0		2120	2120	3		3433	0.00	120	12

Traffic Stream Results: Stops and delays

Time Segment	Arm	Traffic Stream	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Uniform delay (PCU-hr/hr)	Random plus oversat delay (PCU-hr/hr)	Unweighted cost of delay (£ per hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Uniform stops (Stops per hr)	Random stops (Stops per hr)	Unweighted cost of stops (£ per hr)	Weighted cost of stops (£ per hr)
08:30-09:30	A	1	12.00	19.01	0.21	0.00	3.07	3.07	75.32	30.63	0.26	0.39	0.39
		2	12.00	19.60	0.73	0.05	11.06	11.06	77.95	108.72	2.75	1.40	1.40
	Ax	1	12.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	B	1	12.00	25.59	0.51	0.06	8.18	8.18	91.04	69.95	3.80	0.92	0.92
	Bx	1	12.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	C	1	2.40	19.15	0.26	0.01	3.85	3.85	75.44	38.09	0.38	0.48	0.48
		2	2.40	17.81	0.01	0.00	0.21	0.21	72.20	2.17	0.00	0.03	0.03
	Cx	1	12.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	D	1	24.00	24.89	1.41	0.32	24.55	24.55	92.28	211.85	18.84	2.89	2.89
	Dx	1	12.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	A1	1	24.00	0.08	0.00	0.00	0.06	0.06	0.00	0.00	0.00	0.00	0.00
	C1	1	60.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Traffic Stream Results: Queues and blocking

Time Segment	Arm	Traffic Stream	Initial queue (PCU)	Mean max queue (PCU)	Max queue storage (PCU)	Utilised storage (%)	Average storage excess queue (PCU)	Average limit excess queue (PCU)	Excess queue penalty (£ per hr)	Max end of green queue (PCU)	Max end of red queue (PCU)	Wasted time starvation (s (per cycle))	Wasted time blocking back (s (per cycle))	Wasted time total (s (per cycle))	Estimated blocking
08:30-09:30	A	1	0.00	0.65	17.39	3.76	0.00	0.00	0.00	0.00	0.64	26.00	0.00	26.00	
		2	0.00	2.39	17.39	13.74	0.00	0.00	0.00	0.05	2.23	0.00	0.00	0.00	
	Ax	1	0.00	0.00	17.39	0.00	0.00	0.00	0.00			64.00	0.00	64.00	
	B	1	0.00	1.28	17.39	7.35	0.00	0.00	0.00	0.06	1.23	0.00	0.00	0.00	
	Bx	1	0.00	0.00	17.39	0.00	0.00	0.00	0.00			56.00	0.00	56.00	
	C	1	0.00	0.81	3.48	23.40	0.00	0.00	0.00	0.01	0.80	26.00	0.00	26.00	
		2	0.00	0.00	3.48	0.00	0.00	0.00	0.00	0.00	0.00	29.00	0.00	29.00	
	Cx	1	0.00	0.00	17.39	0.00	0.00	0.00	0.00			101.00	0.00	101.00	
	D	1	0.00	4.21	34.78	12.10	0.00	0.00	0.00	0.32	3.72	0.00	0.00	0.00	
	Dx	1	0.00	0.00	17.39	0.00	0.00	0.00	0.00			51.00	0.00	51.00	
	A1	1	0.00	0.00	34.78	0.01	0.00	0.00	0.00			0.00	0.00	0.00	
	C1	1	0.00	0.00	86.96	0.00	0.00	0.00	0.00			120.00	0.00	120.00	

A2 - 2021 PM Do Minimum
D2 - 2021 PM Peak*

Summary

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Give-Way Data	Arm A - Traffic Stream 2 - All movements	Traffic Stream A/2: Opposed Saturation Flow is the same as or greater than Unopposed Saturation Flow.
Warning	Give-Way Data	Arm C - Traffic Stream 2 - All movements	Traffic Stream C/2: Opposed Saturation Flow is the same as or greater than Unopposed Saturation Flow.
Info	Link Signals	Link P1 - Signals (1, G)	Link P1 and Phase G phase type both expected to be pedestrian.
Info	Link Signals	Link P2 - Signals (1, G)	Link P2 and Phase G phase type both expected to be pedestrian.
Info	Link Signals	Link P3 - Signals (1, G)	Link P3 and Phase G phase type both expected to be pedestrian.

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (£ per hr)	Total network delay (PCU-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Ite wit wor over PR
2	08/10/2019 13:55:48	08/10/2019 13:55:48	17:30	120	62.55	3.97	54.01	D/1	0	0	D/1	A1/1	D/

Analysis Set Details

Name	Description	Demand set	Include in report	Locked
2021 PM Do Minimum		D2	✓	

Demand Set Details

Name	Description	Composite	Demand sets	Start time (HH:mm)	Locked
2021 PM Peak				17:30	

Links

Links

Link	Name	Description	Traffic node	Length (m)	Has Saturation Flow	Use RR67	Saturation flow (PCU/hr)	Is signal controlled	Is give way	Traffic type	Is minor shared	Allow Nearside Turn On Red
(ALL)	(untitled)		1	11.50	✓		1800	✓		Normal		

Modelling

Link	Traffic model	Stop weighting (%)	Delay weighting (%)	Assignment Cost Weighting (%)	Exclude from results calculation	Max queue storage (PCU)	Has queue limit	Has degree of saturation limit
(ALL)	NetworkDefault	100	100	100		0.00		

Modelling - Normal traffic - Advanced

Link	Dispersion type for Normal Traffic	Initial queue (PCU)	Type of Vehicle-in-Service	Vehicle-in-Service	Type of random parameter	Random parameter	Auto cycle time	Cycle time
(ALL)	NetworkDefault	0.00	NetworkDefault	Not-Included	NetworkDefault	0.50	✓	120

Flows

Link	Total flow (PCU/hr)	PCU Factor
(ALL)	5	1.00

Flows - Advanced

Link	Detectors
(ALL)	

Signals

Link	Controller stream	Phase	Second phase enabled
(ALL)	1	G	

Arms and Traffic Streams

Arms

Arm	Name	Description	Traffic node
A	(untitled)		1
Ax	(untitled)		
B	(untitled)		1
Bx	(untitled)		
C	(untitled)		1
Cx	(untitled)		
D	(untitled)		1
Dx	(untitled)		
A1	(untitled)		3
C1	(untitled)		2

Traffic Streams

Arm	Traffic Stream	Name	Description	Auto length	Length (m)	Has Saturation Flow	Saturation flow source	Saturation flow (PCU/hr)	Is signal controlled	Is give way	Traffic type	Allow Nearside Turn On Red
A	1	(untitled)			100.00	✓	Sum of lanes	1915	✓		Normal	
	2	(untitled)			100.00	✓	Sum of lanes	2055	✓	✓	Normal	
Ax	1	(untitled)			100.00						Normal	
B	1	(untitled)			100.00	✓	Sum of lanes	1800	✓		Normal	
Bx	1	(untitled)			100.00						Normal	
C	1	(untitled)			20.00	✓	Sum of lanes	1980	✓		Normal	
	2	(untitled)			20.00	✓	Sum of lanes	2055	✓	✓	Normal	
Cx	1	(untitled)			100.00						Normal	
D	1	(untitled)			200.00	✓	Sum of lanes	1973	✓		Normal	
Dx	1	(untitled)			100.00						Normal	
A1	1	(untitled)			200.00	✓	Sum of lanes	2105			Normal	
C1	1	(untitled)			500.00	✓	Sum of lanes	2120			Normal	

Lanes

Arm	Traffic Stream	Lane	Name	Description	Use RR67	Surface condition	Site quality factor	Gradient (%)	Width (m)	Use connector turning radius	Proportion that turn (%)	Turning radius (m)	Nearside lane	Saturation flow (PCU/hr)
A	1	1	(untitled)		✓	N/A	N/A	0	3.00		0	15.00	✓	1915
	2	1	(untitled)		✓	N/A	N/A	0	3.00		0	20.50		2055
Ax	1	1	(untitled)											
B	1	1	(untitled)											1800
Bx	1	1	(untitled)											
C	1	1	(untitled)		✓	N/A	N/A	0	3.65		0	15.00	✓	1980
	2	1	(untitled)		✓	N/A	N/A	0	3.00		0	20.00		2055
Cx	1	1	(untitled)											
D	1	1	(untitled)		✓	N/A	N/A	0	3.50		67	15.00		1973
Dx	1	1	(untitled)											
A1	1	1	(untitled)		✓	N/A	N/A	0	3.50		0	99999.00		2105
C1	1	1	(untitled)		✓	N/A	N/A	0	3.65	✓	0	99999.00		2120

Modelling

Arm	Traffic Stream	Traffic model	Stop weighting multiplier (%)	Delay weighting multiplier (%)	Assignment Cost Weighting (%)	Exclude from results calculation	Max queue storage (PCU)	Has queue limit	Has degree of saturation limit
(ALL)	(ALL)	NetworkDefault	100	100	100		0.00		

Modelling - Advanced

Arm	Traffic Stream	Initial queue (PCU)	Type of Vehicle-in-Service	Vehicle-in-Service	Type of random parameter	Random parameter	Auto cycle time	Cycle time
(ALL)	(ALL)	0.00	NetworkDefault	Not-Included	NetworkDefault	0.50	✓	120

Normal traffic - Modelling

Arm	Traffic Stream	Stop weighting (%)	Delay weighting (%)
(ALL)	(ALL)	100	100

Normal traffic - Advanced

Arm	Traffic Stream	Dispersion type for Normal Traffic
(ALL)	(ALL)	NetworkDefault

Flows

Arm	Traffic Stream	Total Flow (PCU/hr)	Normal Flow (PCU/hr)
A	1	13	13
	2	29	29
Ax	1	179	179
B	1	222	222
Bx	1	108	108
C	1	39	39
	2	2	2
Cx	1	62	62
D	1	222	222
Dx	1	178	178
A1	1	42	42
C1	1	41	41

Signals

Arm	Traffic Stream	Controller stream	Phase	Second phase enabled
A	1	1	E	
	2	1	D	
B	1	1	F	
C	1	1	B	
	2	1	A	
D	1	1	C	

Signal Timings

Network Default: 120s cycle time; 120 steps

Phases

Controller stream	Phase	Name	Minimum green (s)	Maximum green (s)	Relative start displacement (s)	Relative end displacement (s)	Type	Blackout Time (s)
1	A	(untitled)	7	300	0	0	Unknown	
	B	(untitled)	7	300	0	0	Unknown	
	C	(untitled)	7	300	0	0	Unknown	
	D	(untitled)	7	300	0	0	Unknown	
	E	(untitled)	7	300	0	0	Unknown	
	F	(untitled)	7	300	0	0	Unknown	
	G	(untitled)	6	300	0	0	Pedestrian	0

Library Stages

Controller stream	Library stage	Phases in stage	User stage minimum (s)
1	1	E, B, A, D	1
	2	D, A	1
	3	C	1
	4	F	1
	5	G	1

Stage Sequences

Controller stream	Sequence	Name	Multiple cycling	Stage IDs	Stage ends
1	1	(untitled)	Single	1, 2, 3, 4, 5, 1, 2, 3, 4	19, 20, 38, 53, 66, 89, 90, 105, 6

Intergreen Matrix for Controller Stream 1

From \ To	A	B	C	D	E	F	G
A			5			5	7
B			5			5	7
C	5	5		6	6	5	7
D			5			5	7
E			5			5	7
F	6	6	5	5	6		7
G	10	10	10	10	10	10	

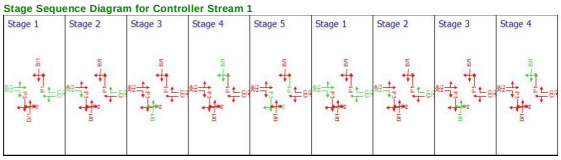
Resultant Stages

Controller stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	1	✓	1	E,B,A,D	12	19	7	1	7
	2	✓	2	D,A	19	20	1	1	1
	3	✓	3	C	25	38	13	1	7
	4	✓	4	F	43	53	10	1	7
	5	✓	5	G	60	66	6	1	6
	6	✓	1	E,B,A,D	76	89	13	1	7
	7	✓	2	D,A	89	90	1	1	1
	8	✓	3	C	95	105	10	1	7
	9	✓	4	F	110	6	16	1	7

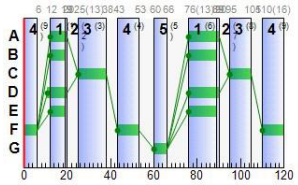
Resultant Phase Green Periods

Controller stream	Phase	Green period	Is base green period	Start time (s)	End time (s)	Duration (s)
1	A	1	✓	76	90	14
		2	✓	12	20	8
	B	1	✓	76	89	13
		2	✓	12	19	7
	C	1	✓	25	38	13
		2	✓	95	105	10
	D	1	✓	76	90	14
		2	✓	11	20	9
	E	1	✓	76	89	13
		2	✓	12	19	7
	F	1	✓	43	53	10
		2	✓	110	6	16
	G	1	✓	60	66	6

Stage Sequence Diagram for Controller Stream 1



Phase Timings Diagram for Controller Stream 1



Link Results

Link Results: Vehicle summary

Time Segment	Link	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Mean Delay per Veh (s)	Mean max queue (PCU)	Utilised storage (%)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
17:30-18:30	(ALL)	6	1520	5	1800	6	55.80	0.16	8.22	1.10	0.06	1.16

Link Results: Flows and signals

Time Segment	Link	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Calculated sat flow (PCU/hr)	Calculated capacity (PCU/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))	Effective green (s (per cycle))
17:30-18:30	(ALL)	5	5	0		1800	90	6		1520	0.00	6	6

Link Results: Stops and delays

Time Segment	Link	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Uniform delay (PCU-hr/hr)	Random plus oversat delay (PCU-hr/hr)	Unweighted cost of delay (£ per hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Uniform stops (Stops per hr)	Random stops (Stops per hr)	Unweighted cost of stops (£ per hr)	Weighted cost of stops (£ per hr)
17:30-18:30	(ALL)	1.38	55.80	0.08	0.00	1.10	1.10	94.99	4.70	0.05	0.06	0.06

Link Results: Queues and blocking

Time Segment	Link	Initial queue (PCU)	Mean max queue (PCU)	Max queue storage (PCU)	Utilised storage (%)	Average storage excess queue (PCU)	Average limit excess queue (PCU)	Excess queue penalty (£ per hr)	Max end of green queue (PCU)	Max end of red queue (PCU)	Wasted time starvation (s (per cycle))	Wasted time blocking back (s (per cycle))	Wasted time total (s (per cycle))	Estimated blocking
17:30-18:30	(ALL)	0.00	0.16	1.95	8.22	0.00	0.00	0.00	0.00	0.16	5.00	0.00	5.00	

Traffic Stream Results

Traffic Stream Results: Vehicle summary

Time Segment	Arm	Traffic Stream	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Mean Delay per Veh (s)	Mean max queue (PCU)	Utilised storage (%)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
17:30-18:30	A	1	4	2331	13	1915	20	21.02	0.20	1.17	1.08	0.13	1.21
		2	7	1229	29	2055	23	19.97	0.45	2.56	2.28	0.28	2.57
	Ax	1	0	Unrestricted	179	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	B	1	53	70	222	1800	26	25.84	4.18	24.03	22.62	2.56	25.18
	Bx	1	0	Unrestricted	108	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	C	1	11	738	39	1980	20	21.47	0.62	17.94	3.30	0.40	3.70
		2	0	18395	2	2055	22	20.03	0.00	0.00	0.16	0.02	0.18
	Cx	1	0	Unrestricted	62	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	D	1	54	67	222	1973	23	26.97	4.20	12.07	23.61	2.62	26.23
	Dx	1	0	Unrestricted	178	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	A1	1	2	4411	42	2105	120	0.02	0.00	0.00	0.00	0.00	0.00
	C1	1	2	4554	41	2120	120	0.02	0.00	0.00	0.00	0.00	0.00

Traffic Stream Results: Flows and signals

Time Segment	Arm	Traffic Stream	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Calculated sat flow (PCU/hr)	Calculated capacity (PCU/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))	Effec gree (pe cycl
17:30-18:30	A	1	13	13	0		1915	351	4		2331	0.00	20	22
		2	29	29	0		2055	428	7		1229	0.00	23	25
	Ax	1	179	179	0		Unrestricted	Unrestricted	0		Unrestricted	0.74	120	12
	B	1	222	222	0		1800	420	53		70	0.00	26	28
	Bx	1	108	108	0		Unrestricted	Unrestricted	0		Unrestricted	1.18	120	12
	C	1	39	39	0		1980	363	11		738	0.00	20	22
		2	2	2	0		2055	411	0		18395	0.00	22	24
	Cx	1	62	62	0		Unrestricted	Unrestricted	0		Unrestricted	1.19	120	12
	D	1	222	222	0		1973	411	54		67	0.00	23	25
	Dx	1	178	178	0		Unrestricted	Unrestricted	0		Unrestricted	1.05	120	12
	A1	1	42	42	0		2105	2105	2		4411	0.00	120	12
	C1	1	41	41	0		2120	2120	2		4554	0.00	120	12

Traffic Stream Results: Stops and delays

Time Segment	Arm	Traffic Stream	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Uniform delay (PCU-hr/hr)	Random plus oversat delay (PCU-hr/hr)	Unweighted cost of delay (£ per hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Uniform stops (Stops per hr)	Random stops (Stops per hr)	Unweighted cost of stops (£ per hr)	Weighted cost of stops (£ per hr)
17:30-18:30	A	1	12.00	21.02	0.08	0.00	1.08	1.08	80.02	10.36	0.04	0.13	0.13
		2	12.00	19.97	0.16	0.00	2.28	2.28	77.70	22.39	0.15	0.28	0.28
	Ax	1	12.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	B	1	12.00	25.84	1.30	0.29	22.62	22.62	91.82	186.56	17.29	2.56	2.56
	Bx	1	12.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	C	1	2.40	21.47	0.23	0.01	3.30	3.30	81.49	31.40	0.39	0.40	0.40
		2	2.40	20.03	0.01	0.00	0.16	0.16	78.03	1.56	0.00	0.02	0.02
	Cx	1	12.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	D	1	24.00	26.97	1.35	0.31	23.61	23.61	94.19	190.65	18.46	2.62	2.62
	Dx	1	12.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	A1	1	24.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	C1	1	60.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Traffic Stream Results: Queues and blocking

Time Segment	Arm	Traffic Stream	Initial queue (PCU)	Mean max queue (PCU)	Max queue storage (PCU)	Utilised storage (%)	Average storage excess queue (PCU)	Average limit excess queue (PCU)	Excess queue penalty (£ per hr)	Max end of green queue (PCU)	Max end of red queue (PCU)	Wasted time starvation (s (per cycle))	Wasted time blocking back (s (per cycle))	Wasted time total (s (per cycle))	Estimated blocking
17:30-18:30	A	1	0.00	0.20	17.39	1.17	0.00	0.00	0.00	0.00	0.20	20.00	0.00	20.00	
		2	0.00	0.45	17.39	2.56	0.00	0.00	0.00	0.00	0.45	23.00	0.00	23.00	
	Ax	1	0.00	0.00	17.39	0.00	0.00	0.00	0.00			38.00	0.00	38.00	
	B	1	0.00	4.18	17.39	24.03	0.00	0.00	0.00	0.29	3.75	0.00	0.00	0.00	
	Bx	1	0.00	0.00	17.39	0.00	0.00	0.00	0.00			77.00	0.00	77.00	
	C	1	0.00	0.62	3.48	17.94	0.00	0.00	0.00	0.01	0.61	19.00	0.00	19.00	
		2	0.00	0.00	3.48	0.00	0.00	0.00	0.00	0.00	0.00	22.00	0.00	22.00	
	Cx	1	0.00	0.00	17.39	0.00	0.00	0.00	0.00			90.00	0.00	90.00	
	D	1	0.00	4.20	34.78	12.07	0.00	0.00	0.00	0.31	3.77	0.00	0.00	0.00	
	Dx	1	0.00	0.00	17.39	0.00	0.00	0.00	0.00			59.00	0.00	59.00	
	A1	1	0.00	0.00	34.78	0.00	0.00	0.00	0.00			120.00	0.00	120.00	
	C1	1	0.00	0.00	86.96	0.00	0.00	0.00	0.00			120.00	0.00	120.00	

A3 - 2026 AM Do Minimum
D3 - 2026 AM Peak*

Summary

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Give-Way Data	Arm A - Traffic Stream 2 - All movements	Traffic Stream A/2: Opposed Saturation Flow is the same as or greater than Unopposed Saturation Flow.
Warning	Give-Way Data	Arm C - Traffic Stream 2 - All movements	Traffic Stream C/2: Opposed Saturation Flow is the same as or greater than Unopposed Saturation Flow.
Info	Link Signals	Link P1 - Signals (1, G)	Link P1 and Phase G phase type both expected to be pedestrian.
Info	Link Signals	Link P2 - Signals (1, G)	Link P2 and Phase G phase type both expected to be pedestrian.
Info	Link Signals	Link P3 - Signals (1, G)	Link P3 and Phase G phase type both expected to be pedestrian.

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (£ per hr)	Total network delay (PCU-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Ite wit wor over PR
3	08/10/2019 13:55:49	08/10/2019 13:55:49	08:30	120	70.39	4.44	54.52	D/1	0	0	D/1	A1/1	D/

Analysis Set Details

Name	Description	Demand set	Include in report	Locked
2026 AM Do Minimum		D3	✓	

Demand Set Details

Name	Description	Composite	Demand sets	Start time (HH:mm)	Locked
2026 AM Peak				08:30	

Links

Links

Link	Name	Description	Traffic node	Length (m)	Has Saturation Flow	Use RR67	Saturation flow (PCU/hr)	Is signal controlled	Is give way	Traffic type	Is minor shared	Allow Nearside Turn On Red
(ALL)	(untitled)		1	11.50	✓		1800	✓		Normal		

Modelling

Link	Traffic model	Stop weighting (%)	Delay weighting (%)	Assignment Cost Weighting (%)	Exclude from results calculation	Max queue storage (PCU)	Has queue limit	Has degree of saturation limit
(ALL)	NetworkDefault	100	100	100		0.00		

Modelling - Normal traffic - Advanced

Link	Dispersion type for Normal Traffic	Initial queue (PCU)	Type of Vehicle-in-Service	Vehicle-in-Service	Type of random parameter	Random parameter	Auto cycle time	Cycle time
(ALL)	NetworkDefault	0.00	NetworkDefault	Not-Included	NetworkDefault	0.50	✓	120

Flows

Link	Total flow (PCU/hr)	PCU Factor
(ALL)	5	1.00

Flows - Advanced

Link	Detectors
(ALL)	

Signals

Link	Controller stream	Phase	Second phase enabled
(ALL)	1	G	

Arms and Traffic Streams

Arms

Arm	Name	Description	Traffic node
A	(untitled)		1
Ax	(untitled)		
B	(untitled)		1
Bx	(untitled)		
C	(untitled)		1
Cx	(untitled)		
D	(untitled)		1
Dx	(untitled)		
A1	(untitled)		3
C1	(untitled)		2

Traffic Streams

Arm	Traffic Stream	Name	Description	Auto length	Length (m)	Has Saturation Flow	Saturation flow source	Saturation flow (PCU/hr)	Is signal controlled	Is give way	Traffic type	Allow Nearside Turn On Red
A	1	(untitled)			100.00	✓	Sum of lanes	1915	✓		Normal	
	2	(untitled)			100.00	✓	Sum of lanes	2055	✓	✓	Normal	
Ax	1	(untitled)			100.00						Normal	
B	1	(untitled)			100.00	✓	Sum of lanes	1800	✓		Normal	
Bx	1	(untitled)			100.00						Normal	
C	1	(untitled)			20.00	✓	Sum of lanes	1980	✓		Normal	
	2	(untitled)			20.00	✓	Sum of lanes	2055	✓	✓	Normal	
Cx	1	(untitled)			100.00						Normal	
D	1	(untitled)			200.00	✓	Sum of lanes	1973	✓		Normal	
Dx	1	(untitled)			100.00						Normal	
A1	1	(untitled)			200.00	✓	Sum of lanes	2105			Normal	
C1	1	(untitled)			500.00	✓	Sum of lanes	2120			Normal	

Lanes

Arm	Traffic Stream	Lane	Name	Description	Use RR67	Surface condition	Site quality factor	Gradient (%)	Width (m)	Use connector turning radius	Proportion that turn (%)	Turning radius (m)	Nearside lane	Saturation flow (PCU/hr)
A	1	1	(untitled)		✓	N/A	N/A	0	3.00		0	15.00	✓	1915
	2	1	(untitled)		✓	N/A	N/A	0	3.00		0	20.50		2055
Ax	1	1	(untitled)											
B	1	1	(untitled)											1800
Bx	1	1	(untitled)											
C	1	1	(untitled)		✓	N/A	N/A	0	3.65		0	15.00	✓	1980
	2	1	(untitled)		✓	N/A	N/A	0	3.00		0	20.00		2055
Cx	1	1	(untitled)											
D	1	1	(untitled)		✓	N/A	N/A	0	3.50		67	15.00		1973
Dx	1	1	(untitled)											
A1	1	1	(untitled)		✓	N/A	N/A	0	3.50		0	99999.00		2105
C1	1	1	(untitled)		✓	N/A	N/A	0	3.65	✓	0	99999.00		2120

Modelling

Arm	Traffic Stream	Traffic model	Stop weighting multiplier (%)	Delay weighting multiplier (%)	Assignment Cost Weighting (%)	Exclude from results calculation	Max queue storage (PCU)	Has queue limit	Has degree of saturation limit
(ALL)	(ALL)	NetworkDefault	100	100	100		0.00		

Modelling - Advanced

Arm	Traffic Stream	Initial queue (PCU)	Type of Vehicle-in-Service	Vehicle-in-Service	Type of random parameter	Random parameter	Auto cycle time	Cycle time
(ALL)	(ALL)	0.00	NetworkDefault	Not-Included	NetworkDefault	0.50	✓	120

Normal traffic - Modelling

Arm	Traffic Stream	Stop weighting (%)	Delay weighting (%)
(ALL)	(ALL)	100	100

Normal traffic - Advanced

Arm	Traffic Stream	Dispersion type for Normal Traffic
(ALL)	(ALL)	NetworkDefault

Flows

Arm	Traffic Stream	Total Flow (PCU/hr)	Normal Flow (PCU/hr)
A	1	102	102
	2	131	131
Ax	1	123	123
B	1	90	90
Bx	1	258	258
C	1	80	80
	2	16	16
Cx	1	96	96
D	1	251	251
Dx	1	193	193
A1	1	233	233
C1	1	96	96

Signals

Arm	Traffic Stream	Controller stream	Phase	Second phase enabled
A	1	1	E	
	2	1	D	
B	1	1	F	
C	1	1	B	
	2	1	A	
D	1	1	C	

Signal Timings

Network Default: 120s cycle time; 120 steps

Phases

Controller stream	Phase	Name	Minimum green (s)	Maximum green (s)	Relative start displacement (s)	Relative end displacement (s)	Type	Blackout Time (s)
1	A	(untitled)	7	300	0	0	Unknown	
	B	(untitled)	7	300	0	0	Unknown	
	C	(untitled)	7	300	0	0	Unknown	
	D	(untitled)	7	300	0	0	Unknown	
	E	(untitled)	7	300	0	0	Unknown	
	F	(untitled)	7	300	0	0	Unknown	
	G	(untitled)	6	300	0	0	Pedestrian	0

Library Stages

Controller stream	Library stage	Phases in stage	User stage minimum (s)
1	1	E, B, A, D	1
	2	D, A	1
	3	C	1
	4	F	1
	5	G	1

Stage Sequences

Controller stream	Sequence	Name	Multiple cycling	Stage IDs	Stage ends
1	1	(untitled)	Single	1, 2, 3, 4, 5, 1, 2, 3, 4	19, 20, 41, 53, 66, 88, 89, 104, 117

Intergreen Matrix for Controller Stream 1

From \ To	A	B	C	D	E	F	G
A			5			5	7
B			5			5	7
C	5	5		6	6	5	7
D			5			5	7
E			5			5	7
F	6	6	5	5	6		7
G	10	10	10	10	10	10	

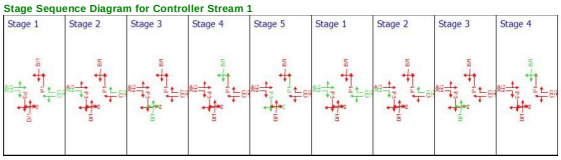
Resultant Stages

Controller stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	1	✓	1	E,B,A,D	3	19	16	1	7
	2	✓	2	D,A	19	20	1	1	1
	3	✓	3	C	25	41	16	1	7
	4	✓	4	F	46	53	7	1	7
	5	✓	5	G	60	66	6	1	6
	6	✓	1	E,B,A,D	76	88	12	1	7
	7	✓	2	D,A	88	89	1	1	1
	8	✓	3	C	94	104	10	1	7
	9	✓	4	F	109	117	8	1	7

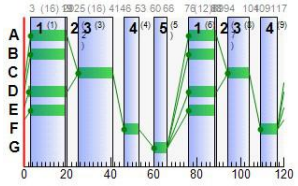
Resultant Phase Green Periods

Controller stream	Phase	Green period	Is base green period	Start time (s)	End time (s)	Duration (s)
1	A	1	✓	76	89	13
		2	✓	3	20	17
	B	1	✓	76	88	12
		2	✓	3	19	16
	C	1	✓	25	41	16
		2	✓	94	104	10
	D	1	✓	76	89	13
		2	✓	2	20	18
	E	1	✓	76	88	12
		2	✓	3	19	16
	F	1	✓	46	53	7
		2	✓	109	117	8
	G	1	✓	60	66	6

Stage Sequence Diagram for Controller Stream 1



Phase Timings Diagram for Controller Stream 1



Link Results

Link Results: Vehicle summary

Time Segment	Link	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Mean Delay per Veh (s)	Mean max queue (PCU)	Utilised storage (%)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
08:30-09:30	(ALL)	6	1520	5	1800	6	55.80	0.16	8.22	1.10	0.06	1.16

Link Results: Flows and signals

Time Segment	Link	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Calculated sat flow (PCU/hr)	Calculated capacity (PCU/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))	Effective green (s (per cycle))
08:30-09:30	(ALL)	5	5	0		1800	90	6		1520	0.00	6	6

Link Results: Stops and delays

Time Segment	Link	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Uniform delay (PCU-hr/hr)	Random plus oversat delay (PCU-hr/hr)	Unweighted cost of delay (£ per hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Uniform stops (Stops per hr)	Random stops (Stops per hr)	Unweighted cost of stops (£ per hr)	Weighted cost of stops (£ per hr)
08:30-09:30	(ALL)	1.38	55.80	0.08	0.00	1.10	1.10	94.99	4.70	0.05	0.06	0.06

Link Results: Queues and blocking

Time Segment	Link	Initial queue (PCU)	Mean max queue (PCU)	Max queue storage (PCU)	Utilised storage (%)	Average storage excess queue (PCU)	Average limit excess queue (PCU)	Excess queue penalty (£ per hr)	Max end of green queue (PCU)	Max end of red queue (PCU)	Wasted time starvation (s (per cycle))	Wasted time blocking back (s (per cycle))	Wasted time total (s (per cycle))	Estimated blocking
08:30-09:30	(ALL)	0.00	0.16	1.95	8.22	0.00	0.00	0.00	0.00	0.16	5.00	0.00	5.00	

Traffic Stream Results

Traffic Stream Results: Vehicle summary

Time Segment	Arm	Traffic Stream	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Mean Delay per Veh (s)	Mean max queue (PCU)	Utilised storage (%)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
08:30-09:30	A	1	21	322	102	1915	28	19.92	1.70	9.78	8.02	1.00	9.01
		2	23	288	131	2055	31	19.00	2.15	12.34	9.82	1.25	11.07
	Ax	1	0	Unrestricted	123	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	B	1	35	155	90	1800	15	27.23	1.52	8.74	9.67	1.05	10.72
	Bx	1	0	Unrestricted	258	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	C	1	16	457	80	1980	28	19.38	1.30	37.50	6.12	0.77	6.89
		2	3	2983	16	2055	30	17.61	0.24	7.04	1.11	0.14	1.25
	Cx	1	0	Unrestricted	96	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	D	1	55	65	251	1973	26	25.21	4.44	12.76	24.96	2.90	27.86
	Dx	1	0	Unrestricted	193	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	A1	1	11	713	233	2105	120	0.11	0.01	0.02	0.10	0.00	0.10
	C1	1	5	1888	96	2120	120	0.04	0.00	0.00	0.02	0.00	0.02

Traffic Stream Results: Flows and signals

Time Segment	Arm	Traffic Stream	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Calculated sat flow (PCU/hr)	Calculated capacity (PCU/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))	Effec gree (pe cycl
08:30-09:30	A	1	102	102	0		1915	479	21		322	0.00	28	30
		2	131	131	0		2055	565	23		288	0.00	31	33
	Ax	1	123	123	0		Unrestricted	Unrestricted	0		Unrestricted	0.82	120	12
	B	1	90	90	0		1800	255	35		155	0.00	15	17
	Bx	1	258	258	0		Unrestricted	Unrestricted	0		Unrestricted	1.00	120	12
	C	1	80	80	0		1980	495	16		457	0.00	28	30
		2	16	16	0		2055	548	3		2983	0.00	30	32
	Cx	1	96	96	0		Unrestricted	Unrestricted	0		Unrestricted	0.91	120	12
	D	1	251	251	0		1973	460	55		65	0.00	26	28
	Dx	1	193	193	0		Unrestricted	Unrestricted	0		Unrestricted	1.01	120	12
	A1	1	233	233	0		2105	2105	11		713	0.00	120	12
	C1	1	96	96	0		2120	2120	5		1888	0.00	120	12

Traffic Stream Results: Stops and delays

Time Segment	Arm	Traffic Stream	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Uniform delay (PCU-hr/hr)	Random plus oversat delay (PCU-hr/hr)	Unweighted cost of delay (£ per hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Uniform stops (Stops per hr)	Random stops (Stops per hr)	Unweighted cost of stops (£ per hr)	Weighted cost of stops (£ per hr)
08:30-09:30	A	1	12.00	19.92	0.54	0.03	8.02	8.02	77.87	77.70	1.72	1.00	1.00
		2	12.00	19.00	0.66	0.03	9.82	9.82	76.10	97.61	2.09	1.25	1.25
	Ax	1	12.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	B	1	12.00	27.23	0.59	0.10	9.67	9.67	93.48	78.48	5.65	1.05	1.05
	Bx	1	12.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	C	1	2.40	19.38	0.42	0.02	6.12	6.12	76.69	60.42	0.93	0.77	0.77
		2	2.40	17.61	0.08	0.00	1.11	1.11	71.53	11.42	0.03	0.14	0.14
	Cx	1	12.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	D	1	24.00	25.21	1.43	0.32	24.96	24.96	92.15	212.23	19.08	2.90	2.90
	Dx	1	12.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	A1	1	24.00	0.11	0.00	0.01	0.10	0.10	0.00	0.00	0.00	0.00	0.00
	C1	1	60.00	0.04	0.00	0.00	0.02	0.02	0.00	0.00	0.00	0.00	0.00

Traffic Stream Results: Queues and blocking

Time Segment	Arm	Traffic Stream	Initial queue (PCU)	Mean max queue (PCU)	Max queue storage (PCU)	Utilised storage (%)	Average storage excess queue (PCU)	Average limit excess queue (PCU)	Excess queue penalty (£ per hr)	Max end of green queue (PCU)	Max end of red queue (PCU)	Wasted time starvation (s (per cycle))	Wasted time blocking back (s (per cycle))	Wasted time total (s (per cycle))	Estimated blocking
08:30-09:30	A	1	0.00	1.70	17.39	9.78	0.00	0.00	0.00	0.03	1.62	0.00	0.00	0.00	
		2	0.00	2.15	17.39	12.34	0.00	0.00	0.00	0.03	2.04	0.00	0.00	0.00	
	Ax	1	0.00	0.00	17.39	0.00	0.00	0.00	0.00			50.00	0.00	50.00	
	B	1	0.00	1.52	17.39	8.74	0.00	0.00	0.00	0.10	1.47	0.00	0.00	0.00	
	Bx	1	0.00	0.00	17.39	0.00	0.00	0.00	0.00			46.00	0.00	46.00	
	C	1	0.00	1.30	3.48	37.50	0.00	0.00	0.00	0.02	1.26	0.00	0.00	0.00	
		2	0.00	0.24	3.48	7.04	0.00	0.00	0.00	0.00	0.24	30.00	0.00	30.00	
	Cx	1	0.00	0.00	17.39	0.00	0.00	0.00	0.00			70.00	0.00	70.00	
	D	1	0.00	4.44	34.78	12.76	0.00	0.00	0.00	0.32	3.95	0.00	0.00	0.00	
	Dx	1	0.00	0.00	17.39	0.00	0.00	0.00	0.00			56.00	0.00	56.00	
	A1	1	0.00	0.01	34.78	0.02	0.00	0.00	0.00			0.00	0.00	0.00	
	C1	1	0.00	0.00	86.96	0.00	0.00	0.00	0.00			0.00	0.00	0.00	

A4 - 2026 PM Do Minimum
D4 - 2026 PM Peak*

Summary

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Give-Way Data	Arm A - Traffic Stream 2 - All movements	Traffic Stream A/2: Opposed Saturation Flow is the same as or greater than Unopposed Saturation Flow.
Warning	Give-Way Data	Arm C - Traffic Stream 2 - All movements	Traffic Stream C/2: Opposed Saturation Flow is the same as or greater than Unopposed Saturation Flow.
Info	Link Signals	Link P1 - Signals (1, G)	Link P1 and Phase G phase type both expected to be pedestrian.
Info	Link Signals	Link P2 - Signals (1, G)	Link P2 and Phase G phase type both expected to be pedestrian.
Info	Link Signals	Link P3 - Signals (1, G)	Link P3 and Phase G phase type both expected to be pedestrian.

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (£ per hr)	Total network delay (PCU-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Ite wit wor over PR
4	08/10/2019 13:55:49	08/10/2019 13:55:50	17:30	120	73.45	4.65	54.19	D/1	0	0	D/1	C1/1	D/

Analysis Set Details

Name	Description	Demand set	Include in report	Locked
2026 PM Do Minimum		D4	✓	

Demand Set Details

Name	Description	Composite	Demand sets	Start time (HH:mm)	Locked
2026 PM Peak				17:30	

Links

Links

Link	Name	Description	Traffic node	Length (m)	Has Saturation Flow	Use RR67	Saturation flow (PCU/hr)	Is signal controlled	Is give way	Traffic type	Is minor shared	Allow Nearside Turn On Red
(ALL)	(untitled)		1	11.50	✓		1800	✓		Normal		

Modelling

Link	Traffic model	Stop weighting (%)	Delay weighting (%)	Assignment Cost Weighting (%)	Exclude from results calculation	Max queue storage (PCU)	Has queue limit	Has degree of saturation limit
(ALL)	NetworkDefault	100	100	100		0.00		

Modelling - Normal traffic - Advanced

Link	Dispersion type for Normal Traffic	Initial queue (PCU)	Type of Vehicle-in-Service	Vehicle-in-Service	Type of random parameter	Random parameter	Auto cycle time	Cycle time
(ALL)	NetworkDefault	0.00	NetworkDefault	Not-Included	NetworkDefault	0.50	✓	120

Flows

Link	Total flow (PCU/hr)	PCU Factor
(ALL)	5	1.00

Flows - Advanced

Link	Detectors
(ALL)	

Signals

Link	Controller stream	Phase	Second phase enabled
(ALL)	1	G	

Arms and Traffic Streams

Arms

Arm	Name	Description	Traffic node
A	(untitled)		1
Ax	(untitled)		
B	(untitled)		1
Bx	(untitled)		
C	(untitled)		1
Cx	(untitled)		
D	(untitled)		1
Dx	(untitled)		
A1	(untitled)		3
C1	(untitled)		2

Traffic Streams

Arm	Traffic Stream	Name	Description	Auto length	Length (m)	Has Saturation Flow	Saturation flow source	Saturation flow (PCU/hr)	Is signal controlled	Is give way	Traffic type	Allow Nearside Turn On Red
A	1	(untitled)			100.00	✓	Sum of lanes	1915	✓		Normal	
	2	(untitled)			100.00	✓	Sum of lanes	2055	✓	✓	Normal	
Ax	1	(untitled)			100.00						Normal	
B	1	(untitled)			100.00	✓	Sum of lanes	1800	✓		Normal	
Bx	1	(untitled)			100.00						Normal	
C	1	(untitled)			20.00	✓	Sum of lanes	1980	✓		Normal	
	2	(untitled)			20.00	✓	Sum of lanes	2055	✓	✓	Normal	
Cx	1	(untitled)			100.00						Normal	
D	1	(untitled)			200.00	✓	Sum of lanes	1973	✓		Normal	
Dx	1	(untitled)			100.00						Normal	
A1	1	(untitled)			200.00	✓	Sum of lanes	2105			Normal	
C1	1	(untitled)			500.00	✓	Sum of lanes	2120			Normal	

Lanes

Arm	Traffic Stream	Lane	Name	Description	Use RR67	Surface condition	Site quality factor	Gradient (%)	Width (m)	Use connector turning radius	Proportion that turn (%)	Turning radius (m)	Nearside lane	Saturation flow (PCU/hr)
A	1	1	(untitled)		✓	N/A	N/A	0	3.00		0	15.00	✓	1915
	2	1	(untitled)		✓	N/A	N/A	0	3.00		0	20.50		2055
Ax	1	1	(untitled)											
B	1	1	(untitled)											1800
Bx	1	1	(untitled)											
C	1	1	(untitled)		✓	N/A	N/A	0	3.65		0	15.00	✓	1980
	2	1	(untitled)		✓	N/A	N/A	0	3.00		0	20.00		2055
Cx	1	1	(untitled)											
D	1	1	(untitled)		✓	N/A	N/A	0	3.50		67	15.00		1973
Dx	1	1	(untitled)											
A1	1	1	(untitled)		✓	N/A	N/A	0	3.50		0	99999.00		2105
C1	1	1	(untitled)		✓	N/A	N/A	0	3.65	✓	0	99999.00		2120

Modelling

Arm	Traffic Stream	Traffic model	Stop weighting multiplier (%)	Delay weighting multiplier (%)	Assignment Cost Weighting (%)	Exclude from results calculation	Max queue storage (PCU)	Has queue limit	Has degree of saturation limit
(ALL)	(ALL)	NetworkDefault	100	100	100		0.00		

Modelling - Advanced

Arm	Traffic Stream	Initial queue (PCU)	Type of Vehicle-in-Service	Vehicle-in-Service	Type of random parameter	Random parameter	Auto cycle time	Cycle time
(ALL)	(ALL)	0.00	NetworkDefault	Not-Included	NetworkDefault	0.50	✓	120

Normal traffic - Modelling

Arm	Traffic Stream	Stop weighting (%)	Delay weighting (%)
(ALL)	(ALL)	100	100

Normal traffic - Advanced

Arm	Traffic Stream	Dispersion type for Normal Traffic
(ALL)	(ALL)	NetworkDefault

Flows

Arm	Traffic Stream	Total Flow (PCU/hr)	Normal Flow (PCU/hr)
A	1	72	72
	2	24	24
Ax	1	240	240
B	1	242	242
Bx	1	134	134
C	1	85	85
	2	20	20
Cx	1	139	139
D	1	196	196
Dx	1	126	126
A1	1	96	96
C1	1	105	105

Signals

Arm	Traffic Stream	Controller stream	Phase	Second phase enabled
A	1	1	E	
	2	1	D	
B	1	1	F	
C	1	1	B	
	2	1	A	
D	1	1	C	

Signal Timings

Network Default: 120s cycle time; 120 steps

Phases

Controller stream	Phase	Name	Minimum green (s)	Maximum green (s)	Relative start displacement (s)	Relative end displacement (s)	Type	Blackout Time (s)
1	A	(untitled)	7	300	0	0	Unknown	
	B	(untitled)	7	300	0	0	Unknown	
	C	(untitled)	7	300	0	0	Unknown	
	D	(untitled)	7	300	0	0	Unknown	
	E	(untitled)	7	300	0	0	Unknown	
	F	(untitled)	7	300	0	0	Unknown	
	G	(untitled)	6	300	0	0	Pedestrian	0

Library Stages

Controller stream	Library stage	Phases in stage	User stage minimum (s)
1	1	E, B, A, D	1
	2	D, A	1
	3	C	1
	4	F	1
	5	G	1

Stage Sequences

Controller stream	Sequence	Name	Multiple cycling	Stage IDs	Stage ends
1	1	(untitled)	Single	1, 2, 3, 4, 5, 1, 2, 3, 4	19, 20, 37, 53, 66, 89, 90, 103, 6

Intergreen Matrix for Controller Stream 1

From \ To	A	B	C	D	E	F	G
A			5			5	7
B			5			5	7
C	5	5		6	6	5	7
D			5			5	7
E			5			5	7
F	6	6	5	5	6		7
G	10	10	10	10	10	10	

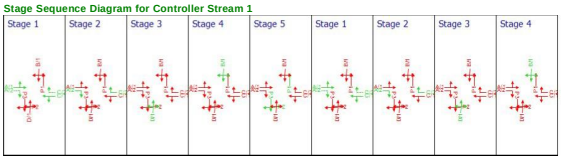
Resultant Stages

Controller stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	1	✓	1	E,B,A,D	12	19	7	1	7
	2	✓	2	D,A	19	20	1	1	1
	3	✓	3	C	25	37	12	1	7
	4	✓	4	F	42	53	11	1	7
	5	✓	5	G	60	66	6	1	6
	6	✓	1	E,B,A,D	76	89	13	1	7
	7	✓	2	D,A	89	90	1	1	1
	8	✓	3	C	95	103	8	1	7
	9	✓	4	F	108	6	18	1	7

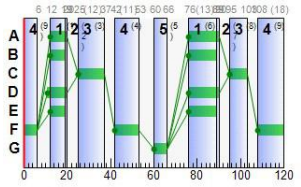
Resultant Phase Green Periods

Controller stream	Phase	Green period	Is base green period	Start time (s)	End time (s)	Duration (s)
1	A	1	✓	76	90	14
		2	✓	12	20	8
	B	1	✓	76	89	13
		2	✓	12	19	7
	C	1	✓	25	37	12
		2	✓	95	103	8
	D	1	✓	76	90	14
		2	✓	11	20	9
	E	1	✓	76	89	13
		2	✓	12	19	7
	F	1	✓	42	53	11
		2	✓	108	6	18
	G	1	✓	60	66	6

Stage Sequence Diagram for Controller Stream 1



Phase Timings Diagram for Controller Stream 1



Link Results

Link Results: Vehicle summary

Time Segment	Link	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Mean Delay per Veh (s)	Mean max queue (PCU)	Utilised storage (%)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
17:30-18:30	(ALL)	6	1520	5	1800	6	55.80	0.16	8.22	1.10	0.06	1.16

Link Results: Flows and signals

Time Segment	Link	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Calculated sat flow (PCU/hr)	Calculated capacity (PCU/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))	Effective green (s (per cycle))
17:30-18:30	(ALL)	5	5	0		1800	90	6		1520	0.00	6	6

Link Results: Stops and delays

Time Segment	Link	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Uniform delay (PCU-hr/hr)	Random plus oversat delay (PCU-hr/hr)	Unweighted cost of delay (£ per hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Uniform stops (Stops per hr)	Random stops (Stops per hr)	Unweighted cost of stops (£ per hr)	Weighted cost of stops (£ per hr)
17:30-18:30	(ALL)	1.38	55.80	0.08	0.00	1.10	1.10	94.99	4.70	0.05	0.06	0.06

Link Results: Queues and blocking

Time Segment	Link	Initial queue (PCU)	Mean max queue (PCU)	Max queue storage (PCU)	Utilised storage (%)	Average storage excess queue (PCU)	Average limit excess queue (PCU)	Excess queue penalty (£ per hr)	Max end of green queue (PCU)	Max end of red queue (PCU)	Wasted time starvation (s (per cycle))	Wasted time blocking back (s (per cycle))	Wasted time total (s (per cycle))	Estimated blocking
17:30-18:30	(ALL)	0.00	0.16	1.95	8.22	0.00	0.00	0.00	0.00	0.16	5.00	0.00	5.00	

Traffic Stream Results

Traffic Stream Results: Vehicle summary

Time Segment	Arm	Traffic Stream	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Mean Delay per Veh (s)	Mean max queue (PCU)	Utilised storage (%)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
17:30-18:30	A	1	21	339	72	1915	20	22.58	1.19	6.82	6.41	0.76	7.17
		2	6	1505	24	2055	23	19.92	0.37	2.12	1.89	0.23	2.12
	Ax	1	0	Unrestricted	240	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	B	1	52	73	242	1800	29	24.12	4.45	25.58	23.02	2.72	25.74
	Bx	1	0	Unrestricted	134	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	C	1	23	284	85	1980	20	22.88	1.41	40.40	7.67	0.90	8.57
		2	5	1750	20	2055	22	20.23	0.31	8.82	1.60	0.20	1.79
	Cx	1	0	Unrestricted	139	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	D	1	54	66	196	1973	20	28.65	3.75	10.77	22.15	2.39	24.54
	Dx	1	0	Unrestricted	126	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	A1	1	5	1873	96	2105	120	0.04	0.00	0.00	0.02	0.00	0.02
	C1	1	5	1717	105	2120	120	0.04	0.00	0.00	0.02	0.00	0.02

Traffic Stream Results: Flows and signals

Time Segment	Arm	Traffic Stream	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Calculated sat flow (PCU/hr)	Calculated capacity (PCU/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))	Effec gree (pe cycl
17:30-18:30	A	1	72	72	0		1915	351	21		339	0.00	20	22
		2	24	24	0		2055	428	6		1505	0.00	23	25
	Ax	1	240	240	0		Unrestricted	Unrestricted	0		Unrestricted	0.68	120	12
	B	1	242	242	0		1800	465	52		73	0.00	29	31
	Bx	1	134	134	0		Unrestricted	Unrestricted	0		Unrestricted	1.10	120	12
	C	1	85	85	0		1980	363	23		284	0.00	20	22
		2	20	20	0		2055	411	5		1750	0.00	22	24
	Cx	1	139	139	0		Unrestricted	Unrestricted	0		Unrestricted	0.74	120	12
	D	1	196	196	0		1973	362	54		66	0.00	20	22
	Dx	1	126	126	0		Unrestricted	Unrestricted	0		Unrestricted	1.00	120	12
	A1	1	96	96	0		2105	2105	5		1873	0.00	120	12
	C1	1	105	105	0		2120	2120	5		1717	0.00	120	12

Traffic Stream Results: Stops and delays

Time Segment	Arm	Traffic Stream	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Uniform delay (PCU-hr/hr)	Random plus oversat delay (PCU-hr/hr)	Unweighted cost of delay (£ per hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Uniform stops (Stops per hr)	Random stops (Stops per hr)	Unweighted cost of stops (£ per hr)	Weighted cost of stops (£ per hr)
17:30-18:30	A	1	12.00	22.58	0.43	0.03	6.41	6.41	84.32	59.13	1.58	0.76	0.76
		2	12.00	19.92	0.13	0.00	1.89	1.89	77.61	18.53	0.10	0.23	0.23
	Ax	1	12.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	B	1	12.00	24.12	1.34	0.28	23.02	23.02	89.49	200.03	16.53	2.72	2.72
	Bx	1	12.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	C	1	2.40	22.88	0.50	0.04	7.67	7.67	84.70	69.87	2.13	0.90	0.90
		2	2.40	20.23	0.11	0.00	1.60	1.60	78.40	15.61	0.07	0.20	0.20
	Cx	1	12.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	D	1	24.00	28.65	1.24	0.32	22.15	22.15	97.25	172.03	18.57	2.39	2.39
	Dx	1	12.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	A1	1	24.00	0.04	0.00	0.00	0.02	0.02	0.00	0.00	0.00	0.00	0.00
	C1	1	60.00	0.04	0.00	0.00	0.02	0.02	0.00	0.00	0.00	0.00	0.00

Traffic Stream Results: Queues and blocking

Time Segment	Arm	Traffic Stream	Initial queue (PCU)	Mean max queue (PCU)	Max queue storage (PCU)	Utilised storage (%)	Average storage excess queue (PCU)	Average limit excess queue (PCU)	Excess queue penalty (£ per hr)	Max end of green queue (PCU)	Max end of red queue (PCU)	Wasted time starvation (s (per cycle))	Wasted time blocking back (s (per cycle))	Wasted time total (s (per cycle))	Estimated blocking
17:30-18:30	A	1	0.00	1.19	17.39	6.82	0.00	0.00	0.00	0.03	1.15	0.00	0.00	0.00	
		2	0.00	0.37	17.39	2.12	0.00	0.00	0.00	0.00	0.37	23.00	0.00	23.00	
	Ax	1	0.00	0.00	17.39	0.00	0.00	0.00	0.00			28.00	0.00	28.00	
	B	1	0.00	4.45	17.39	25.58	0.00	0.00	0.00	0.28	3.91	0.00	0.00	0.00	
	Bx	1	0.00	0.00	17.39	0.00	0.00	0.00	0.00			67.00	0.00	67.00	
	C	1	0.00	1.41	3.48	40.40	0.00	0.00	0.00	0.04	1.36	0.00	0.00	0.00	
		2	0.00	0.31	3.48	8.82	0.00	0.00	0.00	0.00	0.31	22.00	0.00	22.00	
	Cx	1	0.00	0.00	17.39	0.00	0.00	0.00	0.00			42.00	0.00	42.00	
	D	1	0.00	3.75	34.78	10.77	0.00	0.00	0.00	0.32	3.42	0.00	0.00	0.00	
	Dx	1	0.00	0.00	17.39	0.00	0.00	0.00	0.00			62.00	0.00	62.00	
	A1	1	0.00	0.00	34.78	0.00	0.00	0.00	0.00			0.00	0.00	0.00	
	C1	1	0.00	0.00	86.96	0.00	0.00	0.00	0.00			0.00	0.00	0.00	

A5 - 2036 AM Do Minimum
D5 - 2036 AM Peak*

Summary

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Give-Way Data	Arm A - Traffic Stream 2 - All movements	Traffic Stream A/2: Opposed Saturation Flow is the same as or greater than Unopposed Saturation Flow.
Warning	Give-Way Data	Arm C - Traffic Stream 2 - All movements	Traffic Stream C/2: Opposed Saturation Flow is the same as or greater than Unopposed Saturation Flow.
Info	Link Signals	Link P1 - Signals (1, G)	Link P1 and Phase G phase type both expected to be pedestrian.
Info	Link Signals	Link P2 - Signals (1, G)	Link P2 and Phase G phase type both expected to be pedestrian.
Info	Link Signals	Link P3 - Signals (1, G)	Link P3 and Phase G phase type both expected to be pedestrian.

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (£ per hr)	Total network delay (PCU-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Ite wit wor over PR
5	08/10/2019 13:55:50	08/10/2019 13:55:51	08:30	120	77.39	4.89	60.17	D/1	0	0	D/1	A1/1	D/

Analysis Set Details

Name	Description	Demand set	Include in report	Locked
2036 AM Do Minimum		D5	✓	

Demand Set Details

Name	Description	Composite	Demand sets	Start time (HH:mm)	Locked
2036 AM Peak				08:30	

Links

Links

Link	Name	Description	Traffic node	Length (m)	Has Saturation Flow	Use RR67	Saturation flow (PCU/hr)	Is signal controlled	Is give way	Traffic type	Is minor shared	Allow Nearside Turn On Red
(ALL)	(untitled)		1	11.50	✓		1800	✓		Normal		

Modelling

Link	Traffic model	Stop weighting (%)	Delay weighting (%)	Assignment Cost Weighting (%)	Exclude from results calculation	Max queue storage (PCU)	Has queue limit	Has degree of saturation limit
(ALL)	NetworkDefault	100	100	100		0.00		

Modelling - Normal traffic - Advanced

Link	Dispersion type for Normal Traffic	Initial queue (PCU)	Type of Vehicle-in-Service	Vehicle-in-Service	Type of random parameter	Random parameter	Auto cycle time	Cycle time
(ALL)	NetworkDefault	0.00	NetworkDefault	Not-Included	NetworkDefault	0.50	✓	120

Flows

Link	Total flow (PCU/hr)	PCU Factor
(ALL)	5	1.00

Flows - Advanced

Link	Detectors
(ALL)	

Signals

Link	Controller stream	Phase	Second phase enabled
(ALL)	1	G	

Arms and Traffic Streams

Arms

Arm	Name	Description	Traffic node
A	(untitled)		1
Ax	(untitled)		
B	(untitled)		1
Bx	(untitled)		
C	(untitled)		1
Cx	(untitled)		
D	(untitled)		1
Dx	(untitled)		
A1	(untitled)		3
C1	(untitled)		2

Traffic Streams

Arm	Traffic Stream	Name	Description	Auto length	Length (m)	Has Saturation Flow	Saturation flow source	Saturation flow (PCU/hr)	Is signal controlled	Is give way	Traffic type	Allow Nearside Turn On Red
A	1	(untitled)			100.00	✓	Sum of lanes	1915	✓		Normal	
	2	(untitled)			100.00	✓	Sum of lanes	2055	✓	✓	Normal	
Ax	1	(untitled)			100.00						Normal	
B	1	(untitled)			100.00	✓	Sum of lanes	1800	✓		Normal	
Bx	1	(untitled)			100.00						Normal	
C	1	(untitled)			20.00	✓	Sum of lanes	1980	✓		Normal	
	2	(untitled)			20.00	✓	Sum of lanes	2055	✓	✓	Normal	
Cx	1	(untitled)			100.00						Normal	
D	1	(untitled)			200.00	✓	Sum of lanes	1973	✓		Normal	
Dx	1	(untitled)			100.00						Normal	
A1	1	(untitled)			200.00	✓	Sum of lanes	2105			Normal	
C1	1	(untitled)			500.00	✓	Sum of lanes	2120			Normal	

Lanes

Arm	Traffic Stream	Lane	Name	Description	Use RR67	Surface condition	Site quality factor	Gradient (%)	Width (m)	Use connector turning radius	Proportion that turn (%)	Turning radius (m)	Nearside lane	Saturation flow (PCU/hr)
A	1	1	(untitled)		✓	N/A	N/A	0	3.00		0	15.00	✓	1915
	2	1	(untitled)		✓	N/A	N/A	0	3.00		0	20.50		2055
Ax	1	1	(untitled)											
B	1	1	(untitled)											1800
Bx	1	1	(untitled)											
C	1	1	(untitled)		✓	N/A	N/A	0	3.65		0	15.00	✓	1980
	2	1	(untitled)		✓	N/A	N/A	0	3.00		0	20.00		2055
Cx	1	1	(untitled)											
D	1	1	(untitled)		✓	N/A	N/A	0	3.50		67	15.00		1973
Dx	1	1	(untitled)											
A1	1	1	(untitled)		✓	N/A	N/A	0	3.50		0	100.00		2105
C1	1	1	(untitled)		✓	N/A	N/A	0	3.65	✓	0	99999.00		2120

Modelling

Arm	Traffic Stream	Traffic model	Stop weighting multiplier (%)	Delay weighting multiplier (%)	Assignment Cost Weighting (%)	Exclude from results calculation	Max queue storage (PCU)	Has queue limit	Has degree of saturation limit
(ALL)	(ALL)	NetworkDefault	100	100	100		0.00		

Modelling - Advanced

Arm	Traffic Stream	Initial queue (PCU)	Type of Vehicle-in-Service	Vehicle-in-Service	Type of random parameter	Random parameter	Auto cycle time	Cycle time
(ALL)	(ALL)	0.00	NetworkDefault	Not-Included	NetworkDefault	0.50	✓	120

Normal traffic - Modelling

Arm	Traffic Stream	Stop weighting (%)	Delay weighting (%)
(ALL)	(ALL)	100	100

Normal traffic - Advanced

Arm	Traffic Stream	Dispersion type for Normal Traffic
(ALL)	(ALL)	NetworkDefault

Flows

Arm	Traffic Stream	Total Flow (PCU/hr)	Normal Flow (PCU/hr)
A	1	96	96
	2	145	145
Ax	1	132	132
B	1	99	99
Bx	1	285	285
C	1	83	83
	2	17	17
Cx	1	88	88
D	1	277	277
Dx	1	212	212
A1	1	241	241
C1	1	100	100

Signals

Arm	Traffic Stream	Controller stream	Phase	Second phase enabled
A	1	1	E	
	2	1	D	
B	1	1	F	
C	1	1	B	
	2	1	A	
D	1	1	C	

Signal Timings

Network Default: 120s cycle time; 120 steps

Phases

Controller stream	Phase	Name	Minimum green (s)	Maximum green (s)	Relative start displacement (s)	Relative end displacement (s)	Type	Blackout Time (s)
1	A	(untitled)	7	300	0	0	Unknown	
	B	(untitled)	7	300	0	0	Unknown	
	C	(untitled)	7	300	0	0	Unknown	
	D	(untitled)	7	300	0	0	Unknown	
	E	(untitled)	7	300	0	0	Unknown	
	F	(untitled)	7	300	0	0	Unknown	
	G	(untitled)	6	300	0	0	Pedestrian	0

Library Stages

Controller stream	Library stage	Phases in stage	User stage minimum (s)
1	1	E, B, A, D	1
	2	D, A	1
	3	C	1
	4	F	1
	5	G	1

Stage Sequences

Controller stream	Sequence	Name	Multiple cycling	Stage IDs	Stage ends
1	1	(untitled)	Single	1, 2, 3, 4, 5, 1, 2, 3, 4	19, 20, 41, 53, 66, 86, 87, 102, 116

Intergreen Matrix for Controller Stream 1

From \ To	A	B	C	D	E	F	G
A			5			5	7
B			5			5	7
C	5	5		6	6	5	7
D			5			5	7
E			5			5	7
F	6	6	5	5	6		7
G	10	10	10	10	10	10	

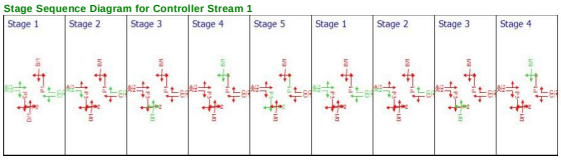
Resultant Stages

Controller stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	1	✓	1	E,B,A,D	2	19	17	1	7
	2	✓	2	D,A	19	20	1	1	1
	3	✓	3	C	25	41	16	1	7
	4	✓	4	F	46	53	7	1	7
	5	✓	5	G	60	66	6	1	6
	6	✓	1	E,B,A,D	76	86	10	1	7
	7	✓	2	D,A	86	87	1	1	1
	8	✓	3	C	92	102	10	1	7
	9	✓	4	F	107	116	9	1	7

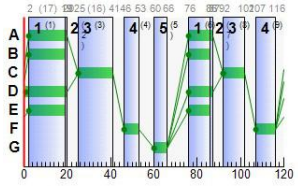
Resultant Phase Green Periods

Controller stream	Phase	Green period	Is base green period	Start time (s)	End time (s)	Duration (s)
1	A	1	✓	76	87	11
		2	✓	2	20	18
	B	1	✓	76	86	10
		2	✓	2	19	17
	C	1	✓	25	41	16
		2	✓	92	102	10
	D	1	✓	76	87	11
		2	✓	1	20	19
	E	1	✓	76	86	10
		2	✓	2	19	17
	F	1	✓	46	53	7
		2	✓	107	116	9
	G	1	✓	60	66	6

Stage Sequence Diagram for Controller Stream 1



Phase Timings Diagram for Controller Stream 1



Link Results

Link Results: Vehicle summary

Time Segment	Link	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Mean Delay per Veh (s)	Mean max queue (PCU)	Utilised storage (%)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
08:30-09:30	(ALL)	6	1520	5	1800	6	55.80	0.16	8.22	1.10	0.06	1.16

Link Results: Flows and signals

Time Segment	Link	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Calculated sat flow (PCU/hr)	Calculated capacity (PCU/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))	Effective green (s (per cycle))
08:30-09:30	(ALL)	5	5	0		1800	90	6		1520	0.00	6	6

Link Results: Stops and delays

Time Segment	Link	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Uniform delay (PCU-hr/hr)	Random plus oversat delay (PCU-hr/hr)	Unweighted cost of delay (£ per hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Uniform stops (Stops per hr)	Random stops (Stops per hr)	Unweighted cost of stops (£ per hr)	Weighted cost of stops (£ per hr)
08:30-09:30	(ALL)	1.38	55.80	0.08	0.00	1.10	1.10	94.99	4.70	0.05	0.06	0.06

Link Results: Queues and blocking

Time Segment	Link	Initial queue (PCU)	Mean max queue (PCU)	Max queue storage (PCU)	Utilised storage (%)	Average storage excess queue (PCU)	Average limit excess queue (PCU)	Excess queue penalty (£ per hr)	Max end of green queue (PCU)	Max end of red queue (PCU)	Wasted time starvation (s (per cycle))	Wasted time blocking back (s (per cycle))	Wasted time total (s (per cycle))	Estimated blocking
08:30-09:30	(ALL)	0.00	0.16	1.95	8.22	0.00	0.00	0.00	0.00	0.16	5.00	0.00	5.00	

Traffic Stream Results

Traffic Stream Results: Vehicle summary

Time Segment	Arm	Traffic Stream	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Mean Delay per Veh (s)	Mean max queue (PCU)	Utilised storage (%)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
08:30-09:30	A	1	21	334	96	1915	27	20.16	1.57	9.05	7.63	0.94	8.57
		2	26	240	145	2055	30	19.64	2.42	13.94	11.24	1.42	12.66
	Ax	1	0	Unrestricted	132	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	B	1	37	145	99	1800	16	26.82	1.65	9.46	10.48	1.16	11.63
	Bx	1	0	Unrestricted	285	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	C	1	17	419	83	1980	27	19.80	1.36	38.97	6.48	0.81	7.29
		2	3	2711	17	2055	29	17.90	0.26	7.48	1.20	0.15	1.35
	Cx	1	0	Unrestricted	88	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	D	1	60	50	277	1973	26	26.51	4.91	14.12	28.97	3.31	32.28
	Dx	1	0	Unrestricted	212	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	A1	1	11	686	241	2105	120	0.11	0.01	0.02	0.11	0.00	0.11
	C1	1	5	1808	100	2120	120	0.04	0.00	0.00	0.02	0.00	0.02

Traffic Stream Results: Flows and signals

Time Segment	Arm	Traffic Stream	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Calculated sat flow (PCU/hr)	Calculated capacity (PCU/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))	Effec gree (pe cycl
08:30-09:30	A	1	96	96	0		1915	463	21		334	0.00	27	29
		2	145	145	0		2055	548	26		240	0.00	30	32
	Ax	1	132	132	0		Unrestricted	Unrestricted	0		Unrestricted	0.82	120	12
	B	1	99	99	0		1800	270	37		145	0.00	16	18
	Bx	1	285	285	0		Unrestricted	Unrestricted	0		Unrestricted	1.00	120	12
	C	1	83	83	0		1980	479	17		419	0.00	27	29
		2	17	17	0		2055	531	3		2711	0.00	29	31
	Cx	1	88	88	0		Unrestricted	Unrestricted	0		Unrestricted	0.90	120	12
	D	1	277	277	0		1973	460	60		50	0.00	26	28
	Dx	1	212	212	0		Unrestricted	Unrestricted	0		Unrestricted	1.00	120	12
	A1	1	241	241	0		2105	2105	11		686	0.00	120	12
	C1	1	100	100	0		2120	2120	5		1808	0.00	120	12

Traffic Stream Results: Stops and delays

Time Segment	Arm	Traffic Stream	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Uniform delay (PCU-hr/hr)	Random plus oversat delay (PCU-hr/hr)	Unweighted cost of delay (£ per hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Uniform stops (Stops per hr)	Random stops (Stops per hr)	Unweighted cost of stops (£ per hr)	Weighted cost of stops (£ per hr)
08:30-09:30	A	1	12.00	20.16	0.51	0.03	7.63	7.63	78.05	73.31	1.62	0.94	0.94
		2	12.00	19.64	0.74	0.05	11.24	11.24	78.08	110.38	2.84	1.42	1.42
	Ax	1	12.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	B	1	12.00	26.82	0.63	0.11	10.48	10.48	93.18	86.01	6.23	1.16	1.16
	Bx	1	12.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	C	1	2.40	19.80	0.44	0.02	6.48	6.48	77.67	63.38	1.09	0.81	0.81
		2	2.40	17.90	0.08	0.00	1.20	1.20	72.38	12.27	0.03	0.15	0.15
	Cx	1	12.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	D	1	24.00	26.51	1.59	0.45	28.97	28.97	95.42	238.00	26.31	3.31	3.31
	Dx	1	12.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	A1	1	24.00	0.11	0.00	0.01	0.11	0.11	0.00	0.00	0.00	0.00	0.00
	C1	1	60.00	0.04	0.00	0.00	0.02	0.02	0.00	0.00	0.00	0.00	0.00

Traffic Stream Results: Queues and blocking

Time Segment	Arm	Traffic Stream	Initial queue (PCU)	Mean max queue (PCU)	Max queue storage (PCU)	Utilised storage (%)	Average storage excess queue (PCU)	Average limit excess queue (PCU)	Excess queue penalty (£ per hr)	Max end of green queue (PCU)	Max end of red queue (PCU)	Wasted time starvation (s (per cycle))	Wasted time blocking back (s (per cycle))	Wasted time total (s (per cycle))	Estimated blocking
08:30-09:30	A	1	0.00	1.57	17.39	9.05	0.00	0.00	0.00	0.03	1.52	0.00	0.00	0.00	
		2	0.00	2.42	17.39	13.94	0.00	0.00	0.00	0.05	2.26	0.00	0.00	0.00	
	Ax	1	0.00	0.00	17.39	0.00	0.00	0.00	0.00			46.00	0.00	46.00	
	B	1	0.00	1.65	17.39	9.46	0.00	0.00	0.00	0.11	1.56	0.00	0.00	0.00	
	Bx	1	0.00	0.00	17.39	0.00	0.00	0.00	0.00			45.00	0.00	45.00	
	C	1	0.00	1.36	3.48	38.97	0.00	0.00	0.00	0.02	1.31	0.00	0.00	0.00	
		2	0.00	0.26	3.48	7.48	0.00	0.00	0.00	0.00	0.26	29.00	0.00	29.00	
	Cx	1	0.00	0.00	17.39	0.00	0.00	0.00	0.00			72.00	0.00	72.00	
	D	1	0.00	4.91	34.78	14.12	0.00	0.00	0.00	0.45	4.30	0.00	0.00	0.00	
	Dx	1	0.00	0.00	17.39	0.00	0.00	0.00	0.00			54.00	0.00	54.00	
	A1	1	0.00	0.01	34.78	0.02	0.00	0.00	0.00			0.00	0.00	0.00	
	C1	1	0.00	0.00	86.96	0.00	0.00	0.00	0.00			0.00	0.00	0.00	

A6 - 2036 PM Do Minimum
D6 - 2036 PM Peak*

Summary

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Give-Way Data	Arm A - Traffic Stream 2 - All movements	Traffic Stream A/2: Opposed Saturation Flow is the same as or greater than Unopposed Saturation Flow.
Warning	Give-Way Data	Arm C - Traffic Stream 2 - All movements	Traffic Stream C/2: Opposed Saturation Flow is the same as or greater than Unopposed Saturation Flow.
Info	Link Signals	Link P1 - Signals (1, G)	Link P1 and Phase G phase type both expected to be pedestrian.
Info	Link Signals	Link P2 - Signals (1, G)	Link P2 and Phase G phase type both expected to be pedestrian.
Info	Link Signals	Link P3 - Signals (1, G)	Link P3 and Phase G phase type both expected to be pedestrian.

Run Summary

Total													
set used	start time	finish time	start time (HH:mm)	Cycle Time (s)	Network Performance Index (£ per hr)	Network delay (PCU-hr/hr)	Network DOS (%)	Max highest DOS	Total oversaturated items	Total oversaturated items (%)	Worst signalised PRC	Worst unsignalised PRC	Item with worst overall PRC
6	08/10/2019 13:55:51	08/10/2019 13:55:51	17:30	120	80.83	5.13	59.16	D/1	0	0	D/1	C1/1	D/

Analysis Set Details

Name	Description	Demand set	Include in report	Locked
2036 PM Do Minimum		D6	✓	

Demand Set Details

Name	Description	Composite	Demand sets	Start time (HH:mm)	Locked
2036 PM Peak				17:30	

Links

Links

Link	Name	Description	Traffic node	Length (m)	Has Saturation Flow	Use RR67	Saturation flow (PCU/hr)	Is signal controlled	Is give way	Traffic type	Is minor shared	Allow Nearside Turn On Red
(ALL)	(untitled)		1	11.50	✓		1800	✓		Normal		

Modelling

Link	Traffic model	Stop weighting (%)	Delay weighting (%)	Assignment Cost Weighting (%)	Exclude from results calculation	Max queue storage (PCU)	Has queue limit	Has degree of saturation limit
(ALL)	NetworkDefault	100	100	100		0.00		

Modelling - Normal traffic - Advanced

Link	Dispersion type for Normal Traffic	Initial queue (PCU)	Type of Vehicle-in-Service	Vehicle-in-Service	Type of random parameter	Random parameter	Auto cycle time	Cycle time
(ALL)	NetworkDefault	0.00	NetworkDefault	Not-Included	NetworkDefault	0.50	✓	120

Flows

Link	Total flow (PCU/hr)	PCU Factor
(ALL)	5	1.00

Flows - Advanced

Link	Detectors
(ALL)	

Signals

Link	Controller stream	Phase	Second phase enabled
(ALL)	1	G	

Arms and Traffic Streams

Arms

Arm	Name	Description	Traffic node
A	(untitled)		1
Ax	(untitled)		
B	(untitled)		1
Bx	(untitled)		
C	(untitled)		1
Cx	(untitled)		
D	(untitled)		1
Dx	(untitled)		
A1	(untitled)		3
C1	(untitled)		2

Traffic Streams

Arm	Traffic Stream	Name	Description	Auto length	Length (m)	Has Saturation Flow	Saturation flow source	Saturation flow (PCU/hr)	Is signal controlled	Is give way	Traffic type	Allow Nearside Turn On Red
A	1	(untitled)			100.00	✓	Sum of lanes	1915	✓		Normal	
	2	(untitled)			100.00	✓	Sum of lanes	2055	✓	✓	Normal	
Ax	1	(untitled)			100.00						Normal	
B	1	(untitled)			100.00	✓	Sum of lanes	1800	✓		Normal	
Bx	1	(untitled)			100.00						Normal	
C	1	(untitled)			20.00	✓	Sum of lanes	1980	✓		Normal	
	2	(untitled)			20.00	✓	Sum of lanes	2055	✓	✓	Normal	
Cx	1	(untitled)			100.00						Normal	
D	1	(untitled)			200.00	✓	Sum of lanes	1973	✓		Normal	
Dx	1	(untitled)			100.00						Normal	
A1	1	(untitled)			200.00	✓	Sum of lanes	2105			Normal	
C1	1	(untitled)			500.00	✓	Sum of lanes	2120			Normal	

Lanes

Arm	Traffic Stream	Lane	Name	Description	Use RR67	Surface condition	Site quality factor	Gradient (%)	Width (m)	Use connector turning radius	Proportion that turn (%)	Turning radius (m)	Nearside lane	Saturation flow (PCU/hr)
A	1	1	(untitled)		✓	N/A	N/A	0	3.00		0	15.00	✓	1915
	2	1	(untitled)		✓	N/A	N/A	0	3.00		0	20.50		2055
Ax	1	1	(untitled)											
B	1	1	(untitled)											1800
Bx	1	1	(untitled)											
C	1	1	(untitled)		✓	N/A	N/A	0	3.65		0	15.00	✓	1980
	2	1	(untitled)		✓	N/A	N/A	0	3.00		0	20.00		2055
Cx	1	1	(untitled)											
D	1	1	(untitled)		✓	N/A	N/A	0	3.50		67	15.00		1973
Dx	1	1	(untitled)											
A1	1	1	(untitled)		✓	N/A	N/A	0	3.50		0	99999.00		2105
C1	1	1	(untitled)		✓	N/A	N/A	0	3.65	✓	0	99999.00		2120

Modelling

Arm	Traffic Stream	Traffic model	Stop weighting multiplier (%)	Delay weighting multiplier (%)	Assignment Cost Weighting (%)	Exclude from results calculation	Max queue storage (PCU)	Has queue limit	Has degree of saturation limit
(ALL)	(ALL)	NetworkDefault	100	100	100		0.00		

Modelling - Advanced

Arm	Traffic Stream	Initial queue (PCU)	Type of Vehicle-in-Service	Vehicle-in-Service	Type of random parameter	Random parameter	Auto cycle time	Cycle time
(ALL)	(ALL)	0.00	NetworkDefault	Not-Included	NetworkDefault	0.50	✓	120

Normal traffic - Modelling

Arm	Traffic Stream	Stop weighting (%)	Delay weighting (%)
(ALL)	(ALL)	100	100

Normal traffic - Advanced

Arm	Traffic Stream	Dispersion type for Normal Traffic
(ALL)	(ALL)	NetworkDefault

Flows

Arm	Traffic Stream	Total Flow (PCU/hr)	Normal Flow (PCU/hr)
A	1	63	63
	2	26	26
Ax	1	261	261
B	1	266	266
Bx	1	147	147
C	1	89	89
	2	22	22
Cx	1	134	134
D	1	214	214
Dx	1	138	138
A1	1	89	89
C1	1	111	111

Signals

Arm	Traffic Stream	Controller stream	Phase	Second phase enabled
A	1	1	E	
	2	1	D	
B	1	1	F	
C	1	1	B	
	2	1	A	
D	1	1	C	

Signal Timings

Network Default: 120s cycle time; 120 steps

Phases

Controller stream	Phase	Name	Minimum green (s)	Maximum green (s)	Relative start displacement (s)	Relative end displacement (s)	Type	Blackout Time (s)
1	A	(untitled)	3	300	0	0	Unknown	
	B	(untitled)	7	300	0	0	Unknown	
	C	(untitled)	7	300	0	0	Unknown	
	D	(untitled)	3	300	0	0	Unknown	
	E	(untitled)	7	300	0	0	Unknown	
	F	(untitled)	7	300	0	0	Unknown	
	G	(untitled)	6	300	0	0	Pedestrian	0

Library Stages

Controller stream	Library stage	Phases in stage	User stage minimum (s)
1	1	E, B, A, D	1
	2	D, A	1
	3	C	1
	4	F	1
	5	G	1

Stage Sequences

Controller stream	Sequence	Name	Multiple cycling	Stage IDs	Stage ends
1	1	(untitled)	Single	1, 2, 3, 4, 5, 1, 2, 3, 4	19, 20, 37, 53, 66, 89, 90, 103, 6

Intergreen Matrix for Controller Stream 1

From \ To	A	B	C	D	E	F	G
A			5			5	7
B			5			5	7
C	5	5		6	6	5	7
D			5			5	7
E			5			5	7
F	6	6	5	5	6		7
G	10	10	10	10	10	10	

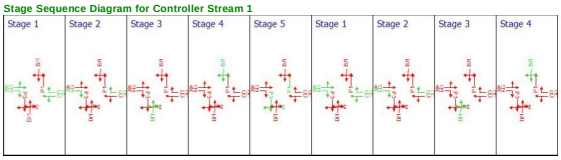
Resultant Stages

Controller stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	1	✓	1	E,B,A,D	12	19	7	1	7
	2	✓	2	D,A	19	20	1	1	1
	3	✓	3	C	25	37	12	1	7
	4	✓	4	F	42	53	11	1	7
	5	✓	5	G	60	66	6	1	6
	6	✓	1	E,B,A,D	76	89	13	1	7
	7	✓	2	D,A	89	90	1	1	1
	8	✓	3	C	95	103	8	1	7
	9	✓	4	F	108	6	18	1	7

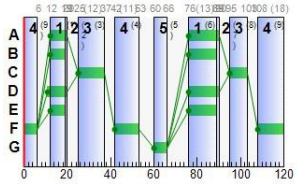
Resultant Phase Green Periods

Controller stream	Phase	Green period	Is base green period	Start time (s)	End time (s)	Duration (s)
1	A	1	✓	76	90	14
		2	✓	12	20	8
	B	1	✓	76	89	13
		2	✓	12	19	7
	C	1	✓	25	37	12
		2	✓	95	103	8
	D	1	✓	76	90	14
		2	✓	11	20	9
	E	1	✓	76	89	13
		2	✓	12	19	7
	F	1	✓	42	53	11
		2	✓	108	6	18
	G	1	✓	60	66	6

Stage Sequence Diagram for Controller Stream 1



Phase Timings Diagram for Controller Stream 1



Link Results

Link Results: Vehicle summary

Time Segment	Link	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Mean Delay per Veh (s)	Mean max queue (PCU)	Utilised storage (%)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
17:30-18:30	(ALL)	6	1520	5	1800	6	55.80	0.16	8.22	1.10	0.06	1.16

Link Results: Flows and signals

Time Segment	Link	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Calculated sat flow (PCU/hr)	Calculated capacity (PCU/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))	Effective green (s (per cycle))
17:30-18:30	(ALL)	5	5	0		1800	90	6		1520	0.00	6	6

Link Results: Stops and delays

Time Segment	Link	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Uniform delay (PCU-hr/hr)	Random plus oversat delay (PCU-hr/hr)	Unweighted cost of delay (£ per hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Uniform stops (Stops per hr)	Random stops (Stops per hr)	Unweighted cost of stops (£ per hr)	Weighted cost of stops (£ per hr)
17:30-18:30	(ALL)	1.38	55.80	0.08	0.00	1.10	1.10	94.99	4.70	0.05	0.06	0.06

Link Results: Queues and blocking

Time Segment	Link	Initial queue (PCU)	Mean max queue (PCU)	Max queue storage (PCU)	Utilised storage (%)	Average storage excess queue (PCU)	Average limit excess queue (PCU)	Excess queue penalty (£ per hr)	Max end of green queue (PCU)	Max end of red queue (PCU)	Wasted time starvation (s (per cycle))	Wasted time blocking back (s (per cycle))	Wasted time total (s (per cycle))	Estimated blocking
17:30-18:30	(ALL)	0.00	0.16	1.95	8.22	0.00	0.00	0.00	0.00	0.16	5.00	0.00	5.00	

Traffic Stream Results

Traffic Stream Results: Vehicle summary

Time Segment	Arm	Traffic Stream	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Mean Delay per Veh (s)	Mean max queue (PCU)	Utilised storage (%)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
17:30-18:30	A	1	18	402	63	1915	20	22.27	1.02	5.85	5.53	0.66	6.19
		2	6	1382	26	2055	23	19.94	0.40	2.30	2.04	0.25	2.30
	Ax	1	0	Unrestricted	261	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	B	1	57	57	266	1800	29	25.38	5.03	28.94	26.63	3.07	29.70
	Bx	1	0	Unrestricted	147	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	C	1	25	267	89	1980	20	23.01	1.47	42.37	8.08	0.95	9.02
		2	5	1581	22	2055	22	20.26	0.34	9.71	1.76	0.22	1.97
	Cx	1	0	Unrestricted	134	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	D	1	59	52	214	1973	20	30.15	4.17	11.98	25.45	2.67	28.12
	Dx	1	0	Unrestricted	138	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	A1	1	4	2029	89	2105	120	0.04	0.00	0.00	0.01	0.00	0.01
	C1	1	5	1619	111	2120	120	0.05	0.00	0.00	0.02	0.00	0.02

Traffic Stream Results: Flows and signals

Time Segment	Arm	Traffic Stream	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Calculated sat flow (PCU/hr)	Calculated capacity (PCU/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))	Effec gree (pe cycl
17:30-18:30	A	1	63	63	0		1915	351	18		402	0.00	20	22
		2	26	26	0		2055	428	6		1382	0.00	23	25
	Ax	1	261	261	0		Unrestricted	Unrestricted	0		Unrestricted	0.67	120	12
	B	1	266	266	0		1800	465	57		57	0.00	29	31
	Bx	1	147	147	0		Unrestricted	Unrestricted	0		Unrestricted	1.09	120	12
	C	1	89	89	0		1980	363	25		267	0.00	20	22
		2	22	22	0		2055	411	5		1581	0.00	22	24
	Cx	1	134	134	0		Unrestricted	Unrestricted	0		Unrestricted	0.73	120	12
	D	1	214	214	0		1973	362	59		52	0.00	20	22
	Dx	1	138	138	0		Unrestricted	Unrestricted	0		Unrestricted	1.00	120	12
	A1	1	89	89	0		2105	2105	4		2029	0.00	120	12
	C1	1	111	111	0		2120	2120	5		1619	0.00	120	12

Traffic Stream Results: Stops and delays

Time Segment	Arm	Traffic Stream	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Uniform delay (PCU-hr/hr)	Random plus oversat delay (PCU-hr/hr)	Unweighted cost of delay (£ per hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Uniform stops (Stops per hr)	Random stops (Stops per hr)	Unweighted cost of stops (£ per hr)	Weighted cost of stops (£ per hr)
17:30-18:30	A	1	12.00	22.27	0.37	0.02	5.53	5.53	83.22	51.26	1.17	0.66	0.66
		2	12.00	19.94	0.14	0.00	2.04	2.04	77.65	20.07	0.12	0.25	0.25
	Ax	1	12.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	B	1	12.00	25.38	1.50	0.38	26.63	26.63	92.14	222.84	22.24	3.07	3.07
	Bx	1	12.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	C	1	2.40	23.01	0.53	0.04	8.08	8.08	84.86	73.15	2.37	0.95	0.95
		2	2.40	20.26	0.12	0.00	1.76	1.76	78.44	17.17	0.09	0.22	0.22
	Cx	1	12.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	D	1	24.00	30.15	1.37	0.42	25.45	25.45	99.53	188.36	24.63	2.67	2.67
	Dx	1	12.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	A1	1	24.00	0.04	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00
	C1	1	60.00	0.05	0.00	0.00	0.02	0.02	0.00	0.00	0.00	0.00	0.00

Traffic Stream Results: Queues and blocking

Time Segment	Arm	Traffic Stream	Initial queue (PCU)	Mean max queue (PCU)	Max queue storage (PCU)	Utilised storage (%)	Average storage excess queue (PCU)	Average limit excess queue (PCU)	Excess queue penalty (£ per hr)	Max end of green queue (PCU)	Max end of red queue (PCU)	Wasted time starvation (s (per cycle))	Wasted time blocking back (s (per cycle))	Wasted time total (s (per cycle))	Estimated blocking
17:30-18:30	A	1	0.00	1.02	17.39	5.85	0.00	0.00	0.00	0.02	1.00	0.00	0.00	0.00	
		2	0.00	0.40	17.39	2.30	0.00	0.00	0.00	0.00	0.40	23.00	0.00	23.00	
	Ax	1	0.00	0.00	17.39	0.00	0.00	0.00	0.00			25.00	0.00	25.00	
	B	1	0.00	5.03	17.39	28.94	0.00	0.00	0.00	0.38	4.37	0.00	0.00	0.00	
	Bx	1	0.00	0.00	17.39	0.00	0.00	0.00	0.00			66.00	0.00	66.00	
	C	1	0.00	1.47	3.48	42.37	0.00	0.00	0.00	0.04	1.42	0.00	0.00	0.00	
		2	0.00	0.34	3.48	9.71	0.00	0.00	0.00	0.00	0.34	22.00	0.00	22.00	
	Cx	1	0.00	0.00	17.39	0.00	0.00	0.00	0.00			43.00	0.00	43.00	
	D	1	0.00	4.17	34.78	11.98	0.00	0.00	0.00	0.42	3.81	0.00	0.00	0.00	
	Dx	1	0.00	0.00	17.39	0.00	0.00	0.00	0.00			61.00	0.00	61.00	
	A1	1	0.00	0.00	34.78	0.00	0.00	0.00	0.00			0.00	0.00	0.00	
	C1	1	0.00	0.00	86.96	0.00	0.00	0.00	0.00			0.00	0.00	0.00	

TRANSYT 15

Version: 15.5.2.7994
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Filename: Junction 4 Do Something.t15
Path: G:\2019\p190009\calcs\transyt\Oct 2019
Report generation date: 08/10/2019 14:03:59

»A1 - 2021 AM Do Something : D1 - 2021 AM Peak* :
»A2 - 2021 PM Do Something : D2 - 2021 PM Peak* :
»A3 - 2026 AM Do Something : D3 - 2026 AM Peak* :
»A4 - 2026 PM Do Something : D4 - 2026 PM Peak* :
»A5 - 2036 AM Do Something : D5 - 2036 AM Peak* :
»A6 - 2036 PM Do Something : D6 - 2036 PM Peak* :

File summary

File description

File title	Millerstown Phase 2
Location	Kilcock
Site number	Junction 4
UTCRegion	
Driving side	Left
Date	01/04/2018
Version	
Status	TTA
Identifier	
Client	MGR
Jobnumber	190009
Enumerator	HEADOFFICE\mckennam
Description	Do Something

Model and Results

Enable controller offsets	Enable fuel consumption	Enable quick flares	Display journey time results	Display level of service results	Display blocking and starvation results	Display end of red and green queue results	Display excess queue results	Display separate uniform and random results	Display unweighted results	Display TRANSYT 12 style timings	Display effective greens in results	Display Red-With-Amber	Display End-Of-Green Amber
			✓		✓	✓	✓	✓	✓	✓	✓		

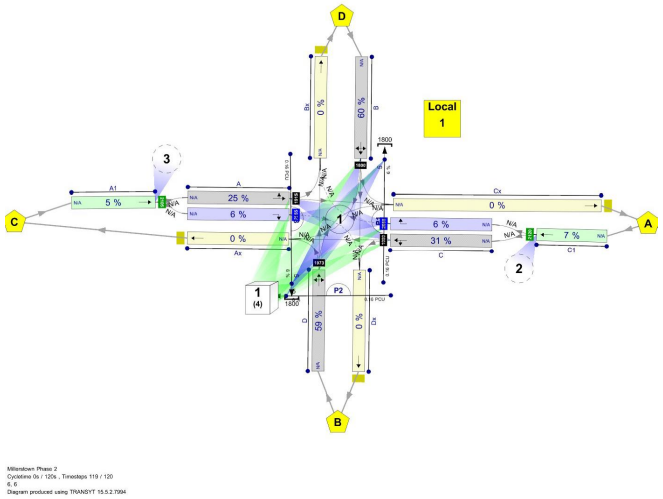
Units

Cost units	Speed units	Distance units	Fuel economy units	Fuel rate units	Mass units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
£	kph	m	mpg	l/h	kg	PCU	PCU	perHour	s	-Hour	perHour

Sorting

Show names instead of IDs	Sorting direction	Sorting type	Ignore prefixes when sorting	Analysis/demand set sorting	Link grouping	Source grouping	Colour Analysis/Demand Sets
	Ascending	Numerical		ID	Normal	Normal	✓

Network Diagrams



Millerstown Phase 2
Cyclotime 0s / 120s . Timesteps 119 / 120
6, 6
Diagram produced using TRANSYT 15.5.2.7994

A1 - 2021 AM Do Something
D1 - 2021 AM Peak*

Summary

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Give-Way Data	Arm A - Traffic Stream 2 - All movements	Traffic Stream A/2: Opposed Saturation Flow is the same as or greater than Unopposed Saturation Flow.
Warning	Give-Way Data	Arm C - Traffic Stream 2 - All movements	Traffic Stream C/2: Opposed Saturation Flow is the same as or greater than Unopposed Saturation Flow.
Info	Link Signals	Link P1 - Signals (1, G)	Link P1 and Phase G phase type both expected to be pedestrian.
Info	Link Signals	Link P2 - Signals (1, G)	Link P2 and Phase G phase type both expected to be pedestrian.
Info	Link Signals	Link P3 - Signals (1, G)	Link P3 and Phase G phase type both expected to be pedestrian.

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (£ per hr)	Total network delay (PCU-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Ite wit wor over PR
1	08/10/2019 14:03:23	08/10/2019 14:03:24	08:30	120	61.58	3.89	55.17	D/1	0	0	D/1	A1/1	D/

Analysis Set Details

Name	Description	Demand set	Include in report	Locked
2021 AM Do Something		D1	✓	

Demand Set Details

Name	Description	Composite	Demand sets	Start time (HH:mm)	Locked
2021 AM Peak				08:30	

Links

Links

Link	Name	Description	Traffic node	Length (m)	Has Saturation Flow	Use RR67	Saturation flow (PCU/hr)	Is signal controlled	Is give way	Traffic type	Is minor shared	Allow Nearside Turn On Red
(ALL)	(untitled)		1	11.50	✓		1800	✓		Normal		

Modelling

Link	Traffic model	Stop weighting (%)	Delay weighting (%)	Assignment Cost Weighting (%)	Exclude from results calculation	Max queue storage (PCU)	Has queue limit	Has degree of saturation limit
(ALL)	NetworkDefault	100	100	100		0.00		

Modelling - Normal traffic - Advanced

Link	Dispersion type for Normal Traffic	Initial queue (PCU)	Type of Vehicle-in-Service	Vehicle-in-Service	Type of random parameter	Random parameter	Auto cycle time	Cycle time
(ALL)	NetworkDefault	0.00	NetworkDefault	Not-Included	NetworkDefault	0.50	✓	120

Flows

Link	Total flow (PCU/hr)	PCU Factor
(ALL)	5	1.00

Flows - Advanced

Link	Detectors
(ALL)	

Signals

Link	Controller stream	Phase	Second phase enabled
(ALL)	1	G	

Arms and Traffic Streams

Arms

Arm	Name	Description	Traffic node
A	(untitled)		1
Ax	(untitled)		
B	(untitled)		1
Bx	(untitled)		
C	(untitled)		1
Cx	(untitled)		
D	(untitled)		1
Dx	(untitled)		
A1	(untitled)		3
C1	(untitled)		2

Traffic Streams

Arm	Traffic Stream	Name	Description	Auto length	Length (m)	Has Saturation Flow	Saturation flow source	Saturation flow (PCU/hr)	Is signal controlled	Is give way	Traffic type	Allow Nearside Turn On Red
A	1	(untitled)			100.00	✓	Sum of lanes	1915	✓		Normal	
	2	(untitled)			100.00	✓	Sum of lanes	2055	✓	✓	Normal	
Ax	1	(untitled)			100.00						Normal	
B	1	(untitled)			100.00	✓	Sum of lanes	1800	✓		Normal	
Bx	1	(untitled)			100.00						Normal	
C	1	(untitled)			20.00	✓	Sum of lanes	1980	✓		Normal	
	2	(untitled)			20.00	✓	Sum of lanes	2055	✓	✓	Normal	
Cx	1	(untitled)			100.00						Normal	
D	1	(untitled)			200.00	✓	Sum of lanes	1973	✓		Normal	
Dx	1	(untitled)			100.00						Normal	
A1	1	(untitled)			200.00	✓	Sum of lanes	2105			Normal	
C1	1	(untitled)			500.00	✓	Sum of lanes	2120			Normal	

Lanes

Arm	Traffic Stream	Lane	Name	Description	Use RR67	Surface condition	Site quality factor	Gradient (%)	Width (m)	Use connector turning radius	Proportion that turn (%)	Turning radius (m)	Nearside lane	Saturation flow (PCU/hr)
A	1	1	(untitled)		✓	N/A	N/A	0	3.00		0	15.00	✓	1915
	2	1	(untitled)		✓	N/A	N/A	0	3.00		0	20.50		2055
Ax	1	1	(untitled)											
B	1	1	(untitled)											1800
Bx	1	1	(untitled)											
C	1	1	(untitled)		✓	N/A	N/A	0	3.65		0	15.00	✓	1980
	2	1	(untitled)		✓	N/A	N/A	0	3.00		0	20.00		2055
Cx	1	1	(untitled)											
D	1	1	(untitled)		✓	N/A	N/A	0	3.50		67	15.00		1973
Dx	1	1	(untitled)											
A1	1	1	(untitled)		✓	N/A	N/A	0	3.50		0	100.00		2105
C1	1	1	(untitled)		✓	N/A	N/A	0	3.65	✓	0	99999.00		2120

Modelling

Arm	Traffic Stream	Traffic model	Stop weighting multiplier (%)	Delay weighting multiplier (%)	Assignment Cost Weighting (%)	Exclude from results calculation	Max queue storage (PCU)	Has queue limit	Has degree of saturation limit
(ALL)	(ALL)	NetworkDefault	100	100	100		0.00		

Modelling - Advanced

Arm	Traffic Stream	Initial queue (PCU)	Type of Vehicle-in-Service	Vehicle-in-Service	Type of random parameter	Random parameter	Auto cycle time	Cycle time
(ALL)	(ALL)	0.00	NetworkDefault	Not-Included	NetworkDefault	0.50	✓	120

Normal traffic - Modelling

Arm	Traffic Stream	Stop weighting (%)	Delay weighting (%)
(ALL)	(ALL)	100	100

Normal traffic - Advanced

Arm	Traffic Stream	Dispersion type for Normal Traffic
(ALL)	(ALL)	NetworkDefault

Flows

Arm	Traffic Stream	Total Flow (PCU/hr)	Normal Flow (PCU/hr)
A	1	41	41
	2	145	145
Ax	1	89	89
B	1	82	82
Bx	1	228	228
C	1	51	51
	2	3	3
Cx	1	24	24
D	1	254	254
Dx	1	235	235
A1	1	186	186
C1	1	54	54

Signals

Arm	Traffic Stream	Controller stream	Phase	Second phase enabled
A	1	1	E	
	2	1	D	
B	1	1	F	
C	1	1	B	
	2	1	A	
D	1	1	C	

Signal Timings

Network Default: 120s cycle time; 120 steps

Phases

Controller stream	Phase	Name	Minimum green (s)	Maximum green (s)	Relative start displacement (s)	Relative end displacement (s)	Type	Blackout Time (s)
1	A	(untitled)	7	300	0	0	Unknown	
	B	(untitled)	7	300	0	0	Unknown	
	C	(untitled)	7	300	0	0	Unknown	
	D	(untitled)	7	300	0	0	Unknown	
	E	(untitled)	7	300	0	0	Unknown	
	F	(untitled)	7	300	0	0	Unknown	
	G	(untitled)	6	300	0	0	Pedestrian	0

Library Stages

Controller stream	Library stage	Phases in stage	User stage minimum (s)
1	1	E, B, A, D	1
	2	D, A	1
	3	C	1
	4	F	1
	5	G	1

Stage Sequences

Controller stream	Sequence	Name	Multiple cycling	Stage IDs	Stage ends
1	1	(untitled)	Single	1, 2, 3, 4, 5, 1, 2, 3, 4	19, 20, 41, 53, 66, 85, 86, 101, 115

Intergreen Matrix for Controller Stream 1

From \ To	A	B	C	D	E	F	G
A			5			5	7
B			5			5	7
C	5	5		6	6	5	7
D			5			5	7
E			5			5	7
F	6	6	5	5	6		7
G	10	10	10	10	10	10	

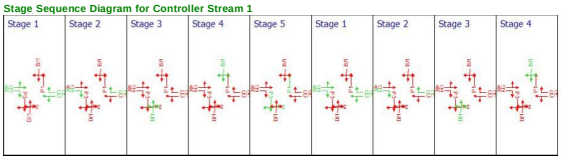
Resultant Stages

Controller stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	1	✓	1	E,B,A,D	1	19	18	1	7
	2	✓	2	D,A	19	20	1	1	1
	3	✓	3	C	25	41	16	1	7
	4	✓	4	F	46	53	7	1	7
	5	✓	5	G	60	66	6	1	6
	6	✓	1	E,B,A,D	76	85	9	1	7
	7	✓	2	D,A	85	86	1	1	1
	8	✓	3	C	91	101	10	1	7
	9	✓	4	F	106	115	9	1	7

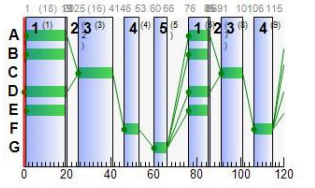
Resultant Phase Green Periods

Controller stream	Phase	Green period	Is base green period	Start time (s)	End time (s)	Duration (s)
1	A	1	✓	76	86	10
		2	✓	1	20	19
	B	1	✓	76	85	9
		2	✓	1	19	18
	C	1	✓	25	41	16
		2	✓	91	101	10
	D	1	✓	76	86	10
		2	✓	0	20	20
	E	1	✓	76	85	9
		2	✓	1	19	18
	F	1	✓	46	53	7
		2	✓	106	115	9
	G	1	✓	60	66	6

Stage Sequence Diagram for Controller Stream 1



Phase Timings Diagram for Controller Stream 1



Link Results

Link Results: Vehicle summary

Time Segment	Link	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Mean Delay per Veh (s)	Mean max queue (PCU)	Utilised storage (%)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
08:30-09:30	(ALL)	6	1520	5	1800	6	55.80	0.16	8.22	1.10	0.06	1.16

Link Results: Flows and signals

Time Segment	Link	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Calculated sat flow (PCU/hr)	Calculated capacity (PCU/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))	Effective green (s (per cycle))
08:30-09:30	(ALL)	5	5	0		1800	90	6		1520	0.00	6	6

Link Results: Stops and delays

Time Segment	Link	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Uniform delay (PCU-hr/hr)	Random plus oversat delay (PCU-hr/hr)	Unweighted cost of delay (£ per hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Uniform stops (Stops per hr)	Random stops (Stops per hr)	Unweighted cost of stops (£ per hr)	Weighted cost of stops (£ per hr)
08:30-09:30	(ALL)	1.38	55.80	0.08	0.00	1.10	1.10	94.99	4.70	0.05	0.06	0.06

Link Results: Queues and blocking

Time Segment	Link	Initial queue (PCU)	Mean max queue (PCU)	Max queue storage (PCU)	Utilised storage (%)	Average storage excess queue (PCU)	Average limit excess queue (PCU)	Excess queue penalty (£ per hr)	Max end of green queue (PCU)	Max end of red queue (PCU)	Wasted time starvation (s (per cycle))	Wasted time blocking back (s (per cycle))	Wasted time total (s (per cycle))	Estimated blocking
08:30-09:30	(ALL)	0.00	0.16	1.95	8.22	0.00	0.00	0.00	0.00	0.16	5.00	0.00	5.00	

Traffic Stream Results

Traffic Stream Results: Vehicle summary

Time Segment	Arm	Traffic Stream	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Mean Delay per Veh (s)	Mean max queue (PCU)	Utilised storage (%)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
08:30-09:30	A	1	9	916	41	1915	27	19.01	0.65	3.76	3.07	0.39	3.46
		2	26	240	145	2055	30	19.64	2.42	13.94	11.24	1.42	12.66
	Ax	1	0	Unrestricted	89	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	B	1	30	196	82	1800	16	25.66	1.30	7.45	8.30	0.94	9.24
	Bx	1	0	Unrestricted	228	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	C	1	11	744	51	1980	27	19.15	0.81	23.40	3.85	0.48	4.33
		2	1	15826	3	2055	29	17.81	0.00	0.00	0.21	0.03	0.24
	Cx	1	0	Unrestricted	24	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	D	1	55	63	254	1973	26	25.11	4.29	12.33	25.16	2.96	28.11
	Dx	1	0	Unrestricted	235	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	A1	1	9	919	186	2105	120	0.08	0.00	0.01	0.06	0.00	0.06
	C1	1	3	3433	54	2120	120	0.02	0.00	0.00	0.00	0.00	0.00

Traffic Stream Results: Flows and signals

Time Segment	Arm	Traffic Stream	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Calculated sat flow (PCU/hr)	Calculated capacity (PCU/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))	Effec gree (pe cycl
08:30-09:30	A	1	41	41	0		1915	463	9		916	0.00	27	29
		2	145	145	0		2055	548	26		240	0.00	30	32
	Ax	1	89	89	0		Unrestricted	Unrestricted	0		Unrestricted	0.82	120	12
	B	1	82	82	0		1800	270	30		196	0.00	16	18
	Bx	1	228	228	0		Unrestricted	Unrestricted	0		Unrestricted	1.05	120	12
	C	1	51	51	0		1980	479	11		744	0.00	27	29
		2	3	3	0		2055	531	1		15826	0.00	29	31
	Cx	1	24	24	0		Unrestricted	Unrestricted	0		Unrestricted	1.18	120	12
	D	1	254	254	0		1973	460	55		63	0.00	26	28
	Dx	1	235	235	0		Unrestricted	Unrestricted	0		Unrestricted	0.99	120	12
	A1	1	186	186	0		2105	2105	9		919	0.00	120	12
	C1	1	54	54	0		2120	2120	3		3433	0.00	120	12

Traffic Stream Results: Stops and delays

Time Segment	Arm	Traffic Stream	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Uniform delay (PCU-hr/hr)	Random plus oversat delay (PCU-hr/hr)	Unweighted cost of delay (£ per hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Uniform stops (Stops per hr)	Random stops (Stops per hr)	Unweighted cost of stops (£ per hr)	Weighted cost of stops (£ per hr)
08:30-09:30	A	1	12.00	19.01	0.21	0.00	3.07	3.07	75.32	30.63	0.26	0.39	0.39
		2	12.00	19.64	0.74	0.05	11.24	11.24	78.08	110.38	2.84	1.42	1.42
	Ax	1	12.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	B	1	12.00	25.66	0.52	0.07	8.30	8.30	91.13	70.81	3.91	0.94	0.94
	Bx	1	12.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	C	1	2.40	19.15	0.26	0.01	3.85	3.85	75.44	38.09	0.38	0.48	0.48
		2	2.40	17.81	0.01	0.00	0.21	0.21	72.20	2.17	0.00	0.03	0.03
	Cx	1	12.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	D	1	24.00	25.11	1.43	0.34	25.16	25.16	92.82	215.97	19.80	2.96	2.96
	Dx	1	12.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	A1	1	24.00	0.08	0.00	0.00	0.06	0.06	0.00	0.00	0.00	0.00	0.00
	C1	1	60.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Traffic Stream Results: Queues and blocking

Time Segment	Arm	Traffic Stream	Initial queue (PCU)	Mean max queue (PCU)	Max queue storage (PCU)	Utilised storage (%)	Average storage excess queue (PCU)	Average limit excess queue (PCU)	Excess queue penalty (£ per hr)	Max end of green queue (PCU)	Max end of red queue (PCU)	Wasted time starvation (s (per cycle))	Wasted time blocking back (s (per cycle))	Wasted time total (s (per cycle))	Estimated blocking
08:30-09:30	A	1	0.00	0.65	17.39	3.76	0.00	0.00	0.00	0.00	0.64	26.00	0.00	26.00	
		2	0.00	2.42	17.39	13.94	0.00	0.00	0.00	0.05	2.26	0.00	0.00	0.00	
	Ax	1	0.00	0.00	17.39	0.00	0.00	0.00	0.00			63.00	0.00	63.00	
	B	1	0.00	1.30	17.39	7.45	0.00	0.00	0.00	0.07	1.25	0.00	0.00	0.00	
	Bx	1	0.00	0.00	17.39	0.00	0.00	0.00	0.00			56.00	0.00	56.00	
	C	1	0.00	0.81	3.48	23.40	0.00	0.00	0.00	0.01	0.80	26.00	0.00	26.00	
		2	0.00	0.00	3.48	0.00	0.00	0.00	0.00	0.00	0.00	29.00	0.00	29.00	
	Cx	1	0.00	0.00	17.39	0.00	0.00	0.00	0.00			101.00	0.00	101.00	
	D	1	0.00	4.29	34.78	12.33	0.00	0.00	0.00	0.34	3.79	0.00	0.00	0.00	
	Dx	1	0.00	0.00	17.39	0.00	0.00	0.00	0.00			51.00	0.00	51.00	
	A1	1	0.00	0.00	34.78	0.01	0.00	0.00	0.00			0.00	0.00	0.00	
	C1	1	0.00	0.00	86.96	0.00	0.00	0.00	0.00			120.00	0.00	120.00	

A2 - 2021 PM Do Something
D2 - 2021 PM Peak*

Summary

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Give-Way Data	Arm A - Traffic Stream 2 - All movements	Traffic Stream A/2: Opposed Saturation Flow is the same as or greater than Unopposed Saturation Flow.
Warning	Give-Way Data	Arm C - Traffic Stream 2 - All movements	Traffic Stream C/2: Opposed Saturation Flow is the same as or greater than Unopposed Saturation Flow.
Info	Link Signals	Link P1 - Signals (1, G)	Link P1 and Phase G phase type both expected to be pedestrian.
Info	Link Signals	Link P2 - Signals (1, G)	Link P2 and Phase G phase type both expected to be pedestrian.
Info	Link Signals	Link P3 - Signals (1, G)	Link P3 and Phase G phase type both expected to be pedestrian.

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (£ per hr)	Total network delay (PCU-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Ite wit wor over PR
2	08/10/2019 14:03:24	08/10/2019 14:03:24	17:30	120	64.17	4.07	55.71	D/1	0	0	D/1	A1/1	D/

Analysis Set Details

Name	Description	Demand set	Include in report	Locked
2021 PM Do Something		D2	✓	

Demand Set Details

Name	Description	Composite	Demand sets	Start time (HH:mm)	Locked
2021 PM Peak				17:30	

Links

Links

Link	Name	Description	Traffic node	Length (m)	Has Saturation Flow	Use RR67	Saturation flow (PCU/hr)	Is signal controlled	Is give way	Traffic type	Is minor shared	Allow Nearside Turn On Red
(ALL)	(untitled)		1	11.50	✓		1800	✓		Normal		

Modelling

Link	Traffic model	Stop weighting (%)	Delay weighting (%)	Assignment Cost Weighting (%)	Exclude from results calculation	Max queue storage (PCU)	Has queue limit	Has degree of saturation limit
(ALL)	NetworkDefault	100	100	100		0.00		

Modelling - Normal traffic - Advanced

Link	Dispersion type for Normal Traffic	Initial queue (PCU)	Type of Vehicle-in-Service	Vehicle-in-Service	Type of random parameter	Random parameter	Auto cycle time	Cycle time
(ALL)	NetworkDefault	0.00	NetworkDefault	Not-Included	NetworkDefault	0.50	✓	120

Flows

Link	Total flow (PCU/hr)	PCU Factor
(ALL)	5	1.00

Flows - Advanced

Link	Detectors
(ALL)	

Signals

Link	Controller stream	Phase	Second phase enabled
(ALL)	1	G	

Arms and Traffic Streams

Arms

Arm	Name	Description	Traffic node
A	(untitled)		1
Ax	(untitled)		
B	(untitled)		1
Bx	(untitled)		
C	(untitled)		1
Cx	(untitled)		
D	(untitled)		1
Dx	(untitled)		
A1	(untitled)		3
C1	(untitled)		2

Traffic Streams

Arm	Traffic Stream	Name	Description	Auto length	Length (m)	Has Saturation Flow	Saturation flow source	Saturation flow (PCU/hr)	Is signal controlled	Is give way	Traffic type	Allow Nearside Turn On Red
A	1	(untitled)			100.00	✓	Sum of lanes	1915	✓		Normal	
	2	(untitled)			100.00	✓	Sum of lanes	2055	✓	✓	Normal	
Ax	1	(untitled)			100.00						Normal	
B	1	(untitled)			100.00	✓	Sum of lanes	1800	✓		Normal	
Bx	1	(untitled)			100.00						Normal	
C	1	(untitled)			20.00	✓	Sum of lanes	1980	✓		Normal	
	2	(untitled)			20.00	✓	Sum of lanes	2055	✓	✓	Normal	
Cx	1	(untitled)			100.00						Normal	
D	1	(untitled)			200.00	✓	Sum of lanes	1973	✓		Normal	
Dx	1	(untitled)			100.00						Normal	
A1	1	(untitled)			200.00	✓	Sum of lanes	2105			Normal	
C1	1	(untitled)			500.00	✓	Sum of lanes	2120			Normal	

Lanes

Arm	Traffic Stream	Lane	Name	Description	Use RR67	Surface condition	Site quality factor	Gradient (%)	Width (m)	Use connector turning radius	Proportion that turn (%)	Turning radius (m)	Nearside lane	Saturation flow (PCU/hr)
A	1	1	(untitled)		✓	N/A	N/A	0	3.00		0	15.00	✓	1915
	2	1	(untitled)		✓	N/A	N/A	0	3.00		0	20.50		2055
Ax	1	1	(untitled)											
B	1	1	(untitled)											1800
Bx	1	1	(untitled)											
C	1	1	(untitled)		✓	N/A	N/A	0	3.65		0	15.00	✓	1980
	2	1	(untitled)		✓	N/A	N/A	0	3.00		0	20.00		2055
Cx	1	1	(untitled)											
D	1	1	(untitled)		✓	N/A	N/A	0	3.50		67	15.00		1973
Dx	1	1	(untitled)											
A1	1	1	(untitled)		✓	N/A	N/A	0	3.50		0	100.00		2105
C1	1	1	(untitled)		✓	N/A	N/A	0	3.65	✓	0	99999.00		2120

Modelling

Arm	Traffic Stream	Traffic model	Stop weighting multiplier (%)	Delay weighting multiplier (%)	Assignment Cost Weighting (%)	Exclude from results calculation	Max queue storage (PCU)	Has queue limit	Has degree of saturation limit
(ALL)	(ALL)	NetworkDefault	100	100	100		0.00		

Modelling - Advanced

Arm	Traffic Stream	Initial queue (PCU)	Type of Vehicle-in-Service	Vehicle-in-Service	Type of random parameter	Random parameter	Auto cycle time	Cycle time
(ALL)	(ALL)	0.00	NetworkDefault	Not-Included	NetworkDefault	0.50	✓	120

Normal traffic - Modelling

Arm	Traffic Stream	Stop weighting (%)	Delay weighting (%)
(ALL)	(ALL)	100	100

Normal traffic - Advanced

Arm	Traffic Stream	Dispersion type for Normal Traffic
(ALL)	(ALL)	NetworkDefault

Flows

Arm	Traffic Stream	Total Flow (PCU/hr)	Normal Flow (PCU/hr)
A	1	13	13
	2	34	34
Ax	1	184	184
B	1	223	223
Bx	1	110	110
C	1	39	39
	2	2	2
Cx	1	62	62
D	1	229	229
Dx	1	184	184
A1	1	47	47
C1	1	41	41

Signals

Arm	Traffic Stream	Controller stream	Phase	Second phase enabled
A	1	1	E	
	2	1	D	
B	1	1	F	
C	1	1	B	
	2	1	A	
D	1	1	C	

Signal Timings

Network Default: 120s cycle time; 120 steps

Phases

Controller stream	Phase	Name	Minimum green (s)	Maximum green (s)	Relative start displacement (s)	Relative end displacement (s)	Type	Blackout Time (s)
1	A	(untitled)	7	300	0	0	Unknown	
	B	(untitled)	7	300	0	0	Unknown	
	C	(untitled)	7	300	0	0	Unknown	
	D	(untitled)	7	300	0	0	Unknown	
	E	(untitled)	7	300	0	0	Unknown	
	F	(untitled)	7	300	0	0	Unknown	
	G	(untitled)	6	300	0	0	Pedestrian	0

Library Stages

Controller stream	Library stage	Phases in stage	User stage minimum (s)
1	1	E, B, A, D	1
	2	D, A	1
	3	C	1
	4	F	1
	5	G	1

Stage Sequences

Controller stream	Sequence	Name	Multiple cycling	Stage IDs	Stage ends
1	1	(untitled)	Single	1, 2, 3, 4, 5, 1, 2, 3, 4	19, 20, 39, 53, 66, 89, 90, 104, 6

Intergreen Matrix for Controller Stream 1

From \ To	A	B	C	D	E	F	G
A			5			5	7
B			5			5	7
C	5	5		6	6	5	7
D			5			5	7
E			5			5	7
F	6	6	5	5	6		7
G	10	10	10	10	10	10	

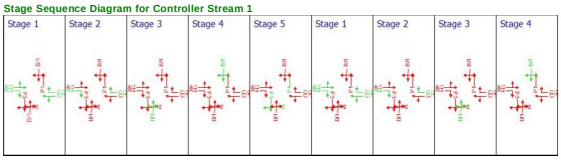
Resultant Stages

Controller stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	1	✓	1	E,B,A,D	12	19	7	1	7
	2	✓	2	D,A	19	20	1	1	1
	3	✓	3	C	25	39	14	1	7
	4	✓	4	F	44	53	9	1	7
	5	✓	5	G	60	66	6	1	6
	6	✓	1	E,B,A,D	76	89	13	1	7
	7	✓	2	D,A	89	90	1	1	1
	8	✓	3	C	95	104	9	1	7
	9	✓	4	F	109	6	17	1	7

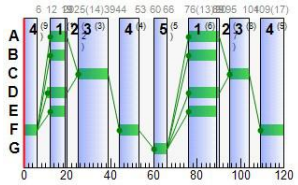
Resultant Phase Green Periods

Controller stream	Phase	Green period	Is base green period	Start time (s)	End time (s)	Duration (s)
1	A	1	✓	76	90	14
		2	✓	12	20	8
	B	1	✓	76	89	13
		2	✓	12	19	7
	C	1	✓	25	39	14
		2	✓	95	104	9
	D	1	✓	76	90	14
		2	✓	11	20	9
	E	1	✓	76	89	13
		2	✓	12	19	7
	F	1	✓	44	53	9
		2	✓	109	6	17
	G	1	✓	60	66	6

Stage Sequence Diagram for Controller Stream 1



Phase Timings Diagram for Controller Stream 1



Link Results

Link Results: Vehicle summary

Time Segment	Link	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Mean Delay per Veh (s)	Mean max queue (PCU)	Utilised storage (%)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
17:30-18:30	(ALL)	6	1520	5	1800	6	55.80	0.16	8.22	1.10	0.06	1.16

Link Results: Flows and signals

Time Segment	Link	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Calculated sat flow (PCU/hr)	Calculated capacity (PCU/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))	Effective green (s (per cycle))
17:30-18:30	(ALL)	5	5	0		1800	90	6		1520	0.00	6	6

Link Results: Stops and delays

Time Segment	Link	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Uniform delay (PCU-hr/hr)	Random plus oversat delay (PCU-hr/hr)	Unweighted cost of delay (£ per hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Uniform stops (Stops per hr)	Random stops (Stops per hr)	Unweighted cost of stops (£ per hr)	Weighted cost of stops (£ per hr)
17:30-18:30	(ALL)	1.38	55.80	0.08	0.00	1.10	1.10	94.99	4.70	0.05	0.06	0.06

Link Results: Queues and blocking

Time Segment	Link	Initial queue (PCU)	Mean max queue (PCU)	Max queue storage (PCU)	Utilised storage (%)	Average storage excess queue (PCU)	Average limit excess queue (PCU)	Excess queue penalty (£ per hr)	Max end of green queue (PCU)	Max end of red queue (PCU)	Wasted time starvation (s (per cycle))	Wasted time blocking back (s (per cycle))	Wasted time total (s (per cycle))	Estimated blocking
17:30-18:30	(ALL)	0.00	0.16	1.95	8.22	0.00	0.00	0.00	0.00	0.16	5.00	0.00	5.00	

Traffic Stream Results

Traffic Stream Results: Vehicle summary

Time Segment	Arm	Traffic Stream	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Mean Delay per Veh (s)	Mean max queue (PCU)	Utilised storage (%)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
17:30-18:30	A	1	4	2331	13	1915	20	21.02	0.20	1.17	1.08	0.13	1.21
		2	8	1033	34	2055	23	20.03	0.52	3.01	2.69	0.33	3.02
	Ax	1	0	Unrestricted	184	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	B	1	53	70	223	1800	26	25.72	4.14	23.80	22.62	2.58	25.20
	Bx	1	0	Unrestricted	110	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	C	1	11	738	39	1980	20	21.47	0.62	17.94	3.30	0.40	3.70
		2	0	18395	2	2055	22	20.03	0.00	0.00	0.16	0.02	0.18
	Cx	1	0	Unrestricted	62	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	D	1	56	62	229	1973	23	27.27	4.29	12.34	24.63	2.74	27.37
	Dx	1	0	Unrestricted	184	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	A1	1	2	3931	47	2105	120	0.02	0.00	0.00	0.00	0.00	0.00
	C1	1	2	4554	41	2120	120	0.02	0.00	0.00	0.00	0.00	0.00

Traffic Stream Results: Flows and signals

Time Segment	Arm	Traffic Stream	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Calculated sat flow (PCU/hr)	Calculated capacity (PCU/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))	Effec gree (pe cycl
17:30-18:30	A	1	13	13	0		1915	351	4		2331	0.00	20	22
		2	34	34	0		2055	428	8		1033	0.00	23	25
	Ax	1	184	184	0		Unrestricted	Unrestricted	0		Unrestricted	0.74	120	12
	B	1	223	223	0		1800	420	53		70	0.00	26	28
	Bx	1	110	110	0		Unrestricted	Unrestricted	0		Unrestricted	1.17	120	12
	C	1	39	39	0		1980	363	11		738	0.00	20	22
		2	2	2	0		2055	411	0		18395	0.00	22	24
	Cx	1	62	62	0		Unrestricted	Unrestricted	0		Unrestricted	1.18	120	12
	D	1	229	229	0		1973	411	56		62	0.00	23	25
	Dx	1	184	184	0		Unrestricted	Unrestricted	0		Unrestricted	1.04	120	12
	A1	1	47	47	0		2105	2105	2		3931	0.00	120	12
	C1	1	41	41	0		2120	2120	2		4554	0.00	120	12

Traffic Stream Results: Stops and delays

Time Segment	Arm	Traffic Stream	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Uniform delay (PCU-hr/hr)	Random plus oversat delay (PCU-hr/hr)	Unweighted cost of delay (£ per hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Uniform stops (Stops per hr)	Random stops (Stops per hr)	Unweighted cost of stops (£ per hr)	Weighted cost of stops (£ per hr)
17:30-18:30	A	1	12.00	21.02	0.08	0.00	1.08	1.08	80.02	10.36	0.04	0.13	0.13
		2	12.00	20.03	0.19	0.00	2.69	2.69	77.80	26.25	0.21	0.33	0.33
	Ax	1	12.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	B	1	12.00	25.72	1.30	0.30	22.62	22.62	92.22	188.12	17.53	2.58	2.58
	Bx	1	12.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	C	1	2.40	21.47	0.23	0.01	3.30	3.30	81.49	31.40	0.39	0.40	0.40
		2	2.40	20.03	0.01	0.00	0.16	0.16	78.03	1.56	0.00	0.02	0.02
	Cx	1	12.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	D	1	24.00	27.27	1.39	0.35	24.63	24.63	95.55	198.45	20.35	2.74	2.74
	Dx	1	12.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	A1	1	24.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	C1	1	60.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Traffic Stream Results: Queues and blocking

Time Segment	Arm	Traffic Stream	Initial queue (PCU)	Mean max queue (PCU)	Max queue storage (PCU)	Utilised storage (%)	Average storage excess queue (PCU)	Average limit excess queue (PCU)	Excess queue penalty (£ per hr)	Max end of green queue (PCU)	Max end of red queue (PCU)	Wasted time starvation (s (per cycle))	Wasted time blocking back (s (per cycle))	Wasted time total (s (per cycle))	Estimated blocking
17:30-18:30	A	1	0.00	0.20	17.39	1.17	0.00	0.00	0.00	0.00	0.20	20.00	0.00	20.00	
		2	0.00	0.52	17.39	3.01	0.00	0.00	0.00	0.00	0.52	23.00	0.00	23.00	
	Ax	1	0.00	0.00	17.39	0.00	0.00	0.00	0.00			38.00	0.00	38.00	
	B	1	0.00	4.14	17.39	23.80	0.00	0.00	0.00	0.30	3.70	0.00	0.00	0.00	
	Bx	1	0.00	0.00	17.39	0.00	0.00	0.00	0.00			76.00	0.00	76.00	
	C	1	0.00	0.62	3.48	17.94	0.00	0.00	0.00	0.01	0.61	19.00	0.00	19.00	
		2	0.00	0.00	3.48	0.00	0.00	0.00	0.00	0.00	0.00	22.00	0.00	22.00	
	Cx	1	0.00	0.00	17.39	0.00	0.00	0.00	0.00			89.00	0.00	89.00	
	D	1	0.00	4.29	34.78	12.34	0.00	0.00	0.00	0.35	3.85	0.00	0.00	0.00	
	Dx	1	0.00	0.00	17.39	0.00	0.00	0.00	0.00			57.00	0.00	57.00	
	A1	1	0.00	0.00	34.78	0.00	0.00	0.00	0.00			120.00	0.00	120.00	
	C1	1	0.00	0.00	86.96	0.00	0.00	0.00	0.00			120.00	0.00	120.00	

A3 - 2026 AM Do Something
D3 - 2026 AM Peak*

Summary

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Give-Way Data	Arm A - Traffic Stream 2 - All movements	Traffic Stream A/2: Opposed Saturation Flow is the same as or greater than Unopposed Saturation Flow.
Warning	Give-Way Data	Arm C - Traffic Stream 2 - All movements	Traffic Stream C/2: Opposed Saturation Flow is the same as or greater than Unopposed Saturation Flow.
Info	Link Signals	Link P1 - Signals (1, G)	Link P1 and Phase G phase type both expected to be pedestrian.
Info	Link Signals	Link P2 - Signals (1, G)	Link P2 and Phase G phase type both expected to be pedestrian.
Info	Link Signals	Link P3 - Signals (1, G)	Link P3 and Phase G phase type both expected to be pedestrian.

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (£ per hr)	Total network delay (PCU-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Ite wit wor over PR
3	08/10/2019 14:03:25	08/10/2019 14:03:25	08:30	120	76.97	4.86	55.61	D/1	0	0	D/1	A1/1	D/

Analysis Set Details

Name	Description	Demand set	Include in report	Locked
2026 AM Do Something		D3	✓	

Demand Set Details

Name	Description	Composite	Demand sets	Start time (HH:mm)	Locked
2026 AM Peak				08:30	

Links

Links

Link	Name	Description	Traffic node	Length (m)	Has Saturation Flow	Use RR67	Saturation flow (PCU/hr)	Is signal controlled	Is give way	Traffic type	Is minor shared	Allow Nearside Turn On Red
(ALL)	(untitled)		1	11.50	✓		1800	✓		Normal		

Modelling

Link	Traffic model	Stop weighting (%)	Delay weighting (%)	Assignment Cost Weighting (%)	Exclude from results calculation	Max queue storage (PCU)	Has queue limit	Has degree of saturation limit
(ALL)	NetworkDefault	100	100	100		0.00		

Modelling - Normal traffic - Advanced

Link	Dispersion type for Normal Traffic	Initial queue (PCU)	Type of Vehicle-in-Service	Vehicle-in-Service	Type of random parameter	Random parameter	Auto cycle time	Cycle time
(ALL)	NetworkDefault	0.00	NetworkDefault	Not-Included	NetworkDefault	0.50	✓	120

Flows

Link	Total flow (PCU/hr)	PCU Factor
(ALL)	5	1.00

Flows - Advanced

Link	Detectors
(ALL)	

Signals

Link	Controller stream	Phase	Second phase enabled
(ALL)	1	G	

Arms and Traffic Streams

Arms

Arm	Name	Description	Traffic node
A	(untitled)		1
Ax	(untitled)		
B	(untitled)		1
Bx	(untitled)		
C	(untitled)		1
Cx	(untitled)		
D	(untitled)		1
Dx	(untitled)		
A1	(untitled)		3
C1	(untitled)		2

Traffic Streams

Arm	Traffic Stream	Name	Description	Auto length	Length (m)	Has Saturation Flow	Saturation flow source	Saturation flow (PCU/hr)	Is signal controlled	Is give way	Traffic type	Allow Nearside Turn On Red
A	1	(untitled)			100.00	✓	Sum of lanes	1915	✓		Normal	
	2	(untitled)			100.00	✓	Sum of lanes	2055	✓	✓	Normal	
Ax	1	(untitled)			100.00						Normal	
B	1	(untitled)			100.00	✓	Sum of lanes	1800	✓		Normal	
Bx	1	(untitled)			100.00						Normal	
C	1	(untitled)			20.00	✓	Sum of lanes	1980	✓		Normal	
	2	(untitled)			20.00	✓	Sum of lanes	2055	✓	✓	Normal	
Cx	1	(untitled)			100.00						Normal	
D	1	(untitled)			200.00	✓	Sum of lanes	1973	✓		Normal	
Dx	1	(untitled)			100.00						Normal	
A1	1	(untitled)			200.00	✓	Sum of lanes	2105			Normal	
C1	1	(untitled)			500.00	✓	Sum of lanes	2120			Normal	

Lanes

Arm	Traffic Stream	Lane	Name	Description	Use RR67	Surface condition	Site quality factor	Gradient (%)	Width (m)	Use connector turning radius	Proportion that turn (%)	Turning radius (m)	Nearside lane	Saturation flow (PCU/hr)
A	1	1	(untitled)		✓	N/A	N/A	0	3.00		0	15.00	✓	1915
	2	1	(untitled)		✓	N/A	N/A	0	3.00		0	20.50		2055
Ax	1	1	(untitled)											
B	1	1	(untitled)											1800
Bx	1	1	(untitled)											
C	1	1	(untitled)		✓	N/A	N/A	0	3.65		0	15.00	✓	1980
	2	1	(untitled)		✓	N/A	N/A	0	3.00		0	20.00		2055
Cx	1	1	(untitled)											
D	1	1	(untitled)		✓	N/A	N/A	0	3.50		67	15.00		1973
Dx	1	1	(untitled)											
A1	1	1	(untitled)		✓	N/A	N/A	0	3.50		0	99999.00		2105
C1	1	1	(untitled)		✓	N/A	N/A	0	3.65	✓	0	99999.00		2120

Modelling

Arm	Traffic Stream	Traffic model	Stop weighting multiplier (%)	Delay weighting multiplier (%)	Assignment Cost Weighting (%)	Exclude from results calculation	Max queue storage (PCU)	Has queue limit	Has degree of saturation limit
(ALL)	(ALL)	NetworkDefault	100	100	100		0.00		

Modelling - Advanced

Arm	Traffic Stream	Initial queue (PCU)	Type of Vehicle-in-Service	Vehicle-in-Service	Type of random parameter	Random parameter	Auto cycle time	Cycle time
(ALL)	(ALL)	0.00	NetworkDefault	Not-Included	NetworkDefault	0.50	✓	120

Normal traffic - Modelling

Arm	Traffic Stream	Stop weighting (%)	Delay weighting (%)
(ALL)	(ALL)	100	100

Normal traffic - Advanced

Arm	Traffic Stream	Dispersion type for Normal Traffic
(ALL)	(ALL)	NetworkDefault

Flows

Arm	Traffic Stream	Total Flow (PCU/hr)	Normal Flow (PCU/hr)
A	1	116	116
	2	131	131
Ax	1	151	151
B	1	93	93
Bx	1	262	262
C	1	117	117
	2	20	20
Cx	1	118	118
D	1	256	256
Dx	1	202	202
A1	1	247	247
C1	1	137	137

Signals

Arm	Traffic Stream	Controller stream	Phase	Second phase enabled
A	1	1	E	
	2	1	D	
B	1	1	F	
C	1	1	B	
	2	1	A	
D	1	1	C	

Signal Timings

Network Default: 120s cycle time; 120 steps

Phases

Controller stream	Phase	Name	Minimum green (s)	Maximum green (s)	Relative start displacement (s)	Relative end displacement (s)	Type	Blackout Time (s)
1	A	(untitled)	7	300	0	0	Unknown	
	B	(untitled)	7	300	0	0	Unknown	
	C	(untitled)	7	300	0	0	Unknown	
	D	(untitled)	7	300	0	0	Unknown	
	E	(untitled)	7	300	0	0	Unknown	
	F	(untitled)	7	300	0	0	Unknown	
	G	(untitled)	6	300	0	0	Pedestrian	0

Library Stages

Controller stream	Library stage	Phases in stage	User stage minimum (s)
1	1	E, B, A, D	1
	2	D, A	1
	3	C	1
	4	F	1
	5	G	1

Stage Sequences

Controller stream	Sequence	Name	Multiple cycling	Stage IDs	Stage ends
1	1	(untitled)	Single	1, 2, 3, 4, 5, 1, 2, 3, 4	19, 20, 41, 53, 66, 89, 90, 105, 117

Intergreen Matrix for Controller Stream 1

From \ To	A	B	C	D	E	F	G
A			5			5	7
B			5			5	7
C	5	5		6	6	5	7
D			5			5	7
E			5			5	7
F	6	6	5	5	6		7
G	10	10	10	10	10	10	

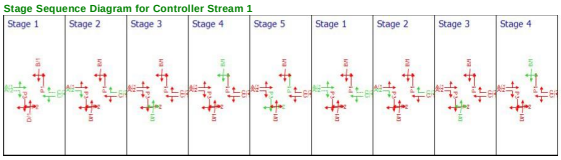
Resultant Stages

Controller stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	1	✓	1	E,B,A,D	3	19	16	1	7
	2	✓	2	D,A	19	20	1	1	1
	3	✓	3	C	25	41	16	1	7
	4	✓	4	F	46	53	7	1	7
	5	✓	5	G	60	66	6	1	6
	6	✓	1	E,B,A,D	76	89	13	1	7
	7	✓	2	D,A	89	90	1	1	1
	8	✓	3	C	95	105	10	1	7
	9	✓	4	F	110	117	7	1	7

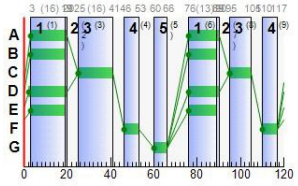
Resultant Phase Green Periods

Controller stream	Phase	Green period	Is base green period	Start time (s)	End time (s)	Duration (s)
1	A	1	✓	76	90	14
		2	✓	3	20	17
	B	1	✓	76	89	13
		2	✓	3	19	16
	C	1	✓	25	41	16
		2	✓	95	105	10
	D	1	✓	76	90	14
		2	✓	2	20	18
	E	1	✓	76	89	13
		2	✓	3	19	16
	F	1	✓	46	53	7
		2	✓	110	117	7
	G	1	✓	60	66	6

Stage Sequence Diagram for Controller Stream 1



Phase Timings Diagram for Controller Stream 1



Link Results

Link Results: Vehicle summary

Time Segment	Link	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Mean Delay per Veh (s)	Mean max queue (PCU)	Utilised storage (%)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
08:30-09:30	(ALL)	6	1520	5	1800	6	55.80	0.16	8.22	1.10	0.06	1.16

Link Results: Flows and signals

Time Segment	Link	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Calculated sat flow (PCU/hr)	Calculated capacity (PCU/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))	Effective green (s (per cycle))
08:30-09:30	(ALL)	5	5	0		1800	90	6		1520	0.00	6	6

Link Results: Stops and delays

Time Segment	Link	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Uniform delay (PCU-hr/hr)	Random plus oversat delay (PCU-hr/hr)	Unweighted cost of delay (£ per hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Uniform stops (Stops per hr)	Random stops (Stops per hr)	Unweighted cost of stops (£ per hr)	Weighted cost of stops (£ per hr)
08:30-09:30	(ALL)	1.38	55.80	0.08	0.00	1.10	1.10	94.99	4.70	0.05	0.06	0.06

Link Results: Queues and blocking

Time Segment	Link	Initial queue (PCU)	Mean max queue (PCU)	Max queue storage (PCU)	Utilised storage (%)	Average storage excess queue (PCU)	Average limit excess queue (PCU)	Excess queue penalty (£ per hr)	Max end of green queue (PCU)	Max end of red queue (PCU)	Wasted time starvation (s (per cycle))	Wasted time blocking back (s (per cycle))	Wasted time total (s (per cycle))	Estimated blocking
08:30-09:30	(ALL)	0.00	0.16	1.95	8.22	0.00	0.00	0.00	0.00	0.16	5.00	0.00	5.00	

Traffic Stream Results

Traffic Stream Results: Vehicle summary

Time Segment	Arm	Traffic Stream	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Mean Delay per Veh (s)	Mean max queue (PCU)	Utilised storage (%)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
08:30-09:30	A	1	23	284	116	1915	29	19.87	1.94	11.14	9.09	1.13	10.23
		2	22	300	131	2055	32	18.65	2.14	12.32	9.64	1.23	10.87
	Ax	1	0	Unrestricted	151	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	B	1	39	132	93	1800	14	28.64	1.65	9.46	10.50	1.12	11.63
	Bx	1	0	Unrestricted	262	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	C	1	23	293	117	1980	29	19.77	1.95	56.10	9.13	1.14	10.27
		2	4	2443	20	2055	31	17.35	0.31	8.80	1.37	0.18	1.55
	Cx	1	0	Unrestricted	118	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	D	1	56	62	256	1973	26	25.59	4.61	13.26	25.84	2.97	28.81
	Dx	1	0	Unrestricted	202	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	A1	1	12	667	247	2105	120	0.11	0.01	0.02	0.11	0.00	0.11
	C1	1	6	1293	137	2120	120	0.06	0.00	0.00	0.03	0.00	0.03

Traffic Stream Results: Flows and signals

Time Segment	Arm	Traffic Stream	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Calculated sat flow (PCU/hr)	Calculated capacity (PCU/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))	Effec gree (pe cycl
08:30-09:30	A	1	116	116	0		1915	495	23		284	0.00	29	31
		2	131	131	0		2055	582	22		300	0.00	32	34
	Ax	1	151	151	0		Unrestricted	Unrestricted	0		Unrestricted	0.85	120	12
	B	1	93	93	0		1800	240	39		132	0.00	14	16
	Bx	1	262	262	0		Unrestricted	Unrestricted	0		Unrestricted	0.98	120	12
	C	1	117	117	0		1980	512	23		293	0.00	29	31
		2	20	20	0		2055	565	4		2443	0.00	31	33
	Cx	1	118	118	0		Unrestricted	Unrestricted	0		Unrestricted	0.86	120	12
	D	1	256	256	0		1973	460	56		62	0.00	26	28
	Dx	1	202	202	0		Unrestricted	Unrestricted	0		Unrestricted	1.00	120	12
	A1	1	247	247	0		2105	2105	12		667	0.00	120	12
	C1	1	137	137	0		2120	2120	6		1293	0.00	120	12

Traffic Stream Results: Stops and delays

Time Segment	Arm	Traffic Stream	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Uniform delay (PCU-hr/hr)	Random plus oversat delay (PCU-hr/hr)	Unweighted cost of delay (£ per hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Uniform stops (Stops per hr)	Random stops (Stops per hr)	Unweighted cost of stops (£ per hr)	Weighted cost of stops (£ per hr)
08:30-09:30	A	1	12.00	19.87	0.60	0.04	9.09	9.09	77.97	88.30	2.14	1.13	1.13
		2	12.00	18.65	0.65	0.03	9.64	9.64	75.06	96.38	1.95	1.23	1.23
	Ax	1	12.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	B	1	12.00	28.64	0.62	0.12	10.50	10.50	96.16	82.26	7.16	1.12	1.12
	Bx	1	12.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	C	1	2.40	19.77	0.61	0.03	9.13	9.13	77.73	88.92	2.02	1.14	1.14
		2	2.40	17.35	0.10	0.00	1.37	1.37	70.72	14.11	0.04	0.18	0.18
	Cx	1	12.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	D	1	24.00	25.59	1.47	0.35	25.84	25.84	92.55	216.62	20.30	2.97	2.97
	Dx	1	12.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	A1	1	24.00	0.11	0.00	0.01	0.11	0.11	0.00	0.00	0.00	0.00	0.00
	C1	1	60.00	0.06	0.00	0.00	0.03	0.03	0.00	0.00	0.00	0.00	0.00

Traffic Stream Results: Queues and blocking

Time Segment	Arm	Traffic Stream	Initial queue (PCU)	Mean max queue (PCU)	Max queue storage (PCU)	Utilised storage (%)	Average storage excess queue (PCU)	Average limit excess queue (PCU)	Excess queue penalty (£ per hr)	Max end of green queue (PCU)	Max end of red queue (PCU)	Wasted time starvation (s (per cycle))	Wasted time blocking back (s (per cycle))	Wasted time total (s (per cycle))	Estimated blocking
08:30-09:30	A	1	0.00	1.94	17.39	11.14	0.00	0.00	0.00	0.04	1.84	0.00	0.00	0.00	
		2	0.00	2.14	17.39	12.32	0.00	0.00	0.00	0.03	2.03	0.00	0.00	0.00	
	Ax	1	0.00	0.00	17.39	0.00	0.00	0.00	0.00			46.00	0.00	46.00	
	B	1	0.00	1.65	17.39	9.46	0.00	0.00	0.00	0.12	1.57	0.00	0.00	0.00	
	Bx	1	0.00	0.00	17.39	0.00	0.00	0.00	0.00			45.00	0.00	45.00	
	C	1	0.00	1.95	3.48	56.10	0.00	0.00	0.00	0.03	1.85	0.00	0.00	0.00	
		2	0.00	0.31	3.48	8.80	0.00	0.00	0.00	0.00	0.31	31.00	0.00	31.00	
	Cx	1	0.00	0.00	17.39	0.00	0.00	0.00	0.00			54.00	0.00	54.00	
	D	1	0.00	4.61	34.78	13.26	0.00	0.00	0.00	0.35	4.11	0.00	0.00	0.00	
	Dx	1	0.00	0.00	17.39	0.00	0.00	0.00	0.00			56.00	0.00	56.00	
	A1	1	0.00	0.01	34.78	0.02	0.00	0.00	0.00			0.00	0.00	0.00	
	C1	1	0.00	0.00	86.96	0.00	0.00	0.00	0.00			0.00	0.00	0.00	

A4 - 2026 PM Do Something
D4 - 2026 PM Peak*

Summary

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Give-Way Data	Arm A - Traffic Stream 2 - All movements	Traffic Stream A/2: Opposed Saturation Flow is the same as or greater than Unopposed Saturation Flow.
Warning	Give-Way Data	Arm C - Traffic Stream 2 - All movements	Traffic Stream C/2: Opposed Saturation Flow is the same as or greater than Unopposed Saturation Flow.
Info	Link Signals	Link P1 - Signals (1, G)	Link P1 and Phase G phase type both expected to be pedestrian.
Info	Link Signals	Link P2 - Signals (1, G)	Link P2 and Phase G phase type both expected to be pedestrian.
Info	Link Signals	Link P3 - Signals (1, G)	Link P3 and Phase G phase type both expected to be pedestrian.

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (£ per hr)	Total network delay (PCU-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Ite wit wor over PR
4	08/10/2019 14:03:25	08/10/2019 14:03:26	17:30	120	81.17	5.14	54.44	B/1	0	0	B/1	C1/1	B/

Analysis Set Details

Name	Description	Demand set	Include in report	Locked
2026 PM Do Something		D4	✓	

Demand Set Details

Name	Description	Composite	Demand sets	Start time (HH:mm)	Locked
2026 PM Peak				17:30	

Links

Links

Link	Name	Description	Traffic node	Length (m)	Has Saturation Flow	Use RR67	Saturation flow (PCU/hr)	Is signal controlled	Is give way	Traffic type	Is minor shared	Allow Nearside Turn On Red
(ALL)	(untitled)		1	11.50	✓		1800	✓		Normal		

Modelling

Link	Traffic model	Stop weighting (%)	Delay weighting (%)	Assignment Cost Weighting (%)	Exclude from results calculation	Max queue storage (PCU)	Has queue limit	Has degree of saturation limit
(ALL)	NetworkDefault	100	100	100		0.00		

Modelling - Normal traffic - Advanced

Link	Dispersion type for Normal Traffic	Initial queue (PCU)	Type of Vehicle-in-Service	Vehicle-in-Service	Type of random parameter	Random parameter	Auto cycle time	Cycle time
(ALL)	NetworkDefault	0.00	NetworkDefault	Not-Included	NetworkDefault	0.50	✓	120

Flows

Link	Total flow (PCU/hr)	PCU Factor
(ALL)	5	1.00

Flows - Advanced

Link	Detectors
(ALL)	

Signals

Link	Controller stream	Phase	Second phase enabled
(ALL)	1	G	

Arms and Traffic Streams

Arms

Arm	Name	Description	Traffic node
A	(untitled)		1
Ax	(untitled)		
B	(untitled)		1
Bx	(untitled)		
C	(untitled)		1
Cx	(untitled)		
D	(untitled)		1
Dx	(untitled)		
A1	(untitled)		3
C1	(untitled)		2

Traffic Streams

Arm	Traffic Stream	Name	Description	Auto length	Length (m)	Has Saturation Flow	Saturation flow source	Saturation flow (PCU/hr)	Is signal controlled	Is give way	Traffic type	Allow Nearside Turn On Red
A	1	(untitled)			100.00	✓	Sum of lanes	1915	✓		Normal	
	2	(untitled)			100.00	✓	Sum of lanes	2055	✓	✓	Normal	
Ax	1	(untitled)			100.00						Normal	
B	1	(untitled)			100.00	✓	Sum of lanes	1800	✓		Normal	
Bx	1	(untitled)			100.00						Normal	
C	1	(untitled)			20.00	✓	Sum of lanes	1980	✓		Normal	
	2	(untitled)			20.00	✓	Sum of lanes	2055	✓	✓	Normal	
Cx	1	(untitled)			100.00						Normal	
D	1	(untitled)			200.00	✓	Sum of lanes	1973	✓		Normal	
Dx	1	(untitled)			100.00						Normal	
A1	1	(untitled)			200.00	✓	Sum of lanes	2105			Normal	
C1	1	(untitled)			500.00	✓	Sum of lanes	2120			Normal	

Lanes

Arm	Traffic Stream	Lane	Name	Description	Use RR67	Surface condition	Site quality factor	Gradient (%)	Width (m)	Use connector turning radius	Proportion that turn (%)	Turning radius (m)	Nearside lane	Saturation flow (PCU/hr)
A	1	1	(untitled)		✓	N/A	N/A	0	3.00		0	15.00	✓	1915
	2	1	(untitled)		✓	N/A	N/A	0	3.00		0	20.50		2055
Ax	1	1	(untitled)											
B	1	1	(untitled)											1800
Bx	1	1	(untitled)											
C	1	1	(untitled)		✓	N/A	N/A	0	3.65		0	15.00	✓	1980
	2	1	(untitled)		✓	N/A	N/A	0	3.00		0	20.00		2055
Cx	1	1	(untitled)											
D	1	1	(untitled)		✓	N/A	N/A	0	3.50		67	15.00		1973
Dx	1	1	(untitled)											
A1	1	1	(untitled)		✓	N/A	N/A	0	3.50		0	99999.00		2105
C1	1	1	(untitled)		✓	N/A	N/A	0	3.65	✓	0	99999.00		2120

Modelling

Arm	Traffic Stream	Traffic model	Stop weighting multiplier (%)	Delay weighting multiplier (%)	Assignment Cost Weighting (%)	Exclude from results calculation	Max queue storage (PCU)	Has queue limit	Has degree of saturation limit
(ALL)	(ALL)	NetworkDefault	100	100	100		0.00		

Modelling - Advanced

Arm	Traffic Stream	Initial queue (PCU)	Type of Vehicle-in-Service	Vehicle-in-Service	Type of random parameter	Random parameter	Auto cycle time	Cycle time
(ALL)	(ALL)	0.00	NetworkDefault	Not-Included	NetworkDefault	0.50	✓	120

Normal traffic - Modelling

Arm	Traffic Stream	Stop weighting (%)	Delay weighting (%)
(ALL)	(ALL)	100	100

Normal traffic - Advanced

Arm	Traffic Stream	Dispersion type for Normal Traffic
(ALL)	(ALL)	NetworkDefault

Flows

Arm	Traffic Stream	Total Flow (PCU/hr)	Normal Flow (PCU/hr)
A	1	96	96
	2	24	24
Ax	1	257	257
B	1	245	245
Bx	1	137	137
C	1	108	108
	2	23	23
Cx	1	174	174
D	1	204	204
Dx	1	132	132
A1	1	120	120
C1	1	131	131

Signals

Arm	Traffic Stream	Controller stream	Phase	Second phase enabled
A	1	1	E	
	2	1	D	
B	1	1	F	
C	1	1	B	
	2	1	A	
D	1	1	C	

Signal Timings

Network Default: 120s cycle time; 120 steps

Phases

Controller stream	Phase	Name	Minimum green (s)	Maximum green (s)	Relative start displacement (s)	Relative end displacement (s)	Type	Blackout Time (s)
1	A	(untitled)	7	300	0	0	Unknown	
	B	(untitled)	7	300	0	0	Unknown	
	C	(untitled)	7	300	0	0	Unknown	
	D	(untitled)	7	300	0	0	Unknown	
	E	(untitled)	7	300	0	0	Unknown	
	F	(untitled)	7	300	0	0	Unknown	
	G	(untitled)	6	300	0	0	Pedestrian	0

Library Stages

Controller stream	Library stage	Phases in stage	User stage minimum (s)
1	1	E, B, A, D	1
	2	D, A	1
	3	C	1
	4	F	1
	5	G	1

Stage Sequences

Controller stream	Sequence	Name	Multiple cycling	Stage IDs	Stage ends
1	1	(untitled)	Single	1, 2, 3, 4, 5, 1, 2, 3, 4	19, 20, 37, 53, 66, 89, 90, 104, 6

Intergreen Matrix for Controller Stream 1

From \ To	A	B	C	D	E	F	G
A			5			5	7
B			5			5	7
C	5	5		6	6	5	7
D			5			5	7
E			5			5	7
F	6	6	5	5	6		7
G	10	10	10	10	10	10	

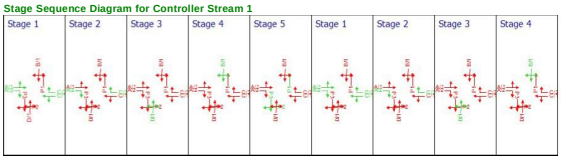
Resultant Stages

Controller stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	1	✓	1	E,B,A,D	12	19	7	1	7
	2	✓	2	D,A	19	20	1	1	1
	3	✓	3	C	25	37	12	1	7
	4	✓	4	F	42	53	11	1	7
	5	✓	5	G	60	66	6	1	6
	6	✓	1	E,B,A,D	76	89	13	1	7
	7	✓	2	D,A	89	90	1	1	1
	8	✓	3	C	95	104	9	1	7
	9	✓	4	F	109	6	17	1	7

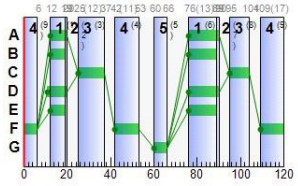
Resultant Phase Green Periods

Controller stream	Phase	Green period	Is base green period	Start time (s)	End time (s)	Duration (s)
1	A	1	✓	76	90	14
		2	✓	12	20	8
	B	1	✓	76	89	13
		2	✓	12	19	7
	C	1	✓	25	37	12
		2	✓	95	104	9
	D	1	✓	76	90	14
		2	✓	11	20	9
	E	1	✓	76	89	13
		2	✓	12	19	7
	F	1	✓	42	53	11
		2	✓	109	6	17
	G	1	✓	60	66	6

Stage Sequence Diagram for Controller Stream 1



Phase Timings Diagram for Controller Stream 1



Link Results

Link Results: Vehicle summary

Time Segment	Link	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Mean Delay per Veh (s)	Mean max queue (PCU)	Utilised storage (%)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
17:30-18:30	(ALL)	6	1520	5	1800	6	55.80	0.16	8.22	1.10	0.06	1.16

Link Results: Flows and signals

Time Segment	Link	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Calculated sat flow (PCU/hr)	Calculated capacity (PCU/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))	Effective green (s (per cycle))
17:30-18:30	(ALL)	5	5	0		1800	90	6		1520	0.00	6	6

Link Results: Stops and delays

Time Segment	Link	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Uniform delay (PCU-hr/hr)	Random plus oversat delay (PCU-hr/hr)	Unweighted cost of delay (£ per hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Uniform stops (Stops per hr)	Random stops (Stops per hr)	Unweighted cost of stops (£ per hr)	Weighted cost of stops (£ per hr)
17:30-18:30	(ALL)	1.38	55.80	0.08	0.00	1.10	1.10	94.99	4.70	0.05	0.06	0.06

Link Results: Queues and blocking

Time Segment	Link	Initial queue (PCU)	Mean max queue (PCU)	Max queue storage (PCU)	Utilised storage (%)	Average storage excess queue (PCU)	Average limit excess queue (PCU)	Excess queue penalty (£ per hr)	Max end of green queue (PCU)	Max end of red queue (PCU)	Wasted time starvation (s (per cycle))	Wasted time blocking back (s (per cycle))	Wasted time total (s (per cycle))	Estimated blocking
17:30-18:30	(ALL)	0.00	0.16	1.95	8.22	0.00	0.00	0.00	0.00	0.16	5.00	0.00	5.00	

Traffic Stream Results

Traffic Stream Results: Vehicle summary

Time Segment	Arm	Traffic Stream	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Mean Delay per Veh (s)	Mean max queue (PCU)	Utilised storage (%)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
17:30-18:30	A	1	27	229	96	1915	20	23.44	1.60	9.19	8.87	1.04	9.91
		2	6	1505	24	2055	23	19.92	0.37	2.12	1.89	0.23	2.12
	Ax	1	0	Unrestricted	257	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	B	1	54	65	245	1800	28	25.25	4.61	26.51	24.40	2.81	27.21
	Bx	1	0	Unrestricted	137	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	C	1	30	203	108	1980	20	23.72	1.83	52.69	10.10	1.18	11.29
		2	6	1508	23	2055	22	20.27	0.35	10.15	1.84	0.23	2.07
	Cx	1	0	Unrestricted	174	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	D	1	54	67	204	1973	21	28.07	3.88	11.16	22.59	2.46	25.05
	Dx	1	0	Unrestricted	132	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	A1	1	6	1479	120	2105	120	0.05	0.00	0.00	0.02	0.00	0.02
	C1	1	6	1356	131	2120	120	0.06	0.00	0.00	0.03	0.00	0.03

Traffic Stream Results: Flows and signals

Time Segment	Arm	Traffic Stream	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Calculated sat flow (PCU/hr)	Calculated capacity (PCU/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))	Effec gree (pe cycl
17:30-18:30	A	1	96	96	0		1915	351	27		229	0.00	20	22
		2	24	24	0		2055	428	6		1505	0.00	23	25
	Ax	1	257	257	0		Unrestricted	Unrestricted	0		Unrestricted	0.67	120	12
	B	1	245	245	0		1800	450	54		65	0.00	28	30
	Bx	1	137	137	0		Unrestricted	Unrestricted	0		Unrestricted	1.08	120	12
	C	1	108	108	0		1980	363	30		203	0.00	20	22
		2	23	23	0		2055	411	6		1508	0.00	22	24
	Cx	1	174	174	0		Unrestricted	Unrestricted	0		Unrestricted	0.73	120	12
	D	1	204	204	0		1973	378	54		67	0.00	21	23
	Dx	1	132	132	0		Unrestricted	Unrestricted	0		Unrestricted	0.99	120	12
	A1	1	120	120	0		2105	2105	6		1479	0.00	120	12
	C1	1	131	131	0		2120	2120	6		1356	0.00	120	12

Traffic Stream Results: Stops and delays

Time Segment	Arm	Traffic Stream	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Uniform delay (PCU-hr/hr)	Random plus oversat delay (PCU-hr/hr)	Unweighted cost of delay (£ per hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Uniform stops (Stops per hr)	Random stops (Stops per hr)	Unweighted cost of stops (£ per hr)	Weighted cost of stops (£ per hr)
17:30-18:30	A	1	12.00	23.44	0.57	0.05	8.87	8.87	86.12	79.62	3.05	1.04	1.04
		2	12.00	19.92	0.13	0.00	1.89	1.89	77.61	18.53	0.10	0.23	0.23
	Ax	1	12.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	B	1	12.00	25.25	1.40	0.32	24.40	24.40	91.38	204.89	18.98	2.81	2.81
	Bx	1	12.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	C	1	2.40	23.72	0.65	0.06	10.10	10.10	87.21	90.45	3.74	1.18	1.18
		2	2.40	20.27	0.13	0.00	1.84	1.84	78.46	17.95	0.10	0.23	0.23
	Cx	1	12.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	D	1	24.00	28.07	1.28	0.31	22.59	22.59	96.08	177.65	18.35	2.46	2.46
	Dx	1	12.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	A1	1	24.00	0.05	0.00	0.00	0.02	0.02	0.00	0.00	0.00	0.00	0.00
	C1	1	60.00	0.06	0.00	0.00	0.03	0.03	0.00	0.00	0.00	0.00	0.00

Traffic Stream Results: Queues and blocking

Time Segment	Arm	Traffic Stream	Initial queue (PCU)	Mean max queue (PCU)	Max queue storage (PCU)	Utilised storage (%)	Average storage excess queue (PCU)	Average limit excess queue (PCU)	Excess queue penalty (£ per hr)	Max end of green queue (PCU)	Max end of red queue (PCU)	Wasted time starvation (s (per cycle))	Wasted time blocking back (s (per cycle))	Wasted time total (s (per cycle))	Estimated blocking
17:30-18:30	A	1	0.00	1.60	17.39	9.19	0.00	0.00	0.00	0.05	1.54	0.00	0.00	0.00	
		2	0.00	0.37	17.39	2.12	0.00	0.00	0.00	0.00	0.37	23.00	0.00	23.00	
	Ax	1	0.00	0.00	17.39	0.00	0.00	0.00	0.00			25.00	0.00	25.00	
	B	1	0.00	4.61	17.39	26.51	0.00	0.00	0.00	0.32	4.07	0.00	0.00	0.00	
	Bx	1	0.00	0.00	17.39	0.00	0.00	0.00	0.00			66.00	0.00	66.00	
	C	1	0.00	1.83	3.48	52.69	0.00	0.00	0.00	0.06	1.74	0.00	0.00	0.00	
		2	0.00	0.35	3.48	10.15	0.00	0.00	0.00	0.00	0.35	22.00	0.00	22.00	
	Cx	1	0.00	0.00	17.39	0.00	0.00	0.00	0.00			34.00	0.00	34.00	
	D	1	0.00	3.88	34.78	11.16	0.00	0.00	0.00	0.31	3.54	0.00	0.00	0.00	
	Dx	1	0.00	0.00	17.39	0.00	0.00	0.00	0.00			60.00	0.00	60.00	
	A1	1	0.00	0.00	34.78	0.00	0.00	0.00	0.00			0.00	0.00	0.00	
	C1	1	0.00	0.00	86.96	0.00	0.00	0.00	0.00			0.00	0.00	0.00	

A5 - 2036 AM Do Something
D5 - 2036 AM Peak*

Summary

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Give-Way Data	Arm A - Traffic Stream 2 - All movements	Traffic Stream A/2: Opposed Saturation Flow is the same as or greater than Unopposed Saturation Flow.
Warning	Give-Way Data	Arm C - Traffic Stream 2 - All movements	Traffic Stream C/2: Opposed Saturation Flow is the same as or greater than Unopposed Saturation Flow.
Info	Link Signals	Link P1 - Signals (1, G)	Link P1 and Phase G phase type both expected to be pedestrian.
Info	Link Signals	Link P2 - Signals (1, G)	Link P2 and Phase G phase type both expected to be pedestrian.
Info	Link Signals	Link P3 - Signals (1, G)	Link P3 and Phase G phase type both expected to be pedestrian.

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (£ per hr)	Total network delay (PCU-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Ite wit wor over PR
5	08/10/2019 14:03:26	08/10/2019 14:03:27	08:30	120	84.34	5.33	61.26	D/1	0	0	D/1	A1/1	D/

Analysis Set Details

Name	Description	Demand set	Include in report	Locked
2036 AM Do Something		D5	✓	

Demand Set Details

Name	Description	Composite	Demand sets	Start time (HH:mm)	Locked
2036 AM Peak				08:30	

Links

Links

Link	Name	Description	Traffic node	Length (m)	Has Saturation Flow	Use RR67	Saturation flow (PCU/hr)	Is signal controlled	Is give way	Traffic type	Is minor shared	Allow Nearside Turn On Red
(ALL)	(untitled)		1	11.50	✓		1800	✓		Normal		

Modelling

Link	Traffic model	Stop weighting (%)	Delay weighting (%)	Assignment Cost Weighting (%)	Exclude from results calculation	Max queue storage (PCU)	Has queue limit	Has degree of saturation limit
(ALL)	NetworkDefault	100	100	100		0.00		

Modelling - Normal traffic - Advanced

Link	Dispersion type for Normal Traffic	Initial queue (PCU)	Type of Vehicle-in-Service	Vehicle-in-Service	Type of random parameter	Random parameter	Auto cycle time	Cycle time
(ALL)	NetworkDefault	0.00	NetworkDefault	Not-Included	NetworkDefault	0.50	✓	120

Flows

Link	Total flow (PCU/hr)	PCU Factor
(ALL)	5	1.00

Flows - Advanced

Link	Detectors
(ALL)	

Signals

Link	Controller stream	Phase	Second phase enabled
(ALL)	1	G	

Arms and Traffic Streams

Arms

Arm	Name	Description	Traffic node
A	(untitled)		1
Ax	(untitled)		
B	(untitled)		1
Bx	(untitled)		
C	(untitled)		1
Cx	(untitled)		
D	(untitled)		1
Dx	(untitled)		
A1	(untitled)		3
C1	(untitled)		2

Traffic Streams

Arm	Traffic Stream	Name	Description	Auto length	Length (m)	Has Saturation Flow	Saturation flow source	Saturation flow (PCU/hr)	Is signal controlled	Is give way	Traffic type	Allow Nearside Turn On Red
A	1	(untitled)			100.00	✓	Sum of lanes	1915	✓		Normal	
	2	(untitled)			100.00	✓	Sum of lanes	2055	✓	✓	Normal	
Ax	1	(untitled)			100.00						Normal	
B	1	(untitled)			100.00	✓	Sum of lanes	1800	✓		Normal	
Bx	1	(untitled)			100.00						Normal	
C	1	(untitled)			20.00	✓	Sum of lanes	1980	✓		Normal	
	2	(untitled)			20.00	✓	Sum of lanes	2055	✓	✓	Normal	
Cx	1	(untitled)			100.00						Normal	
D	1	(untitled)			200.00	✓	Sum of lanes	1973	✓		Normal	
Dx	1	(untitled)			100.00						Normal	
A1	1	(untitled)			200.00	✓	Sum of lanes	2105			Normal	
C1	1	(untitled)			500.00	✓	Sum of lanes	2120			Normal	

Lanes

Arm	Traffic Stream	Lane	Name	Description	Use RR67	Surface condition	Site quality factor	Gradient (%)	Width (m)	Use connector turning radius	Proportion that turn (%)	Turning radius (m)	Nearside lane	Saturation flow (PCU/hr)
A	1	1	(untitled)		✓	N/A	N/A	0	3.00		0	15.00	✓	1915
	2	1	(untitled)		✓	N/A	N/A	0	3.00		0	20.50		2055
Ax	1	1	(untitled)											
B	1	1	(untitled)											1800
Bx	1	1	(untitled)											
C	1	1	(untitled)		✓	N/A	N/A	0	3.65		0	15.00	✓	1980
	2	1	(untitled)		✓	N/A	N/A	0	3.00		0	20.00		2055
Cx	1	1	(untitled)											
D	1	1	(untitled)		✓	N/A	N/A	0	3.50		67	15.00		1973
Dx	1	1	(untitled)											
A1	1	1	(untitled)		✓	N/A	N/A	0	3.50		0	99999.00		2105
C1	1	1	(untitled)		✓	N/A	N/A	0	3.65	✓	0	99999.00		2120

Modelling

Arm	Traffic Stream	Traffic model	Stop weighting multiplier (%)	Delay weighting multiplier (%)	Assignment Cost Weighting (%)	Exclude from results calculation	Max queue storage (PCU)	Has queue limit	Has degree of saturation limit
(ALL)	(ALL)	NetworkDefault	100	100	100		0.00		

Modelling - Advanced

Arm	Traffic Stream	Initial queue (PCU)	Type of Vehicle-in-Service	Vehicle-in-Service	Type of random parameter	Random parameter	Auto cycle time	Cycle time
(ALL)	(ALL)	0.00	NetworkDefault	Not-Included	NetworkDefault	0.50	✓	120

Normal traffic - Modelling

Arm	Traffic Stream	Stop weighting (%)	Delay weighting (%)
(ALL)	(ALL)	100	100

Normal traffic - Advanced

Arm	Traffic Stream	Dispersion type for Normal Traffic
(ALL)	(ALL)	NetworkDefault

Flows

Arm	Traffic Stream	Total Flow (PCU/hr)	Normal Flow (PCU/hr)
A	1	110	110
	2	145	145
Ax	1	160	160
B	1	102	102
Bx	1	289	289
C	1	120	120
	2	21	21
Cx	1	110	110
D	1	282	282
Dx	1	221	221
A1	1	255	255
C1	1	141	141

Signals

Arm	Traffic Stream	Controller stream	Phase	Second phase enabled
A	1	1	E	
	2	1	D	
B	1	1	F	
C	1	1	B	
	2	1	A	
D	1	1	C	

Signal Timings

Network Default: 120s cycle time; 120 steps

Phases

Controller stream	Phase	Name	Minimum green (s)	Maximum green (s)	Relative start displacement (s)	Relative end displacement (s)	Type	Blackout Time (s)
1	A	(untitled)	7	300	0	0	Unknown	
	B	(untitled)	7	300	0	0	Unknown	
	C	(untitled)	7	300	0	0	Unknown	
	D	(untitled)	7	300	0	0	Unknown	
	E	(untitled)	7	300	0	0	Unknown	
	F	(untitled)	7	300	0	0	Unknown	
	G	(untitled)	6	300	0	0	Pedestrian	0

Library Stages

Controller stream	Library stage	Phases in stage	User stage minimum (s)
1	1	E, B, A, D	1
	2	D, A	1
	3	C	1
	4	F	1
	5	G	1

Stage Sequences

Controller stream	Sequence	Name	Multiple cycling	Stage IDs	Stage ends
1	1	(untitled)	Single	1, 2, 3, 4, 5, 1, 2, 3, 4	19, 20, 41, 53, 66, 88, 89, 104, 117

Intergreen Matrix for Controller Stream 1

From \ To	A	B	C	D	E	F	G
A			5			5	7
B			5			5	7
C	5	5		6	6	5	7
D			5			5	7
E			5			5	7
F	6	6	5	5	6		7
G	10	10	10	10	10	10	

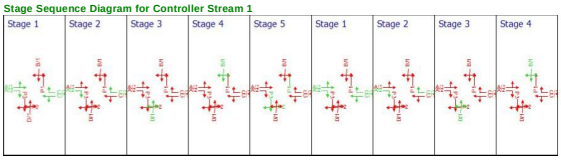
Resultant Stages

Controller stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	1	✓	1	E,B,A,D	3	19	16	1	7
	2	✓	2	D,A	19	20	1	1	1
	3	✓	3	C	25	41	16	1	7
	4	✓	4	F	46	53	7	1	7
	5	✓	5	G	60	66	6	1	6
	6	✓	1	E,B,A,D	76	88	12	1	7
	7	✓	2	D,A	88	89	1	1	1
	8	✓	3	C	94	104	10	1	7
	9	✓	4	F	109	117	8	1	7

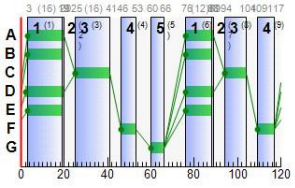
Resultant Phase Green Periods

Controller stream	Phase	Green period	Is base green period	Start time (s)	End time (s)	Duration (s)
1	A	1	✓	76	89	13
		2	✓	3	20	17
	B	1	✓	76	88	12
		2	✓	3	19	16
	C	1	✓	25	41	16
		2	✓	94	104	10
	D	1	✓	76	89	13
		2	✓	2	20	18
	E	1	✓	76	88	12
		2	✓	3	19	16
	F	1	✓	46	53	7
		2	✓	109	117	8
	G	1	✓	60	66	6

Stage Sequence Diagram for Controller Stream 1



Phase Timings Diagram for Controller Stream 1



Link Results

Link Results: Vehicle summary

Time Segment	Link	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Mean Delay per Veh (s)	Mean max queue (PCU)	Utilised storage (%)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
08:30-09:30	(ALL)	6	1520	5	1800	6	55.80	0.16	8.22	1.10	0.06	1.16

Link Results: Flows and signals

Time Segment	Link	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Calculated sat flow (PCU/hr)	Calculated capacity (PCU/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))	Effective green (s (per cycle))
08:30-09:30	(ALL)	5	5	0		1800	90	6		1520	0.00	6	6

Link Results: Stops and delays

Time Segment	Link	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Uniform delay (PCU-hr/hr)	Random plus oversat delay (PCU-hr/hr)	Unweighted cost of delay (£ per hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Uniform stops (Stops per hr)	Random stops (Stops per hr)	Unweighted cost of stops (£ per hr)	Weighted cost of stops (£ per hr)
08:30-09:30	(ALL)	1.38	55.80	0.08	0.00	1.10	1.10	94.99	4.70	0.05	0.06	0.06

Link Results: Queues and blocking

Time Segment	Link	Initial queue (PCU)	Mean max queue (PCU)	Max queue storage (PCU)	Utilised storage (%)	Average storage excess queue (PCU)	Average limit excess queue (PCU)	Excess queue penalty (£ per hr)	Max end of green queue (PCU)	Max end of red queue (PCU)	Wasted time starvation (s (per cycle))	Wasted time blocking back (s (per cycle))	Wasted time total (s (per cycle))	Estimated blocking
08:30-09:30	(ALL)	0.00	0.16	1.95	8.22	0.00	0.00	0.00	0.00	0.16	5.00	0.00	5.00	

Traffic Stream Results

Traffic Stream Results: Vehicle summary

Time Segment	Arm	Traffic Stream	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Mean Delay per Veh (s)	Mean max queue (PCU)	Utilised storage (%)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
08:30-09:30	A	1	23	292	110	1915	28	20.11	1.84	10.56	8.73	1.09	9.81
		2	26	251	145	2055	31	19.27	2.42	13.92	11.02	1.40	12.42
	Ax	1	0	Unrestricted	160	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	B	1	40	125	102	1800	15	28.23	1.78	10.21	11.36	1.22	12.58
	Bx	1	0	Unrestricted	289	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	C	1	24	271	120	1980	28	20.22	2.01	57.66	9.57	1.19	10.76
		2	4	2249	21	2055	30	17.64	0.32	9.25	1.46	0.19	1.65
	Cx	1	0	Unrestricted	110	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	D	1	61	47	282	1973	26	27.04	5.18	14.89	30.08	3.40	33.48
	Dx	1	0	Unrestricted	221	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	A1	1	12	643	255	2105	120	0.12	0.01	0.02	0.12	0.00	0.12
	C1	1	7	1253	141	2120	120	0.06	0.00	0.00	0.03	0.00	0.03

Traffic Stream Results: Flows and signals

Time Segment	Arm	Traffic Stream	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Calculated sat flow (PCU/hr)	Calculated capacity (PCU/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))	Effec gree (pe cycl
08:30-09:30	A	1	110	110	0		1915	479	23		292	0.00	28	30
		2	145	145	0		2055	565	26		251	0.00	31	33
	Ax	1	160	160	0		Unrestricted	Unrestricted	0		Unrestricted	0.83	120	12
	B	1	102	102	0		1800	255	40		125	0.00	15	17
	Bx	1	289	289	0		Unrestricted	Unrestricted	0		Unrestricted	0.98	120	12
	C	1	120	120	0		1980	495	24		271	0.00	28	30
		2	21	21	0		2055	548	4		2249	0.00	30	32
	Cx	1	110	110	0		Unrestricted	Unrestricted	0		Unrestricted	0.85	120	12
	D	1	282	282	0		1973	460	61		47	0.00	26	28
	Dx	1	221	221	0		Unrestricted	Unrestricted	0		Unrestricted	1.00	120	12
	A1	1	255	255	0		2105	2105	12		643	0.00	120	12
	C1	1	141	141	0		2120	2120	7		1253	0.00	120	12

Traffic Stream Results: Stops and delays

Time Segment	Arm	Traffic Stream	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Uniform delay (PCU-hr/hr)	Random plus oversat delay (PCU-hr/hr)	Unweighted cost of delay (£ per hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Uniform stops (Stops per hr)	Random stops (Stops per hr)	Unweighted cost of stops (£ per hr)	Weighted cost of stops (£ per hr)
08:30-09:30	A	1	12.00	20.11	0.58	0.03	8.73	8.73	78.68	84.51	2.04	1.09	1.09
		2	12.00	19.27	0.73	0.04	11.02	11.02	77.09	109.15	2.64	1.40	1.40
	Ax	1	12.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	B	1	12.00	28.23	0.67	0.13	11.36	11.36	95.61	89.73	7.79	1.22	1.22
	Bx	1	12.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	C	1	2.40	20.22	0.64	0.04	9.57	9.57	78.97	92.45	2.31	1.19	1.19
		2	2.40	17.64	0.10	0.00	1.46	1.46	71.58	14.99	0.05	0.19	0.19
	Cx	1	12.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	D	1	24.00	27.04	1.64	0.48	30.08	30.08	96.09	242.99	27.98	3.40	3.40
	Dx	1	12.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	A1	1	24.00	0.12	0.00	0.01	0.12	0.12	0.00	0.00	0.00	0.00	0.00
	C1	1	60.00	0.06	0.00	0.00	0.03	0.03	0.00	0.00	0.00	0.00	0.00

Traffic Stream Results: Queues and blocking

Time Segment	Arm	Traffic Stream	Initial queue (PCU)	Mean max queue (PCU)	Max queue storage (PCU)	Utilised storage (%)	Average storage excess queue (PCU)	Average limit excess queue (PCU)	Excess queue penalty (£ per hr)	Max end of green queue (PCU)	Max end of red queue (PCU)	Wasted time starvation (s (per cycle))	Wasted time blocking back (s (per cycle))	Wasted time total (s (per cycle))	Estimated blocking
08:30-09:30	A	1	0.00	1.84	17.39	10.56	0.00	0.00	0.00	0.03	1.75	0.00	0.00	0.00	
		2	0.00	2.42	17.39	13.92	0.00	0.00	0.00	0.04	2.26	0.00	0.00	0.00	
	Ax	1	0.00	0.00	17.39	0.00	0.00	0.00	0.00			43.00	0.00	43.00	
	B	1	0.00	1.78	17.39	10.21	0.00	0.00	0.00	0.13	1.69	0.00	0.00	0.00	
	Bx	1	0.00	0.00	17.39	0.00	0.00	0.00	0.00			43.00	0.00	43.00	
	C	1	0.00	2.01	3.48	57.66	0.00	0.00	0.00	0.04	1.91	0.00	0.00	0.00	
		2	0.00	0.32	3.48	9.25	0.00	0.00	0.00	0.00	0.32	30.00	0.00	30.00	
	Cx	1	0.00	0.00	17.39	0.00	0.00	0.00	0.00			57.00	0.00	57.00	
	D	1	0.00	5.18	34.78	14.89	0.00	0.00	0.00	0.48	4.55	0.00	0.00	0.00	
	Dx	1	0.00	0.00	17.39	0.00	0.00	0.00	0.00			53.00	0.00	53.00	
	A1	1	0.00	0.01	34.78	0.02	0.00	0.00	0.00			0.00	0.00	0.00	
	C1	1	0.00	0.00	86.96	0.00	0.00	0.00	0.00			0.00	0.00	0.00	

A6 - 2036 PM Do Something
D6 - 2036 PM Peak*

Summary

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Give-Way Data	Arm A - Traffic Stream 2 - All movements	Traffic Stream A/2: Opposed Saturation Flow is the same as or greater than Unopposed Saturation Flow.
Warning	Give-Way Data	Arm C - Traffic Stream 2 - All movements	Traffic Stream C/2: Opposed Saturation Flow is the same as or greater than Unopposed Saturation Flow.
Info	Link Signals	Link P1 - Signals (1, G)	Link P1 and Phase G phase type both expected to be pedestrian.
Info	Link Signals	Link P2 - Signals (1, G)	Link P2 and Phase G phase type both expected to be pedestrian.
Info	Link Signals	Link P3 - Signals (1, G)	Link P3 and Phase G phase type both expected to be pedestrian.

Run Summary

					Total							
set used	start time	finish time	start time (HH:mm)	Cycle Time (s)	Network Index (£ per hr)	delay (PCU-hr/hr)	DOS (%)	Worst highest DOS	oversaturated items	oversaturated items (%)	Worst signalised PRC	Worst unsignalised PRC	Ite wor over PR
6	08/10/2019 14:03:27	08/10/2019 14:03:28	17:30	120	89.44	5.68	60.00	B/1	0	0	B/1	C1/1	B/

Analysis Set Details

Name	Description	Demand set	Include in report	Locked
2036 PM Do Something		D6	✓	

Demand Set Details

Name	Description	Composite	Demand sets	Start time (HH:mm)	Locked
2036 PM Peak				17:30	

Links

Links

Link	Name	Description	Traffic node	Length (m)	Has Saturation Flow	Use RR67	Saturation flow (PCU/hr)	Is signal controlled	Is give way	Traffic type	Is minor shared	Allow Nearside Turn On Red
(ALL)	(untitled)		1	11.50	✓		1800	✓		Normal		

Modelling

Link	Traffic model	Stop weighting (%)	Delay weighting (%)	Assignment Cost Weighting (%)	Exclude from results calculation	Max queue storage (PCU)	Has queue limit	Has degree of saturation limit
(ALL)	NetworkDefault	100	100	100		0.00		

Modelling - Normal traffic - Advanced

Link	Dispersion type for Normal Traffic	Initial queue (PCU)	Type of Vehicle-in-Service	Vehicle-in-Service	Type of random parameter	Random parameter	Auto cycle time	Cycle time
(ALL)	NetworkDefault	0.00	NetworkDefault	Not-Included	NetworkDefault	0.50	✓	120

Flows

Link	Total flow (PCU/hr)	PCU Factor
(ALL)	5	1.00

Flows - Advanced

Link	Detectors
(ALL)	

Signals

Link	Controller stream	Phase	Second phase enabled
(ALL)	1	G	

Arms and Traffic Streams

Arms

Arm	Name	Description	Traffic node
A	(untitled)		1
Ax	(untitled)		
B	(untitled)		1
Bx	(untitled)		
C	(untitled)		1
Cx	(untitled)		
D	(untitled)		1
Dx	(untitled)		
A1	(untitled)		3
C1	(untitled)		2

Traffic Streams

Arm	Traffic Stream	Name	Description	Auto length	Length (m)	Has Saturation Flow	Saturation flow source	Saturation flow (PCU/hr)	Is signal controlled	Is give way	Traffic type	Allow Nearside Turn On Red
A	1	(untitled)			100.00	✓	Sum of lanes	1915	✓		Normal	
	2	(untitled)			100.00	✓	Sum of lanes	2055	✓	✓	Normal	
Ax	1	(untitled)			100.00						Normal	
B	1	(untitled)			100.00	✓	Sum of lanes	1800	✓		Normal	
Bx	1	(untitled)			100.00						Normal	
C	1	(untitled)			20.00	✓	Sum of lanes	1980	✓		Normal	
	2	(untitled)			20.00	✓	Sum of lanes	2055	✓	✓	Normal	
Cx	1	(untitled)			100.00						Normal	
D	1	(untitled)			200.00	✓	Sum of lanes	1973	✓		Normal	
Dx	1	(untitled)			100.00						Normal	
A1	1	(untitled)			200.00	✓	Sum of lanes	2105			Normal	
C1	1	(untitled)			500.00	✓	Sum of lanes	2120			Normal	

Lanes

Arm	Traffic Stream	Lane	Name	Description	Use RR67	Surface condition	Site quality factor	Gradient (%)	Width (m)	Use connector turning radius	Proportion that turn (%)	Turning radius (m)	Nearside lane	Saturation flow (PCU/hr)
A	1	1	(untitled)		✓	N/A	N/A	0	3.00		0	15.00	✓	1915
	2	1	(untitled)		✓	N/A	N/A	0	3.00		0	20.50		2055
Ax	1	1	(untitled)											
B	1	1	(untitled)											1800
Bx	1	1	(untitled)											
C	1	1	(untitled)		✓	N/A	N/A	0	3.65		0	15.00	✓	1980
	2	1	(untitled)		✓	N/A	N/A	0	3.00		0	20.00		2055
Cx	1	1	(untitled)											
D	1	1	(untitled)		✓	N/A	N/A	0	3.50		67	15.00		1973
Dx	1	1	(untitled)											
A1	1	1	(untitled)		✓	N/A	N/A	0	3.50		0	99999.00		2105
C1	1	1	(untitled)		✓	N/A	N/A	0	3.65	✓	0	99999.00		2120

Modelling

Arm	Traffic Stream	Traffic model	Stop weighting multiplier (%)	Delay weighting multiplier (%)	Assignment Cost Weighting (%)	Exclude from results calculation	Max queue storage (PCU)	Has queue limit	Has degree of saturation limit
(ALL)	(ALL)	NetworkDefault	100	100	100		0.00		

Modelling - Advanced

Arm	Traffic Stream	Initial queue (PCU)	Type of Vehicle-in-Service	Vehicle-in-Service	Type of random parameter	Random parameter	Auto cycle time	Cycle time
(ALL)	(ALL)	0.00	NetworkDefault	Not-Included	NetworkDefault	0.50	✓	120

Normal traffic - Modelling

Arm	Traffic Stream	Stop weighting (%)	Delay weighting (%)
(ALL)	(ALL)	100	100

Normal traffic - Advanced

Arm	Traffic Stream	Dispersion type for Normal Traffic
(ALL)	(ALL)	NetworkDefault

Flows

Arm	Traffic Stream	Total Flow (PCU/hr)	Normal Flow (PCU/hr)
A	1	87	87
	2	26	26
Ax	1	279	279
B	1	270	270
Bx	1	150	150
C	1	113	113
	2	25	25
Cx	1	170	170
D	1	222	222
Dx	1	144	144
A1	1	113	113
C1	1	138	138

Signals

Arm	Traffic Stream	Controller stream	Phase	Second phase enabled
A	1	1	E	
	2	1	D	
B	1	1	F	
C	1	1	B	
	2	1	A	
D	1	1	C	

Signal Timings

Network Default: 120s cycle time; 120 steps

Phases

Controller stream	Phase	Name	Minimum green (s)	Maximum green (s)	Relative start displacement (s)	Relative end displacement (s)	Type	Blackout Time (s)
1	A	(untitled)	3	300	0	0	Unknown	
	B	(untitled)	7	300	0	0	Unknown	
	C	(untitled)	7	300	0	0	Unknown	
	D	(untitled)	3	300	0	0	Unknown	
	E	(untitled)	7	300	0	0	Unknown	
	F	(untitled)	7	300	0	0	Unknown	
	G	(untitled)	6	300	0	0	Pedestrian	0

Library Stages

Controller stream	Library stage	Phases in stage	User stage minimum (s)
1	1	E, B, A, D	1
	2	D, A	1
	3	C	1
	4	F	1
	5	G	1

Stage Sequences

Controller stream	Sequence	Name	Multiple cycling	Stage IDs	Stage ends
1	1	(untitled)	Single	1, 2, 3, 4, 5, 1, 2, 3, 4	19, 20, 36, 53, 66, 89, 90, 105, 6

Intergreen Matrix for Controller Stream 1

From \ To	A	B	C	D	E	F	G
A			5			5	7
B			5			5	7
C	5	5		6	6	5	7
D			5			5	7
E			5			5	7
F	6	6	5	5	6		7
G	10	10	10	10	10	10	

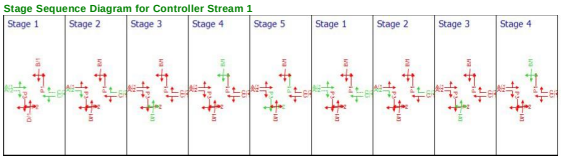
Resultant Stages

Controller stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	1	✓	1	E,B,A,D	12	19	7	1	7
	2	✓	2	D,A	19	20	1	1	1
	3	✓	3	C	25	36	11	1	7
	4	✓	4	F	41	53	12	1	7
	5	✓	5	G	60	66	6	1	6
	6	✓	1	E,B,A,D	76	89	13	1	7
	7	✓	2	D,A	89	90	1	1	1
	8	✓	3	C	95	105	10	1	7
	9	✓	4	F	110	6	16	1	7

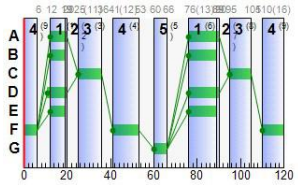
Resultant Phase Green Periods

Controller stream	Phase	Green period	Is base green period	Start time (s)	End time (s)	Duration (s)
1	A	1	✓	76	90	14
		2	✓	12	20	8
	B	1	✓	76	89	13
		2	✓	12	19	7
	C	1	✓	25	36	11
		2	✓	95	105	10
	D	1	✓	76	90	14
		2	✓	11	20	9
	E	1	✓	76	89	13
		2	✓	12	19	7
	F	1	✓	41	53	12
		2	✓	110	6	16
	G	1	✓	60	66	6

Stage Sequence Diagram for Controller Stream 1



Phase Timings Diagram for Controller Stream 1



Link Results

Link Results: Vehicle summary

Time Segment	Link	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Mean Delay per Veh (s)	Mean max queue (PCU)	Utilised storage (%)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
17:30-18:30	(ALL)	6	1520	5	1800	6	55.80	0.16	8.22	1.10	0.06	1.16

Link Results: Flows and signals

Time Segment	Link	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Calculated sat flow (PCU/hr)	Calculated capacity (PCU/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))	Effective green (s (per cycle))
17:30-18:30	(ALL)	5	5	0		1800	90	6		1520	0.00	6	6

Link Results: Stops and delays

Time Segment	Link	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Uniform delay (PCU-hr/hr)	Random plus oversat delay (PCU-hr/hr)	Unweighted cost of delay (£ per hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Uniform stops (Stops per hr)	Random stops (Stops per hr)	Unweighted cost of stops (£ per hr)	Weighted cost of stops (£ per hr)
17:30-18:30	(ALL)	1.38	55.80	0.08	0.00	1.10	1.10	94.99	4.70	0.05	0.06	0.06

Link Results: Queues and blocking

Time Segment	Link	Initial queue (PCU)	Mean max queue (PCU)	Max queue storage (PCU)	Utilised storage (%)	Average storage excess queue (PCU)	Average limit excess queue (PCU)	Excess queue penalty (£ per hr)	Max end of green queue (PCU)	Max end of red queue (PCU)	Wasted time starvation (s (per cycle))	Wasted time blocking back (s (per cycle))	Wasted time total (s (per cycle))	Estimated blocking
17:30-18:30	(ALL)	0.00	0.16	1.95	8.22	0.00	0.00	0.00	0.00	0.16	5.00	0.00	5.00	

Traffic Stream Results

Traffic Stream Results: Vehicle summary

Time Segment	Arm	Traffic Stream	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Mean Delay per Veh (s)	Mean max queue (PCU)	Utilised storage (%)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
17:30-18:30	A	1	25	263	87	1915	20	23.09	1.44	8.29	7.92	0.93	8.85
		2	6	1382	26	2055	23	19.94	0.40	2.30	2.04	0.25	2.30
	Ax	1	0	Unrestricted	279	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	B	1	60	50	270	1800	28	26.97	5.32	30.59	28.73	3.19	31.92
	Bx	1	0	Unrestricted	150	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	C	1	31	189	113	1980	20	23.92	1.92	55.26	10.66	1.24	11.90
		2	6	1380	25	2055	22	20.29	0.38	11.04	2.00	0.25	2.25
	Cx	1	0	Unrestricted	170	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	D	1	59	53	222	1973	21	29.63	4.42	12.71	25.94	2.75	28.69
	Dx	1	0	Unrestricted	144	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	A1	1	5	1577	113	2105	120	0.05	0.00	0.00	0.02	0.00	0.02
	C1	1	7	1283	138	2120	120	0.06	0.00	0.00	0.03	0.00	0.03

Traffic Stream Results: Flows and signals

Time Segment	Arm	Traffic Stream	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Calculated sat flow (PCU/hr)	Calculated capacity (PCU/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))	Effec gree (pe cycl
17:30-18:30	A	1	87	87	0		1915	351	25		263	0.00	20	22
		2	26	26	0		2055	428	6		1382	0.00	23	25
	Ax	1	279	279	0		Unrestricted	Unrestricted	0		Unrestricted	0.66	120	12
	B	1	270	270	0		1800	450	60		50	0.00	28	30
	Bx	1	150	150	0		Unrestricted	Unrestricted	0		Unrestricted	1.08	120	12
	C	1	113	113	0		1980	363	31		189	0.00	20	22
		2	25	25	0		2055	411	6		1380	0.00	22	24
	Cx	1	170	170	0		Unrestricted	Unrestricted	0		Unrestricted	0.71	120	12
	D	1	222	222	0		1973	378	59		53	0.00	21	23
	Dx	1	144	144	0		Unrestricted	Unrestricted	0		Unrestricted	0.99	120	12
	A1	1	113	113	0		2105	2105	5		1577	0.00	120	12
	C1	1	138	138	0		2120	2120	7		1283	0.00	120	12

Traffic Stream Results: Stops and delays

Time Segment	Arm	Traffic Stream	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Uniform delay (PCU-hr/hr)	Random plus oversat delay (PCU-hr/hr)	Unweighted cost of delay (£ per hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Uniform stops (Stops per hr)	Random stops (Stops per hr)	Unweighted cost of stops (£ per hr)	Weighted cost of stops (£ per hr)
17:30-18:30	A	1	12.00	23.09	0.52	0.04	7.92	7.92	84.98	71.51	2.43	0.93	0.93
		2	12.00	19.94	0.14	0.00	2.04	2.04	77.65	20.07	0.12	0.25	0.25
	Ax	1	12.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	B	1	12.00	26.97	1.58	0.44	28.73	28.73	94.24	228.40	26.04	3.19	3.19
	Bx	1	12.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	C	1	2.40	23.92	0.68	0.07	10.66	10.66	87.53	94.74	4.17	1.24	1.24
		2	2.40	20.29	0.14	0.00	2.00	2.00	78.50	19.51	0.12	0.25	0.25
	Cx	1	12.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	D	1	24.00	29.63	1.41	0.41	25.94	25.94	98.68	195.01	24.05	2.75	2.75
	Dx	1	12.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	A1	1	24.00	0.05	0.00	0.00	0.02	0.02	0.00	0.00	0.00	0.00	0.00
	C1	1	60.00	0.06	0.00	0.00	0.03	0.03	0.00	0.00	0.00	0.00	0.00

Traffic Stream Results: Queues and blocking

Time Segment	Arm	Traffic Stream	Initial queue (PCU)	Mean max queue (PCU)	Max queue storage (PCU)	Utilised storage (%)	Average storage excess queue (PCU)	Average limit excess queue (PCU)	Excess queue penalty (£ per hr)	Max end of green queue (PCU)	Max end of red queue (PCU)	Wasted time starvation (s (per cycle))	Wasted time blocking back (s (per cycle))	Wasted time total (s (per cycle))	Estimated blocking
17:30-18:30	A	1	0.00	1.44	17.39	8.29	0.00	0.00	0.00	0.04	1.39	0.00	0.00	0.00	
		2	0.00	0.40	17.39	2.30	0.00	0.00	0.00	0.00	0.40	23.00	0.00	23.00	
	Ax	1	0.00	0.00	17.39	0.00	0.00	0.00	0.00			23.00	0.00	23.00	
	B	1	0.00	5.32	17.39	30.59	0.00	0.00	0.00	0.44	4.64	0.00	0.00	0.00	
	Bx	1	0.00	0.00	17.39	0.00	0.00	0.00	0.00			65.00	0.00	65.00	
	C	1	0.00	1.92	3.48	55.26	0.00	0.00	0.00	0.07	1.83	0.00	0.00	0.00	
		2	0.00	0.38	3.48	11.04	0.00	0.00	0.00	0.00	0.38	22.00	0.00	22.00	
	Cx	1	0.00	0.00	17.39	0.00	0.00	0.00	0.00			35.00	0.00	35.00	
	D	1	0.00	4.42	34.78	12.71	0.00	0.00	0.00	0.41	3.99	0.00	0.00	0.00	
	Dx	1	0.00	0.00	17.39	0.00	0.00	0.00	0.00			58.00	0.00	58.00	
	A1	1	0.00	0.00	34.78	0.00	0.00	0.00	0.00			0.00	0.00	0.00	
	C1	1	0.00	0.00	86.96	0.00	0.00	0.00	0.00			0.00	0.00	0.00	

APPENDIX D

ARCADY Output Files

Junctions 9

ARCADY 9 - Roundabout Module

Version: 9.0.0.4211 []
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Filename: Junction 3 Do Minimum.j9
Path: G:\2019\p190009\calcs\arcady\Oct 2019
Report generation date: 08/10/2019 14:10:47

»Do Minumim - 2021, AM
»Do Minumim - 2021, PM
»Do Minumim - 2026, AM
»Do Minumim - 2026, PM
»Do Minumim - 2036, AM
»Do Minumim - 2036, PM

Summary of junction performance

	AM					PM				
	Queue (PCU)	Delay (s)	RFC	LOS	Network Residual Capacity	Queue (PCU)	Delay (s)	RFC	LOS	Network Residual Capacity
Do Minumim - 2021										
A - R148 (East)	0.2	4.38	0.17	A	68 %	0.4	5.06	0.28	A	207 %
B - R148 (West)	1.3	7.59	0.54	A	[B - R148 (West)]	0.3	4.45	0.23	A	[A - R148 (East)]
C - Distributor Road	0.1	4.36	0.08	A		0.0	3.39	0.04	A	
Do Minumim - 2026										
A - R148 (East)	0.2	4.38	0.18	A	68 %	0.5	5.16	0.31	A	180 %
B - R148 (West)	1.2	7.57	0.53	A	[B - R148 (West)]	0.3	4.38	0.20	A	[A - R148 (East)]
C - Distributor Road	0.2	4.78	0.18	A		0.1	3.61	0.12	A	
Do Minumim - 2036										
A - R148 (East)	0.3	4.48	0.20	A	49 %	0.6	5.42	0.34	A	155 %
B - R148 (West)	1.6	8.91	0.60	A	[B - R148 (West)]	0.3	4.56	0.23	A	[A - R148 (East)]
C - Distributor Road	0.2	5.00	0.17	A		0.1	3.65	0.12	A	

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

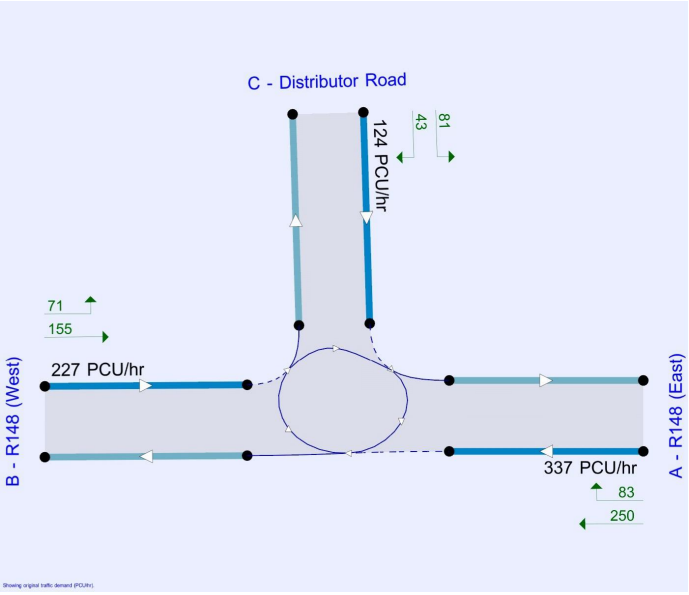
File summary

File Description

Title	Do Minimum
Location	Kilcock
Site number	Junction 3
Date	01/04/2019
Version	
Status	TTA
Identifier	
Client	MGR
Jobnumber	190009
Enumerator	HEADOFFICE"mckennam
Description	

Units

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



The junction diagram reflects the last run of Junctions.

Analysis Options

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

Demand Set Summary

Scenario name	Time Period name	Traffic profile type	Model start time (HH:mm)	Model finish time (HH:mm)	Time segment length (min)
2021	AM	ONE HOUR	08:00	09:30	15
2021	PM	ONE HOUR	17:30	19:00	15
2026	AM	ONE HOUR	08:00	09:30	15
2026	PM	ONE HOUR	17:30	19:00	15
2036	AM	ONE HOUR	08:00	09:30	15
2036	PM	ONE HOUR	17:30	19:00	15

Do Minumim - 2021, AM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

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

Junction Network

Junctions

Junction	Name	Junction Type	Junction Delay (s)	Junction LOS
1 - untitled	untitled	Standard Roundabout	6.66	A

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	68	B - R148 (West)

Arms

Arms

Arm	Name	Description
A	R148 (East)	
B	R148 (West)	
C	Distributor Road	

Capacity Options

Arm	Minimum capacity (PCU/hr)	Maximum capacity (PCU/hr)
A - R148 (East)	0.00	99999.00
B - R148 (West)	0.00	99999.00
C - Distributor Road	0.00	99999.00

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
A - R148 (East)	3.65	4.00	14.7	14.0	31.0	47.0	
B - R148 (West)	3.65	4.30	11.7	14.0	31.0	54.0	
C - Distributor Road	3.65	4.30	11.3	14.0	31.0	36.0	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
A - R148 (East)	0.511	1108.196
B - R148 (West)	0.510	1140.460
C - Distributor Road	0.546	1219.131

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Model start time (HH:mm)	Model finish time (HH:mm)	Time segment length (min)
D1	2021	AM	ONE HOUR	08:00	09:30	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - R148 (East)		✓	162.00	100.000
B - R148 (West)		✓	562.00	100.000
C - Distributor Road		✓	65.00	100.000

Origin-Destination Data

Demand (PCU/hr)

From \ To	A - R148 (East)	B - R148 (West)	C - Distributor Road
A - R148 (East)	0.000	158.000	4.000
B - R148 (West)	535.000	0.000	27.000
C - Distributor Road	15.000	50.000	0.000

Vehicle Mix

Heavy Vehicle proportion

From \ To	A - R148 (East)	B - R148 (West)	C - Distributor Road
A - R148 (East)	0	10	0
B - R148 (West)	10	0	0
C - Distributor Road	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
A - R148 (East)	0.17	4.38	0.2	A
B - R148 (West)	0.54	7.59	1.3	A
C - Distributor Road	0.08	4.36	0.1	A

Main Results for each time segment

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

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
A - R148 (East)	121.96	37.49	1089.03	0.112	121.41	0.1	4.081	A
B - R148 (West)	423.10	3.00	1138.93	0.371	420.54	0.6	5.465	A
C - Distributor Road	48.94	400.34	1000.68	0.049	48.73	0.1	3.781	A

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

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
A - R148 (East)	145.63	44.91	1085.24	0.134	145.51	0.2	4.203	A
B - R148 (West)	505.23	3.59	1138.63	0.444	504.34	0.9	6.204	A
C - Distributor Road	58.43	480.11	957.15	0.061	58.38	0.1	4.005	A

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

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
A - R148 (East)	178.37	54.99	1080.09	0.165	178.18	0.2	4.378	A
B - R148 (West)	618.77	4.40	1138.22	0.544	617.10	1.3	7.538	A
C - Distributor Road	71.57	587.45	898.58	0.080	71.48	0.1	4.352	A

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

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
A - R148 (East)	178.37	55.05	1080.06	0.165	178.36	0.2	4.380	A
B - R148 (West)	618.77	4.40	1138.21	0.544	618.73	1.3	7.586	A
C - Distributor Road	71.57	589.00	897.73	0.080	71.57	0.1	4.357	A

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

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
A - R148 (East)	145.63	45.01	1085.19	0.134	145.82	0.2	4.207	A
B - R148 (West)	505.23	3.60	1138.62	0.444	506.86	0.9	6.256	A
C - Distributor Road	58.43	482.51	955.84	0.061	58.52	0.1	4.013	A

Main results: (09:15-09:30)

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
A - R148 (East)	121.96	37.68	1088.93	0.112	122.09	0.1	4.087	A
B - R148 (West)	423.10	3.01	1138.92	0.371	424.03	0.7	5.519	A
C - Distributor Road	48.94	403.65	998.87	0.049	48.99	0.1	3.789	A

Do Minumim - 2021, PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

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

Junction Network

Junctions

Junction	Name	Junction Type	Junction Delay (s)	Junction LOS
1 - untitled	untitled	Standard Roundabout	4.68	A

Junction Network Options

[same as above]

Arms

Arms

[same as above]

Capacity Options

[same as above]

Roundabout Geometry

[same as above]

Slope / Intercept / Capacity

[same as above]

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Model start time (HH:mm)	Model finish time (HH:mm)	Time segment length (min)
D2	2021	PM	ONE HOUR	17:30	19:00	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - R148 (East)		✓	282.00	100.000
B - R148 (West)		✓	238.00	100.000
C - Distributor Road		✓	40.00	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - R148 (East)	B - R148 (West)	C - Distributor Road
From	A - R148 (East)	3.000	268.000	11.000
	B - R148 (West)	185.000	1.000	52.000
	C - Distributor Road	8.000	32.000	0.000

Vehicle Mix

Heavy Vehicle proportion

		To		
		A - R148 (East)	B - R148 (West)	C - Distributor Road
From	A - R148 (East)	0	10	0
	B - R148 (West)	10	0	0
	C - Distributor Road	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
A - R148 (East)	0.28	5.06	0.4	A
B - R148 (West)	0.23	4.45	0.3	A
C - Distributor Road	0.04	3.39	0.0	A

Main Results for each time segment

Main results: (17:30-17:45)

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
A - R148 (East)	212.30	24.75	1095.54	0.194	211.26	0.3	4.449	A
B - R148 (West)	179.18	10.49	1135.11	0.158	178.38	0.2	4.045	A
C - Distributor Road	30.11	141.65	1141.84	0.026	30.01	0.0	3.237	A

Main results: (17:45-18:00)

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
A - R148 (East)	253.51	29.65	1093.04	0.232	253.24	0.3	4.691	A
B - R148 (West)	213.96	12.57	1134.04	0.189	213.76	0.2	4.208	A
C - Distributor Road	35.96	169.75	1126.50	0.032	35.94	0.0	3.300	A

Main results: (18:00-18:15)

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
A - R148 (East)	310.49	36.31	1089.64	0.285	310.07	0.4	5.052	A
B - R148 (West)	262.04	15.39	1132.61	0.231	261.75	0.3	4.447	A
C - Distributor Road	44.04	207.86	1105.71	0.040	44.01	0.0	3.390	A

Main results: (18:15-18:30)

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
A - R148 (East)	310.49	36.33	1089.62	0.285	310.48	0.4	5.056	A
B - R148 (West)	262.04	15.41	1132.59	0.231	262.04	0.3	4.449	A
C - Distributor Road	44.04	208.09	1105.58	0.040	44.04	0.0	3.390	A

Main results: (18:30-18:45)

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
A - R148 (East)	253.51	29.69	1093.02	0.232	253.92	0.3	4.699	A
B - R148 (West)	213.96	12.61	1134.03	0.189	214.24	0.3	4.214	A
C - Distributor Road	35.96	170.13	1126.29	0.032	35.99	0.0	3.303	A

Main results: (18:45-19:00)

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
A - R148 (East)	212.30	24.86	1095.49	0.194	212.58	0.3	4.464	A
B - R148 (West)	179.18	10.55	1135.07	0.158	179.37	0.2	4.055	A
C - Distributor Road	30.11	142.44	1141.40	0.026	30.14	0.0	3.238	A

Do Minumim - 2026, AM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

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

Junction Network

Junctions

Junction	Name	Junction Type	Junction Delay (s)	Junction LOS
1 - untitled	untitled	Standard Roundabout	6.45	A

Junction Network Options

[same as above]

Arms

Arms

[same as above]

Capacity Options

[same as above]

Roundabout Geometry

[same as above]

Slope / Intercept / Capacity

[same as above]

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Model start time (HH:mm)	Model finish time (HH:mm)	Time segment length (min)
D3	2026	AM	ONE HOUR	08:00	09:30	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - R148 (East)		✓	177.00	100.000
B - R148 (West)		✓	542.00	100.000
C - Distributor Road		✓	145.00	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - R148 (East)	B - R148 (West)	C - Distributor Road
From	A - R148 (East)	0.000	135.000	42.000
	B - R148 (West)	511.000	0.000	31.000
	C - Distributor Road	92.000	53.000	0.000

Vehicle Mix

Heavy Vehicle proportion

		To		
		A - R148 (East)	B - R148 (West)	C - Distributor Road
From	A - R148 (East)	0	10	0
	B - R148 (West)	10	0	0
	C - Distributor Road	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
A - R148 (East)	0.18	4.38	0.2	A
B - R148 (West)	0.53	7.57	1.2	A
C - Distributor Road	0.18	4.78	0.2	A

Main Results for each time segment

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

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
A - R148 (East)	133.25	39.72	1087.89	0.122	132.66	0.1	4.046	A
B - R148 (West)	408.05	31.48	1124.40	0.363	405.58	0.6	5.459	A
C - Distributor Road	109.16	382.38	1010.48	0.108	108.68	0.1	3.990	A

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

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
A - R148 (East)	159.12	47.60	1083.87	0.147	158.98	0.2	4.182	A
B - R148 (West)	487.25	37.72	1121.21	0.435	486.39	0.8	6.193	A
C - Distributor Road	130.35	458.57	968.90	0.135	130.22	0.2	4.292	A

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

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
A - R148 (East)	194.88	58.27	1078.41	0.181	194.67	0.2	4.376	A
B - R148 (West)	596.75	46.19	1116.89	0.534	595.14	1.2	7.499	A
C - Distributor Road	159.65	561.10	912.95	0.175	159.42	0.2	4.776	A

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

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
A - R148 (East)	194.88	58.35	1078.37	0.181	194.88	0.2	4.377	A
B - R148 (West)	596.75	46.24	1116.86	0.534	596.71	1.2	7.569	A
C - Distributor Road	159.65	562.58	912.15	0.175	159.64	0.2	4.783	A

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

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
A - R148 (East)	159.12	47.73	1083.80	0.147	159.32	0.2	4.184	A
B - R148 (West)	487.25	37.81	1121.17	0.435	488.82	0.9	6.241	A
C - Distributor Road	130.35	460.86	967.65	0.135	130.57	0.2	4.303	A

Main results: (09:15-09:30)

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
A - R148 (East)	133.25	39.95	1087.77	0.123	133.40	0.2	4.053	A
B - R148 (West)	408.05	31.65	1124.31	0.363	408.93	0.6	5.510	A
C - Distributor Road	109.16	385.54	1008.75	0.108	109.30	0.1	4.004	A

Do Minumim - 2026, PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

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

Junction Network

Junctions

Junction	Name	Junction Type	Junction Delay (s)	Junction LOS
1 - untitled	untitled	Standard Roundabout	4.60	A

Junction Network Options

[same as above]

Arms

Arms

[same as above]

Capacity Options

[same as above]

Roundabout Geometry

[same as above]

Slope / Intercept / Capacity

[same as above]

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Model start time (HH:mm)	Model finish time (HH:mm)	Time segment length (min)
D4	2026	PM	ONE HOUR	17:30	19:00	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - R148 (East)		✓	305.00	100.000
B - R148 (West)		✓	202.00	100.000
C - Distributor Road		✓	129.00	100.000

Origin-Destination Data

Demand (PCU/hr)

From \ To	A - R148 (East)	B - R148 (West)	C - Distributor Road
A - R148 (East)	3.000	226.000	76.000
B - R148 (West)	130.000	1.000	71.000
C - Distributor Road	86.000	43.000	0.000

Vehicle Mix

Heavy Vehicle proportion

From \ To	A - R148 (East)	B - R148 (West)	C - Distributor Road
A - R148 (East)	0	10	0
B - R148 (West)	10	0	0
C - Distributor Road	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
A - R148 (East)	0.31	5.16	0.5	A
B - R148 (West)	0.20	4.38	0.3	A
C - Distributor Road	0.12	3.61	0.1	A

Main Results for each time segment

Main results: (17:30-17:45)

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
A - R148 (East)	229.62	33.00	1091.33	0.210	228.48	0.3	4.468	A
B - R148 (West)	152.08	59.18	1110.26	0.137	151.41	0.2	3.985	A
C - Distributor Road	97.12	100.44	1164.33	0.083	96.76	0.1	3.372	A

Main results: (17:45-18:00)

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
A - R148 (East)	274.19	39.53	1087.99	0.252	273.89	0.4	4.740	A
B - R148 (West)	181.59	70.94	1104.26	0.164	181.43	0.2	4.143	A
C - Distributor Road	115.97	120.36	1153.46	0.101	115.89	0.1	3.469	A

Main results: (18:00-18:15)

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
A - R148 (East)	335.81	48.40	1083.45	0.310	335.34	0.5	5.156	A
B - R148 (West)	222.41	86.86	1096.14	0.203	222.16	0.3	4.374	A
C - Distributor Road	142.03	147.37	1138.71	0.125	141.91	0.1	3.611	A

Main results: (18:15-18:30)

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
A - R148 (East)	335.81	48.44	1083.43	0.310	335.80	0.5	5.162	A
B - R148 (West)	222.41	86.98	1096.08	0.203	222.40	0.3	4.376	A
C - Distributor Road	142.03	147.53	1138.63	0.125	142.03	0.1	3.611	A

Main results: (18:30-18:45)

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
A - R148 (East)	274.19	39.60	1087.96	0.252	274.65	0.4	4.750	A
B - R148 (West)	181.59	71.14	1104.16	0.164	181.83	0.2	4.146	A
C - Distributor Road	115.97	120.62	1153.31	0.101	116.09	0.1	3.473	A

Main results: (18:45-19:00)

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
A - R148 (East)	229.62	33.15	1091.25	0.210	229.93	0.3	4.482	A
B - R148 (West)	152.08	59.55	1110.07	0.137	152.24	0.2	3.994	A
C - Distributor Road	97.12	100.99	1164.02	0.083	97.20	0.1	3.373	A

Do Minumim - 2036, AM

Data Errors and Warnings
No errors or warnings

Analysis Set Details

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

Junction Network

Junctions

Junction	Name	Junction Type	Junction Delay (s)	Junction LOS
1 - untitled	untitled	Standard Roundabout	7.43	A

Junction Network Options
[same as above]

Arms

Arms
[same as above]

Capacity Options
[same as above]

Roundabout Geometry
[same as above]

Slope / Intercept / Capacity
[same as above]

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Model start time (HH:mm)	Model finish time (HH:mm)	Time segment length (min)
D5	2036	AM	ONE HOUR	08:00	09:30	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - R148 (East)		✓	195.00	100.000
B - R148 (West)		✓	611.00	100.000
C - Distributor Road		✓	137.00	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - R148 (East)	B - R148 (West)	C - Distributor Road
From	A - R148 (East)	0.000	149.000	46.000
	B - R148 (West)	580.000	0.000	31.000
	C - Distributor Road	84.000	53.000	0.000

Vehicle Mix

Heavy Vehicle proportion

		To		
		A - R148 (East)	B - R148 (West)	C - Distributor Road
From	A - R148 (East)	0	10	0
	B - R148 (West)	10	0	0
	C - Distributor Road	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
A - R148 (East)	0.20	4.48	0.3	A
B - R148 (West)	0.60	8.91	1.6	A
C - Distributor Road	0.17	5.00	0.2	A

Main Results for each time segment

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

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
A - R148 (East)	146.81	39.72	1087.89	0.135	146.14	0.2	4.105	A
B - R148 (West)	459.99	34.47	1122.87	0.410	456.99	0.8	5.892	A
C - Distributor Road	103.14	433.80	982.42	0.105	102.67	0.1	4.090	A

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

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
A - R148 (East)	175.30	47.59	1083.87	0.162	175.14	0.2	4.257	A
B - R148 (West)	549.28	41.32	1119.38	0.491	548.12	1.0	6.883	A
C - Distributor Road	123.16	520.31	935.21	0.132	123.02	0.2	4.432	A

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

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
A - R148 (East)	214.70	58.27	1078.41	0.199	214.46	0.3	4.477	A
B - R148 (West)	672.72	50.59	1114.65	0.604	670.37	1.6	8.821	A
C - Distributor Road	150.84	636.36	871.89	0.173	150.61	0.2	4.990	A

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

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
A - R148 (East)	214.70	58.35	1078.37	0.199	214.70	0.3	4.479	A
B - R148 (West)	672.72	50.65	1114.62	0.604	672.65	1.6	8.910	A
C - Distributor Road	150.84	638.52	870.71	0.173	150.84	0.2	5.000	A

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

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
A - R148 (East)	175.30	47.73	1083.80	0.162	175.53	0.2	4.261	A
B - R148 (West)	549.28	41.41	1119.33	0.491	551.58	1.1	6.966	A
C - Distributor Road	123.16	523.60	933.42	0.132	123.38	0.2	4.445	A

Main results: (09:15-09:30)

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
A - R148 (East)	146.81	39.95	1087.77	0.135	146.97	0.2	4.112	A
B - R148 (West)	459.99	34.67	1122.77	0.410	461.20	0.8	5.968	A
C - Distributor Road	103.14	437.80	980.24	0.105	103.28	0.1	4.105	A

Do Minumim - 2036, PM

Data Errors and Warnings
No errors or warnings

Analysis Set Details

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

Junction Network

Junctions

Junction	Name	Junction Type	Junction Delay (s)	Junction LOS
1 - untitled	untitled	Standard Roundabout	4.82	A

Junction Network Options
[same as above]

Arms

Arms
[same as above]

Capacity Options
[same as above]

Roundabout Geometry
[same as above]

Slope / Intercept / Capacity
[same as above]

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Model start time (HH:mm)	Model finish time (HH:mm)	Time segment length (min)
D6	2036	PM	ONE HOUR	17:30	19:00	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - R148 (East)		✓	337.00	100.000
B - R148 (West)		✓	227.00	100.000
C - Distributor Road		✓	124.00	100.000

Origin-Destination Data

Demand (PCU/hr)

From \ To	A - R148 (East)	B - R148 (West)	C - Distributor Road
A - R148 (East)	4.000	250.000	83.000
B - R148 (West)	155.000	1.000	71.000
C - Distributor Road	81.000	43.000	0.000

Vehicle Mix

Heavy Vehicle proportion

From \ To	A - R148 (East)	B - R148 (West)	C - Distributor Road
A - R148 (East)	0	10	0
B - R148 (West)	10	0	0
C - Distributor Road	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
A - R148 (East)	0.34	5.42	0.6	A
B - R148 (West)	0.23	4.56	0.3	A
C - Distributor Road	0.12	3.65	0.1	A

Main Results for each time segment

Main results: (17:30-17:45)

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
A - R148 (East)	253.71	33.00	1091.33	0.232	252.42	0.3	4.595	A
B - R148 (West)	170.90	65.16	1107.21	0.154	170.12	0.2	4.092	A
C - Distributor Road	93.35	119.91	1153.70	0.081	93.00	0.1	3.394	A

Main results: (17:45-18:00)

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
A - R148 (East)	302.96	39.53	1087.99	0.278	302.60	0.4	4.913	A
B - R148 (West)	204.07	78.12	1100.60	0.185	203.88	0.2	4.279	A
C - Distributor Road	111.47	143.70	1140.72	0.098	111.39	0.1	3.496	A

Main results: (18:00-18:15)

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
A - R148 (East)	371.04	48.40	1083.45	0.342	370.47	0.6	5.409	A
B - R148 (West)	249.93	95.64	1091.66	0.229	249.64	0.3	4.557	A
C - Distributor Road	136.53	175.96	1123.12	0.122	136.41	0.1	3.648	A

Main results: (18:15-18:30)

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
A - R148 (East)	371.04	48.44	1083.43	0.342	371.03	0.6	5.418	A
B - R148 (West)	249.93	95.79	1091.58	0.229	249.93	0.3	4.559	A
C - Distributor Road	136.53	176.16	1123.01	0.122	136.53	0.1	3.648	A

Main results: (18:30-18:45)

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
A - R148 (East)	302.96	39.60	1087.95	0.278	303.51	0.4	4.926	A
B - R148 (West)	204.07	78.35	1100.48	0.185	204.35	0.2	4.284	A
C - Distributor Road	111.47	144.04	1140.53	0.098	111.59	0.1	3.501	A

Main results: (18:45-19:00)

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
A - R148 (East)	253.71	33.15	1091.25	0.233	254.07	0.3	4.614	A
B - R148 (West)	170.90	65.59	1106.99	0.154	171.09	0.2	4.101	A
C - Distributor Road	93.35	120.59	1153.33	0.081	93.44	0.1	3.396	A

Junctions 9

ARCADY 9 - Roundabout Module

Version: 9.0.0.4211 []
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Filename: Junction 3 Do Something.j9
Path: G:\2019\p190009\calcs\arcady\Oct 2019
Report generation date: 08/10/2019 14:16:02

»Do Something - 2021, AM
»Do Something - 2021, PM
»Do Something - 2026, AM
»Do Something - 2026, PM
»Do Something - 2036, AM
»Do Something - 2036, PM

Summary of junction performance

	AM					PM				
	Queue (PCU)	Delay (s)	RFC	LOS	Network Residual Capacity	Queue (PCU)	Delay (s)	RFC	LOS	Network Residual Capacity
Do Something - 2021										
A - R148 (East)	0.2	4.48	0.17	A	64 %	0.4	5.15	0.29	A	194 %
B - R148 (West)	1.4	7.80	0.56	A	[B - R148 (West)]	0.4	4.59	0.26	A	[A - R148 (East)]
C - Distributor Road	0.1	4.58	0.13	A		0.1	3.47	0.06	A	
Do Something - 2026										
A - R148 (East)	0.3	4.73	0.20	A	51 %	0.5	5.55	0.34	A	143 %
B - R148 (West)	1.6	8.68	0.60	A	[B - R148 (West)]	0.5	4.99	0.31	A	[A - R148 (East)]
C - Distributor Road	0.5	5.84	0.32	A		0.2	3.95	0.20	A	
Do Something - 2036										
A - R148 (East)	0.3	4.85	0.22	A	35 %	0.6	5.85	0.37	A	124 %
B - R148 (West)	2.1	10.52	0.67	B	[B - R148 (West)]	0.5	5.23	0.34	A	[A - R148 (East)]
C - Distributor Road	0.5	6.17	0.33	A		0.2	4.00	0.20	A	

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

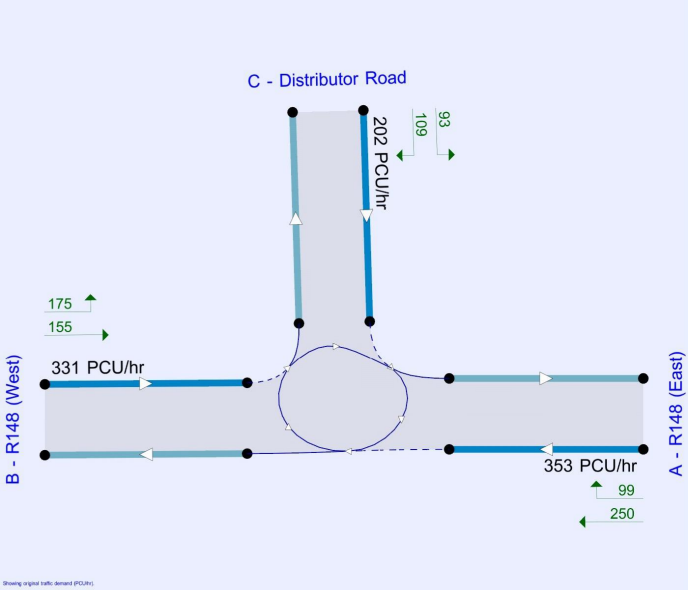
File summary

File Description

Title	Do Minimum
Location	Kilcock
Site number	Junction 3
Date	01/04/2019
Version	
Status	TTA
Identifier	
Client	MGR
Jobnumber	190009
Enumerator	HEADOFFICE"mckennam
Description	

Units

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



The junction diagram reflects the last run of Junctions.

Analysis Options

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

Demand Set Summary

Scenario name	Time Period name	Traffic profile type	Model start time (HH:mm)	Model finish time (HH:mm)	Time segment length (min)
2021	AM	ONE HOUR	08:00	09:30	15
2021	PM	ONE HOUR	17:30	19:00	15
2026	AM	ONE HOUR	08:00	09:30	15
2026	PM	ONE HOUR	17:30	19:00	15
2036	AM	ONE HOUR	08:00	09:30	15
2036	PM	ONE HOUR	17:30	19:00	15

Do Something - 2021, AM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

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

Junction Network

Junctions

Junction	Name	Junction Type	Junction Delay (s)	Junction LOS
1 - untitled	untitled	Standard Roundabout	6.76	A

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	64	B - R148 (West)

Arms

Arms

Arm	Name	Description
A	R148 (East)	
B	R148 (West)	
C	Distributor Road	

Capacity Options

Arm	Minimum capacity (PCU/hr)	Maximum capacity (PCU/hr)
A - R148 (East)	0.00	99999.00
B - R148 (West)	0.00	99999.00
C - Distributor Road	0.00	99999.00

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
A - R148 (East)	3.65	4.00	14.7	14.0	31.0	47.0	
B - R148 (West)	3.65	4.30	11.7	14.0	31.0	54.0	
C - Distributor Road	3.65	4.30	11.3	14.0	31.0	36.0	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
A - R148 (East)	0.511	1108.196
B - R148 (West)	0.510	1140.460
C - Distributor Road	0.546	1219.131

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Model start time (HH:mm)	Model finish time (HH:mm)	Time segment length (min)
D1	2021	AM	ONE HOUR	08:00	09:30	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - R148 (East)		✓	164.00	100.000
B - R148 (West)		✓	575.00	100.000
C - Distributor Road		✓	102.00	100.000

Origin-Destination Data

Demand (PCU/hr)

From \ To	A - R148 (East)	B - R148 (West)	C - Distributor Road
A - R148 (East)	0.000	158.000	6.000
B - R148 (West)	535.000	0.000	40.000
C - Distributor Road	19.000	83.000	0.000

Vehicle Mix

Heavy Vehicle proportion

From \ To	A - R148 (East)	B - R148 (West)	C - Distributor Road
A - R148 (East)	0	10	0
B - R148 (West)	10	0	0
C - Distributor Road	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
A - R148 (East)	0.17	4.48	0.2	A
B - R148 (West)	0.56	7.80	1.4	A
C - Distributor Road	0.13	4.58	0.1	A

Main Results for each time segment

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

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
A - R148 (East)	123.47	62.22	1076.39	0.115	122.90	0.1	4.135	A
B - R148 (West)	432.89	4.50	1138.17	0.380	430.23	0.7	5.536	A
C - Distributor Road	76.79	400.31	1000.70	0.077	76.46	0.1	3.894	A

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

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
A - R148 (East)	147.43	74.54	1070.09	0.138	147.30	0.2	4.275	A
B - R148 (West)	516.91	5.39	1137.71	0.454	515.98	0.9	6.316	A
C - Distributor Road	91.70	480.08	957.16	0.096	91.61	0.1	4.159	A

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

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
A - R148 (East)	180.57	91.27	1061.54	0.170	180.37	0.2	4.476	A
B - R148 (West)	633.09	6.60	1137.09	0.557	631.29	1.3	7.747	A
C - Distributor Road	112.30	587.38	898.62	0.125	112.16	0.1	4.577	A

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

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
A - R148 (East)	180.57	91.38	1061.48	0.170	180.56	0.2	4.478	A
B - R148 (West)	633.09	6.61	1137.09	0.557	633.04	1.4	7.801	A
C - Distributor Road	112.30	589.00	897.73	0.125	112.30	0.1	4.583	A

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

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
A - R148 (East)	147.43	74.73	1069.99	0.138	147.62	0.2	4.279	A
B - R148 (West)	516.91	5.40	1137.70	0.454	518.67	0.9	6.370	A
C - Distributor Road	91.70	482.58	955.80	0.096	91.84	0.1	4.167	A

Main results: (09:15-09:30)

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
A - R148 (East)	123.47	62.56	1076.22	0.115	123.60	0.1	4.142	A
B - R148 (West)	432.89	4.52	1138.15	0.380	433.87	0.7	5.593	A
C - Distributor Road	76.79	403.68	998.85	0.077	76.88	0.1	3.906	A

Do Something - 2021, PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

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

Junction Network

Junctions

Junction	Name	Junction Type	Junction Delay (s)	Junction LOS
1 - untitled	untitled	Standard Roundabout	4.74	A

Junction Network Options

[same as above]

Arms

Arms

[same as above]

Capacity Options

[same as above]

Roundabout Geometry

[same as above]

Slope / Intercept / Capacity

[same as above]

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Model start time (HH:mm)	Model finish time (HH:mm)	Time segment length (min)
D2	2021	PM	ONE HOUR	17:30	19:00	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - R148 (East)		✓	285.00	100.000
B - R148 (West)		✓	267.00	100.000
C - Distributor Road		✓	62.00	100.000

Origin-Destination Data

Demand (PCU/hr)

From \ To	A - R148 (East)	B - R148 (West)	C - Distributor Road
A - R148 (East)	3.000	268.000	14.000
B - R148 (West)	185.000	1.000	81.000
C - Distributor Road	10.000	52.000	0.000

Vehicle Mix

Heavy Vehicle proportion

From \ To	A - R148 (East)	B - R148 (West)	C - Distributor Road
A - R148 (East)	0	10	0
B - R148 (West)	10	0	0
C - Distributor Road	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
A - R148 (East)	0.29	5.15	0.4	A
B - R148 (West)	0.26	4.59	0.4	A
C - Distributor Road	0.06	3.47	0.1	A

Main Results for each time segment

Main results: (17:30-17:45)

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
A - R148 (East)	214.56	39.76	1087.87	0.197	213.49	0.3	4.496	A
B - R148 (West)	201.01	12.73	1133.96	0.177	200.10	0.2	4.111	A
C - Distributor Road	46.68	141.64	1141.84	0.041	46.51	0.0	3.286	A

Main results: (17:45-18:00)

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
A - R148 (East)	256.21	47.61	1083.86	0.236	255.93	0.3	4.753	A
B - R148 (West)	240.03	15.27	1132.67	0.212	239.80	0.3	4.302	A
C - Distributor Road	55.74	169.75	1126.51	0.049	55.70	0.1	3.361	A

Main results: (18:00-18:15)

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
A - R148 (East)	313.79	58.31	1078.39	0.291	313.35	0.4	5.143	A
B - R148 (West)	293.97	18.69	1130.92	0.260	293.62	0.4	4.586	A
C - Distributor Road	68.26	207.85	1105.72	0.062	68.21	0.1	3.469	A

Main results: (18:15-18:30)

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
A - R148 (East)	313.79	58.35	1078.37	0.291	313.78	0.4	5.148	A
B - R148 (West)	293.97	18.72	1130.91	0.260	293.97	0.4	4.590	A
C - Distributor Road	68.26	208.09	1105.58	0.062	68.26	0.1	3.469	A

Main results: (18:30-18:45)

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
A - R148 (East)	256.21	47.69	1083.82	0.236	256.63	0.3	4.762	A
B - R148 (West)	240.03	15.31	1132.65	0.212	240.37	0.3	4.307	A
C - Distributor Road	55.74	170.15	1126.29	0.049	55.79	0.1	3.362	A

Main results: (18:45-19:00)

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
A - R148 (East)	214.56	39.93	1087.78	0.197	214.84	0.3	4.510	A
B - R148 (West)	201.01	12.82	1133.92	0.177	201.24	0.2	4.120	A
C - Distributor Road	46.68	142.45	1141.40	0.041	46.71	0.0	3.290	A

Do Something - 2026, AM

Data Errors and Warnings
No errors or warnings

Analysis Set Details

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

Junction Network

Junctions

Junction	Name	Junction Type	Junction Delay (s)	Junction LOS
1 - untitled	untitled	Standard Roundabout	7.26	A

Junction Network Options
[same as above]

Arms

Arms
[same as above]

Capacity Options
[same as above]

Roundabout Geometry
[same as above]

Slope / Intercept / Capacity
[same as above]

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Model start time (HH:mm)	Model finish time (HH:mm)	Time segment length (min)
D3	2026	AM	ONE HOUR	08:00	09:30	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - R148 (East)		✓	186.00	100.000
B - R148 (West)		✓	602.00	100.000
C - Distributor Road		✓	269.00	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - R148 (East)	B - R148 (West)	C - Distributor Road
From	A - R148 (East)	0.000	135.000	51.000
	B - R148 (West)	511.000	0.000	91.000
	C - Distributor Road	111.000	158.000	0.000

Vehicle Mix

Heavy Vehicle proportion

		To		
		A - R148 (East)	B - R148 (West)	C - Distributor Road
From	A - R148 (East)	0	10	0
	B - R148 (West)	10	0	0
	C - Distributor Road	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
A - R148 (East)	0.20	4.73	0.3	A
B - R148 (West)	0.60	8.68	1.6	A
C - Distributor Road	0.32	5.84	0.5	A

Main Results for each time segment

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

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
A - R148 (East)	140.03	118.37	1047.69	0.134	139.37	0.2	4.241	A
B - R148 (West)	453.22	38.22	1120.96	0.404	450.31	0.7	5.793	A
C - Distributor Road	202.52	382.24	1010.56	0.200	201.52	0.2	4.444	A

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

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
A - R148 (East)	167.21	141.85	1035.68	0.161	167.05	0.2	4.437	A
B - R148 (West)	541.19	45.80	1117.09	0.484	540.08	1.0	6.745	A
C - Distributor Road	241.83	458.44	968.97	0.250	241.50	0.3	4.946	A

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

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
A - R148 (East)	204.79	173.62	1019.44	0.201	204.54	0.3	4.728	A
B - R148 (West)	662.81	56.08	1111.84	0.596	660.58	1.6	8.600	A
C - Distributor Road	296.17	560.72	913.16	0.324	295.59	0.5	5.825	A

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

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
A - R148 (East)	204.79	173.95	1019.27	0.201	204.79	0.3	4.731	A
B - R148 (West)	662.81	56.15	1111.81	0.596	662.74	1.6	8.682	A
C - Distributor Road	296.17	562.56	912.16	0.325	296.16	0.5	5.843	A

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

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
A - R148 (East)	167.21	142.37	1035.42	0.161	167.45	0.2	4.443	A
B - R148 (West)	541.19	45.91	1117.03	0.484	543.38	1.0	6.825	A
C - Distributor Road	241.83	461.24	967.45	0.250	242.40	0.3	4.968	A

Main results: (09:15-09:30)

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
A - R148 (East)	140.03	119.15	1047.29	0.134	140.20	0.2	4.249	A
B - R148 (West)	453.22	38.44	1120.85	0.404	454.37	0.7	5.865	A
C - Distributor Road	202.52	385.69	1008.67	0.201	202.85	0.3	4.468	A

Do Something - 2026, PM

Data Errors and Warnings
No errors or warnings

Analysis Set Details

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

Junction Network

Junctions

Junction	Name	Junction Type	Junction Delay (s)	Junction LOS
1 - untitled	untitled	Standard Roundabout	4.95	A

Junction Network Options
[same as above]

Arms

Arms
[same as above]

Capacity Options
[same as above]

Roundabout Geometry
[same as above]

Slope / Intercept / Capacity
[same as above]

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Model start time (HH:mm)	Model finish time (HH:mm)	Time segment length (min)
D4	2026	PM	ONE HOUR	17:30	19:00	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - R148 (East)		✓	321.00	100.000
B - R148 (West)		✓	306.00	100.000
C - Distributor Road		✓	207.00	100.000

Origin-Destination Data

Demand (PCU/hr)

From \ To	A - R148 (East)	B - R148 (West)	C - Distributor Road
A - R148 (East)	3.000	226.000	92.000
B - R148 (West)	130.000	1.000	175.000
C - Distributor Road	98.000	109.000	0.000

Vehicle Mix

Heavy Vehicle proportion

From \ To	A - R148 (East)	B - R148 (West)	C - Distributor Road
A - R148 (East)	0	10	0
B - R148 (West)	10	0	0
C - Distributor Road	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
A - R148 (East)	0.34	5.55	0.5	A
B - R148 (West)	0.31	4.99	0.5	A
C - Distributor Road	0.20	3.95	0.2	A

Main Results for each time segment

Main results: (17:30-17:45)

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
A - R148 (East)	241.67	82.49	1066.03	0.227	240.42	0.3	4.652	A
B - R148 (West)	230.37	71.15	1104.15	0.209	229.28	0.3	4.275	A
C - Distributor Road	155.84	100.40	1164.34	0.134	155.23	0.2	3.565	A

Main results: (17:45-18:00)

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
A - R148 (East)	288.57	98.81	1057.69	0.273	288.23	0.4	4.996	A
B - R148 (West)	275.09	85.30	1096.93	0.251	274.79	0.3	4.554	A
C - Distributor Road	186.09	120.33	1153.47	0.161	185.94	0.2	3.720	A

Main results: (18:00-18:15)

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
A - R148 (East)	353.43	120.99	1046.35	0.338	352.86	0.5	5.541	A
B - R148 (West)	336.91	104.43	1087.17	0.310	336.44	0.5	4.984	A
C - Distributor Road	227.91	147.33	1138.74	0.200	227.68	0.2	3.950	A

Main results: (18:15-18:30)

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
A - R148 (East)	353.43	121.11	1046.29	0.338	353.42	0.5	5.550	A
B - R148 (West)	336.91	104.59	1087.09	0.310	336.90	0.5	4.991	A
C - Distributor Road	227.91	147.53	1138.63	0.200	227.91	0.2	3.952	A

Main results: (18:30-18:45)

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
A - R148 (East)	288.57	99.01	1057.58	0.273	289.13	0.4	5.008	A
B - R148 (West)	275.09	85.57	1096.80	0.251	275.55	0.4	4.563	A
C - Distributor Road	186.09	120.66	1153.29	0.161	186.31	0.2	3.725	A

Main results: (18:45-19:00)

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
A - R148 (East)	241.67	82.89	1065.82	0.227	242.02	0.3	4.672	A
B - R148 (West)	230.37	71.63	1103.91	0.209	230.67	0.3	4.289	A
C - Distributor Road	155.84	101.01	1164.01	0.134	155.99	0.2	3.573	A

Do Something - 2036, AM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

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

Junction Network

Junctions

Junction	Name	Junction Type	Junction Delay (s)	Junction LOS
1 - untitled	untitled	Standard Roundabout	8.50	A

Junction Network Options

[same as above]

Arms

Arms

[same as above]

Capacity Options

[same as above]

Roundabout Geometry

[same as above]

Slope / Intercept / Capacity

[same as above]

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Model start time (HH:mm)	Model finish time (HH:mm)	Time segment length (min)
D5	2036	AM	ONE HOUR	08:00	09:30	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - R148 (East)		✓	204.00	100.000
B - R148 (West)		✓	671.00	100.000
C - Distributor Road		✓	261.00	100.000

Origin-Destination Data

Demand (PCU/hr)

From \ To	A - R148 (East)	B - R148 (West)	C - Distributor Road
A - R148 (East)	0.000	149.000	55.000
B - R148 (West)	580.000	0.000	91.000
C - Distributor Road	103.000	158.000	0.000

Vehicle Mix

Heavy Vehicle proportion

From \ To	A - R148 (East)	B - R148 (West)	C - Distributor Road
A - R148 (East)	0	10	0
B - R148 (West)	10	0	0
C - Distributor Road	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
A - R148 (East)	0.22	4.85	0.3	A
B - R148 (West)	0.67	10.52	2.1	B
C - Distributor Road	0.33	6.17	0.5	A

Main Results for each time segment

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

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
A - R148 (East)	153.58	118.35	1047.70	0.147	152.85	0.2	4.305	A
B - R148 (West)	505.16	41.21	1119.43	0.451	501.64	0.9	6.290	A
C - Distributor Road	196.49	433.61	982.52	0.200	195.50	0.2	4.568	A

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

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
A - R148 (East)	183.39	141.84	1035.69	0.177	183.21	0.2	4.522	A
B - R148 (West)	603.22	49.39	1115.26	0.541	601.71	1.3	7.584	A
C - Distributor Road	234.63	520.11	935.32	0.251	234.30	0.3	5.133	A

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

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
A - R148 (East)	224.61	173.59	1019.46	0.220	224.32	0.3	4.848	A
B - R148 (West)	738.78	60.48	1109.60	0.666	735.44	2.1	10.348	B
C - Distributor Road	287.37	635.70	872.25	0.329	286.75	0.5	6.142	A

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

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
A - R148 (East)	224.61	173.95	1019.27	0.220	224.60	0.3	4.851	A
B - R148 (West)	738.78	60.55	1109.56	0.666	738.65	2.1	10.522	B
C - Distributor Road	287.37	638.48	870.73	0.330	287.35	0.5	6.170	A

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

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
A - R148 (East)	183.39	142.41	1035.40	0.177	183.67	0.2	4.528	A
B - R148 (West)	603.22	49.52	1115.19	0.541	606.51	1.3	7.729	A
C - Distributor Road	234.63	524.26	933.06	0.251	235.24	0.3	5.162	A

Main results: (09:15-09:30)

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
A - R148 (East)	153.58	119.16	1047.28	0.147	153.77	0.2	4.317	A
B - R148 (West)	505.16	41.46	1119.31	0.451	506.75	0.9	6.396	A
C - Distributor Road	196.49	438.03	980.11	0.200	196.84	0.3	4.599	A

Do Something - 2036, PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

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

Junction Network

Junctions

Junction	Name	Junction Type	Junction Delay (s)	Junction LOS
1 - untitled	untitled	Standard Roundabout	5.20	A

Junction Network Options

[same as above]

Arms

Arms

[same as above]

Capacity Options

[same as above]

Roundabout Geometry

[same as above]

Slope / Intercept / Capacity

[same as above]

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Model start time (HH:mm)	Model finish time (HH:mm)	Time segment length (min)
D6	2036	PM	ONE HOUR	17:30	19:00	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - R148 (East)		✓	353.00	100.000
B - R148 (West)		✓	331.00	100.000
C - Distributor Road		✓	202.00	100.000

Origin-Destination Data

Demand (PCU/hr)

From \ To	A - R148 (East)	B - R148 (West)	C - Distributor Road
A - R148 (East)	4.000	250.000	99.000
B - R148 (West)	155.000	1.000	175.000
C - Distributor Road	93.000	109.000	0.000

Vehicle Mix

Heavy Vehicle proportion

From \ To	A - R148 (East)	B - R148 (West)	C - Distributor Road
A - R148 (East)	0	10	0
B - R148 (West)	10	0	0
C - Distributor Road	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
A - R148 (East)	0.37	5.85	0.6	A
B - R148 (West)	0.34	5.23	0.5	A
C - Distributor Road	0.20	4.00	0.2	A

Main Results for each time segment

Main results: (17:30-17:45)

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
A - R148 (East)	265.76	82.48	1066.03	0.249	264.35	0.4	4.792	A
B - R148 (West)	249.19	77.13	1101.10	0.226	247.98	0.3	4.401	A
C - Distributor Road	152.08	119.87	1153.72	0.132	151.47	0.2	3.590	A

Main results: (17:45-18:00)

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
A - R148 (East)	317.34	98.81	1057.69	0.300	316.93	0.5	5.192	A
B - R148 (West)	297.56	92.48	1093.27	0.272	297.23	0.4	4.721	A
C - Distributor Road	181.59	143.67	1140.73	0.159	181.44	0.2	3.752	A

Main results: (18:00-18:15)

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
A - R148 (East)	388.66	120.99	1046.35	0.371	387.98	0.6	5.838	A
B - R148 (West)	364.44	113.21	1082.70	0.337	363.89	0.5	5.231	A
C - Distributor Road	222.41	175.90	1123.15	0.198	222.18	0.2	3.994	A

Main results: (18:15-18:30)

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
A - R148 (East)	388.66	121.11	1046.29	0.371	388.65	0.6	5.850	A
B - R148 (West)	364.44	113.40	1082.60	0.337	364.43	0.5	5.235	A
C - Distributor Road	222.41	176.16	1123.01	0.198	222.40	0.2	3.997	A

Main results: (18:30-18:45)

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
A - R148 (East)	317.34	99.01	1057.58	0.300	318.01	0.5	5.208	A
B - R148 (West)	297.56	92.79	1093.11	0.272	298.10	0.4	4.732	A
C - Distributor Road	181.59	144.10	1140.50	0.159	181.82	0.2	3.758	A

Main results: (18:45-19:00)

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
A - R148 (East)	265.76	82.90	1065.82	0.249	266.17	0.4	4.815	A
B - R148 (West)	249.19	77.67	1100.83	0.226	249.54	0.3	4.418	A
C - Distributor Road	152.08	120.62	1153.31	0.132	152.23	0.2	3.595	A