



GLADMAN DEVELOPMENTS LTD

**PROPOSED RESIDENTIAL DEVELOPMENT
LAND OFF ARUNDEL ROAD
ANGMERING**

Transport Assessment

August 2019

Croft Transport Solutions

REPORT CONTROL

Document: Transport Assessment

Project: Proposed Residential Development, Land off Arundel Road, Angmering

Client: Gladman Developments Ltd

Job Number: 2020

File Origin: Z:\projects\2020 Arundel Road, Angmering\Docs\Reports\2020TA.8.docx

Document Checking:

Primary Author	MR	Initialled:
-----------------------	----	--------------------

Contributor	SM/GM	Initialled:
--------------------	-------	--------------------

Review By	PJW	Initialled:
------------------	-----	--------------------

Issue	Date	Status	Checked for Issue
1	06-03-18	Final	
2	09-07-18	Revised following comments from WSCC & HE	
3	12-08-18	Revised following further comments from WSCC & HE	

Contents

1	INTRODUCTION	1
1.1	Introduction	1
1.2	Scope of Report	2
1.3	Structure of Report	3
2	DEVELOPMENT SITE.....	5
2.1	Existing Site Information	5
2.2	Existing Highway Network	6
2.3	Baseline Transport Data	7
3	DEVELOPMENT SITE AND PROPOSALS.....	8
3.1	Proposed Development	8
3.2	Vehicular Access	8
3.3	Servicing	9
3.4	Pedestrian and Cycle Access.....	9
4	TRANSPORT POLICY AND GUIDANCE.....	11
4.1	Preamble	11
4.2	National Policy	11
4.3	Planning Practice Guidance.....	17
4.4	Local Planning Policy.....	18
4.5	Policy and Guidance Summary	24
5	ACCESSIBILITY BY NON CAR MODES	25
5.1	Introduction	25
5.2	Accessibility on Foot	25
5.3	Access by Cycle	30
5.4	Access by Bus	32
5.5	Accessibility by Rail.....	33
5.6	Accessibility Summary	33
6	TRAFFIC IMPACT ANALYSIS	35
6.1	Introduction	35
6.2	Assessment Criteria	35
6.3	Traffic Survey Data	35
6.4	Growthed Traffic Flows.....	36
6.5	Committed Development.....	37
6.6	Base Flows.....	39
6.7	Trip Distribution	40
6.8	Proposed Development	40
6.9	With Development Flows.....	44
6.12	Traffic Impact Summary.....	59

7	CAPACITY ASSESSMENTS – HIGHWAYS ENGLAND.....	61
7.1	Introduction	61
7.2	Capacity Assessments for the Strategic Highway Network	71
7.3	Highways England Summary	74
8	ACCIDENT DATA	76
8.1	Introduction	76
8.2	Accident Review	76
8.3	Accident Summary.....	77
9	SMARTER TRAVEL CHOICES VIA TRAVEL PLANS	78
9.1	Introduction	78
9.2	Travel Planning Guidance.....	78
9.3	Residential Travel Plan.....	80
10	ROAD SAFETY AUDIT.....	81
10.1	Introduction	81
10.2	Road Safety Audit	81
10.3	Road Safety Audit	81
10.4	Summary	83
11	CONCLUSIONS	84

Contents

FIGURES	1 to 26
	A to J

PLANS

Plan 1	Site Location
Plan 2	Proposed Residential Access
Plan 3	Proposed Commercial Access
Plan 4	Swept Path Analysis
Plan 5	Proposed Pedestrian Crossing Upgrade on Arundel Road
Plan 6	Proposed Safety Improvements to A27/Arundel Road
Plan 7	800m & 2km Pedestrian Catchment Plan

APPENDICES

Appendix 1	WSCC & HE Correspondence
Appendix 2	Highways Note v3
Appendix 3	Traffic Survey Data
Appendix 4	TRICS Output for Residential Use & Commercial Use
Appendix 5	PICADY Output for Arundel Road/Site Access
Appendix 6	LINSIG Output for Arundel Road/Water Lane/Station Road/High Street
Appendix 7	PICADY & ARCADY Output for Water Lane/A280 (Existing & Improved)
Appendix 8	ARCADY Output for A529 New Road/Station Rd/Roundstone Bypass Rd/B2140
Appendix 9	Roundstone Bypass Road/A280/Chips Away/A529/B2140 Old Worthing Road
Appendix 10	ARCADY Output for A27/Southern Roundabout (Existing & Improved)
Appendix 11	ARCADY Output for A27/Northern Roundabout (Existing & Proposed)
Appendix 12	PICADY Output for A27/Arundel Road
Appendix 13	Personal Injury Accident Data
Appendix 14	Stage 1 Road Safety Audit & Designers Response (Residential Access)
Appendix 15	Stage 1 Road Safety Audit & Designers Response (Commercial Access)

1 INTRODUCTION

1.1 Introduction

1.1.1 Croft have been instructed by Gladman Developments Ltd (Gladman) to advise on the traffic and transportation issues relating to a forthcoming planning application on land off Arundel Road, Angmering.

1.1.2 A previous planning application (Ref no. A/36/18/OUT) was submitted to the Council in March 2018 and referred to *“Outline planning application with some matters reserved for the erection of up to 200 dwellings with access, public open space, landscaping and sustainable drainage system (SuDS) with vehicular access point from Arundel Road, one full-sized adult football pitch and the demolition of industrial units and one residential dwelling.”*

1.1.3 The application was subsequently refused in September 2018. However, the applicant continued to work in the background with the Parish Council and has met with the District Council with a view to getting the site allocated in the emerging Neighbourhood Plan. Subsequently, the scheme has undergone numerous changes which can be described as follows;

“Outline planning application for the demolition of industrial units and one bungalow and the erection of up to 160 dwellings with public open space, landscaping and sustainable drainage systems (SuDS) and vehicular access point from Arundel Road; together with up to 557 square metres (6,000 square feet) of B1/B2 units with associated parking provision and vehicular access point from Arundel Road; and land made available for expansion of the current sports pitch provision to form a sports-hub. All matters reserved except for means of access.”

1.1.4 A Travel Plan was also submitted with the original application, but has since been updated to incorporate comments received from West Sussex County Council’s (WSCC) Travel Plan Officer. It has been prepared to ensure that travel to and from the site by sustainable modes is maximised.

1.2 West Sussex & Highways England Comments

- 1.2.1 Following submission of the original TA various comments were received from the highways officer at WSCC and Highways England (HE) who maintain the A27, located to the north of the site. The TA was revised accordingly and further comments from WSCC and HE were received, requesting additional information and clarification on certain matters.
- 1.2.2 A copy of all relevant correspondence is contained within **Appendix 1**, along with additional comments from the sustainable travel officer in regard to the submitted Travel Plan Framework.
- 1.2.3 In order to address the points raised, a Highways Note was prepared to respond to all previous comments received in relation to the original application (200 units). In the meantime, however the application was refused and so the Note was never formally submitted. To that end, the Highways Note (v3) is included at **Appendix 2**. It addresses each of the comments made and includes the Walking, Cycling and Horse-Riding Assessment (WCHAR) at the A27/Arundel Road junction, as requested by HE.

1.3 Scope of Report

- 1.3.1 This Transport Assessment (TA) has been prepared to consider the development in transport and highways terms in order to provide the necessary reassurance that the proposals can be accommodated by the local transport network.
- 1.3.2 The scope of this Transport Assessment conforms to the guidance provided in the Ministry of Housing, Communities and Local Government (MHCLG) Planning Practice Guidance 'Transport Evidence Bases in Plan Making'.
- 1.3.3 The guidance covers the following issues;
- Reducing the need to travel, especially by car – ensure at the outset, that thought is given to reducing the need to travel; consider the types of uses (or mix of uses) and the scale of development in order to promote multipurpose or linked trips;

- Sustainable accessibility – promote accessibility by all modes of travel, in particular public transport, cycling and walking; assess the likely travel behaviour or travel pattern to and from the proposed site; and develop appropriate measures to influence travel behaviour;
- Dealing with residual trips – provide accurate quantitative and qualitative analyses of the predicted impacts of residual trips from the proposed development and ensure that suitable measures are proposed to manage these impacts; and
- Mitigation measures – ensure as much as possible that the proposed mitigation measures avoid unnecessary physical improvements to highways and promote innovative and sustainable transport solutions.

1.3.4 As a Travel Plan has been prepared, reference has also been made to guidance presented in the DfT document entitled ‘Good Practice Guidelines: Delivering Travel Plans through the Planning Process’ which was published in August 2009.

1.4 Structure of Report

1.4.1 Following this introduction, Section 2 of the Report details the existing site conditions and describes the adjacent highway, while Section 3 details the development proposals including access.

1.4.2 Section 4 considers relevant local and national policy and Section 5 considers the accessibility of the site by non-car modes, including walking, cycling and public transport.

1.4.3 Section 6 considers the trip generation and traffic impact assessment of the local highway network, while Section 7 considers the impact of the proposals on the strategic highway network and addresses the issues raised by Highways England (HE).

1.4.4 The review of road safety and personal injury accidents in the vicinity of the site over the last 3 years is detailed in Section 8.

- 1.4.5 Section 9 contains details of the Travel Plan, although the actual document will be submitted as a separate document, within the application package. Section 10 provides an overview of the Road Safety Audits for the proposed access points and summarises the findings.
- 1.4.6 Section 11 draws together the Report's findings and conclusions.

2 DEVELOPMENT SITE

2.1 Existing Site Information

2.1.1 The application site extends to approximately 9.07 hectares (22 acres) and is located on the northern edge of the village of Angmering, approximately 28 kilometres to the east of Chichester and around 10 kilometres to the west of Worthing.

2.1.2 The location of the site in relation to the surrounding area is presented in **Plan 1**, while the approximate red line boundary is shown in **Figure 2.1** below.



Figure 2.1 – Approximate Red Line Boundary

2.1.3 Angmering is a large village and civil parish between Littlehampton and Worthing in West Sussex just to the south of the south Downs National Park. The site comprises the former Angmering Auto Services and a Volkswagen and Audi recycled parts centre and undeveloped land. The site is irregular in shape with two short frontages with Arundel Road on its eastern side and undeveloped land bounding the site on all other sides.

2.1.4 The nearest local shop is The Co-operative foodstore, which lies within easy walking distance of the site, along with a Lloyds Pharmacy outlet, which are approximately 1,220 metres and 1,330 metres away respectively. The nearest school to the site is St Margaret's Church of England Primary School, which is only 350 metres away, located to the south of the site.

2.1.5 The accessibility of the site in relation to local services will be detailed further in Section 5.

2.2 Existing Highway Network

2.2.1 In the vicinity of the site, the B2225 Arundel Road is approximately 7.3 metres wide with a footway along its western side. It benefits from street lighting and is subject to a 30mph speed limit.

2.2.2 To the north Arundel Road provides direct access onto the A27, which is a two-lane dual carriageway. It runs in a broadly east-west alignment and links the site to Worthing, Shoreham and Lancing to the east and Chichester and Portsmouth to the west.

2.2.3 To the south of the site, Arundel Road extends for approximately 1 kilometre before forming a priority-controlled junction with Water Lane/station Road.

2.2.4 From the junction, Water Lane extends in a north-easterly direction and forms a priority-controlled junction with the A280, although movements from Water Lane and are restricted to left turns only.

2.2.5 To the south of the junction, Station Road continues in a south-westerly direction for approximately 3 kilometres before joining the A259 New Road/Roundstone By-Pass Road at a roundabout junction, with the A2140 forming the southern arm.

2.2.6 Approximately 1.5 kilometres to the east, Roundstone By-Pass Road forms another roundabout junction with the A280, the A259 and the B2140 Old Worthing Road.

2.2.7 The A529 provides another key route in the area, running in a broadly east-west alignment between Worthing to the east and Flansham and Shripney to the west.

2.3 Baseline Transport Data

- 2.3.1 The site has previously operated as Angmering Auto Services and a Volkswagen and Audi recycled parts centre and so clearly has generated significant traffic movements onto the local highway network.
- 2.3.2 This TA however does not take account of any previously generated traffic to and from the site and so can be considered to provide a particularly robust assessment of impact.

3 DEVELOPMENT SITE AND PROPOSALS

3.1 Proposed Development

- 3.1.1 The applicant is seeking outline planning consent for the demolition of industrial units and one bungalow and the erection of up to 160 dwellings with public open space, landscaping and sustainable drainage systems (SuDS) and vehicular access point from Arundel Road; together with up to 557 square metres (6,000 square feet) of B1/B2 units with associated parking provision and vehicular access point from Arundel Road; and land made available for expansion of the current sports pitch provision to form a sports-hub. All matters reserved except for means of access.”
- 3.1.2 A development framework is included within other documents submitted as part of the planning application.
- 3.1.3 It is envisaged that the sports-hub that will be facilitated through the development will form a focal point to the development and assist in promoting a healthy and active lifestyle for new and existing residents.

3.2 Vehicular Access

- 3.2.1 Vehicular access to the residential part of the site will be taken directly from Arundel Road via a new priority controlled junction. The commercial element will be served by the existing point of access, also off Arundel Road.
- 3.2.2 The new site access provides a 5.5 metre carriageway with 2 metre footways on both sides continuing through the site and corner radii of 6 metres. While not a requirement in capacity terms, the junction layout will incorporate a right turn harbourage of 3 metres in width for right turning traffic, with through lanes of around 3 metres. The proposed residential site access is shown in **Plan 2**.
- 3.2.3 The access plan shows visibility splays of 2.4 metres by 59 metres can be achieved in both directions, which are commensurate with traffic speeds of 37mph, as set out in Manual for Streets.

- 3.2.4 The design and criteria of the proposed site access conforms with current guidance for priority-controlled junctions (TD42/95 - Geometric Design of Major/Minor Priority Junctions) and so on that basis, it is considered that the proposed vehicular access would be deemed acceptable by the local highway authority.
- 3.2.5 The existing access for the commercial element is located approximately 150 metres to the south as shown in **Plan 3**. This access will be modified so it can cater for pedestrians, by providing 2 metre footways on both sides, that would simply tie into existing footway provision located on the western side of Arundel Road.
- 3.2.6 For the purpose of the Road Safety Audits a series of swept paths have been undertaken and are presented in **Plan 4**. This will be discussed further in Section 10 of this report.

3.3 Servicing

- 3.3.1 The internal layout will be designed to facilitate waste collections and allow refuse vehicles to enter the site, turn around and exit in a forward gear. This will ensure there is no detrimental impact to the public highway and confirm that the site can be serviced without giving rise to any road safety issues.

3.4 Pedestrian and Cycle Access

- 3.4.1 The main point of pedestrian and cycle access will be from the site access on Arundel Road and the commercial access, located further to the south.
- 3.4.2 However, to assist permeability, potential exists to provide further links around the periphery of the site including in the north and south west corners of the site, with a further link along the southern boundary connecting to the Angmering Sports and Recreation Ground and the wider community of Angmering. To enhance the existing pedestrian environment, it is also proposed to upgrade the existing uncontrolled crossing adjacent to St Margaret's C of E Primary School to a Puffin style crossing, which will have safety benefits, not only to residents at the development, but the wider community as well.

- 3.4.3 The proposed crossing upgrade on Arundel Road is presented in **Plan 5**. As there is already an informal crossing point (dropped kerbs and tactile paving) it is considered that the location of the crossing would have already been deemed acceptable by the local highway authority, although discussions may need to take place further along the planning process to identify the actual type of crossing required.
- 3.4.4 In any event, the applicant has agreed to fund the new crossing to improve overall road safety in the area and provide a safe walking route to the nearest school and local shops and amenities. Such provision will benefit not only residents at the new development, but the wider community as well.

4 TRANSPORT POLICY AND GUIDANCE

4.1 Preamble

- 4.1.1 The objectives for the development have been defined taking into account national and local policies that seek to safeguard the environment and resources and to put into practice the principles of sustainable development.
- 4.1.2 The national policy presented in this document focuses on the National Planning Policy Framework (NPPF) formerly known as 'The Framework' which was published in March 2012 and updated in February 2019 and sets out the Government's planning policies for achieving sustainable development. Reference has also been made to the Planning Practice Guidance that was produced to supplement the NPPF.
- 4.1.3 Consideration has also been given to the on-line Planning Practice Guidance, as well local planning policy, including the West Sussex Transport Plan 2011-2026 (LTP3) and the Arun District Council's Emerging Local Plan 2011 to 2031.
- 4.1.4 This section will outline the pertinent policies relating to the proposed development.

4.2 National Policy

Nation Planning Policy Framework

- 4.2.1 The Ministry of Housing, Communities and Local Government (MHCLG) updated its National Planning Policy Framework (NPPF) in February 2019. The NPPF replaces previous 2018 Planning Policy Guidance (PPG).
- 4.2.2 The NPPF continues to provide guidance on the same key themes for Local Authorities when preparing Development Plans and associated Policies, with a presumption in favour of sustainable development unless any adverse impacts of doing so would significantly and demonstrably outweigh the benefits, when assessed against the policies in the framework taken as a whole.

4.2.3 However, the three key objectives in the updated NPPF include:

- *to help build a strong, responsive and competitive economy, by ensuring that sufficient land of the right types is available in the right places and at the right time to support growth, innovation and improved productivity; and by identifying and coordinating the provision of infrastructure;*
- *to support strong, vibrant and healthy communities, by ensuring that a sufficient number and range of homes can be provided to meet the needs of present and future generations; and by fostering a well-designed and safe built environment, with accessible services and open spaces that reflect current and future needs and support communities' health, social and cultural well-being;*
- *to contribute to protecting and enhancing our natural, built and historic environment; including making effective use of land.*

4.2.4 The revised NPPF provides more guidance on how Local Authorities should form Development Plans, policies and the decision-making process. Greater emphasis is placed on early consultation and the addressing of location, provision and design issues during the planning stages in order to ensure high-quality sustainable developments are brought forward, rather than applying numerous planning conditions to planning decisions.

4.2.5 Local authorities are expected to grant permission, for proposals that accord with an up-to-date development plan without delay.

4.2.6 Where there are no relevant development plan policies, or the policies which are most important for determining the application are out-of-date, granting permission unless:

- i. the application of policies in this Framework that protect areas or assets of particular importance provides a clear reason for refusing the development proposed; or
- ii. any adverse impacts of doing so would significantly and demonstrably outweigh the benefits, when assessed against the policies in this Framework taken as a whole.

4.2.7 At the heart of NPPF is ‘a presumption in favour of sustainable development’ (Paragraph 11).

4.2.8 With regard to sustainable transport the NPPF states in paragraph 103 that:

‘Significant development should be focused on locations which are or can be made sustainable, through limiting the need to travel and offering a genuine choice of transport modes. This can help to reduce congestion and emissions, and improve air quality and public health. However, opportunities to maximise sustainable transport solutions will vary between urban and rural areas, and this should be taken into account in both plan-making and decision-making.’

4.2.9 The NPPF goes on to consider parking provision, stating in paragraph 106 ‘Maximum parking standards for residential and non-residential development should only be set where there is a clear and compelling justification that they are necessary for managing the local road network, or for optimising the density of development in city and town centres and other locations that are well served by public transport.

4.2.10 In determining planning proposals, paragraph 108 of the NPPF states:

In assessing sites that may be allocated for development in plans, or specific applications for development, it should be ensured that:

- a) appropriate opportunities to promote sustainable transport modes can be – or have been – taken up, given the type of development and its location;*
- b) safe and suitable access to the site can be achieved for all users; and*
- c) any significant impacts from the development on the transport network (in terms of capacity and congestion), or on highway safety, can be cost effectively mitigated to an acceptable degree.*

4.2.11 The NPPF states in paragraph 34:

'Plans should set out the contributions expected from development. This should include setting out the levels and types of affordable housing provision required, along with other infrastructure (such as that needed for education, health, transport, flood and water management, green and digital infrastructure). Such policies should not undermine the deliverability of the plan.'

4.2.12 Paragraph 59 goes on to state:

'To support the Government's objective of significantly boosting the supply of homes, it is important that a sufficient amount and variety of land can come forward where it is needed, that the needs of groups with specific housing requirements are addressed and that land with permission is developed without unnecessary delay.'

4.2.13 Paragraph 109 goes on to state:

Development should only be prevented or refused on highways grounds if there would be an unacceptable impact on highway safety, or the residual cumulative impacts on the road network would be severe.

4.2.14 Developments are required to provide and promote pedestrian and cyclist movements as a priority, facilitate access to public transport services and maximise the catchment areas for bus and other public transport services.

4.2.15 The location of the site is therefore compliant with the above, being located within walking distance of several local facilities and amenities, as well as being accessible by local public transport services and so accords with the aims and objectives of the Framework.

4.2.16 Therefore, developments should be located and designed where practical to;

- a) give priority first to pedestrian and cycle movements, both within the scheme and with neighbouring areas; and second – so far as possible – to facilitating access to high quality public transport, with layouts that maximise the catchment area for bus or other public transport services, and appropriate facilities that encourage public transport use;*
- b) address the needs of people with disabilities and reduced mobility in relation to all modes of transport;*
- c) create places that are safe, secure and attractive – which minimise the scope for conflicts between pedestrians, cyclists and vehicles, avoid unnecessary street clutter, and respond to local character and design standards;*
- d) allow for the efficient delivery of goods, and access by service and emergency vehicles; and*
- e) be designed to enable charging of plug-in and other ultra-low emission vehicles in safe, accessible and convenient locations.*

4.2.17 The location of the proposed development close to a number of local amenities (as described in Section 5 of this TA), in accordance with the guidance contained within paragraph 20, which states that:

‘Strategic policies should set out an overall strategy for the pattern, scale and quality of development, and make sufficient provision for:

- a) housing (including affordable housing), employment, retail, leisure and other commercial development;*
- b) infrastructure for transport, telecommunications, security, waste management, water supply, wastewater, flood risk and coastal change management, and the provision of minerals and energy (including heat);*
- c) community facilities (such as health, education and cultural infrastructure); and*

d) conservation and enhancement of the natural, built and historic environment, including landscapes and green infrastructure, and planning measures to address climate change mitigation and adaptation’.

4.2.18 It is therefore concluded that as the development is located a short distance from a range of local amenities, is accessible by public transport and has been designed in accordance with the guidance contained within Manual for Streets, it is considered that the proposed development accords with the aims and objectives of the Framework.

4.2.19 Paragraph 111 of the NPPF states:

‘All developments that will generate significant amounts of movement should be required to provide a travel plan, and the application should be supported by a transport statement or transport assessment so that the likely impacts of the proposal can be assessed’.

4.2.20 In order to satisfy this policy requirement, this TA is accompanied by a Travel Plan Framework which provides commitment to produce a full Travel Plan upon completion of the development. The Travel Plan has been submitted separately as part of the application package.

4.2.21 Furthermore, the report also demonstrates that the proposals will not have a material impact on the adjoining highway network.

4.2.22 It is therefore clear from the NPPF that development:

- Should be assessed with a presumption in favour of approval.
- Should be capable of being accessed satisfactorily with safe and suitable access provided for all.
- Should be sustainable, with preference given to accessibility by sustainable modes of transport.

4.2.23 The development therefore complies with the above criteria and the sites accessibility credential will be improved as part of the proposals.

4.3 Planning Practice Guidance

- 4.3.1 The Government has produced the Planning Practice Guidance to supplement the NPPF. Within the guidance, there is specific section clarifying the over-arching principles on Travel Plans, Transport Assessments and Transport Statements. There are also sections advising further on each of the three documents discussed.
- 4.3.2 The guidance on Transport Assessments and Statements reiterates the circumstances in which either document would usually be required. It is clear that a development of the size and nature of this development requires a full Transport Assessment (TA).
- 4.3.3 It also clarifies the process for establishing a scope for the assessment, and what the document should contain. The guidance has been considered in the preparation of this TA.
- 4.3.4 The guidance on Travel Plans reinforces the requirement for a Travel Plan, the scope of the document, and need for monitoring to continue the strategy into the future. The guidance has been considered in the production of the accompanying Travel Plan.
- 4.3.5 The theme of sustainable development runs throughout Planning Practice Guidance, with the detailed elements regarding transport being focussed in the following sections:
- Transport evidence bases in plan making and decision taking; and
 - Travel plans, transport assessments and statements in decision-taking.
- 4.3.6 Both sections of the Guidance provide significant amounts of detail on the information types and sources that are appropriate for helping Local Planning Authorities to take forward their Local Plan with an appropriate evidence base. The Guidance is also a useful reference for assessing schemes such as the development which this report accompanies.
- 4.3.7 The core components of the requirements for assessment, as set out in the Guidance, can be summarised as:

“The key issues, which should be considered in developing a transport evidence base, include the need to:

- assess the existing situation and likely generation of trips over time by all modes and the impact on the locality in economic, social and environmental terms*
- assess the opportunities to support a pattern of development that, where reasonable to do so, facilitates the use of sustainable modes of transport*
- highlight and promote opportunities to reduce the need for travel where appropriate*
- identify opportunities to prioritise the use of alternative modes in both existing and new development locations if appropriate*
- consider the cumulative impacts of existing and proposed development on transport networks*
- assess the quality and capacity of transport infrastructure and its ability to meet forecast demands*
- identify the short, medium and long-term transport proposals across all modes.”*

4.3.8 The principles set out in Planning Practice Guidance are consistent with the approach undertaken in the production of this Transport Assessment.

4.4 Local Planning Policy

West Sussex Transport Plan 2011-2026 (LTP3)

4.4.1 The LTP3 sets out the aspirations of the Highway Authority. The priorities and main objectives are stated as follows: *‘Our highest priorities will tackle the key issues we face and bring about radical improvements to quality of life for the people and businesses in the County.*

Our highest priorities are:

1. *Improvements to the A27 trunk road and complementary public transport improvements to the current bottlenecks at Chichester, Arundel and Worthing (not currently programmed) to increase capacity, improve reliability and safety and increase the competitiveness of local businesses and attract investment.*
2. *Programmed improvements to the A23 trunk road at the current bottleneck between Handcross and Warninglid to increase capacity and improve the safety record.*
3. *Maintaining the highway network.*
4. *Whilst major schemes are a high priority for us, they are likely to take many years to deliver. It remains important that alongside these priorities we continue to work with our community to improve the safety record on our local roads, increase usage of healthy and sustainable modes of transport, and provide access to services.'*

'Our main objective is to improve quality of life for the people of West Sussex by helping to provide:

- *a high-quality transport network that promotes a competitive and prosperous economy in all parts of the County* ~~and~~ *a resilient transport network that complements the built and natural environment whilst reducing carbon emissions over time*
- *access to services, employment and housing*
- *a transport network that feels, and is, safer and healthier to use'*

4.4.2 There is no specific policy or proposal for Angmering or the key roads in the vicinity of the site. The A259 (from A29 Bognor Regis to Angmering bypass) and A280 Angmering Bypass are identified as part of the County's Strategic Road Network.

4.4.3 The implementation plan for Arun District includes the following aspirations:

- *'All new development should be designed to promote 'local living', for example shops, jobs and homes all being within easy reach of each other.'*

- *'All new development should provide enough secure cycle parking to meet the needs of the development and be within close proximity to public transport.'*
- *'Parking provision at new residential development should provide enough spaces to accommodate the expected number of vehicles at the site or provide measures such as car clubs which reduce the number of vehicles to match the space available.'*
- *'Developing opportunities through new development to improve the access along the A259 including improvements that will achieve better bus journey times.'*

West Sussex Walking and Cycling Strategy (2016 to 2026)

- 4.4.4 WSCC has developed a Walking and Cycling Strategy to outline the design and safety principle for walking and cycling, recognising the different needs of users, and identifies and prioritises potential infrastructure improvements for the County.
- 4.4.5 In relation to Angmering, the strategy identifies potential improvements to village roads including Arundel Road (39), Station Road (40) and Honey Lane/Rowan Road (178) to deliver improved north-south connections. The strategy provides no detail on what is expected on these routes, but potential exists for the proposed development to assist (at least in part) to delivering the link along Arundel Road, or potentially through the site. This will be discussed with WSCC's highways department further along the planning process.

Arun District Council Emerging Local Plan 2011 – 20231

- 4.4.6 Arun DC has prepared a draft local plan which identifies the vision for Arun district to 2031. The Local Plan is subject to examination with adoption expected in 2018.
- 4.4.7 The draft Local Plan identifies a series of draft policies relating to transport including
- Policy TSP1 – Transport and Development*
- 4.4.8 This policy identifies that development sites will be supported where they;
- Are designed to reduce the need to travel by car, but make provision of safe access to the site for all travel modes;

- Give priority to pedestrian and cycle movements;
- Incorporate appropriate levels of parking in line with WSCC Guidance;
- Are supported by effective and deliverable Transport Assessments and Travel Plans; and;
- Explain how development can:
 - Accommodate deliveries and servicing;
 - Give priority to pedestrian and cycle movements and have access to high-quality public transport;
 - Create safe and secure layouts for all users;
 - Incorporate electric charging infrastructure; and
 - Consider the needs of people with disabilities.

Policy T DM1

4.4.9 This policy identifies that proposals for new development must;

- Be located where they are close to sustainable travel opportunities which link to key destinations;
- Contribute to the extension of public transport services;
- Make provision for pedestrian and cycling facilities; and
- Contributes to provision of a joined-up cycle and PROW network.

Arun District Council Local Plan Saved Policies

4.4.10 The Arun District Council Local Plan 2003 saved policies will remain effective until replaced by the new Arun Local Plan.

4.4.11 The site is not identified on the Local Plan Proposals Map for any specific development.

4.4.12 The general policies relevant to transport are highlighted as follows:

4.4.13 **Policy GEN7** The Form of New Development confirms that '*development will be permitted provided it:*

(iii) promotes sustainable development, including the effective use and conservation of energy and reducing the need to travel, particularly by private car;

(vii) allows for the safe movement of pedestrians and vehicles, giving priority to pedestrians.'

4.4.14 **Policy GEN12** Parking in New Development confirms that provision of parking in excess of the District Council's Parking Standards will not be allowed. The Parking Standards are included in the Local Plan.

4.4.15 **Policy GEN14** Public Transport confirms that *'Where appropriate, new development will be required to make provision for public transport facilities. Where new development can only take place with improvements to public transport services, or such improvements would be likely to influence desirable travel patterns, the Local Planning Authority will seek contributions towards the cost of improvements.'*

4.4.16 **Policy GEN15** Cycling and Walking confirms that *'where appropriate, new development will be required to provide safe and attractive facilities for cyclists and pedestrians, both within the site and in the form of links to the surrounding area.'*

Parking Standards

4.4.17 Arun District Council's Supplementary Planning Guidance – Parking Standards dated October 2000 is included as Appendix 2 of the former Local Plan and for residential developments of over 16 units based upon maximum parking standards are summarised in **Table 4.1** below.

Dwelling Type	Maximum Car Parking	Minimum Cycle Parking Standard
Dwellings – House 1,2 or 3 bedrooms	2 spaces per house plus 0.2 per house for visitors	1 space per 8 car parking spaces
Dwellings – House 1,2 or 3 bedrooms	3 spaces per house plus 0.2 per house for visitors	1 space per 8 car parking spaces

Table 4.1 – Arun Car and Cycle Parking Standards

4.4.18 The West Sussex County Council [WSCC] Standards are set out in the Supplementary Planning Guidance adopted by West Sussex County Council in November 2003 entitled 'Revised County Parking Standards and Transport Contributions Methodology'.

4.4.19 The WSCC Guidance for Car Parking in New Residential Developments dated September 2010 and Parking Demand Calculator is used for residential development which together with the WSCC Supplementary Planning Guidance - Revised County Parking Standards and Transport Contributions Methodology 2003 forms the adopted county parking standards. These parking standards are referred to by the Emerging Arun District Council Local Plan.

4.4.20 The relevant WSCC parking standards are summarised in **Table 4.2** as follows:

Dwelling Type	Car Parking	Minimum Cycle Parking Standard
Residential Dwellings	Within 5% of parking demand	1 space per dwelling

Table 4.2 – West Sussex Parking Standards

4.4.21 The West Sussex County Council demand based parking standards have been used to assess the proposed development.

4.5 Policy and Guidance Summary

- 4.5.1 Reference to national guidance contained within NPPF has helped to establish that the site is well related to the surrounding area and will contribute towards the creation of a sustainable development.
- 4.5.2 The review of both national and local transport planning policy has shown that the proposals conform to the aims and aspirations of the Council and will assist in delivering the policies contained within.
- 4.5.3 The NPPF seeks to ensure access to all road users including pedestrians and cyclists, as well as delivering a scheme, which allows the promotion of travel by public transport to result in an encompassing strategy to provide a high quality development whilst not compromising a high level of sustainability.
- 4.5.4 One of the key aims of local policy is to focus on the accessibility of a site by modes other than the private car to ensure that new development is located where a range of transport modes can access it. Locations which offer alternatives to the use of the private car should be encouraged.
- 4.5.5 The site is ideally located to assist in delivering these aims and aspirations and has potential, through the implementation of the site Travel Plan to deliver a highly sustainable development in transport terms.
- 4.5.6 It can therefore be concluded that the development proposals fully conform to the main aims and aspirations of the wider and economic objectives of national and local policy.

5 ACCESSIBILITY BY NON CAR MODES

5.1 Introduction

5.1.1 In order to accord with the aspirations of the NPPF, any new proposals should extend the choice in transport and secure mobility in a way that supports sustainable development.

5.1.2 New proposals should attempt to influence the mode of travel to the development in terms of gaining a shift in modal split towards non-car modes, thus assisting in meeting the aspirations of current national and local planning policy.

5.1.3 The accessibility of the proposed site has been considered by the following modes of transport:

- Accessibility on foot.
- Accessibility by cycle.
- Accessibility by bus.
- Accessibility by rail.

5.2 Accessibility on Foot

5.2.1 It is important to create a choice of direct, safe and attractive routes between where people live and where they need to travel in their day-to-day life.

5.2.2 This philosophy clearly encourages the opportunity to walk whatever the journey purpose and also helps to create more active streets and a more vibrant neighbourhood.

5.2.3 An existing pedestrian footway of around 2 metres in width is located to the east of the site on the western side of Arundel Road, this footway provides pedestrian links throughout Angmering and provides direct linkages to the nearby day to day amenities within the village.

- 5.2.4 The CIHT document ‘Planning for Walking’ from 2015 states, in paragraph 2.1, that in 2015 that 78% of all journeys made in the UK of less than a mile (1.6 kilometres) are carried out on foot.
- 5.2.5 Within the Institution of Highways and Transportation (IHT) document, entitled “Guidelines for Providing for Journeys on Foot”, Table 2.2 suggests distances for desirable, acceptable and preferred maximum walks to ‘town centres’, ‘commuting/schools’ and ‘elsewhere’. The ‘preferred maximum’ distances are shown below in **Table 5.1**.

Suggested Preferred Maximum Walk		
Town Centre	Commuting/School	Elsewhere
800m	2,000m	1,200m

Table 5.1 – IHT ‘Providing for Journeys on Foot’ Walk Distances

- 5.2.6 Reference to the 2,000 metre walk distance is also made in the now superseded Planning Policy Guidance (PPG) Note 13 which advised that ‘walking is the most important mode of travel at the local level and offers the greatest potential to replace short car trips, particularly under 2km’.
- 5.2.7 Manual for Streets (MfS) continues the theme of the acceptability of the 2,000 metre distance in paragraph 4.4.1. This states that *‘walkable neighbourhoods are typically characterised by having a range of facilities within 10 minutes’ (up to about 800m) walking distance of residential areas which residents may access comfortably on foot. However, this is not an upper limit and PPS13 states that walking offers the greatest potential to replace short car trips, particularly those under 2 km’.*

5.2.8 **Table 5.2** below summarises this guidance in tabular form.

'Comfortable' Walk	'Preferred Maximum' Walk
800m	2,000m

Table 5.2 – Manual for Streets Walk Distances

5.2.9 More specific guidance on the distances that children will walk to school is found in the July 2014 document published by the Department for Education (DfE) entitled 'Home to School Travel and Transport' statutory guidance document. This suggests that the maximum walking distance to schools is 2 miles (3.2 kilometres) for children under 8 and 3 miles (4.8 kilometres) for children over the age of 8. This is summarised below in **Table 5.3**.

Children under 8 Walk Distance	Children over 8 Walk Distance
3,200m	4,800m

Table 5.3 – DfE Walk Distances to Schools

5.2.10 Further evidence that people will walk further than the suggested 'preferred maximum' distances in the IHT 'Providing for Journeys on Foot' is contained in a WYG Report entitled 'Accessibility – How Far do People Walk and Cycle'. This report refers to National Travel Survey (NTS) data for the UK as a whole, excluding London, that the 85th percentile walk distance for:

- All journey purposes – 1,930 metres.
- Commuting – 2, 400 metres.
- Shopping – 1,600 metres.
- Education – 3,200 or 4,800 metres.

- Personal business – 1,600 metres.

5.2.11 Overall, in Table 5.1, the document states that 1,950 square metres is the 85th percentile distance for walking as the main mode of travel. **Table 5.4** below summarises the various 85th percentile walk distances suggested as guidelines in the WYG Study.

85 th Percentile Walk Distances					Overall Recommen ded Preferred Max
All Journeys	Commuting	Shopping	Education	Personal	
1,950m	2,100m	1,600m	3,200/4,800m	1,600m	1,950m

Table 5.4 – WYG Report/NTS Data Walk Distances

5.2.12 In summary, the distance of 1,950 metres, or around 2 kilometres, represents an acceptable maximum walking distance for the majority of land uses although clearly the DfE guidance for walking to school is up to 3.2 kilometres.

5.2.13 Section 3.1 of the CIHT guidance ‘Planning for Walking’ mentioned earlier in this report provides a useful reminder of the health benefits of walking. This states that:

‘A brisk 20 minute walk each day could be enough to reduce an individual’s risk of an early death’.

5.2.14 A 20 minute walk equates to a walking distance of around 1,600 metres.

5.2.15 In light of the above review, a pedestrian catchment of 2 kilometres from the centre of the site, using all usable pedestrian routes, has been provided in **Plan 7** and provides an illustrative indication of the areas that can be reached based on a leisurely walk from the site. In addition, to the pedestrian catchment plan, a review of the proximity of local facilities such as pharmacies/doctor’s surgeries, schools (both primary and secondary) local shops/retail outlets and leisure facilities has been undertaken and the location of these is also shown in Plan 7.

5.2.16 The 2,000 metre pedestrian catchment illustrates that the majority of Angmering can be accessed along various amenities such as St Margaret's Church of England Primary School, The Woodman Arms, A local play area, Angmering Library, St Margaret's Church, Big Fry Fish and chip shop, The Cooperative, The Lamb at Angering Public House, Lloyds Pharmacy and Ham Manor Golf Club.

5.2.17 **Table 5.5** below, shows the walking distance from the centre of the site to the local amenities in the vicinity of the site. The table also confirms whether or not the particular amenity is within the 'preferred maximum' walk distances using the above guideline criteria:

Local Amenity	Distance	Guidance Criteria	Meets with Guidance?
St Margaret's Church of England Primary School	350m	1,600m	YES
The Woodman Arms	610m	1,600m	YES
Local Play Area	1,040m	1,600m	YES
Angmering Library	1,110m	1,600m	YES
St Margaret's Church	1,120m	1,600m	YES
Big Fry Fish and Chip Shop	1,180m	1,600m	YES
The Cooperative	1,220m	1,600m	YES
The Lamb at Angering Public House	1,230m	1,600m	YES
Lloyds Pharmacy	1,330m	1,600m	YES
Ham Manor Golf Club	1,700m	2,000m	YES

Table 5.5 - Distance from Site to Local Facilities

5.2.18 As can be seen in the above table, the site is located within close proximity to a number of local amenities including primary services as well as leisure facilities.

5.2.19 All of the day to day amenities are well within the 'preferred maximum' walk distances described earlier in this section and indeed many, including the nearest convenience store, pharmacy and nearest primary school, are around the 800 metres 'comfortable walk' from the site as contained within MfS guidance.

5.2.20 It is therefore considered that the existing pedestrian infrastructure will facilitate safe and direct pedestrian linkages between the site and local destinations.

5.3 Access by Cycle

5.3.1 An alternative mode of travel to the site could be achieved by bicycle.

5.3.2 A distance of 5 kilometres is generally accepted as a distance where cycling has the potential to replace short car journeys. This distance equates to a journey of around 25 minutes based on a leisurely cycle speed of 12 kilometres per hour and would encompass Little Hampton, East Preston, Ferring and Rustington.

5.3.3 National cycle route 2 is located approximately 5km from the centre of the site, this cycle route which, when complete, will link Dover in Kent with St. Austell in Cornwall via the south coast of England.

5.3.4 The site can therefore be considered as being accessible by cycle.

5.3.5 During discussions, the highways officer has also made reference to the WSCC Walking and Cycling Strategy 2016 to 2026. The purpose of this document is:

- To clearly state West Sussex County Council's aims and objectives for cycling and walking between 2016 and 2026;
- To determine the Council's priorities for funding reflecting the overall walking and cycling aspirations of the Council;
- To provide guidance in support of prioritising cycling and walking infrastructure in new development;

- To provide a framework through which local interest and community groups can make suggestions for the development of cycling and walking improvements; and
- To support interested parties in securing additional funding where available.

5.3.6 The potential new cycle routes in the area are identified in **Figure 5.1** below.

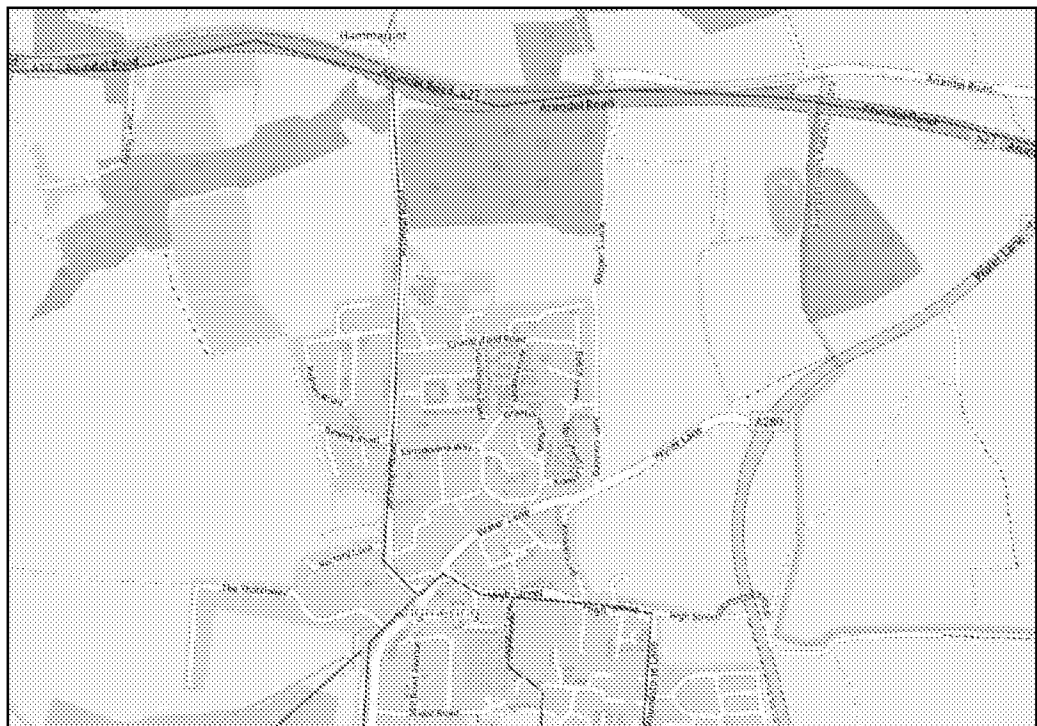


Figure 5.1 – Potential New Cycle Routes in the Area

- 5.3.7 As can be seen above, one of the potential routes passes directly past the site on Arundel Road.
- 5.3.8 This strategy outlines the design and safety principles for walking and cycling that the County Council will follow, and developers will be expected to follow, when implementing infrastructure schemes. The strategy also provides a mechanism by which schemes can be identified and prioritised, thereby enabling the County Council to direct future investment (such as contributions from future development) and support future funding bids (such as the Department for Transport's Access Fund).

5.4 Access by Bus

- 5.4.1 The nearest bus stops to the site are located to the south of the site with an approximate walking distance of 600 metres from the centre of the site consisting of a shelter, a bus stop pole with passing services shown and a bus service timetable.
- 5.4.2 There are also further bus stops located further along Arundel Road and Chantyfield Road. All the nearest bus stops to the site are shown on Plan 7.
- 5.4.3 A summary of the services available from the nearest bus stops from the development site is provided in **Table 5.6** below.

Service No	Route	Monday – Friday Frequency per hour				Sat	Sun
		AM Peak	Midday	PM Peak	Eve		
9	Arundel - Shoreham-by-Sea - East Preston - Worthing- Lancing	1	1	1	0	1	1

Table 5.6 - Existing Bus Services Operating Past the Site

- 5.4.4 As can be seen from Table 5.6, the nearest bus stops to the site provides 1 service in the peak periods to East Preston, Worthing and Lancing.
- 5.4.5 It is noted that the above services provide a choice of how people travel with the bus services operating from around 8.00am to around 6.00pm, making travel by public transport a real alternative to travelling by car for commuting trips.

5.4.6 In order to demonstrate the level of accessibility some example journey times by bus are presented below **Table 5.7** below.

Destination	Duration
East Preston	10 Minutes
Worthing	32 Minutes
Lancing	52 Minutes

Table 5.7 - Example Bus Journey Times from the Site

5.4.7 The above table demonstrates that East Preston is just a 10-minute bus journey from the site and Worthing is just a 32-minute bus journey.

5.4.8 It is therefore concluded that the proposed development site is accessible by bus.

5.5 Accessibility by Rail

5.5.1 The nearest train station to the site is Angmering. Although this is situated outside of the 2 kilometres, it is accessible via a 9-minute bus journey. This train station is managed by Southern and has 2 platforms, offering 8 services per hour to destinations such as London Victoria and Southampton Central.

5.5.2 This provides opportunities for commuting/leisure opportunities from the site via rail.

5.6 Accessibility Summary

5.6.1 The proposals have been considered in terms of accessibility by non-car modes for the proposed residential development.

5.6.2 The following conclusions can be drawn from this section of the Report:

- The site is accessible on foot and these provisions will be improved as part of the works on the development site.

- Cycling is also an alternative to the private car, with the site being located approximately 5 kilometres from National cycle route 2.
- It should also be noted that potential exists for the proposed development to assist in delivering (at least in part) the off-carriageway cycle connection from Angmering village to the existing facility on the A27 (scheme ID = 39), which is being pursued as part of West Sussex's Walking & Cycling Strategy. This will be discussed further with the highway authority.
- The services from the bus stops on Arundel Road, travelling to East Preston, Worthing and Lancing, shows that the proposed development can be accessed by bus.
- The site is accessible via rail with Angmering train station located just a short bus journey from the site.

5.6.3 In light of the above, it is considered the site is highly accessible by non-car modes and will cater for needs of the development's residents and assist in promoting a choice of travel modes other than the private car.

6 TRAFFIC IMPACT ANALYSIS

6.1 Introduction

6.1.1 Having established that the development site is accessible by modes of transport other than the private car and is in general accordance with local and national policy, this section considers the traffic impact of the development proposals on the local highway network.

6.1.2 While the proposals also include making provision for the existing sports facilities to be expanded, this section of the TA will only consider the traffic impact associated with the proposed residential element. Further information regarding the use of the football pitch is provided in the following section.

6.2 Assessment Criteria

6.2.1 Given the proposed residential land use, albeit with a small element of commercial floor space it is deemed appropriate to consider the AM and PM weekday peak hours, as being those with the greatest impact on the local highway network.

6.3 Traffic Survey Data

6.3.1 In order to establish current levels of traffic, full turning count surveys were undertaken at the following junctions on Wednesday 15th November 2017.

- A27/Arundel Road (Left in/left out);
- Arundel Road/Water Lane;
- A529 New Road/Station Road/Roundstone Bypass Road/B2140; and
- Roundstone Bypass Road/A280/Chips Away/A529/B2140 Old Worthing Road.

6.3.2 The surveys were undertaken between 0730 and 0930 hours in the morning and between 1630 and 1830 hours in the evening.

6.3.3 The full traffic survey data is contained within **Appendix 3**.

- 6.3.4 The peak hours were identified as 0745 to 0845 hours and 1645 to 1745 hours, for the AM and PM peaks respectively.
- 6.3.5 The above survey data has been supplemented with additional data taken from the Transport Assessment associated with the proposed development on the north side of Water Lane (App ref no. A/40/18/OUT) for the following junctions;
- A280/Titnore Lane/A27 Slips (southern A27 Dumbbell Roundabout);
 - A280 Long Furlong/A27 Slips/Arundel Road (northern A27 Dumbbell Roundabout);
 - Water Lane/High Street; and
 - Roundstone Bypass Road/Roundstone Lane.
- 6.3.6 The above surveyed flows have been included in the network diagram which has been extended (since the original submission) to take account of the A27 dumbbell roundabouts and A27 'U' turn movements at Poling Corner, as requested by Highways England.
- 6.3.7 The 2017 surveyed flows for the peak hours converted into Passenger Car Units (PCU's) are shown in **Figures 1 and 2**.

6.4 Growthed Traffic Flows

- 6.4.1 For the purpose of this Report, assessments have been undertaken as follows;
- 2021 Opening Year (requested by Highways England only);
 - 2031 Design Horizon (requested by WSCC and Highways England).
- 6.4.2 The assessments at 2031 coincide with the end of the Local Plan period and is therefore considered to be a robust approach. The assessments at 2021 will be undertaken only for the junctions along the A27 which are maintained by HE.
- 6.4.3 To derive the baseline 2021 flows, the 2017 surveyed flows have been growthed to 2021 using National Traffic Model (NTM) factors adjusted by using the Trip End Model Program (TEMPro) local growth factors.

- 6.4.4 The resultant 2021 growthed traffic flows are shown in **Figures 3 and 4** for the AM and PM peak periods.
- 6.4.5 It should be noted that the growthed 2027 traffic flows are still included in **Figures 5 and 6** for the AM and PM peak periods, but no assessments have been undertaken for this scenario.
- 6.4.6 To derive the baseline 2031 flows, the 2017 surveyed flows have been growthed to 2031 using National Traffic Model (NTM) factors adjusted by using the Trip End Model Program (TEMPro) local growth factors.
- 6.4.7 The resultant 2031 growthed traffic flows are shown in **Figures 7 and 8** for the AM and PM peak periods.
- 6.4.8 The resultant growth factors are shown below:
- 2017 to 2021 AM Peak - 1.0531
 - 2017 to 2021 PM Peak - 1.0514
 - 2017 to 2031 AM Peak - 1.1563
 - 2017 to 2031 PM Peak - 1.1574

6.5 Committed Development

- 6.5.1 During the preparation of this TA, consideration has been given to any committed developments in the area that would need to be included.
- 6.5.2 It is considered that the following committed development should be included in this TA;
- App ref no. A/82/12 – 138 residential units;
 - App ref no A/144/15/PL – 246 residential units;
 - App ref no A/27/16/PL) – 53 bed care home;
- 6.5.3 The first committed development to be considered refers to the construction of 138 residential units on a site located off Roundstone Lane.

- 6.5.4 The resultant associated development flows are shown in **Figures 9a** and **10a** for the AM and PM peak periods.
- 6.5.5 The second committed development relates to the provision of 246 residential dwellings, also located off Roundstone Lane.
- 6.5.6 The resultant associated development flows are shown in **Figures 9b** and **10b** for the AM and PM peak periods.
- 6.5.7 The third committed development to be considered within this TA is for a 53 bedroom care home, located on land off Water Lane.
- 6.5.8 The resultant associated development flows are shown in **Figures 9c** and **10c** for the AM and PM peak periods.
- 6.5.9 Croft are aware of other developments that have been consented in the area, but consider them to be so small in scale that they need not be considered as part of this TA.
- 6.5.10 Notwithstanding the above, following a review of the submitted Transport Assessment, the highways officer has also requested that the following developments are taken into account;
- App ref no. A/40/18/OUT - residential & commercial; and
 - App ref no. A/99/17/OUT - residential.
- 6.5.11 The first application (App ref no. A/40/18/OUT) is located on land to the north of Water Lane and refers to the construction of 525 dwellings and 3 hectares (6,000 square metres) of commercial development.
- 6.5.12 The resultant associated development flows are shown in **Figures 9d** and **10d** for the AM and PM peak periods.
- 6.5.13 The second application (App ref no. A/99/17/OUT) is located on land to the south of Water Lane and refers to the provision of up to 175 residential dwellings.

- 6.5.14 The resultant associated development flows are shown in **Figures 9e** and **10e** for the AM and PM peak periods.
- 6.5.15 Both the above developments have come forward in accordance with the draft allocation Policy SD9 of the draft Arun District Local Plan. It is understood that the Land South of Water Lane application has been approved and the Land to the North of Water Lane has been approved, subject to the Section 106 being signed.
- 6.5.16 The total committed development flows are shown in **Figures 9f** and **10f** for the AM and PM peak periods.

6.6 Base Flows

- 6.6.1 To establish the 2021 'Without Development' flows, the total committed development flows shown in Figures 9f and 10f for the AM and PM peak respectively have been added to the factored 2021 flows shown in Figures 3 and 4.
- 6.6.2 The resulting 2021 'Without Development' traffic flows are presented in **Figures 11** and **12**.
- 6.6.3 It should be noted that the previous modelled 'Without Development' 2027 traffic flows are still included in **Figures 13** and **14** for the AM and PM peak periods, but no assessment have been undertaken for this scenario.
- 6.6.4 To establish the 2031 'Without Development' flows, the total committed development flows shown in Figures 9f and 10f for the AM and PM peak respectively have been added to the factored 2031 flows shown in Figures 7 and 8.
- 6.6.5 The resulting 2031 'Without Development' traffic flows are presented in **Figures 15** and **16**.

6.7 Trip Distribution

- 6.7.1 The directional distribution of the traffic associated with the proposals has been assigned to the local highway network in line with Travel to Work Census Data, as utilised in the TA associated with App ref no. A/82/12 which refers to the construction of 138 residential dwellings on land to the east of Roundstone Lane.
- 6.7.2 The above trip rates have been deemed as appropriate by WSCC and HE, following submission of the original TA.
- 6.7.3 Following discussions with the highways officer at WSCC, the previously assumed 'U' turn movements at the A27/Arundel Road 'U' turn facility (at Poling Corner) have been transferred to utilise the A280/Water Lane junction. This is considered to be reasonable given the announcement of a preferred route for the Road Investment Strategy (RIS) scheme at Arundel.
- 6.7.4 With reference to the GoogleMaps routing facility, the highways officer at WSCC agreed that the journey times are considered to be comparable and so this is considered to be acceptable.
- 6.7.5 The resulting traffic assignment for the AM peak period is shown in **Figure 17** whilst the assigned PM peak traffic is shown in **Figure 18**.

6.8 Proposed Development

- 6.8.1 As previously stated it is proposed to develop the site for up to 160 residential units and approximately 557 square metres of B1 office use, which will replace and enhance existing local commercial uses on the site.

Residential Use

- 6.8.2 To establish the level of traffic generation that the proposed residential development is likely to generate, reference has been made to the latest TRICS database for all 'Private Housing' sites with any Ireland or London sites excluded.

6.8.3 The TRICS output in full for residential use is contained within **Appendix 4** whilst **Table 6.1** summarises the trip generation for the proposed development using these trip rates.

Peak Hour	Trip Rates		Trip Generation	
	Arr	Dep	Arr	Dep
AM Peak	0.15	0.41	23	65
PM Peak	0.35	0.22	56	36

Table 6.1 - Forecast Trip Generation of Proposed Residential Development

6.8.4 The assessment shows that the proposed residential development could potentially generate in the region of 88 two-way trips during the AM peak hour period and 92 two way trips during the traditional PM peak hour periods.

6.8.5 It should be noted that the trips rates used are higher than those utilised for the two developments to the north and south of Water Lane which are presented in **Table 6.2** below.

Peak Hour	Trip Rates		Trip Generation	
	Arr	Dep	Arr	Dep
AM Peak	0.135	0.325	22	52
PM Peak	0.283	0.167	45	27

Table 6.2 - Forecast Trip Generation of Proposed Residential Development

6.8.6 The assessment based on the Water Lane trip rates shows that the proposed residential development could potentially generate in the region of 74 two-way trips during the AM peak hour period and 72 two way trips during the traditional PM peak hour periods.

6.8.7 On that basis, it is considered that the proposed trip rates used in Table 6.1 provide a particularly robust, if not worst-case scenario. It should also be noted that no allowance has been made for the previous commercial use on the site, which itself would have generated significant volumes of traffic when operational.

6.8.8 The trip rates shown in Table 6.1 have subsequently been deemed acceptable by the highway officer at WSCC and HE.

Commercial Use

6.8.9 In order to establish the trips that could potentially be generated by the proposed commercial element of the proposals, the TRICS database has again been interrogated based on the following parameters;

- Employment – Office sites;
- Range 186 to 33180 square metres;
- Town centre and edge of town centre sites removed; and
- Greater London and Eire sites excluded.

6.8.10 The TRICS output in full for commercial use is also contained within Appendix 4 whilst **Table 6.3** summarises the trip generation for the proposed development using these trip rates.

Peak Hour	Trip Rates		Trip Generation	
	Arr	Dep	Arr	Dep
AM Peak	1.64	0.12	9	1
PM Peak	0.09	1.44	0	8

Table 6.3 - Forecast Trip Generation of Proposed Commercial Development

- 6.8.11 The assessment shows that the proposed commercial development could potentially generate in the region of 10 two-way trips during the AM peak hour period and around 8 two way trips during the traditional weekday PM peak hour periods.
- 6.8.12 The commercial trips rates in Table 6.3 have been deemed appropriate by WSCC and HE, prior to this TA being completed.
- 6.8.13 The traffic forecast to be generated by the proposed development, as shown in Tables 6.1 (residential) and 6.3 (commercial) has been assigned to the highway network in accordance with the trip distribution shown in Figures 17 and 18.
- 6.8.14 The resultant proposed residential development flows for the AM Peak are shown in **Figure 19** whilst the development flows for the PM Peak are shown in **Figure 20**.

6.9 Trip Generation Comparison

- 6.9.1 In order to establish the difference in trip generation between the previous and currently proposed developments, a comparison has been undertaken and is presented in **Table 6.4** below.

Peak Hour	AM Peak		PM Peak	
	Arr	Dep	Arr	Dep
Previous Proposals (200 Units)	29	82	70	44
Current Proposals	32	66	56	44
Difference	+3	-16	-14	0

Table 6.4 - Forecast Trip Generation of Proposed Commercial Development

- 6.9.2 The assessment shows that the proposed residential development could potentially generate around 13 fewer trips in the AM peak hour period and around 14 fewer trips in the PM peak hour period.

- 6.9.3 As can be seen above, the current proposals are likely to generate slightly fewer trips when compared to the previously proposed pure residential scheme comprising 200 units.

6.10 With Development Flows

- 6.10.1 In order to calculate the 2012 'With Development' flows, the development flows contained within Figures 19 and 20 have been added to the 2021 base flows contained within Figures 11 and 12.
- 6.10.2 The resulting 2021 'With Development' Flows are presented in **Figures 21** and **22** respectively for the AM and PM peak hours.
- 6.10.3 It should be noted that the previous modelled 'With Development' 2027 traffic flows are still included in **Figures 23** and **24** for the AM and PM peak periods, but no assessments have been undertaken for this scenario.
- 6.10.4 In order to calculate the 2031 'With Development' flows, the development flows contained within Figures 19 and 20 have been added to the 2031 base flows contained within Figures 15 and 16.
- 6.10.5 The resulting 2031 'With Development' Flows are presented in **Figures 25** and **26** respectively for the AM and PM peak hours.

6.11 Capacity Assessments

- 6.11.1 As already stated, vehicular access into the site is proposed directly from Arundel Road.
- 6.11.2 It has been agreed with the highways officer at WSCC that only assessments for the 2031 flow scenario are required, in line with the end of the Local Plan period. This will test the junctions on the local highway network and the A27 junctions, which form the strategic highway network, maintained by HE.
- 6.11.3 The following section (Section 7) will mainly consider the operation of the A27 junctions (maintained by Highways England for 2021, with the exception of the A27/Arundel Road junction, which will also be tested at 2031.

6.11.4 In addition to the proposed site access, the following junctions have been assessed as agreed with the highways officer at WSCC;

- Arundel Road/Water Lane/Station Road/High Street;
- A280/Water Lane - Existing & Proposed Layouts;
- A529 New Road/Station Road/Roundstone Bypass Road/B2140; and
- Roundstone Bypass Road/A280/Chips Away/A529/B2140 Old Worthing Road.

6.11.5 Following feedback on the original TA from the highways officer at WSCC, it has also been requested that the following junctions be included within the assessments;

- Water Lane/High Street (to be modelled with the Arundel Rd/Station Rd junction);
- A280/Titnore Lane/A27 (southern A27 dumbbell Roundabout) - Existing & Proposed Layouts); and
- A280 Long Furlong/A27 (northern A27 dumbbell Roundabout) - Existing & Proposed Layouts.

6.11.6 In their response, HE also requested that assessments be undertaken for the A27/Arundel Road priority junction.

Site Access/Arundel Road

6.11.7 The proposed site access off Arundel Road will be a priority-controlled junction and so has been assessed using PICADY.

6.11.8 The results for the 'With Development' flow scenario for 2031 are summarised within **Table 6.5** with the full results contained within **Appendix 5**.

Arm Name	2031 With Development			
	AM		PM	
	RFC	Q	RFC	Q
Site Access	0.15	0	0.10	0
Arundel Road	0.03	0	0.05	0

Table 6.5- Summary of PICADY Results for Site Access/Arundel Road

6.11.9 As can be seen above, the results show the new site access junction will operate efficiently in both the AM and PM peak hours in the 'With Development' 2031 flow scenarios.

6.11.10 The above demonstrates that the proposed site access is suitable in terms of its geometric layout and design and will provide a safe point of access into the site.

6.12 Wider Road Network

A259 Corridor

6.12.1 In regard to the wider highway network, following discussions with the highway officer, it is understood that proposals have been developed by WSCC to improve the A259 to the south of Angmering.

6.12.2 The identified survey area included the A259 within the Arun District from the River Arun (west of Littlehampton) up to and including the Goring Crossways junction within the Borough of Worthing. The study area is shown in **Figure 6.1** below.

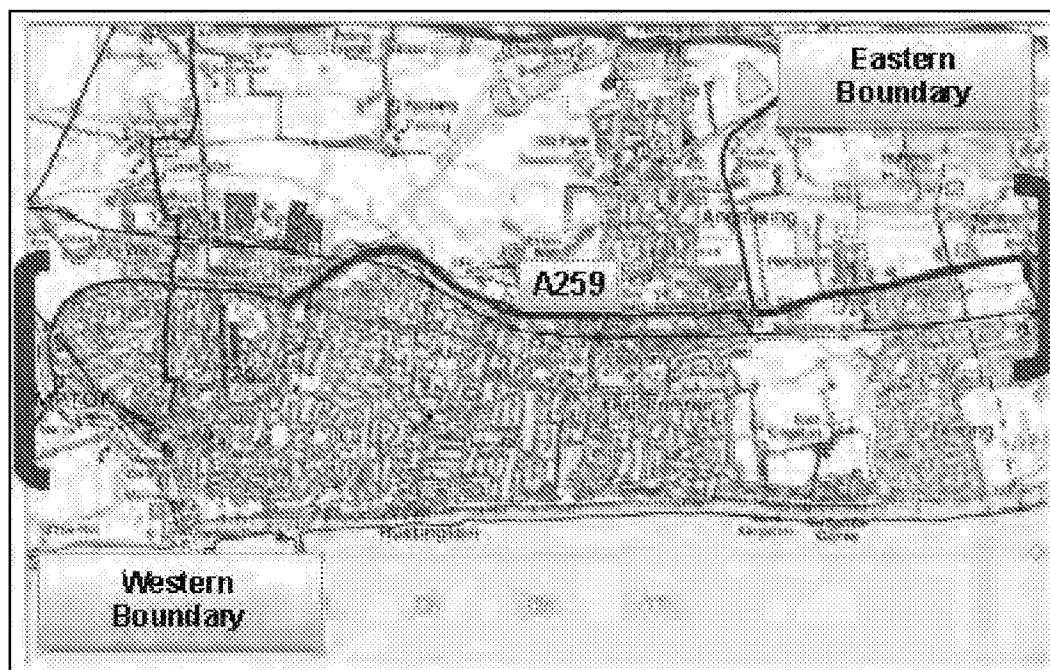


Figure 6.1 – A259 Improvements Study Area

- 6.12.3 The proposals have been the subject of a formal public consultation and are expected to be funded from developer contributions and funding from WSCC and Government grants, secured through the Coast to Capital Local Enterprise Partnership.
- 6.12.4 The proposals are expected to be delivered in several phases, as local development comes forward.

A280/Water Lane

- 6.12.5 It is also understood that a nearby application (Land to the North of Water Lane) is proposing to re-configure the A280/Water Lane junction from a limited movement priority junction (no right turns out of Water Lane currently permitted) to a roundabout which will allow all movements. The submitted TA for the above application confirms the anticipated changes in traffic on the surrounding highway network as a result of this and for ease, this is replicated in **Table 6.6** below.

Junction	Movement	AM Peak	PM Peak
Water Lane/A280	Water Lane (Right)	+180	+120
	Water Lane (Left)	+0	+0
	Net Change	+180	+120
A280/A259 Roundabout	A280 Left	+82	+71
	A280 Right	+98	+49
	A259 (et)	-82	-71
	Net change	+98	+49
Roundstone Lane/Roundstone Bypass	Roundstone Lane Left	-82	-49
	A259 (w)	+83	+56
	A259 (e)	0	0
	Net change	+1	+7
Station Road/Roundstone Bypass Road	Station Road Right	-63	-42
	Station Road Left	0	0
	Station Road (s)	-20	-14
	A259 (w)	+63	+42
	A259 Left	+20	+14
	Net Change	+0	+0

Table 6.6 – Summary of Changes in Traffic

6.12.6 As can be seen above, the implementation of a right turn at the Water Lane/A280 junction would provide a reduction in traffic travelling towards/through Angmering village centre, which would improve conditions on roads in the village, as follows;

- Roundstone Lane – 96 fewer vehicles in the AM peak/65 fewer in the PM peak;
- Weavers Hill – 60 fewer vehicles in the AM peak/32 fewer vehicles in the PM peak;
- High Street – 37 fewer vehicles in the AM peak/32 fewer vehicles in the PM peak;
and
- Station Road – 83 fewer vehicles in the AM peak/54 fewer vehicles in the PM peak.

6.12.7 In light of the above, an additional assessment has been undertaken for the Water Lane/A280 junction based on the potential new all movement roundabout and re-distributed traffic. To establish this, the 2021 traffic flows in the relevant TA (which included committed development) have been growthed up to 2031. This can be considered to be robust given that committed development would be included within the applied growth.

6.12.8 The corresponding traffic flows for this assessment showing the reassigned traffic at the A280/Water Lane junction are presented in **Figures A to L**.

A280/Titnore Lane/A27 Slips (Southern A27 Dumbbell Roundabout)

6.12.9 From a review of the Land North of Water Lane TA, it is understood that mitigation measures are proposed by way of widening the A280 south-western approach to two lanes. The assessment results for the existing and improved layouts are presented in this section for 2031 and the following Section for 2021.

A280 Long Furlong/A27 Slips/Arundel Road (Northern A27 Dumbbell Roundabout)

6.12.10 It is also understood that improvements are proposed to the northern dumbbell roundabout as part of the Arun District Transport Study (Phase 3).

6.12.11 While the scheme is committed, it does not yet have funding and so it is likely that developer funding will be sought. The assessment results for the existing and improved layouts are presented in this section for 2031 and the following Section for 2021.

Arundel Road/Water Lane/Station Road/High Street

6.12.12 The Arundel Road/Water Lane/Station Road junction is a priority junction and so is the Water Lane/High Street junction. The junctions therefore form a staggered crossroads with a pedestrian crossing in between.

6.12.13 It has been requested by the highways officer that the two junctions be modelled together, using the slope and intercept values from the PICADY models to calibrate to the local conditions. For the purpose of the model, the same assumptions have been used as included in the Land North of Water Lane TA i.e. 100 pedestrians each way, equating to 60 calls an hour, with a 60 second cycle time. The junctions have therefore been modelled using LINSIG.

6.12.14 The results for the 'Without Development' and 'With Development' flow scenarios for 2031 are summarised within **Table 6.7** with the full results contained within **Appendix 6**.

Arm Name	2031 Without Development				2031 With Development			
	AM		PM		AM		PM	
	DOS	MMQ	DOS	MMQ	DOS	MMQ	DOS	MMQ
High Street (R&L)	66.9	1	36.8	0	67.4	1	36.9	0
Station Rd (nb) exit (Ahd&Rht)	44.5	3	34.8	2	45.8	3	35.6	2
Station Rd at Arundel Rd (exit)	23.5	0	44.9	4	25.3	0	46.3	4
Station Rd (sb) at Arundel Rd	11.3	1	31.0	3	11.3	1	31.0	3
Station Rd (nb) at Arundel Road	27.2	2	19.8	2	27.2	2	19.8	2
Arundel Road (Lft&Rht)	20.4	0	19.5	0	24.7	0	22.5	1
Station Rd (sb)	19.9	0	29.8	1	19.9	0	30.9	1
Station Rd (nb)	16.3	0	29.8	0	18.0	0	30.9	0
Pedestrian Link	19.9	0	14.5	0	19.9	0	14.5	0

Table 6.7 – Summary of LINSIG Results for Arundel Road/Water Lane/Station Road/High Street

6.12.15 The 2031 'Without Development' results for the AM and PM peak hour show the junction will operate with reserve capacity.

- 6.12.16 The results for the 2031 'With Development' assessments show that the junction will continue to operate efficiently in both peak hours, in a similar manner to the base situation.

A280/Water Lane (Existing Layout)

- 6.12.17 The A280/Water Lane junction is priority controlled, but only permits left turns out of Water Lane. It has been assessed using PICADY.
- 6.12.18 The results for the 'Without Development' and 'With Development' flow scenarios for 2031 are summarised within **Table 6.8** with the full results contained within **Appendix 7**.

Arm Name	2031 Without Development				2031 With Development			
	AM		PM		AM		PM	
	RFC	Q	RFC	Q	RFC	Q	RFC	Q
Water Lane	1.20	82	0.62	2	1.23	97	0.64	2
A280	0.71	2	1.32	130	0.71	2	1.32	130

Table 6.8 – Summary of PICADY Results for A280/Water Lane

- 6.12.19 The 2031 'Without Development' results for the AM and PM peak hour show the junction will operate above its theoretical capacity, although it should be noted that the model is over predicting the levels of queuing in both peaks.
- 6.12.20 The 'With Development' assessment shows the junction continuing to operate above capacity, as would be expected.
- 6.12.21 A review of the observed levels of queuing however, which are very low indicate that the model is not properly replicating what is taking place on the ground.

A280/Water Lane (Potential Roundabout Layout)

- 6.12.22 Notwithstanding the above and as already mentioned, it is understood that a scheme has been proposed as part of the Land North of Water Lane development that would convert the existing priority junction into a standard roundabout.
- 6.12.23 As such, the junction has also been tested based on this new roundabout layout, to demonstrate that these proposals can be adequately accommodated.
- 6.12.24 The results for the 'Without Development' and 'With Development' flow scenarios for 2031 are summarised within **Table 6.9** with the full results contained within **Appendix 7**.

Arm Name	2031 Without Development				2031 With Development			
	AM		PM		AM		PM	
	RFC	Q	RFC	Q	RFC	Q	RFC	Q
A280 (s)	0.24	0	0.28	0	0.25	0	0.28	0
Water Lane	0.68	2	0.40	1	0.71	2	0.42	1
A280 (n)	0.50	1	0.72	3	0.50	1	0.72	3

Table 6.9 – Summary of ARCADY Results for A280/Water Lane - Improved

- 6.12.25 The 2031 'Without Development' results for the AM and PM peak hour show the junction will operate with reserve capacity in both flow scenarios.
- 6.12.26 The results for the 2031 'With Development' assessment show that the junction will continue to operate in a similar manner to the base situation and the proposed development traffic can be accommodated.

A529 New Road/Station Road/Roundstone Bypass Road/B2140

- 6.12.27 The A529 New Road/Station Road/Roundstone Bypass Road/B2140 junction is a roundabout and so has been assessed using ARCADY.

- 6.12.28 The results for the 'Without Development' and 'With Development' flow scenarios for 2031 are summarised within **Table 6.10** with the full results contained within **Appendix 8**.

Arm Name	2031 Without Development				2031 With Development			
	AM		PM		AM		PM	
	RFC	Q	RFC	Q	RFC	Q	RFC	Q
Station Road	1.29	86	0.95	11	1.35	105	0.99	15
Roundstone Bypass Rd	1.23	164	1.31	210	1.23	168	1.32	229
B2140	0.84	5	0.79	4	0.84	5	0.80	4
A529 New Road	0.91	10	0.79	4	0.92	10	0.80	4

Table 6.10 – Summary of ARCADY Results for A529 New Road/Station Road/Roundstone Bypass Road/B2140

- 6.12.29 The 2031 'Without Development' results for the AM and PM peak hour show that overall, the junction will be operating over its theoretical capacity with extensive queuing.
- 6.12.30 The results for the 2031 'With Development' assessment show that the junction will continue to operate above capacity, but it is understood that contribution could be sought as part of the A259 improvement scheme to mitigate any impact at this junction.
- 6.12.31 In respect to the results, reference should be made to the queue survey data at Appendix 3, which shows while queuing does occur, it is not to the extent shown in the model and so should be seen as a worst-case scenario. It is understood that WSCC may seek a contribution from the applicant to mitigate the impact along the A259 corridor.

Roundstone Bypass Road/A280/Chips Away/A52 (e)/B2140 Old Worthing Road

- 6.12.32 The A529 New Road/Station Road/Roundstone Bypass Road/B2140 junction is a roundabout and so has been assessed using ARCADY.

- 6.12.33 The results for the 'Without Development' and 'With Development' flow scenarios for 2031 are summarised within **Table 6.11** with the full results contained within **Appendix 9**.

Arm Name	2031 Without Development				2031 With Development			
	AM		PM		AM		PM	
	RFC	Q	RFC	Q	RFC	Q	RFC	Q
A280	0.64	2	0.64	2	0.64	2	0.65	2
Chips Away	0.21	0	0.11	0	0.22	0	0.11	0
A529 (e)	0.58	1	0.70	2	0.59	1	0.71	4
B2140 Old Worthing Road	0.70	2	0.33	1	0.71	2	0.34	1
Roundstone Bypass Road	1.17	133	1.05	59	1.18	141	1.06	158

Table 6.11 – Summary of ARCADY Results for Roundstone Bypass Road/A280/Chips Away/A529 /B2140 Old Worthing Road

- 6.12.34 The 2031 'Without Development' results for the AM and PM peak hours show the junction will be operating above its theoretical capacity.
- 6.12.35 The results for the 2031 'With Development' assessment show that the junction will operate in a similar manner, but again, it is understood that a contribution to the proposed A259 improvement scheme could be sought to mitigate the impact at this junction.
- 6.12.36 In respect to the results, reference should again be made to the queue survey data at Appendix 3, which shows queuing does occur, but not to the extent being predicted by the model.
- 6.12.37 It is understood that a developer contribution could also be sought by the local highway authority as part of the mitigation measures along the A259 corridor.

A280/A27/Titnore Lane (South)

- 6.12.38 The A280/A27/Titnore Lane (A2700) junction is a roundabout and so has been assessed using ARCADY.
- 6.12.39 The results for the 'Without Development' and 'With Development' flow scenarios for 2031 are summarised within **Table 6.12** with the full results contained within **Appendix 10**.

Arm Name	2031 Without Development				2031 With Development			
	AM		PM		AM		PM	
	RFC	Q	RFC	Q	RFC	Q	RFC	Q
A27 wb Off Slip	0.59	1	0.64	2	0.59	1	0.64	2
Titnore Lane	0.56	1	0.70	2	0.56	1	0.70	2
Water Lane	1.14	85	0.69	2	1.16	99	0.71	2
A280 (n)	0.76	3	0.85	5	0.77	3	0.85	6

Table 6.12 – Summary of ARCADY Results for A280/A27/Titnore Lane (South) - Existing

- 6.12.40 The 2031 'Without Development' results for the AM and PM peak hour show that overall, the junction will be operating over its theoretical capacity in the AM peak but within capacity in the PM peak.
- 6.12.41 The results for the 2031 'With Development' assessment show that the junction will continue to operate in a similar manner to the 'Without Development' situation with some increased queueing.

- 6.12.42 However, it is understood from discussions with the highways officer at WSCC that two improvements are proposed as part of the Water Lane developments (Application ref no's A/99/17 and A/40/18), one for the interim situation and a final for when the developments are both complete.
- 6.12.43 In light of the above and given this section of the TA is considering a 2031 flow scenario, it has been assumed that the two developments (now approved) would be fully built out and occupied and so on that basis, the junction has been modelled based on the final set of improvements, as referred to in the associated TA and so the junction has been re-run assuming these improvements are in place.
- 6.12.44 The results for the 'Without Development' and 'With Development' flow scenarios for 2031 based on the improved layout are summarised within **Table 6.13** with the full results contained within **Appendix 10**.

Arm Name	2031 Without Development				2031 With Development			
	AM		PM		AM		PM	
	RFC	Q	RFC	Q	RFC	Q	RFC	Q
A27 wb Off Slip	0.61	2	0.64	2	0.61	2	0.64	2
Titnore Lane	0.56	1	0.70	2	0.56	1	0.70	2
Water Lane	0.89	7	0.54	1	0.91	9	0.55	1
A280 (n)	0.77	3	0.85	5	0.78	3	0.85	6

Table 6.13 – Summary of ARCADY Results for A280/A27/Titnore Lane (South) - Improved

- 6.12.45 The 2031 'Without Development' results for the AM and PM peak hour show that overall, the junction will be operating with reserve capacity based on the improved layout.
- 6.12.46 The 2031 'With Development' results show the junction will be operating at a similar level to the baseline scenario and that the development traffic can be accommodated.

- 6.12.47 The previous assessments undertaken as part of the original TA showed that additional mitigation would be required, and this is presented in the Highways Note contained within Appendix 2.
- 6.12.48 However, as the proposals are reduced in scale, it is not considered that any further improvements are necessary, as the results show the development traffic can be accommodated.
- 6.12.49 Notwithstanding the above, and for completeness, the results for the 'Without Development' and 'With Development' flow scenarios for 2031 based on the further improved layout are summarised within **Table 6.14** with the full results contained within **Appendix 10**.

Arm Name	2031 Without Development (Existing Layout)				2031 With Development (Proposed Layout)			
	AM		PM		AM		PM	
	RFC	Q	RFC	Q	RFC	Q	RFC	Q
A27 wb Off Slip	0.61	2	0.64	2	0.61	2	0.64	4
Titnore Lane	0.56	1	0.70	2	0.56	1	0.70	4
Water Lane	0.89	7	0.54	1	0.88	7	0.54	2
A280 (n)	0.77	3	0.85	5	0.78	3	0.85	13

Table 6.14 – Summary of ARCADY Results for A280/A27/Titnore Lane (South) – Further Improved

- 6.12.50 The 2031 'Without Development' results for the AM and PM peak hour show that overall, the junction will be operating with reserve capacity based on the improved layout.
- 6.12.51 The 2031 'With Development' results show the junction will be operating at a similar level and shows the development traffic can be accommodated.

A280/A27/Arundel Road/Long Furlong (North)

- 6.12.52 The A280/A27/Arundel Road/Long Furlong junction is a roundabout and so has been assessed using ARCADY.
- 6.12.53 The results for the 'Without Development' and 'With Development' flow scenarios for 2031 are summarised within **Table 6.15** with the full results contained within **Appendix 11**.

Arm Name	2031 Without Development				2031 With Development			
	AM		PM		AM		PM	
	RFC	Q	RFC	Q	RFC	Q	RFC	Q
A280 Long Furlong	0.73	3	0.88	7	0.74	3	0.89	7
A280 (s)	0.64	2	0.47	1	0.65	2	0.48	1
A27 Off Slip	0.85	5	0.44	1	0.86	6	0.45	1
Arundel Road	0.16	0	0.09	0	0.17	0	0.09	0

Table 6.15 – Summary of ARCADY Results for A280/A27/Arundel Rd/Long Furlong (North) - Existing

- 6.12.54 The 2031 'Without Development' results for the AM and PM peak hour show that overall, the junction will be operating with reserve capacity.
- 6.12.55 The results for the 2031 'With Development' assessment show that the junction will continue to operate efficiently albeit with some increase in queuing.
- 6.12.56 It is understood however, that an improvement scheme has been identified as part of the Arun Transport Study (Stage 3) and so the junction has also been tested based on the improvement layout.

- 6.12.57 The improvements comprise the widening of the entry width on the A280 (sb) Long Furlong approach from 7.3 metres to 8.40 metres, which in turn extends the flare from 29 metres.
- 6.12.58 A plan to show the proposed improvements as detailed above is now included just before the ARCADY output in **Appendix 11**.
- 6.12.59 The results for the 'Without Development' and 'With Development' flow scenarios for 2031 based on the improved layout are summarised within **Table 6.16** with the full results contained within **Appendix 11**, along with the plan showing the improvements.

Arm Name	2031 Without Development				2031 With Development			
	AM		PM		AM		PM	
	RFC	Q	RFC	Q	RFC	Q	RFC	Q
A280 Long Furlong	0.56	1	0.68	2	0.57	1	0.69	2
A280 (s)	0.64	2	0.47	1	0.65	2	0.48	1
A27 Off Slip	0.85	5	0.44	1	0.86	6	0.45	1
Arundel Road	0.16	0	0.09	0	0.17	0	0.09	0

Table 6.16 – Summary of ARCADY Results for A280/A27/Arundel Rd/Long Furlong (North) - Improved

- 6.12.60 The 2031 'Without Development' results for the AM and PM peak hour show that overall, the junction will be operating with reserve capacity.
- 6.12.61 The results for the 2031 'With Development' assessment show that the junction will continue to operate efficiently in both peak hours.

6.13 Traffic Impact Summary

- 6.13.1 This section of the report has considered the impact of the proposal in transport terms for a design year of 2031, which coincides with the end of the local plan.

- 6.13.2 The capacity assessments undertaken demonstrate that overall, the local highway network would remain operating in a similar manner to the base situation.
- 6.13.3 Traffic flows through the village will reduce should the potential roundabout junction be implemented as part of the Land North of Water Lane application.
- 6.13.4 It is understood that the A259 corridor currently experiences congestion during the peak hours and that an improvement scheme has been identified. It is likely that developer contributions will be sought to assist in mitigating the impact of the proposals along this section of the road network.
- 6.13.5 The assessments have also shown that the development traffic can be accommodated onto the wider highway network at the A27 dumbbell roundabout junctions (north and south), assuming the improvements are implemented. The impact at both of these junctions is just 29 vehicles in the AM peak and 24 in the PM peak and so the development traffic is not considered to have a material impact.
- 6.13.6 It is concluded therefore, that the development can be accommodated and where deemed necessary, contributions can be made to the identified improvements schemes.
- 6.13.7 On that basis, it is considered that the proposed development will have a minimal impact on the local network and will not give rise to any highways or transportation issues.

7 CAPACITY ASSESSMENTS – HIGHWAYS ENGLAND

7.1 Introduction

7.1.1 This section of the report will set out the information requested by Highways England for 2021 and 2031 (A27/Arundel Road only) based on the junctions that they maintain which are as follows;

- Arundel Road/A27 (left in/left out);
- A27 'U' turn junction at Poling Corner;
- A280/Titnore Lane/A27 Slips (southern A27 Dumbbell Roundabout); and
- A280 Long Furlong/A27 Slips/Arundel Road (northern A27 Dumbbell Roundabout).

7.1.2 The impact at the above junctions will be detailed in the following paragraphs with assessments being provided where considered necessary.

7.1.3 Reference should also be made to the Highways Note contained within Appendix 2 which seeks to address all of the issues previously raised.

7.1.4 Firstly however, this section will address the other comments raised by HE (and addressed in the submitted Highways Note v3), which can be summarised as follows;

- No survey or queue data for the A27 'U' turn junction at Poling Corner;
- No accident analysis of the A27 'U' turn junction at Poling Corner;
- No information regarding the use of the proposed football pitch;
- Further details required of how the trip distribution has been established;
- No capacity or review of road safety at the A27/Arundel Road junction;
- No consideration of non-motorised users (NMU's); and
- No information is given regarding construction traffic.

No survey or queue data for the A27 'U' turn junction at Poling Corner

- 7.1.5 One of the comments from Highways England related to there being no survey of the 'U' turn movement and queues at Poling Corner in the originally submitted TA. The junction was included and shown on the traffic figures, but it had been incorrectly labelled by the survey company. This has now been rectified and included in the Traffic Survey at Appendix 3, along with the results of the queue surveys.
- 7.1.6 In relation to the gap in the central reserve that allows vehicles to perform a 'U' turn, the traffic survey results show that no queueing occurred either in the AM or morning peak hours.
- 7.1.7 As already stated, following discussions with the highways officer at WSCC, it is considered unlikely that any of the development traffic would choose this route as it is considered the preferred route would be via Water Lane. The highways officer at WSCC agreed that the development traffic was more likely to use the A280/Water Lane junction, rather than perform a 'U' turn.
- 7.1.8 In addition to the above, a queue survey was undertaken at the junction during the morning and evening peak periods and is summarised in **Table 7.1** below. The traffic survey data is contained at Appendix 3.

Time	Queues (Right Turn Lane)	Time	Queues (Right Turn Lane)
0735	0	1635	0
0740	0	1640	0
0745	0	1645	0
0750	0	1650	0
0755	0	1655	0
0800	0	1700	0
0805	0	1705	0
0810	0	1710	0
0815	0	1715	0
0820	0	1720	0
0825	0	1725	0
0830	0	1730	0
0835	0	1735	0
0840	0	1740	0
0845	0	1745	0
0850	0	1750	0
0855	0	1755	0
0900	0	1800	0
0905	0	1805	0
0910	0	1810	0
0915	0	1815	0
0920	0	1820	0
0925	0	1825	0
0930	0	1830	0

Table 7.1 – Summary of ‘U’ Turn Queue Survey

- 7.1.9 As can be seen above, no queueing in the right turn lane at the ‘U’ turn facility was recorded during the both the AM and PM peak surveys.
- 7.1.10 As already stated, it is unlikely that any of the development traffic would use this route and so it is considered that the development will not have a material impact on its operation or safety.

No accident analysis of the A27 'U' turn junction at Poling Corner

- 7.1.11 As requested by HE, reference has been made to the CrashMap website at this location for the last 5 years. The records show that there has only been one accident during this time, as identified in **Figure 7.1** below.

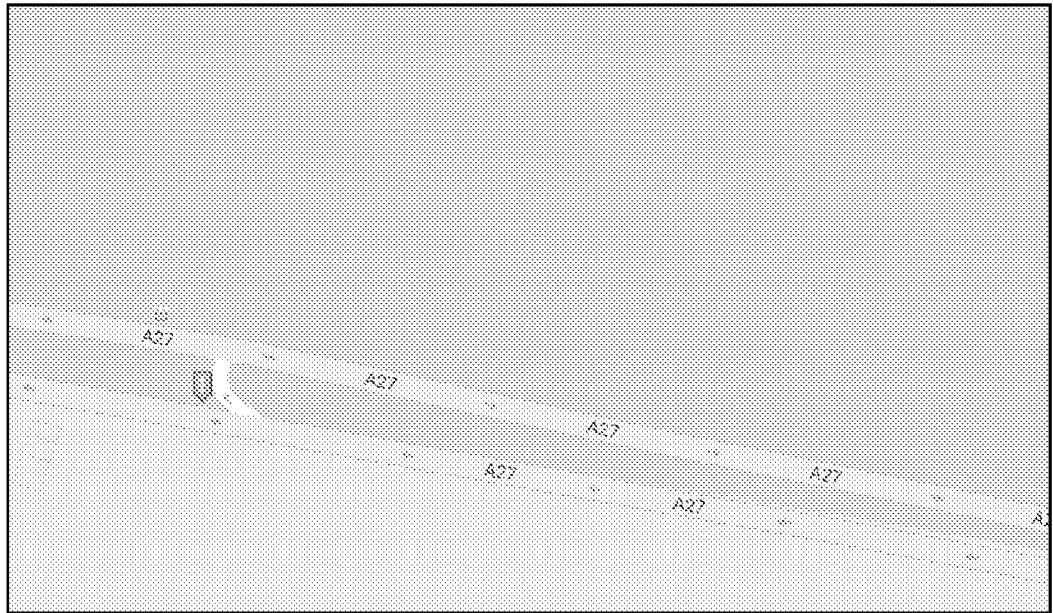


Figure 7.1 – Accidents at A27/U Turn Junction

- 7.1.12 The records show that the incident took place in 2017 in daylight conditions when the weather and road surface was dry and involved two vehicles. The accident details however are limited and show that one of the cars was performing a 'U' turn and the other vehicle was proceeding normally along the carriageway. The accident resulted in the 'U' turning vehicle colliding with the central crash barrier. The accident resulted in slight injuries being sustained to one of the drivers.
- 7.1.13 This suggests that the accident was due to one or both of the drivers not paying adequate attention to other road users or travelling in excess of the speed limit, rather than there being any particular geometric or engineering issues with the junction form or layout.

No information regarding the use of the proposed football pitch

- 7.1.14 It is understood that the football pitch will most likely be operated by the Parish Council, as part of the existing Angmering Sports and Recreation Ground facility.
- 7.1.15 It should be noted that it's use will be mainly at weekends and only week nights during the summer months (when background traffic flows are lower) and so in any event would not generate traffic during the traditional morning and evening peaks.
- 7.1.16 On that basis, it can be assumed that the pitch will be used mainly by local people living in the village and many will simply walk or cycle to the site or travel within a multiple occupancy vehicle or mini-bus.
- 7.1.17 As such, it is not considered necessary to consider the football pitch in traffic terms within the TA.

Further details required of how the distribution has been established

- 7.1.18 At para. 6.7, the submitted TA stated that
- "The directional distribution of the traffic associated with the proposals has been assigned to the local highway network in line with Travel to Work Census Data, as utilised in the TA associated with App ref no. A/22/12, which is considered to present a reasonable approach".*
- 7.1.19 The above application reference number was incorrect.
- 7.1.20 The correct ref. no. is A/82/12 which is a consented development for 138 residential dwellings on 'Land to the east of Roundstone Lane'. Given the location of the site in relation to Angmering, it is considered that the distribution approved a part of this application is appropriate for use at the development site.
- 7.1.21 The trip distribution has since been deemed acceptable by HE.

No capacity or review at the A27/Arundel Road junction

- 7.1.22 In order to demonstrate that the A27/Arundel Road left in/left out junction will operate satisfactorily, a capacity assessment has been undertaken using PICADY.
- 7.1.23 The results for the 'With Development' flow scenario for 2021 are summarised within **Table 7.2** with the full results contained within **Appendix 12**.

Arm Name	2021 Without Development				2021 With Development			
	AM		PM		AM		PM	
	RFC	Q	RFC	Q	RFC	Q	RFC	Q
Arundel Road	0.58	1	0.24	0	0.61	2	0.27	0
A27 (w)	0.00	0	0.00	0	0.00	0	0.00	0

Table 7.2- Summary of PICADY Results for A27/Arundel Road

- 7.1.24 The results for the 2021 'Without Development' show that the junction will operate with reserve capacity in the AM and PM peak hours.
- 7.1.25 The results for the 2021 'With Development' flow scenario show the impact will be minimal and the junction will continue to operate with reserve capacity and no queueing issues.
- 7.1.26 The results for the 'With Development' flow scenario for 2031 are summarised within **Table 7.3** with the full results contained within **Appendix 12**.

Arm Name	2031 Without Development				2031 With Development			
	AM		PM		AM		PM	
	RFC	Q	RFC	Q	RFC	Q	RFC	Q
Arundel Road	0.72	2	0.31	1	0.77	3	0.34	1
A27 (w)	0.00	0	0.00	0	0.00	0	0.00	0

Table 7.3- Summary of PICADY Results for A27/Arundel Road

- 7.1.27 The results for the 2031 'Without Development' show that the junction will operate be operating above it theoretical capacity in the AM peak but with reserve capacity in the PM peak.
- 7.1.28 The results for the 2031 'With Development' flow scenario show the impact will be minimal and the junction will continue to operate in a similar manner to the base situation. A queue increase of 1 vehicle in the AM peak is not considered to be material and so it can be concluded that the development traffic can be accommodated.
- 7.1.29 Notwithstanding the above, and as presented in Section 9 of the submitted Highways Note contained within Appendix 2, the previous quantum of development showed an impact at this junction and so mitigation was proposed.
- 7.1.30 The improvement scheme comprised the re-marking of the Arundel Road carriageway to provide a stop line of 5 metres was proposed as detailed in the Highways Note and the model re-tested.
- 7.1.31 It should also be noted that the original visibility to the east had been coded incorrectly as being 43 metres, when in reality there is in excess of 100 metres. The PICADY model above has therefore been amended.
- 7.1.32 As the results now show that impact will be minimal it is unlikely that the improvement scheme would be required.

7.1.33 Furthermore, it should be noted that no allowance has been made within the TA for the existing site traffic associated with the existing use on the site, which is the V W & Audi Recycled Parts Centre. As such, it is likely that that above results are representative of a worst-case scenario.

7.1.34 The requirement for any improvements at this location will be discussed with HE and WSCC.

No review of accidents at the Arundel Road/A27 (left in/left out) junction

7.1.35 As requested by HE, consideration has also been given to the accident record at this location. The CrashMap data shows there have been 4 personal injury accidents at the junction over the last 5 years, as identified in **Figure 7.2** below.

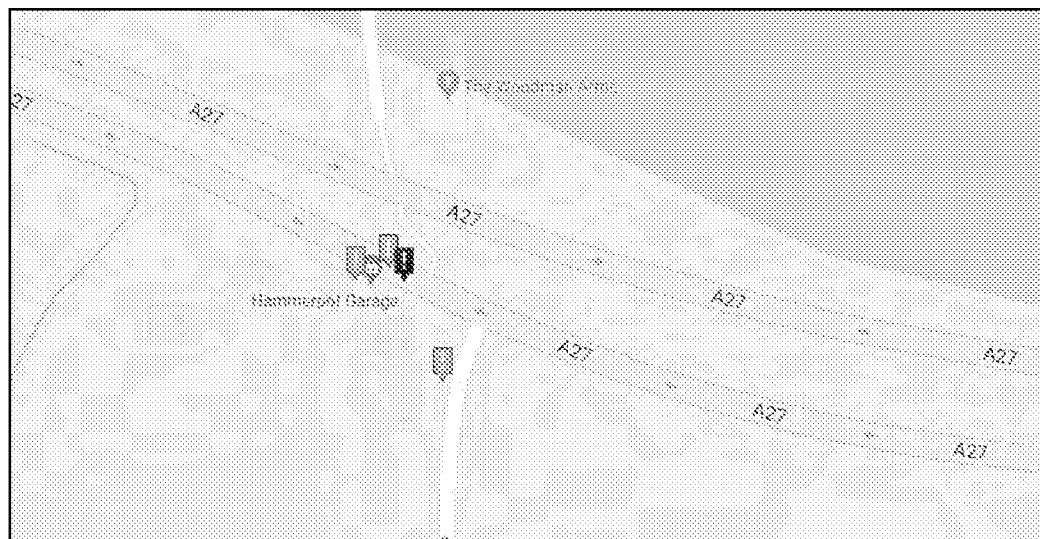


Figure 7.2 – Accidents at A27/Arundel Road (Left in/Left out) Junction

7.1.36 As can be seen above, one of the accidents took place on Arundel Road just prior to the junction with the A27 in 2014.

7.1.37 The records show it was raining at the time and the road surface was wet/damp. It only involved one vehicle which collided with a wall or fence and resulted in slight injuries being sustained. This suggests that the driver was not paying adequate attention to the road conditions or was travelling in excess of the speed limit and failed to react in time.

- 7.1.38 The second recorded incident took place in 2016 when the weather was dry and unfortunately resulted in a fatality.
- 7.1.39 The details show it involved a car which struck a pedestrian who was in the centre of the carriageway, not on the refuge or central reserve and was crossing from the drivers nearside. The cause of the accident is not clear, but the information suggests that the pedestrian or car driver were not paying sufficient attention to other road users, rather than there being any problems with the road or junction layout.
- 7.1.40 The third accident took place on 2015 when the weather and road surface was dry. The details show that it involved a light goods vehicle and a car which shunted into the rear of the van whilst it was in the act of turning left, most likely into Hammerpot Garage. It resulted in slight injuries being sustained. It can be assumed from the information provided that the car driver was not paying adequate attention to other road users or was travelling in excess of the speed limit and failed to react in time.
- 7.1.41 The fourth recorded accident took place in 2016 when the road and weather conditions were dry. The details show that it involved a car and a light goods vehicle and resulted in slight injuries being sustained. The details show that the car was parked in carriageway when it was struck on the offside by the van. It is not clear why the vehicle was parked in the carriageway, but it would appear that the van driver was not paying sufficient attention to other road users, rather than there being any engineering problems with the road or junction layout.

No consideration of non-motorised users (NМУ's)

- 7.1.42 Consideration has been given to the existing pedestrian facilities at the A27/Arundel Road junction and in particular, as there has been a fatal accident over recent years.
- 7.1.43 It is noted that there is no signage on the A27 at present to warn approaching vehicles that pedestrians may be crossing at the junction. It is likely that the pedestrian may have been walking to or returning from The Woodman Public House which is located on the northern side of the A27.

- 7.1.44 In order to further consider the safety aspects of the junction as a result of the development a Walking, Cycling and Horse-Riding Assessment (WCHAR) has been undertaken and is detailed in the submitted Highways Note.
- 7.1.45 With consideration to the points raised plan to show some potential improvements has been prepared and are shown in **Plan 6** (Drawing ref no. 2020-06).
- 7.1.46 The drawing shows the provision of new 'Look Left and Right' road markings at the eastern crossing point, where there are currently none. The crossing to the west already provides these road markings. The plan also shows the provision of new 'Pedestrians Crossing' advanced signage to indicate pedestrians may be crossing within 200 metres of the crossing points. It is anticipated that this will successfully inform drivers approaching the Arundel Road junction to be aware that NMU's may be present.

No information is given regarding construction traffic.

- 7.1.47 It is anticipated that the access to the site during the construction period will be via Angmering Road and is likely to be located in same position as the existing access.
- 7.1.48 The details of the construction access will need to be agreed during the planning process to ensure that the access can operate safely and efficiently at all times.
- 7.1.49 It is understood that HE may request a condition for a Construction Management Plan.
- 7.1.50 This would seek to include demolition traffic and would restrict routes to and from the site, and hours that construction traffic can travel to minimise impact on the Strategic Road Network.
- 7.1.51 If required, a formal Construction Management Plan will be prepared and will include the following elements:
- Size of HGV to be used in the construction period.
 - Timing of deliveries during construction, to avoid peak periods for example.
 - Control noise to specified levels and duration.

- Procedures related to dust suppression measures.
- Routing of HGVs to and from the site, to avoid the village centre.

7.1.51.1 The applicant is willing to accept this as a formal planning condition, if deemed necessary.

7.2 Capacity Assessments for the Strategic Highway Network

7.2.1 This section of the TA will present the capacity assessments for the strategic highway network, which in this instance relates to the following two junctions;

- A280/Titnore Lane/A27 Slips (southern A27 dumbbell Roundabout); and
- A280 Long Furlong/A27 Slips/Arundel Road (northern A27 dumbbell Roundabout).

7.2.2 As requested by the HE the assessments in this section will be undertaken for the 2021, (the results for the 2031 assessments were set out in the previous section).

A27 (Southern Roundabout)

7.2.3 The results for the 'Without Development' and 'With Development' flow scenarios for 2021 are summarised within **Table 7.4** with the full results contained within **Appendix 10**.

Arm Name	2021 Without Development				2021 With Development			
	AM		PM		AM		PM	
	RFC	Q	RFC	Q	RFC	Q	RFC	Q
A27 wb Off Slip	0.50	1	0.52	1	0.50	1	0.52	1
Titnore Lane	0.49	1	0.59	2	0.49	1	0.60	2
Water Lane	1.01	27	0.61	2	1.03	36	0.63	2
A280 (n)	0.70	2	0.77	3	0.70	2	0.78	3

Table 7.4 – Summary of ARCADY Results for A27 (Southern Roundabout) - Existing

- 7.2.4 The 2021 'Without Development' results for the AM and PM peak hour show the junction will operate with reserve capacity in the PM peak but over capacity in the AM peak.
- 7.2.5 The results for the 2021 'With Development' assessments show that the junction will continue to operate in a similar manner to the base situation, with a moderate increase in queuing on the Water Lane approach.
- 7.2.6 As already stated, it is understood that improvements to the junction are proposed as part of the Land North of Water Lane application and so the junction has been re-tested assuming the improvements are in place.
- 7.2.7 The results for the 'Without Development' and 'With Development' flow scenarios for 2021 based on the improved layout are summarised within **Table 7.5** with the full results contained within **Appendix 10**.

Arm Name	2021 Without Development				2021 With Development			
	AM		PM		AM		PM	
	RFC	Q	RFC	Q	RFC	Q	RFC	Q
A27 wb Off Slip	0.50	1	0.52	1	0.50	1	0.52	1
Titnore Lane	0.49	1	0.59	2	0.49	1	0.60	2
Water Lane	0.79	4	0.48	1	0.81	4	0.50	1
A280 (n)	0.70	2	0.77	3	0.71	2	0.78	3

Table 7.5 – Summary of ARCADY Results for A27 (Southern Roundabout) - Improved

- 7.2.8 The 2021 'Without Development' results for the AM and PM peak hour show the junction will operate with reserve capacity.
- 7.2.9 The results for the 2021 'With Development' assessments show that the junction will continue to operate efficiently in both peak hours and that the development traffic can be adequately accommodated.

7.2.10 It should be noted that the original quantum of development was shown to have an impact at this junction and additional mitigation was proposed.

7.2.11 The above 2021 assessments have demonstrated that the development traffic can be accommodated, and it is therefore considered that no further mitigation is required.

A27 (Northern Roundabout)

7.2.12 The results for the 'Without Development' and 'With Development' flow scenarios for 2021 are summarised within **Table 7.6** with the full results contained within **Appendix 11**.

Arm Name	2021 Without Development				2021 With Development			
	AM		PM		AM		PM	
	RFC	Q	RFC	Q	RFC	Q	RFC	Q
A280 Long Furlong	0.64	2	0.79	4	0.65	2	0.80	4
A280 (s)	0.59	2	0.43	1	0.60	2	0.44	1
A27 Off Slip	0.73	3	0.39	1	0.75	3	0.39	1
Arundel Road	0.12	0	0.08	0	0.13	0	0.08	0

Table 7.6 – Summary of ARCADY Results for A27 (Northern Roundabout) - Existing

7.2.13 The 2021 'Without Development' results for the AM and PM peak hour show the junction will operate with reserve capacity.

7.2.14 The results for the 2021 'With Development' assessments show that the junction will continue to operate efficiently in both peak hours, in a similar manner to the base situation.

7.2.15 As already stated, it is understood that improvements to the junction are proposed as part of the Arun Transport Study (Stage 3) and so the junction has been re-tested assuming the improvements are in place.

- 7.2.16 The results for the 'Without Development' and 'With Development' flow scenarios for 2021 based on the improved layout are summarised within **Table 7.7** with the full results contained within **Appendix 11**.

Arm Name	2021 Without Development				2021 With Development			
	AM		PM		AM		PM	
	RFC	Q	RFC	Q	RFC	Q	RFC	Q
A280 Long Furlong	0.49	1	0.61	2	0.50	1	0.62	2
A280 (s)	0.59	2	0.43	1	0.60	2	0.44	1
A27 Off Slip	0.73	3	0.39	1	0.75	3	0.39	1
Arundel Road	0.12	0	0.08	0	0.13	0	0.08	0

Table 7.7 – Summary of ARCADY Results for A27 (Northern Roundabout) - Improved

- 7.2.17 The 2021 'Without Development' results for the AM and PM peak hour show the junction will operate with reserve capacity.
- 7.2.18 The results for the 2021 'With Development' assessments show that the junction will continue to operate efficiently in both peak hours, in a similar manner to the base situation.

7.3 Highways England Summary

- 7.3.1 This section of the report has addressed the points raised by Highways England in regard to the original application and scheme proposals.
- 7.3.2 It has considered all the junctions for a 2021 flow scenario, with the 2031 assessments being set out in the previous section.
- 7.3.3 It has provided the additional information requested including additional junction assessments of the strategic road network.

- 7.3.4 It has demonstrated that the proposals will not result in an increase of 'U' turning traffic as they will simply utilise the A280/Water Lane junction to access the A27 eastbound. This will mean, the number of 'U' turners will remain as it is at present and safety will not be compromised.
- 7.3.5 There have been four recorded accidents at the A27/Arundel Road junction over the last 5 years and there is no evidence to suggest that the proposals will have a detrimental impact on road safety. Indeed, if considered necessary, the applicant would consider the introduction of some suitable warning signage, so drivers are aware that there could be pedestrians crossing at this location. Further information regarding accidents is contained within the submitted Highways Note.
- 7.3.6 This TA has confirmed that It is understood that the sports facilities will most likely be operated by the Parish Council, as part of the existing Angmering Sports and Recreation Ground facility. It will not generate traffic in the traditional peak hours and the majority of users will be local and simply walk or cycle, or travel by a multiple occupancy vehicle.
- 7.3.7 In addition, it has shown that the A27/Arundel Road junction will continue to operate satisfactorily, once the development traffic is added.
- 7.3.8 The applicant is willing to accept a planning condition with regard to the provision of a Construction Management Plan (CMP).
- 7.3.9 The assessments have demonstrated that the development traffic can be accommodated onto the strategic highway network and will not have a material impact on overall operation.

8 ACCIDENT DATA

8.1 Introduction

8.1.1 In order to consider the potential impact of the development on road safety, a review of the Crashmap website (www.crashmap.co.uk) has been undertaken. The information provided on the website covered the three-year period 2016 to 2018, the latest data available in the vicinity of the development site. The accident data is contained within **Appendix 13**.

8.2 Accident Review

8.2.1 According to the data provided, there have been no accidents in the immediate vicinity of the site on Arundel Road. The records show however, that there have been 2 recorded incidents on the A27, located approximately 350 metres away to the north of the site, as identified in **Figure 8.1** below.

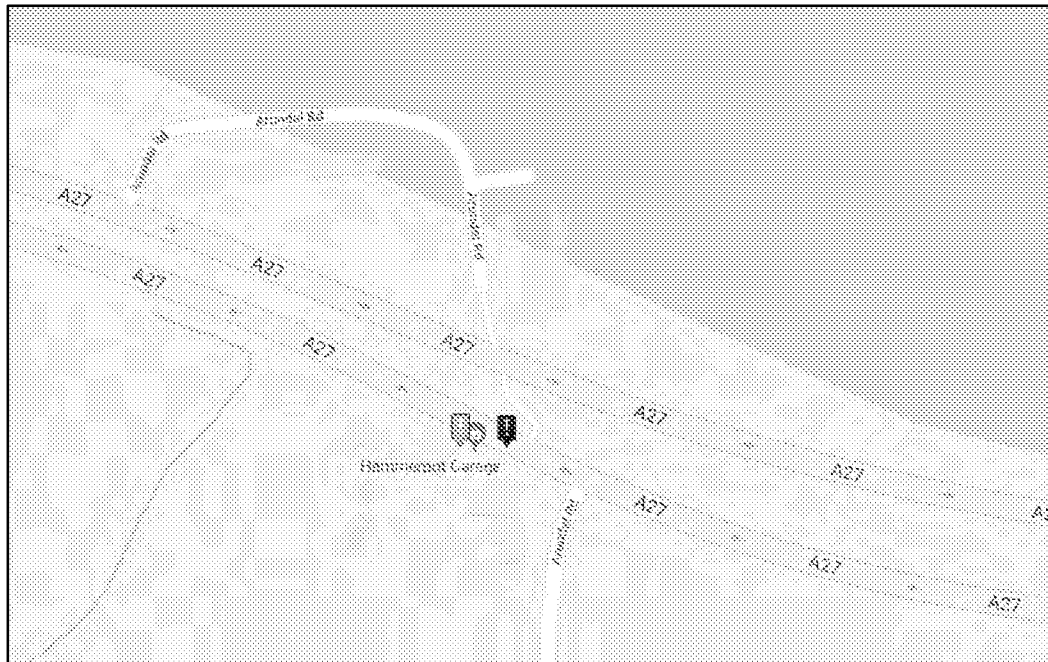


Figure 8.1 – Accident Location

8.2.2 The first accident took place to the west of Arundel Road in 2016 and involved a car and a light goods vehicle.

8.2.3 The records show that it was daylight, the weather conditions were fine and the road surface was dry. The details indicate that the car was parked in the carriageway, when it was struck by the light goods vehicle, resulting in a slight injury to the van driver. This suggests that the driver of the van was not paying sufficient attention to the surroundings and failed to notice the stationary vehicle, or was travelling in excess of the speed limit and failed to react in time.

8.2.4 The second incident related to an accident involving a pedestrian who was crossing the dual carriageway and was struck by a car. The records show it was dark when the accident took place, although the weather was fine and road surface dry. The details indicate that the elderly pedestrian was walking in the carriageway and so it is likely that the car driver simply did not see the pedestrian. The incident unfortunately resulted in a fatal injury to the pedestrian.

8.3 Accident Summary

8.3.1 The data reviewed has not identified any untypical accidents.

8.3.2 The data reviewed has therefore demonstrated that there are no particular road safety issues in the vicinity of the site.

8.3.3 It is considered that the proposals for a residential development will not unduly change the characteristics or nature of the surrounding highway network and as such will not have a detrimental impact on overall road safety.

8.3.4 Furthermore, the proposed site access junction accords with relevant design criteria and is deemed to be a safe and appropriate form of junction to serve the development.

8.3.5 As such, there is no evidence to suggest that the proposed residential development will have an adverse effect on road safety or the number of accidents in the vicinity.

8.3.6 Further consideration to road safety is presented in the Highways Note submitted as part of the highways submission, which seeks to address the comments and queries received from WSCC and HE in relation to the original planning submission.

9 SMARTER TRAVEL CHOICES VIA TRAVEL PLANS

9.1 Introduction

- 9.1.1 In order to manage the travel by residents at the new development, the applicant wishes to offer a Travel Plan to encourage travel to the site by non-car modes.

9.2 Travel Planning Guidance

- 9.2.1 The preparation and adoption of a Travel Plan is an important element of managing the demand for travel to all modern developments. The Department for Transport (DfT) have produced guidance on the preparation of Travel Plans. The document, entitled '*Good Practice Guidelines: Delivering Travel Plans through the Planning Process*' was published in August 2009.
- 9.2.2 The guidance explains how *"we often need to meet the demands of population and economic growth whilst simultaneously reducing our impact on the environment"* and identifies that *"The benefits of increases in sustainable travel, in particular cycling and walking, can extend beyond reduction in CO₂ emissions and climate impacts, and include tackling congestion, tackling obesity and health issues, reducing social exclusion and improving quality of life"*.
- 9.2.3 The document sets out an overview of the process and delivery of Travel Plans and states that *"A Travel Plan is a long-term management strategy for an occupier or site that seeks to deliver sustainable transport objectives through positive action and is articulated in a document that is regularly reviewed."*
- 9.2.4 The Guidance states that *"Travel Plans should involve the development of agreed explicit outcomes linked to an appropriate package of measures aimed at encouraging more sustainable travel, with an emphasis on reducing single occupancy car use..."* and;

"A Travel Plan should seek to establish clear outcomes to be achieved in relation to access and set out all the measures to be implemented in detail, including an action plan, timescales, targets and responsibilities for implementation, monitoring and review".

- 9.2.5 It is made clear in the document that Travel Plans should focus on achieving the lowest practical level of single occupancy vehicle trips to or from a site and widening the use of other travel modes and assist in the wider aims of encouraging sustainable travel, improving health, reducing congestion, energy consumption and pollution. The Travel Plan, it advises *“needs to address all the journeys that may be made to and from a site”*.
- 9.2.6 The guidance also specifies that *“It is important to note that Travel Planning should be developed as one of the means of delivering an area’s sustainable transport strategy. Travel Planning should feature in the policy framework and implementation programmes of Regional Spatial Strategies and Local Development Frameworks”*.
- 9.2.7 Further guidance relating specifically to residential Travel Plans is presented in the DfT document entitled *“Making Residential Travel Plans Work”* published in June 2007.
- 9.2.8 The document states that:
- “Travel Planning is one of a range of measures known as smarter choices which have been found to be effective on reducing traffic and improving accessibility in residential areas”*.
- 9.2.9 A Residential Travel Plan is a package of measures designed to reduce car use originating from new housing by supporting alternative forms of transport and reducing the need to travel in the first place.
- 9.2.10 They are an important tool to help deliver accessible, sustainable communities and offer clear benefits to all the parties involved – public, private and the community. They involve meeting the access needs of residents in a new way and require partnerships between developers, local authorities, local communities and new residents.
- 9.2.11 The value of Travel Plans in reducing car use to workplaces and schools is widely recognised and many local authorities and developers have experience in their design and implementation.

- 9.2.12 However, until recently, little attention has been given to tackling the origins of journeys from people's homes. Now, forward-thinking developers and local authorities are developing packages of smarter choices to both reduce the traffic generated by new housing developments and increasing the travel choices available to residents. These smarter choices are being set out in Residential Travel Plans.

9.3 Residential Travel Plan

- 9.3.1 The objective of a Residential Travel Plan is the delivery of the objectives of the NPPF, i.e. to encourage residents to travel to work by bus, on foot and by bicycle.
- 9.3.2 The Residential Travel Plan outlines physical and management measures that are designed to achieve this objective.
- 9.3.3 However, the principle measure will consist of a Residents Travel Information Pack containing relevant material to promote non-car modes of travel and the provision of certain physical measures.
- 9.3.4 The Travel Pack will contain information to inform residents of the existing long-term strategy for reducing the dependence of residents and visitors on travel by private car.
- 9.3.5 The site has been demonstrated to benefit from excellent non-car accessibility and it should, therefore, be expected that the adoption of a Travel Plan would be particularly effective.
- 9.3.6 A Residential Travel Plan has been prepared and has been submitted as a separate document within the application package. The Travel Plan has been updated following comments from WSCC and should therefore now be deemed acceptable.

10 ROAD SAFETY AUDIT

10.1 Introduction

10.1.1 As requested by the local highway authority, a Stage 1 Road Safety Audit has been undertaken for the site access points, both primary access and secondary, located to the south.

10.2 Road Safety Audit

10.2.1 The site visit was undertaken on Saturday 9th December 2017 between 13:15-13:40 and comprised a walk and drive through of the area in the vicinity of the scheme. During the site visit both the weather and road surface were dry. Traffic in the vicinity of the scheme was light/moderate.

10.2.2 Arundel Road in the vicinity of the proposed access is subject to a 60 mph speed limit.

10.2.3 The Stage 1 Road Safety Audit, Designers Response and signed and dated exception report for the main site access is contained within **Appendix 14**, while the one for the secondary access is contained within **Appendix 15**.

10.3 Findings of Road Safety Audit

10.3.1 The terms of reference of the audit are as that described in DMRB HD19/15 Guidelines on Road Safety Audits. This standard has been used for guidance only. The team has examined and reported only on the road safety implications of the scheme as presented and has not examined or verified the compliance of the designs to any other criteria.

10.3.2 The scope of the RSA is limited to the proposed access arrangements to the site that will include:

- The introduction of a priority controlled 'ghost island' right turn lane with lane widths of 3.0 metres;
- Visibility splays of 2.4 metres by 59 metres from the site access (which it is noted accords with MfS guidance on vehicle speeds of 37mph); and

- Access road with a 5.5 metre width, 6.0 metre kerb radii and 2.0 metre wide footways on either side of the access road.

- 10.3.3 Junction capacity assessments provided for review as part of the RSA has forecast that the proposed junction would operate within capacity with no forecast queuing during the 2031 assessment year.
- 10.3.4 A review of the Personal Injury Collisions (PIC) data between 01/01/2012 and 31/12/2016 in the immediate vicinity of the proposed site access junction has indicated that during this period there have been no PIC's recorded.
- 10.3.5 The RSA identified two issues with the proposed site access which related to the vertical alignment of Arundel Road and the swept path analyses undertaken for a refuse vehicle in terms of its manoeuvring in and out of the site access.
- 10.3.6 In order to address the points raised above, the site access plan has been revised and is also contained within Appendix 14. In addition, the results of the Automatic Traffic Counts (ATC's) and visibility calculations based on Manual for Streets are also contained within Appendix 14.
- 10.3.7 The traffic speed data shows that the 85th percentile wet weather traffic speeds in the vicinity of the site are as follows;
- Northbound - 37.6mph; and
 - Southbound - 35.7mph
- 10.3.8 Based on the Manual for streets guidance, the above traffic speeds would require visibility splays of 59.61 metres (northbound) and 55.19 metres (southbound).
- 10.3.9 As indicated above, and within the RSA report, the site access can achieve visibility splays of 59 metres in both directions and as such, it is considered that design meets the required standards.

10.4 Summary

- 10.4.1 In light of the above, the vehicular access arrangements should be deemed acceptable to the local highway authority.

11 CONCLUSIONS

- 11.1.1 Croft have been commissioned by Gladman to produce a Transport Assessment and Travel Plan to assist the Local Planning Authority's determination of a planning application for a proposed residential development off Arundel Road in Angmering.
- 11.1.2 The existing pedestrian infrastructure in the vicinity of the site is of good standard, providing safe linkages to the surrounding area and local facilities. The existing pedestrian environment will be improved by the upgrading of the existing informal crossing adjacent to St Margaret's C of E Primary School to a controlled crossing.
- 11.1.3 The site benefits from being located in close proximity to the bus stops located within a short walk of the site, which provide services to local destinations and are ideally placed to cater for the needs of the residents, visitors and staff.
- 11.1.4 The proposals comply with the aims and aspirations of both of local and national policy.
- 11.1.5 The proposed residential development will be accessed by a safe and efficient priority controlled vehicular access arrangement that will not compromise highway safety.
- 11.1.6 Similarly, the commercial access utilises the existing access point located to the south and with the modifications to cater for pedestrians is deemed to be acceptable.
- 11.1.7 The impact of the proposals has been assessed using the TRICS database and the assessments undertaken have shown that overall the proposals will not have a material impact or give rise to any highways related issues on the local road network. However, it is acknowledged that existing congestion takes place along the A529 corridor and so, it is likely that contributions may be sought from the applicant by the local highway authority.
- 11.1.8 The assessments of the A27 junctions which are maintained by Highways England show that the development traffic can be accommodated onto the A27 northern dumbbell roundabout assuming the planned improvements are implemented.

- 11.1.9 Similarly, the assessments for the A27 southern roundabout demonstrate that the traffic associated with the proposals can be adequately accommodated assuming the improvements being delivered by the Land North of Water Lane, which has planning consent are implemented.
- 11.1.10 There is no evidence to suggest that the proposals would have an adverse effect on road safety or the number of accidents in the vicinity.
- 11.1.11 The WCHAR survey which considered non-motorised users at the A27/Arundel Road junction concluded that the number of residents at the new development requiring to cross the road at this location would be negligible. Notwithstanding this, a mitigation scheme has been prepared which includes the provision of new warning signage on the A27 to the east and west of Arundel Road to ensure drivers are aware that pedestrians, cyclists or equestrians could be crossing the road at this location. It is considered that this will be a betterment to the existing situation.
- 11.1.12 A Travel Plan (submitted separately as part of the application package) will be implemented to encourage the use of non-car modes to meet the aims and aspirations of national and local policy and assist in delivering as sustainable development.
- 11.1.13 The Road Safety Audits have confirmed that the proposals will provide safe points of access into the site.
- 11.1.14 Based on the above, it is the conclusion of this report that there are no material reasons why the proposed development should not be granted planning consent on highways or transportation grounds.

FIGURES

FIGURE	DESCRIPTION	SCENARIO	CALC
FIGURE 1	2017 SURVEYED FLOWS	AM PEAK	See TA
FIGURE 2	2017 SURVEYED FLOWS	PM PEAK	See TA
FIGURE 3	2021 FACTORED FLOWS	AM PEAK	FIG1xNTM
FIGURE 4	2021 FACTORED FLOWS	PM PEAK	FIG2xNTM
FIGURE 5	2027 FACTORED FLOWS	AM PEAK	FIG1xNTM
FIGURE 6	2027 FACTORED FLOWS	PM PEAK	FIG2xNTM
FIGURE 7	2031 FACTORED FLOWS	AM PEAK	FIG1xNTM
FIGURE 8	2031 FACTORED FLOWS	PM PEAK	FIG2xNTM
FIGURE 9a	COMMITTED DEVELOPMENT (A/82/12) - 138 Units	AM PEAK	See TA
FIGURE 10a	COMMITTED DEVELOPMENT (A/82/12) - 138 Units	PM PEAK	See TA
FIGURE 9b	COMMITTED DEVELOPMENT (A/144/15/PL) - 246 Units	AM PEAK	See TA
FIGURE 10b	COMMITTED DEVELOPMENT (A/144/15/PL) - 246 Units	PM PEAK	See TA
FIGURE 9c	COMMITTED DEVELOPMENT (A/27/16/PL) - 53 Bed Care Home	AM PEAK	See TA
FIGURE 10c	COMMITTED DEVELOPMENT (A/27/16/PL) - 53 Bed Care Home	PM PEAK	See TA
FIGURE 9d	LAND NORTH OF WATER LANE (A/40/18/OUT) - 525 Dwellings & Employment	AM PEAK	See TA
FIGURE 10d	LAND NORTH OF WATER LANE (A/40/18/OUT) - 525 Dwellings & Employment	PM PEAK	See TA
FIGURE 9e	LAND SOUTH OF WATER LANE (A/99/17/OUT) - 175 Dwellings	AM PEAK	See TA
FIGURE 10e	LAND SOUTH OF WATER LANE (A/99/17/OUT) - 175 Dwellings	PM PEAK	See TA
FIGURE 9f	TOTAL COMMITTED DEVELOPMENT	AM PEAK	F9a+F9b+F9c+F9d+F9e
FIGURE 10f	TOTAL COMMITTED DEVELOPMENT	PM PEAK	F10b+F10b+F10c+F10d+F10e
FIGURE 11	2021 BASE FLOWS	AM PEAK	F3+F9f
FIGURE 12	2021 BASE FLOWS	PM PEAK	F4+F10f
FIGURE 13	2027 BASE FLOWS	AM PEAK	F5+F9f
FIGURE 14	2027 BASE FLOWS	PM PEAK	F6+F10f
FIGURE 15	2031 BASE FLOWS	AM PEAK	F7+F9f
FIGURE 16	2031 BASE FLOWS	PM PEAK	F8+F10f
FIGURE 17	TRIP DISTRIBUTION	AM PEAK	See TA
FIGURE 18	TRIP DISTRIBUTION	PM PEAK	See TA
FIGURE 19	DEVELOPMENT FLOWS	AM PEAK	See TA
FIGURE 20	DEVELOPMENT FLOWS	PM PEAK	See TA
FIGURE 21	2021 ASSESSMENT FLOWS	AM PEAK	F11+F19
FIGURE 22	2021 ASSESSMENT FLOWS	PM PEAK	F12+F20
FIGURE 23	2027 ASSESSMENT FLOWS	AM PEAK	F13+F19
FIGURE 24	2027 ASSESSMENT FLOWS	PM PEAK	F14+F20
FIGURE 25	2031 ASSESSMENT FLOWS	AM PEAK	F15+F19
FIGURE 26	2031 ASSESSMENT FLOWS	PM PEAK	F16+F20

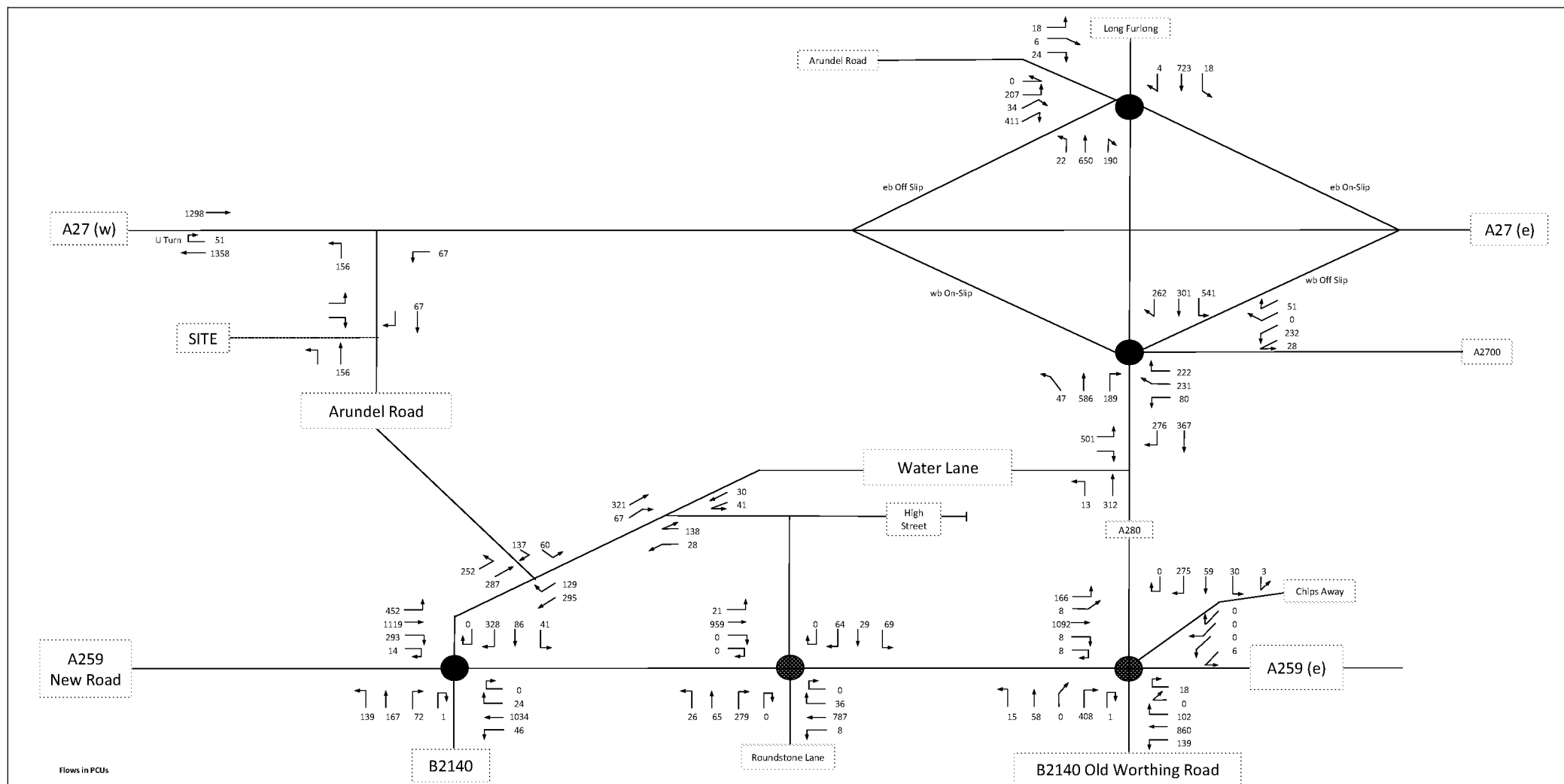


Figure 1 - 2017 Surveyed Flows
AM Peak Period (0745 - 0845)

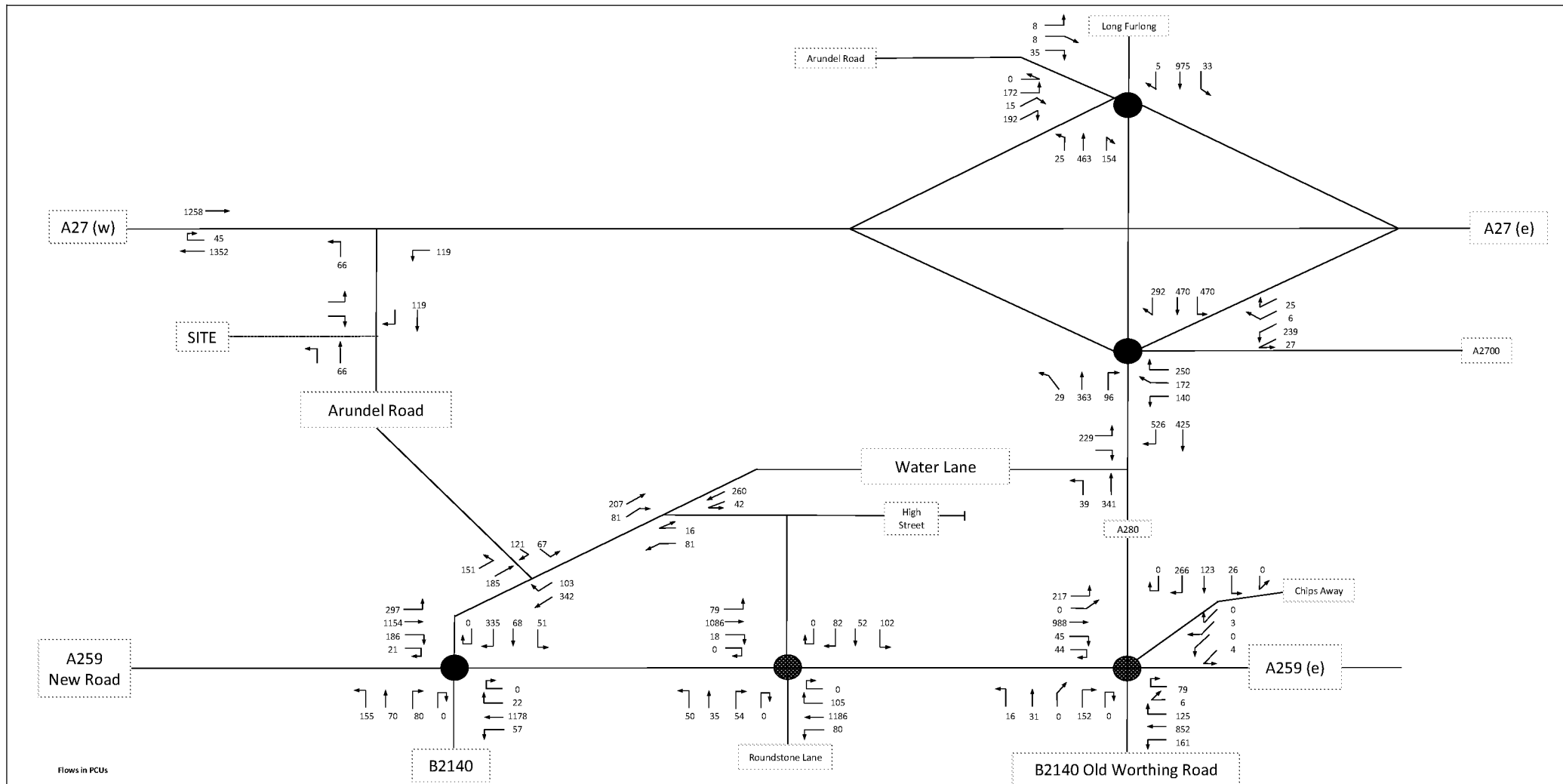


Figure 2 - 2017 Surveyed Flows
PM Peak Period (1645 - 1745)

croft
Transport Solutions

Hill Quays, 9 Jordan Street, Manchester M15 4PY
Tel: 0161 667 3746 www.croftts.co.uk info@croftts.co.uk

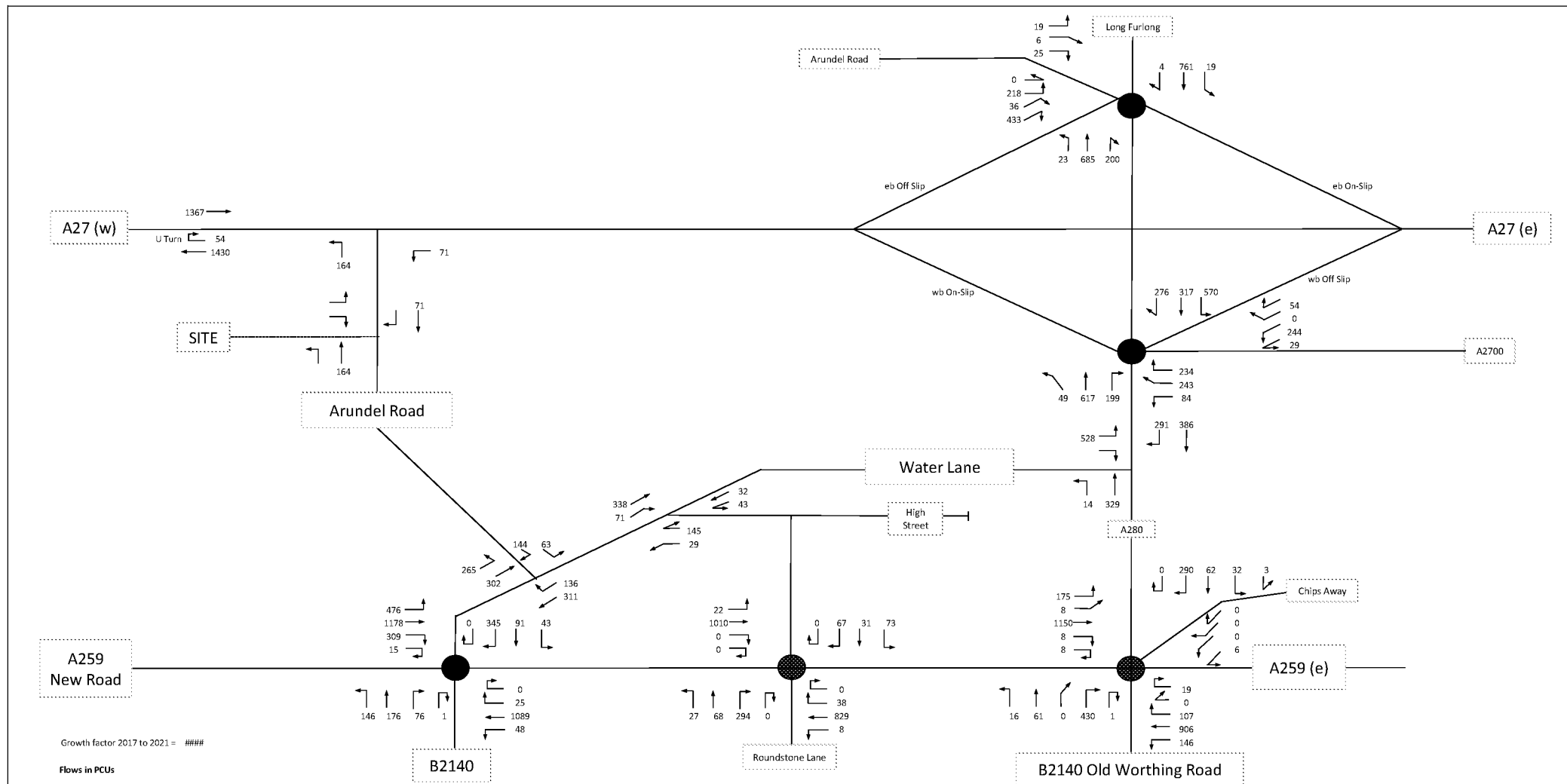
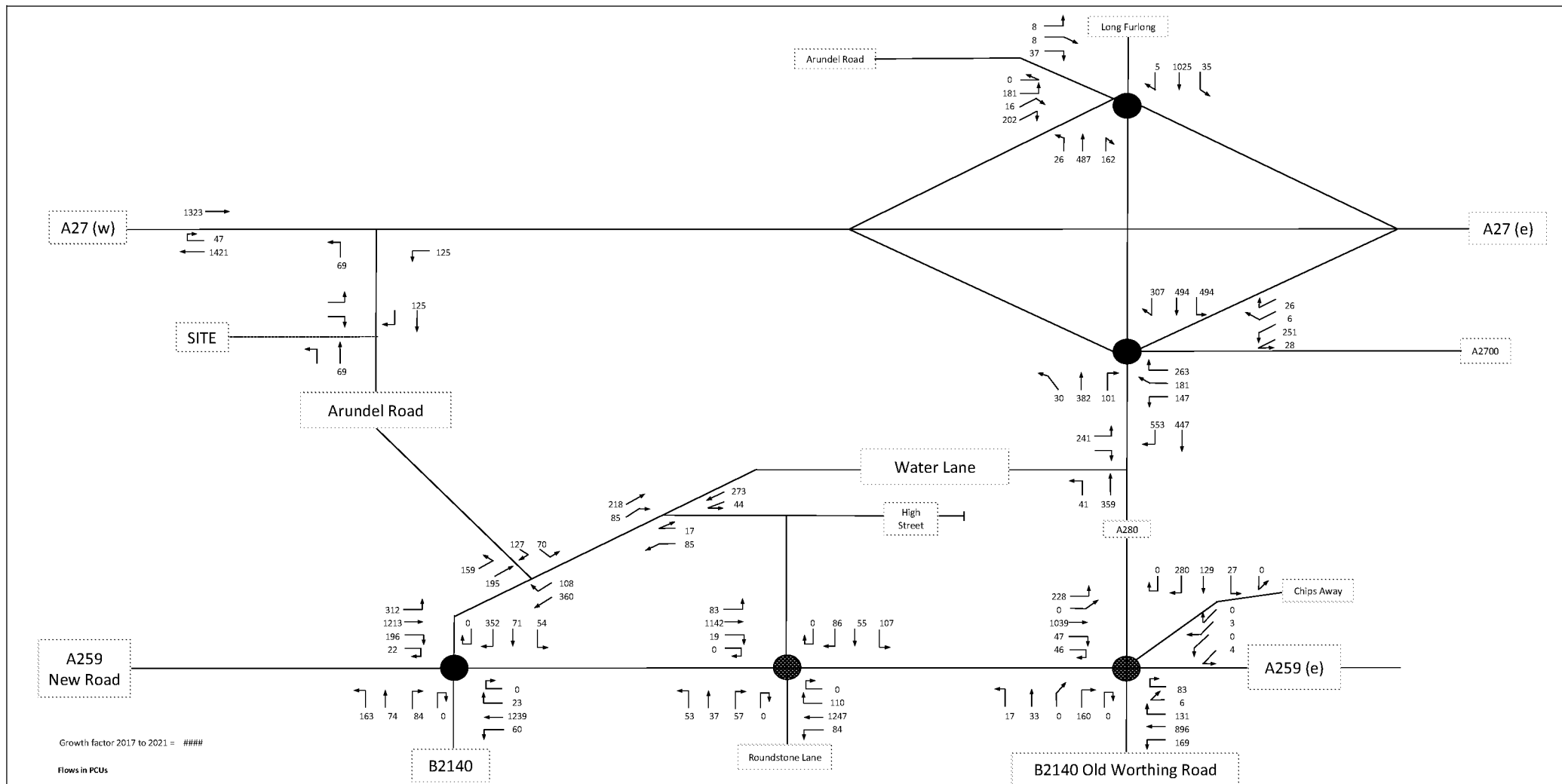


Figure 3 - 2021 Factored Flows
AM Peak Period (0745 - 0845)

croft
Transport Solutions

Hill Quays, 9 Jordan Street, Manchester M15 4PF
Tel: 0161 867 3748 www.croftts.co.uk info@croftts.co.uk



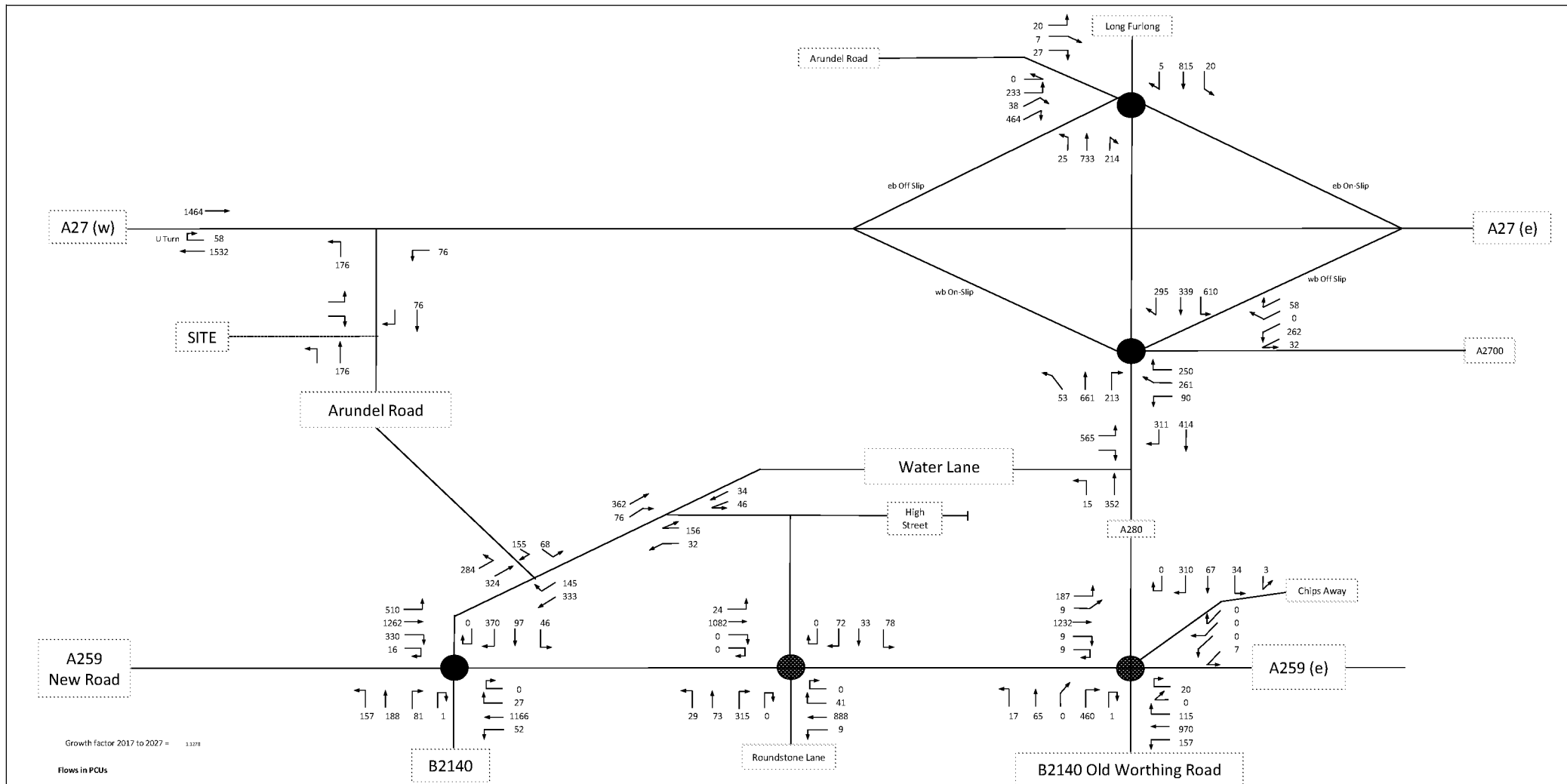
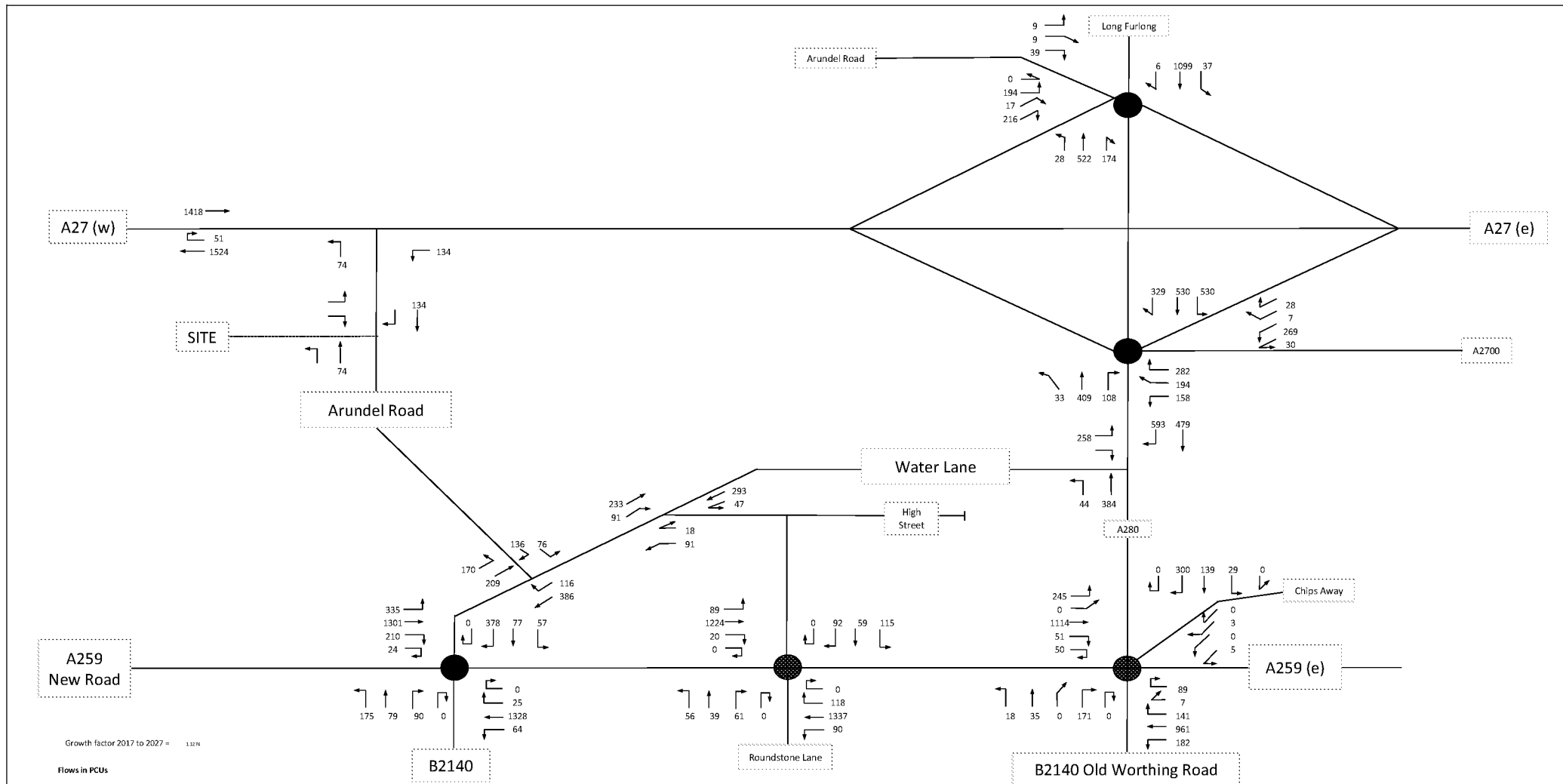


Figure 5 - 2027 Factored Flows
AM Peak Period (0745 - 0845)

croft
Transport Solutions

Hill Quays, 9 Jordan Street, Manchester M15 4PF
Tel: 0161 867 3748 www.croftts.co.uk info@croftts.co.uk



croft
Transport Solutions

Hill Quays, 9 Jordan Street, Manchester M15 4PY
Tel: 0161 667 3746 www.croftts.co.uk info@croftts.co.uk

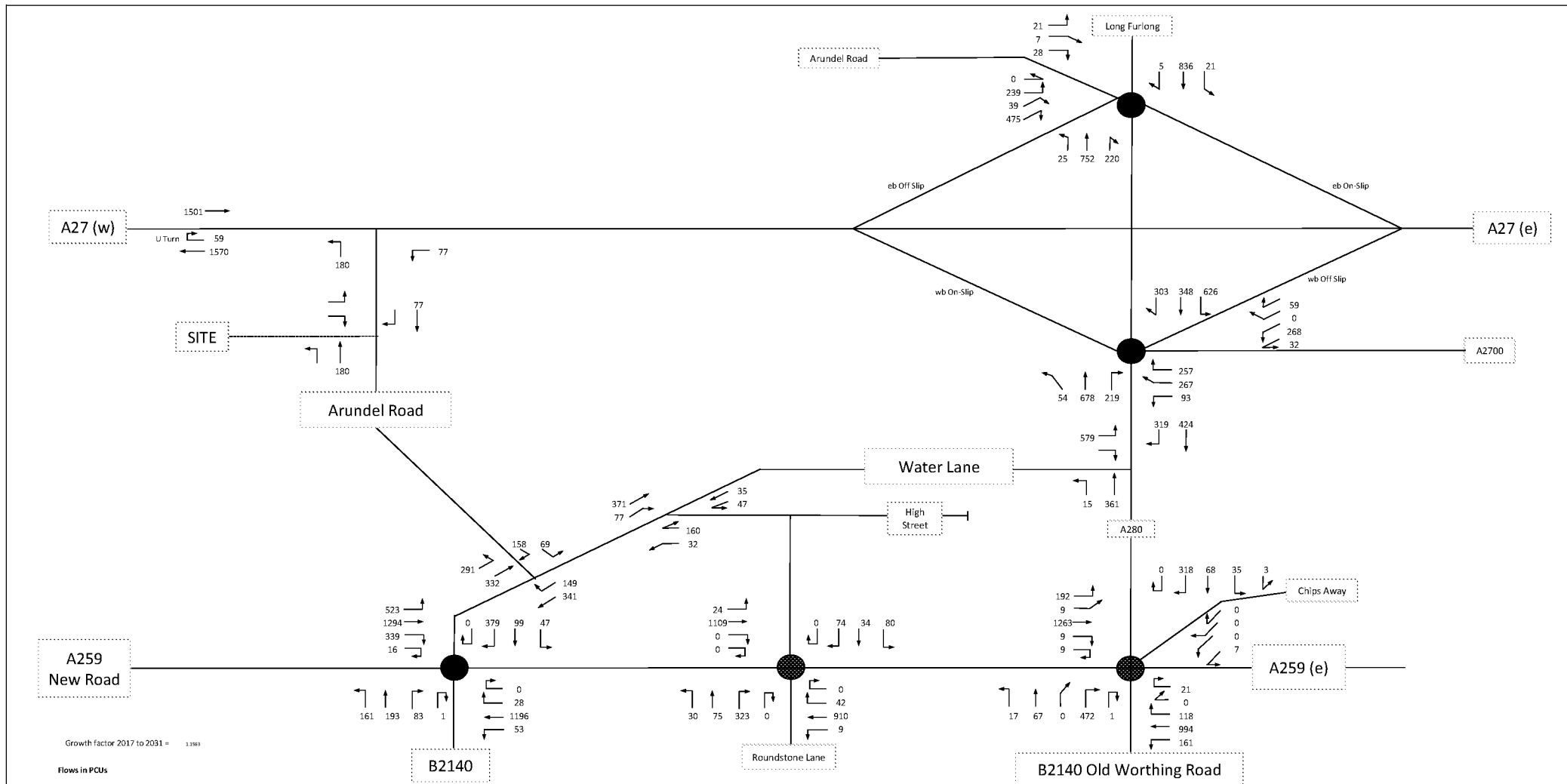
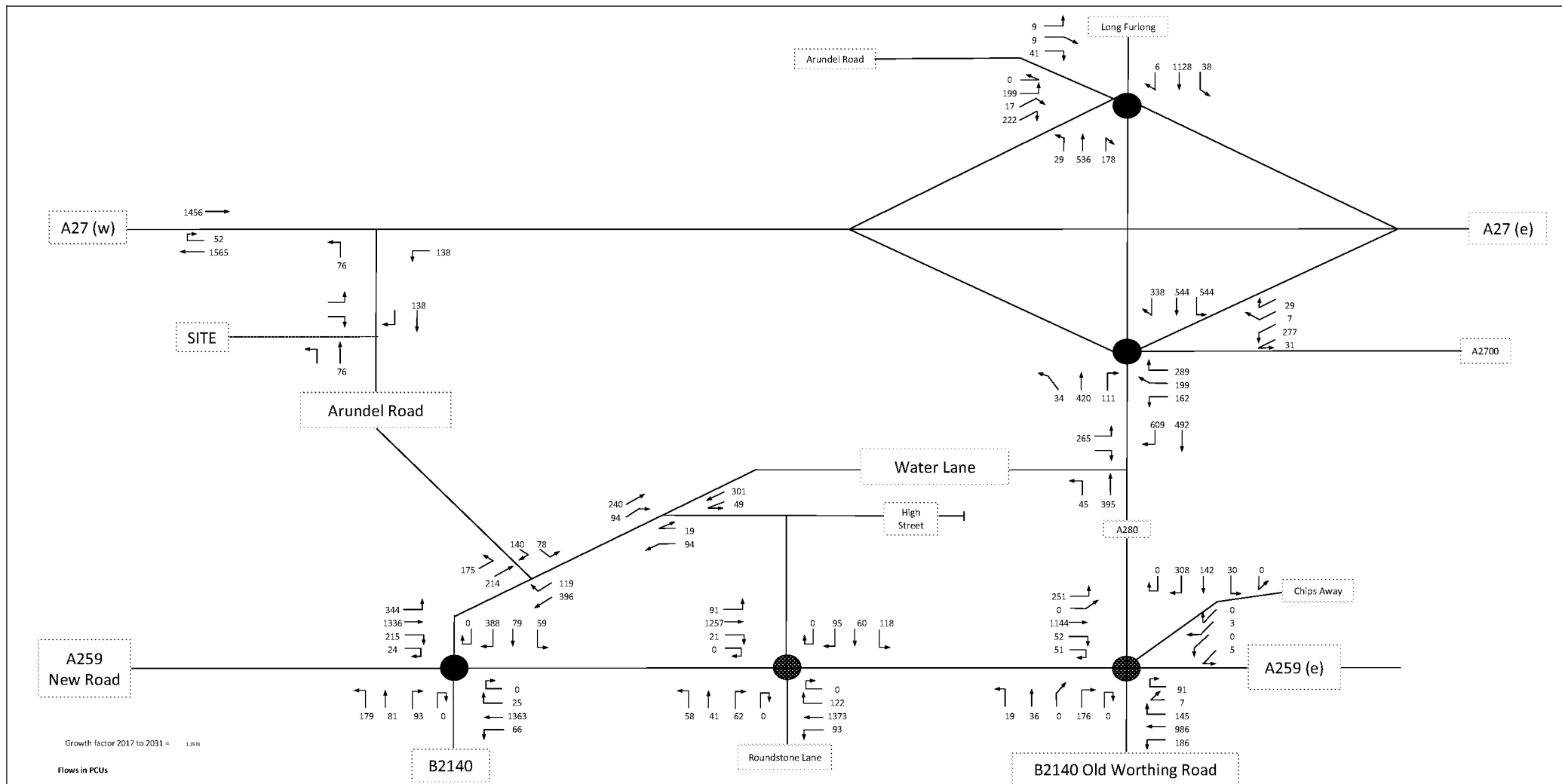


Figure 7 - 2031 Factored Flows
AM Peak Period (0745 - 0845)

croft
Transport Solutions

Hill Quays, 9 Jordan Street, Manchester M15 4PF
Tel: 0161 867 3748 www.croftts.co.uk info@croftts.co.uk



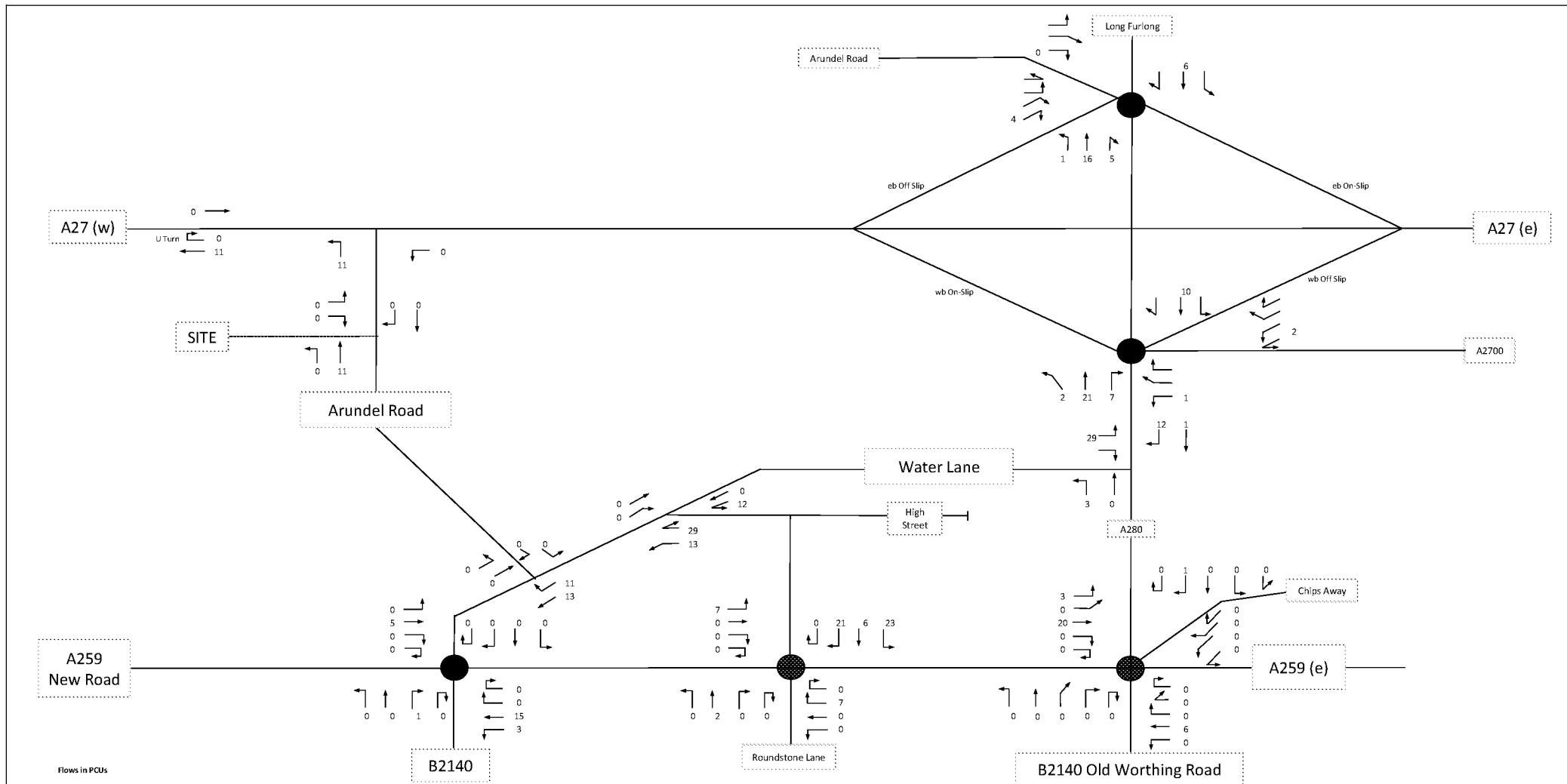
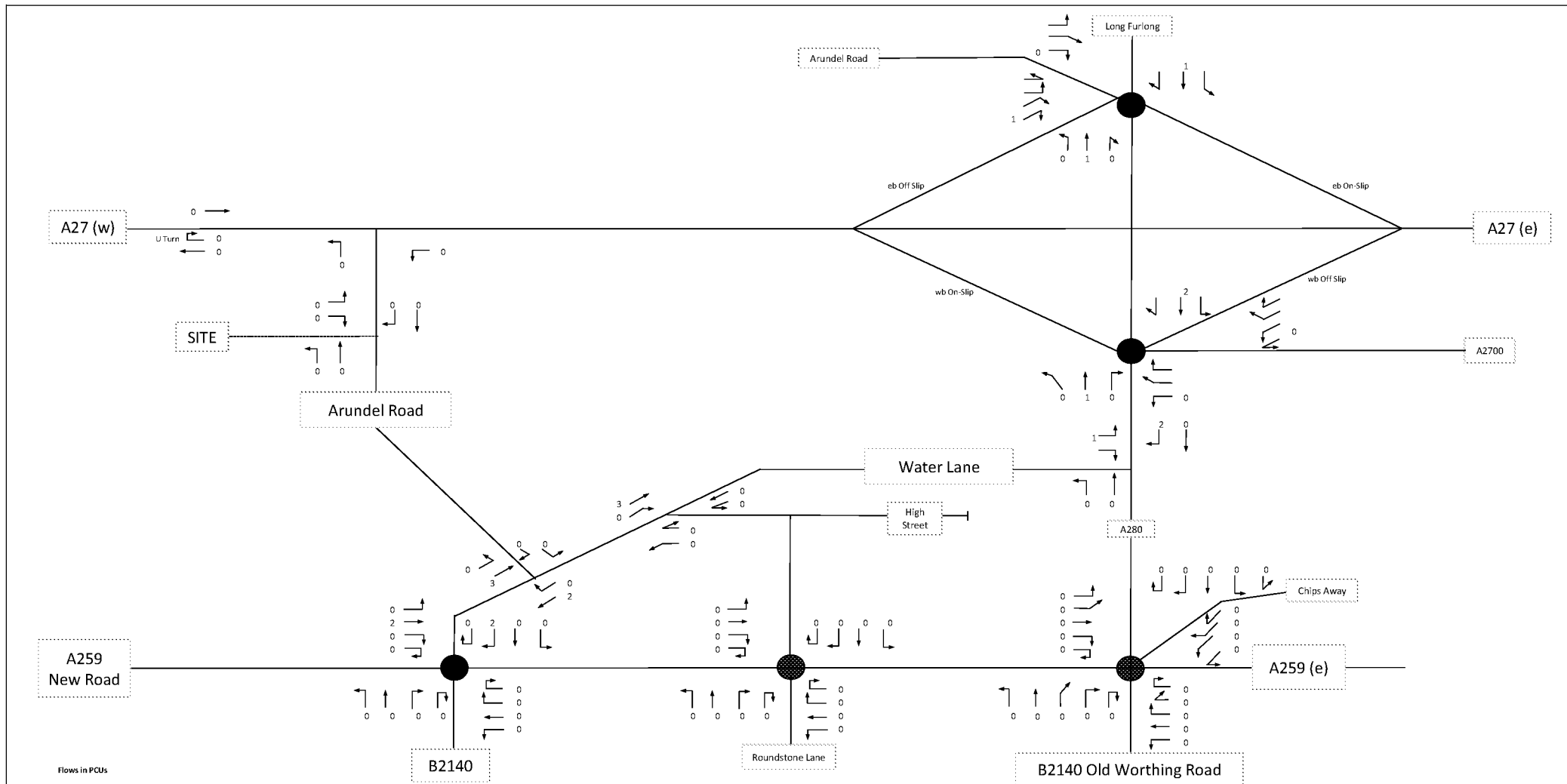


Figure 9a - Committed Development (A/82/12) - 138 Units
AM Peak Period (0745 - 0845)

croft
Transport Solutions

Hill Quays, 9 Jordan Street, Manchester M15 4PF
Tel: 0161 867 3748 www.croftts.co.uk info@croftts.co.uk



croft
Transport Solutions

Hill Quays, 9 Jordan Street, Manchester M15 4PF
Tel: 0161 867 3748 www.croftts.co.uk info@croftts.co.uk

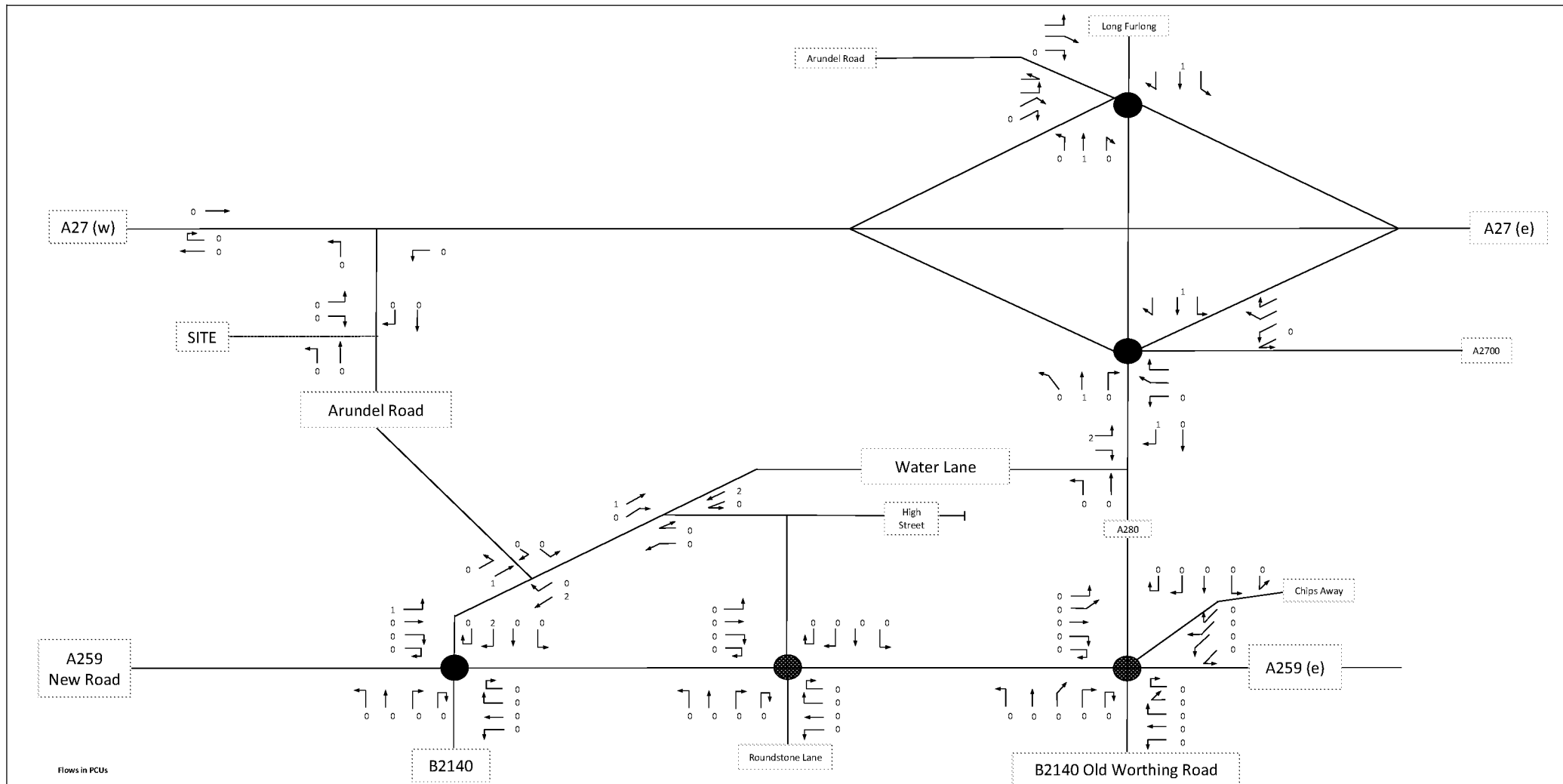
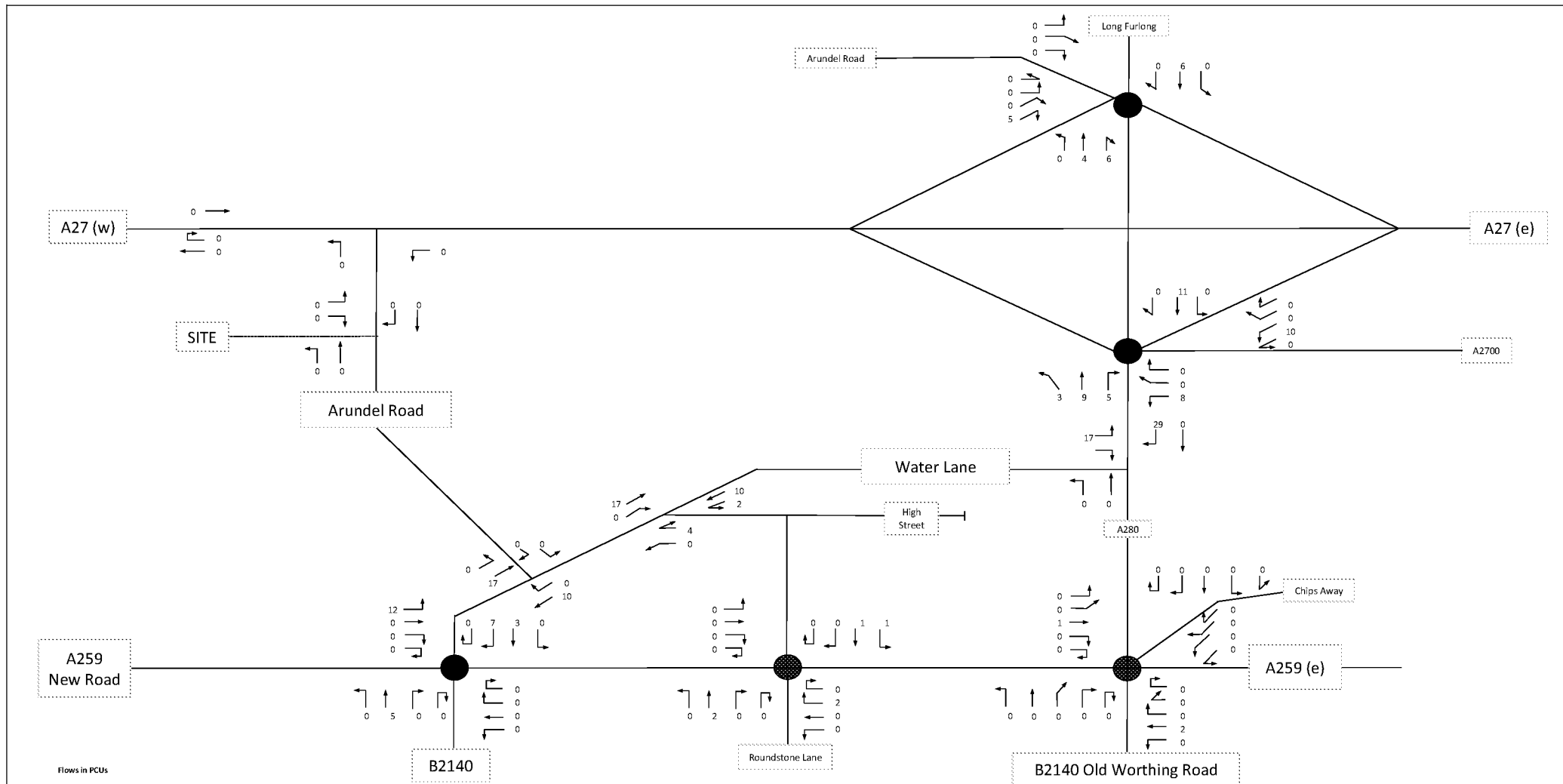


Figure 10c - Committed Development (A/27/16/PL) - 53 Bed Care Unit
PM Peak Period (1645 - 1745)

croft
Transport Solutions

Hill Quays, 9 Jordan Street, Manchester M15 4PY
Tel: 0161 667 3746 www.croftts.co.uk info@croftts.co.uk



croft
Transport Solutions

Hill Quays, 9 Jordan Street, Manchester M15 4PY
Tel: 0161 667 3746 www.croftts.co.uk info@croftts.co.uk

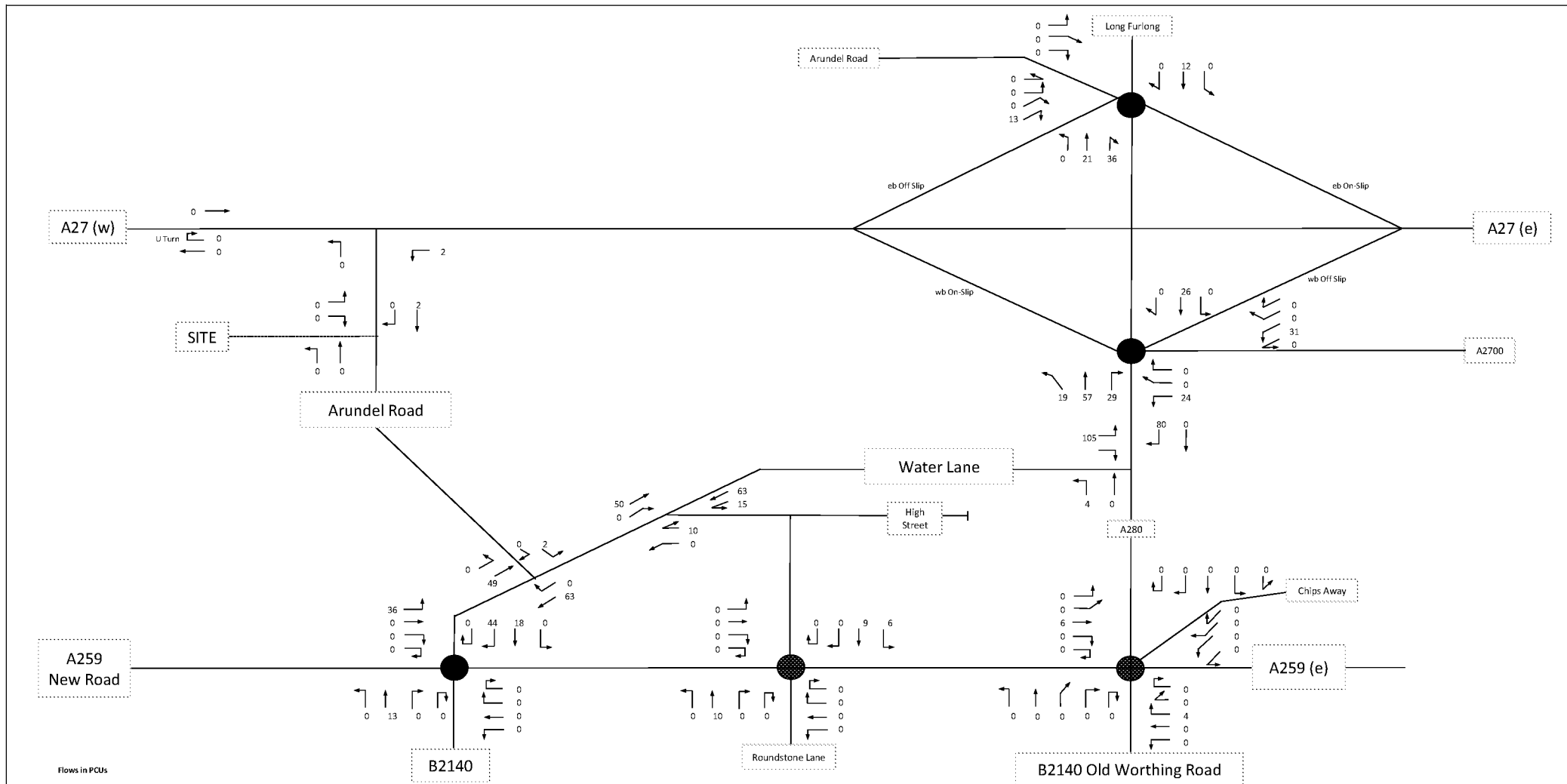


Figure 9e - Land North of Water Lane Development (A/99/17/OUT) - 175 Dwellings
AM Peak Period (0745 - 0845)

croft
Transport Solutions

Hill Quays, 9 Jordan Street, Manchester M15 4PF
Tel: 0161 867 3748 www.croftts.co.uk info@croftts.co.uk

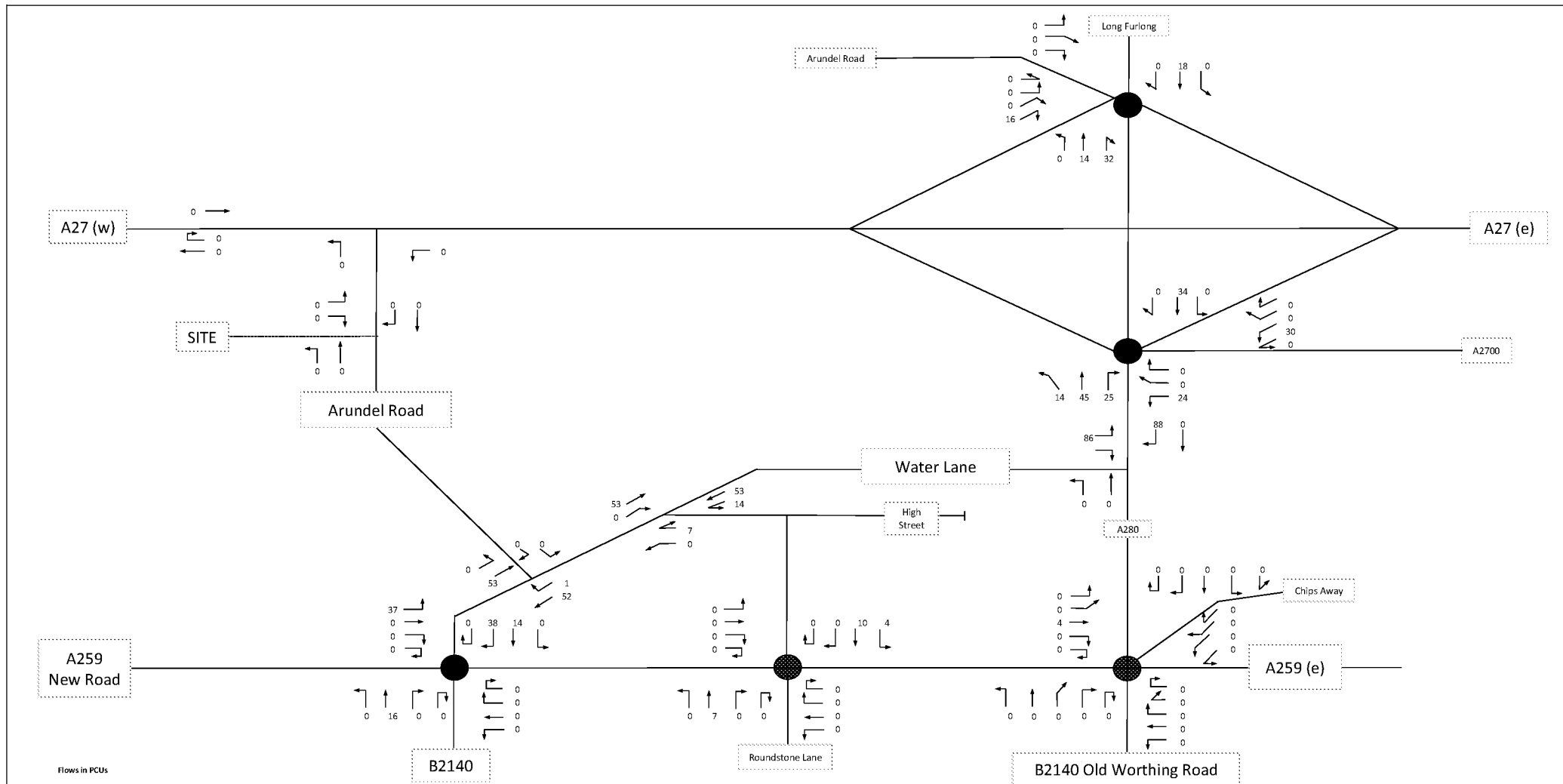
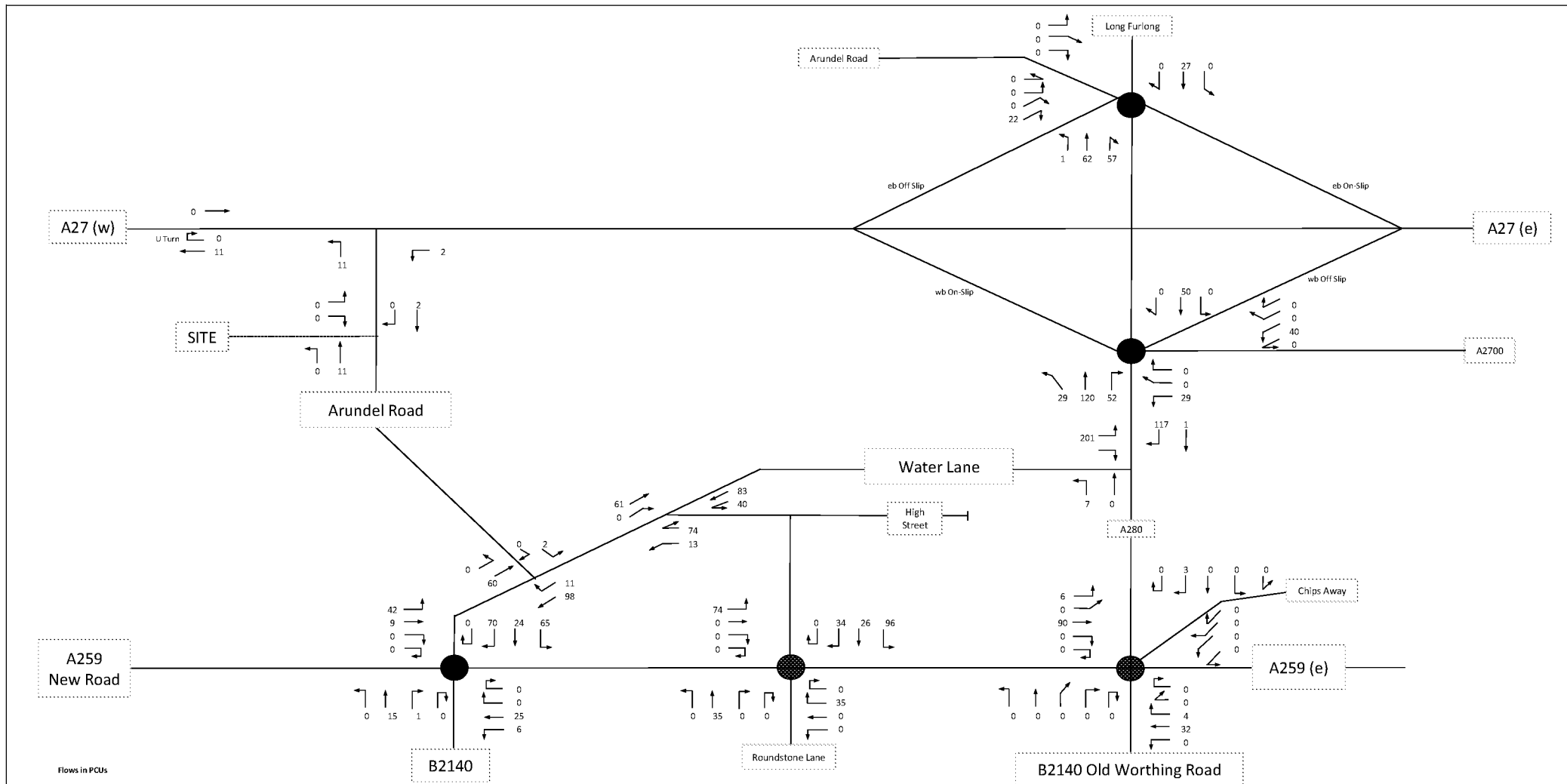


Figure 10e - Land North of Water Lane Development (A/99/17/OUT) - 175 Dwellings
PM Peak Period (1645 - 1745)

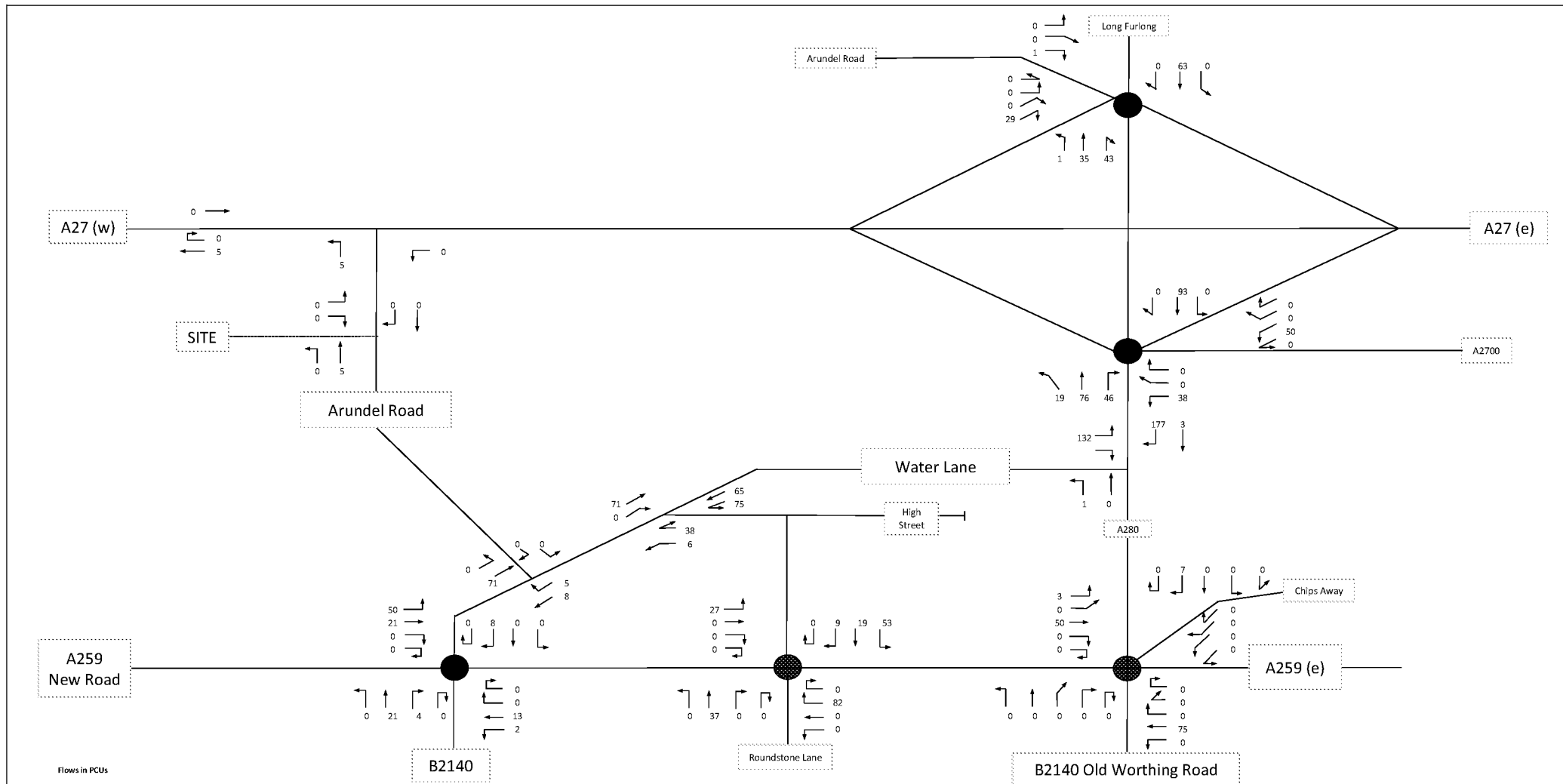
croft
Transport Solutions

Hill Quays, 9 Jordan Street, Manchester M15 4PY
Tel: 0161 667 3746 www.croftts.co.uk info@croftts.co.uk



croft
Transport Solutions

Hill Quays, 9 Jordan Street, Manchester M15 4PF
Tel: 0161 867 3748 www.croftts.co.uk info@croftts.co.uk



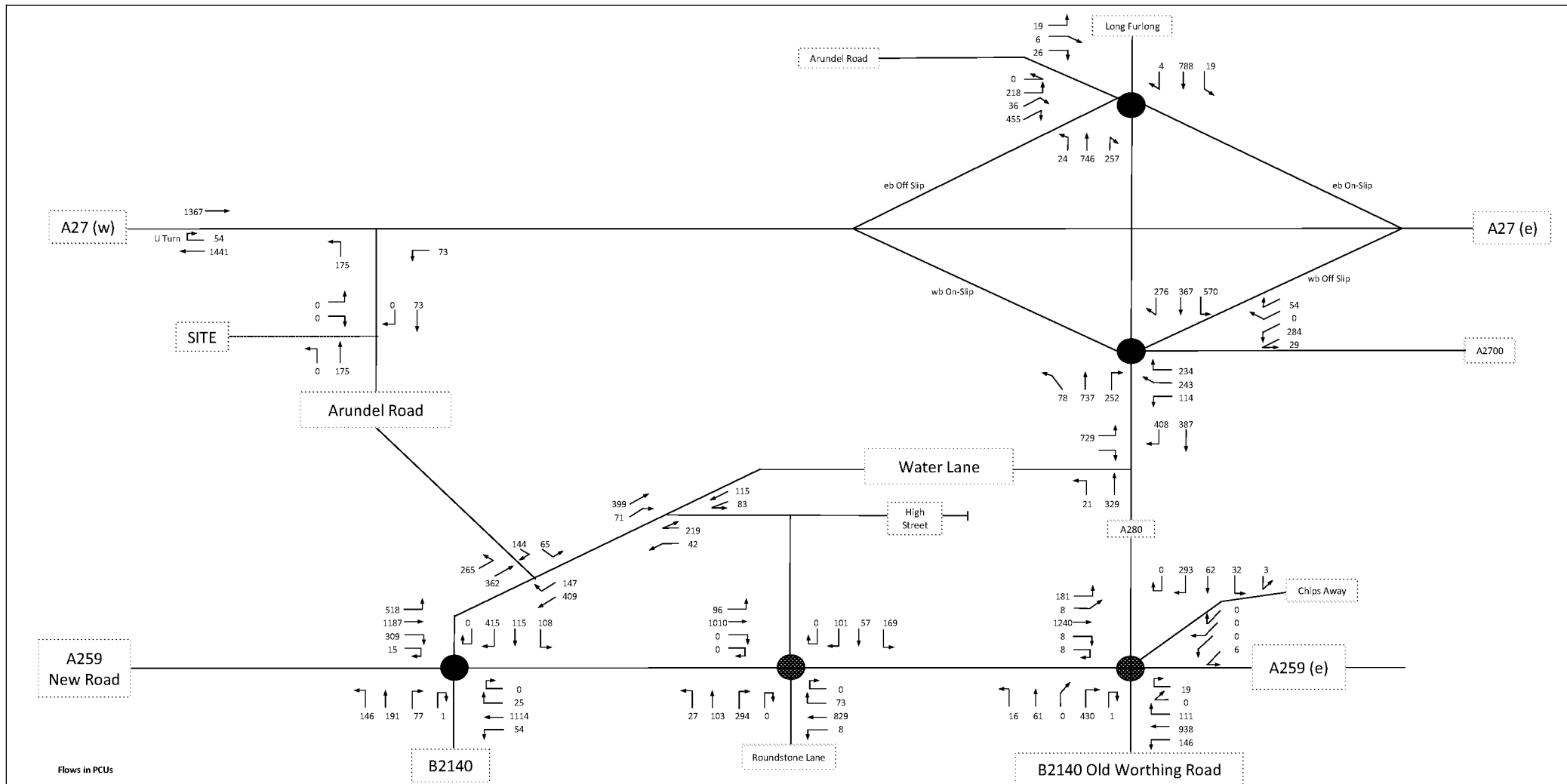


Figure 11 - 2021 Base Flows
AM Peak Period (0745 - 0845)

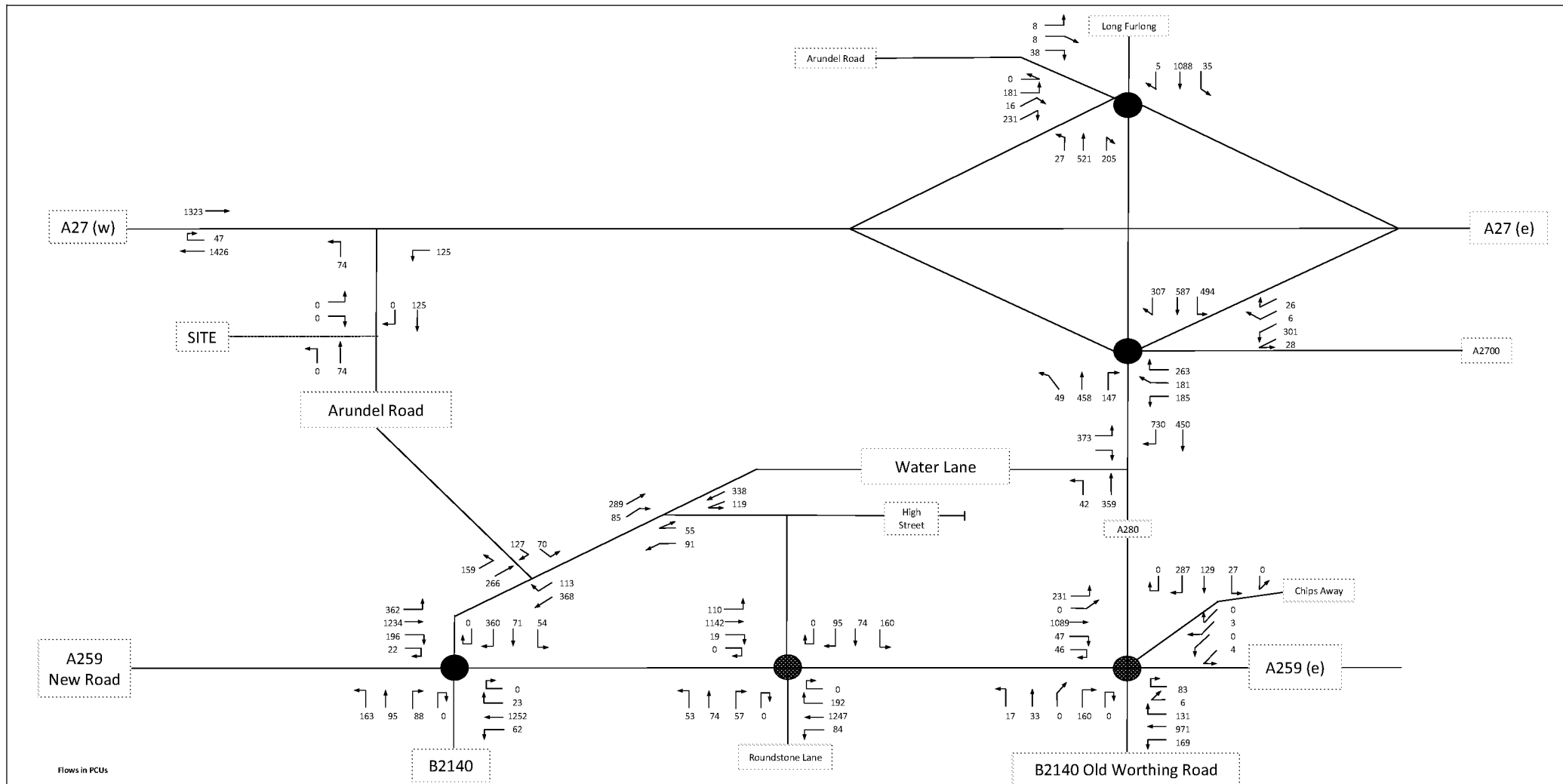


Figure 12 - 2021 Base Flows
PM Peak Period (1645 - 1745)

croft
Transport Solutions

Hill Quays, 9 Jordan Street, Manchester M15 4PY
Tel: 0161 667 3746 www.croftts.co.uk info@croftts.co.uk

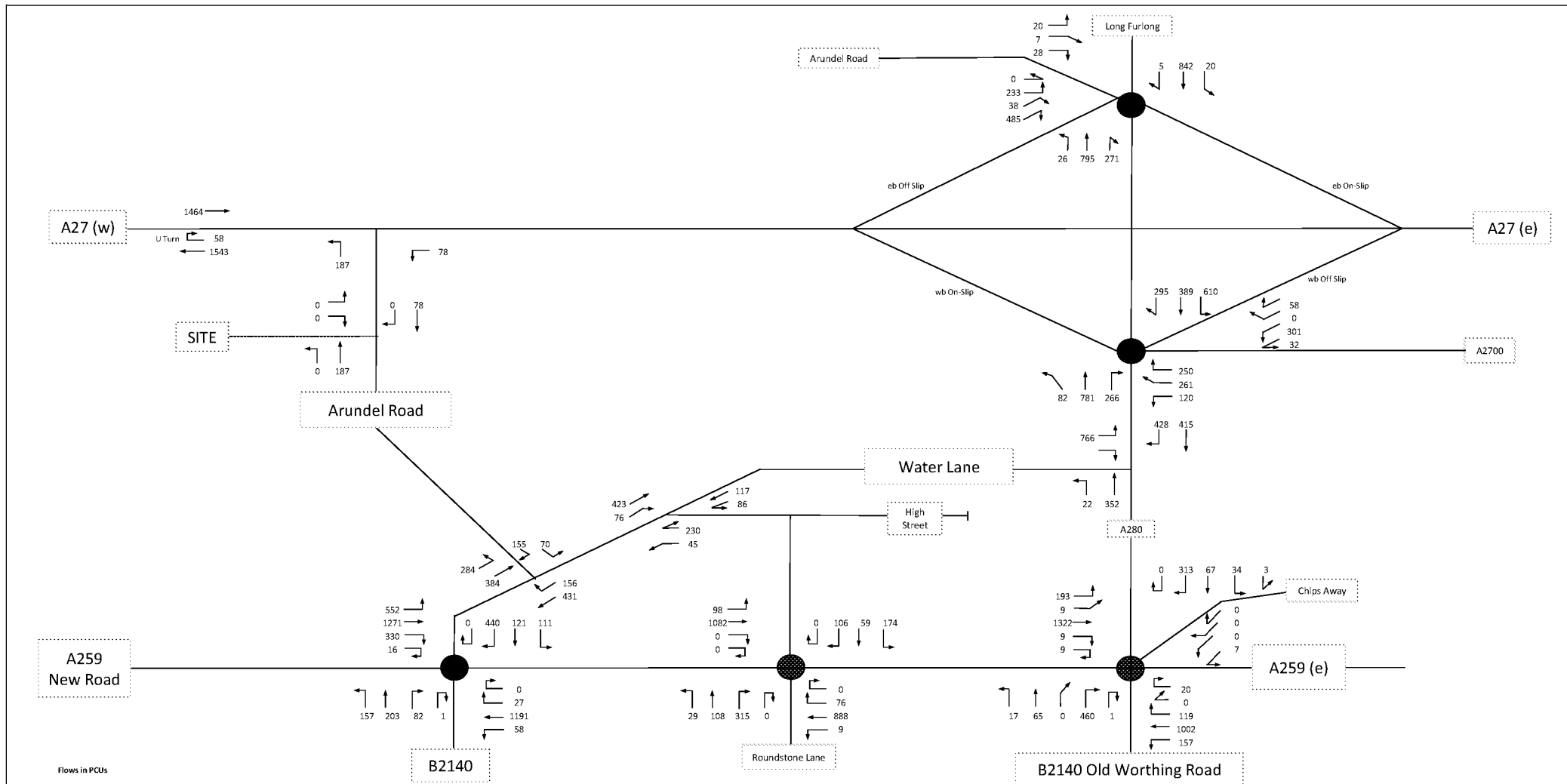


Figure 13 - 2027 Base Flows
AM Peak Period (0745 - 0845)

croft
Transport Solutions

Hill Quays, 9 Jordan Street, Manchester M15 4PF
Tel: 0161 867 3748 www.croftts.co.uk info@croftts.co.uk

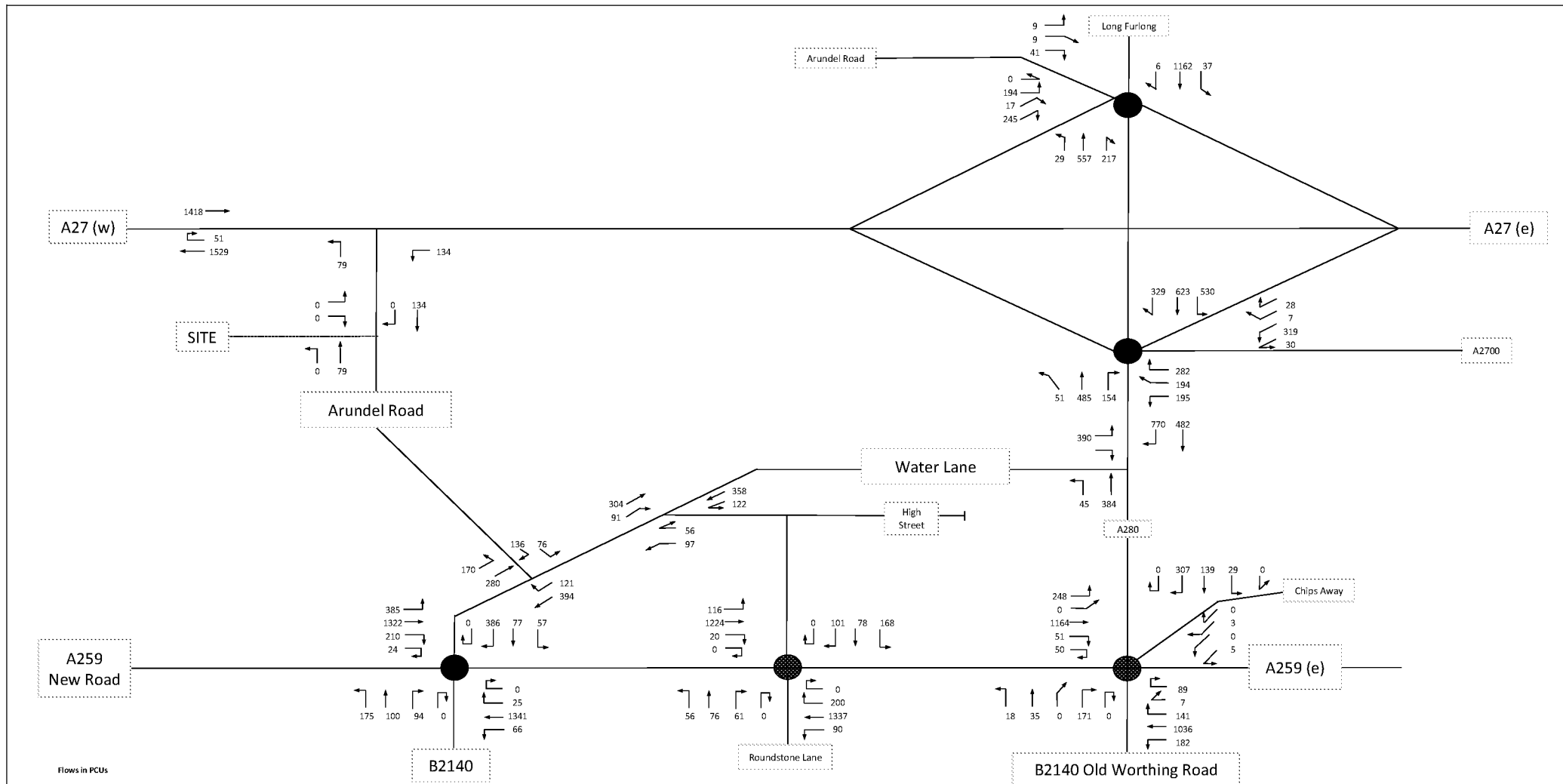


Figure 14 - 2027 Base Flows
PM Peak Period (1645 - 1745)

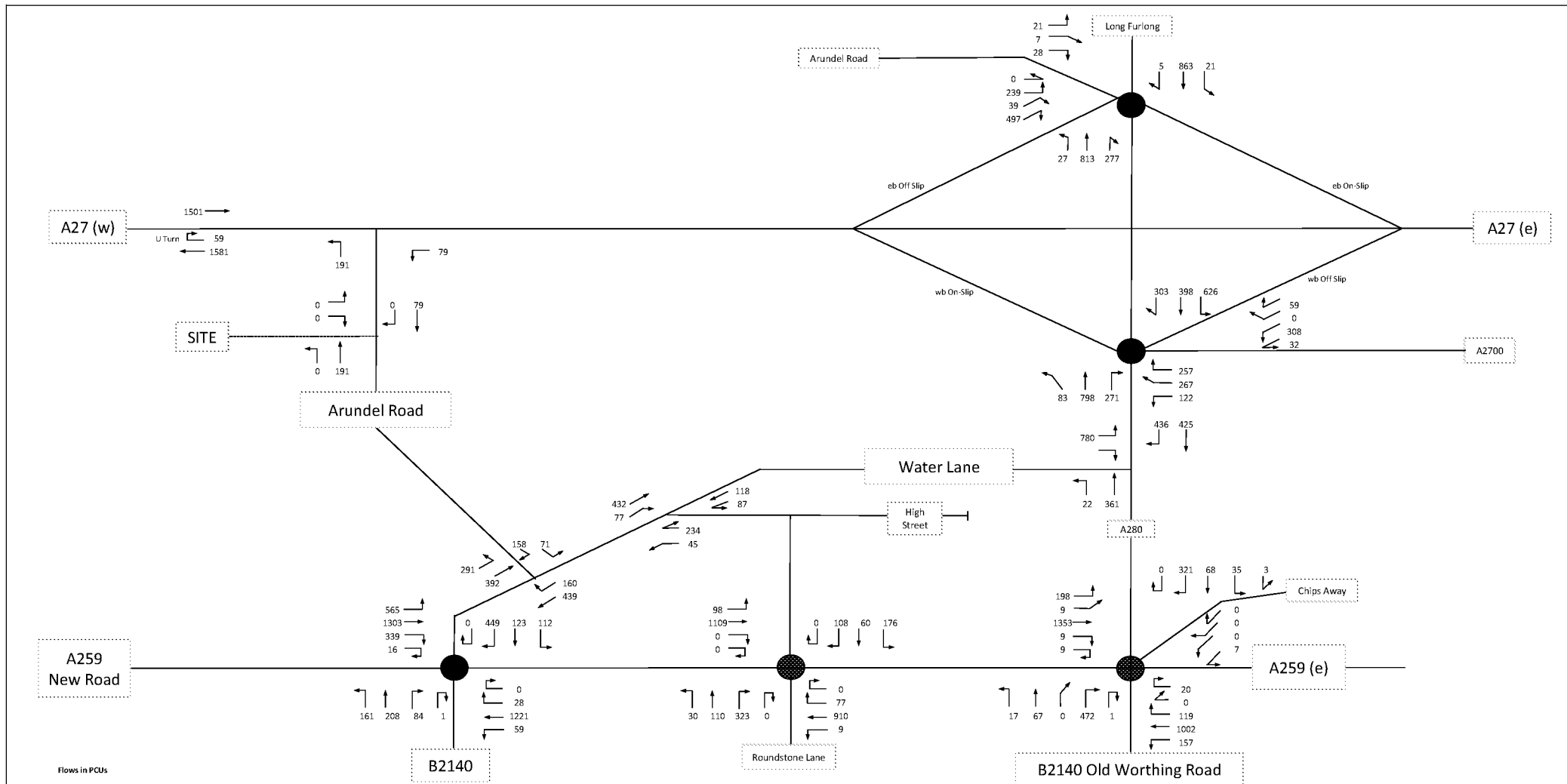


Figure 15 - 2031 Base Flows
AM Peak Period (0745 - 0845)

croft
Transport Solutions

Hill Quays, 9 Jordan Street, Manchester M15 4PF
Tel: 0161 867 3748 www.croftts.co.uk info@croftts.co.uk

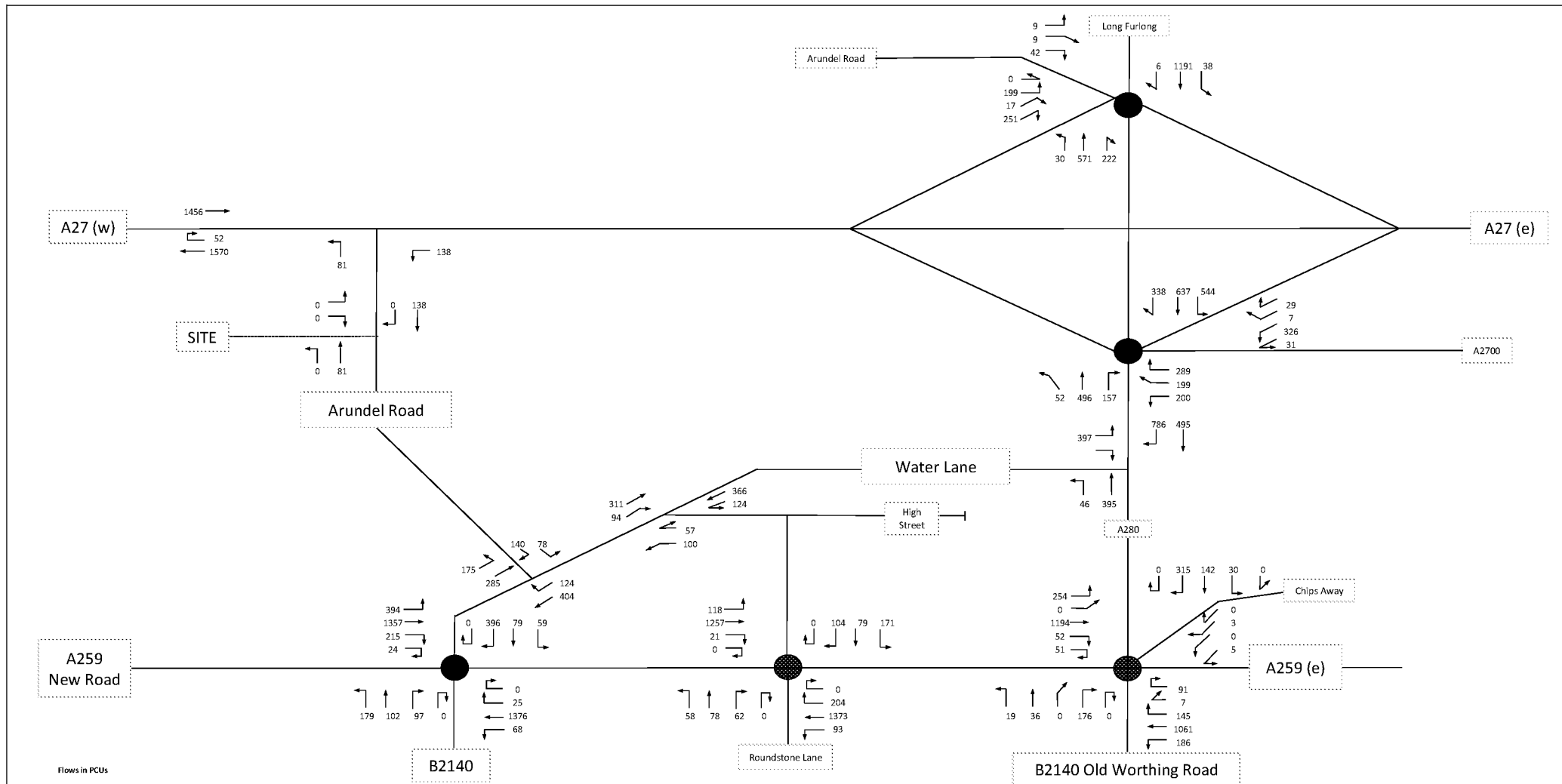


Figure 16 - 2031 Base Flows
PM Peak Period (1645 - 1745)

croft
Transport Solutions

Hill Quays, 9 Jordan Street, Manchester M15 4PY
Tel: 0161 667 3746 www.croftts.co.uk info@croftts.co.uk

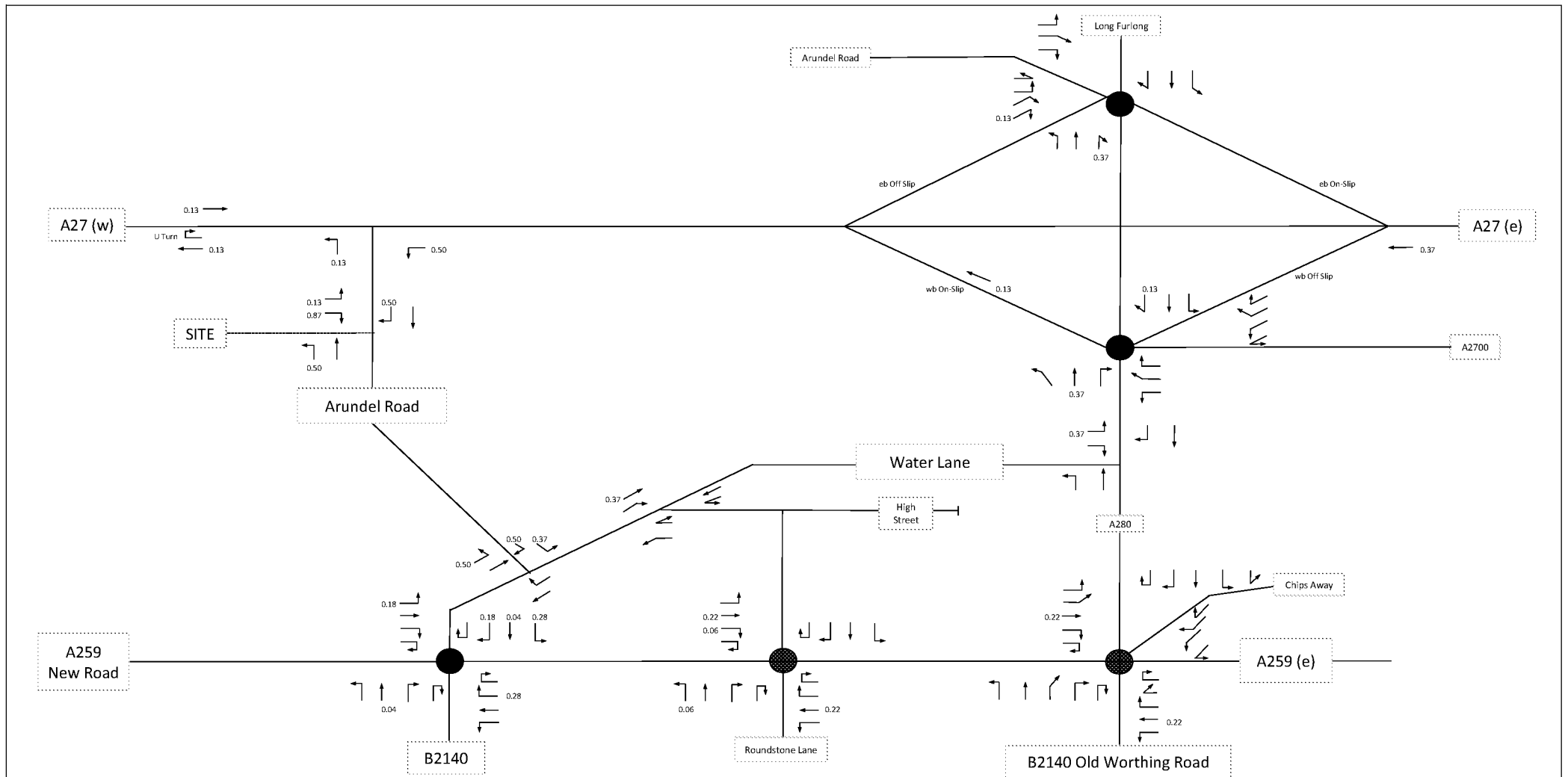


Figure 17 - Trip Distribution
AM Peak Period (0745 - 0845)

croft
Transport Solutions

Hill Quays, 9 Jordan Street, Manchester M15 4PF
Tel: 0161 867 3748 www.croftts.co.uk info@croftts.co.uk

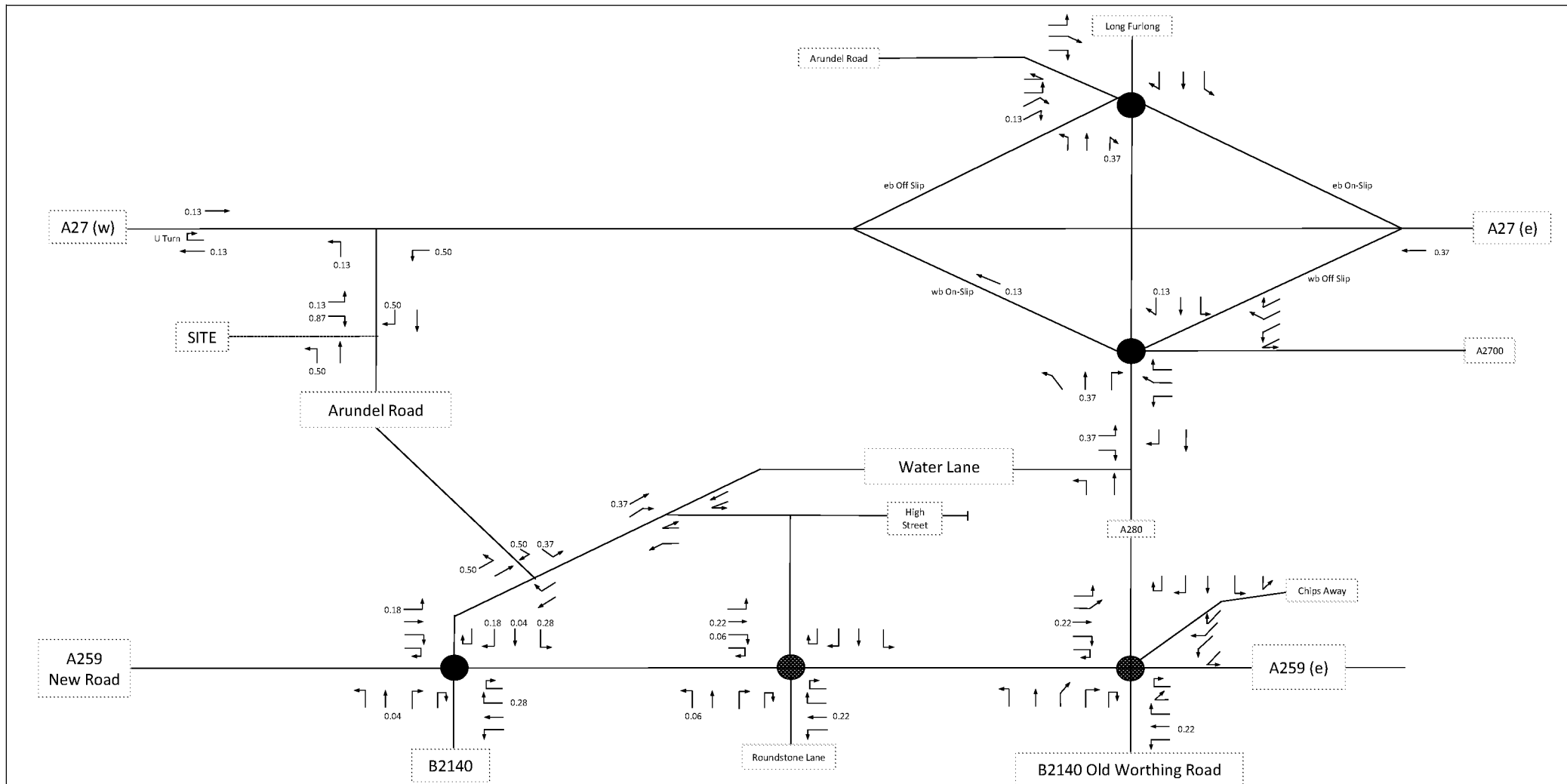


Figure 18 - Trip Distribution
PM Peak Period (1645 - 1745)

croft
Transport Solutions

Hill Quays, 9 Jordan Street, Manchester M15 4PF
Tel: 0161 867 3748 www.croftts.co.uk info@croftts.co.uk

Arrs	Depts
32	65

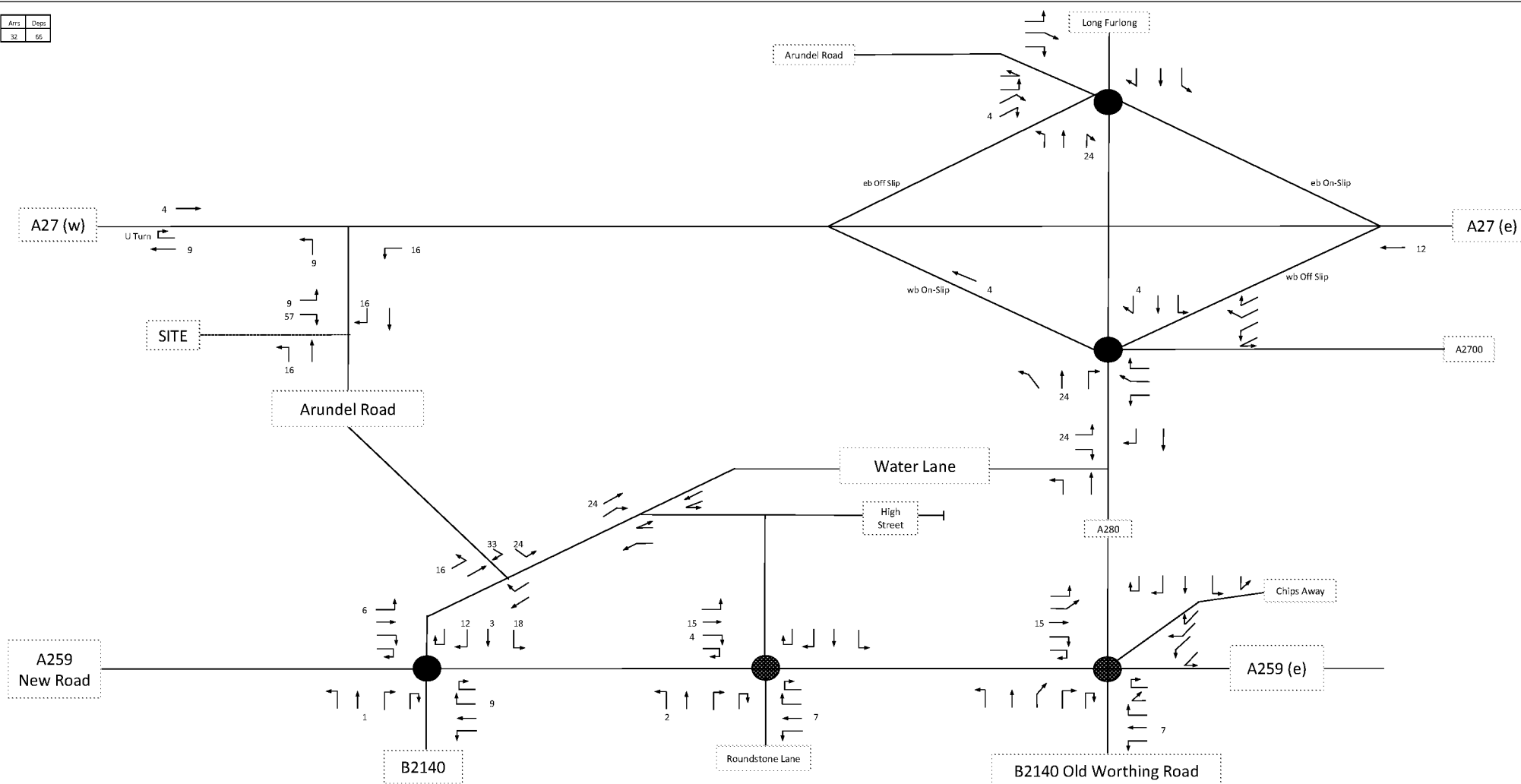


Figure 19 - Development Flows
AM Peak Period (0745 - 0845)

croft
Transport Solutions

Hill Quays, 9 Jordan Street, Manchester M15 4PF
Tel: 0161 867 3748 www.croftts.co.uk info@croftts.co.uk

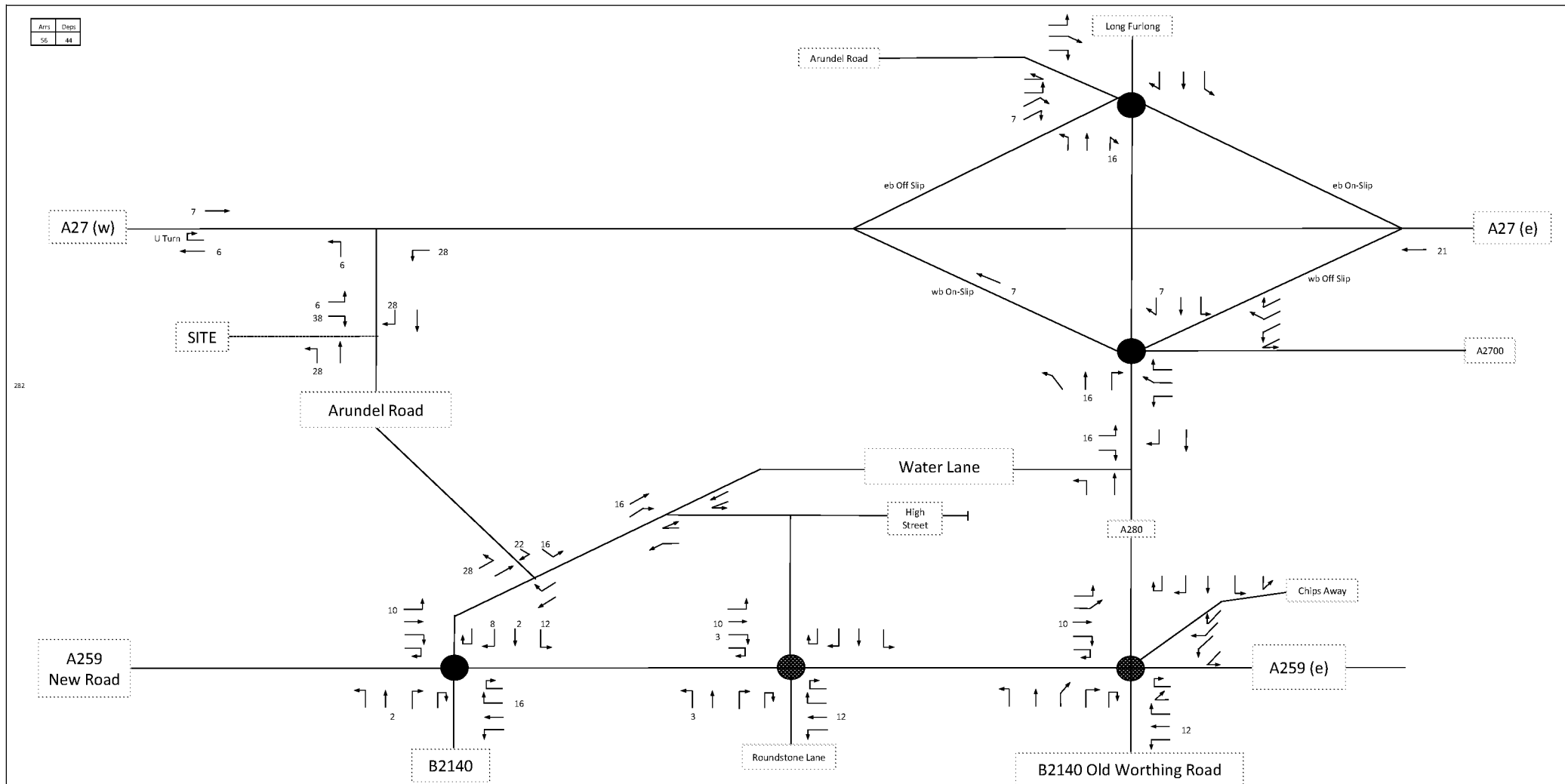
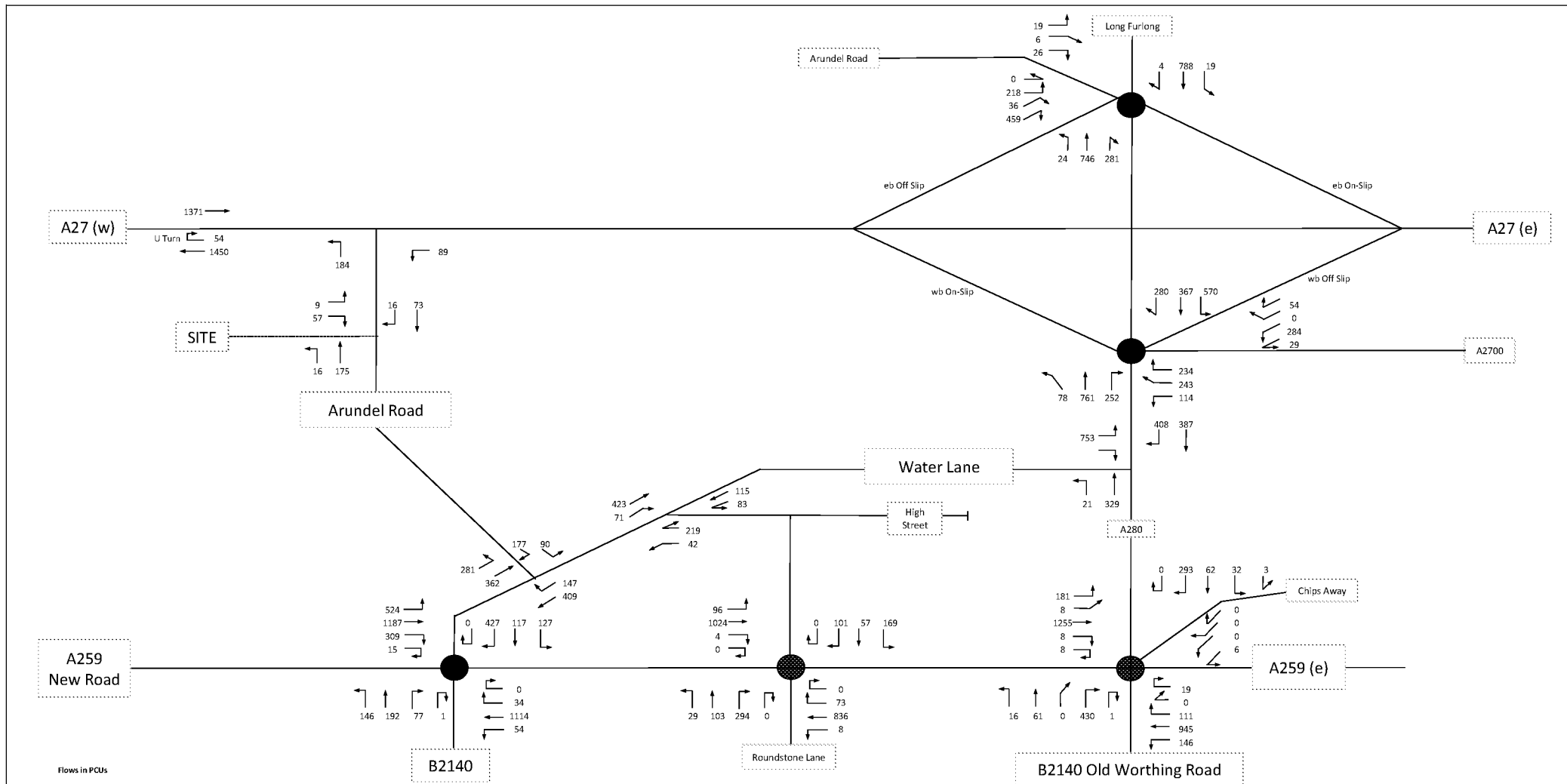


Figure 20 - Development Flows
PM Peak Period (1645 -1745)

croft
Transport Solutions

Hill Quays, 9 Jordan Street, Manchester M15 4PF
Tel: 0161 867 3748 www.croftts.co.uk info@croftts.co.uk



croft
Transport Solutions

Hill Quays, 9 Jordan Street, Manchester M15 4PF
Tel: 0161 867 3748 www.croftts.co.uk info@croftts.co.uk

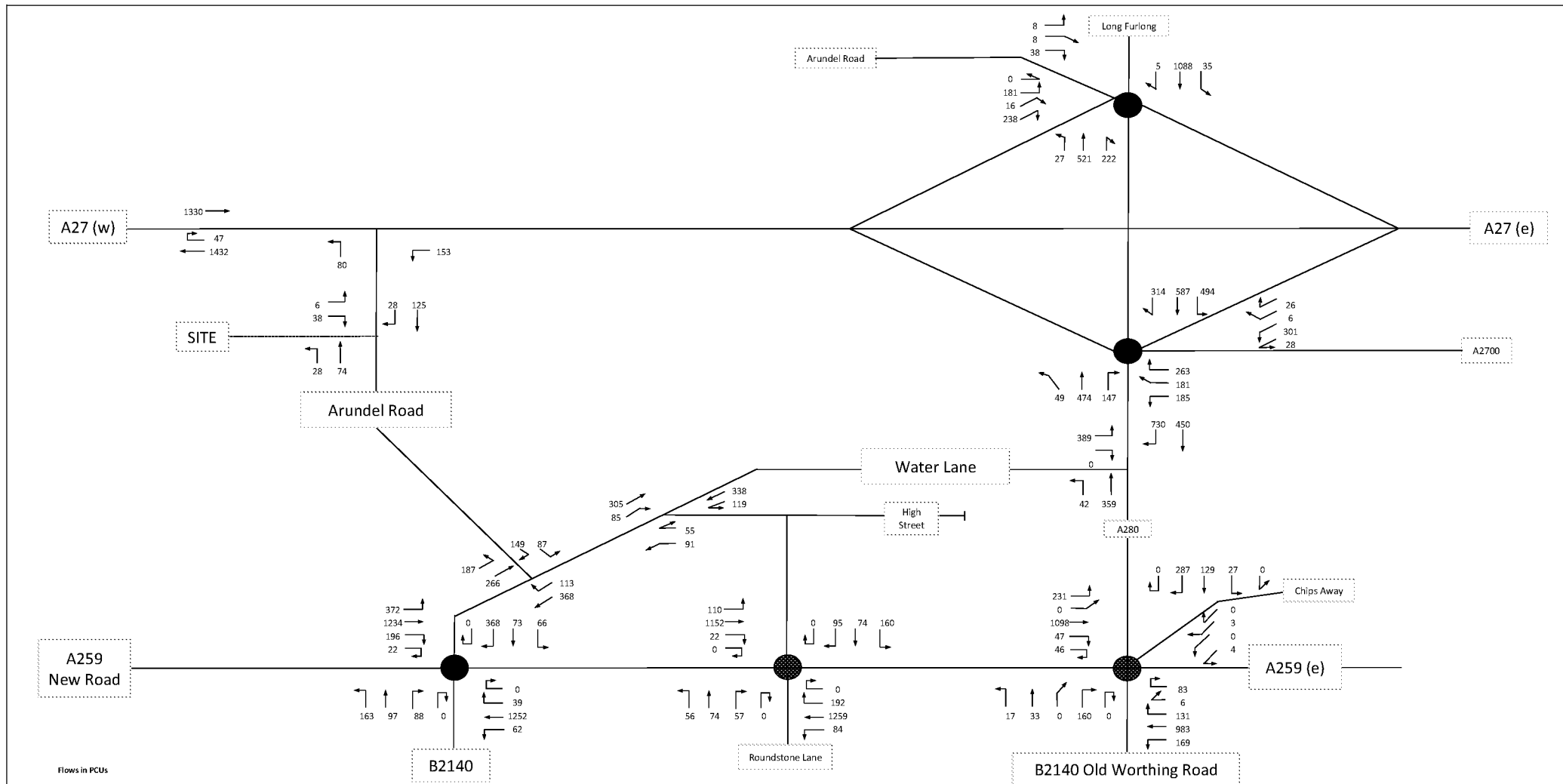


Figure 22 - 2021 Assessment Flows
PM Peak Period (1645 - 1745)

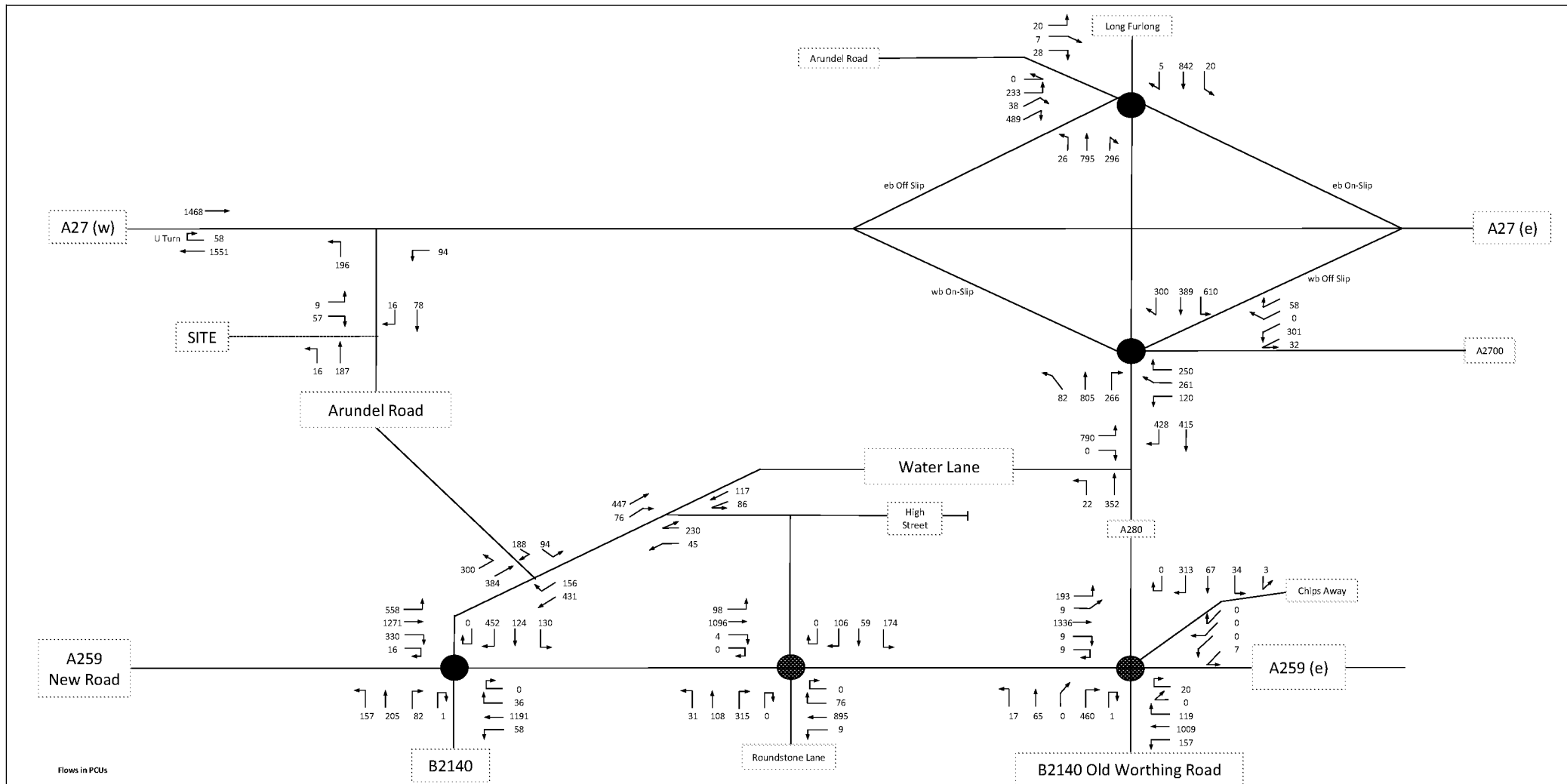
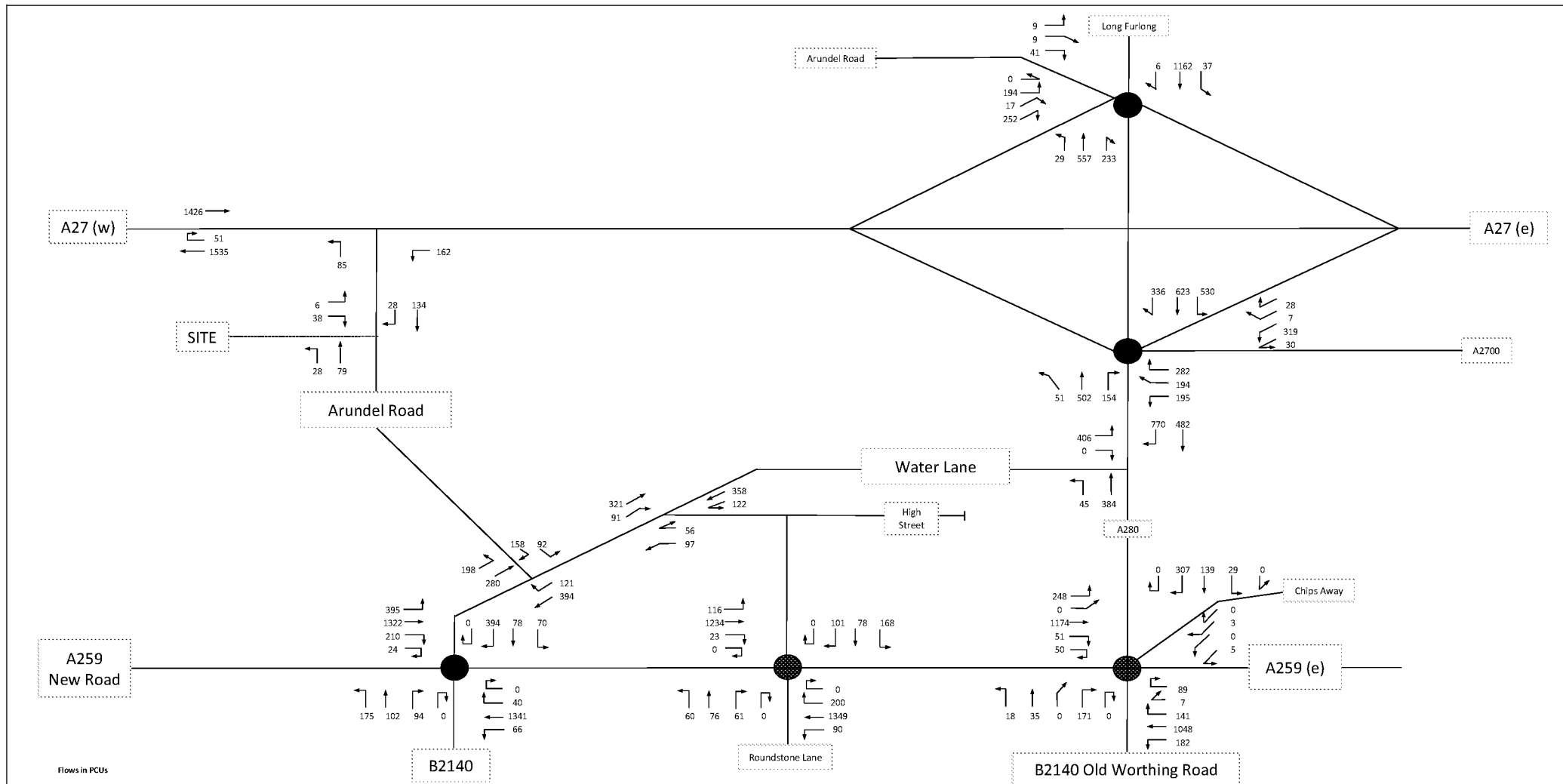
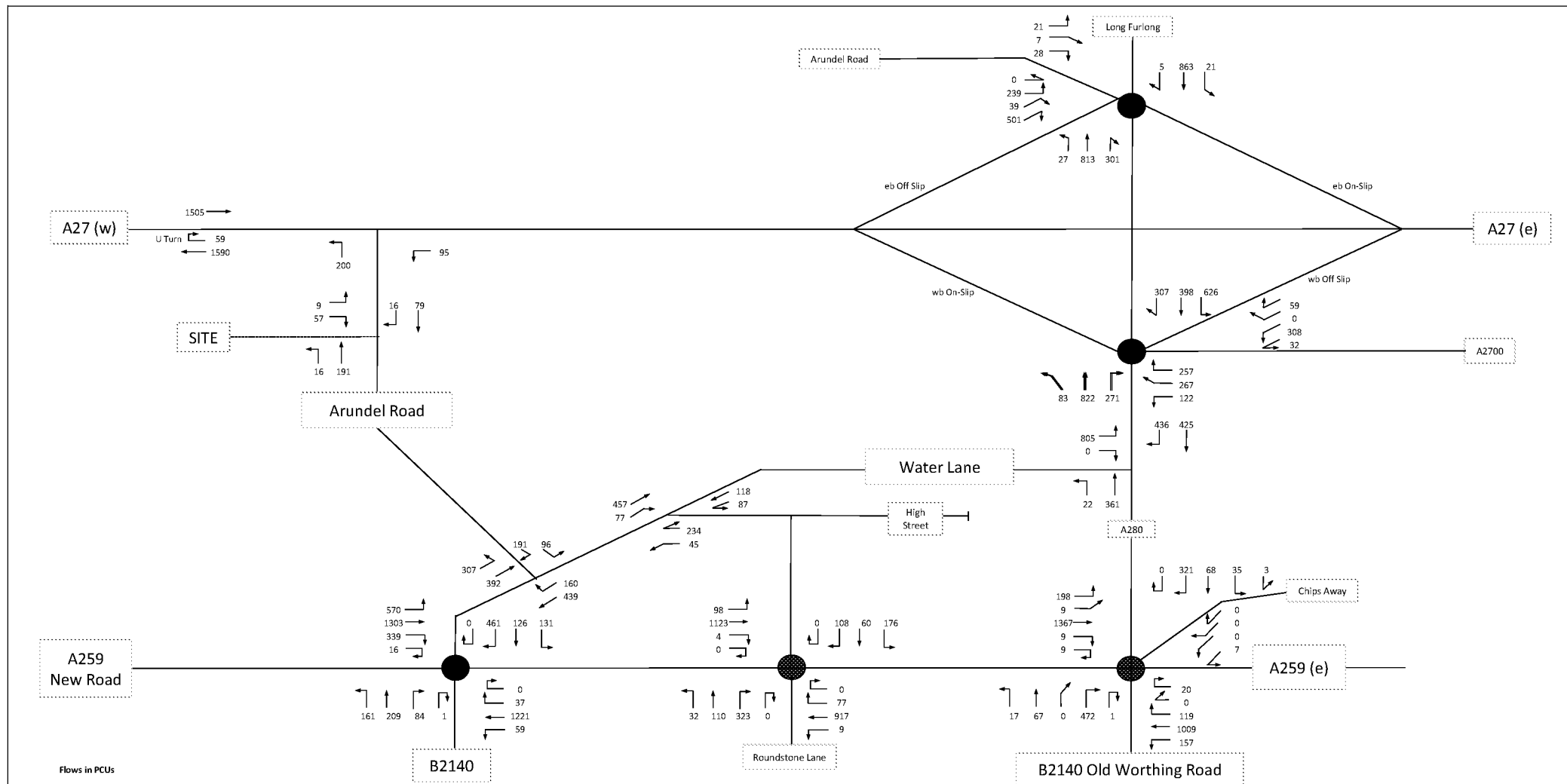


Figure 23 - 2027 Assessment Flows
AM Peak Period (0745 - 0845)



croft
Transport Solutions

Hill Quays, 9 Jordan Street, Manchester M15 4PY
Tel: 0161 667 3746 www.croftts.co.uk info@croftts.co.uk



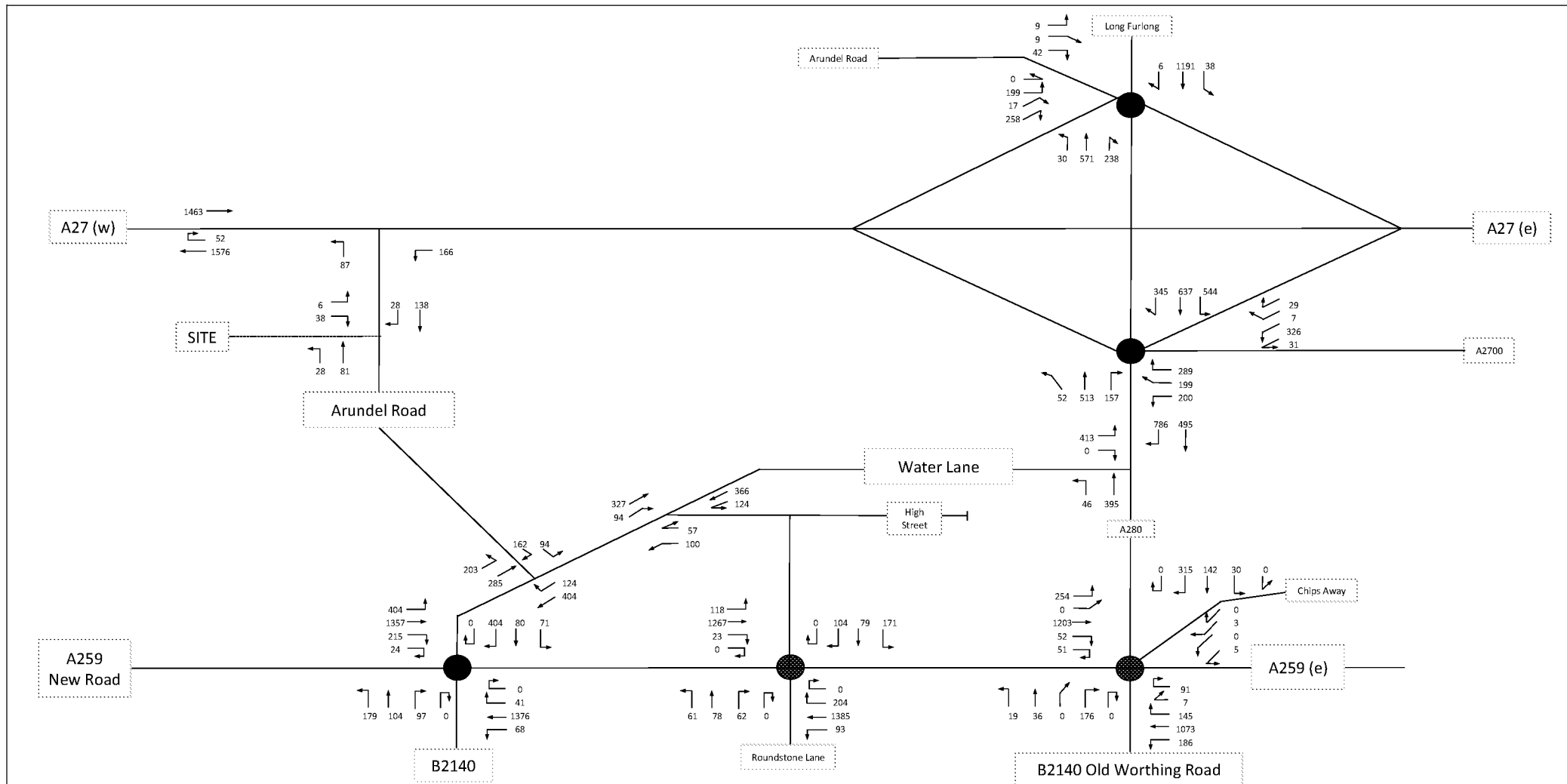


Figure 26 - 2031 Assessment Flows
PM Peak Period (1645 - 1745)

FIGURE	DESCRIPTION	SCENARIO	CALC
FIGURE A	TOTAL COMMITTED DEVELOPMENT (AS PER TA)	AM PEAK	See TA
FIGURE B	TOTAL COMMITTED DEVELOPMENT (AS PER TA)	PM PEAK	See TA
FIGURE C	2031 (COMMITTED + WATER LANE DEVELOPMENTS + SENSITIVITY)	AM PEAK	See TA
FIGURE D	2031 (COMMITTED + WATER LANE DEVELOPMENTS + SENSITIVITY)	PM PEAK	See TA
FIGURE E	2031 BASE (COMMITTED + WATER LANE DEVELOPMENTS + SENSITIVITY)	AM PEAK	FA+FC
FIGURE F	2031 BASE (COMMITTED + WATER LANE DEVELOPMENTS + SENSITIVITY)	PM PEAK	FB+FD
FIGURE G	TRIP DISTRIBUTION (REASSIGNED TO PERMIT RIGHT TURNS FROM WATER LANE)	AM PEAK	See TA
FIGURE H	TRIP DISTRIBUTION (REASSIGNED TO PERMIT RIGHT TURNS FROM WATER LANE)	PM PEAK	See TA
FIGURE I	DEVELOPMENT FLOWS (REASSIGNED TRAFFIC)	AM PEAK	See TA
FIGURE J	DEVELOPMENT FLOWS (REASSIGNED TRAFFIC)	PM PEAK	See TA
FIGURE K	2031 ASSESSMENT (AS FIGURE E PLUS ARUNDEL ROAD DEVELOPMENT)	AM PEAK	FG+FI
FIGURE L	2031 ASSESSMENT (AS FIGURE E PLUS ARUNDEL ROAD DEVELOPMENT)	PM PEAK	FH+FJ

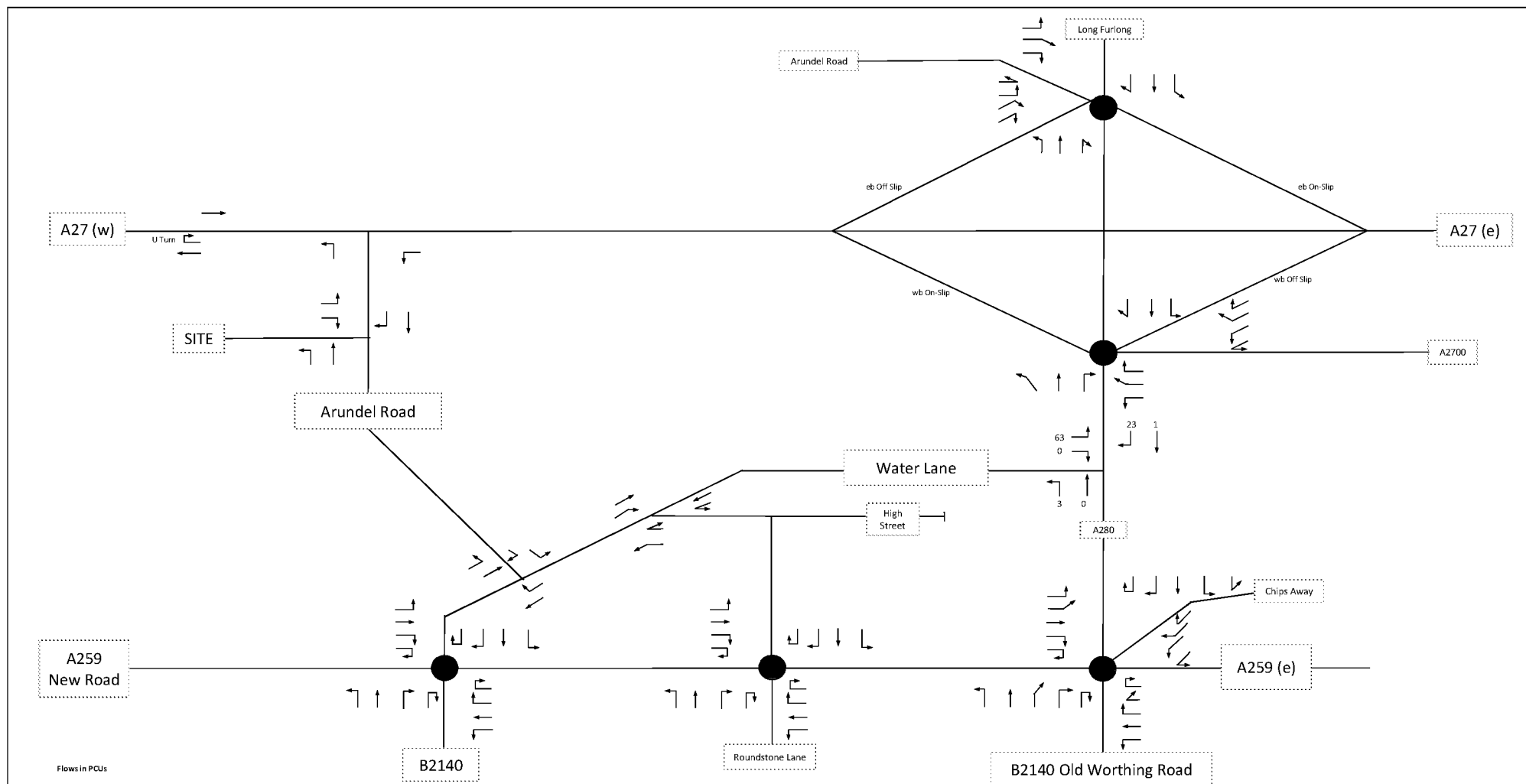


Figure A - Total Committed Development
AM Peak Period (0745 - 0845)

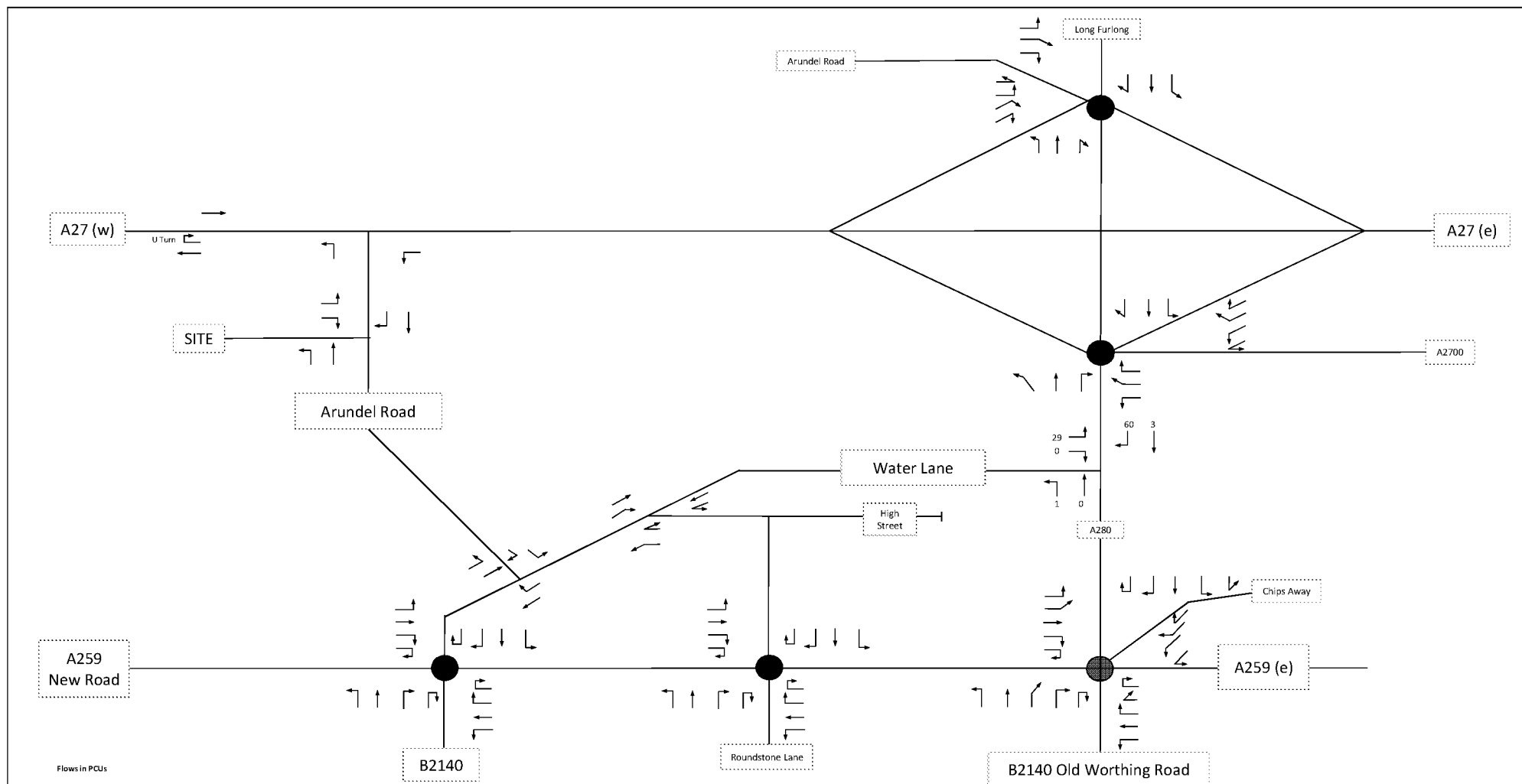


Figure B - Total Committed Development
PM Peak Period (1645 - 1745)

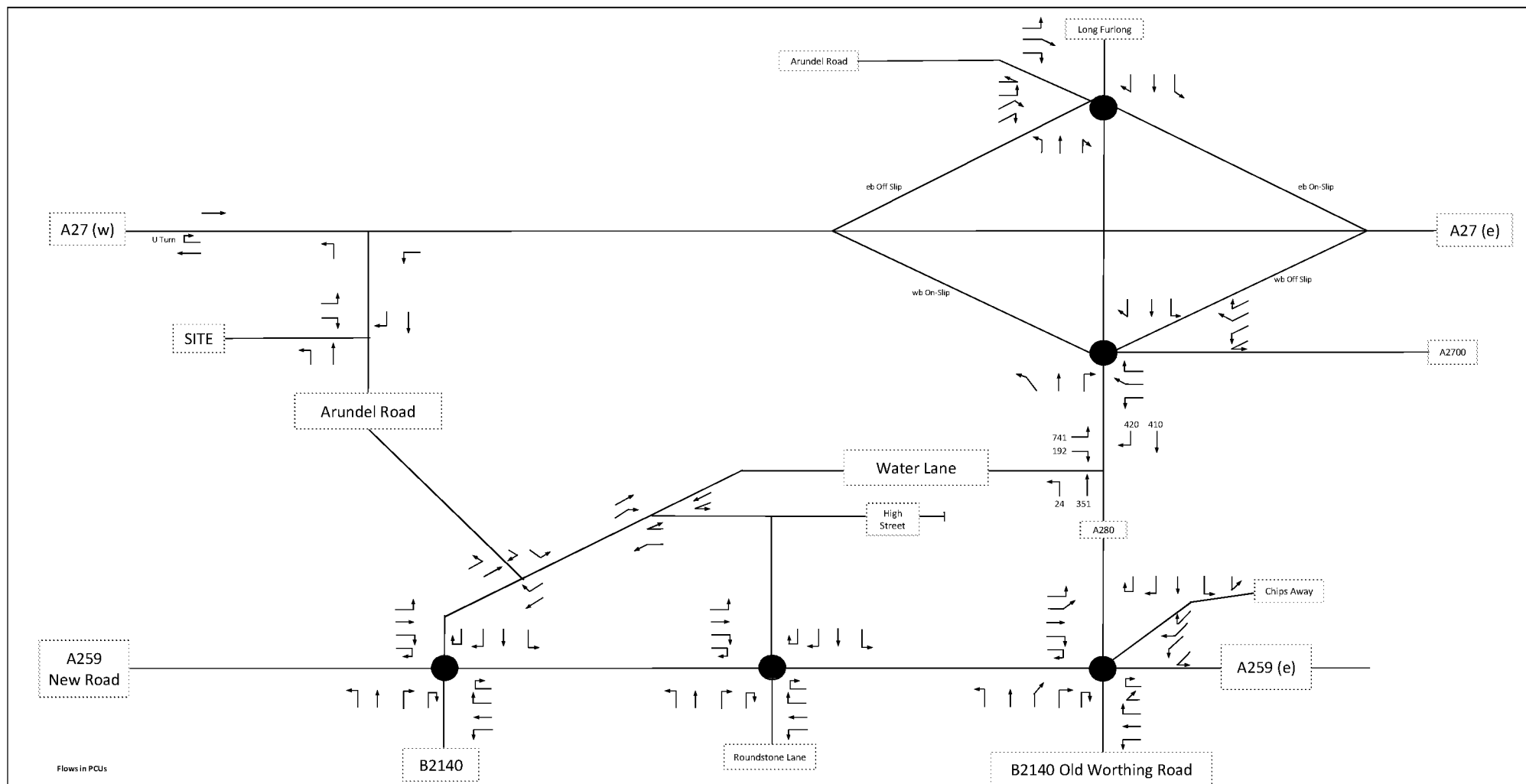


Figure C - 2031 + Committed + Development + Sensitivity (derived from Land North of Water Lane TA)
AM Peak Period (0745 - 0845)

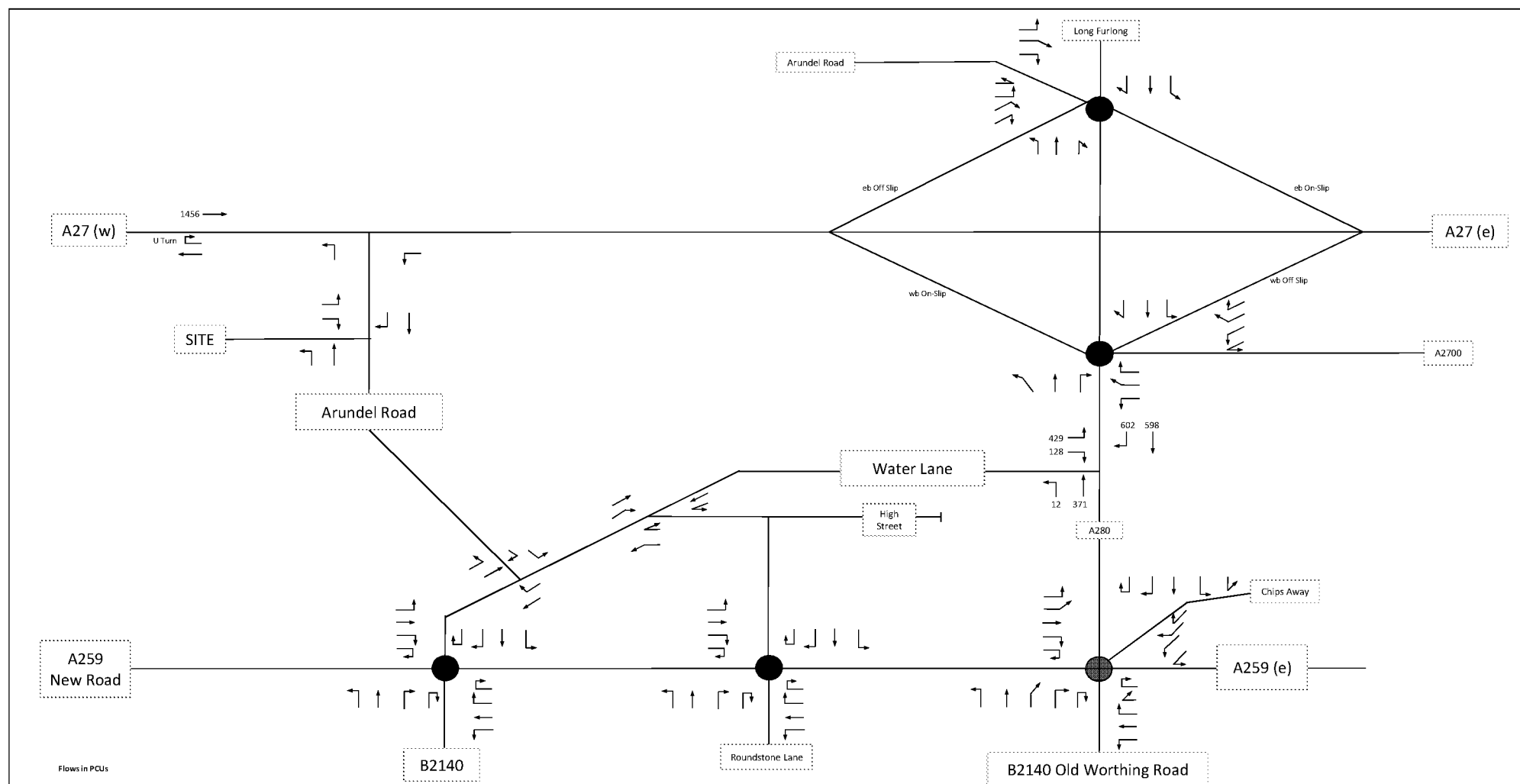


Figure D - 2031 + Committed + Development + Sensitivity (derived from Land North of Water Lane TA)
PM Peak Period (1645 - 1745)

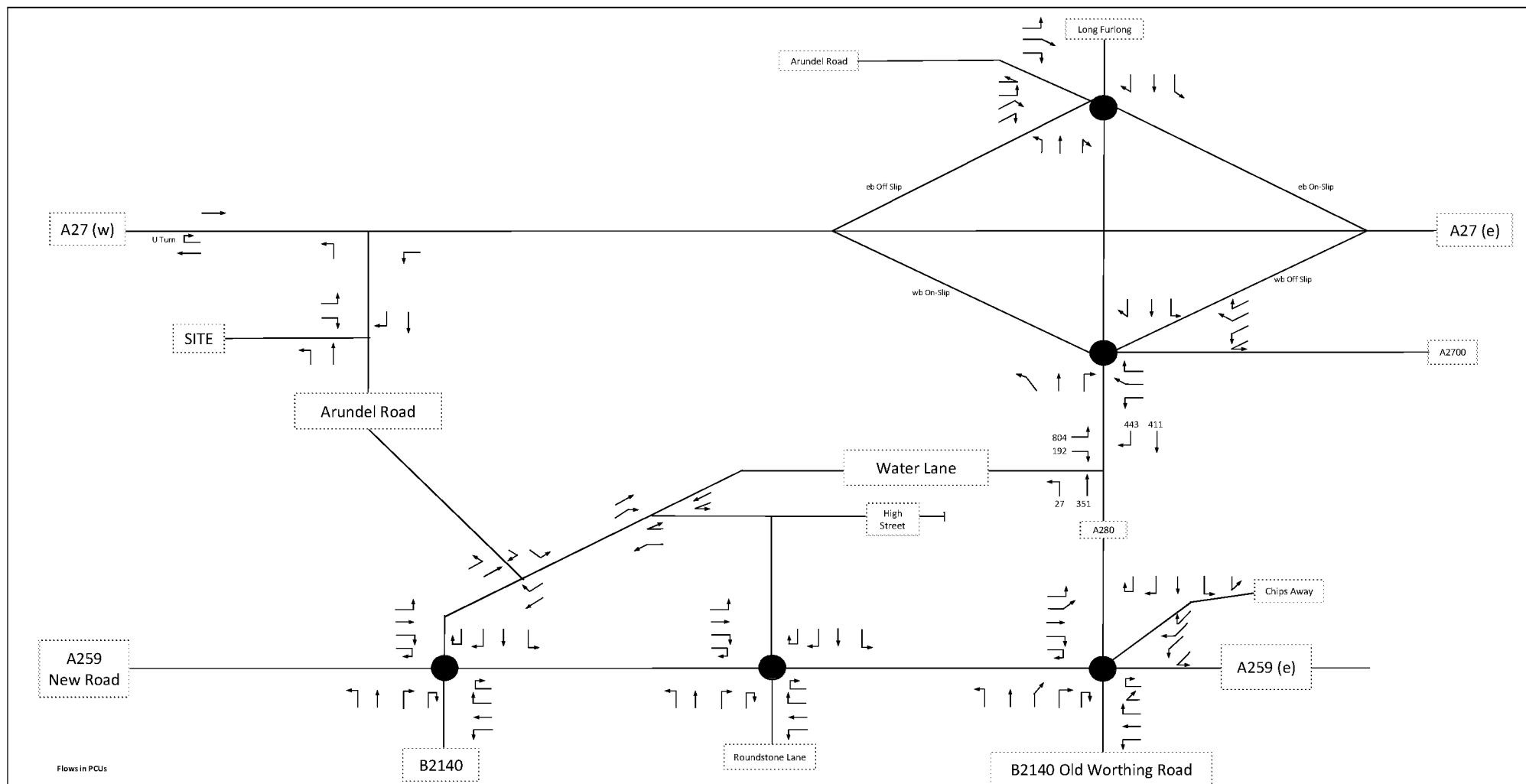


Figure E - 2031 Base Flows (includes all Water Lane Committed & Water Lane Developments & Other Committed as per the TA)
AM Peak Period (0745 - 0845)

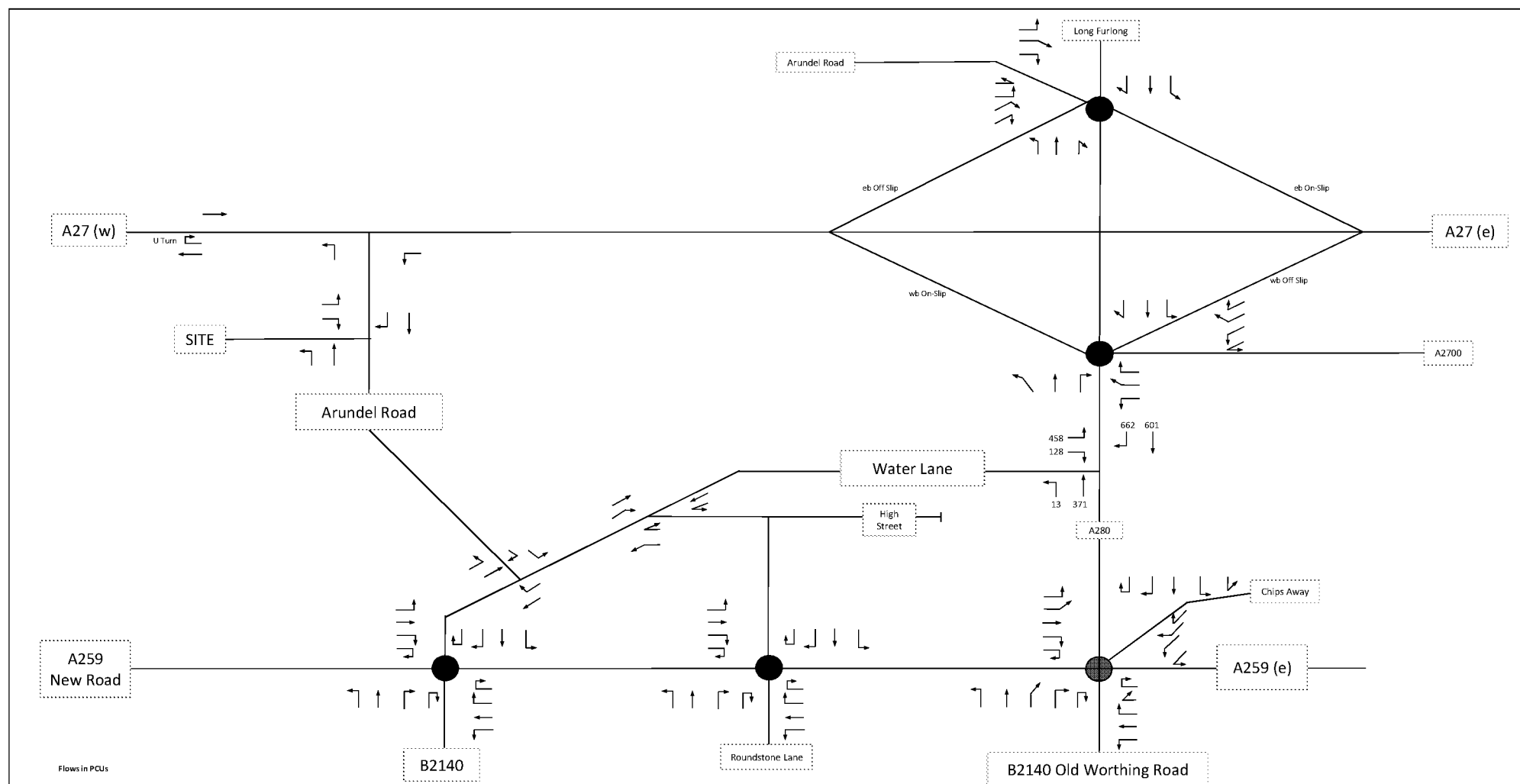


Figure F - 2031 Base Flows (includes all Water Lane Committed & Water Lane Developments & Other Committed as per the TA)
PM Peak Period (1645 - 1745)

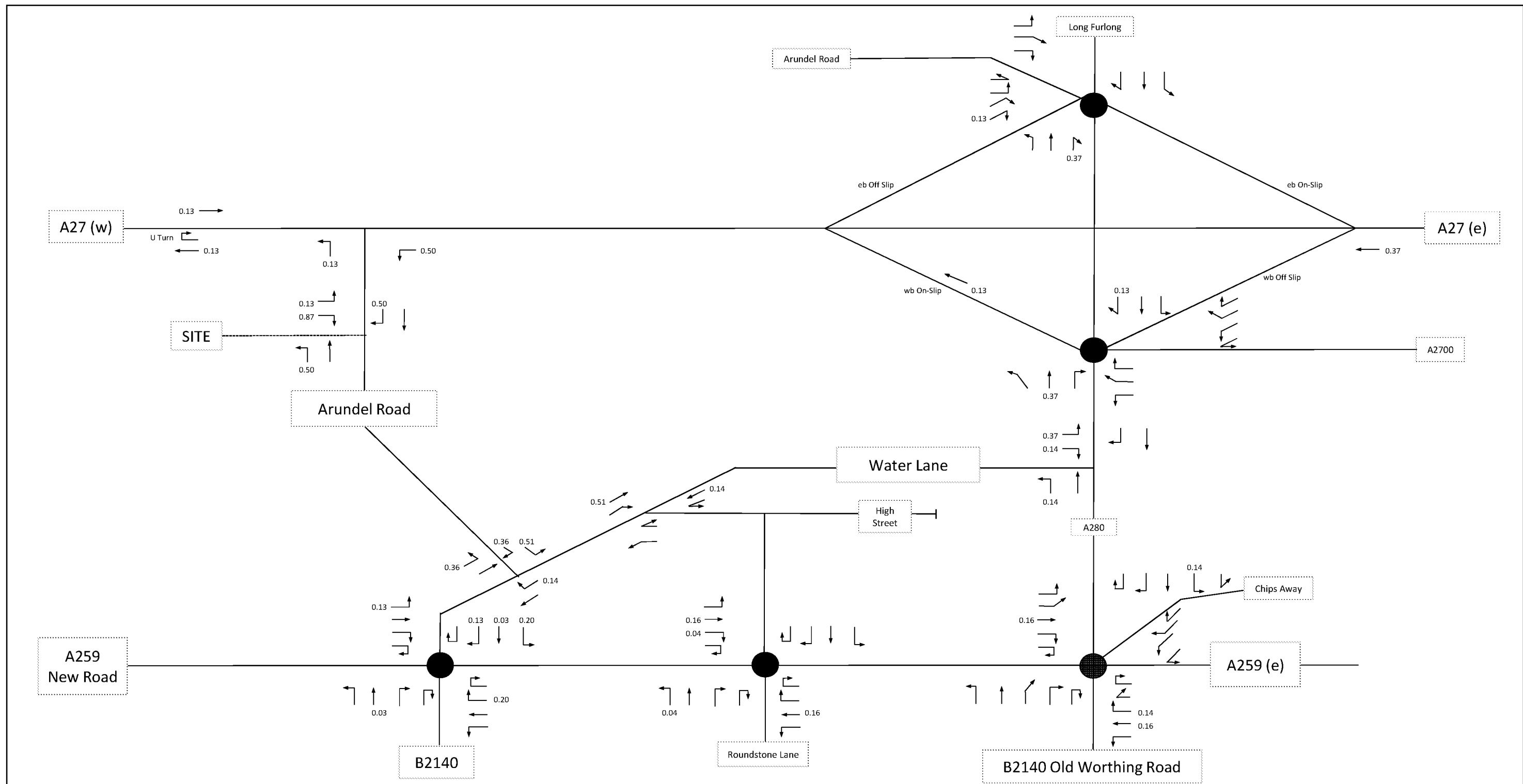


Figure G - Trip Distribution (Reassigned to permit right turn out of Water Lane)
AM Peak Period (0745 - 0845)

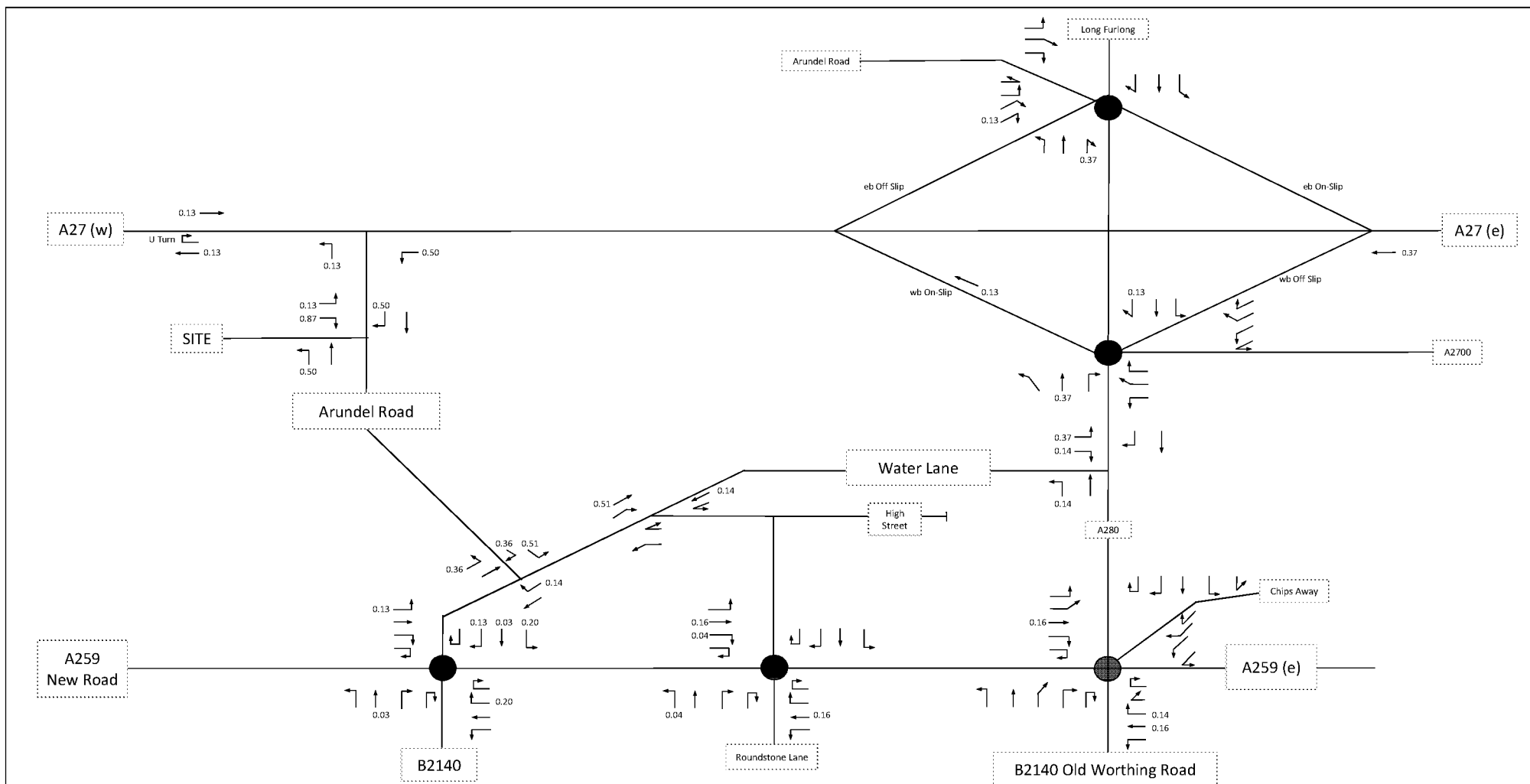


Figure H - Trip Distribution (Reassigned to permit right turn out of Water Lane)
PM Peak Period (1645 - 1745)

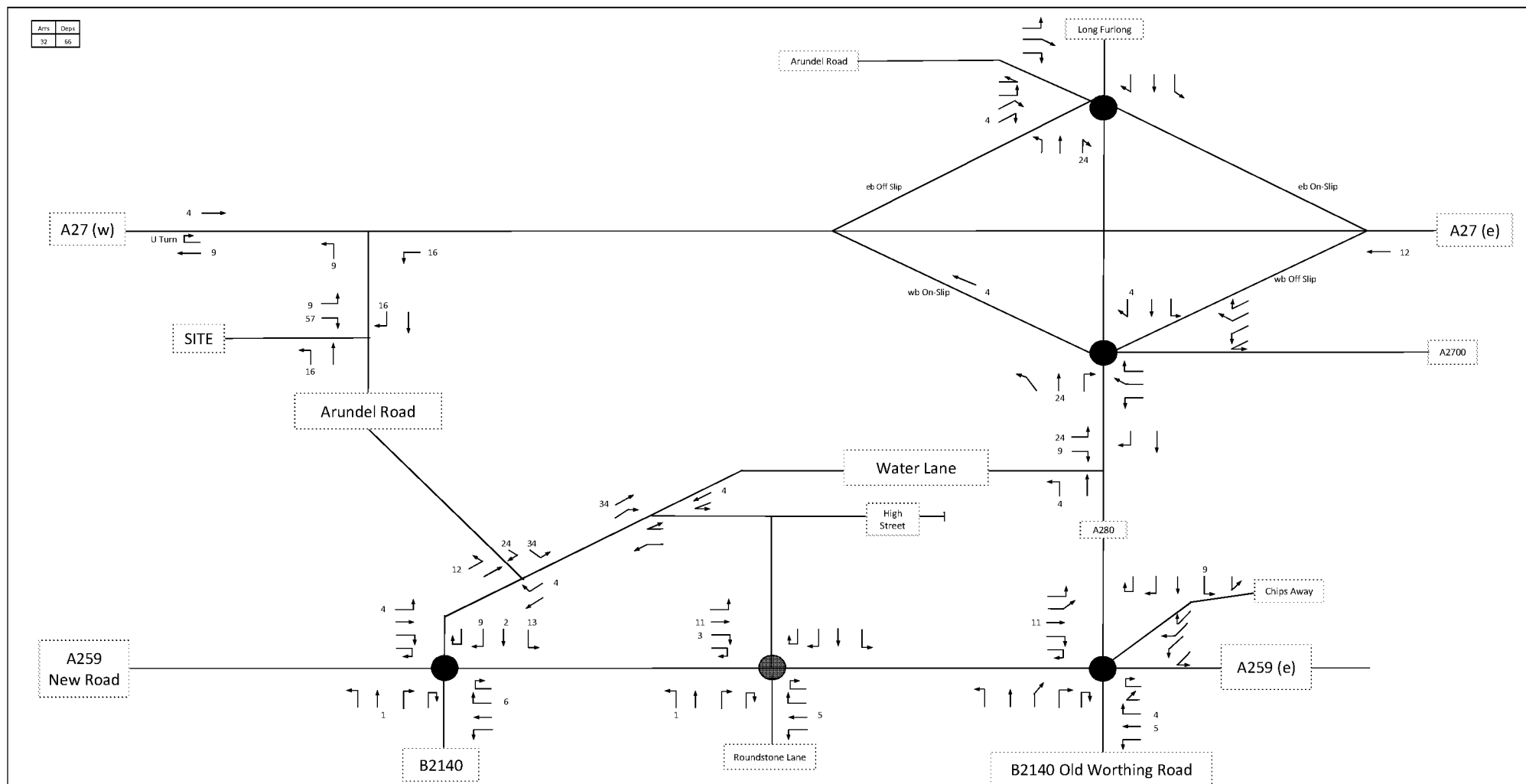


Figure 1 - Development Flows (Re-assigned traffic to permit right turn out of Water Lane)
AM Peak Period (0745 - 0845)

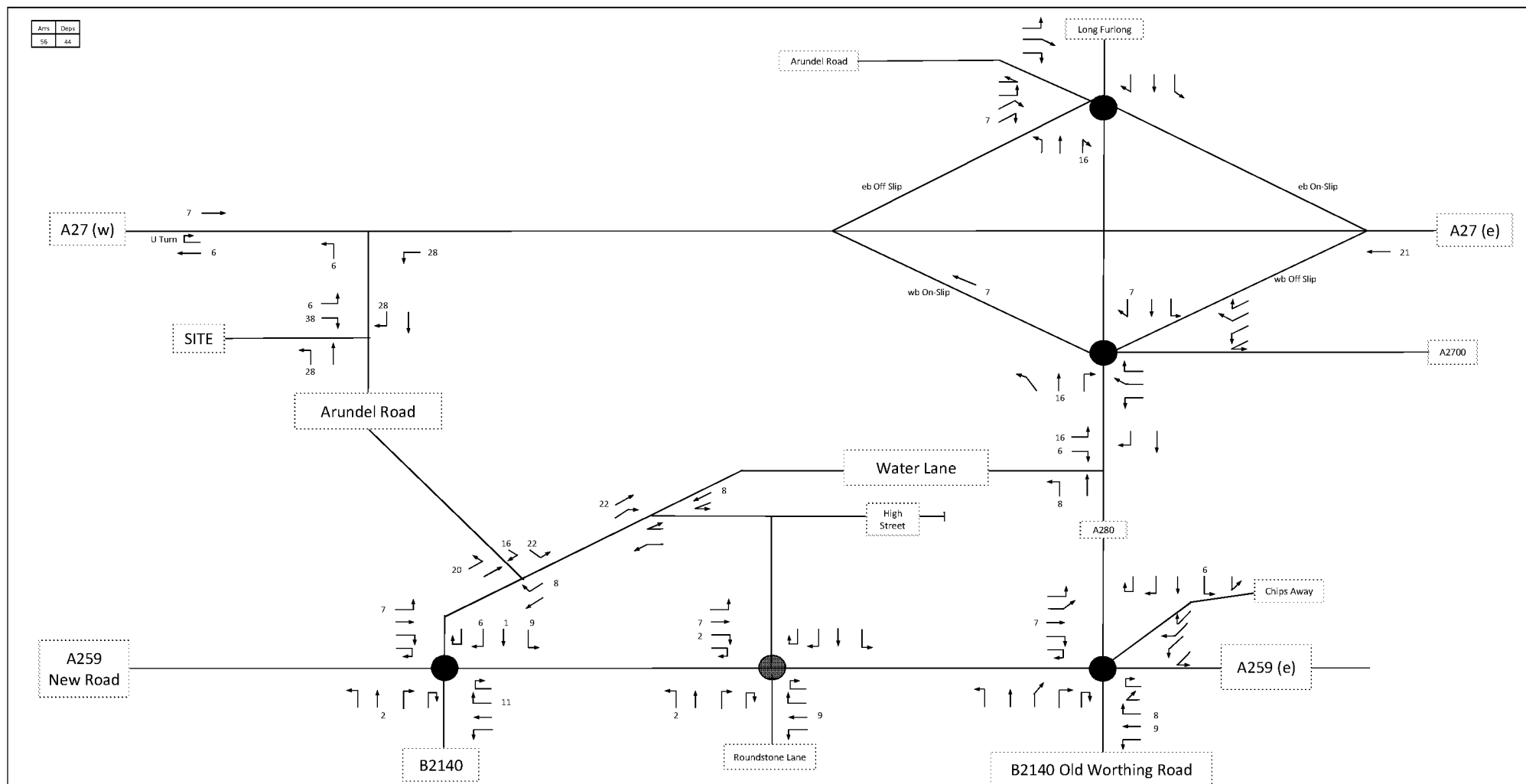


Figure J - Development Flows (Re-assigned traffic to permit right turn out of Water Lane)
PM Peak Period (1645 - 1745)

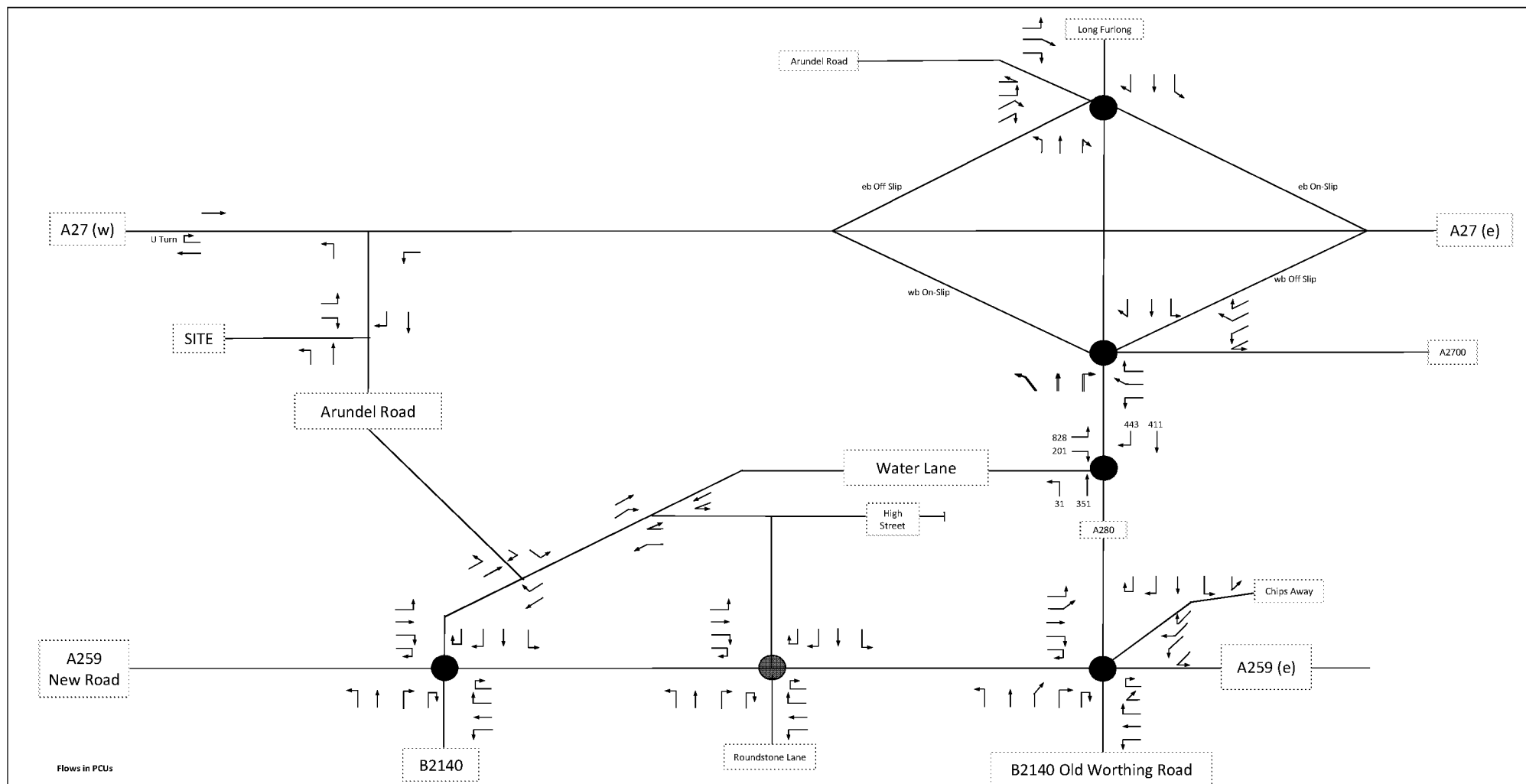


Figure K - 2031 Base Flows (includes all Water Lane Committed & Water Lane Developments & Other Committed as per the TA) + Arundel Road Development
AM Peak Period (0745 - 0845)

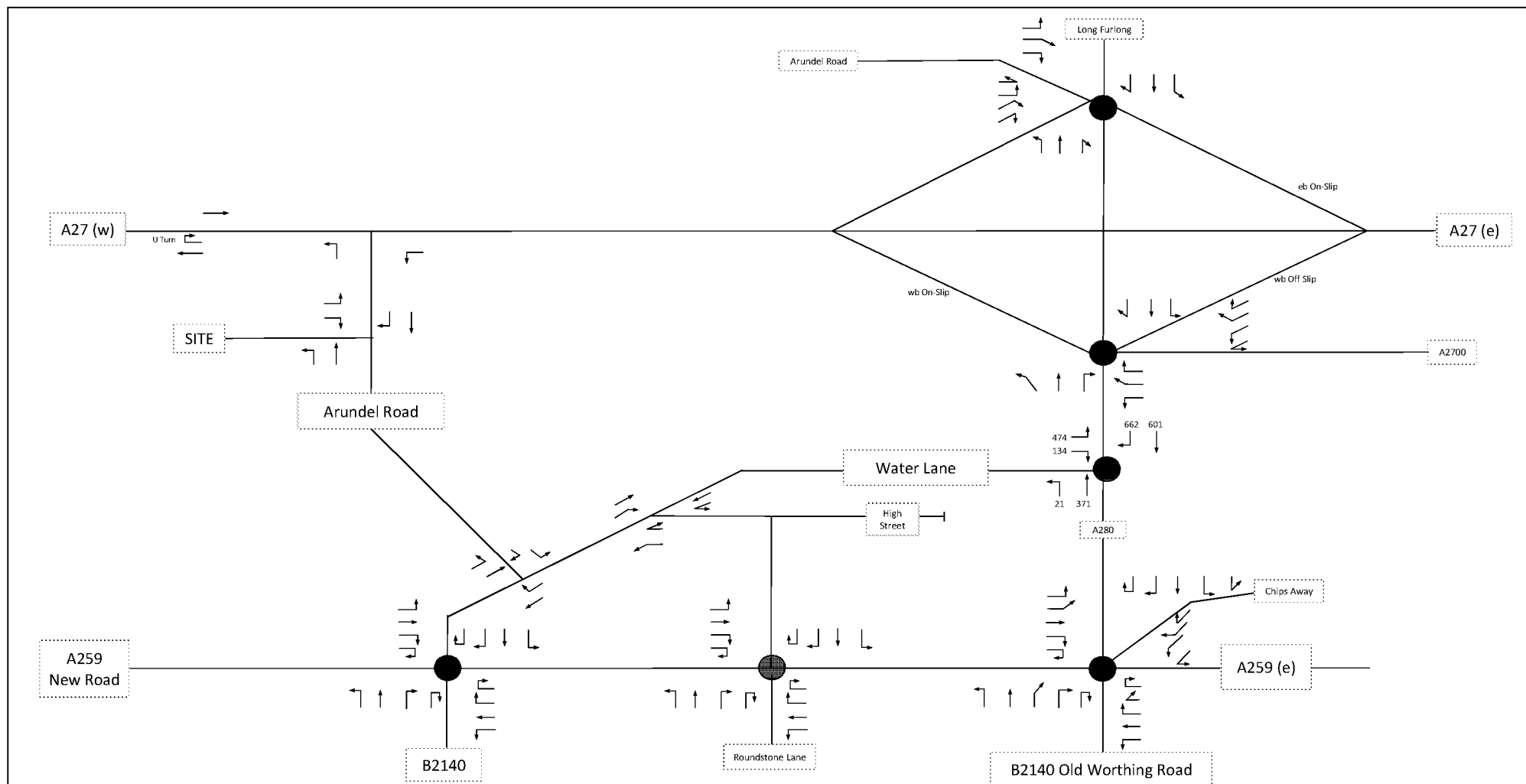
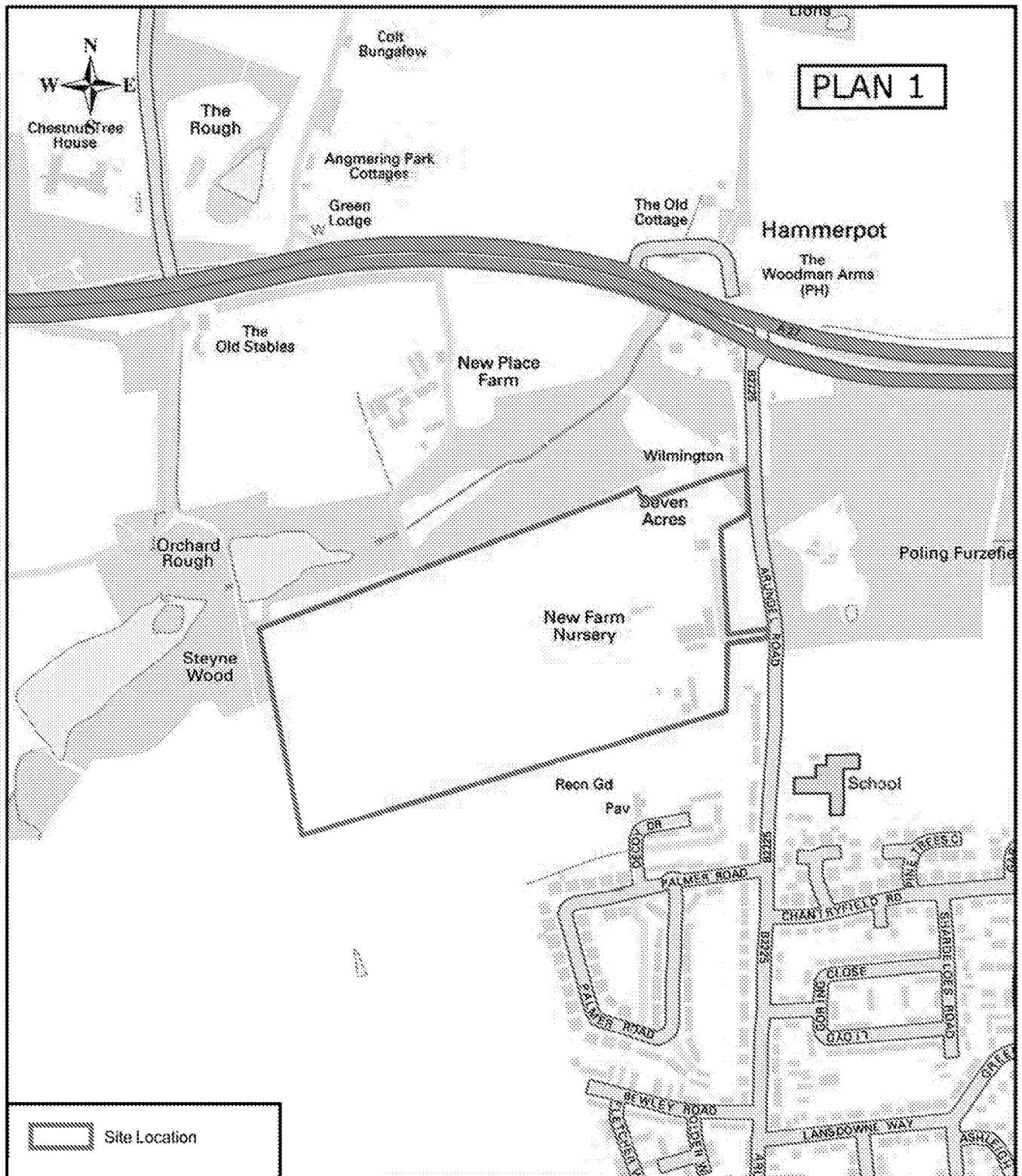


Figure L - 2031 Base Flows (includes all Water Lane Committed & Water Lane Developments & Other Committed as per the TA) + Arundel Road Development
PM Peak Period (1645 - 1745)

PLANS



Site Location

GLADMAN DEVELOPMENTS

PROPOSED RESIDENTIAL DEVELOPMENT ARUNDEL ROAD, ANGMERING SITE LOCATION PLAN

croft

Transport Solutions

Email: info@crofts.co.uk
Tel: 0161 667 3746
Web: www.crofts.co.uk

9 Jordan Street,
Manchester
M15 4PY

DRAWN: GM	DATE: 20.11.17	CHECKED: PJW	DATE: 20.11.17	SCALE: N.T.S	DRAWING NUMBER: 2020-01	REVISION:
--------------	-------------------	-----------------	-------------------	-----------------	----------------------------	-----------

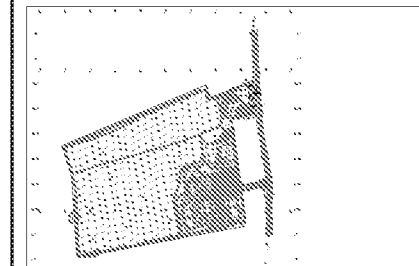


NORTH SOUTH AERIAL VIEW



NOTES

DRAWING IS INDICATIVE ONLY AND WILL BE SUBJECT TO CHANGE AS DESIGN IS PROGRESSED WITH LOCAL AUTHORITY



SITE LAYOUT NTS

----- INDICATIVE SITE BOUNDARY

REV.	DETAILS	DRAWN	CHECKED	DATE

CLIENT:

GLADMAN

PROJECT:

ARUNDEL ROAD, ANGMERING

DRAWING TITLE:

PROPOSED ACCESS
ARRANGEMENT

SCALES:

1:500 @ A3

DRAWN:

MC

CHECKED:

MC

DATE:

OCT 2017

9 Jordan St
Manchester
M15 4PY

Email: info@crofts.co.uk
Tel: 0161 667 3746
Web: www.crofts.co.uk

croft
Transport Solutions

DRAWING NUMBER:

2020-F01

REVISION:

-

Z:\projects\2020 Arundel Road, Angmering\CAD\CofE Drawings\2020-F03.dwg

PLAN 3

n Nursery

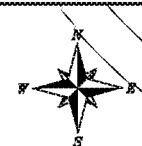
2.4x43M VISIBILITY SPLAY

EXISTING LOCATION OF SPEED LIMIT
CHANGE FROM 30MPH TO NATIONAL
SPEED LIMIT TRAVELING NORTH.

ARUNDEL ROAD

R6.0M

2.4x43M VISIBILITY SPLAY



NOTES

THIS IS NOT A CONSTRUCTION DRAWING AND IS
FOR INDICATIVE PURPOSES ONLY.
IT IS SUBJECT TO FURTHER DESIGN ANALYSIS,
TOPOGRAPHICAL MAPPING & CONFIRMATION OF
HIGHWAY/THIRD PARTY LAND BOUNDARIES.

- INDICATIVE SITE BOUNDARY
- DENOTES NEW KERBS
- EXISTING ADOPTED HIGHWAY

REV.	DETAILS	DRAWN	CHECKED	DATE

CLIENT:
GLADMAN

PROJECT:
ARUNDEL ROAD, ANGMERING

DRAWING TITLE:
**POTENTIAL SECONDARY ACCESS
ARRANGEMENT**

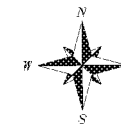
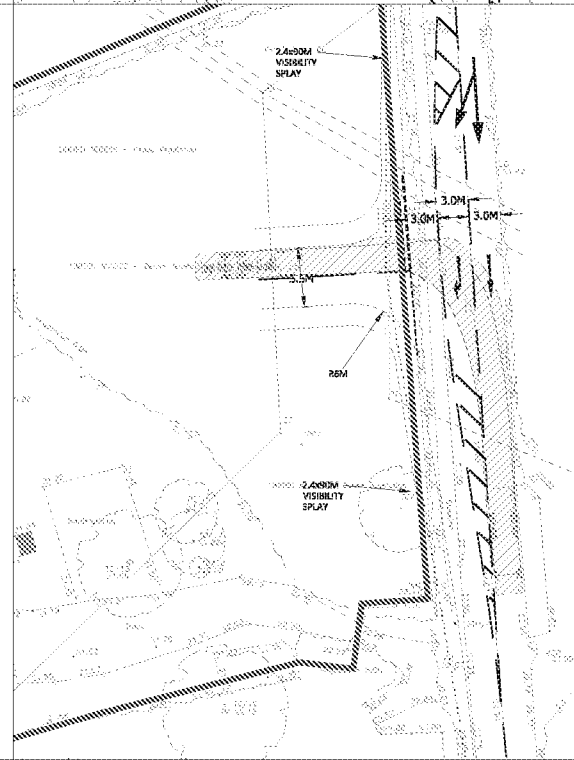
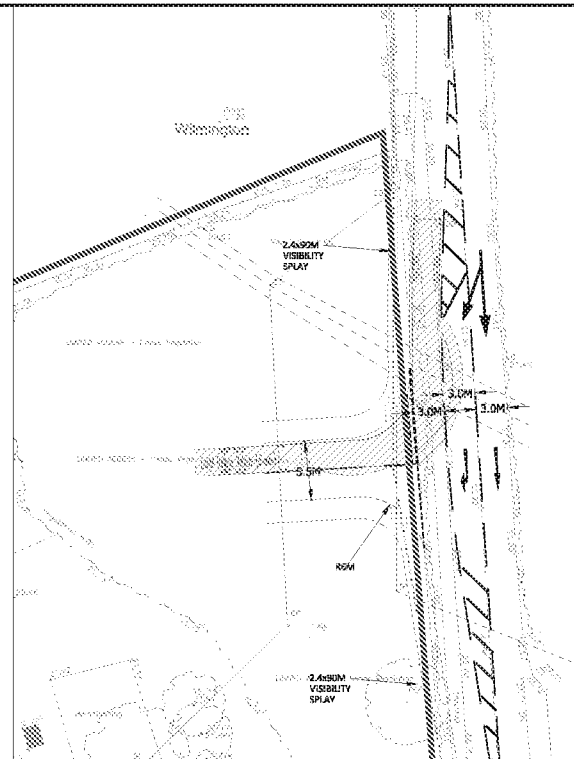
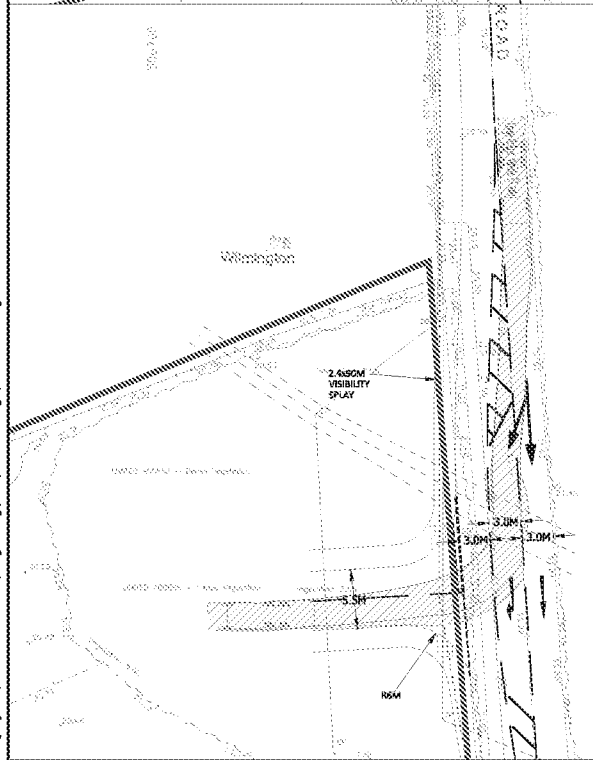
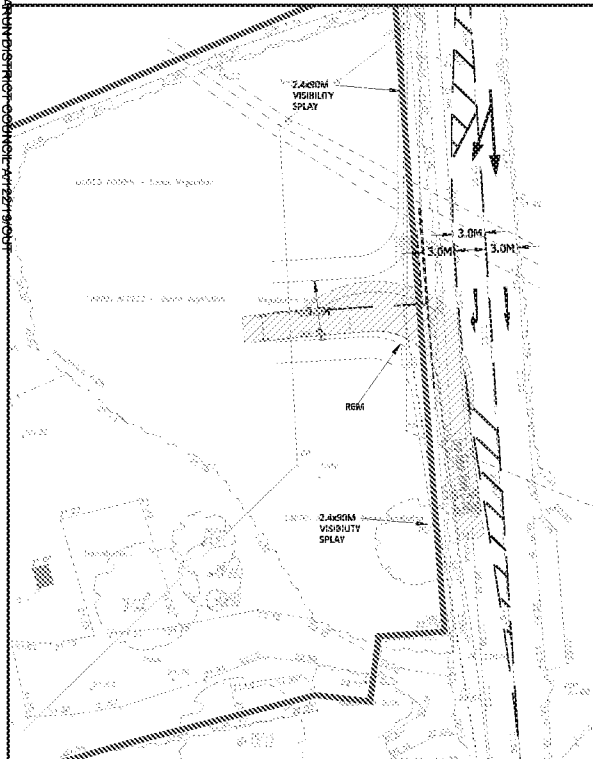
SCALES:
1:500 @ A3

DRAWN:	CHECKED:	DATE:
JC	MR	DEC 17

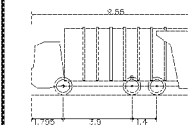
9 Jordan Street,
Manchester,
M15 4PY
Email: info@crofts.co.uk
Tel: 0161 667 3746
Web: www.crofts.co.uk

crofts
Transport Solutions

DRAWING NUMBER:	REVISION:
2020-F03	.



PLAN 4



Large Refuse Vehicle (3 axle)
Overall Length
Overall Width
Overall Body Height
Min Body Ground Clearance
Track Width
Lock to lock time
Kerb to Kerb Turning Radius

9.860m
2.450m
3.814m
0.365m
2.450m
4.00s
9.500m



REV.	DETAILS	DRAWN	CHECKED	DATE
------	---------	-------	---------	------

CLIENT:

GLADMAN

PROJECT:

ARUNDEL ROAD, ANGMERING

DRAWING TITLE:

SWEPT PATH ANALYSIS

SCALES:

1:500 @ A3

DRAWN:	GM	CHECKED:	MR	DATE:	JAN 2018
--------	----	----------	----	-------	----------

9 Jordan Street,
Manchester,
M15 4PY

Email: info@crofts.co.uk
Tel: 0161 667 3746
Web: www.crofts.co.uk

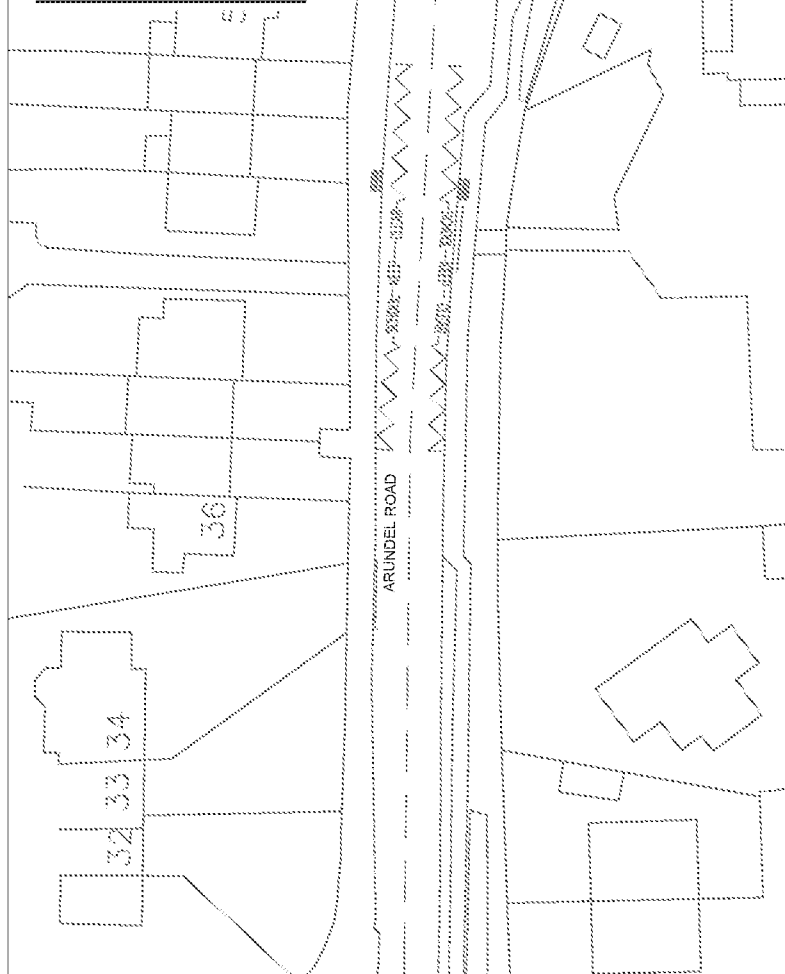


DRAWING NUMBER:	2020-SP01	REVISION:
-----------------	-----------	-----------



NORTH SOUTH AERIAL VIEW

PLAN 5



CURRENT LAYOUT OF ARUNDEL ROAD



PROPOSED CONTROLLED CROSSING ON ARUNDEL ROAD

NOTES

THIS IS NOT A CONSTRUCTION DRAWING AND IS FOR INDICATIVE PURPOSES ONLY.
THE DRAWING WILL BE SUBJECT TO CHANGE FOLLOWING LOCAL AUTHORITY REVIEW AND CONFIRMATION OF PUBLIC HIGHWAY AND THIRD PARTY LAND BOUNDARIES.

REV	DETAILS	DRAWN	CHECKED	DATE

CLIENT:

GLADMAN

PROJECT:

ARUNDEL ROAD, ANGMERING

DRAWING TITLE:

PROPOSED CONTROLLED
CROSSING

SCALES:

1:500 @ A3

DRAWN: LB	CHECKED: MR	DATE: JUL 19
-----------	-------------	--------------

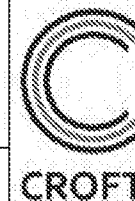
Croft Transport Planning & Design
340 Deansgate
Manchester
M3 4LY

Email: info@crofts.co.uk
Tel: 0161 837 7380
Web: www.crofts.co.uk

DRAWING NUMBER:	REVISION:
-----------------	-----------

2020-F05

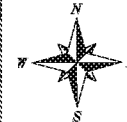
-



PLAN 6



NORTH SOUTH AERIAL VIEW



NOTES

THIS IS NOT A CONSTRUCTION DRAWING AND IS FOR INDICATIVE PURPOSES ONLY. THE DRAWING WILL BE SUBJECT TO CHANGE FOLLOWING LOCAL AUTHORITY REVIEW AND CONFIRMATION OF PUBLIC HIGHWAY AND THIRD PARTY LAND BOUNDARIES.

PROPOSED PEDESTRIANS CROSSING AHEAD WARNING SIGN TO DIA 562. SIGN TO BE LOCATED AT A MINIMUM DISTANCE OF 180M FROM CROSSING.



EXISTING "LOOK LEFT AND "LOOK RIGHT" ROAD MARKINGS ADJACENT TO CROSSING POINTS.

The Woodroon Arms (PH)

PROPOSED "LOOK LEFT AND "LOOK RIGHT" ROAD MARKINGS ADJACENT TO CROSSING POINTS.

Oakhurst

Woodyard

Meadowbank

10MX100M VISIBILITY SPY



PROPOSED PEDESTRIANS CROSSING AHEAD WARNING SIGN TO DIA 562.

REV	DETAILS	DRAWN	CHECKED	DATE

CLIENT: **GLADMAN**

PROJECT: **ARUNDEL ROAD, ANGMERING**

DRAWING TITLE: **PROPOSED IMPROVEMENTS TO EXISTING PEDESTRIAN CROSSING POINTS ON A27**

SCALE: **1:1000 @ A3**

DRAWN: JC	CHECKED: MR	DATE: JUN 19
-----------	-------------	--------------

Croft Transport Planning & Design
 Hill Quays
 9 Jordan Street
 Manchester
 M15 4PY

Email: info@crofts.co.uk
 Tel: 0161 667 3746
 Web: www.crofts.co.uk

DRAWING NUMBER: **2020-06**

REVISION: **-**

CROFT



PLAN 7

NOTES

- Site Location
- 800m Pedestrian Catchment
- 2km Pedestrian Catchment
- Nearest Bus Stops
- Education
- Leisure/Sport
- Cafe/Takeaway/Public House
- Retail
- Post Office
- Healthcare/Medical
- Community Facilities
- Library

REV.	DETAILS	DRAWN	CHECKED	DATE

CLIENT:

GLADMAN DEVELOPMENTS

PROJECT:

**PROPOSED RESIDENTIAL DEVELOPMENT
ARUNDEL ROAD, ANGMERING**

DRAWING TITLE:

800M & 2KM PEDESTRIAN CATCHMENT WITH AMENITIES

SCALE:

15000 @ A3

DRAWN:	GM	CHECKED:	PJW	DATE:	21.11.17
--------	----	----------	-----	-------	----------

2 South Road,
Newick,
BN15 4JY

Email: info@croft.co.uk
Tel: 01243 552 3346
Web: www.croft.co.uk

Transport Solutions

DRAWING NUMBER:	REVISION:
2020-03	.

APPENDICES

APPENDIX 1

Correspondence from WSCC & HE



From: Stephen Gee [REDACTED]
Sent: 05 April 2018 15:20
To: Anita Gardner
Cc: Planning.Responses
Subject: **Warning Active Content** A/36/18/OUT Land Off, Arundel Road, Angmering

Anita,
Please find attached comments on planning application ref A/36/18/OUT

Regards

Stephen

Stephen Gee|Consultant (Senior Planner) County Highways (Development Management),
Planning Services, [West Sussex County Council](#) | Location: Ground Floor, Northleigh, County
Hall, Chichester, PO19 1RH | [REDACTED]
[REDACTED]

This email and any attachments are confidential and intended solely for the persons addressed. If it has come to you in error please reply to advise us but you should not read it, copy it, show it to anyone else nor make any other use of its content. West Sussex County Council takes steps to ensure emails and attachments are virus-free but you should carry out your own checks before opening any attachment.

WEST SUSSEX COUNTY COUNCIL CONSULTATION

TO:	Arun District Council FAO: Mrs A Gardner
FROM:	Stephen Gee Highways, WSCC
DATE:	05/04/18
LOCATION:	Land Off, Arundel Road, Angmering, BN16 4ET
SUBJECT:	A/36/18/OUT Outline planning application with some matters reserved for the erection of up to 200 dwellings with access, public open space, landscaping and sustainable drainage system (SuDS) with vehicular access point from Arundel Road, one full-sized adult football pitch and the demolition of industrial units and one residential dwelling. Departure from the Development Plan.
DATE OF SITE VISIT:	
RECOMMENDATION:	☐ Advice ☒ Objection ☐ Modification ☐ No Objection ☐ More Information ☐ Refusal
S106 CONTRIBUTION TOTAL:	£ See below for breakdown.

Background

The application is for upto 200 dwellings at Land off Arundel Road, Angmering. The site compromises the former Angmering Auto Services and recycled parts centre and undeveloped land.

Free Written Advice was provided to the applicant on the applicability of the site access junction raising a number of queries. No further information was provided to or commented upon by the Highway Authority.

Access

Access is to be taken from Arundel Road via a new priority controlled junction. The applicant proposes the installation of a 3m right hand turn lane. A second priority access is also proposed to the sites southernmost boundary with Arundel Road.

Transport Assessment Review

A review of the Transport Assessment provided has highlighted a number of fundamental flaws that should be addressed:

The Scope hasn't been agreed

- Future Year scenarios.
- Committed Development.
- Junction Assessment (e.g Roundstone Lane would have an additional 60AM and 62PM trips and A280/A27 junctions would have 33PM peak movements)
- Trip Rates (use of edge of town centre and Scottish sites questioned)
- Trip Distribution (The TA states that it has been copied from app ref A/22/12 which appears to be an application for a single dwelling at FallowDown North

Drive, Angmering). No further evidence supporting the distribution has been provided.

Issues with modelling

- No inclusion of U turning vehicles in modelling at A259 junctions.
- The measurements included within the modelling of junctions are not agreed, should the applicants consultant wish to agree those proposed then marked drawings will be required.
- Approach to modelling Arundel Road/Station Road/Water Lane junction.
- The peak period as presented in the TA are 7:45 to 8:45 and 16:45 to 17:45. The modelling peak hours shown are 8:00 to 9:00 and 17:00 to 18:00.

Development Impact

- The applicant has only presented queues and RFC within the main text, from a brief examination of the modelling outputs delays are exacerbated by the development proposals which would result in severe impact.
- No improvement works are proposed to mitigate the impacts of the development.
- No reference to committed works at A259 or proposed works at Water Lane A280.

Access

- No speed surveys to confirm visibility requirements at the southern access.
- No Safety Audit on the southern access.
- Designers Response/comments for northern access not signed
- No exception report has been provided in relation Safety Audit 'Problem 2'.

Other

- It does not appear that the impact on Highways England network has been undertaken.
- Incorrect Road Names and flow diagrams.

The list of issues raise above is not exhaustive. It is suggested that if further work is undertaken then the scope of it is agreed with WSCC.

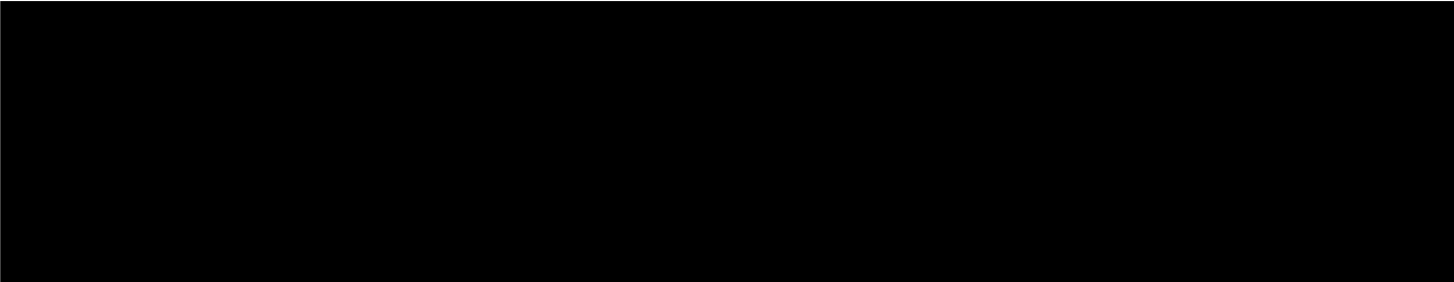
Conclusion

In conclusion an objection is raised to the proposals as:

- Insufficient information has been provided to enable an assessment of the ability of the highway network to accommodate the development without adding to the hazards of highway users to an unacceptable degree
- Adequate information has not been submitted to satisfy the Local Planning Authority that the proposal is acceptable in terms of access, visibility splays, and would not therefore give rise to increased hazards to highway users.

Stephen Gee

West Sussex County Council – Planning Services



From: Turner, Lyn [REDACTED]
Sent: 18 April 2018 16:13
To: Planning.Responses
Cc: Bowie, David; Cleaver, Elizabeth; Franklin, Richard; Planning SE
Subject: FW: RE: #4857 Planning Consultation on: A/36/18/OUT Land off Arundel Road Angmering BN16 4ET

For the attention of: Mrs A Gardner

Application No: A/36/18/OUT

Site: Land off Arundel Road Angmering BN16 4ET

Proposal: Outline planning application with some matters reserved for the erection of up to 200 dwellings with access, public open space, landscaping and sustainable drainage system (SuDS) with vehicular access point from Arundel Road, one full-sized adult football pitch and the demolition of industrial units and one residential dwelling. Departure from the Development Plan.

Highways England reference: Tracker id: #4857 HAMIS: 80987

Dear Mrs Gardner,

Thank you for your email of 28 March 2018 regarding the above application.

Highways England has been appointed by the Secretary of State for Transport as strategic highway company under the provisions of the Infrastructure Act 2015 and is the highway authority, traffic authority and street authority for the strategic road network (SRN). The SRN is a critical national asset and as such Highways England works to ensure that it operates and is managed in the public interest, both in respect of current activities and needs as well as in providing effective stewardship of its long-term operation and integrity.

Highways England will be concerned with proposals that have the potential to impact on the safe and efficient operation of the SRN, in this case the A27.

In terms of the submitted planning application, our current position is that there is insufficient information provided by the applicant on which to base an informed decision in relation to the potential impacts of the proposals on the SRN.

In particular, the following comments should be passed onto the applicant for consideration and response:

Baseline information

We note that:

- there is no survey of the A27 U-turn. Highways England requests that a survey is undertaken of this junction, and in particular the queuing in the right turn lane.
- the collision search area doesn't appear to include the junction where U-turning movements are set to increase with the implementation of the development, and this should be included

Trip Generation

We note that the TA does not take into account any trips/traffic generated by the proposed football pitch. Please can this information be provided, or as a minimum, the TA should include details of how the pitch is to be used, e.g. time of day, day of week etc.

Trip Distribution

The submitted Transport Assessment (TA) references using a distribution from application A/22/12. However, this appears to be a single dwelling further south of the application site, please can the correct reference and associated distribution be made available?

Development Impact / mitigation

We note that there have been 4 recent collisions at the A27 / Arundel Road junction, but there is no capacity or safety assessment of the A27 / Arundel Road or A27 U-turn junctions, which Highways England requests is undertaken along with consideration of any mitigation required. We noted that one of the historic collisions involved a pedestrian so NMU's should also be considered. This should be for the two assessment years plus an additional scenario of end of Local Plan or 10 years after opening, whichever is later, and include consideration of queue lengths at both junctions. Therefore consideration and mitigation needs to be investigated.

Construction Traffic

We note that no information is given regarding demolition and construction traffic and at this stage it is appropriate to highlight that Highways England may request a condition for a Construction Management Plan. This would seek to include Demolition traffic and would restrict routes to and from the site, and hours that Construction Traffic can travel to the site so as to minimise impact on the SRN.

Until such time as the above information has been provided to enable Highways England to obtain a clear view of the impacts of this proposed access on the SRN, our informal advice is that you should not approve this application because of the potential for harm to the Strategic Road Network.

Should you have any queries regarding this response, please contact us.

Regards,

Sent on behalf of Elizabeth Cleaver, Assistant Spatial Planning Manager

Lyn Turner

Highways England Company Limited | Registered Office: Bridge House, 1 Walnut Tree Close,
Guildford GU1 4LZ | Registered in England and Wales No. 9346363
Web: www.highwaysengland.co.uk

This email may contain information which is confidential and is intended only for use of the recipient/s named above. If you are not an intended recipient, you are hereby notified that any copying, distribution, disclosure, reliance upon or other use of the contents of this email is strictly prohibited. If you have received this email in error, please notify the sender and destroy it.

WEST SUSSEX COUNTY COUNCIL CONSULTATION

TO:	Arun District Council FAO: Anita Gardner
FROM:	Stephen Gee Highways, WSCC
DATE:	31/07/18
LOCATION:	Land Off, Arundel Road, Angmering, BN16 4ET
SUBJECT:	A/36/18/OUT Outline planning application with some matters reserved for the erection of up to 200 dwellings with access, public open space, landscaping and sustainable drainage system (SuDS) with vehicular access point from Arundel Road, one full-sized adult football pitch and the demolition of industrial units and one residential dwelling. Departure from the Development Plan. An amendment received.
DATE OF SITE VISIT:	05/04/2018
RECOMMENDATION:	☐ Advice ☒ Objection ☐ Modification ☐ No Objection ☒ More Information ☐ Refusal
S106 CONTRIBUTION TOTAL:	£ See below for breakdown.

Background

The application is for upto 200 dwellings at Land off Arundel Road, Angmering. The site compromises the former Angmering Auto Services and recycled parts centre and undeveloped land.

Free Written Advice was provided to the applicant on the applicability of the site access junction raising a number of queries. No further information was provided to or commented upon by the Highway Authority.

Following a number of issues being raised within my original response a substitute transport assessment has been prepared and submitted.

Access

Access is to be taken from Arundel Road via a new priority controlled junction. The applicant proposes the installation of a 3m right hand turn lane. A second priority access is also proposed to the sites southernmost boundary with Arundel Road. Visibility splays are provided in line with recorded speeds.

A safety audit have been provided for both accesses and designers response incorporated. It should be noted that a designer's signature and date should be provided within each designer's response.

It is noted that on each access the issue of vehicle encroachment into adjoining lanes may result in vehicle collisions is raised this refers to the refuse vehicle encroaching into

the adjoining lanes when accessing/egressing the site. The audit recognises the movements are likely to be minimal and as such an exception report should be prepared.

Sustainable Transport

The site is located within 600m of bus stops serving the hourly service no 9 which provides onward connections to destinations such as Angmering Railway station, Worthing and Littlehampton.

The TA identifies the potential for a cycle route along the length of Arundel Road however is silent in regard into how the development could deliver such a route, the applicant should provide information on how this could be delivered.

Trip Generation / Distribution / Assignment

The trip rates and trip generation of the site are accepted. The distribution is based upon census travel to work data and is accepted. The substitute TA has amended the distribution to remove the U turning movement at Poling on the A27 with the resultant flows utilising Water Lane/A280 to reach the A27/A280 junctions to travel west.

The site is anticipated to generate 111 two way trips in the AM peak and 114 trips in the PM peak. It is noted that no allowance has been provided for the existing use of the site.

Modelling

In order to provide a robust assessment, an end of local plan future year of 2031 has been used and traffic flows uplifted utilising TEMPRO.

Site Access

The modelling provided shows the site access (with all vehicles loaded on a single access) would operate within capacity.

Arundel Road/Water Lane/Station Road/High Street

The modelling highlights that the junctions would remain under capacity in a 2031 future year scenario.

A280/Water Lane

Clarification is required on the 2031 flows (Potential Roundabout Layout) at it appears to show that the junction performance would improve with the development traffic being loaded on. Clarification is required to the results.

The modelling highlights that the development would have a severe impact on the junction in a future year scenario of 2031. Improvement schemes are currently under consideration (to include either a signalisation arrangement or roundabout) Modelling has been provided that should the preferred roundabout option be implemented then the developments impacts could be accommodated.

A259 Junctions

The modelling provided shows that without mitigation the development would have an impact on the A259 junctions (Station Road Rbt and A259/A280 Rbt) in a 2031 scenario.

The junctions are currently being improved by WSCC and the principal of a contribution towards the junction has been identified.

A280/A27 South

The Water Lane development schemes (A/99/17 and A/40/18) propose two improvements to the Water Lane approach (interim and final), I am unclear to which has been modelled within the Transport Assessment, this should be clarified with a drawing reference number. Once this is clarified I am likely to have further queries.

A280 Long Furlong / A27

The existing and improved modelling tables 6.12 and 6.13 within the document are the same. Revised information/clarification should be provided.

A27/Arundel Road

The modelling provide shows an increase of queues on Arundel Road in a 2031 scenario from 12.9 PCUS to 19 PCUs whilst Arundel Road has some capacity to accommodate the queueing vehicles concerns are raised about the impact of queueing vehicles in the vicinity of the crest of the hill. The delay anticipated to increase by 75 seconds from (3mins 22s to 4mins 35s)

Travel Plan

The following comments have been received from the county travel plan officer

This one is mostly fine now although ...

- There are a couple of references to the proposed cycle route (scheme ID= 39) being 'pursued' as part of the WSCC Walking & Cycling Strategy, which suggests that there are firm plans in place. The suggested schemes listed within the strategy are aspirational routes that may be delivered by WSCC or, wherever possible, secured through new development opportunities. These references should therefore be amended to clarify this (e.g. 4.3.4).
- Enforcement: 6.8.1 should be revised to clarify the developer's commitment to issuing a second round of £150 travel vouchers should the 5-year target not be achieved. For example 'A second round of £150 travel vouchers will be offered to each dwelling in the event that the 10% trip rate reduction target is not achieved by year 5.'

Once these points have been addressed I shall be able to approve the TP.

Further Information / Way forward

A number of the points above seek further clarification from the applicant to understand the impacts of the development.

The following list identifies the issues yet to be resolved.

- Response to a number of questions on the modelling approach and results;
- Designers Response signed and dated and exception report required;
- Proposals to deliver a cycleway;
- Further information / mitigation to the A27/Arundel Road junction; and

- Agreement to a suitable level of contribution (discussed below).

Contributions

From the applicants modelling it has been identified that the development would have a severe impact on a number of local junctions, Many of these junctions have pre identified schemes within the local plan for improvement or have had schemes drawn up by alternative developments or by WSCC. As such subject to clarifications on the modelling above WSCC are open to a contribution to be put towards improvement schemes at the junctions on which the development has an impact.

Conclusion

In conclusion an objection is raised to the proposals as:

- Insufficient information has been provided to enable an assessment of the ability of the highway network to accommodate the development without adding to the hazards of highway users to an unacceptable degree

Stephen Gee
West Sussex County Council – Planning Services

[REDACTED]

From: [REDACTED]
Sent: 01 August 2018 13:57
To: [REDACTED]
Cc: [REDACTED]
Subject: RE: RE: #4857 Planning Consultation on: A/36/18/OUT Land off Arundel Road Angmering BN16 4ET

Dear Mrs Gardner,

Further to our emails below and your notification of 11th July regarding further information, we have now reviewed the updated Transport Assessment.

Whilst it has addressed a number of our comments, there are still a few outstanding matters and therefore our position remains that there is insufficient information provided by the applicant on which to base an informed decision in relation to the potential impacts of the proposals on the SRN. Please can you pass on the following comments to the applicant for consideration and response?:

Baseline information

- Please provide full details of the accidents at the A27 U-turn facility at Poling Corner and at the A27 / Arundel Road junction as the updated TA only includes a summary from Crashmap.

Trip Distribution

- The trip distribution is based on application A/82/12 (Land east of Roundstone Lane), which is located on the southeast side of Angmering near the A280. As such, we do not agree that the trip distribution would be the same as the proposed development is situated to the northwest of Angmering near the A27, and therefore we anticipate some traffic would use the A27 U-turn facility at Poling Corner. However, we note the survey results show that no queues were recorded at the right turn facility here and therefore any additional trips at the junction are unlikely to have a material impact on its operation. Accordingly, we are not requesting any further information in relation to your proposed distribution.

Development Impact / mitigation

A27/Arundel Road Junction

- Paragraph 5.2.21 states that *"the existing infrastructure will facilitate safe and direct pedestrian linkages between the site and local destinations"*. However, para 7.1.36 identifies that there has been a fatal accident at this junction involving a pedestrian and para 7.1.38 identifies that *"some new warning signage could be provided at this location to alert drivers to the potential for pedestrians to be walking in the vicinity to improve safety, along with the provision of dropped kerbs and tactile paving at the crossing points"*. We are concerned that NMU's have not been properly considered with appropriate mitigation identified and in this respect we recommend use of the Design Manual for Roads and

Bridges (DMRB) standard HD42/17 Walking, Cycling & Horse-Riding Assessment and Review for a robust assessment of Non-Motorised Users (NMUs).

- The 2031 without development scenario shows that the Arundel Road arm of the junction will be operating above its theoretical capacity in the AM peak with the proposed development adding traffic to this. As such, mitigation should be proposed to result in a 'nil detriment' impact.

A280 / Titnore Lane/A27 slips (southern A27 dumbell roundabout)

- The results of this assessment show that the improved roundabout would operate within capacity in 2031 before the proposed development traffic is added but once added, the Water Lane arm would operate over capacity in the AM peak. As such, appropriate mitigation should be proposed so that the proposed development results in a 'nil detriment' impact.

Until such time as the above information has been provided to enable Highways England to obtain a clear view of the impacts of this proposed access on the SRN, our informal advice is that you should not approve this application because of the potential for harm to the Strategic Road Network.

Should you have any queries regarding this response, please contact us.

Regards,

Richard Franklin

Highways England Company Limited | Registered Office: Bridge House, 1 Walnut Tree Close, Guildford GU1 4LZ | Registered in England and Wales No. 9346363

Web: www.highwaysengland.co.uk

From: Franklin, Richard

Sent: 12 June 2018 13:09

To: [REDACTED]

Cc: [REDACTED]

Subject: RE: RE: #4857 Planning Consultation on: A/36/18/OUT Land off Arundel Road Angmering BN16 4ET

Dear Mrs Gardner,

Further to our email below, we have not received any further information regarding the proposed development.

We therefore ask that your Council continues to refrain from granting permission until Highways England has received and is satisfied with the requested information.

Regards,

Sent on behalf of Elizabeth Cleaver, Assistant Spatial Planning Manager Area 4

Richard Franklin

Highways England Company Limited | Registered Office: Bridge House, 1 Walnut Tree Close, Guildford GU1 4LZ | Registered in England and Wales No. 9346363

Web: www.highwaysengland.co.uk

From: Turner, Lyn

Sent: 18 April 2018 16:13

To: [REDACTED]

Cc: [REDACTED]

Subject: FW: RE: #4857 Planning Consultation on: A/36/18/OUT Land off Arundel Road Angmering BN16 4ET

For the attention of: Mrs A Gardner

Application No: A/36/18/OUT

Site: Land off Arundel Road Angmering BN16 4ET

Proposal: Outline planning application with some matters reserved for the erection of up to 200 dwellings with access, public open space, landscaping and sustainable drainage system (SuDS) with vehicular access point from Arundel Road, one full-sized adult football pitch and the demolition of industrial units and one residential dwelling. Departure from the Development Plan.

Highways England reference: Tracker id: #4857 HAMIS: 80987

Dear Mrs Gardner,

Thank you for your email of 28 March 2018 regarding the above application.

Highways England has been appointed by the Secretary of State for Transport as strategic highway company under the provisions of the Infrastructure Act 2015 and is the highway authority, traffic authority and street authority for the strategic road network (SRN). The SRN is a critical national asset and as such Highways England works to ensure that it operates and is managed in the public interest, both in respect of current activities and needs as well as in providing effective stewardship of its long-term operation and integrity.

Highways England will be concerned with proposals that have the potential to impact on the safe and efficient operation of the SRN, in this case the A27.

In terms of the submitted planning application, our current position is that there is insufficient information provided by the applicant on which to base an informed decision in relation to the potential impacts of the proposals on the SRN.

In particular, the following comments should be passed onto the applicant for consideration and response:

Baseline information

We note that:

- there is no survey of the A27 U-turn. Highways England requests that a survey is undertaken of this junction, and in particular the queuing in the right turn lane.
- the collision search area doesn't appear to include the junction where U-turning movements are set to increase with the implementation of the development, and this should be included

Trip Generation

We note that the TA does not take into account any trips/traffic generated by the proposed football pitch. Please can this information be provided, or as a minimum, the TA should include details of how the pitch is to be used, e.g. time of day, day of week etc.

Trip Distribution

The submitted Transport Assessment (TA) references using a distribution from application A/22/12. However, this appears to be a single dwelling further south of the application site, please can the correct reference and associated distribution be made available?

Development Impact / mitigation

We note that there have been 4 recent collisions at the A27 / Arundel Road junction, but there is no capacity or safety assessment of the A27 / Arundel Road or A27 U-turn junctions, which Highways England requests is undertaken along with consideration of any mitigation required. We noted that one of the historic collisions involved a pedestrian so NMU's should also be considered. This should be for the two assessment years plus an additional scenario of end of Local Plan or 10 years after opening, whichever is later, and include consideration of queue lengths at both junctions. Therefore consideration and mitigation needs to be investigated.

Construction Traffic

We note that no information is given regarding demolition and construction traffic and at this stage it is appropriate to highlight that Highways England may request a condition for a Construction Management Plan. This would seek to include Demolition traffic and would restrict routes to and from the site, and hours that Construction Traffic can travel to the site so as to minimise impact on the SRN.

Until such time as the above information has been provided to enable Highways England to obtain a clear view of the impacts of this proposed access on the SRN, our informal advice is that you should not approve this application because of the potential for harm to the Strategic Road Network.

Should you have any queries regarding this response, please contact us.

Regards,

Sent on behalf of Elizabeth Cleaver, Assistant Spatial Planning Manager

Lyn Turner

Highways England Company Limited | Registered Office: Bridge House, 1 Walnut Tree Close, Guildford GU1 4LZ | Registered in England and Wales No. 9346363

Web: www.highwaysengland.co.uk

This email may contain information which is confidential and is intended only for use of the recipient/s named above. If you are not an intended recipient, you are hereby notified that any copying, distribution, disclosure, reliance upon or other use of the contents of this email is strictly prohibited. If you have received this email in error, please notify the sender and destroy it.

Highways England Company Limited | [REDACTED] / National Traffic Operations Centre, 3 Ridgeway, Quinton Business Park, Birmingham B32 1AF |

Registered in England and Wales no 9346363 | Registered Office: Bridge House, 1 Walnut Tree Close, Guildford, Surrey GU1 4LZ

Consider the environment. Please don't print this e-mail unless you really need to.

From: Stephen Gee <[REDACTED]>
Sent: 16 July 2019 08:47
To: Marty Rae <Marty.Rae@eddisons.com>
Subject: RE: A/36/18/OUT Land Off, Arundel Road, Angmering

This Message originated outside your organization.

Marty,
Happy with the revised trip rates.

Regards

Stephen

From: Marty Rae [REDACTED]
Sent: 15 July 2019 10:51
To: Stephen Gee
Subject: RE: A/36/18/OUT Land Off, Arundel Road, Angmering

Good morning Stephen,

Many thanks for confirming, I will include both the north and south sites on Water Lane, as committed – I have revisited the TRICS database, removing town centre and edge of town centre sites, as advised and attach the resulting trips rates and summary table for your consideration.

Please can you confirm that these are now reasonable, as I need to start re-running the capacity assessments this week?

I look forward to hearing from you.

Marty Rae
Senior Consultant

PLEASE NOTE FROM MONDAY 8th JULY WE WILL BE MOVING TO OUR NEW ADDRESS AT 340 DEANS GATE, MANCHESTER M3 4LY

Graft Transport Planning & Design is a trading name of Eddisons Commercial Limited. Registered in England 3250893. Registered Office: Toronto Square, Toronto Street, Leeds LS1 2RJ.

From: Stephen Gee <[REDACTED]>
Sent: 12 July 2019 13:50
To: Marty Rae <[REDACTED]>
Subject: RE: A/36/18/OUT Land Off, Arundel Road, Angmering

This Message originated outside your organization.

Marty,

Land North of Water Lane (A/40/18) was approved by Arun committee and as such should be a committed development along with land south of water lane (A/99/17)

In terms of B1 trips rates, the location should be refined to remove inappropriate land classifications such as town centre and edge of town centre, given the low level of provision this is unlikely to significantly effect the resultant trips but should be done to ensure the TA is robust.

Regards

Stephen

[REDACTED]

From: [REDACTED]
Sent: 30 April 2018 14:38
To: 'Stephen Gee'; Anita Gardner
Cc: Planning.Responses
Subject: RE: A/36/18/OUT Land off Arundel Road, Angmering

Good afternoon Stephen,

I hope you are well! ☺! Thanks for the info. on Travel Plans, I'll take a look...

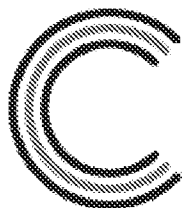
Are you able to confirm if those two big applications we spoke about have been uploaded onto your planning portal yet? I did have a look last week but couldn't seem to find them...

If you have the two TA's would it be possible for you to send them over to me?

Also, do have a plan showing the cycle route you refer to? This is certainly something we can consider providing...

Marty Rae
Senior Consultant

[REDACTED]
[Connect on LinkedIn](#)



Croft Transport Planning & Design
Hill Quays
9 Jordan Street
Manchester
M15 4PY

www.croftts.co.uk
info@croftts.co.uk

Registered Company Number 7373729

From: [REDACTED]
Sent: 30 April 2018 14:30
To: anita.gardner@arun.gov.uk
Cc: Planning.Responses <Planning.Responses@arun.gov.uk>
Subject: FW: A/36/18/OUT Land off Arundel Road, Angmering

Anita,
Please find comments below and standard comments/guidelines attached on the Travel Plan that have been provided by the WSCC Travel Plan officer

Essentially this one needs to start from scratch following our policy and my model comments (both attached).

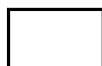
We would consider this site to be in a rural location and therefore the target would be to achieve 12-hour vehicle trip rate that is 10% lower than predicted in the TA. This should be presented as numbers of trips within the TP.

Also, our Walking & Cycling Strategy includes an aspiration to provide an off-carriageway cycle connection from Angmering village to the existing facility on the A27 (scheme ID = 39). It may be possible to achieve this (at least in part) if a route through the site could be provided.

Regards

Stephen

This email and any attachments are confidential and intended solely for the persons addressed. If it has come to you in error please reply to advise us but you should not read it, copy it, show it to anyone else nor make any other use of its content. West Sussex County Council takes steps to ensure emails and attachments are virus-free but you should carry out your own checks before opening any attachment.



Virus-free. www.avq.com

Model Comments for Residential Development Travel Plans (Full Travel Plans where a TA has been required)

Targets

The headline target for the Travel Plan should be to achieve a 12-hour weekday vehicle trip rate that is 15% (urban sites) /10% (rural sites) lower than that predicted for the site in the Transport Assessment assuming a Travel Plan were not implemented. This trip rate should be achieved within 5 years and sustained for the 5-year monitoring period. The Travel Plan should clearly state the number of trips expected between 7am and 7pm on a typical weekday (as should appear in the TA) and also the target number of trips (i.e. TA – 10%/15%).

Monitoring and Auditing

The Travel Plan should be monitored in accordance with the TRICS UK Standard Assessment Methodology (aka TRICS SAM). This involves 3 multi-modal surveys over a 5-year period whereupon the 15%/10% trip rate reduction target should be achieved or further TP measures implemented.

The developer/Travel Plan Coordinator should commission these directly with the TRICS organisation and should be secured through a Section 106 agreement.

Consideration will need to be given as to when the first of the TRICS SAM surveys should be conducted. The final survey should be conducted following final occupation. Therefore 50% occupation may prove to be a reasonable trigger point for the initial survey.

We require the developer to pay an auditing fee of £500 per survey. If the results show the TP is on track then a meeting to discuss remedial actions will not be required, and hence we will be able to offer a 25% discount on the fee.

Travel Plan Co-ordinator

A Travel Plan Coordinator (TPC) should be appointed to deliver the Travel Plan.

The TPC should ensure that regular surveys are conducted in order to monitor progress towards targets.

The TPC should also provide a basic personal journey planning service to residents.

The TPC should be appointed prior to occupation of the first dwelling (ideally before the first unit goes on sale) and should be in place at least until the results of the final surveys are known.

Contact details for the TPC should be provided to this office on appointment. If possible, a planning condition should be applied that prevents occupation of the first dwelling until contact details for the TPC have been provided to the County Council.

Travel Information and Resident's Travel Packs

Resident's welcome packs should include the following:

- A map of the local area highlighting local schools, shops, any areas of major employment, hospitals, doctor's surgeries, dentists, bus and rail stations, bus stops, and leisure facilities etc.
- Information about how to access the above by bus, including approximate journey times, route numbers etc and a cost comparison with car travel + parking
- Information about how to access the above on foot or by bicycle, including approximate journey times, route information etc, and a cost comparison with car travel + parking
- Information about areas served by any local rail station, including approximate journey times and a cost comparison with car travel + parking
- Details about grocery home delivery services operated by local shops and supermarkets, including the benefits such services offer compared to private car travel, such as reduced CO2 and greater convenience.
- Information about bike shops offering discounts to residents living on developments where a Travel Plan is operating. The County Council has negotiated various discounts on behalf of developers and further details can be found on our web site:

<https://www.westsussex.gov.uk/roads-and-travel/travel-and-public-transport/travelwise-sustainable-transport/cycle-to-work-scheme/>

We expect to see some sort of travel voucher offering to the initial occupants of the residential units. Vouchers should be worth at least £150 per dwelling and could be exchanged the following:

- a. a season ticket for the local bus service
- b. a rail season ticket or network card
- c. a contribution towards the purchase of a new bicycle and/or equipment
- d. Cycle training up to 4 members of the household (further details and course costs are available at www.westsussex.gov.uk/cycletraining)
- e. 12 months free membership to any local Car Club (including joining fee)

Developments served by Metrobus: For larger developments Metrobus may be able to supply welcome packs for people moving in, with bespoke travel info and a free trial smartcard. If the developer is able to make a financial contribution then Metrobus may also be able to offer significant discounts for residents over a longer period. For further details contact nick.hill@metrobus.co.uk

Developments served by Stagecoach South: Stagecoach may be able to supply free 'taster' tickets for each resident and also discounted Megarider tickets. Contact alex.o'loughlin@stagecoachbus.com or nikki.jones@stagecoachbus.com for details.

The County Council has commissioned Pindar Creative's Travel Plan Mapping Solution. The service enables developers, employers, and other organisations to purchase site-specific multi-modal travel maps, notice boards, and interactive PDFs. The applicant may wish to consider using this service to produce the local travel information for the resident's welcome packs. Further details can be found on our website:

http://www.westsussex.gov.uk/leisure/getting_around_west_sussex/travelwise/supporting_material.aspx

The County Council has produced a leaflet about our car sharing scheme, which is available on our web site and can be downloaded for inclusion in resident welcome packs and on any community web site that might be established. A video which explains how the scheme works is also available. The url is: www.westsussex.gov.uk/carsharing

The West Sussex Cycle Journey planner should be promoted in welcome packs and across the site, as should Traveline, and National Rail Enquiries etc. The link to our cycle journey planner is <http://cyclejourneyplanner.westsussex.gov.uk/> and can also be accessed via the WSCC website: <https://www.westsussex.gov.uk/leisure-recreation-and-community/walking-horse-riding-and-cycling-routes/cycle-journey-planner/>

The County Council's new multi-modal journey planning website provides route information for all land-based modes (including car sharing) and enables journey times, carbon savings, and calories burned to be compared. Further details are available at <https://www.westsussex.gov.uk/roads-and-travel/travel-and-public-transport/plan-your-journey/>. A free 'widget' is also available for inclusion on developers' websites <https://www.westsussex.gov.uk/roads-and-travel/travel-and-public-transport/travelwise-sustainable-transport/travel-plan-resources/#free-travel-widget-for-your-website>

Car club

The site would benefit from the introduction of a car club. Whilst commercial operators may not be interested in servicing a site such as this a not-for-profit operator, such as Co-Wheels, may be able to establish a car club at this development. This would require an initial period of funding from the developer until 20-40 regular users per vehicle is established in order to make the club self-sustaining. We would estimate that a budget of around £30k would enable a company such as Co-Wheels to provide 2 vehicles for 2 years (inc. maintenance). An alternative, and perhaps cheaper, option would be for the developer to provide vehicles and fund the installation on the relevant car club hardware. A maintenance charge would also apply in this case.

For sites in Horsham and Chichester: Co-Wheels has established Car Clubs in Chichester and Horsham. The County Council's preference is therefore that residential developments in these towns support the expansion of the existing Car Clubs, rather than establish stand-alone schemes. Examples of support include financial contributions towards publicity and marketing, promoting the scheme to local residents (including subsidising initial membership), and providing one or more additional vehicles.

EV charging points

The site would benefit from electric vehicle charging points. Existing charge points in West Sussex are part of the Energise Network and any points installed at this site should be part of the same scheme. Further information is available on our web site ...

http://www.westsussex.gov.uk/leisure/getting_around_west_sussex/travelwise/electric_vehicle_charging_netw.aspx

Wherever possible, dwellings with garages should be equipped with domestic electrical sockets so as to facilitate the charging of electric vehicles.

Promotion and Publicity

National awareness events, such as those listed below, should be promoted by the TPC:

Walk to School Week
National Bike Week
European Mobility Week
National Liftshare Week
International Walk to School Month
Road Safety Week

The County Council has developed a suite of posters, which can be used to promote sustainable and active modes of travel. The artwork may be used free of charge and can be downloaded from our web site:

http://www.westsussex.gov.uk/leisure/getting_around_west_sussex/travelwise/supporting_material.aspx

Enforcement

The Travel Plan should include provision for enforcement action that would be taken in the event that the 5-year target is not met. One option might be for a second round of travel vouchers to be offered to each dwelling should the 15%/10% trip rate reduction target not be achieved by year 5.

APPENDIX 2

Highways Technical Note

(To address comments raised by WSCC & HE on Original TA)

HIGHWAYS NOTE V3 (SEPTEMBER 2018)

Proposed Residential Development, Land off Arundel Road, Angmering

1. Introduction

- 1.1 Croft have been appointed by Gladman Developments Ltd (Gladman) to produce a Transport Assessment (TA) and Travel Plan (TP) to assist the Local Planning Authority's determination of an outline planning application for a residential development comprising up to 200 units on land off Arundel Road in Angmering.
- 1.2 The TA has been submitted and comments have been received from both West Sussex County Council (WSCC) and Highways England (HE).
- 1.3 The purpose of this note is therefore firstly to address the issues raised by WSCC, which can be summarised as follows;
 - Location of the speed survey on Arundel Road;
 - Requirement for the completed Designers Responses to be signed and dated;
 - A signed exception report where the RSA recommendations have not been implemented;
 - Consideration to how the development could assist in delivering the West Sussex Walking and Cycling Strategy (at least in part);
 - Clarification on the ARCADY results for the A280/Water Lane improved roundabout layout;
 - Clarification of the layout modelled for the A280/A27/Titnore Lane southern roundabout junction;
 - Clarification on the results summary table for the A27/A280 Long Furlong/A27 northern roundabout junction;
 - Further consideration of the operation of the A27/Arundel Road junction and the impact of queueing vehicles in the vicinity of the crest of the hill on Arundel Road; and
 - Amendments to the Travel Plan to include the highways officers' comments.
- 1.4 Secondly it will address the comments raised by HE are broadly in line with those detailed above, but with the addition of the following;
 - Provision of full details of the accident data at the A27 U-turn facility at Poling Corner and the A27/Arundel Road junction, rather than CrashMap; and
 - Provision of a DMRB standard HD/42/17 Walking, Cycling & Horse-Riding Assessment and Review (WCHAR) for the A27/Arundel Road junction.
- 1.5 Each of the above matters will be discussed in turn in the following paragraphs.

2. Location of the Speed Survey

- 2.1 To establish existing traffic speeds in the vicinity of the proposed main site access on Arundel Road an Automatic Traffic Counter (ATC) was installed at the approximate location shown on **Plan 1**.

3. Requirement for the completed Designers Responses to be signed and dated

- 3.1 To demonstrate that the proposed main site access and potential emergency access to the south comply with current safety and design guidelines, a Stage 1 Road Safety Audit (RSA) was commissioned for both junctions. A Designers Response was provided by Croft.

4. An exception report where the RSA recommendations have not been implemented

- 4.1 Both of the Road Safety Audits recommended that the proposed junction arrangements are revised to remove the issue of vehicle encroachment into adjoining lanes. However, it should be noted that infrequent encroachment into adjacent lanes by large service vehicles is considered acceptable and Manual for Streets advises further in para 6.8.1 by stating that;

“The design of local roads should accommodate service vehicles without allowing their requirements to dominate the layout. On streets with low traffic flows and speeds, it may be assumed that they will be able to use the full width of the carriageway to manoeuvre. Larger vehicles which are only expected to use a street infrequently, such as Pantechicons, need not be fully accommodated.”

- 4.2 The audit recognises however, that such movements are likely to be minimal and so the proposed access junctions are deemed to be acceptable as shown. This is also acknowledged by the highways officer at WSCC.
- 4.1 The completed and signed Designers Responses and signed exception reports are contained within **Appendix 1**.

5. How the development could assist in delivering the West Sussex Walking and Cycling Strategy

- 5.1 As set out in Section 5 of the submitted TA, it is understood that WSCC have prepared a Walking and Cycling Strategy to cover the period 2016 to 2026.
- 5.2 The purpose of this document is:
- To clearly state West Sussex County Council’s aims and objectives for cycling and walking between 2016 and 2026;

- To determine the Council's priorities for funding reflecting the overall walking and cycling aspirations of the Council;
- To provide guidance in support of prioritising cycling and walking infrastructure in new development;
- To provide a framework through which local interest and community groups can make suggestions for the development of cycling and walking improvements; and
- To support interested parties in securing additional funding where available;

5.3 The potential new cycle routes in the area are identified in **Figure 5.1** below.

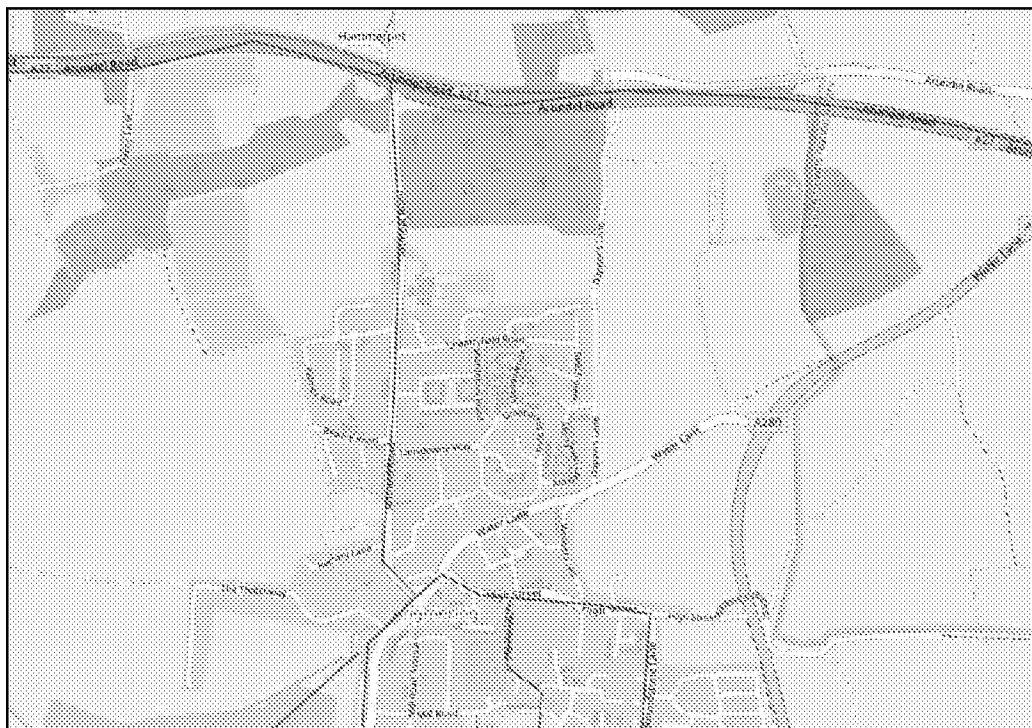


Figure 5.1 – Potential New Cycle Routes in the Area

- 5.4 As can be seen above, one of the potential routes runs in a north-south alignment directly past the site on Arundel Road.
- 5.5 This strategy outlines the design and safety principles for walking and cycling that the County Council will follow, and developers will be expected to follow, when implementing infrastructure schemes.

- 5.6 The strategy also provides a mechanism by which schemes can be identified and prioritised, thereby enabling the County Council to direct future investment (such as contributions from future development) and support future funding bids (such as the Department for Transport's Access Fund).
- 5.7 In regard to how the development proposals could assist in delivering the cycle route, at least in part, would be in the form of providing a contribution for the delivery of a cycle route from the site to the south towards Angmering village, which would be the main desire line for cyclists.
- 5.8 Consideration has been given as to the form that such a route could take, however, it is noted that there are numerous constraints along Arundel Road, such as multiple side roads, areas of on-street parking, lay-bys and the topography which often sees the footways rising up away from the road flanked by steep embankments. Furthermore, due to the nature of Arundel Road which is only approximately 6 metres in width for the majority of its' length, the provision may have to be limited.
- 5.9 Notwithstanding the above, there is potential for a route to be provided which incorporates traffic calming features such as the one to the south of the proposed site access, as shown in **Figure 5.2** below.



Figure 5.2 – Existing One-Way Priority System on Arundel Road

- 5.10 As can be seen above, the feature shown above gives priority to northbound traffic, while southbound traffic has to give-way and wait. However, while only extending over a short section, it also facilitates cycles in the southbound direction.

- 5.11 It is considered that additional similar traffic calming measures could be implemented along the length of Arundel Road towards the village, to a point adjacent to St Margaret's Primary School. Just to the south of the school entrance, there is a lay-by presumably for drop-offs/pick-ups and the footway continues directly adjacent to the carriageway. It is noted however, that just beyond this point, to the south of the dropped kerb crossing point, the footway is segregated by a grass verge, as illustrated in **Figure 5.2** below.

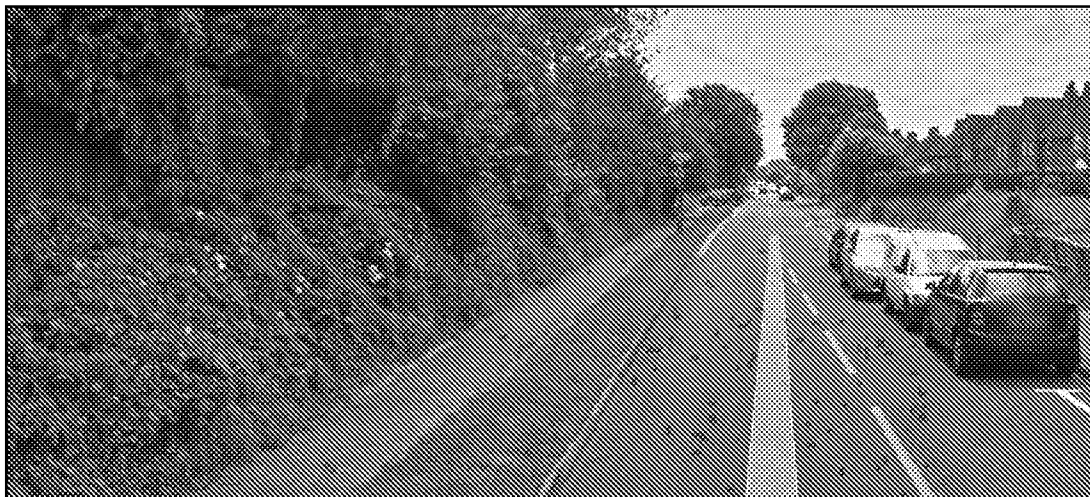


Figure 5.2 – Existing Footway with Verge to the South of St Margaret's School

- 5.12 If the grass verge was converted to footway it would have a width of somewhere in the region of 3 metres, which would be sufficient for a shared pedestrian/cycleway. This could continue for a distance of approximately 130 metres as far as the junction with Chantryfield Road. Beyond this point the footway raises up away from the carriageway and is segregated by grass verge and trees, as shown in **Figure 5.3** below beyond the bus shelter.



Figure 5.3 – Existing Footway rising up to the south of Chantryfield Road

Our Reference: mr/2020

Page: 6

- 5.13 It is assumed that this land forms part of the adopted highway and so there could be potential for this to be widened to provide a partial off-road route. This would obviously be subject to further investigation and topographical surveys.
- 5.14 Such a facility could continue in a southbound direction, crossing Lloyd Goring Close. It is noted that the junctions along this route already benefit from dropped kerbs which would ease the movement of cyclists, as well as pedestrians.
- 5.15 The route could potentially continue along the next raised section of footway, but it is noted that there is a lay-by present where the route would not be able to be maintained at 3 metres, although once past the lay-by, there is potential once again for the existing verge to be converted to footway to achieve a width of 3 metres, as shown in **Figure 5.4** below, just beyond the lay-by.

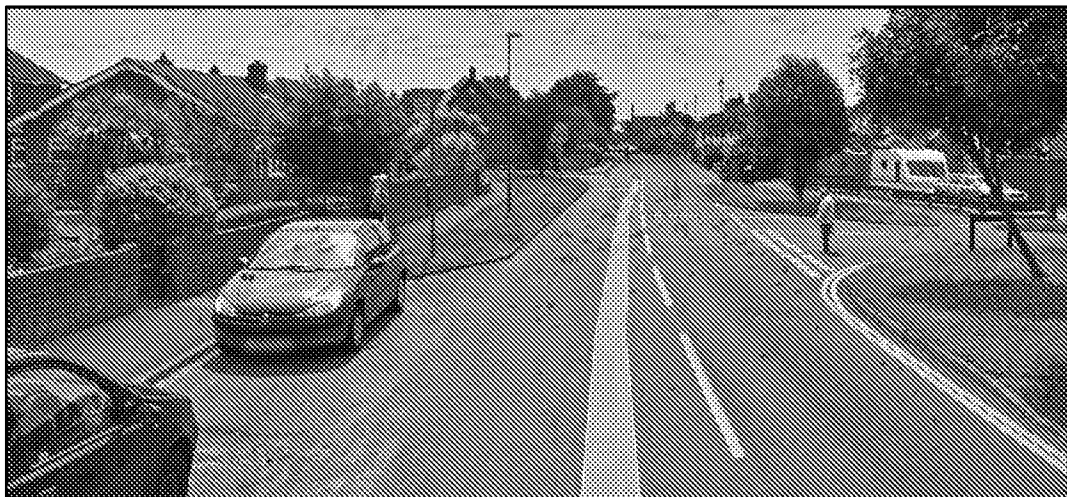


Figure 5.4 – Existing Lay-by and Segregated Footway Beyond

- 5.16 Once at the junction of Lansdowne Way (seen in the background in the above image) scope to provide any facilities off road may be limited, due to limited footway widths, on-street parking and lay-bys, so again traffic calming measures that incorporate facilities for cyclists may need to be considered. This would cover a distance of approximately 250 metres, which extends to the Lansdowne Road junction, where the 20mph speed limit commences and so potentially, cyclists could cycle along the carriageway, as from this point the centre of the village is only around 100 metres away and the reduced traffic speeds should allow cyclists to travel safely.
- 5.17 All of the above would of course be subject to discussions with the local highway authority and detailed topographical surveys, as already stated. It is considered reasonable that rather than deliver part of the scheme as part of the proposals, that a financial contribution would be made so the route could be delivered in its' entirety once a suitable scheme has been developed by WSCC.

- 5.18 It is considered that such a scheme would be beneficial (linking to the south of the site) as the village would be the key desire line for pedestrians and cyclists, and this would provide a safe route not only for residents at the development, but for the wider community as well.
- 5.19 Notwithstanding the above, it is proposed to upgrade the existing uncontrolled crossing adjacent to St Margaret's Primary School to a controlled crossing would be an additional benefit and assist in improving road safety.

6. Clarification on the ARCADY results for the A280/Water Lane improved roundabout layout

- 6.1 The submitted TA included an assessment of the A280/Water Lane junction in its existing form (priority controlled) with an additional assessment being undertaken assuming that the improvements (in this instance the WSCC preferred roundabout option) associated with the developments to the north and south of Water Lane are in place with the results summarised in Table 6.7.
- 6.2 The highways officer noted that the operational performance of the junction seemed to be better in the 'With Development' scenario than the 'Without Development' scenario, which was due to the results being transposed in the summary table rather than there being an issue with the actual modelling. For clarity, the amended summary of results is presented in **Table 6.1** below.

Arm Name	2031 Without Development				2031 With Development			
	AM		PM		AM		PM	
	RFC	Q	RFC	Q	RFC	Q	RFC	Q
A280 (s)	0.24	0	0.28	0	0.25	0	0.28	0
Water Lane	0.68	2	0.40	1	0.71	2	0.42	1
A280 (n)	0.50	1	0.72	3	0.50	1	0.72	3

Table 6.1 – Summary of ARCADY Results for A280/Water Lane – Improved (Roundabout)

- 6.3 The 2031 'Without Development' results for the AM and PM peak hour show the junction will operate with reserve capacity in both flow scenarios.

- 6.4 The results for the 2031 'With Development' assessment show that the junction will continue to operate in a similar manner to the base situation and that the proposed development traffic can be accommodated.

7. Clarification of the layout modelled for the A280/A27/Titnore Lane southern roundabout junction

- 7.1 An assessment of the A280/A27/Titnore Lane junction in its existing form was included within the submitted TA. In addition, a further assessment was undertaken assuming the improvements associated with the Land North of Water Lane application (App ref no. A/40/18/OUT) was included. It is understood that the Land to the South of Water Lane (the smaller, pure residential scheme) included improvements that were seen as an 'Interim' scheme, while the larger northern site (which includes a commercial element) proposed the 'final' scheme, assuming to be in place when the full development is built out.
- 7.2 For clarity, a plan showing the proposed improvements showing the 'final' scheme on which the ARCADY model was based is included within **Appendix 2**.
- 7.3 The highways officer, in his consultation response also stated that additional information may be required in light of the increase in queuing on the Water Lane approach once the development traffic is added. For ease, the ARCADY output for the improved junction layout (based on App ref no. A/40/18/OUT) is also included in Appendix 2 and summarised in **Table 7.1** below.

Arm Name	2031 Without Development				2031 With Development			
	AM		PM		AM		PM	
	RFC	Q	RFC	Q	RFC	Q	RFC	Q
A27 wb Off Slip	0.72	3	0.81	4	0.72	3	0.81	4
Titnore Lane	0.63	2	0.82	4	0.63	2	0.83	4
Water Lane	0.98	21	0.61	2	1.01	29	0.62	2
A280 (n)	0.84	5	0.93	12	0.84	5	0.94	13

Table 7.1 – Summary of ARCADY Results for A280/A27/Titnore Lane (South) - Improved

Our Reference: mr/2020

Page: 9

- 7.4 The 2031 'Without Development' results for the AM and PM peak hour show that overall, the junction will be operating with reserve capacity based on the improved layout, but with an RFC of 0.98 on the Water Lane approach and a queue of 21 vehicles.
- 7.5 As can be seen above, the 2031 'With Development' results show the junction will be operating at a similar level, but the RFC on the Water Lane approach exceeds 1.00 and shows a queue of 29 vehicles, an increase of 8 vehicles.
- 7.6 In light of the above, some additional improvements to the Water Lane arm of the junction have been considered. The scheme proposed by the land north of Water Lane development includes the widening of the entry width to 7.5 metres.
- 7.7 An additional improvement to increase the entry width to 7.8 metres (an additional 300mm) is shown in **Drawing no. 2020/F04**.
- 7.8 A summary of the results is presented in **Table 7.2** below, while the ARCADY output is presented in **Appendix 3**.

Arm Name	2031 Without Development (With A/40/18/OUT Imps)				2031 With Development (Further Imps)			
	AM		PM		AM		PM	
	RFC	Q	RFC	Q	RFC	Q	RFC	Q
A27 wb Off Slip	0.72	3	0.81	4	0.73	3	0.81	4
Titnore Lane	0.63	2	0.82	4	0.63	2	0.83	4
Water Lane	0.98	21	0.61	2	0.98	19	0.60	2
A280 (n)	0.84	5	0.93	12	0.84	5	0.94	13

Table 7.2 – Summary of ARCADY Results for A280/A27/Titnore Lane (South) – Further Improved

- 7.9 As can be seen above, the 2031 'With Development' results based on the further improved layout show the Water Lane arm will be operating with an RFC of 0.98 (as in the 'Without Development' situation) and the queue is reduced down to 19 vehicles, which is two less vehicles than in the 'Without Development' scenario.

- 7.10 In that regard, it is considered that the proposed additional improvements fully mitigate the impact of the proposals, demonstrate that the development traffic can be accommodated and will not have an impact of the overall operational performance of the junction, once the improvements are in place.

8. Clarification on the results summary table for the A280 Long Furlong/A27 northern roundabout junction

- 8.1 An assessment of the A280 Long Furlong/A27 northern roundabout was included in the TA. For clarity the assessments were based on the improvements proposed as part of the Arun Transport Study Stage 3, as agreed with WSCC.
- 8.2 A plan to show the proposed improvements used for the modelling is presented in Drawing ref no. ITB9105-GA-028 taken from the A/40/18/OUT Transport Assessment and the plan included in the Arun Transport Study are contained within **Appendix 4**.
- 8.3 As set out in the TA at Table 6.13, the results for the 'Without Development' and 'With Development' flow scenarios for 2031 based on the improved layout (as proposed as part of the Arun Transport Study) are summarised within **Table 8.1** with the full results also contained within Appendix 4.

Arm Name	2031 Without Development				2031 With Development			
	AM		PM		AM		PM	
	RFC	Q	RFC	Q	RFC	Q	RFC	Q
A280 Long Furlong	0.62	2	0.76	3	0.63	2	0.77	3
A280 (s)	0.69	2	0.51	1	0.70	2	0.52	1
A27 Off Slip	0.96	14	0.49	1	0.98	18	0.51	1
Arundel Road	0.22	0	0.11	0	0.23	0	0.11	0

Table 8.1 – Summary of ARCADY Results for A280/A27/Arundel Rd/Long Furlong (North) - Improved

- 8.4 The 2031 'Without Development' results for the AM and PM peak hour show that overall, the junction will be operating with reserve capacity.
- 8.5 The results for the 2031 'With Development' assessment show that the junction will continue to operate efficiently, at a similar level to the baseline situation.

9. Further consideration of the A27/Arundel Road junction and the impact of queueing vehicles in the vicinity of the crest of the hill on Arundel Road

- 9.1 The highways officer at WSCC requested that further consideration be given to the predicted queueing levels at the A27/Arundel Road junction.
- 9.2 The revised TA included an assessment of the A27/Arundel Road junction for 2031 in Table 7.4, as replicated below in **Table 9.1** for ease;

Arm Name	2031 Without Development				2031 With Development			
	AM		PM		AM		PM	
	RFC	Q	RFC	Q	RFC	Q	RFC	Q
Arundel Road	1.04	13	0.47	1	1.12	19	0.52	1
A27 (w)	0.00	0	0.00	0	0.00	0	0.00	0

Table 9.14- Summary of PICADY Results for A27/Arundel Road (Existing Layout)

- 9.3 The results for the 2031 'Without Development' show that the junction will be operating above its theoretical capacity in the AM peak but with reserve capacity in the PM peak.
- 9.4 The results for the 2031 'With Development' flow scenario show the impact will be minimal and the junction will continue to operate in a similar manner to the base situation. A queue increase of 6 vehicles in the AM peak is not considered to be material and so it can be concluded that the development traffic can be accommodated.
- 9.5 While an increase of just 6 vehicles is not generally considered to be material, the concern raised related to the length of the queue in relation to the top of the crest of the hill on Arundel Road. As such, a plan has been prepared to show the extent of queueing in the 'With Development' scenario and is presented in **Drawing ref no 2020-03** at **Appendix 5** and shows that the queue (19 vehicles as shown above) would not extend back to the crest, meaning there will not be an issue with forward visibility and traffic approaching the junction would have a clear view of any queueing traffic and be able to slow down sufficiently, so as not to give rise to any road safety issues.
- 9.6 Notwithstanding the above, it was also noted during the review of the modelling that the visibility to the right had been incorrectly coded as being 43 metres, whereas in reality, the actual distance is in excess of 100 metres.

- 9.7 For robustness however the PICADY has been re-run for both flow scenarios using the corrected visibility distance of 100 metres to the right. A summary of the results is presented in **Table 9.2** below and the output is contained within **Appendix 6**, along with the plan to show the 100-metre visibility splay.

Arm Name	2031 Without Development				2031 With Development			
	AM		PM		AM		PM	
	RFC	Q	RFC	Q	RFC	Q	RFC	Q
Arundel Road	0.99	10	0.45	1	1.07	15	0.49	1
A27 (w)	0.00	0	0.00	0	0.00	0	0.00	0

Table 9.2 - Summary of PICADY Results for A27/Arundel Road (Corrected)

- 9.8 As can be seen above the difference in queuing in the AM peak between the 'Without' and 'With' has now reduced to just 5 vehicles.
- 9.9 In addition, Highways England (in their comments) also referred to the potential impact at the junction and advised that a mitigation scheme should be considered to result in nil detriment to the junction operation. The proposed improvements are identified in **Drawing ref no 2020-06** at **Appendix 7**.
- 9.10 With the above in mind, an improvement scheme has been considered which widens the existing entry width from 4.5 metres to 5 metres, which although minor, shows a benefit in terms of the PICADY results and overall operation, as summarised in **Table 9.3** below, with the output also contained within Appendix 7.

Arm Name	2031 Without Development (Existing Layout)				2031 With Development (With Improvements)			
	AM		PM		AM		PM	
	RFC	Q	RFC	Q	RFC	Q	RFC	Q
Arundel Road	0.99	10	0.45	1	1.02	12	0.47	1
A27 (w)	0.00	0	0.00	0	0.00	0	0.00	0

Table 9.3- Summary of PICADY Results for A27/Arundel Road (Improved)

- 9.11 As can be seen above, the improvements have a beneficial effect on the operation of the junction and the increase in queueing is reduced to 2 vehicles, when compared to the results for the existing layout.
- 9.12 While the above improvements do not necessarily result in nil detriment it is considered that they still provide adequate mitigation and an increase of just 2 vehicles is not considered to be material.
- 9.13 Furthermore, it should be noted that no allowance has been made within the TA for the existing site traffic associated with the existing use on the site, which is the V W & Audi Recycled Parts Centre. As such, it is likely that that above results are representative of a worst-case scenario.

10. Amendments to the Travel Plan to include the highways officers' requirements

- 10.1 The Travel Plan has been amended to include the information requested by the highways officer at WSCC.
- 10.2 In his comments the highways officer stated that *"Once these points have been addressed, I shall be able to approve the TP."*
- 10.3 The amended Travel Plan has been re-submitted as a stand-alone document.

11. Provision of full details of the accident data at the A27 U Turn facility at Poling Corner and the A27/Arundel Road Junction

- 11.1 The full collision data has been obtained from Sussex Police but carries the following caveat;

"The information included in this report is provided for analysis and is based on the data provided by Sussex Police. Some of the data included in this report is subjective and as such is not considered suitable for general release. In view of this it should not be transmitted to any other person in its original form, including in any report which may be available to the public. If you have any doubt regarding how this data may be used other than for analysis please contact SSRP for advice".

- 11.2 Notwithstanding the above a review of the data over the last 10 years has been undertaken and is detailed below and the location of the accidents has been shown on a grid reference finder is contained within **Appendix 8**.

A27/Poling Corner U Turn

- 11.3 A review of the data provided shows there have been three recorded accidents at the A27/Poling Corner U-turn facility junction.



Our Reference: mr/2020

Page: 14

- 11.4 The details show that the first incident (2008) related to a slight injury accident that took place in dry and fine weather conditions and involved a goods vehicle and a motorcycle. The details show that the motorcyclist was travelling eastbound in the offside lane on the A27, when the goods vehicle entered the eastbound lane from the westbound lane using the central reserve and entered the eastbound nearside lane. The motorcyclist then attempted to avoid the vehicle but collided with the rear nearside of the goods vehicle. The causation factors are stated as being;
- Poor turn of manoeuvre; and
 - Failed to judge other persons path or speed.
- 11.5 It is therefore considered that the main cause was driver error rather than there being any specific safety problems with the junction layout.
- 11.6 The second incident (2010) also took place in fine weather conditions when the road surface was dry and involved two cars. The details show that vehicle 2 was traveling behind vehicle 1 on the A27 eastbound at Poling. Vehicle 1 was looking to turn right off the A27 into Poling Corner but missed the junction. Vehicle 1 has then braked hard several times looking for another exit off the A27 and caused vehicle 2 to try and take evasive action to avoid a collision but there was no room to move into lane 1. Vehicle 2 has then collided with vehicle 1, causing slight injuries to the driver. The causation factor is stated as being;
- Sudden braking.
- 11.7 This suggests that driver error was the cause rather than there being any specific highways safety problems at the junction.
- 11.8 The third accident (2017) also resulted in a slight injury being sustained. The records show that the incident involved two cars and took place in dry, fine weather conditions. The details show that vehicle 1 was travelling westbound on the A27 being followed by vehicle 2 in a convoy. Vehicle 2 indicated and signalled for vehicle 1 to turn right at Blakehurst junction but vehicle 1 misread which exit to use and took the first turning back to Worthing at speed. Vehicle 1 failed to reduce speed and struck the crash barrier and Worthing street sign. The causation factors are stated as being;
- Inexperienced or learner driver;
 - Poor turn or manoeuvre; and
 - Distraction outside the vehicle.
- 11.9 This again suggests that driver error was the cause rather than there being any problems with the road or junction layout.

A27/Arundel Road

- 11.10 A review of the records shows that there have been 5 accidents at the A27/Arundel Road junction over the last 10 years.
- 11.11 The first recorded accident took place in 2012, the weather was fine, but it was dark and there was no street lighting present. The details indicate that the incident involved two cars. Vehicle 2 was travelling westbound towards the junction and vehicle 1 was following behind. For an unknown reason vehicle 2 brakes hard and vehicle 1 fails to stop in time, thus colliding with the rear of vehicle 2. Vehicle 1 left the road on the nearside and struck a wall of a building. It resulted in a slight injury to the driver of vehicle 1. The causation factor is stated as being;
- Failed to judge other persons path or speed.
- 11.12 The above clearly suggests that the main cause was driver error rather than there being any particular issues with the junction geometry or layout.
- 11.13 The second recorded accident (2014) took place in daylight but the road surface was wet/damp and only one vehicle was involved. The details indicate the single vehicle failed to negotiate the left hand turn off the dual carriageway and crossed onto the opposing carriageway before mounting the kerb and hitting a wall. The records show that the driver sustained slight injuries. The causation factors are stated as being;
- Inexperienced or learner driver; and
 - Loss of control.
- 11.14 As no other vehicles were involved and given the nature of the incident, it is considered that the cause of the accident was driver error.
- 11.15 The third recorded accident took place in 2015, when the weather and road surface were dry. The details show that it involved a goods vehicle and a car. The car was travelling westbound on the A27 approaching the junction with Arundel Road. The goods vehicle pulled out of Arundel Road straight into the path of the car and resulted in slight injuries. The causation factors are stated as being;
- Failed to look properly; and
 - Failed to judge other persons path or speed.
- 11.16 The details indicate that driver error was the cause rather than there being any specific highways safety problems at the junction.
- 11.17 The fourth accident took place in 2016 in the early evening (7.12pm) and involved a car and a pedestrian. The records show the weather conditions were dry, but it was dark, and no street lighting was present.

- 11.18 The details show that the pedestrian was crossing from the south to north and tripped in the middle of the carriageway and fell to the ground, where they were struck by the on-coming vehicle unfortunately causing fatal injuries. The causation factors are stated as being;
- Careless/reckless/in a hurry; and
 - Road layout e.g. bend, hill etc.
- 11.19 It is considered that the main cause of the accident was driver error, perhaps not paying sufficient attention to other road users and their surroundings.
- 11.20 The fifth incident took place in 2016, involved a car and a goods vehicle and resulted in slight injuries being sustained. The records show that the weather and road surface were dry, and it was daylight. The details indicate that the goods vehicle was travelling westbound on the A27 at Hammerpot. Vehicle 1 has then left the carriageway to the nearside, colliding with vehicle 2 and then collided with a garage building before coming to rest in lane 1 of the carriageway. The causation factor is stated as being;
- Exceeding the speed limit.
- 11.21 It is considered once again, that the cause of the accident was driver error, rather than there being any safety issues with the road or junction layout.
- 11.22 Overall, the more detailed review of accidents at these two locations over the last 10 years shows that there are no particular trends or safety issues.
- 11.23 The accidents recorded can all be attributed to driver error, rather than there being any specific road safety problems with the road or junction layout.
- 11.24 There is no evidence to suggest that the proposed residential development will have an adverse effect on road safety or the number of accidents at this location.

12. Provision of a DMRB standard HD/42/17 Walking, Cycling & Horse-Riding Assessment and Review for the A27/Arundel Road Junction

- 12.1 A Walking, Cycling & Horse-Riding Assessment and Review (WCHAR) has been commissioned and the report is currently awaited.
- 12.2 To assist with the above the likely pedestrian, and bicycle trips associated with the proposed development have been calculated by utilising the multi-modal survey data provided in the TRICS database. The results of the interrogation are summarised below, with the full multi-modal TRICS output being provided at **Appendix 9**.

Pedestrian Trip Generation

- 12.3 A summary of the pedestrian trip rates and potential trips based on 200 dwellings are presented in **Table 12.1** below.

Peak Hour	Trip Rates		Trip Generation	
	Arr	Dep	Arr	Dep
AM Peak	0.048	0.161	10	32
PM Peak	0.081	0.042	16	8

Table 12.1 – Proposed Development Pedestrian Trip Rates and Trips

- 12.4 As can be seen above, the proposed development has the potential to generate around 42 two-way walking trips in the AM peak and around 24 two-way walking trips in the PM peak hour.

Cycle Trip Generation

- 12.5 A summary of the cycle trip rates and potential trips based on 200 dwellings are presented in **Table 12.2** below.

Peak Hour	Trip Rates		Trip Generation	
	Arr	Dep	Arr	Dep
AM Peak	0.002	0.016	0	3
PM Peak	0.017	0.009	3	2

Table 12.2 – Proposed Development Cyclist Trip Rates and Trips

- 12.6 As can be seen above, the development is likely to generate a small number of trips by cycle and cycling as a mode of travel will be encouraged through the Travel Plan.

- 12.7 The proposed site layout will provide appropriate pedestrian linkages through the development and to the existing network of roads and footway provision, with the key desire line being to the south towards Angmering village.
- 12.8 As already detailed, there is also potential for the development to assist in delivering (at least in part) the Arun Walking and Cycling Strategy, which will further enhance the pedestrian and cyclist environment and encourage sustainable modes of travel between the site and the surrounding area.
- 12.9 It is therefore concluded that there is adequate existing pedestrian infrastructure in the vicinity of the application site to cater for the predicted increase in footfall and cyclists, which will arise as a result of the development proposals. The proposed enhancements will also significantly assist in increasing the potential for walking and cycling to and from the application site).
- 12.10 As demonstrated in Section 5 of the submitted TA, the site is accessible by cycle and the potential to contribute to the new cycle route along Arundel Road will also strengthen cycle linkages to the village, located to the south of the site.
- 12.11 To further inform the (WCHAR), a pedestrian, cyclist, horse-rider survey has been commissioned and the data is awaited. The WCHAR Report is contained within **Appendix 10** and detailed below.
- 12.12 A site visit was undertaken on 1ST October 2018 to establish the existing situation and consider the potential for the number of pedestrians, cyclists and horse riders to increase as a result of the development.
- 12.13 At paragraph 2.4 the report states that “It is considered that there are very few trip attractors between the proposed development site and the north of the A27 which could attract non-motorised users (NMU’s) i.e. pedestrians, cyclists or equestrians to cross the A27 in the vicinity of its junction with Arundel Road. It goes on to say that;
- “The only trip attractor identified as part of this assessment is the Woodman’s Arms Public House that is located on the northern side of the A27”.*
- 12.14 NMU surveys were undertaken on Thursday 6th September 2018 at the two uncontrolled crossing points on the A27 in the vicinity of the junction with Arundel Road, The surveys took place over a 12hr period between 0700hrs and 1900hrs. The observations are included in Appendix 10, but in summary there were 7 pedestrians and 7 cyclists observed using the eastern uncontrolled crossing point (no equations) and 1 pedestrian and t cyclists (no equestrians) were observed to use the uncontrolled crossing point on the western side.
- 12.15 The auditors considered the number of NMU’s that could be generated by the development and hence the number of trips by NMU@s that would require them to cross the A27 would be negligible.

- 12.16 The report states that “No pedestrians, cyclists or equestrians were observed using the network during the site visit and the primary findings were as follows:
- The existing uncontrolled crossing facilities on the A27 are in principle considered sufficient for the likely change in demand that would be associated with the proposed development, albeit it is considered that they could potentially be improved through some minor revisions to their design/layout;
 - There are no advance pedestrian crossing type warning signs in advance of the uncontrolled crossings on the A27; and
 - There is no lighting provision in the vicinity of the crossing points.
- 12.17 With consideration to the points raised plan to show some potential improvements has been prepared and is shown in **Plan 2** (drawing ref no. 2020-06).
- 12.18 The drawing shows the provision of new ‘Look Left and Right’ road markings at the eastern crossing point, where there are currently none. The crossing to the west already provides these road markings. The plan also shows the provision of new ‘Pedestrians Crossing’ advanced signage to indicate pedestrians may be crossing within 200 metres of the crossing points. It is anticipated that this will successfully inform drivers approaching the Arundel Road junction to be aware that NMU’s may be present.
- 12.19 It is considered that the above improvements would be an improvement on the existing situation and would benefit not only residents at the development, but the wider community as well. In addition to the above improvements, the proposed controlled crossing on Arundel Road, as detailed in Section 5.

13. Summary and Conclusions

- 13.1 This Highways Technical Note has been prepared as an addendum to the submitted TA to address the comments received from both West Sussex County Council and Highways England.
- 13.2 In relation to the proposed site access points, it has confirmed the approximate location of the ATC and provided signed copies of the Designers Response and associated exception reports.
- 13.3 It has provided further information on how the aspired West Sussex Walking and Cycling strategy could be delivered along Arundel Road and confirmed that the applicant would be willing to make a proportional contribution to assist in the scheme’s delivery.

Our Reference: mr/2020

Page: 20

- 13.4 It has clarified modelling results for the A280/Water Lane junction and provided clarification on the junction layout used for the A280/A27 (southern) roundabout, as well as confirming the summary results for the A27/A280 Long Furlong (northern) roundabout junctions.
- 13.5 This note has also provided additional modelling of the A27/Arundel Road junction and has set out some proposed improvement works to the junction to increase capacity and mitigate the impact of the development. It has also confirmed that any queueing back from the junction, even in the 2031 flow scenario would not extend as far as the crest of the hill and as such, would not give rise to any road safety problems.
- 13.6 The submitted Travel Plan has been amended in line with the comments provided and so can be deemed as acceptable for this stage of the application.
- 13.7 To address the additional comments raised by HE, this note has provided a review of the full collision data for the A27 u Turn facility at Poling Corner and the A27/Arundel Road junction over the last 10 years. The review of data confirmed that there are no particular trends in the occurrence or type of accidents at the junctions and that all recorded accidents were due to driver error or poor driver behaviour. It is therefore concluded that there are no specific engineering problems with the road layouts or junction geometry and that the proposed development will not have an adverse effect on road safety or the number of accidents in the area.
- 13.8 A Walking, Cycling and Horse-Riding Assessment and Review (WCHAR) been commissioned and the report awaited, along with the results of the pedestrian/cyclist and horse-riders survey, which will inform the report.
- 13.9 In conclusion, it is considered that the above items and additional information should satisfy both WSCC and Highways England and on that basis, with the exception of the outstanding information, the proposals should be deemed acceptable in highway terms.

Our Reference: mr/2020

Page: 21

PLANS

Plan 1	Approximate Location of ATC
Plan 2	Proposed Safety Improvements to the a27/Arundel Road Junction

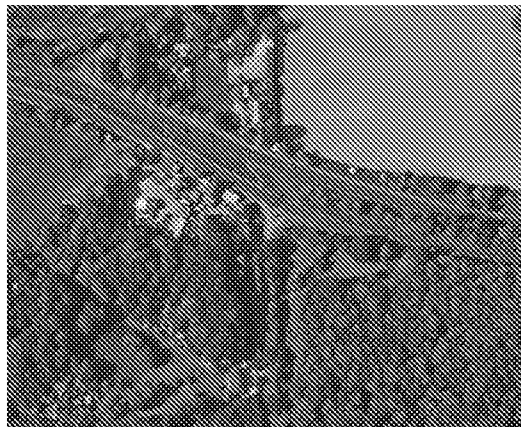
APPENDICES

Appendix 1	Signed Designers Response and Exception Reports
Appendix 2	ARCADY Output for A280/A27/Titnore Lane and Layout Plan (Final)
Appendix 3	ARCADY Output for A280/A27/Titnore Lane and Further Improved Layout Plan
Appendix 4	ARCADY Output for the A27/A280/Long Furlong and Layout Plan (Arun Phase 3)
Appendix 5	A27/Arundel Road - Plan to show extent of Queuing on Arundel Road
Appendix 6	ARCADY Output for A27/Arundel Road (Amended Geometry and Layout Plan)
Appendix 7	ARCADY Output for A27/Arundel Road - Improved Layout and Plan
Appendix 8	Location of Accidents by Grid Reference
Appendix 9	TRICS Outputs for Multi Modal Assessment
Appendix 10	WCHAR Report

PLANS



PLAN 2



NORTH SOUTH AERIAL VIEW



NOTES

THIS IS NOT A CONSTRUCTION DRAWING AND IS FOR INDICATIVE PURPOSES ONLY. THE DRAWING WILL BE SUBJECT TO CHANGE FOLLOWING LOCAL AUTHORITY REVIEW AND CONFIRMATION OF PUBLIC HIGHWAY AND THIRD PARTY LAND BOUNDARIES.

PROPOSED PEDESTRIANS CROSSING AHEAD WARNING SIGN TO DIA 562. SIGN TO BE LOCATED AT A MINIMUM DISTANCE OF 180M FROM CROSSING.



EXISTING "LOOK LEFT AND "LOOK RIGHT" ROAD MARKINGS ADJACENT TO CROSSING POINTS.

The Woodroon Arms (PH)

PROPOSED "LOOK LEFT AND "LOOK RIGHT" ROAD MARKINGS ADJACENT TO CROSSING POINTS.

Oakhurst

Woodyard

Meadowbank

10MX100M VISIBILITY SPY



PROPOSED PEDESTRIANS CROSSING AHEAD WARNING SIGN TO DIA 562.

REV	DETAILS	DRAWN	CHECKED	DATE

CLIENT: **GLADMAN**

PROJECT: **ARUNDEL ROAD, ANGMERING**

DRAWING TITLE: **PROPOSED IMPROVEMENTS TO EXISTING PEDESTRIAN CROSSING POINTS ON A27**

SCALE: **1:1000 @ A3**

DRAWN: JC	CHECKED: MR	DATE: JUN 19
-----------	-------------	--------------

Croft Transport Planning & Design
Hill Quays
9 Jordan Street
Manchester
M55 4PY

Email: info@crofts.co.uk
Tel: 0161 667 3746
Web: www.crofts.co.uk

DRAWING NUMBER: 2020-06	REVISION: -	CROFT
--------------------------------	--------------------	--------------

APPENDICES

APPENDIX 1

Signed Designers Response and Exception Reports



Croft TS

PROPOSED ACCESS ARRANGEMENTS, ARUNDEL ROAD, ANGMERING

**STAGE 1 - ROAD SAFETY AUDIT
JANUARY 2018**

Transport Planning / Traffic Surveys/ Road Safety Audits

REPORT CONTROL

Document: Proposed Access Arrangements, Arundel Road, Angmering – S1 RSA

Project: Proposed Access Arrangements, Arundel Road, Angmering – S1 RSA

Client: Croft TS

Job Number: gs-545-2017

File Origin: /go-surveys/Road Safety Audits/GS545 - Arundel Road - Angmering - Stage 1 RSA/GS545-2017 - Proposed Access, Arundel Road, Angmering - Stage 1 RSA - Final.docx

Document Checking:

Primary Author	T Brooks	Initialed:	TB
----------------	----------	------------	----

Contributor	R Lister	Initialed:	RL
-------------	----------	------------	----

Review By	Initialed:
-----------	------------

Issue	Date	Status	Checked for Issue
1	03/01/2018	Final	Tristan Brooks
2			
3			
4			



Contents

1	INTRODUCTION	2
2	ROAD SAFETY AUDIT FINDINGS FROM RSA 1	4
	PROBLEM 1	4
	PROBLEM 2	5
3	OBSERVATIONS/ NOTES.....	7
4	AUDIT STATEMENT	8

Appendices

Appendix A – List of drawings and documents supplied for audit.

Appendix B – Location plan of identified problems.



1 INTRODUCTION

- 1.1 This report presents the findings from a Stage 1 Road Safety Audit undertaken on the proposed access arrangements to a residential development of up to 215 dwellings to the north of Angmering, West Sussex.
- 1.2 The audit was carried out by the following:
- | | |
|---|---------------------------------|
| Tristan Brooks
BSc (Hons), MBA, CMILT, MCIHT, MSoRSA,
HE RSA Cert of Competency | - Road Safety Audit Team Leader |
| R Lister
BSc (Hons), MSc, MRTPI, CMILT, MCIHT,
MSoRSA | - Road Safety Audit Team Member |
- 1.3 The RSA was commissioned by Croft Transport Solutions (the designers of the scheme).
- 1.4 The site visit was undertaken on Saturday 9th December 2017 between 13:15-13:40 and comprised a walk and drive through of the area in the vicinity of the scheme. During the site visit both the weather and road surface were dry. Traffic in the vicinity of the scheme was light/moderate.
- 1.5 Arundel Road in the vicinity of the proposed access is subject to a 60 mph speed limit.
- 1.6 The drawings and documents supplied for audit are listed at **Appendix A**. An annotated drawing showing the locations of the problems identified is provided at **Appendix B**.
- 1.7 The terms of reference of the audit are as that described in DMRB HD19/15 Guidelines on Road Safety Audits. This standard has been used for guidance only. The team has examined and reported only on the road safety implications of the scheme as presented and has not examined or verified the compliance of the designs to any other criteria.
- 1.8 The scope of the RSA is limited to the proposed access arrangements to the site that will include:



- The introduction of a priority controlled 'ghost island' right turn lane with lane widths of 3.0 metres;
- Visibility splays of 2.4 metres by 59 metres from the site access (which it is noted accords with MfS guidance on vehicle speeds of 37mph); and
- Access road with a 5.5 metre width, 6.0 metre kerb radii and 2.0 metre wide footways on either side of the access road.

- 1.9 Junction capacity assessments provided for review as part of the RSA has forecast that the proposed junction would operate within capacity with no forecast queuing during the 2027 assessment year.
- 1.10 A review of the Personal Injury Collisions (PIC) data between 01/01/2012 and 31/12/2016 in the immediate vicinity of the proposed site access junction has indicated that during this period there have been no PIC's recorded.
- 1.11 The Audit Team have not been made aware of any previous RSA's undertaken on the scheme nor have they been made aware of any departures or relaxations from standard within the design of the scheme. Although, it is noted that the proposed junction visibility splays do not accord with the that set out within DMRB for carriageways subject to a 60 mph speed limit.

2 ROAD SAFETY AUDIT FINDINGS FROM RSA 1

PROBLEM 1

LOCATION: Site Access.

SUMMARY: Vertical carriageway alignment may potentially result in restrictions to the achievable inter-visibility splays to/from the site access increasing the risk of a number of collision types.

- 2.1 It is considered that the inter-visibility splays at the proposed site access junction will be restricted by the crest in the carriageway alignment to the south of the proposed site access (Ref: **Photograph 1**).

Photograph 1 – View south from approximate location of site access junction.



- 2.2 Insufficient visibility in the vertical plane for vehicles accessing or egressing the site access could result in an increased risk of number of collision types, including shunt or side-swipe type collisions associated with vehicles accessing/egressing the site.



- 2.3 This issue would be exacerbated if the speed limit is to be retained at 60 mph.

RECOMMENDATION

- 2.4 It is recommended that details of the proposed vertical cross sections throughout the scheme are provided for review as part of the Stage 2 RSA and that the conspicuity /inter-visibility for drivers using the site access are appropriate.

CROFT RESPONSE

Comment noted. Our revised drawing now incorporates a vertical cross section illustrating the southbound visibility splay in respect of the existing crest in the carriageway to the south of the site access junction. As can be seen by the cross section, a visibility splay of 59m can be achieved despite the vertical alignment of Arundel Road.

PROBLEM 2

LOCATION: Proposed site access.

SUMMARY: Vehicle encroachment into adjoining lanes may result in vehicle/vehicle collisions.

- 2.5 The vehicle swept path analysis provided for review as part of the RSA indicate that a refuse vehicle would have to encroach into adjoining lanes accessing/egressing the site. Encroachment into adjoining lanes to manoeuvre to/from the site could potentially result in head-on type or side swipe type collisions.
- 2.6 It is acknowledged that refuse vehicle movements to/from the site will be minimal, and that it is not atypical for some minor encroachment into adjoin lanes for this or similar types of vehicles at residential accesses although not to the extent as shown in the vehicle swept path drawing provided for review.

RECOMMENDATION

- 2.7 It is recommended that the proposed junction arrangement is revised to remove this problem.



CROFT RESPONSE

As noted above, the left turn exit for the large waste vehicle shows only minimal encroachment into the right turn pocket. Speeds in the right turn pocket will be low with good intervisibility between vehicles. Waste vehicles will be arriving in the morning peak where right turning vehicles into the site should be minimal. Infrequent encroachment into adjacent lanes by large service vehicles is considered acceptable and Manual for Streets advises further in para 6.8.1

"The design of local roads should accommodate service vehicles without allowing their requirements to dominate the layout. On streets with low traffic flows and speeds, it may be assumed that they will be able to use the full width of the carriageway to manoeuvre. Larger vehicles which are only expected to use a street infrequently, such as pantechnicons, need not be fully accommodated."

And further in para 6.5.8

"It would be acceptable for the occasional lorry to have to negotiate a particular junction with care."

SIGNED :

DATE :

31-8-18



3 OBSERVATIONS/ NOTES

- 3.1 The recommendations included within this report should not be regarded as being prescriptive design solutions to the problems raised. They are intended only to indicate a proportionate and viable means of eliminating or mitigating the identified problem, in accordance with HD19/15. There may be alternative methods of addressing a problem which would be equally acceptable in achieving the desired elimination or mitigation and these should be considered when responding to this report.
- 3.2 It should be noted that although not necessarily expected at a Stage 1 RSA, there was limited information provided as part of the Audit Brief to indicate details of cross-section dimension details, drainage provision, street furniture details (including signage and lighting), landscaping and kerb details. As a result, it is not possible to ascertain any potential road safety issues arising from these elements of the scheme.
- 3.3 However, like many Stage 1 RSA's it is envisaged that this information would be provided and addressed accordingly as part of the Stage 2 RSA that would be undertaken as part of the detailed design of the team.



4 AUDIT STATEMENT

4.1 We certify that this audit has been carried out broadly in accordance with HD 19/15.

Signed:

Date: 03 January 2018

T Brooks – BSc (Hons), MBA, CMILT, MCIHT, MSoRSA,
HE RSA Cert of Competency.

Audit Team Leader
go-surveys Ltd
72 Plasturton Avenue
Cardiff
CF11 9HJ

Signed:

Date: 03 January 2018

R Lister - BSc (Hons), MSc, MRTPI, MILT, MCIHT,
MSoRSA

Audit Team Member
go-surveys Ltd
72 Plasturton Avenue
Cardiff
CF11 9HJ



APPENDIX A

List of Drawings and Documents Provided for Audit

2020-F01

Proposed Access Arrangement

2020-SP01

Vehicle Swept Path Analysis

Junction Capacity Assessments

PIC Data

(Jan 2012- Dec 2016)



APPENDIX B

Location of Identified Problems

PROPOSED MAIN SITE ACCESS OFF ARUNDEL ROAD, ANGMERING EXCEPTION REPORT

The following table summarises the findings of the Stage 1 Safety Audit performed on the above scheme.

1	2	3	4	5
Point N ^o in Safety Audit	Exemption Required (Yes/No)	Scheme Amended to Accord with Safety Audit	If YES in Column 2 Give Reasons	If NO in Column 2 Give Comments/Action
P1	N	Y		Comment noted. Our revised drawing now incorporates a vertical cross section illustrating the southbound visibility splay in respect of the existing crest in the carriageway to the south of the site access junction. As can be seen by the cross section, a visibility splay of 59m can be achieved despite the vertical alignment of Arundel Road.
P2	Y	N	The audit acknowledged that refuse vehicle movements to/from the site will be minimal. As noted above, the left in/left out movements for the large waste vehicle shows encroachment into the opposing lanes however waste vehicles will be arriving in the morning peak where vehicles turning into the site should be minimal. Infrequent encroachment into adjacent lanes by large service vehicles is considered acceptable and Manual for Streets advises further in para 6.8.1 "The design of local roads should accommodate service vehicles without allowing their requirements to dominate the layout. On streets with low traffic flows and speeds, it may be assumed that they will be able to use the full width of the carriageway to manoeuvre. Larger vehicles which are only expected to use a street infrequently, such as pantechnicons, need not be fully accommodated." And further in para 6.5.8 "it would be acceptable for the occasional lorry to have to negotiate a particular junction with care"	

I concede that item P2 does not meet the recognised standard and accept the reasons given for non-conformity given in Column 4.

SIGNED: 

For Design Team*

* to be signed by a person in Authority
ie Partner or Director

POSITION: Highway Technician

DATE: 29/08/12

In my position as Highway Authority in this case I hereby grant an exemption to the above item.

SIGNED:.....
Engineer

DATE:.....

SIGNED:.....
Head of Highway Operations

DATE:.....



Croft TS

**PROPOSED SOUTHERN SITE
ACCESS ARRANGEMENTS,
ARUNDEL ROAD, ANGMERING**

**STAGE 1 - ROAD SAFETY AUDIT
MAY 2018**

Transport Planning / Traffic Surveys/ Road Safety Audits

REPORT CONTROL

Document: Proposed Southern Site Access Arrangements, Arundel Road, Angmering
– St RSA

Project: Proposed Southern Site Access Arrangements, Arundel Road, Angmering
– St RSA

Client: Croft TS

Job Number: gs-597-2017

File Origin: /go-surveys/Road Safety Audits/GS597 - Arundel Road - Angmering -
Southern Site Access - Stage 1 RSA/GS597-2018 - Proposed Southern
Site Access, Arundel Road, Angmering - Stage 1 RSA - Final.docx

Document Checking:

Primary Author	T Brooks	Initialed:	TB
----------------	----------	------------	----

Contributor	R Lister	Initialed:	RL
-------------	----------	------------	----

Review By	Initialed:
-----------	------------

Issue	Date	Status	Checked for Issue
1	09/05/2018	Final	Tristan Brooks
2			
3			
4			



Contents

1	INTRODUCTION	2
2	ROAD SAFETY AUDIT FINDINGS FROM RSA 1	4
	PROBLEM 1	4
	PROBLEM 2	5
3	OBSERVATIONS/ NOTES.....	6
4	AUDIT STATEMENT	7

Appendices

Appendix A – List of drawings and documents supplied for audit.

Appendix B – Location plan of identified problems.



1 INTRODUCTION

- 1.1 This report presents the findings from a Stage 1 Road Safety Audit (RSA) undertaken on the proposed southern site access arrangements to a residential development of up to 215 dwellings to the north of Angmering, West Sussex.
- 1.2 It should be noted that the northern site access to the site was subject to a Stage 1 RSA undertaken in January 2018.
- 1.3 The audit was carried out by the following:
- | | |
|---|---------------------------------|
| Tristan Brooks
BSc (Hons), MBA, CMILT, MCIHT, MSoRSA,
HE RSA Cert of Competency | - Road Safety Audit Team Leader |
| R Lister
BSc (Hons), MSc, MRTPI, CMILT, MCIHT,
MSoRSA | - Road Safety Audit Team Member |
- 1.4 The RSA was commissioned by Croft Transport Solutions (the designers of the scheme) on behalf of Gladman (the developers of the scheme).
- 1.5 The site visit was undertaken on Saturday 9th December 2017 between 13:15-13:40 and comprised a walk and drive through of the area in the vicinity of the scheme. During the site visit both the weather and road surface were dry. Traffic in the vicinity of the scheme was light/moderate.
- 1.6 Arundel Road in the vicinity of the proposed access is subject to a 30mph speed limit, although it is noted this transitions to 60mph national speed limit approximately 50 metres to the north of the proposed site access. Approximately 40 metres to the south of the site access there is a priority controlled road narrowing traffic calming feature, where priority is afforded to vehicles travelling northbound.
- 1.7 The drawings and documents supplied for audit are listed at **Appendix A**. An annotated drawing showing the locations of the problems identified is provided at **Appendix B**.



- 1.8 The terms of reference of the audit are as that described in DMRB HD19/15 Guidelines on Road Safety Audits. This standard has been used for guidance only. The team has examined and reported only on the road safety implications of the scheme as presented and has not examined or verified the compliance of the designs to any other criteria.
- 1.9 The scope of the RSA is limited to the proposed access arrangements to the site that in summary will include:
- Modifications to the existing site access that takes the form of a priority controlled 'T' Junction;
 - Visibility splays of 2.4 metres by 43 and 59 metres from the site access (which it is noted accords with MfS guidance on vehicle speeds of 37mph); and
 - Access road with a width of 5.5 metres, 6.0 metre kerb radii and 2.0 metre wide footways on either side of the access road.
- 1.10 A review of the Personal Injury Collisions (PIC) data between 01/01/2013 and 31/06/2017 in the vicinity of the existing/proposed site access has indicated that there have been no PICs associated with the existing use of the junction or on the approaches to the junction.
- 1.11 The Audit Team have not been made aware of any previous RSA's undertaken on the scheme, or have they been made aware of any departures or relaxations from standard within the design of the scheme.
- 1.12 The recommendations included within this report should not be regarded as being prescriptive design solutions to the problems raised. They are intended only to indicate a proportionate and viable means of eliminating or mitigating the identified problem, in accordance with HD19/15. There may be alternative methods of addressing a problem which would be equally acceptable in achieving the desired elimination or mitigation and these should be considered when responding to this report.



2 ROAD SAFETY AUDIT FINDINGS FROM RSA 1

PROBLEM 1

LOCATION: Proposed site access.

SUMMARY: Vehicle encroachment into adjoining lanes may result in vehicle/vehicle collisions.

- 2.1 The vehicle swept path analysis provided for review as part of the RSA indicate that a refuse vehicle would have to encroach into adjoining lanes accessing/egressing the site. Encroachment into adjoining lanes to manoeuvre to/from the site could potentially result in head-on type or side swipe type collisions.
- 2.2 It is acknowledged that refuse vehicle movements to/from the site will be minimal, and that it is not atypical for some minor encroachment into adjoin lanes for this or similar types of vehicles at residential accesses although not to the extent as shown in the vehicle swept path drawing provided for review.

RECOMMENDATION

- 2.3 It is recommended that the proposed junction arrangement is revised to remove this problem.

CROFT RESPONSE

As noted above, the left in/left out movements for the large waste vehicle shows encroachment into the opposing lanes however waste vehicles will be arriving in the morning peak where vehicles turning into the site should be minimal. Infrequent encroachment into adjacent lanes by large service vehicles is considered acceptable and Manual for Streets advises further in para 6.5.1

"The design of local roads should accommodate service vehicles without allowing their requirements to dominate the layout. On streets with low traffic flows and speeds, it may be assumed that they will be able to use the full width of the carriageway to manoeuvre. Larger vehicles which are only expected to use a street infrequently, such as pantechnicons, need not be fully accommodated."

And further in para 6.5.8

"It would be acceptable for the occasional lorry to have to negotiate a particular junction with care"



PROBLEM 2

LOCATION: Proposed site access.

- 2.4 **SUMMARY:** Omission of uncontrolled pedestrian crossing including dropped kerbs and tactile paving may result in a number of trip hazards to pedestrians particularly those with mobility impairments.
- 2.5 The drawings provided for Audit do not indicate the provision of an uncontrolled crossing point (i.e. tactile paving and dropped kerbs) at the bellmouth of the site access. The omission of an uncontrolled crossing at the mouth of the site access, where pedestrian are likely to cross may result in trip hazards to pedestrians particularly those with mobility impairments.
- 2.6 It is noted that there are currently dropped kerbs at the site access.

RECOMMENDATION

- 2.7 It is recommended that uncontrolled pedestrian crossing including dropped kerbs and tactile paving is provide across the moth of the junction.

CROFT RESPONSE

Problem noted and an in line uncontrolled pedestrian crossing point is now proposed at the mouth of the access.

SIGNED:

DATE:

31-8-18



3 OBSERVATIONS/ NOTES

- 3.1 There were no notes/observations to be made as part of this RSA.



4 AUDIT STATEMENT

4.1 We certify that this audit has been carried out broadly in accordance with HD 19/15.

Signed:

Date: 09 May 2018

T Brooks – BSc (Hons), MBA, CMILT, MCIHT, MSoRSA,
HE RSA Cert of Competency.

Audit Team Leader
go-surveys Ltd
72 Plasturton Avenue
Cardiff
CF11 9HJ

Signed:

Date: 09 May 2018

R Lister - BSc (Hons), MSc, MRTPI, MILT, MCIHT,
MSoRSA

Audit Team Member
go-surveys Ltd
72 Plasturton Avenue
Cardiff
CF11 9HJ



APPENDIX A

List of Drawings and Documents Provided for Audit

2020-F03 – Rev B

Potential Secondary Access Arrangement

2020-SP02

Vehicle Swept Path Analysis

2020-CSA/ 3467/ 116 – Rev C

Development Framework Plan

PIC Data

(Jan 2013 - June 2017)



APPENDIX B

Location of Identified Problems

Proposed Southern Site Access Arrangements, Arundel Road, Angmering – Stage 1 RSA

Z:\projects\2020 Arundel Road, Angmering\Docs\res docs\Road Safety Audit\GCE97-2018 - Proposed Southern Site Access, Arundel Road, Angmering - Stage 1 RSA - Final (Designers Response).docx
May 2018

PROPOSED SECONDARY (SOUTHERN) ACCESS OFF ARUNDEL ROAD, ANGMERING EXCEPTION REPORT

The following table summarises the findings of the Stage 1 Safety Audit performed on the above scheme.

1	2	3	4	5
Point N ^o in Safety Audit	Exemption Required (Yes/No)	Scheme Amended to Accord with Safety Audit	If YES in Column 2 Give Reasons	If NO in Column 2 Give Comments/Action
P1	Y	N	The audit acknowledged that refuse vehicle movements to/from the site will be minimal. As noted above, the left in/left out movements for the large waste vehicle shows encroachment into the opposing lanes however waste vehicles will be arriving in the morning peak where vehicles turning into the site should be minimal. Infrequent encroachment into adjacent lanes by large service vehicles is considered acceptable and Manual for Streets advises further in para 6.8.1. "The design of local roads should accommodate service vehicles without allowing their requirements to dominate the layout. On streets with low traffic flows and speeds, it may be assumed that they will be able to use the full width of the carriageway to manoeuvre. Larger vehicles which are only expected to use a street infrequently, such as pantechnicons, need not be fully accommodated." And further in para 6.5.8 "it would be acceptable for the occasional lorry to have to negotiate a particular junction with care".	
P2	N	Y		Problem noted and an in line uncontrolled pedestrian crossing point is now proposed at the mouth of the access.

I concede that item P1 does not meet the recognised standard and accept the reasons given for non-conformity given in Column 4.

SIGNED:  For Design Team*
* to be signed by a person in Authority
ie Partner or Director

POSITION: Highway Technician
DATE: 29/08/18

In my position as Highway Authority in this case I hereby grant an exemption to the above item.

SIGNED: _____
Engineer
DATE: _____

SIGNED: _____
Head of Highway Operations
DATE: _____

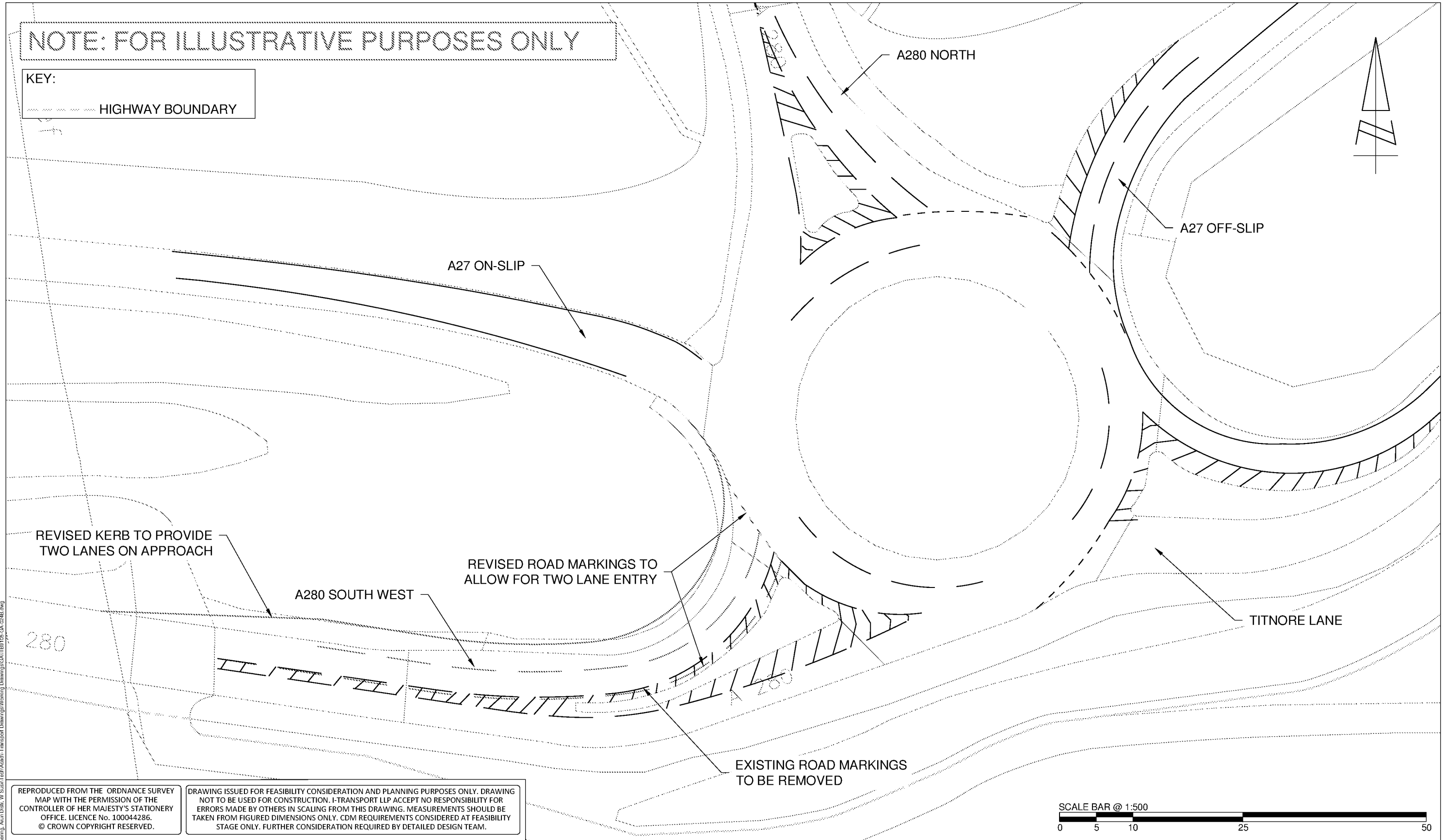
APPENDIX 2

ARCADY Output for A280/A27/Titnore Lane and Layout Plan (Final – App Ref A/40/18/OUT)

NOTE: FOR ILLUSTRATIVE PURPOSES ONLY

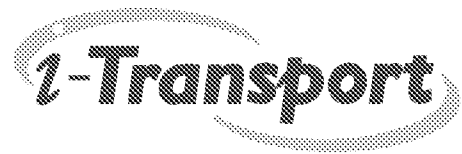
KEY:

----- HIGHWAY BOUNDARY



REPRODUCED FROM THE ORDNANCE SURVEY MAP WITH THE PERMISSION OF THE CONTROLLER OF HER MAJESTY'S STATIONERY OFFICE. LICENCE No. 100044286. © CROWN COPYRIGHT RESERVED.

DRAWING ISSUED FOR FEASIBILITY CONSIDERATION AND PLANNING PURPOSES ONLY. DRAWING NOT TO BE USED FOR CONSTRUCTION. I-TRANSPORT LLP ACCEPT NO RESPONSIBILITY FOR ERRORS MADE BY OTHERS IN SCALING FROM THIS DRAWING. MEASUREMENTS SHOULD BE TAKEN FROM FIGURED DIMENSIONS ONLY. CDM REQUIREMENTS CONSIDERED AT FEASIBILITY STAGE ONLY. FURTHER CONSIDERATION REQUIRED BY DETAILED DESIGN TEAM.



Grove House, Lutyens Close, Chineham
Basingstoke, Hampshire, RG24 8AG
www.i-transport.co.uk

Tel: 01256 338640
Fax: 01256 338644

B	19.06.17	MC	UPDATED AS PER STAGE 1 RSA COMMENTS	TW	TW
A	04.11.16	MC	MINOR AMENDMENTS	TW	TW
REV	DATE	BY	DESCRIPTION	CHK	APD
STATUS: FOR INFORMATION					

TITLE: PROPOSED IMPROVEMENT SCHEME TO A280 / A27 / TITNORE LANE ROUNDABOUT		SCALE @ A3: 1:500	CHECKED: TW	APPROVED: TW
PROJECT: LAND SOUTH OF WATER LANE, ANGMERING		FILE REF: ITB9105-GA-024	DRAWN: MC	DATE: 14.07.16
CLIENT: RYDON HOMES, GLEESON DEVELOPMENTS LTD		DRAWING No: ITB9105-GA-024		
		PROJECT No: ITB9105		REV: B

T:\Projects\0200 Series Project Numbers\105 TEL Land at Angmering_Arun Dist. W South Test\Kash-Traffic\Transport Drawings\Working Drawings\GA\ITB9105-GA-024B.dwg



Junctions 9	
ARCADY 9 - Roundabout Module	
Version: 9.0.0.4211 [] © Copyright TRL Limited, 2018	
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: A27 South Roundabout + IMPS.j9

Path: \\CADWORKSTATION\Shared Storage\projects\2020 Arundel Road, Angmering\Arcady\HE

Report generation date: 09/07/2018 09:45:50

»2022 Base Flows, AM
»2022 Base Flows, PM
»2027 Base Flows, AM
»2027 Base Flows, PM
»2031 Base Flows, AM
»2031 Base Flows, PM
»2022 Assessment Flows, AM
»2022 Assessment Flows, PM
»2027 Assessment Flows, AM
»2027 Assessment Flows, PM
»2031 Assessment Flows, AM
»2031 Assessment Flows, PM

Summary of junction performance

	AM				PM			
	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS
2022 Base Flows								
Arm 1	1.1	9.39	0.52	A	1.1	10.37	0.54	B
Arm 2	1.0	5.43	0.50	A	1.5	7.95	0.61	A
Arm 3	4.0	12.62	0.81	B	1.0	4.74	0.49	A
Arm 5	2.5	6.61	0.71	A	3.6	8.44	0.78	A
2027 Base Flows								
Arm 1	1.3	11.36	0.58	B	1.5	12.92	0.60	B
Arm 2	1.2	6.06	0.54	A	1.9	9.66	0.67	A
Arm 3	5.9	17.80	0.88	C	1.1	5.16	0.52	A
Arm 5	3.0	7.72	0.75	A	4.7	10.58	0.83	B
2031 Base Flows								
Arm 1	2.5	19.80	0.72	C	3.8	30.36	0.81	D
Arm 2	1.7	7.99	0.63	A	4.3	19.48	0.82	C
Arm 3	20.5	55.56	0.95	F	1.5	6.63	0.61	A
Arm 5	5.0	11.87	0.84	B	11.9	24.94	0.93	C
2022 Assessment Flows								
Arm 1	1.0	9.18	0.50	A	1.2	10.55	0.54	B
Arm 2	1.0	5.45	0.50	A	1.6	8.07	0.61	A
Arm 3	4.7	14.37	0.83	B	1.0	4.91	0.50	A
Arm 5	2.5	6.66	0.72	A	3.7	8.66	0.79	A
2027 Assessment Flows								
Arm 1	1.3	11.44	0.58	B	1.5	13.18	0.61	B
Arm 2	1.2	6.08	0.54	A	2.0	9.82	0.67	A
Arm 3	7.2	21.30	0.89	C	1.1	5.35	0.54	A
Arm 5	3.0	7.79	0.76	A	4.8	10.89	0.83	B
2031 Assessment Flows								
Arm 1	2.5	19.84	0.72	C	3.9	31.57	0.81	D
Arm 2	1.7	8.04	0.63	A	4.4	20.06	0.83	C
Arm 3	29.2	74.02	1.01	F	1.6	6.92	0.62	A
Arm 5	5.1	11.95	0.84	B	12.7	26.40	0.94	D

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

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

File summary

File Description

Title	A27 South Roundabout + Mitigation
Location	Angmering
Site number	
Date	22/05/2018
Version	
Status	
Identifier	
Client	
Jobnumber	
Enumerator	Croft Transport Solutions
Description	

Units

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

Analysis Options

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

Demand Set Summary

Scenario name	Time Period name	Traffic profile type	Model start time (HH:mm)	Model finish time (HH:mm)	Time segment length (min)
2022 Base Flows	AM	ONE HOUR	08:00	09:30	15
2022 Base Flows	PM	ONE HOUR	17:00	18:30	15
2027 Base Flows	AM	ONE HOUR	08:00	09:30	15
2027 Base Flows	PM	ONE HOUR	17:00	18:30	15
2031 Base Flows	AM	ONE HOUR	08:00	09:30	15
2031 Base Flows	PM	ONE HOUR	17:00	18:30	15
2022 Assessment Flows	AM	ONE HOUR	08:00	09:30	15
2022 Assessment Flows	PM	ONE HOUR	17:00	18:30	15
2027 Assessment Flows	AM	ONE HOUR	08:00	09:30	15
2027 Assessment Flows	PM	ONE HOUR	17:00	18:30	15
2031 Assessment Flows	AM	ONE HOUR	08:00	09:30	15
2031 Assessment Flows	PM	ONE HOUR	17:00	18:30	15

2022 Base Flows, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 1 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 3 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

Junction Network

Junctions

Junction	Name	Junction Type	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout	8.68	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
1	A27 WB Off-Slip	
2	Titnore Lane	
3	Water Lane	
4	A27 On Slip	
5	A280 North	

Capacity Options

Arm	Minimum capacity (PCU/hr)	Maximum capacity (PCU/hr)
1	0.00	99999.00
2	0.00	99999.00
3	0.00	99999.00
4	0.00	99999.00
5	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
1	4.00	6.00	35.0	25.0	60.0	38.0	
2	3.40	7.80	30.0	25.0	60.0	24.0	
3	3.65	7.50	50.0	20.0	60.0	33.0	
4							✓
5	3.70	7.80	22.0	42.0	60.0	10.0	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1	0.551	1693.316
2	0.617	1996.839
3	0.610	2020.629
4		
5	0.648	2079.767

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	2022 Base Flows	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 (%)
1		✓	372.00	100.000
2		✓	599.00	100.000
3		✓	1079.00	100.000
4				
5		✓	1230.00	100.000

Origin-Destination Data

Demand (PCU/hr)

	To					
From		1	2	3	4	5
	1	0.000	30.000	288.000	0.000	54.000
	2	0.000	0.000	115.000	247.000	237.000
	3	0.000	254.000	0.000	79.000	746.000
	4	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	5	0.000	578.000	372.000	280.000	0.000

Vehicle Mix

Heavy Vehicle proportion

		To				
From		1	2	3	4	5
	1	0	0	0	0	0
	2	0	0	0	0	0
	3	0	0	0	0	0
	4	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	5	0	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
1	0.52	9.39	1.1	A
2	0.50	5.43	1.0	A
3	0.81	12.62	4.0	B
4				
5	0.71	6.61	2.5	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
1	280.06	1112.76	1079.99	0.259	278.67	0.3	4.485	A
2	450.96	745.16	1537.43	0.293	449.31	0.4	3.304	A
3	812.33	613.48	1646.48	0.493	808.47	1.0	4.276	A
4		967.50						
5	926.01	190.32	1956.48	0.473	922.44	0.9	3.470	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
1	334.42	1331.78	959.27	0.349	333.69	0.5	5.746	A
2	538.49	892.00	1446.90	0.372	537.79	0.6	3.960	A
3	970.00	734.30	1572.80	0.617	967.53	1.6	5.924	A
4		1157.91						
5	1105.74	227.76	1932.23	0.572	1104.02	1.3	4.338	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
1	409.58	1627.33	796.36	0.514	407.55	1.0	9.210	A
2	659.51	1090.22	1324.70	0.498	657.95	1.0	5.386	A
3	1188.00	898.08	1472.91	0.807	1178.71	3.9	11.877	B
4		1411.89						
5	1354.26	277.47	1900.02	0.713	1349.86	2.4	6.492	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
1	409.58	1633.65	792.88	0.517	409.51	1.1	9.386	A
2	659.51	1094.28	1322.20	0.499	659.48	1.0	5.431	A
3	1188.00	900.57	1471.39	0.807	1187.45	4.0	12.615	B
4		1420.88						
5	1354.26	279.53	1898.69	0.713	1354.12	2.5	6.606	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
1	334.42	1340.74	954.32	0.350	336.46	0.5	5.847	A
2	538.49	897.79	1443.33	0.373	540.05	0.6	3.992	A
3	970.00	737.92	1570.59	0.618	979.60	1.6	6.186	A
4		1170.40						
5	1105.74	230.60	1930.38	0.573	1110.14	1.4	4.413	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
1	280.06	1119.65	1076.19	0.260	280.82	0.4	4.531	A
2	450.96	749.99	1534.46	0.294	451.68	0.4	3.328	A
3	812.33	616.94	1644.37	0.494	814.96	1.0	4.355	A
4		974.77						
5	926.01	191.84	1955.49	0.474	927.81	0.9	3.511	A

2022 Base Flows, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 1 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 3 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

Junction Network

Junctions

Junction	Name	Junction Type	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout	7.77	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	2022 Base Flows	PM	ONE HOUR	17:00	18:30	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 (%)
1		✓	366.00	100.000
2		✓	637.00	100.000
3		✓	662.00	100.000
4				
5		✓	1406.00	100.000

Origin-Destination Data

Demand (PCU/hr)

		To				
From		1	2	3	4	5
	1	0.000	29.000	304.000	6.000	27.000
	2	0.000	0.000	187.000	183.000	267.000
	3	0.000	149.000	0.000	50.000	463.000
	4	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	5	0.000	501.000	594.000	311.000	0.000

Vehicle Mix

Heavy Vehicle proportion

	To				
	1	2	3	4	5
From	1	0	0	0	0
	2	0	0	0	0
	3	0	0	0	0
	4	Exit-only	Exit-only	Exit-only	Exit-only
	5	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
1	0.54	10.37	1.1	B
2	0.61	7.95	1.5	A
3	0.49	4.74	1.0	A
4				
5	0.78	8.44	3.6	A

Main Results for each time segment

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

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	275.54	1165.88	1050.71	0.262	274.13	0.4	4.627	A
2	479.57	930.90	1422.92	0.337	477.55	0.5	3.800	A
3	498.39	595.23	1657.61	0.301	496.68	0.4	3.097	A
4		679.55						
5	1058.51	111.79	2007.35	0.527	1054.09	1.1	3.760	A

Main results: (17:15-17:30)

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	329.03	1395.35	924.23	0.356	328.25	0.5	6.033	A
2	572.65	1114.27	1309.87	0.437	571.59	0.8	4.869	A
3	595.12	712.44	1586.13	0.375	594.45	0.6	3.628	A
4		813.35						
5	1263.97	133.80	1993.09	0.634	1261.55	1.7	4.904	A

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
1	402.97	1704.63	753.76	0.535	400.67	1.1	10.130	B
2	701.35	1360.76	1157.91	0.606	698.41	1.5	7.784	A
3	728.88	870.35	1489.82	0.489	727.47	0.9	4.713	A
4		994.82						
5	1548.03	163.74	1973.70	0.784	1540.90	3.5	8.184	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
1	402.97	1711.80	749.81	0.537	402.88	1.1	10.371	B
2	701.35	1367.20	1153.93	0.608	701.25	1.5	7.951	A
3	728.88	874.07	1487.55	0.490	728.85	1.0	4.744	A
4		997.45						
5	1548.03	164.05	1973.50	0.784	1547.76	3.6	8.441	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
1	329.03	1405.44	918.67	0.358	331.35	0.6	6.152	A
2	572.65	1123.32	1304.29	0.439	575.61	0.8	4.961	A
3	595.12	717.68	1582.93	0.376	596.52	0.6	3.653	A
4		817.18						
5	1263.97	134.26	1992.79	0.634	1271.18	1.8	5.039	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
1	275.54	1173.38	1046.57	0.263	276.36	0.4	4.678	A
2	479.57	937.43	1418.90	0.338	480.67	0.5	3.841	A
3	498.39	599.18	1655.20	0.301	499.08	0.4	3.117	A
4		683.25						
5	1058.51	112.33	2007.00	0.527	1061.05	1.1	3.814	A

2027 Base Flows, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 1 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 3 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

Junction Network

Junctions

Junction	Name	Junction Type	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout	11.13	S

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	2027 Base Flows	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 (%)
1		✓	391.00	100.000
2		✓	631.00	100.000
3		✓	1129.00	100.000
4				
5		✓	1294.00	100.000

Origin-Destination Data

Demand (PCU/hr)

		To				
From		1	2	3	4	5
	1	0.000	32.000	301.000	0.000	58.000
	2	0.000	0.000	120.000	261.000	250.000
	3	0.000	266.000	0.000	82.000	781.000
	4	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	5	0.000	610.000	389.000	295.000	0.000

Vehicle Mix

Heavy Vehicle proportion

	To				
	1	2	3	4	5
From	1	0	0	0	0
	2	0	0	0	0
	3	0	0	0	0
	4	Exit-only	Exit-only	Exit-only	Exit-only
	5	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
1	0.58	11.36	1.3	B
2	0.54	6.06	1.2	A
3	0.86	17.80	5.9	C
4				
5	0.75	7.72	3.0	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
1	294.37	1169.47	1048.73	0.281	292.82	0.4	4.753	A
2	475.05	781.71	1514.90	0.314	473.23	0.5	3.450	A
3	849.97	647.86	1625.51	0.523	845.63	1.1	4.588	A
4		1015.14						
5	974.19	199.24	1950.70	0.499	970.23	1.0	3.656	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
1	351.50	1399.60	921.88	0.381	350.61	0.6	6.282	A
2	567.26	935.73	1419.95	0.399	566.43	0.7	4.215	A
3	1014.95	775.45	1547.70	0.656	1011.82	1.9	6.680	A
4		1214.76						
5	1163.28	238.39	1925.34	0.604	1161.21	1.5	4.700	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
1	430.50	1708.37	751.70	0.573	427.72	1.3	11.019	B
2	694.74	1142.77	1292.30	0.538	692.80	1.1	5.986	A
3	1243.05	947.98	1442.48	0.662	1228.41	5.5	15.840	C
4		1477.12						
5	1424.72	289.42	1892.28	0.753	1418.95	2.9	7.514	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
1	430.50	1717.04	746.92	0.576	430.37	1.3	11.363	B
2	694.74	1148.12	1289.00	0.539	694.69	1.2	6.057	A
3	1243.05	951.17	1440.53	0.663	1241.66	5.9	17.800	C
4		1490.55						
5	1424.72	292.54	1890.26	0.754	1424.49	3.0	7.719	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
1	351.50	1411.92	915.10	0.384	354.33	0.6	6.450	A
2	567.26	943.30	1415.27	0.401	569.20	0.7	4.264	A
3	1014.95	780.03	1544.90	0.657	1030.62	2.0	7.203	A
4		1233.84						
5	1163.28	242.82	1922.47	0.605	1169.09	1.6	4.816	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
1	294.37	1177.43	1044.34	0.282	295.31	0.4	4.813	A
2	475.05	787.24	1511.49	0.314	475.90	0.5	3.481	A
3	849.97	651.79	1623.11	0.524	853.35	1.1	4.696	A
4		1023.73						
5	974.19	201.06	1949.52	0.500	976.37	1.0	3.706	A

2027 Base Flows, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 1 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 3 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

Junction Network

Junctions

Junction	Name	Junction Type	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout	9.51	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	2027 Base Flows	PM	ONE HOUR	17:00	18:30	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 (%)
1		✓	384.00	100.000
2		✓	671.00	100.000
3		✓	690.00	100.000
4				
5		✓	1482.00	100.000

Origin-Destination Data

Demand (PCU/hr)

		To				
From		1	2	3	4	5
	1	0.000	30.000	319.000	7.000	28.000
	2	0.000	0.000	195.000	194.000	282.000
	3	0.000	154.000	0.000	51.000	485.000
	4	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	5	0.000	530.000	623.000	329.000	0.000

Vehicle Mix

Heavy Vehicle proportion

	To				
	1	2	3	4	5
From	1	0	0	0	0
	2	0	0	0	0
	3	0	0	0	0
	4	Exit-only	Exit-only	Exit-only	Exit-only
	5	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
1	0.60	12.92	1.5	B
2	0.67	9.66	1.9	A
3	0.52	5.16	1.1	A
4				
5	0.83	10.58	4.7	B

Main Results for each time segment

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

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	289.10	1226.28	1017.41	0.284	287.52	0.4	4.923	A
2	505.16	978.58	1393.52	0.363	502.91	0.6	4.033	A
3	519.47	629.55	1636.68	0.317	517.62	0.5	3.211	A
4		711.68						
5	1115.73	115.53	2004.93	0.556	1110.76	1.2	4.001	A

Main results: (17:15-17:30)

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	345.21	1467.57	884.42	0.390	344.25	0.6	6.652	A
2	603.22	1171.27	1274.73	0.473	601.92	0.9	5.341	A
3	620.30	753.47	1561.10	0.397	619.53	0.7	3.819	A
4		851.81						
5	1332.29	138.27	1990.20	0.669	1329.30	2.0	5.422	A

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
1	422.79	1790.73	706.30	0.599	419.55	1.4	12.416	B
2	738.78	1428.41	1116.19	0.662	734.74	1.9	9.338	A
3	759.70	919.43	1459.89	0.520	758.03	1.1	5.116	A
4		1041.38						
5	1631.71	169.18	1970.17	0.828	1621.54	4.5	10.041	B

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
1	422.79	1800.71	700.80	0.603	422.61	1.5	12.923	B
2	738.78	1437.41	1110.65	0.665	738.59	1.9	9.665	A
3	759.70	924.58	1456.75	0.522	759.66	1.1	5.164	A
4		1044.73						
5	1631.71	169.55	1969.93	0.828	1631.16	4.7	10.581	B

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
1	345.21	1481.53	876.73	0.394	348.53	0.7	6.856	A
2	603.22	1183.83	1266.99	0.476	607.34	0.9	5.490	A
3	620.30	760.69	1556.70	0.398	621.96	0.7	3.859	A
4		856.65						
5	1332.29	138.81	1989.84	0.670	1342.71	2.1	5.649	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
1	289.10	1235.02	1012.60	0.286	290.11	0.4	4.989	A
2	505.16	986.21	1388.82	0.364	506.54	0.6	4.086	A
3	519.47	634.17	1633.86	0.318	520.26	0.5	3.236	A
4		715.84						
5	1115.73	116.12	2004.55	0.557	1118.91	1.3	4.080	A

2031 Base Flows, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 1 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 3 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

Junction Network

Junctions

Junction	Name	Junction Type	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout	26.34	D

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	2031 Base Flows	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 (%)
1		✓	429.00	100.000
2		✓	697.00	100.000
3		✓	1230.00	100.000
4				
5		✓	1432.00	100.000

Origin-Destination Data

Demand (PCU/hr)

		To				
From		1	2	3	4	5
	1	0.000	35.000	330.000	0.000	64.000
	2	0.000	0.000	130.000	289.000	278.000
	3	0.000	289.000	0.000	87.000	854.000
	4	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	5	0.000	677.000	427.000	328.000	0.000

Vehicle Mix

Heavy Vehicle proportion

		To				
From		1	2	3	4	5
	1	0	0	0	0	0
	2	0	0	0	0	0
	3	0	0	0	0	0
	4	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	5	0	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
1	0.72	19.80	2.5	C
2	0.63	7.99	1.7	A
3	0.98	55.88	20.5	F
4				
5	0.84	11.87	5.0	B

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
1	322.97	1289.40	982.63	0.329	321.03	0.5	5.427	A
2	524.74	860.63	1466.24	0.358	522.52	0.6	3.807	A
3	926.01	718.76	1582.27	0.585	920.45	1.4	5.395	A
4		1111.64						
5	1078.08	216.27	1939.67	0.556	1073.13	1.2	4.132	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
1	385.66	1542.75	842.98	0.458	384.28	0.8	7.825	A
2	626.59	1030.01	1361.82	0.460	625.43	0.8	4.880	A
3	1105.74	860.25	1495.98	0.739	1100.38	2.7	8.979	A
4		1329.33						
5	1287.34	258.55	1912.28	0.673	1284.21	2.0	5.703	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
1	472.34	1871.94	661.54	0.714	466.32	2.3	17.919	C
2	767.41	1253.65	1223.94	0.627	764.21	1.6	7.777	A
3	1354.26	1049.82	1380.37	0.981	1304.31	15.2	34.872	D
4		1586.43						
5	1576.66	306.46	1881.24	0.838	1565.48	4.8	11.027	B

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
1	472.34	1889.04	652.11	0.724	471.66	2.5	19.803	C
2	767.41	1263.99	1217.56	0.630	767.26	1.7	7.989	A
3	1354.26	1055.46	1376.93	0.984	1333.19	20.5	55.857	F
4		1615.28						
5	1576.66	313.25	1876.85	0.840	1575.79	5.0	11.874	B

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
1	385.66	1575.15	825.12	0.467	392.11	0.9	8.434	A
2	626.59	1044.96	1352.60	0.463	629.82	0.9	5.002	A
3	1105.74	868.37	1491.03	0.742	1175.68	3.0	13.877	B
4		1402.22						
5	1287.34	276.24	1900.82	0.677	1298.92	2.1	6.091	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
1	322.97	1300.62	976.44	0.331	324.55	0.5	5.537	A
2	524.74	868.32	1461.51	0.359	525.97	0.6	3.852	A
3	926.01	724.02	1579.06	0.586	932.26	1.4	5.617	A
4		1124.52						
5	1078.08	219.04	1937.87	0.556	1081.58	1.3	4.220	A

2031 Base Flows, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 1 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 3 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

Junction Network

Junctions

Junction	Name	Junction Type	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout	20.56	C

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	2031 Base Flows	PM	ONE HOUR	17:00	18:30	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 (%)
1		✓	428.00	100.000
2		✓	754.00	100.000
3		✓	764.00	100.000
4				
5		✓	1663.00	100.000

Origin-Destination Data

Demand (PCU/hr)

		To				
From		1	2	3	4	5
	1	0.000	34.000	354.000	8.000	32.000
	2	0.000	0.000	216.000	219.000	319.000
	3	0.000	169.000	0.000	56.000	539.000
	4	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	5	0.000	599.000	692.000	372.000	0.000

Vehicle Mix

Heavy Vehicle proportion

	To				
	1	2	3	4	5
From	1	0	0	0	0
	2	0	0	0	0
	3	0	0	0	0
	4	Exit-only	Exit-only	Exit-only	Exit-only
	5	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
1	0.81	30.36	3.8	C
2	0.82	19.48	4.3	C
3	0.61	6.63	1.5	A
4				
5	0.93	24.94	11.9	C

Main Results for each time segment

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

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	322.22	1372.10	937.04	0.344	320.14	0.5	5.815	A
2	567.65	1091.51	1323.90	0.429	564.68	0.7	4.724	A
3	575.18	711.41	1586.75	0.362	572.92	0.6	3.544	A
4		793.76						
5	1251.99	126.73	1997.67	0.627	1245.37	1.7	4.744	A

Main results: (17:15-17:30)

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	384.76	1641.40	788.61	0.488	383.10	0.9	8.839	A
2	677.83	1305.79	1191.79	0.569	675.62	1.3	6.946	A
3	686.82	851.12	1501.55	0.457	685.74	0.8	4.407	A
4		949.96						
5	1495.00	151.69	1981.50	0.754	1489.71	3.0	7.242	A

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
1	471.24	1986.15	598.59	0.787	461.90	3.3	24.841	C
2	830.17	1577.28	1024.41	0.810	819.79	3.9	16.811	C
3	841.18	1030.91	1391.90	0.604	838.52	1.5	6.474	A
4		1158.43						
5	1831.00	185.48	1959.61	0.934	1800.67	10.6	19.712	C

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
1	471.24	2011.65	584.53	0.806	469.30	3.8	30.360	C
2	830.17	1600.06	1010.37	0.822	828.57	4.3	19.479	C
3	841.18	1043.44	1384.26	0.608	841.06	1.5	6.625	A
4		1165.05						
5	1831.00	186.05	1959.25	0.935	1825.60	11.9	24.938	C

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
1	384.76	1682.43	765.99	0.502	395.66	1.0	9.995	A
2	677.83	1343.08	1168.81	0.580	689.36	1.4	7.682	A
3	686.82	871.09	1489.37	0.461	689.49	0.9	4.515	A
4		960.19						
5	1495.00	152.52	1980.97	0.755	1529.91	3.2	8.563	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
1	322.22	1385.39	929.72	0.347	324.20	0.5	5.963	A
2	567.65	1103.26	1316.66	0.431	570.22	0.8	4.838	A
3	575.18	718.55	1582.40	0.363	576.34	0.6	3.584	A
4		799.58						
5	1251.99	127.49	1997.18	0.627	1257.90	1.7	4.907	A

2022 Assessment Flows, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 1 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 3 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

Junction Network

Junctions

Junction	Name	Junction Type	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout	9.31	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)
D7	2022 Assessment Flows	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 (%)
1		✓	362.00	100.000
2		✓	599.00	100.000
3		✓	1109.00	100.000
4				
5		✓	1234.00	100.000

Origin-Destination Data

Demand (PCU/hr)

		To				
From		1	2	3	4	5
	1	0.000	20.000	288.000	0.000	54.000
	2	0.000	0.000	115.000	247.000	237.000
	3	0.000	254.000	0.000	79.000	776.000
	4	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	5	0.000	578.000	372.000	284.000	0.000

Vehicle Mix

Heavy Vehicle proportion

		To				
From		1	2	3	4	5
	1	0	0	0	0	0
	2	0	0	0	0	0
	3	0	0	0	0	0
	4	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	5	0	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
1	0.50	9.18	1.0	A
2	0.50	5.45	1.0	A
3	0.83	14.37	4.7	B
4				
5	0.72	6.66	2.5	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
1	272.53	1115.72	1078.35	0.253	271.19	0.3	4.453	A
2	450.96	748.17	1535.58	0.294	449.30	0.4	3.310	A
3	834.91	616.48	1644.65	0.508	830.83	1.0	4.402	A
4		989.87						
5	929.02	190.29	1956.50	0.475	925.43	0.9	3.480	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
1	325.43	1335.31	957.32	0.340	324.73	0.5	5.685	A
2	538.49	895.60	1444.69	0.373	537.78	0.6	3.963	A
3	996.97	737.89	1570.61	0.635	994.23	1.7	6.216	A
4		1184.62						
5	1109.34	227.71	1932.26	0.574	1107.60	1.3	4.357	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
1	398.57	1631.29	794.18	0.502	396.66	1.0	9.012	A
2	659.51	1094.64	1321.97	0.499	657.94	1.0	5.408	A
3	1221.03	902.46	1470.24	0.831	1209.82	4.5	13.285	B
4		1443.12						
5	1358.66	277.09	1900.27	0.715	1354.20	2.4	6.539	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
1	398.57	1638.00	790.48	0.504	398.50	1.0	9.181	A
2	659.51	1098.68	1319.48	0.500	659.48	1.0	5.454	A
3	1221.03	904.97	1468.71	0.831	1220.24	4.7	14.372	B
4		1453.69						
5	1358.66	279.48	1898.72	0.716	1358.52	2.5	6.659	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
1	325.43	1344.83	952.07	0.342	327.35	0.5	5.781	A
2	538.49	901.37	1441.13	0.374	540.06	0.6	4.001	A
3	996.97	741.54	1568.38	0.636	1008.69	1.8	6.561	A
4		1199.34						
5	1109.34	231.03	1930.11	0.575	1113.80	1.4	4.433	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
1	272.53	1122.74	1074.49	0.254	273.26	0.3	4.498	A
2	450.96	753.00	1532.60	0.294	451.69	0.4	3.334	A
3	834.91	619.96	1642.53	0.508	837.85	1.0	4.489	A
4		997.64						
5	929.02	191.90	1955.46	0.475	930.84	0.9	3.521	A

2022 Assessment Flows, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 1 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 3 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

Junction Network

Junctions

Junction	Name	Junction Type	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout	7.94	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)
D8	2022 Assessment Flows	PM	ONE HOUR	17:00	18:30	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 (%)
1		✓	366.00	100.000
2		✓	637.00	100.000
3		✓	679.00	100.000
4				
5		✓	1416.00	100.000

Origin-Destination Data

Demand (PCU/hr)

		To				
From		1	2	3	4	5
	1	0.000	29.000	304.000	6.000	27.000
	2	0.000	0.000	187.000	183.000	267.000
	3	0.000	149.000	0.000	50.000	480.000
	4	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	5	0.000	501.000	594.000	321.000	0.000

Vehicle Mix

Heavy Vehicle proportion

	To				
	1	2	3	4	5
From	1	0	0	0	0
	2	0	0	0	0
	3	0	0	0	0
	4	Exit-only	Exit-only	Exit-only	Exit-only
	5	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
1	0.54	10.55	1.2	B
2	0.61	8.07	1.6	A
3	0.50	4.91	1.0	A
4				
5	0.79	8.66	3.7	A

Main Results for each time segment

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

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	275.54	1173.33	1046.60	0.263	274.12	0.4	4.652	A
2	479.57	938.36	1418.32	0.338	477.54	0.5	3.818	A
3	511.19	602.71	1653.05	0.309	509.41	0.4	3.144	A
4		692.28						
5	1066.04	111.78	2007.35	0.531	1061.55	1.1	3.795	A

Main results: (17:15-17:30)

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	329.03	1404.27	919.31	0.358	328.24	0.6	6.083	A
2	572.65	1123.20	1304.37	0.439	571.58	0.8	4.906	A
3	610.41	721.39	1580.67	0.386	609.69	0.6	3.706	A
4		828.59						
5	1272.95	133.79	1993.10	0.639	1270.48	1.7	4.965	A

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
1	402.97	1715.32	747.87	0.539	400.62	1.1	10.298	B
2	701.35	1371.50	1151.28	0.609	698.35	1.5	7.896	A
3	747.59	881.20	1483.20	0.504	746.07	1.0	4.874	A
4		1013.40						
5	1559.05	163.72	1973.71	0.790	1551.60	3.6	8.382	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
1	402.97	1722.79	743.75	0.542	402.88	1.2	10.555	B
2	701.35	1378.19	1147.16	0.611	701.24	1.6	8.068	A
3	747.59	885.07	1480.85	0.505	747.56	1.0	4.909	A
4		1016.16						
5	1559.05	164.05	1973.50	0.790	1558.74	3.7	8.662	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
1	329.03	1414.77	913.52	0.360	331.41	0.6	6.208	A
2	572.65	1132.59	1298.58	0.441	575.67	0.8	4.999	A
3	610.41	726.84	1577.34	0.387	611.92	0.6	3.736	A
4		832.60						
5	1272.95	134.28	1992.78	0.639	1280.49	1.8	5.105	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
1	275.54	1180.98	1042.38	0.264	276.37	0.4	4.704	A
2	479.57	945.02	1414.22	0.339	480.69	0.5	3.862	A
3	511.19	606.75	1650.58	0.310	511.93	0.5	3.165	A
4		696.10						
5	1066.04	112.34	2007.00	0.531	1068.65	1.1	3.846	A

2027 Assessment Flows, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 1 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 3 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

Junction Network

Junctions

Junction	Name	Junction Type	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout	12.39	S

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)
D9	2027 Assessment Flows	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 (%)
1		✓	391.00	100.000
2		✓	631.00	100.000
3		✓	1159.00	100.000
4				
5		✓	1298.00	100.000

Origin-Destination Data

Demand (PCU/hr)

		To				
From		1	2	3	4	5
	1	0.000	32.000	301.000	0.000	58.000
	2	0.000	0.000	120.000	261.000	250.000
	3	0.000	266.000	0.000	82.000	811.000
	4	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	5	0.000	610.000	389.000	299.000	0.000

Vehicle Mix

Heavy Vehicle proportion

		To				
From		1	2	3	4	5
	1	0	0	0	0	0
	2	0	0	0	0	0
	3	0	0	0	0	0
	4	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	5	0	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
1	0.58	11.44	1.3	B
2	0.54	6.08	1.2	A
3	0.89	21.30	7.2	C
4				
5	0.76	7.79	3.0	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
1	294.37	1172.42	1047.10	0.281	292.81	0.4	4.763	A
2	475.05	784.70	1513.06	0.314	473.23	0.5	3.456	A
3	872.56	650.85	1623.69	0.537	867.96	1.1	4.736	A
4		1037.48						
5	977.20	199.20	1950.72	0.501	973.22	1.0	3.668	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
1	351.50	1403.11	919.95	0.382	350.61	0.6	6.312	A
2	567.26	939.30	1417.74	0.400	566.43	0.7	4.224	A
3	1041.92	779.03	1545.51	0.674	1038.43	2.0	7.049	A
4		1241.38						
5	1166.88	238.33	1925.38	0.606	1164.78	1.5	4.719	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
1	430.50	1711.94	749.73	0.574	427.70	1.3	11.084	B
2	694.74	1147.10	1289.63	0.539	692.79	1.2	6.013	A
3	1276.08	952.34	1439.82	0.666	1257.77	6.6	18.200	C
4		1506.71						
5	1429.12	288.67	1892.77	0.755	1423.27	3.0	7.573	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
1	430.50	1721.25	744.60	0.578	430.36	1.3	11.445	B
2	694.74	1152.51	1286.29	0.540	694.69	1.2	6.085	A
3	1276.08	955.57	1437.85	0.667	1273.87	7.2	21.299	C
4		1522.81						
5	1429.12	292.36	1890.37	0.756	1428.89	3.0	7.790	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
1	351.50	1416.52	912.56	0.385	354.35	0.6	6.480	A
2	567.26	946.98	1413.01	0.401	569.21	0.7	4.275	A
3	1041.92	783.68	1542.68	0.675	1062.00	2.1	7.788	A
4		1264.95						
5	1166.88	243.74	1921.87	0.607	1172.78	1.6	4.844	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
1	294.37	1180.55	1042.62	0.282	295.31	0.4	4.824	A
2	475.05	790.28	1509.62	0.315	475.91	0.5	3.484	A
3	872.56	654.82	1621.27	0.538	876.37	1.2	4.856	A
4		1046.72						
5	977.20	201.13	1949.47	0.501	979.41	1.0	3.721	A

2027 Assessment Flows, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 1 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 3 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

Junction Network

Junctions

Junction	Name	Junction Type	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout	9.74	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)
D10	2027 Assessment Flows	PM	ONE HOUR	17:00	18:30	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 (%)
1		✓	384.00	100.000
2		✓	671.00	100.000
3		✓	707.00	100.000
4				
5		✓	1491.00	100.000

Origin-Destination Data

Demand (PCU/hr)

		To				
From		1	2	3	4	5
	1	0.000	30.000	319.000	7.000	28.000
	2	0.000	0.000	195.000	194.000	282.000
	3	0.000	154.000	0.000	51.000	502.000
	4	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	5	0.000	530.000	623.000	338.000	0.000

Vehicle Mix

Heavy Vehicle proportion

	To				
	1	2	3	4	5
From	1	0	0	0	0
	2	0	0	0	0
	3	0	0	0	0
	4	Exit-only	Exit-only	Exit-only	Exit-only
	5	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
1	0.61	13.18	1.5	B
2	0.67	9.82	2.0	A
3	0.54	5.35	1.1	A
4				
5	0.83	10.89	4.8	B

Main Results for each time segment

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

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	289.10	1232.99	1013.72	0.285	287.51	0.4	4.946	A
2	505.16	985.29	1389.39	0.364	502.89	0.6	4.052	A
3	532.27	636.28	1632.58	0.326	530.34	0.5	3.260	A
4		724.40						
5	1122.50	115.52	2004.93	0.560	1117.47	1.3	4.034	A

Main results: (17:15-17:30)

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	345.21	1475.58	880.01	0.392	344.24	0.6	6.707	A
2	603.22	1179.29	1269.78	0.475	601.90	0.9	5.379	A
3	635.58	761.52	1556.19	0.408	634.76	0.7	3.904	A
4		867.03						
5	1340.38	138.26	1990.20	0.673	1337.31	2.0	5.487	A

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
1	422.79	1800.16	701.10	0.603	419.47	1.5	12.636	B
2	738.78	1437.94	1110.32	0.665	734.65	1.9	9.480	A
3	778.42	929.12	1453.98	0.535	776.61	1.1	5.301	A
4		1059.93						
5	1641.62	169.16	1970.18	0.833	1631.00	4.7	10.301	B

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
1	422.79	1810.57	695.36	0.608	422.60	1.5	13.178	B
2	738.78	1447.28	1104.56	0.669	738.57	2.0	9.824	A
3	778.42	934.46	1450.72	0.537	778.38	1.1	5.354	A
4		1063.44						
5	1641.62	169.55	1969.93	0.833	1641.02	4.8	10.891	B

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
1	345.21	1490.13	871.99	0.396	348.62	0.7	6.924	A
2	603.22	1192.34	1261.74	0.478	607.43	0.9	5.536	A
3	635.58	769.01	1551.62	0.410	637.38	0.7	3.945	A
4		872.11						
5	1340.38	138.84	1989.83	0.674	1351.29	2.1	5.732	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
1	289.10	1241.89	1008.81	0.287	290.13	0.4	5.017	A
2	505.16	993.06	1384.60	0.365	506.56	0.6	4.107	A
3	532.27	640.99	1629.70	0.327	533.11	0.5	3.287	A
4		728.70						
5	1122.50	116.12	2004.54	0.560	1125.77	1.3	4.113	A

2031 Assessment Flows, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 1 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 3 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

Junction Network

Junctions

Junction	Name	Junction Type	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout	32.59	D

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)
D11	2031 Assessment Flows	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 (%)
1		✓	429.00	100.000
2		✓	697.00	100.000
3		✓	1260.00	100.000
4				
5		✓	1436.00	100.000

Origin-Destination Data

Demand (PCU/hr)

		To				
From		1	2	3	4	5
	1	0.000	35.000	330.000	0.000	64.000
	2	0.000	0.000	130.000	289.000	278.000
	3	0.000	289.000	0.000	87.000	884.000
	4	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	5	0.000	677.000	427.000	332.000	0.000

Vehicle Mix

Heavy Vehicle proportion

	To				
	1	2	3	4	5
From	1	0	0	0	0
	2	0	0	0	0
	3	0	0	0	0
	4	Exit-only	Exit-only	Exit-only	Exit-only
	5	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
1	0.72	19.84	2.5	C
2	0.63	8.04	1.7	A
3	1.01	74.02	29.2	F
4				
5	0.84	11.95	5.1	B

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
1	322.97	1292.33	981.01	0.329	321.03	0.5	5.440	A
2	524.74	863.62	1464.40	0.358	522.52	0.6	3.815	A
3	948.59	721.75	1580.45	0.600	942.68	1.5	5.594	A
4		1133.89						
5	1081.10	216.22	1939.70	0.557	1076.11	1.2	4.145	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
1	385.66	1546.17	841.10	0.459	384.27	0.8	7.856	A
2	626.59	1033.57	1359.62	0.461	625.42	0.8	4.895	A
3	1132.71	863.83	1493.80	0.758	1126.60	3.0	9.644	A
4		1355.59						
5	1290.93	258.40	1912.37	0.675	1287.77	2.0	5.733	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
1	472.34	1872.67	661.14	0.714	466.31	2.3	17.952	C
2	767.41	1257.98	1221.27	0.628	764.19	1.7	7.821	A
3	1387.29	1054.15	1377.72	0.607	1320.56	19.7	41.759	E
4		1603.74						
5	1581.07	302.89	1883.55	0.839	1569.78	4.9	11.091	B

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
1	472.34	1889.68	651.76	0.725	471.66	2.5	19.840	C
2	767.41	1268.39	1214.85	0.632	767.26	1.7	8.037	A
3	1387.29	1059.86	1374.24	0.609	1349.37	29.2	74.623	F
4		1632.59						
5	1581.07	309.50	1879.27	0.841	1580.19	5.1	11.951	B

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
1	385.66	1586.02	819.13	0.471	392.08	0.9	8.551	A
2	626.59	1048.56	1350.38	0.464	629.85	0.9	5.020	A
3	1132.71	872.01	1488.81	0.761	1235.89	3.4	19.925	C
4		1460.27						
5	1290.93	283.47	1896.14	0.681	1302.55	2.2	6.180	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
1	322.97	1303.96	974.60	0.331	324.59	0.5	5.551	A
2	524.74	871.43	1459.58	0.360	525.98	0.6	3.860	A
3	948.59	727.08	1577.20	0.601	955.95	1.5	5.860	A
4		1148.16						
5	1081.10	219.26	1937.73	0.558	1084.70	1.3	4.237	A

2031 Assessment Flows, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 1 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 3 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

Junction Network

Junctions

Junction	Name	Junction Type	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout	21.51	C

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)
D12	2031 Assessment Flows	PM	ONE HOUR	17:00	18:30	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 (%)
1		✓	428.00	100.000
2		✓	754.00	100.000
3		✓	780.00	100.000
4				
5		✓	1672.00	100.000

Origin-Destination Data

Demand (PCU/hr)

		To				
From		1	2	3	4	5
	1	0.000	34.000	354.000	8.000	32.000
	2	0.000	0.000	216.000	219.000	319.000
	3	0.000	169.000	0.000	56.000	555.000
	4	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	5	0.000	599.000	692.000	381.000	0.000

Vehicle Mix

Heavy Vehicle proportion

	To				
	1	2	3	4	5
From	1	0	0	0	0
	2	0	0	0	0
	3	0	0	0	0
	4	Exit-only	Exit-only	Exit-only	Exit-only
	5	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
1	0.81	31.57	3.9	C
2	0.83	20.06	4.4	C
3	0.62	6.92	1.6	A
4				
5	0.94	26.40	12.7	C

Main Results for each time segment

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

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	322.22	1378.78	933.36	0.345	320.13	0.5	5.850	A
2	567.65	1098.20	1319.78	0.430	564.66	0.7	4.745	A
3	587.22	718.13	1582.66	0.371	584.88	0.6	3.601	A
4		805.72						
5	1258.77	126.72	1997.68	0.630	1252.05	1.7	4.785	A

Main results: (17:15-17:30)

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	384.76	1649.32	784.24	0.491	383.07	0.9	8.935	A
2	677.83	1313.75	1186.89	0.571	675.59	1.3	7.010	A
3	701.20	859.12	1496.67	0.469	700.06	0.9	4.512	A
4		964.26						
5	1503.09	151.68	1981.51	0.759	1497.64	3.0	7.356	A

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
1	471.24	1994.06	594.23	0.793	461.56	3.4	25.510	D
2	830.17	1585.57	1019.31	0.814	819.49	4.0	17.178	C
3	858.80	1039.99	1386.36	0.619	855.90	1.6	6.751	A
4		1175.67						
5	1840.91	185.45	1959.64	0.939	1808.61	11.1	20.495	C

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
1	471.24	2020.74	579.52	0.813	469.10	3.9	31.569	D
2	830.17	1609.25	1004.70	0.826	828.44	4.4	20.057	C
3	858.80	1053.03	1378.41	0.623	858.66	1.6	6.922	A
4		1182.58						
5	1840.91	186.04	1959.25	0.940	1834.70	12.7	26.399	D

Main results: (18:00-18:15)

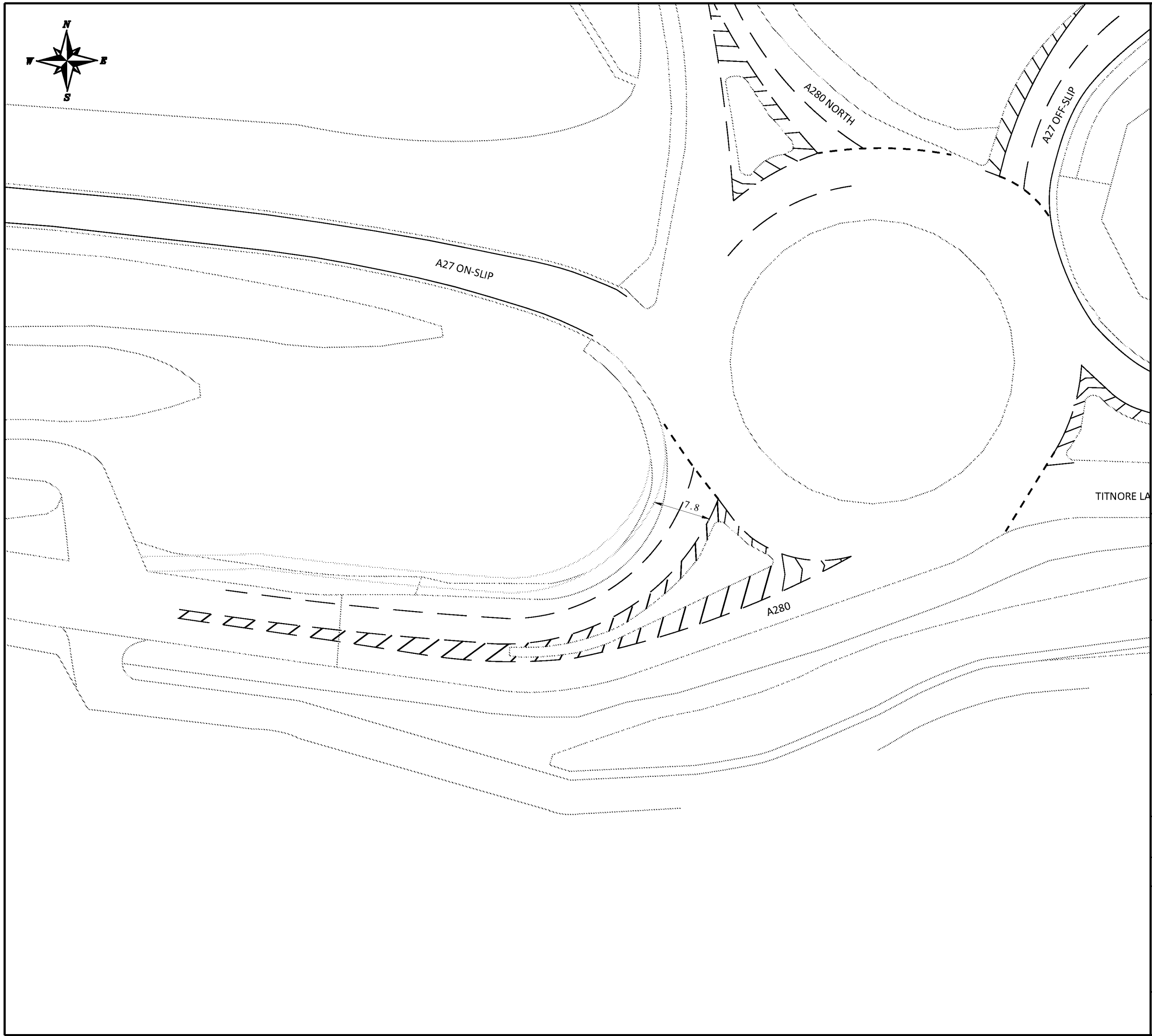
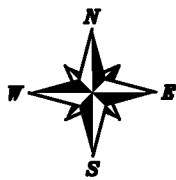
Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	384.76	1693.29	760.01	0.506	396.16	1.0	10.189	B
2	677.83	1353.45	1162.41	0.583	689.77	1.4	7.802	A
3	701.20	880.28	1483.76	0.473	704.11	0.9	4.634	A
4		975.01						
5	1503.09	152.56	1980.94	0.759	1540.73	3.3	8.835	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
1	322.22	1392.38	925.86	0.348	324.25	0.5	6.003	A
2	567.65	1110.23	1312.36	0.433	570.28	0.8	4.869	A
3	587.22	725.44	1578.20	0.372	588.46	0.6	3.643	A
4		811.72						
5	1258.77	127.50	1997.17	0.630	1264.88	1.7	4.957	A

APPENDIX 3

ARCADY Output for A280/A27/Titnore Lane and Further Improved Layout



NOTES

THIS IS NOT A CONSTRUCTION DRAWING AND IS FOR INDICATIVE PURPOSES ONLY. THE DRAWING WILL BE SUBJECT TO CHANGE FOLLOWING LOCAL AUTHORITY REVIEW AND CONFIRMATION OF PUBLIC HIGHWAY AND THIRD PARTY LAND BOUNDARIES.

REV	DETAILS	DRAWN	CHECKED	DATE
CLIENT: GLADMAN				
PROJECT: ARUNDEL ROAD, ANGERMING				
DRAWING TITLE: POTENTIAL A280/A2700 ROUNDAABOUT IMPROVEMENTS				
SCALES: 1:500 @ A3				
DRAWN: JC	CHECKED: MR	DATE: AUG 18		
Croft Transport Planning & Design Hill Quays 9 Jordan Street Manchester M15 4PY Email: info@croftts.co.uk Tel: 0161 667 3746 Web: www.croftts.co.uk				 CROFT
DRAWING NUMBER: 2020-F04		REVISION: -		

Junctions 9	
ARCADY 9 - Roundabout Module	
Version: 9.5.0.6896 © Copyright TRL Limited, 2018	
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: A27 South Roundabout + IMPS + CROFT IMPS.j9
Path: Z:\projects\2020 Arundel Road, Angmering\Arcady\HE
Report generation date: 10/08/2018 12:45:34

»2022 Base Flows, AM
 »2022 Base Flows, PM
 »2027 Base Flows, AM
 »2027 Base Flows, PM
 »2031 Base Flows, AM
 »2031 Base Flows, PM
 »2022 Assessment Flows, AM
 »2022 Assessment Flows, PM
 »2027 Assessment Flows, AM
 »2027 Assessment Flows, PM
 »2031 Assessment Flows, AM
 »2031 Assessment Flows, PM

Summary of junction performance

	AM				PM			
	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS
2022 Base Flows								
Arm 1	1.1	9.39	0.52	A	1.1	10.37	0.54	B
Arm 2	1.0	5.43	0.50	A	1.5	7.95	0.61	A
Arm 3	3.5	10.81	0.78	B	0.9	4.46	0.47	A
Arm 5	2.5	6.61	0.71	A	3.6	8.44	0.78	A
2027 Base Flows								
Arm 1	1.3	11.37	0.58	B	1.5	12.92	0.60	B
Arm 2	1.2	6.06	0.54	A	1.9	9.66	0.67	A
Arm 3	4.8	14.51	0.84	B	1.0	4.83	0.50	A
Arm 5	3.0	7.72	0.75	A	4.7	10.58	0.83	B
2031 Base Flows								
Arm 1	2.5	19.97	0.73	C	3.8	30.36	0.81	C
Arm 2	1.7	7.99	0.63	A	4.3	19.48	0.82	C
Arm 3	13.7	38.58	0.95	E	1.4	6.10	0.59	A
Arm 5	5.1	11.94	0.84	B	11.9	24.94	0.93	C
2022 Assessment Flows								
Arm 1	1.0	9.18	0.50	A	1.2	10.55	0.54	B
Arm 2	1.0	5.45	0.50	A	1.6	8.07	0.61	A
Arm 3	4.0	12.09	0.81	B	1.0	4.61	0.49	A
Arm 5	2.5	6.66	0.72	A	3.7	8.66	0.79	A
2027 Assessment Flows								
Arm 1	1.3	11.45	0.58	B	1.5	13.18	0.61	B
Arm 2	1.2	6.08	0.54	A	2.0	9.82	0.67	A
Arm 3	5.7	16.84	0.88	C	1.1	5.00	0.52	A
Arm 5	3.0	7.79	0.76	A	4.8	10.89	0.83	B
2031 Assessment Flows								
Arm 1	2.5	20.11	0.73	C	3.9	31.57	0.81	C
Arm 2	1.7	8.04	0.63	A	4.4	20.06	0.83	C
Arm 3	18.8	50.64	0.98	F	1.5	6.35	0.60	A
Arm 5	5.1	12.07	0.84	B	12.7	26.40	0.94	D

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

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

File summary

File Description

Title	A27 South Roundabout + Mitigation
Location	Angmering
Site number	
Date	22/05/2018
Version	
Status	
Identifier	
Client	
Jobnumber	
Enumerator	Croft Transport Solutions
Description	

Units

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

Analysis Options

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

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2022 Base Flows	AM	ONE HOUR	08:00	09:30	15
D2	2022 Base Flows	PM	ONE HOUR	17:00	18:30	15
D3	2027 Base Flows	AM	ONE HOUR	08:00	09:30	15
D4	2027 Base Flows	PM	ONE HOUR	17:00	18:30	15
D5	2031 Base Flows	AM	ONE HOUR	08:00	09:30	15
D6	2031 Base Flows	PM	ONE HOUR	17:00	18:30	15
D7	2022 Assessment Flows	AM	ONE HOUR	08:00	09:30	15
D8	2022 Assessment Flows	PM	ONE HOUR	17:00	18:30	15
D9	2027 Assessment Flows	AM	ONE HOUR	08:00	09:30	15
D10	2027 Assessment Flows	PM	ONE HOUR	17:00	18:30	15
D11	2031 Assessment Flows	AM	ONE HOUR	08:00	09:30	15
D12	2031 Assessment Flows	PM	ONE HOUR	17:00	18:30	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

2022 Base Flows, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 1 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 3 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4, 5	8.09	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
1	A27 WB Off-Slip	
2	Titnore Lane	
3	Water Lane	
4	A27 On Slip	
5	A280 North	

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	I' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
1	4.00	6.00	35.0	25.0	60.0	38.0	
2	3.40	7.80	30.0	25.0	60.0	24.0	
3	3.65	7.80	50.0	20.0	60.0	33.0	
4							✓
5	3.70	7.80	22.0	42.0	60.0	10.0	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1	0.551	1693
2	0.617	1997
3	0.620	2078
4		
5	0.648	2080

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	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2022 Base Flows	AM	ONE HOUR	08:00	09:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	372	100.000
2		✓	599	100.000
3		✓	1079	100.000
4				
5		✓	1230	100.000

Origin-Destination Data

Demand (PCU/hr)

		To				
From		1	2	3	4	5
	1	0	30	288	0	54
	2	0	0	115	247	237
	3	0	254	0	79	746
	4	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	5	0	578	372	280	0

Vehicle Mix

Heavy Vehicle Percentages

		To				
From		1	2	3	4	5
	1	0	0	0	0	0
	2	0	0	0	0	0
	3	0	0	0	0	0
	4	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	5	0	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.52	9.39	1.1	A
2	0.50	5.43	1.0	A
3	0.78	10.81	3.5	B
4				
5	0.71	6.61	2.5	A

Main Results for each time segment

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)	Unsignalised level of service
1	280	1113	1080	0.259	279	0.3	4.486	A
2	451	745	1537	0.293	449	0.4	3.304	A
3	812	613	1697	0.479	809	0.9	4.035	A
4		968						
5	926	190	1956	0.473	922	0.9	3.470	A

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)	Unsignalised level of service
1	334	1332	959	0.349	334	0.5	5.746	A
2	538	892	1447	0.372	538	0.6	3.960	A
3	970	734	1623	0.598	968	1.5	5.479	A
4		1158						
5	1106	228	1932	0.572	1104	1.3	4.338	A

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)	Unsignalised level of service
1	410	1628	796	0.514	408	1.0	9.215	A
2	660	1090	1325	0.498	658	1.0	5.386	A
3	1188	898	1521	0.781	1180	3.4	10.337	B
4		1413						
5	1354	278	1900	0.713	1350	2.4	6.495	A

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)	Unsignalised level of service
1	410	1634	793	0.517	410	1.1	9.386	A
2	660	1094	1322	0.499	659	1.0	5.431	A
3	1188	901	1520	0.782	1188	3.5	10.814	B
4		1421						
5	1354	280	1899	0.713	1354	2.5	6.606	A

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)	Unsignalised level of service
1	334	1340	955	0.350	336	0.5	5.845	A
2	538	898	1443	0.373	540	0.6	3.993	A
3	970	738	1620	0.599	978	1.5	5.672	A
4		1169						
5	1106	230	1931	0.573	1110	1.4	4.412	A

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)	Unsignalised level of service
1	280	1120	1076	0.260	281	0.4	4.531	A
2	451	750	1534	0.294	452	0.4	3.326	A
3	812	617	1695	0.479	815	0.9	4.100	A
4		975						
5	926	192	1956	0.474	928	0.9	3.508	A

2022 Base Flows, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 1 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 3 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4, 5	7.71	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D2	2022 Base Flows	PM	ONE HOUR	17:00	18:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	366	100.000
2		✓	637	100.000
3		✓	662	100.000
4				
5		✓	1406	100.000

Origin-Destination Data

Demand (PCU/hr)

		To				
From		1	2	3	4	5
	1	0	29	304	6	27
	2	0	0	187	183	267
	3	0	149	0	50	463
	4	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	5	0	501	594	311	0

Vehicle Mix

Heavy Vehicle Percentages

		To				
From		1	2	3	4	5
	1	0	0	0	0	0
	2	0	0	0	0	0
	3	0	0	0	0	0
	4	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	5	0	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.54	10.37	1.1	E
2	0.61	7.95	1.5	A
3	0.47	4.46	0.9	A
4				
5	0.78	8.44	3.6	A

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	276	1166	1051	0.262	274	0.4	4.627	A
2	480	931	1423	0.337	478	0.5	3.800	A
3	498	595	1709	0.292	497	0.4	2.966	A
4		680						
5	1059	112	2007	0.527	1054	1.1	3.760	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	329	1395	924	0.356	328	0.5	6.033	A
2	573	1114	1310	0.437	572	0.8	4.869	A
3	595	712	1636	0.364	594	0.6	3.454	A
4		813						
5	1264	134	1993	0.634	1262	1.7	4.904	A

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)	Unsignalised level of service
1	403	1705	754	0.535	401	1.1	10.130	B
2	701	1361	1158	0.606	698	1.5	7.784	A
3	729	870	1538	0.474	728	0.9	4.433	A
4		995						
5	1548	164	1974	0.784	1541	3.5	8.184	A

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)	Unsignalised level of service
1	403	1712	750	0.537	403	1.1	10.371	B
2	701	1367	1154	0.608	701	1.5	7.951	A
3	729	874	1536	0.475	729	0.9	4.460	A
4		997						
5	1548	164	1973	0.784	1548	3.6	8.441	A

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)	Unsignalised level of service
1	329	1405	919	0.358	331	0.6	6.154	A
2	573	1123	1304	0.439	576	0.8	4.959	A
3	595	718	1633	0.364	596	0.6	3.479	A
4		817						
5	1264	134	1993	0.634	1271	1.8	5.036	A

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)	Unsignalised level of service
1	276	1173	1047	0.263	276	0.4	4.680	A
2	480	937	1419	0.338	481	0.5	3.841	A
3	498	599	1706	0.292	499	0.4	2.982	A
4		683						
5	1059	112	2007	0.527	1061	1.1	3.817	A

2027 Base Flows, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 1 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 3 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4, 5	10.05	B

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D3	2027 Base Flows	AM	ONE HOUR	08:00	09:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	391	100.000
2		✓	631	100.000
3		✓	1129	100.000
4				
5		✓	1294	100.000

Origin-Destination Data

Demand (PCU/hr)

	To					
From		1	2	3	4	5
	1	0	32	301	0	58
	2	0	0	120	261	250
	3	0	266	0	82	781
	4	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	5	0	610	389	295	0

Vehicle Mix

Heavy Vehicle Percentages

		To				
From		1	2	3	4	5
	1	0	0	0	0	0
	2	0	0	0	0	0
	3	0	0	0	0	0
	4	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	5	0	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.58	11.37	1.3	E
2	0.54	6.06	1.2	A
3	0.84	14.51	4.8	B
4				
5	0.75	7.72	3.0	A

Main Results for each time segment

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)	Unsignalised level of service
1	294	1170	1049	0.281	293	0.4	4.753	A
2	475	782	1515	0.314	473	0.5	3.450	A
3	850	648	1676	0.507	846	1.0	4.316	A
4		1015						
5	974	199	1951	0.499	970	1.0	3.657	A

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)	Unsignalised level of service
1	352	1400	922	0.381	351	0.6	6.282	A
2	567	936	1420	0.399	566	0.7	4.215	A
3	1015	775	1597	0.636	1012	1.7	6.125	A
4		1215						
5	1163	238	1925	0.604	1161	1.5	4.700	A

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)	Unsignalised level of service
1	430	1709	751	0.573	428	1.3	11.032	B
2	695	1143	1292	0.538	693	1.1	5.986	A
3	1243	948	1490	0.834	1231	4.6	13.353	E
4		1480						
5	1425	290	1892	0.753	1419	3.0	7.521	A

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)	Unsignalised level of service
1	430	1717	747	0.576	430	1.3	11.365	B
2	695	1148	1289	0.539	695	1.2	6.057	A
3	1243	951	1488	0.835	1242	4.8	14.508	B
4		1491						
5	1425	293	1890	0.754	1425	3.0	7.722	A

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)	Unsignalised level of service
1	352	1411	916	0.384	354	0.6	6.448	A
2	567	943	1415	0.401	569	0.7	4.265	A
3	1015	780	1594	0.637	1027	1.8	6.479	A
4		1231						
5	1163	242	1923	0.605	1169	1.6	4.812	A

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)	Unsignalised level of service
1	294	1177	1044	0.282	295	0.4	4.813	A
2	475	787	1511	0.314	476	0.5	3.481	A
3	850	652	1674	0.508	853	1.0	4.403	A
4		1023						
5	974	201	1950	0.500	976	1.0	3.709	A

2027 Base Flows, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 1 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 3 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4, 5	9.44	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D4	2027 Base Flows	PM	ONE HOUR	17:00	18:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	384	100.000
2		✓	671	100.000
3		✓	690	100.000
4				
5		✓	1482	100.000

Origin-Destination Data

Demand (PCU/hr)

		To				
From		1	2	3	4	5
	1	0	30	319	7	28
	2	0	0	195	194	282
	3	0	154	0	51	485
	4	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	5	0	530	623	329	0

Vehicle Mix

Heavy Vehicle Percentages

	To				
	1	2	3	4	5
From	1	0	0	0	0
	2	0	0	0	0
	3	0	0	0	0
	4	Exit-only	Exit-only	Exit-only	Exit-only
	5	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.60	12.92	1.5	E
2	0.67	9.66	1.9	A
3	0.50	4.83	1.0	A
4				
5	0.83	10.58	4.7	B

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	289	1226	1017	0.284	288	0.4	4.923	A
2	505	979	1394	0.363	503	0.6	4.033	A
3	519	630	1687	0.308	518	0.4	3.074	A
4		712						
5	1116	116	2005	0.557	1111	1.2	4.001	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	345	1468	884	0.390	344	0.6	6.652	A
2	603	1171	1275	0.473	602	0.9	5.341	A
3	620	753	1611	0.385	620	0.6	3.631	A
4		852						
5	1332	138	1990	0.669	1329	2.0	5.422	A

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)	Unsignalised level of service
1	423	1791	706	0.599	420	1.4	12.417	B
2	739	1428	1116	0.662	735	1.9	9.338	A
3	760	919	1508	0.504	758	1.0	4.792	A
4		1042						
5	1632	169	1970	0.828	1622	4.5	10.042	B

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)	Unsignalised level of service
1	423	1801	701	0.603	423	1.5	12.923	E
2	739	1437	1111	0.665	739	1.9	9.665	A
3	760	925	1505	0.505	760	1.0	4.832	A
4		1045						
5	1632	170	1970	0.828	1631	4.7	10.581	B

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)	Unsignalised level of service
1	345	1481	877	0.394	349	0.7	6.856	A
2	603	1184	1267	0.476	607	0.9	5.492	A
3	620	761	1606	0.386	622	0.6	3.664	A
4		857						
5	1332	139	1990	0.670	1343	2.1	5.649	A

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)	Unsignalised level of service
1	289	1235	1013	0.286	290	0.4	4.991	A
2	505	986	1389	0.364	507	0.6	4.087	A
3	519	634	1685	0.308	520	0.4	3.095	A
4		716						
5	1116	116	2005	0.557	1119	1.3	4.079	A

2031 Base Flows, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 1 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 3 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4, 5	20.77	D

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D5	2031 Base Flows	AM	ONE HOUR	08:00	09:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	429	100.000
2		✓	697	100.000
3		✓	1230	100.000
4				
5		✓	1432	100.000

Origin-Destination Data

Demand (PCU/hr)

		To				
From		1	2	3	4	5
	1	0	35	330	0	64
	2	0	0	130	289	278
	3	0	289	0	87	854
	4	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	5	0	677	427	328	0

Vehicle Mix

Heavy Vehicle Percentages

		To				
From		1	2	3	4	5
	1	0	0	0	0	0
	2	0	0	0	0	0
	3	0	0	0	0	0
	4	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	5	0	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.73	19.97	2.5	C
2	0.63	7.99	1.7	A
3	0.95	38.58	13.7	B
4				
5	0.84	11.94	5.1	B

Main Results for each time segment

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)	Unsignalised level of service
1	323	1289	983	0.329	321	0.5	5.427	A
2	525	861	1466	0.358	523	0.6	3.807	A
3	926	719	1632	0.567	921	1.3	5.025	A
4		1112						
5	1078	216	1940	0.556	1073	1.2	4.132	A

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)	Unsignalised level of service
1	386	1543	843	0.458	384	0.8	7.827	A
2	627	1030	1362	0.460	625	0.8	4.880	A
3	1106	860	1545	0.716	1101	2.4	8.036	A
4		1330						
5	1287	259	1912	0.673	1284	2.0	5.704	A

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)	Unsignalised level of service
1	472	1875	660	0.716	466	2.4	18.070	C
2	767	1254	1224	0.627	764	1.6	7.776	A
3	1354	1050	1427	0.943	1319	11.2	27.313	C
4		1600						
5	1577	310	1879	0.839	1565	4.8	11.094	B

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)	Unsignalised level of service
1	472	1892	651	0.726	472	2.5	19.966	C
2	767	1264	1218	0.630	767	1.7	7.989	A
3	1354	1055	1424	0.351	1345	13.7	38.878	E
4		1626						
5	1577	316	1875	0.841	1576	5.1	11.944	B

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)	Unsignalised level of service
1	386	1569	828	0.466	392	0.9	8.374	A
2	627	1045	1352	0.463	630	0.9	5.003	A
3	1106	868	1539	0.718	1150	2.6	10.240	B
4		1378						
5	1287	270	1905	0.676	1299	2.1	6.056	A

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)	Unsignalised level of service
1	323	1300	977	0.331	325	0.5	5.535	A
2	525	868	1462	0.359	526	0.6	3.852	A
3	926	724	1629	0.568	931	1.3	5.198	A
4		1124						
5	1078	219	1938	0.556	1082	1.3	4.221	A

2031 Base Flows, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 1 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 3 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4, 5	20.45	D

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D6	2031 Base Flows	PM	ONE HOUR	17:00	18:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	428	100.000
2		✓	754	100.000
3		✓	764	100.000
4				
5		✓	1663	100.000

Origin-Destination Data

Demand (PCU/hr)

		To				
From		1	2	3	4	5
	1	0	34	354	8	32
	2	0	0	216	219	319
	3	0	169	0	56	539
	4	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	5	0	599	692	372	0

Vehicle Mix

Heavy Vehicle Percentages

		To				
From		1	2	3	4	5
	1	0	0	0	0	0
	2	0	0	0	0	0
	3	0	0	0	0	0
	4	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	5	0	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.81	30.36	3.8	C
2	0.82	19.48	4.3	C
3	0.59	6.10	1.4	A
4				
5	0.83	24.94	11.9	C

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	322	1372	937	0.344	320	0.5	5.815	A
2	568	1092	1324	0.429	565	0.7	4.724	A
3	575	711	1637	0.351	573	0.5	3.377	A
4		794						
5	1252	127	1998	0.627	1245	1.7	4.744	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	385	1641	789	0.488	383	0.9	8.840	A
2	678	1306	1192	0.569	676	1.3	6.946	A
3	687	851	1550	0.443	686	0.8	4.162	A
4		950						
5	1495	152	1981	0.754	1490	3.0	7.242	A

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)	Unsignalised level of service
1	471	1986	599	0.787	462	3.3	24.847	C
2	830	1577	1024	0.810	820	3.9	16.811	C
3	841	1031	1439	0.585	839	1.4	5.976	A
4		1159						
5	1831	186	1960	0.334	1801	10.6	19.716	C

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)	Unsignalised level of service
1	471	2012	585	0.806	469	3.8	30.363	C
2	830	1600	1010	0.822	829	4.3	19.479	C
3	841	1043	1431	0.588	841	1.4	6.100	A
4		1165						
5	1831	186	1959	0.935	1826	11.9	24.942	C

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)	Unsignalised level of service
1	385	1682	766	0.502	396	1.0	9.994	A
2	678	1343	1169	0.580	689	1.4	7.683	A
3	687	871	1538	0.447	689	0.8	4.253	A
4		960						
5	1495	152	1981	0.755	1530	3.2	8.562	A

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)	Unsignalised level of service
1	322	1385	930	0.347	324	0.5	5.963	A
2	568	1103	1317	0.431	570	0.8	4.838	A
3	575	719	1632	0.352	576	0.5	3.414	A
4		799						
5	1252	127	1997	0.627	1258	1.7	4.907	A

2022 Assessment Flows, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 1 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 3 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4, 5	8.54	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D7	2022 Assessment Flows	AM	ONE HOUR	08:00	09:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	362	100.000
2		✓	599	100.000
3		✓	1109	100.000
4				
5		✓	1234	100.000

Origin-Destination Data

Demand (PCU/hr)

		To				
From		1	2	3	4	5
	1	0	20	288	0	54
	2	0	0	115	247	237
	3	0	254	0	79	776
	4	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	5	0	578	372	284	0

Vehicle Mix

Heavy Vehicle Percentages

		To				
From		1	2	3	4	5
	1	0	0	0	0	0
	2	0	0	0	0	0
	3	0	0	0	0	0
	4	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	5	0	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.50	9.18	1.0	A
2	0.50	5.45	1.0	A
3	0.81	12.09	4.0	B
4				
5	0.72	6.66	2.5	A

Main Results for each time segment

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)	Unsignalised level of service
1	273	1116	1078	0.253	271	0.3	4.453	A
2	451	748	1536	0.294	449	0.4	3.310	A
3	835	616	1696	0.492	831	1.0	4.146	A
4		990						
5	929	190	1956	0.475	925	0.9	3.481	A

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)	Unsignalised level of service
1	325	1335	957	0.340	325	0.5	5.685	A
2	538	896	1445	0.373	538	0.6	3.963	A
3	997	738	1620	0.615	995	1.6	5.729	A
4		1185						
5	1109	228	1932	0.574	1108	1.3	4.357	A

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)	Unsignalised level of service
1	399	1632	794	0.502	397	1.0	9.018	A
2	660	1095	1322	0.499	658	1.0	5.408	A
3	1221	902	1518	0.804	1212	3.9	11.419	E
4		1445						
5	1359	278	1900	0.715	1354	2.4	6.543	A

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)	Unsignalised level of service
1	399	1638	790	0.504	399	1.0	9.182	A
2	660	1099	1319	0.500	659	1.0	5.454	A
3	1221	905	1517	0.805	1221	4.0	12.095	E
4		1454						
5	1359	280	1899	0.716	1359	2.5	6.660	A

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)	Unsignalised level of service
1	325	1344	952	0.342	327	0.5	5.779	A
2	538	901	1441	0.374	540	0.6	4.001	A
3	997	742	1618	0.616	1006	1.6	5.972	A
4		1197						
5	1109	231	1930	0.575	1114	1.4	4.431	A

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)	Unsignalised level of service
1	273	1123	1075	0.254	273	0.3	4.496	A
2	451	753	1533	0.294	452	0.4	3.334	A
3	835	620	1693	0.493	838	1.0	4.220	A
4		997						
5	929	192	1956	0.475	931	0.9	3.521	A

2022 Assessment Flows, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 1 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 3 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4, 5	7.87	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D8	2022 Assessment Flows	PM	ONE HOUR	17:00	18:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	366	100.000
2		✓	637	100.000
3		✓	679	100.000
4				
5		✓	1416	100.000

Origin-Destination Data

Demand (PCU/hr)

		To				
From		1	2	3	4	5
	1	0	29	304	6	27
	2	0	0	187	183	267
	3	0	149	0	50	480
	4	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	5	0	501	594	321	0

Vehicle Mix

Heavy Vehicle Percentages

	To					
From		1	2	3	4	5
	1	0	0	0	0	0
	2	0	0	0	0	0
	3	0	0	0	0	0
	4	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	5	0	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.54	10.55	1.2	E
2	0.61	8.07	1.6	A
3	0.49	4.61	1.0	A
4				
5	0.79	8.66	3.7	A

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	276	1173	1047	0.263	274	0.4	4.652	A
2	480	938	1418	0.338	478	0.5	3.818	A
3	511	603	1704	0.300	509	0.4	3.010	A
4		692						
5	1066	112	2007	0.531	1062	1.1	3.795	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	329	1404	919	0.358	328	0.6	6.083	A
2	573	1123	1304	0.439	572	0.8	4.906	A
3	610	721	1631	0.374	610	0.6	3.525	A
4		829						
5	1273	134	1993	0.639	1270	1.7	4.965	A

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)	Unsignalised level of service
1	403	1715	748	0.539	401	1.1	10.299	B
2	701	1371	1151	0.609	698	1.5	7.896	A
3	748	881	1532	0.488	746	0.9	4.575	A
4		1014						
5	1559	164	1974	0.790	1552	3.6	8.383	A

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)	Unsignalised level of service
1	403	1723	744	0.542	403	1.2	10.555	E
2	701	1378	1147	0.611	701	1.6	8.068	A
3	748	885	1529	0.489	748	1.0	4.605	A
4		1016						
5	1559	164	1973	0.790	1559	3.7	8.662	A

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)	Unsignalised level of service
1	329	1415	914	0.360	331	0.6	6.208	A
2	573	1133	1299	0.441	576	0.8	5.001	A
3	610	727	1627	0.375	612	0.6	3.549	A
4		832						
5	1273	134	1993	0.639	1280	1.8	5.105	A

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)	Unsignalised level of service
1	276	1181	1042	0.264	276	0.4	4.704	A
2	480	945	1414	0.339	481	0.5	3.862	A
3	511	607	1702	0.300	512	0.4	3.026	A
4		696						
5	1066	112	2007	0.531	1069	1.1	3.846	A

2027 Assessment Flows, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 1 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 3 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4, 5	10.91	B

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D9	2027 Assessment Flows	AM	ONE HOUR	08:00	09:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	391	100.000
2		✓	631	100.000
3		✓	1159	100.000
4				
5		✓	1298	100.000

Origin-Destination Data

Demand (PCU/hr)

		To				
From		1	2	3	4	5
	1	0	32	301	0	58
	2	0	0	120	261	250
	3	0	266	0	82	811
	4	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	5	0	610	389	299	0

Vehicle Mix

Heavy Vehicle Percentages

		To				
From		1	2	3	4	5
	1	0	0	0	0	0
	2	0	0	0	0	0
	3	0	0	0	0	0
	4	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	5	0	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.58	11.45	1.3	B
2	0.54	6.08	1.2	A
3	0.86	16.84	5.7	C
4				
5	0.76	7.79	3.0	A

Main Results for each time segment

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)	Unsignalised level of service
1	294	1172	1047	0.281	293	0.4	4.763	A
2	475	785	1513	0.314	473	0.5	3.456	A
3	873	651	1674	0.521	868	1.1	4.444	A
4		1038						
5	977	199	1951	0.501	973	1.0	3.668	A

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)	Unsignalised level of service
1	352	1403	920	0.382	351	0.6	6.313	A
2	567	939	1418	0.400	566	0.7	4.224	A
3	1042	779	1595	0.653	1039	1.8	6.438	A
4		1242						
5	1167	238	1925	0.606	1165	1.5	4.720	A

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)	Unsignalised level of service
1	430	1713	749	0.575	428	1.3	11.100	B
2	695	1147	1290	0.539	693	1.2	6.012	A
3	1276	952	1487	0.858	1262	5.4	15.096	C
4		1511						
5	1429	290	1892	0.755	1423	3.0	7.583	A

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)	Unsignalised level of service
1	430	1721	744	0.578	430	1.3	11.449	B
2	695	1153	1286	0.540	695	1.2	6.085	A
3	1276	956	1485	0.653	1275	5.7	16.843	C
4		1524						
5	1429	293	1890	0.756	1429	3.0	7.793	A

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)	Unsignalised level of service
1	352	1415	913	0.385	354	0.6	6.473	A
2	567	947	1413	0.401	569	0.7	4.275	A
3	1042	784	1592	0.654	1057	1.9	6.914	A
4		1260						
5	1167	243	1923	0.607	1173	1.6	4.839	A

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)	Unsignalised level of service
1	294	1180	1043	0.282	295	0.4	4.822	A
2	475	790	1510	0.315	476	0.5	3.487	A
3	873	655	1672	0.522	876	1.1	4.542	A
4		1046						
5	977	201	1950	0.501	979	1.0	3.721	A

2027 Assessment Flows, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 1 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 3 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4, 5	9.66	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D10	2027 Assessment Flows	PM	ONE HOUR	17:00	18:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	384	100.000
2		✓	671	100.000
3		✓	707	100.000
4				
5		✓	1491	100.000

Origin-Destination Data

Demand (PCU/hr)

		To				
From		1	2	3	4	5
	1	0	30	319	7	28
	2	0	0	195	194	282
	3	0	154	0	51	502
	4	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	5	0	530	623	338	0

Vehicle Mix

Heavy Vehicle Percentages

		To				
From		1	2	3	4	5
	1	0	0	0	0	0
	2	0	0	0	0	0
	3	0	0	0	0	0
	4	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	5	0	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.61	13.18	1.5	E
2	0.67	9.82	2.0	A
3	0.52	5.00	1.1	A
4				
5	0.83	10.89	4.8	B

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	289	1233	1014	0.285	288	0.4	4.946	A
2	505	985	1389	0.364	503	0.6	4.052	A
3	532	636	1683	0.316	530	0.5	3.117	A
4		724						
5	1123	116	2005	0.560	1117	1.3	4.034	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	345	1476	880	0.392	344	0.6	6.707	A
2	603	1179	1270	0.475	602	0.9	5.379	A
3	636	762	1606	0.396	635	0.7	3.704	A
4		867						
5	1340	138	1990	0.673	1337	2.0	5.487	A

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)	Unsignalised level of service
1	423	1800	701	0.603	419	1.5	12.637	B
2	739	1438	1110	0.665	735	1.9	9.480	A
3	778	929	1502	0.518	777	1.1	4.954	A
4		1060						
5	1642	169	1970	0.833	1631	4.7	10.302	B

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)	Unsignalised level of service
1	423	1811	695	0.608	423	1.5	13.178	B
2	739	1447	1105	0.669	739	2.0	9.824	A
3	778	934	1499	0.519	778	1.1	4.998	A
4		1063						
5	1642	170	1970	0.833	1641	4.8	10.891	B

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)	Unsignalised level of service
1	345	1490	872	0.396	349	0.7	6.923	A
2	603	1192	1262	0.478	607	0.9	5.538	A
3	636	769	1601	0.397	637	0.7	3.743	A
4		872						
5	1340	139	1990	0.674	1351	2.1	5.732	A

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)	Unsignalised level of service
1	289	1242	1009	0.287	290	0.4	5.015	A
2	505	993	1385	0.365	507	0.6	4.106	A
3	532	641	1680	0.317	533	0.5	3.141	A
4		729						
5	1123	116	2005	0.560	1126	1.3	4.111	A

2031 Assessment Flows, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 1 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 3 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4, 5	24.95	D

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D11	2031 Assessment Flows	AM	ONE HOUR	08:00	09:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	429	100.000
2		✓	697	100.000
3		✓	1260	100.000
4				
5		✓	1436	100.000

Origin-Destination Data

Demand (PCU/hr)

		To				
From		1	2	3	4	5
	1	0	35	330	0	64
	2	0	0	130	289	278
	3	0	289	0	87	884
	4	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	5	0	677	427	332	0

Vehicle Mix

Heavy Vehicle Percentages

		To				
From		1	2	3	4	5
	1	0	0	0	0	0
	2	0	0	0	0	0
	3	0	0	0	0	0
	4	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	5	0	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.73	20.11	2.5	C
2	0.63	8.04	1.7	A
3	0.98	50.84	18.8	F
4				
5	0.84	12.07	5.1	B

Main Results for each time segment

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)	Unsignalised level of service
1	323	1292	981	0.329	321	0.5	5.440	A
2	525	864	1464	0.358	523	0.6	3.815	A
3	949	722	1630	0.582	943	1.4	5.197	A
4		1134						
5	1081	216	1940	0.557	1076	1.2	4.145	A

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)	Unsignalised level of service
1	386	1546	841	0.459	384	0.8	7.858	A
2	627	1034	1360	0.461	625	0.8	4.895	A
3	1133	864	1542	0.734	1128	2.7	8.572	A
4		1356						
5	1291	259	1912	0.675	1288	2.0	5.734	A

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)	Unsignalised level of service
1	472	1877	659	0.717	466	2.4	18.158	C
2	767	1258	1221	0.628	764	1.7	7.819	A
3	1387	1054	1424	0.974	1341	14.4	32.530	C
4		1622						
5	1581	307	1881	0.841	1570	4.9	11.182	B

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)	Unsignalised level of service
1	472	1894	649	0.728	472	2.5	20.113	C
2	767	1268	1215	0.632	767	1.7	8.037	A
3	1387	1060	1421	0.375	1369	18.8	50.635	F
4		1651						
5	1581	314	1876	0.843	1580	5.1	12.066	B

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)	Unsignalised level of service
1	386	1577	824	0.468	392	0.9	8.462	A
2	627	1049	1350	0.464	630	0.9	5.019	A
3	1133	872	1537	0.737	1196	2.9	12.477	B
4		1423						
5	1291	274	1902	0.679	1303	2.2	6.124	A

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)	Unsignalised level of service
1	323	1304	975	0.331	325	0.5	5.551	A
2	525	871	1460	0.360	526	0.6	3.862	A
3	949	727	1627	0.583	955	1.4	5.399	A
4		1147						
5	1081	219	1938	0.558	1085	1.3	4.237	A

2031 Assessment Flows, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 1 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 3 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4, 5	21.39	D

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D12	2031 Assessment Flows	PM	ONE HOUR	17:00	18:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	428	100.000
2		✓	754	100.000
3		✓	780	100.000
4				
5		✓	1672	100.000

Origin-Destination Data

Demand (PCU/hr)

		To				
From		1	2	3	4	5
	1	0	34	354	8	32
	2	0	0	216	219	319
	3	0	169	0	56	555
	4	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	5	0	599	692	381	0

Vehicle Mix

Heavy Vehicle Percentages

		To				
From		1	2	3	4	5
	1	0	0	0	0	0
	2	0	0	0	0	0
	3	0	0	0	0	0
	4	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	5	0	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.81	31.57	3.9	D
2	0.83	20.06	4.4	C
3	0.60	6.35	1.5	A
4				
5	0.94	26.40	12.7	D

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	322	1379	933	0.345	320	0.5	5.850	A
2	568	1098	1320	0.430	565	0.7	4.745	A
3	587	718	1633	0.360	585	0.6	3.429	A
4		806						
5	1259	127	1998	0.630	1252	1.7	4.786	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	385	1649	784	0.491	383	0.9	8.935	A
2	678	1314	1187	0.571	676	1.3	7.010	A
3	701	859	1545	0.454	700	0.8	4.255	A
4		964						
5	1503	152	1981	0.759	1498	3.0	7.356	A

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)	Unsignalised level of service
1	471	1994	594	0.793	462	3.4	25.516	D
2	830	1586	1019	0.814	819	4.0	17.178	C
3	859	1040	1433	0.599	856	1.5	6.213	A
4		1176						
5	1841	186	1960	0.939	1809	11.1	20.499	D

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)	Unsignalised level of service
1	471	2021	580	0.813	469	3.9	31.572	C
2	830	1609	1005	0.826	828	4.4	20.058	C
3	859	1053	1425	0.603	859	1.5	6.354	A
4		1183						
5	1841	186	1959	0.940	1835	12.7	26.403	D

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)	Unsignalised level of service
1	385	1693	760	0.506	396	1.0	10.188	E
2	678	1353	1162	0.583	690	1.4	7.802	A
3	701	880	1532	0.458	704	0.9	4.361	A
4		975						
5	1503	152	1981	0.759	1541	3.3	8.836	A

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)	Unsignalised level of service
1	322	1392	926	0.348	324	0.5	6.005	A
2	568	1110	1312	0.433	570	0.8	4.869	A
3	587	725	1628	0.361	588	0.6	3.468	A
4		812						
5	1259	127	1997	0.630	1265	1.7	4.957	A

APPENDIX 4

ARCADY Output for A27/A280/Long Furlong and Layout Plan (Arun Transport Study Phase 3)

14. A27 / A280 Patching Northern Roundabout

Existing design (Drawing No: ITB9105-GA-028 Rev. -)

Key features of the mitigation are:

- Widening of the A280(SB)

Table 20 shows the ratio of flow to capacity (RFC) and average delay (in seconds) results by approach arm for the Reference Case, Final Scenario, Final Scenario with mitigation and Arundel Bypass and Ford Railway Bridge Sensitivity Test for the AM and PM peaks (as also shown in Appendix E).

The 'severe' impact on the A280(SB) in the PM Peak is removed by the mitigation for the 'with mitigation' scenario.

In the 'Arundel Bypass' sensitivity scenario the 'severe' impact returns as a marginal delay impact due to the Arundel Bypass attracting traffic to the A27.

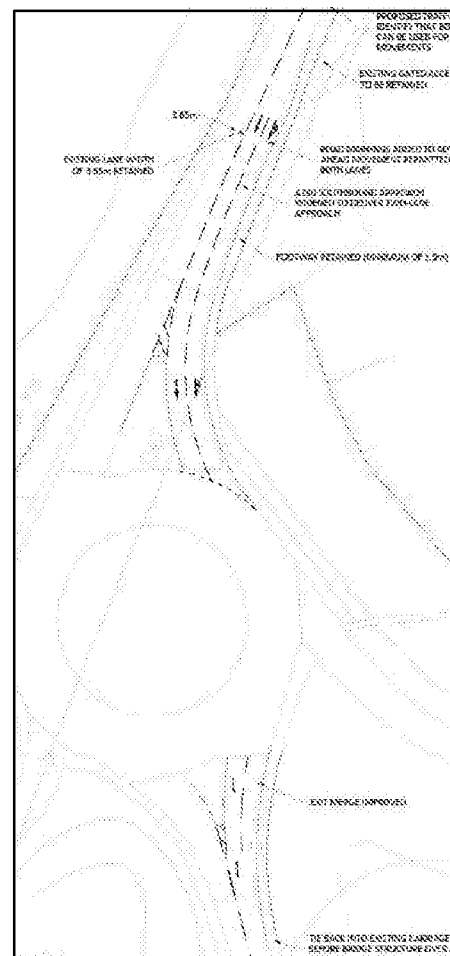
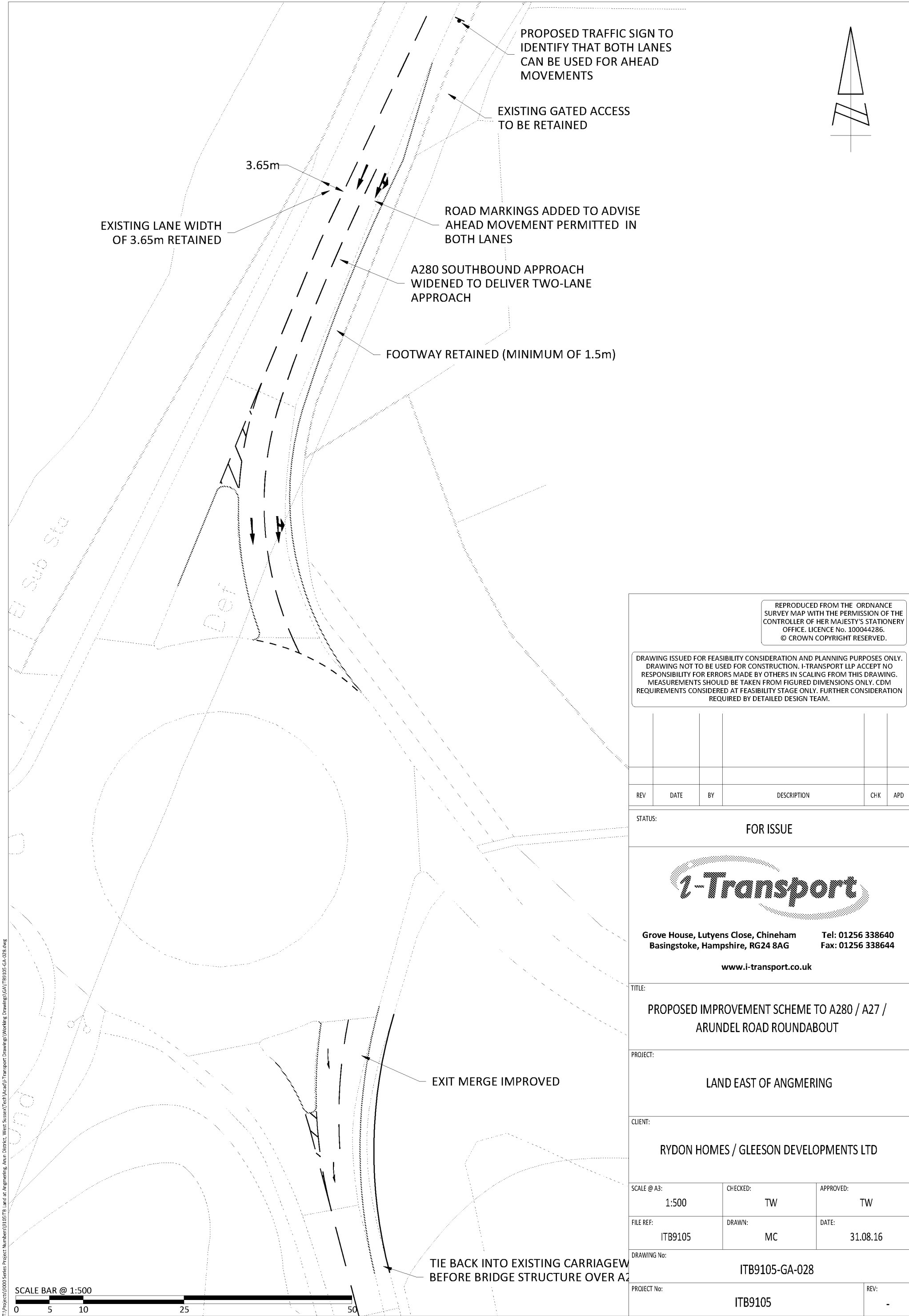


Table 20. A27 / A280 Patching Northern Roundabout

Approach Arm	Ref EBR		2031 Final Scenario		With Mitigation		Arundel Bypass	
	RFC (%)	Delay (s)	RFC (%)	Delay (s)	RFC (%)	Delay (s)	RFC (%)	Delay (s)
AM Peak								
A280 (SB)	76	18	85	22	65	17	76	21
A280 (NB)	66	3	66	3	63	3	59	3
A27 (EB)	61	8	71	9	70	9	80	10
PM Peak								
A280 (SB)	109	222	116	344	100	56	113	292
A280 (NB)	47	3	50	3	51	3	50	3
A27 (EB)	50	5	60	6	61	6	76	8

Notes: an increase in RFC of **5%** or more to an RFC of **85%** or more is highlighted in orange
an increase in RFC of **10%** or more to an RFC of **95%** or more is highlighted red
an increase in average delay of **one minute** or more to an average delay of **two minutes** or more is highlighted red





Junctions 9
ARCADY 9 - Roundabout Module
Version: 9.0.0.4211 [] © Copyright TBL Limited, 2018
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: A27 North Roundabout + IMPS.j9

Path: \\CADWORKSTATION\Shared Storage\projects\2020 Arundel Road, Angmering\Arcady\HE

Report generation date: 06/07/2018 17:11:15

»2022 Base Flows, AM
»2022 Base Flows, PM
»2027 Base Flows, AM
»2027 Base Flows, PM
»2031 Base Flows, AM
»2031 Base Flows, PM
»2022 Assessment Flows, AM
»2022 Assessment Flows, PM
»2027 Assessment Flows, AM
»2027 Assessment Flows, PM
»2031 Assessment Flows, AM
»2031 Assessment Flows, PM

Summary of junction performance

	AM				PM			
	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS
2022 Base Flows								
Arm 1	1.0	4.03	0.50	A	1.7	4.76	0.62	A
Arm 3	1.5	4.64	0.60	A	0.8	3.33	0.44	A
Arm 4	2.9	13.57	0.75	B	0.6	4.86	0.39	A
Arm 5	0.1	9.09	0.12	A	0.1	5.17	0.08	A
2027 Base Flows								
Arm 1	1.2	4.43	0.54	A	2.0	5.37	0.66	A
Arm 3	1.7	5.00	0.63	A	0.8	3.47	0.46	A
Arm 4	4.1	18.52	0.81	C	0.7	5.20	0.42	A
Arm 5	0.2	10.46	0.15	B	0.1	5.45	0.09	A
2031 Base Flows								
Arm 1	1.6	5.52	0.62	A	3.2	7.79	0.76	A
Arm 3	2.2	5.99	0.69	A	1.1	3.86	0.51	A
Arm 4	13.7	54.22	0.96	F	1.0	6.26	0.49	A
Arm 5	0.3	14.96	0.22	B	0.1	6.27	0.11	A
2022 Assessment Flows								
Arm 1	1.0	4.15	0.51	A	1.7	4.88	0.63	A
Arm 3	1.6	4.84	0.61	A	0.8	3.39	0.45	A
Arm 4	3.2	14.78	0.77	B	0.7	5.00	0.40	A
Arm 5	0.1	9.53	0.13	A	0.1	5.28	0.08	A
2027 Assessment Flows								
Arm 1	1.2	4.58	0.55	A	2.0	5.53	0.67	A
Arm 3	1.8	5.25	0.64	A	0.9	3.53	0.47	A
Arm 4	4.6	20.85	0.83	C	0.8	5.35	0.43	A
Arm 5	0.1	10.70	0.13	B	0.1	5.56	0.09	A
2031 Assessment Flows								
Arm 1	1.7	5.72	0.63	A	3.3	8.14	0.77	A
Arm 3	2.4	6.34	0.70	A	1.1	3.94	0.52	A
Arm 4	17.5	69.78	0.98	F	1.0	6.49	0.51	A
Arm 5	0.3	15.96	0.23	C	0.1	6.43	0.11	A

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

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

File summary

File Description

Title	A27 North Roundabout + Mitigation
Location	Angmering
Site number	
Date	22/05/2018
Version	
Status	
Identifier	
Client	
Jobnumber	
Enumerator	Croft Transport Solutions
Description	

Units

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

Analysis Options

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

Demand Set Summary

Scenario name	Time Period name	Traffic profile type	Model start time (HH:mm)	Model finish time (HH:mm)	Time segment length (min)
2022 Base Flows	AM	ONE HOUR	08:00	09:30	15
2022 Base Flows	PM	ONE HOUR	17:00	18:30	15
2027 Base Flows	AM	ONE HOUR	08:00	09:30	15
2027 Base Flows	PM	ONE HOUR	17:00	18:30	15
2031 Base Flows	AM	ONE HOUR	08:00	09:30	15
2031 Base Flows	PM	ONE HOUR	17:00	18:30	15
2022 Assessment Flows	AM	ONE HOUR	08:00	09:30	15
2022 Assessment Flows	PM	ONE HOUR	17:00	18:30	15
2027 Assessment Flows	AM	ONE HOUR	08:00	09:30	15
2027 Assessment Flows	PM	ONE HOUR	17:00	18:30	15
2031 Assessment Flows	AM	ONE HOUR	08:00	09:30	15
2031 Assessment Flows	PM	ONE HOUR	17:00	18:30	15

2022 Base Flows, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 1 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

Junction Network

Junctions

Junction	Name	Junction Type	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout	6.97	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
1	A280 Long Furlong	
2	A27 On Slip	
3	A280 South	
4	A27 Off-Slip	
5	Arundel Road	

Capacity Options

Arm	Minimum capacity (PCU/hr)	Maximum capacity (PCU/hr)
1	0.00	99999.00
2	0.00	99999.00
3	0.00	99999.00
4	0.00	99999.00
5	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
1	3.65	8.40	62.0	45.0	60.0	20.0	
2							✓
3	3.65	8.10	14.0	37.0	60.0	12.0	
4	3.65	6.60	30.0	15.0	60.0	44.0	
5	3.65	6.30	6.5	25.0	60.0	45.0	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1	0.695	2401.756
2		
3	0.618	1925.091
4	0.535	1669.990
5	0.493	1392.884

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	2022 Base Flows	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 (%)
1		✓	822.00	100.000
2				
3		✓	1041.00	100.000
4		✓	718.00	100.000
5		✓	51.00	100.000

Origin-Destination Data

Demand (PCU/hr)

	To					
From		1	2	3	4	5
	1	0.000	19.000	799.000	0.000	4.000
	2	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	3	756.000	260.000	0.000	0.000	25.000
	4	221.000	36.000	461.000	0.000	0.000
	5	19.000	6.000	26.000	0.000	0.000

Vehicle Mix

Heavy Vehicle proportion

		To				
From		1	2	3	4	5
	1	0	0	0	0	0
	2	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	3	0	0	0	0	0
	4	0	0	0	0	0
	5	0	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
1	0.50	4.03	1.0	A
2				
3	0.60	4.64	1.5	A
4	0.75	13.57	2.9	B
5	0.12	9.09	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
1	618.84	591.10	1991.01	0.311	617.05	0.4	2.616	A
2		967.38						
3	783.72	3.00	1923.23	0.408	780.98	0.7	3.143	A
4	540.55	783.99	1250.70	0.432	537.53	0.8	5.027	A
5	38.40	1299.76	752.43	0.051	38.18	0.1	5.039	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
1	738.96	707.70	1909.98	0.387	738.25	0.6	3.071	A
2		1157.75						
3	935.84	3.59	1922.87	0.487	934.81	0.9	3.640	A
4	645.47	938.40	1168.11	0.553	643.62	1.2	6.838	A
5	45.85	1555.98	626.17	0.073	45.75	0.1	6.202	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
1	905.04	863.59	1801.66	0.502	903.55	1.0	4.002	A
2		1414.61						
3	1146.16	4.40	1922.37	0.596	1144.09	1.5	4.613	A
4	790.53	1148.49	1055.76	0.749	784.11	2.8	12.954	B
5	56.15	1900.72	456.30	0.123	55.91	0.1	8.985	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
1	905.04	868.46	1798.27	0.503	905.01	1.0	4.030	A
2		1420.07						
3	1146.16	4.40	1922.37	0.596	1146.13	1.5	4.637	A
4	790.53	1150.53	1054.66	0.750	790.20	2.9	13.567	B
5	56.15	1908.80	452.32	0.124	56.14	0.1	9.086	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
1	738.96	714.51	1905.25	0.388	740.44	0.6	3.093	A
2		1165.48						
3	935.84	3.60	1922.86	0.487	937.89	1.0	3.664	A
4	645.47	941.49	1166.46	0.553	652.05	1.3	7.086	A
5	45.85	1567.41	620.54	0.074	46.09	0.1	6.271	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
1	618.84	595.68	1987.82	0.311	619.58	0.5	2.634	A
2		973.20						
3	783.72	3.01	1923.23	0.408	784.77	0.7	3.164	A
4	540.55	787.79	1248.66	0.433	542.50	0.8	5.113	A
5	38.40	1308.43	748.15	0.051	38.50	0.1	5.073	A

2022 Base Flows, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 1 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

Junction Network

Junctions

Junction	Name	Junction Type	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout	4.33	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	2022 Base Flows	PM	ONE HOUR	17:00	18:30	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 (%)
1		✓	1143.00	100.000
2				
3		✓	765.00	100.000
4		✓	432.00	100.000
5		✓	57.00	100.000

Origin-Destination Data

Demand (PCU/hr)

		To				
From		1	2	3	4	5
	1	0.000	35.000	1103.000	0.000	5.000
	2	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	3	529.000	208.000	0.000	0.000	28.000
	4	183.000	16.000	233.000	0.000	0.000
	5	9.000	9.000	39.000	0.000	0.000

Vehicle Mix

Heavy Vehicle proportion

		To				
From		1	2	3	4	5
	1	0	0	0	0	0
	2	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	3	0	0	0	0	0
	4	0	0	0	0	0
	5	0	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
1	0.62	4.76	1.7	A
2				
3	0.44	3.33	0.8	A
4	0.39	4.86	0.6	A
5	0.08	5.17	0.1	A

Main Results for each time segment

Main results: {17:00-17:15}

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	860.51	378.85	2138.50	0.402	857.83	0.7	2.805	A
2		1035.54						
3	575.93	3.75	1922.77	0.300	574.23	0.4	2.666	A
4	325.23	577.98	1360.87	0.239	323.98	0.3	3.467	A
5	42.91	877.19	960.65	0.045	42.73	0.0	3.920	A

Main results: {17:15-17:30}

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	1027.53	453.54	2086.60	0.492	1026.36	1.0	3.393	A
2		1239.17						
3	687.72	4.49	1922.31	0.358	687.21	0.6	2.913	A
4	388.36	691.70	1300.06	0.299	387.92	0.4	3.945	A
5	51.24	1049.97	875.51	0.059	51.18	0.1	4.367	A

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
1	1258.47	555.19	2015.96	0.624	1255.76	1.6	4.718	A
2		1516.25						
3	842.28	5.49	1921.69	0.438	841.40	0.8	3.329	A
4	475.64	846.89	1217.06	0.391	474.79	0.6	4.845	A
5	62.76	1285.39	759.51	0.083	62.65	0.1	5.166	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
1	1258.47	556.00	2015.39	0.624	1258.42	1.7	4.755	A
2		1519.35						
3	842.28	5.50	1921.69	0.438	842.27	0.8	3.334	A
4	475.64	847.78	1216.58	0.391	475.63	0.6	4.858	A
5	62.76	1287.07	758.68	0.083	62.76	0.1	5.172	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
1	1027.53	454.80	2085.72	0.493	1030.22	1.0	3.421	A
2		1243.73						
3	687.72	4.51	1922.30	0.358	688.59	0.6	2.921	A
4	388.36	693.10	1299.31	0.299	389.20	0.4	3.960	A
5	51.24	1052.59	874.22	0.059	51.35	0.1	4.375	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
1	860.51	380.65	2137.25	0.403	861.71	0.7	2.826	A
2		1040.39						
3	575.93	3.77	1922.76	0.300	576.45	0.4	2.674	A
4	325.23	580.22	1359.67	0.239	325.68	0.3	3.482	A
5	42.91	881.04	958.75	0.045	42.97	0.0	3.931	A

2027 Base Flows, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 1 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

Junction Network

Junctions

Junction	Name	Junction Type	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout	8.62	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	2027 Base Flows	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 (%)
1		✓	867.00	100.000
2				
3		✓	1092.00	100.000
4		✓	756.00	100.000
5		✓	55.00	100.000

Origin-Destination Data

Demand (PCU/hr)

		To				
From		1	2	3	4	5
	1	0.000	20.000	842.000	0.000	5.000
	2	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	3	795.000	271.000	0.000	0.000	26.000
	4	233.000	38.000	485.000	0.000	0.000
	5	20.000	7.000	28.000	0.000	0.000

Vehicle Mix

Heavy Vehicle proportion

		To				
From		1	2	3	4	5
	1	0	0	0	0	0
	2	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	3	0	0	0	0	0
	4	0	0	0	0	0
	5	0	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
1	0.54	4.43	1.2	A
2				
3	0.63	5.00	1.7	A
4	0.81	18.52	4.1	C
5	0.15	10.46	0.2	B

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
1	652.72	620.87	1970.32	0.331	650.75	0.5	2.725	A
2		1019.64						
3	822.11	3.75	1922.77	0.428	819.15	0.7	3.254	A
4	569.16	822.90	1229.89	0.463	565.75	0.9	5.394	A
5	41.41	1365.39	720.09	0.058	41.16	0.1	5.301	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
1	779.42	743.27	1885.27	0.413	778.59	0.7	3.252	A
2		1220.24						
3	981.69	4.49	1922.31	0.511	980.52	1.0	3.817	A
4	679.63	985.01	1143.19	0.595	677.29	1.4	7.688	A
5	49.44	1634.46	587.50	0.084	49.32	0.1	6.687	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
1	954.58	905.05	1772.84	0.538	952.77	1.2	4.380	A
2		1489.07						
3	1202.31	5.49	1921.69	0.626	1199.86	1.6	4.970	A
4	832.37	1205.36	1025.34	0.812	822.43	3.9	16.970	C
5	60.56	1993.72	410.48	0.148	60.24	0.2	10.269	B

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
1	954.58	912.19	1767.89	0.540	954.54	1.2	4.426	A
2		1496.83						
3	1202.31	5.50	1921.69	0.626	1202.27	1.7	5.003	A
4	832.37	1207.77	1024.05	0.813	831.59	4.1	18.517	C
5	60.56	2005.23	404.81	0.150	60.54	0.2	10.457	B

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
1	779.42	753.30	1878.30	0.415	781.23	0.7	3.286	A
2		1231.25						
3	981.69	4.51	1922.30	0.511	984.11	1.1	3.848	A
4	679.63	988.62	1141.26	0.596	690.09	1.5	8.156	A
5	49.44	1650.77	579.47	0.085	49.76	0.1	6.802	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
1	652.72	626.24	1966.59	0.332	653.58	0.5	2.745	A
2		1026.40						
3	822.11	3.77	1922.76	0.428	823.32	0.8	3.279	A
4	569.16	827.09	1227.65	0.464	571.67	0.9	5.508	A
5	41.41	1375.39	715.16	0.058	41.54	0.1	5.346	A

2027 Base Flows, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 1 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

Junction Network

Junctions

Junction	Name	Junction Type	Junction Delay (s)	Junction LOS
1	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)
D4	2027 Base Flows	PM	ONE HOUR	17:00	18:30	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 (%)
1		✓	1205.00	100.000
2				
3		✓	803.00	100.000
4		✓	456.00	100.000
5		✓	59.00	100.000

Origin-Destination Data

Demand (PCU/hr)

		To				
From		1	2	3	4	5
	1	0.000	37.000	1162.000	0.000	6.000
	2	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	3	557.000	217.000	0.000	0.000	29.000
	4	194.000	17.000	245.000	0.000	0.000
	5	9.000	9.000	41.000	0.000	0.000

Vehicle Mix

Heavy Vehicle proportion

		To				
From		1	2	3	4	5
	1	0	0	0	0	0
	2	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	3	0	0	0	0	0
	4	0	0	0	0	0
	5	0	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
1	0.66	5.37	2.0	A
2				
3	0.46	3.47	0.8	A
4	0.42	5.20	0.7	A
5	0.09	5.45	0.1	A

Main Results for each time segment

Main results: {17:00-17:15}

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	907.19	396.81	2126.01	0.427	904.23	0.7	2.939	A
2		1090.91						
3	604.54	4.50	1922.31	0.314	602.71	0.5	2.724	A
4	343.30	607.22	1345.24	0.255	341.94	0.3	3.583	A
5	44.42	922.88	938.13	0.047	44.22	0.0	4.026	A

Main results: {17:15-17:30}

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	1083.27	475.06	2071.64	0.523	1081.88	1.1	3.632	A
2		1305.45						
3	721.88	5.39	1921.76	0.376	721.31	0.6	2.997	A
4	409.93	726.70	1281.34	0.320	409.43	0.5	4.126	A
5	53.04	1104.69	848.55	0.063	52.97	0.1	4.525	A

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
1	1326.73	581.49	1997.69	0.664	1323.30	1.9	5.313	A
2		1596.94						
3	884.12	6.59	1921.02	0.460	883.13	0.8	3.465	A
4	502.07	889.72	1194.15	0.420	501.06	0.7	5.186	A
5	64.96	1352.29	726.54	0.089	64.84	0.1	5.440	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
1	1326.73	582.43	1997.03	0.664	1326.66	2.0	5.368	A
2		1600.81						
3	884.12	6.61	1921.01	0.460	884.11	0.8	3.471	A
4	502.07	890.71	1193.62	0.421	502.05	0.7	5.205	A
5	64.96	1354.23	725.59	0.090	64.96	0.1	5.448	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
1	1083.27	476.50	2070.64	0.523	1086.69	1.1	3.670	A
2		1311.05						
3	721.88	5.41	1921.74	0.376	722.86	0.6	3.004	A
4	409.93	728.27	1280.50	0.320	410.93	0.5	4.144	A
5	53.04	1107.68	847.07	0.063	53.16	0.1	4.536	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
1	907.19	398.77	2124.66	0.427	908.62	0.7	2.965	A
2		1096.36						
3	604.54	4.52	1922.29	0.314	605.12	0.5	2.735	A
4	343.30	609.64	1343.94	0.255	343.82	0.3	3.603	A
5	44.42	927.08	936.06	0.047	44.49	0.1	4.039	A

2031 Base Flows, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 1 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

Junction Network

Junctions

Junction	Name	Junction Type	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout	19.78	C

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	2031 Base Flows	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 (%)
1		✓	960.00	100.000
2				
3		✓	1200.00	100.000
4		✓	838.00	100.000
5		✓	62.00	100.000

Origin-Destination Data

Demand (PCU/hr)

		To				
From		1	2	3	4	5
	1	0.000	23.000	932.000	0.000	5.000
	2	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	3	876.000	295.000	0.000	0.000	29.000
	4	259.000	43.000	536.000	0.000	0.000
	5	23.000	8.000	31.000	0.000	0.000

Vehicle Mix

Heavy Vehicle proportion

		To				
From		1	2	3	4	5
	1	0	0	0	0	0
	2	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	3	0	0	0	0	0
	4	0	0	0	0	0
	5	0	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
1	0.62	5.52	1.6	A
2				
3	0.69	5.99	2.2	A
4	0.96	56.22	13.7	F
5	0.22	14.96	0.3	B

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
1	722.74	683.21	1927.00	0.375	720.35	0.6	2.977	A
2		1126.95						
3	903.42	3.75	1922.77	0.470	899.90	0.9	3.508	A
4	630.89	903.66	1186.70	0.532	626.42	1.1	6.377	A
5	46.68	1504.57	651.50	0.072	46.37	0.1	5.946	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
1	863.02	817.42	1833.74	0.471	861.88	0.9	3.698	A
2		1348.22						
3	1078.78	4.49	1922.31	0.561	1077.23	1.3	4.252	A
4	753.34	1081.72	1091.46	0.690	749.22	2.1	10.392	B
5	55.74	1800.42	505.73	0.110	55.55	0.1	7.993	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
1	1056.98	980.09	1720.70	0.614	1054.23	1.6	5.378	A
2		1630.84						
3	1321.22	5.49	1921.70	0.688	1317.66	2.2	5.924	A
4	922.66	1323.15	962.34	0.859	888.05	10.8	37.781	E
5	68.26	2173.87	321.71	0.212	67.70	0.3	14.142	B

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
1	1056.98	997.16	1708.84	0.619	1056.84	1.6	5.519	A
2		1648.35						
3	1321.22	5.50	1921.69	0.688	1321.14	2.2	5.992	A
4	922.66	1326.64	960.47	0.861	911.06	13.7	58.217	F
5	68.26	2200.27	308.70	0.221	68.20	0.3	14.962	B

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
1	863.02	853.40	1808.73	0.477	865.76	0.9	3.830	A
2		1384.09						
3	1078.78	4.51	1922.30	0.561	1082.32	1.3	4.303	A
4	753.34	1086.82	1088.73	0.692	798.79	2.3	14.267	B
5	55.74	1854.95	478.86	0.116	56.32	0.1	8.532	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
1	722.74	691.15	1921.48	0.376	723.99	0.6	3.011	A
2		1136.65						
3	903.42	3.77	1922.76	0.470	905.02	0.9	3.544	A
4	630.89	908.79	1183.95	0.533	635.62	1.2	6.622	A
5	46.68	1518.77	644.51	0.072	46.89	0.1	6.027	A

2031 Base Flows, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 1 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

Junction Network

Junctions

Junction	Name	Junction Type	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout	6.23	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	2031 Base Flows	PM	ONE HOUR	17:00	18:30	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 (%)
1		✓	1354.00	100.000
2				
3		✓	898.00	100.000
4		✓	511.00	100.000
5		✓	66.00	100.000

Origin-Destination Data

Demand (PCU/hr)

		To				
From		1	2	3	4	5
	1	0.000	42.000	1306.000	0.000	6.000
	2	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	3	625.000	240.000	0.000	0.000	33.000
	4	219.000	19.000	273.000	0.000	0.000
	5	10.000	10.000	46.000	0.000	0.000

Vehicle Mix

Heavy Vehicle proportion

		To				
From		1	2	3	4	5
	1	0	0	0	0	0
	2	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	3	0	0	0	0	0
	4	0	0	0	0	0
	5	0	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
1	0.76	7.79	3.2	A
2				
3	0.51	3.86	1.1	A
4	0.49	6.26	1.0	A
5	0.11	6.27	0.1	A

Main Results for each time segment

Main results: {17:00-17:15}

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	1019.36	440.95	2095.34	0.486	1015.60	0.9	3.324	A
2		1223.21						
3	676.06	4.50	1922.31	0.352	673.90	0.5	2.879	A
4	384.71	678.40	1307.17	0.294	383.05	0.4	3.888	A
5	49.69	1032.19	884.27	0.056	49.45	0.1	4.311	A

Main results: {17:15-17:30}

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	1217.22	527.94	2034.90	0.598	1215.10	1.5	4.379	A
2		1463.75						
3	807.28	5.38	1921.76	0.420	806.56	0.7	3.226	A
4	459.38	811.95	1235.74	0.372	458.69	0.6	4.629	A
5	59.33	1235.61	784.04	0.076	59.24	0.1	4.967	A

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
1	1490.78	646.03	1952.83	0.763	1484.20	3.1	7.576	A
2		1788.46						
3	988.72	6.58	1921.02	0.515	987.39	1.1	3.850	A
4	562.62	993.97	1138.40	0.494	561.11	1.0	6.219	A
5	72.67	1512.22	647.74	0.112	72.49	0.1	6.256	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
1	1490.78	647.38	1951.90	0.764	1490.55	3.2	7.793	A
2		1795.53						
3	988.72	6.61	1921.01	0.515	988.70	1.1	3.861	A
4	562.62	995.30	1137.68	0.495	562.59	1.0	6.259	A
5	72.67	1514.96	646.39	0.112	72.66	0.1	6.274	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
1	1217.22	529.95	2033.50	0.599	1223.88	1.5	4.483	A
2		1473.61						
3	807.28	5.42	1921.74	0.420	808.59	0.7	3.237	A
4	459.38	814.02	1234.64	0.372	460.88	0.6	4.661	A
5	59.33	1239.75	782.00	0.076	59.51	0.1	4.983	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
1	1019.36	443.35	2093.67	0.487	1021.58	1.0	3.366	A
2		1230.49						
3	676.06	4.53	1922.29	0.352	676.80	0.5	2.891	A
4	384.71	681.32	1305.60	0.295	385.42	0.4	3.916	A
5	49.69	1037.34	881.73	0.056	49.78	0.1	4.328	A

2022 Assessment Flows, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 1 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

Junction Network

Junctions

Junction	Name	Junction Type	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout	7.41	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)
D7	2022 Assessment Flows	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 (%)
1		✓	822.00	100.000
2				
3		✓	1071.00	100.000
4		✓	722.00	100.000
5		✓	51.00	100.000

Origin-Destination Data

Demand (PCU/hr)

		To				
From		1	2	3	4	5
	1	0.000	19.000	799.000	0.000	4.000
	2	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	3	756.000	290.000	0.000	0.000	25.000
	4	221.000	36.000	465.000	0.000	0.000
	5	19.000	6.000	26.000	0.000	0.000

Vehicle Mix

Heavy Vehicle proportion

		To				
From		1	2	3	4	5
	1	0	0	0	0	0
	2	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	3	0	0	0	0	0
	4	0	0	0	0	0
	5	0	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
1	0.51	4.15	1.0	A
2				
3	0.61	4.84	1.6	A
4	0.77	14.78	3.2	B
5	0.13	9.53	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
1	618.84	616.54	1973.33	0.314	617.02	0.5	2.651	A
2		970.31						
3	806.30	3.00	1923.23	0.419	803.44	0.7	3.207	A
4	543.56	806.44	1238.69	0.439	540.46	0.8	5.133	A
5	38.40	1325.14	739.92	0.052	38.18	0.1	5.129	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
1	738.96	738.13	1888.83	0.391	738.22	0.6	3.127	A
2		1161.24						
3	962.81	3.59	1922.87	0.501	961.70	1.0	3.742	A
4	649.06	965.29	1153.73	0.563	647.10	1.3	7.079	A
5	45.85	1586.35	611.21	0.075	45.74	0.1	6.366	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
1	905.04	900.35	1776.11	0.510	903.48	1.0	4.118	A
2		1418.42						
3	1179.19	4.40	1922.37	0.613	1176.91	1.6	4.815	A
4	794.94	1181.31	1038.20	0.766	787.72	3.1	13.985	B
5	56.15	1937.16	438.35	0.128	55.89	0.1	9.407	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
1	905.04	905.83	1772.30	0.511	905.01	1.0	4.150	A
2		1424.41						
3	1179.19	4.40	1922.37	0.613	1179.15	1.6	4.843	A
4	794.94	1183.56	1037.00	0.767	794.52	3.2	14.781	B
5	56.15	1946.15	433.92	0.129	56.14	0.1	9.529	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
1	738.96	745.79	1883.51	0.392	740.52	0.6	3.155	A
2		1169.72						
3	962.81	3.60	1922.86	0.501	965.07	1.0	3.766	A
4	649.06	968.67	1151.93	0.563	656.50	1.3	7.373	A
5	45.85	1599.03	604.96	0.076	46.11	0.1	6.446	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
1	618.84	621.42	1969.94	0.314	619.60	0.5	2.666	A
2		976.33						
3	806.30	3.02	1923.23	0.419	807.44	0.7	3.228	A
4	543.56	810.46	1236.54	0.440	545.65	0.8	5.227	A
5	38.40	1334.24	735.44	0.052	38.50	0.1	5.167	A

2022 Assessment Flows, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 1 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

Junction Network

Junctions

Junction	Name	Junction Type	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout	4.43	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)
D8	2022 Assessment Flows	PM	ONE HOUR	17:00	18:30	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 (%)
1		✓	1143.00	100.000
2				
3		✓	781.00	100.000
4		✓	442.00	100.000
5		✓	57.00	100.000

Origin-Destination Data

Demand (PCU/hr)

		To				
From		1	2	3	4	5
	1	0.000	35.000	1103.000	0.000	5.000
	2	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	3	529.000	224.000	0.000	0.000	28.000
	4	183.000	16.000	243.000	0.000	0.000
	5	9.000	9.000	39.000	0.000	0.000

Vehicle Mix

Heavy Vehicle proportion

		To				
From		1	2	3	4	5
	1	0	0	0	0	0
	2	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	3	0	0	0	0	0
	4	0	0	0	0	0
	5	0	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
1	0.63	4.88	1.7	A
2				
3	0.45	3.39	0.8	A
4	0.40	5.00	0.7	A
5	0.08	5.28	0.1	A

Main Results for each time segment

Main results: {17:00-17:15}

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	860.51	398.34	2124.95	0.405	857.80	0.7	2.835	A
2		1043.00						
3	587.98	3.75	1922.77	0.306	586.22	0.4	2.690	A
4	332.76	589.98	1354.46	0.246	331.46	0.3	3.514	A
5	42.91	896.67	951.05	0.045	42.72	0.0	3.962	A

Main results: {17:15-17:30}

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	1027.53	476.88	2070.38	0.496	1026.33	1.0	3.445	A
2		1248.11						
3	702.10	4.49	1922.31	0.365	701.57	0.6	2.947	A
4	397.35	706.06	1292.38	0.307	396.88	0.4	4.018	A
5	51.24	1073.30	864.02	0.059	51.18	0.1	4.428	A

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
1	1258.47	583.75	1996.12	0.630	1255.65	1.7	4.843	A
2		1527.11						
3	859.90	5.49	1921.69	0.447	858.97	0.8	3.384	A
4	486.65	864.46	1207.66	0.403	485.74	0.7	4.980	A
5	62.76	1313.91	745.45	0.084	62.64	0.1	5.272	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
1	1258.47	584.63	1995.50	0.631	1258.41	1.7	4.883	A
2		1530.36						
3	859.90	5.50	1921.69	0.447	859.89	0.8	3.389	A
4	486.65	865.39	1207.16	0.403	486.64	0.7	4.995	A
5	62.76	1315.70	744.57	0.084	62.76	0.1	5.279	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
1	1027.53	478.24	2069.43	0.497	1030.34	1.0	3.473	A
2		1252.87						
3	702.10	4.51	1922.30	0.365	703.02	0.6	2.956	A
4	397.35	707.53	1291.59	0.308	398.25	0.4	4.033	A
5	51.24	1076.06	862.65	0.059	51.35	0.1	4.437	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
1	860.51	400.25	2123.62	0.405	861.75	0.7	2.855	A
2		1047.97						
3	587.98	3.77	1922.76	0.306	588.52	0.4	2.698	A
4	332.76	592.29	1353.22	0.246	333.24	0.3	3.530	A
5	42.91	900.66	949.08	0.045	42.98	0.0	3.973	A

2027 Assessment Flows, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 1 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

Junction Network

Junctions

Junction	Name	Junction Type	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout	9.37	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)
D9	2027 Assessment Flows	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 (%)
1		✓	867.00	100.000
2				
3		✓	1123.00	100.000
4		✓	760.00	100.000
5		✓	45.00	100.000

Origin-Destination Data

Demand (PCU/hr)

		To				
From		1	2	3	4	5
	1	0.000	20.000	842.000	0.000	5.000
	2	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	3	795.000	302.000	0.000	0.000	26.000
	4	233.000	38.000	489.000	0.000	0.000
	5	10.000	7.000	28.000	0.000	0.000

Vehicle Mix

Heavy Vehicle proportion

		To				
From		1	2	3	4	5
	1	0	0	0	0	0
	2	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	3	0	0	0	0	0
	4	0	0	0	0	0
	5	0	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
1	0.55	4.58	1.2	A
2				
3	0.64	5.25	1.8	A
4	0.83	20.85	4.6	C
5	0.13	10.70	0.1	B

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
1	652.72	647.04	1952.13	0.334	650.72	0.5	2.763	A
2		1022.56						
3	845.45	3.75	1922.77	0.440	842.33	0.8	3.322	A
4	572.17	846.09	1217.49	0.470	568.66	0.9	5.519	A
5	33.88	1391.49	707.22	0.048	33.68	0.1	5.343	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
1	779.42	774.56	1863.52	0.418	778.56	0.7	3.314	A
2		1223.70						
3	1009.55	4.49	1922.31	0.525	1008.29	1.1	3.933	A
4	683.22	1012.78	1128.34	0.606	680.72	1.5	7.997	A
5	40.45	1665.67	572.13	0.071	40.35	0.1	6.770	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
1	954.58	942.38	1746.90	0.546	952.68	1.2	4.521	A
2		1492.37						
3	1236.45	5.49	1921.69	0.643	1233.73	1.8	5.212	A
4	836.78	1239.22	1007.23	0.831	825.30	4.4	18.718	C
5	49.55	2030.46	392.38	0.126	49.28	0.1	10.476	B

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
1	954.58	950.53	1741.24	0.548	954.53	1.2	4.575	A
2		1501.05						
3	1236.45	5.50	1921.69	0.643	1236.39	1.8	5.253	A
4	836.78	1241.90	1005.80	0.832	835.72	4.6	20.851	C
5	49.55	2043.49	385.96	0.128	49.53	0.1	10.700	B

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
1	779.42	786.14	1855.48	0.420	781.32	0.7	3.356	A
2		1236.11						
3	1009.55	4.51	1922.30	0.525	1012.25	1.1	3.967	A
4	683.22	1016.76	1126.21	0.607	695.46	1.6	8.583	A
5	40.45	1684.27	562.96	0.072	40.73	0.1	6.896	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
1	652.72	652.78	1948.15	0.335	653.61	0.5	2.784	A
2		1029.57						
3	845.45	3.77	1922.76	0.440	846.76	0.8	3.351	A
4	572.17	850.53	1215.11	0.471	574.88	0.9	5.648	A
5	33.88	1402.03	702.03	0.048	33.99	0.1	5.391	A

2027 Assessment Flows, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 1 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

Junction Network

Junctions

Junction	Name	Junction Type	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout	4.85	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)
D10	2027 Assessment Flows	PM	ONE HOUR	17:00	18:30	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 (%)
1		✓	1205.00	100.000
2				
3		✓	819.00	100.000
4		✓	465.00	100.000
5		✓	59.00	100.000

Origin-Destination Data

Demand (PCU/hr)

		To				
From		1	2	3	4	5
	1	0.000	37.000	1162.000	0.000	6.000
	2	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	3	557.000	233.000	0.000	0.000	29.000
	4	194.000	17.000	254.000	0.000	0.000
	5	9.000	9.000	41.000	0.000	0.000

Vehicle Mix

Heavy Vehicle proportion

		To				
From		1	2	3	4	5
	1	0	0	0	0	0
	2	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	3	0	0	0	0	0
	4	0	0	0	0	0
	5	0	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
1	0.67	5.53	2.0	A
2				
3	0.47	3.53	0.9	A
4	0.43	5.35	0.8	A
5	0.09	5.56	0.1	A

Main Results for each time segment

Main results: {17:00-17:15}

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	907.19	415.55	2112.99	0.429	904.20	0.7	2.970	A
2		1097.61						
3	616.59	4.50	1922.31	0.321	614.71	0.5	2.750	A
4	350.08	619.21	1338.83	0.261	348.67	0.4	3.631	A
5	44.42	941.61	928.91	0.048	44.22	0.0	4.068	A

Main results: {17:15-17:30}

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	1083.27	497.50	2056.05	0.527	1081.85	1.1	3.691	A
2		1313.49						
3	736.26	5.39	1921.76	0.383	735.67	0.6	3.033	A
4	418.03	741.06	1273.66	0.328	417.49	0.5	4.202	A
5	53.04	1127.12	837.50	0.063	52.97	0.1	4.588	A

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
1	1326.73	608.93	1978.61	0.671	1323.15	2.0	5.463	A
2		1606.65						
3	901.74	6.59	1921.02	0.469	900.69	0.9	3.525	A
4	511.97	907.28	1184.76	0.432	510.90	0.8	5.333	A
5	64.96	1379.70	713.03	0.091	64.83	0.1	5.552	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
1	1326.73	609.95	1977.91	0.671	1326.65	2.0	5.525	A
2		1610.71						
3	901.74	6.61	1921.01	0.469	901.72	0.9	3.531	A
4	511.97	908.33	1184.20	0.432	511.96	0.8	5.354	A
5	64.96	1381.75	712.03	0.091	64.96	0.1	5.562	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
1	1083.27	499.05	2054.97	0.527	1086.85	1.1	3.731	A
2		1319.34						
3	736.26	5.41	1921.74	0.383	737.29	0.6	3.041	A
4	418.03	742.70	1272.78	0.328	419.09	0.5	4.223	A
5	53.04	1130.27	835.94	0.063	53.17	0.1	4.601	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
1	907.19	417.63	2111.55	0.430	908.65	0.8	2.998	A
2		1103.19						
3	616.59	4.52	1922.29	0.321	617.19	0.5	2.761	A
4	350.08	621.71	1337.49	0.262	350.62	0.4	3.649	A
5	44.42	945.95	926.77	0.048	44.49	0.1	4.080	A

2031 Assessment Flows, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 1 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

Junction Network

Junctions

Junction	Name	Junction Type	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout	23.60	C

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)
D11	2031 Assessment Flows	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 (%)
1		✓	960.00	100.000
2				
3		✓	1230.00	100.000
4		✓	842.00	100.000
5		✓	62.00	100.000

Origin-Destination Data

Demand (PCU/hr)

		To				
From		1	2	3	4	5
	1	0.000	23.000	932.000	0.000	5.000
	2	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	3	876.000	325.000	0.000	0.000	29.000
	4	259.000	43.000	540.000	0.000	0.000
	5	23.000	8.000	31.000	0.000	0.000

Vehicle Mix

Heavy Vehicle proportion

		To				
From		1	2	3	4	5
	1	0	0	0	0	0
	2	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	3	0	0	0	0	0
	4	0	0	0	0	0
	5	0	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
1	0.63	5.72	1.7	A
2				
3	0.70	6.34	2.4	A
4	0.98	88.78	17.5	F
5	0.23	15.96	0.3	C

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
1	722.74	708.58	1909.37	0.379	720.32	0.6	3.021	A
2		1129.82						
3	926.01	3.75	1922.77	0.482	922.32	0.9	3.585	A
4	633.90	926.07	1174.71	0.540	629.29	1.2	6.546	A
5	46.68	1529.86	639.04	0.073	46.36	0.1	6.071	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
1	863.02	847.67	1812.72	0.476	861.84	0.9	3.780	A
2		1351.54						
3	1105.74	4.49	1922.31	0.575	1104.08	1.3	4.391	A
4	756.94	1108.56	1077.11	0.703	752.46	2.3	10.938	B
5	55.74	1830.51	490.90	0.114	55.54	0.1	8.265	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
1	1056.98	1011.73	1698.71	0.622	1054.10	1.6	5.561	A
2		1629.90						
3	1354.26	5.49	1921.70	0.705	1350.28	2.3	6.256	A
4	927.06	1355.77	944.90	0.981	884.45	12.9	43.442	E
5	68.26	2202.90	307.41	0.222	67.65	0.3	14.980	B

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
1	1056.98	1029.85	1686.12	0.627	1056.82	1.7	5.719	A
2		1648.35						
3	1354.26	5.50	1921.69	0.705	1354.15	2.4	6.341	A
4	927.06	1359.66	942.82	0.983	908.66	17.5	89.775	F
5	68.26	2230.88	293.62	0.232	68.19	0.3	15.956	C

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
1	863.02	894.38	1780.26	0.485	865.87	0.9	3.948	A
2		1397.29						
3	1105.74	4.51	1922.30	0.575	1109.70	1.4	4.451	A
4	756.94	1114.21	1074.09	0.705	817.03	2.5	17.151	C
5	55.74	1900.57	456.38	0.122	56.36	0.1	9.013	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
1	722.74	717.18	1903.40	0.380	724.07	0.6	3.057	A
2		1140.07						
3	926.01	3.77	1922.76	0.482	927.74	0.9	3.626	A
4	633.90	931.51	1171.80	0.541	639.13	1.2	6.822	A
5	46.68	1544.99	631.59	0.074	46.92	0.1	6.161	A

2031 Assessment Flows, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 1 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

Junction Network

Junctions

Junction	Name	Junction Type	Junction Delay (s)	Junction LOS
1	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)
D12	2031 Assessment Flows	PM	ONE HOUR	17:00	18:30	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 (%)
1		✓	1354.00	100.000
2				
3		✓	914.00	100.000
4		✓	521.00	100.000
5		✓	66.00	100.000

Origin-Destination Data

Demand (PCU/hr)

		To				
From		1	2	3	4	5
	1	0.000	42.000	1306.000	0.000	6.000
	2	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	3	625.000	256.000	0.000	0.000	33.000
	4	219.000	19.000	283.000	0.000	0.000
	5	10.000	10.000	46.000	0.000	0.000

Vehicle Mix

Heavy Vehicle proportion

		To				
From		1	2	3	4	5
	1	0	0	0	0	0
	2	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	3	0	0	0	0	0
	4	0	0	0	0	0
	5	0	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
1	0.77	8.14	3.3	A
2				
3	0.52	3.94	1.1	A
4	0.51	6.49	1.0	A
5	0.11	6.43	0.1	A

Main Results for each time segment

Main results: {17:00-17:15}

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	1019.36	460.43	2081.81	0.490	1015.55	1.0	3.363	A
2		1230.64						
3	688.11	4.50	1922.31	0.358	685.89	0.6	2.907	A
4	392.24	690.39	1300.76	0.302	390.52	0.4	3.948	A
5	49.69	1051.64	874.69	0.057	49.45	0.1	4.361	A

Main results: {17:15-17:30}

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	1217.22	551.26	2018.69	0.603	1215.03	1.5	4.466	A
2		1472.64						
3	821.67	5.38	1921.76	0.428	820.92	0.7	3.269	A
4	468.37	826.30	1228.07	0.381	467.64	0.6	4.730	A
5	59.33	1258.92	772.55	0.077	59.24	0.1	5.047	A

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
1	1490.78	674.54	1933.03	0.771	1483.79	3.2	7.889	A
2		1798.99						
3	1006.33	6.58	1921.02	0.524	1004.94	1.1	3.924	A
4	573.63	1011.52	1129.01	0.508	572.00	1.0	6.443	A
5	72.67	1540.66	633.72	0.115	72.48	0.1	6.413	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
1	1490.78	676.00	1932.01	0.772	1490.52	3.3	8.141	A
2		1806.51						
3	1006.33	6.60	1921.01	0.524	1006.31	1.1	3.935	A
4	573.63	1012.92	1128.26	0.508	573.60	1.0	6.490	A
5	72.67	1543.58	632.29	0.115	72.66	0.1	6.432	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
1	1217.22	553.45	2017.17	0.603	1224.31	1.5	4.579	A
2		1483.10						
3	821.67	5.43	1921.74	0.428	823.04	0.8	3.282	A
4	468.37	828.47	1226.91	0.382	469.98	0.6	4.765	A
5	59.33	1263.31	770.39	0.077	59.51	0.1	5.066	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
1	1019.36	462.98	2080.04	0.490	1021.65	1.0	3.407	A
2		1238.12						
3	688.11	4.53	1922.29	0.358	688.87	0.6	2.922	A
4	392.24	693.40	1299.15	0.302	392.99	0.4	3.975	A
5	49.69	1056.99	872.05	0.057	49.78	0.1	4.379	A

APPENDIX 5

A27/Arundel Road

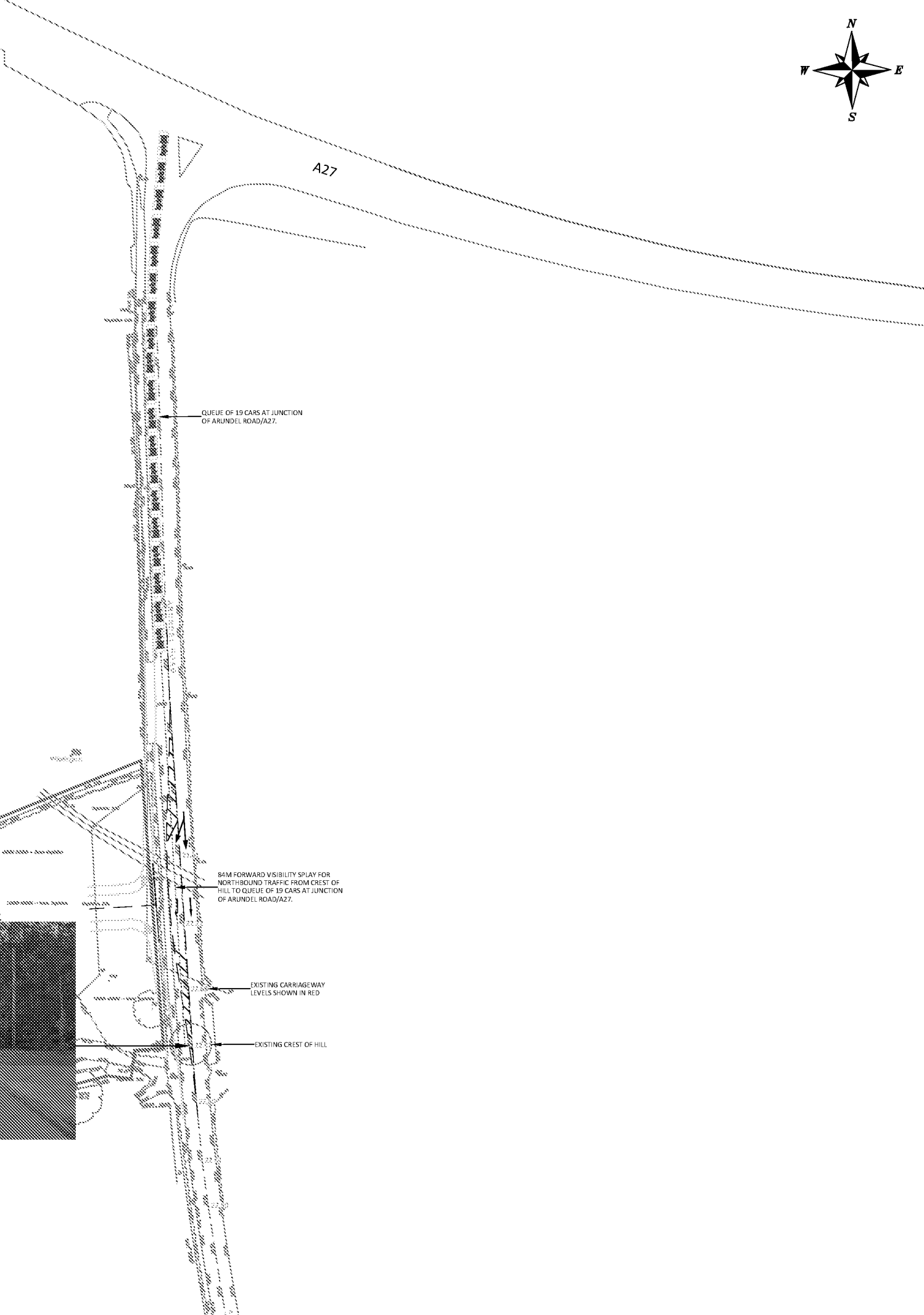
(Plan to Show Extent of Queuing on Arundel Road)



NORTH SOUTH AERIAL VIEW



STREETVIEW FROM CREST OF HILL



NOTES

DRAWING IS INDICATIVE ONLY.

INDICATIVE SITE BOUNDARY

REV.	DETAILS	DRAWN	CHECKED	DATE

CLIENT:

GLADMAN

PROJECT:

ARUNDEL ROAD, ANGMERING

DRAWING TITLE:

FORWARD VISIBILITY PLAN ON ARUNDEL ROAD

SCALES:

1:1000 @ A3

DRAWN:	JC	CHECKED:	MR	DATE:	SEP 18
--------	----	----------	----	-------	--------

9 Jordan St
Manchester
M15 4PY

Email: info@crofts.co.uk
Tel: 0161 667 3746
Web: www.crofts.co.uk

Transport Solutions

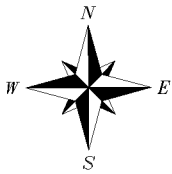
DRAWING NUMBER:	2020-03	REVISION:	.
-----------------	---------	-----------	---

APPENDIX 6

PICADY Output for A27/Arundel Road (Amended Geometry Layout Plan)



NORTH SOUTH AERIAL VIEW



NOTES

THIS IS NOT A CONSTRUCTION DRAWING AND IS FOR INDICATIVE PURPOSES ONLY. THE DRAWING WILL BE SUBJECT TO CHANGE FOLLOWING LOCAL AUTHORITY REVIEW AND CONFIRMATION OF PUBLIC HIGHWAY AND THIRD PARTY LAND BOUNDARIES.

REV	DETAILS	DRAWN	CHECKED	DATE
-----	---------	-------	---------	------

CLIENT:

GLADMAN

PROJECT:

ARUNDEL ROAD, ANGMERING

DRAWING TITLE:

**A27 ARUNDEL ROAD JUNCTION
EXISTING LAYOUT WITH VISIBILITY
SPRAY TO THE EAST**

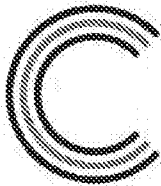
SCALES:

1:500 @ A3

DRAWN:	GM	CHECKED:	MR	DATE:	AUG 18
--------	----	----------	----	-------	--------

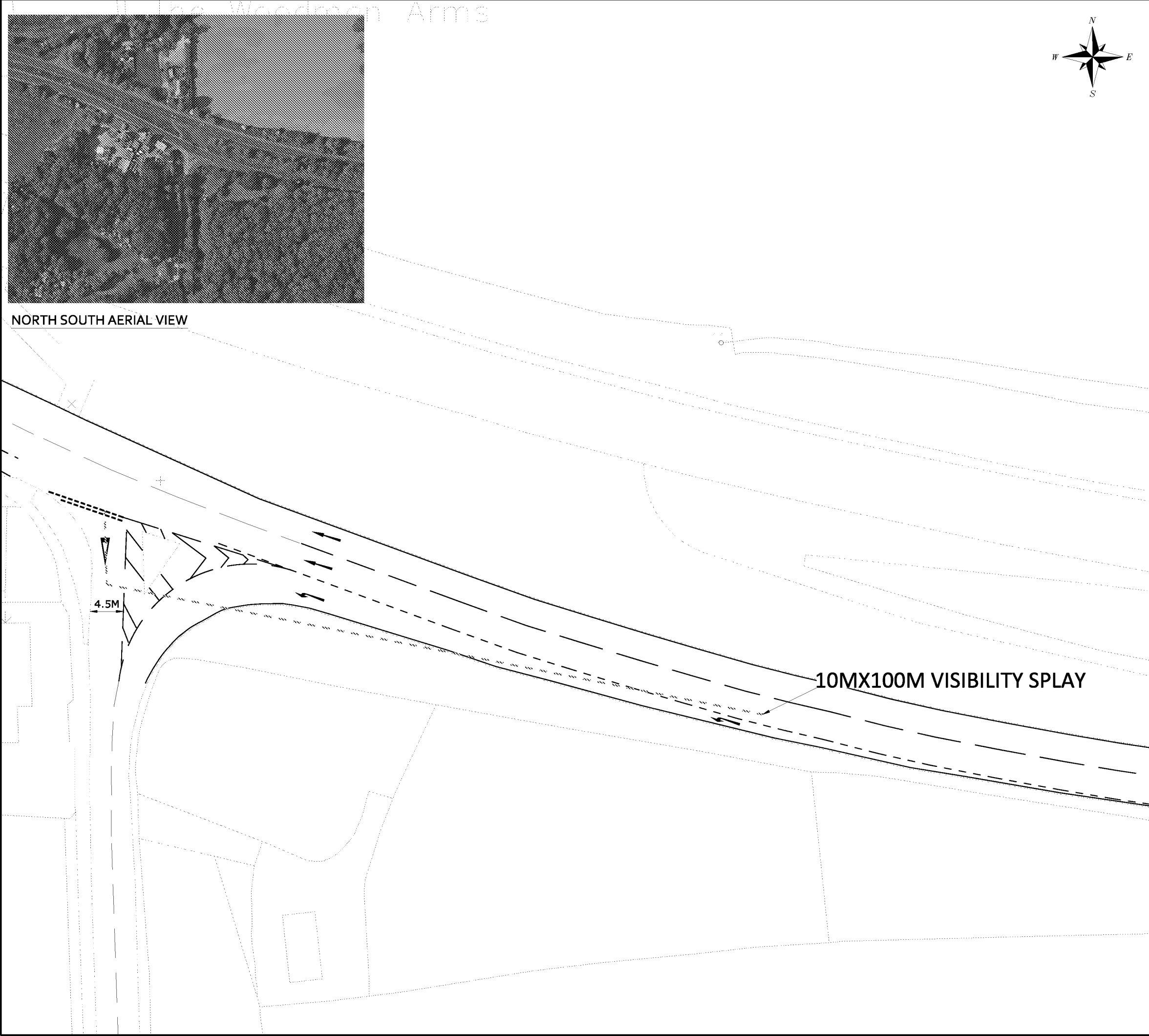
Croft Transport Planning & Design
Hill Quays
9 Jordan Street
Manchester
M15 4PY

Email: info@crofts.co.uk
Tel: 0161 667 3746
Web: www.crofts.co.uk



CROFT

DRAWING NUMBER:	2020-01	REVISION:	-
-----------------	---------	-----------	---



Junctions 9

PICADY 9 - Priority Intersection Module

Version: 9.5.0.6896
 © Copyright TRL Limited, 2018

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: A27 - Arundel Road - HE Base and Ass.j9
Path: Z:\projects\2020 Arundel Road, Angmering\Picady\HE
Report generation date: 06/08/2018 10:38:09

»2022 Base Flows, AM
 »2022 Base Flows, PM
 »2027 Base Flows, AM
 »2027 Base Flows, PM
 »2031 Base Flows, AM
 »2031 Base Flows, PM
 »2022 Assessment Flows, AM
 »2022 Assessment Flows, PM
 »2027 Assessment Flows, AM
 »2027 Assessment Flows, PM
 »2031 Assessment Flows, AM
 »2031 Assessment Flows, PM

Summary of junction performance

	AM				PM			
	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS
2022 Base Flows								
Stream B-AC	1.6	31.01	0.63	D	0.4	15.74	0.27	C
Stream C-B	0.0	0.00	0.00	A	0.0	0.00	0.00	A
2027 Base Flows								
Stream B-AC	2.4	44.68	0.72	E	0.4	18.27	0.31	C
Stream C-B	0.0	0.00	0.00	A	0.0	0.00	0.00	A
2031 Base Flows								
Stream B-AC	9.7	157.29	0.99	F	0.8	29.94	0.45	D
Stream C-B	0.0	0.00	0.00	A	0.0	0.00	0.00	A
2022 Assessment Flows								
Stream B-AC	2.0	35.75	0.68	E	0.4	16.67	0.29	C
Stream C-B	0.0	0.00	0.00	A	0.0	0.00	0.00	A
2027 Assessment Flows								
Stream B-AC	3.1	55.35	0.78	F	0.5	19.53	0.34	C
Stream C-B	0.0	0.00	0.00	A	0.0	0.00	0.00	A
2031 Assessment Flows								
Stream B-AC	14.8	217.29	1.07	F	0.9	33.45	0.49	D
Stream C-B	0.0	0.00	0.00	A	0.0	0.00	0.00	A

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

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

File summary

File Description

Title	(untitled)
Location	
Site number	
Date	06/07/2018
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	Cadworkstation4\Kyle
Description	

Units

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

Analysis Options

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

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2022 Base Flows	AM	ONE HOUR	08:00	09:30	15
D2	2022 Base Flows	PM	ONE HOUR	17:00	18:30	15
D3	2027 Base Flows	AM	ONE HOUR	08:00	09:30	15
D4	2027 Base Flows	PM	ONE HOUR	17:00	18:30	15
D5	2031 Base Flows	AM	ONE HOUR	08:00	09:30	15
D6	2031 Base Flows	PM	ONE HOUR	17:00	18:30	15
D7	2022 Assessment Flows	AM	ONE HOUR	08:00	09:30	15
D8	2022 Assessment Flows	PM	ONE HOUR	17:00	18:30	15
D9	2027 Assessment Flows	AM	ONE HOUR	08:00	09:30	15
D10	2027 Assessment Flows	PM	ONE HOUR	17:00	18:30	15
D11	2031 Assessment Flows	AM	ONE HOUR	08:00	09:30	15
D12	2031 Assessment Flows	PM	ONE HOUR	17:00	18:30	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

2022 Base Flows, AM

Data Errors and Warnings

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

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		1.75	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	A27 (E)		Major
B	Arundel Road		Minor
C	A27 (W)		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C	7.85			0.0		-

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

Minor Arm Geometry

Arm	Minor arm type	Lane width (m)	Visibility to left (m)	Visibility to right (m)
B	One lane	4.50	0	100

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	605	0.101	0.256	0.161	0.366
1	B-C	790	0.111	0.281	-	-
1	C-B	574	0.204	0.204	-	-

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

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

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2022 Base Flows	AM	ONE HOUR	08:00	09:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	1590	100.000
B		✓	178	100.000
C		✓	1387	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A	B	C
	A	0	74	1516
	B	0	0	178
From	C	1387	0	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
		A	B	C
	A	0	0	0
	B	0	0	0
From	C	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.63	31.01	1.6	D
C-A				
C-B	0.00	0.00	0.0	A
A-B				
A-C				

Main Results for each time segment

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	134	463	0.290	132	0.4	10.852	E
C-A	1044			1044			
C-B	0	329	0.000	0	0.0	0.000	A
AB	56			56			
AC	1141			1141			

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	160	399	0.401	159	0.7	14.934	E
C-A	1247			1247			
C-B	0	282	0.000	0	0.0	0.000	A
AB	67			67			
AC	1363			1363			

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	196	311	0.630	192	1.6	29.433	D
C-A	1527			1527			
C-B	0	216	0.000	0	0.0	0.000	A
AB	81			81			
AC	1669			1669			

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	196	311	0.630	196	1.6	31.011	D
C-A	1527			1527			
C-B	0	216	0.000	0	0.0	0.000	A
AB	81			81			
AC	1669			1669			

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	160	399	0.401	164	0.7	15.534	D
C-A	1247			1247			
C-B	0	282	0.000	0	0.0	0.000	A
AB	67			67			
AC	1363			1363			

09:15 - 09:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	134	463	0.290	135	0.4	11.028	E
C-A	1044			1044			
C-B	0	329	0.000	0	0.0	0.000	A
AB	56			56			
AC	1141			1141			

2022 Base Flows, PM

Data Errors and Warnings

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

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		0.39	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D2	2022 Base Flows	PM	ONE HOUR	17:00	18:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	1622	100.000
B		✓	75	100.000
C		✓	1342	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
	A	B	C	
From	A	0	127	1495
	B	0	0	75
	C	1342	0	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
	A	B	C	
From	A	0	0	0
	B	0	0	0
	C	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.27	15.74	0.4	C
C-A				
C-B	0.00	0.00	0.0	A
AB				
AC				

Main Results for each time segment

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	56	463	0.122	56	0.1	8.841	A
C-A	1010			1010			
C-B	0	324	0.000	0	0.0	0.000	A
AB	96			96			
AC	1126			1126			

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	67	399	0.169	67	0.2	10.840	B
C-A	1206			1206			
C-B	0	276	0.000	0	0.0	0.000	A
AB	114			114			
AC	1344			1344			

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	83	311	0.265	82	0.4	15.665	C
C-A	1478			1478			
C-B	0	209	0.000	0	0.0	0.000	A
AB	140			140			
AC	1646			1646			

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	83	311	0.265	83	0.4	15.745	C
C-A	1478			1478			
C-B	0	209	0.000	0	0.0	0.000	A
AB	140			140			
AC	1646			1646			

18:00 - 18:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	67	399	0.169	68	0.2	10.896	B
C-A	1206			1206			
C-B	0	276	0.000	0	0.0	0.000	A
A-B	114			114			
A-C	1344			1344			

18:15 - 18:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	56	463	0.122	57	0.1	8.876	A
C-A	1010			1010			
C-B	0	324	0.000	0	0.0	0.000	A
A-B	96			96			
A-C	1126			1126			

2027 Base Flows, AM

Data Errors and Warnings

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

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		2.51	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D3	2027 Base Flows	AM	ONE HOUR	08:00	09:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	1679	100.000
B		✓	187	100.000
C		✓	1464	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A	B	C
	A	0	78	1601
	B	0	0	187
	C	1464	0	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
		A	B	C
	A	0	0	0
	B	0	0	0
	C	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.72	44.68	2.4	E
C-A				
C-B	0.00	0.00	0.0	A
AB				
AC				

Main Results for each time segment

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	141	444	0.317	139	0.5	11.725	B
C-A	1102			1102			
C-B	0	315	0.000	0	0.0	0.000	A
AB	59			59			
AC	1205			1205			

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	168	377	0.446	167	0.8	17.010	C
C-A	1316			1316			
C-B	0	265	0.000	0	0.0	0.000	A
AB	70			70			
AC	1439			1439			

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	206	284	0.724	200	2.3	40.180	E
C-A	1612			1612			
C-B	0	196	0.000	0	0.0	0.000	A
AB	86			86			
AC	1763			1763			

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	206	284	0.724	205	2.4	44.673	E
C-A	1612			1612			
C-B	0	196	0.000	0	0.0	0.000	A
AB	86			86			
AC	1763			1763			

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	168	377	0.446	174	0.8	18.274	C
C-A	1316			1316			
C-B	0	265	0.000	0	0.0	0.000	A
A-B	70			70			
A-C	1439			1439			

09:15 - 09:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	141	444	0.317	142	0.5	11.974	B
C-A	1102			1102			
C-B	0	315	0.000	0	0.0	0.000	A
A-B	59			59			
A-C	1205			1205			

2027 Base Flows, PM

Data Errors and Warnings

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

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		0.45	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D4	2027 Base Flows	PM	ONE HOUR	17:00	18:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	1714	100.000
B		✓	79	100.000
C		✓	1418	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A	B	C
	From A	0	134	1580
	From B	0	0	79
	From C	1418	0	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
		A	B	C
	From A	0	0	0
	From B	0	0	0
	From C	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.31	18.27	0.4	C
C-A				
C-B	0.00	0.00	0.0	A
AB				
AC				

Main Results for each time segment

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	59	444	0.134	59	0.2	9.318	A
C-A	1068			1068			
C-B	0	310	0.000	0	0.0	0.000	A
AB	101			101			
AC	1190			1190			

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	71	377	0.188	71	0.2	11.748	B
C-A	1275			1275			
C-B	0	259	0.000	0	0.0	0.000	A
AB	120			120			
AC	1420			1420			

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	87	284	0.306	86	0.4	18.128	C
C-A	1561			1561			
C-B	0	188	0.000	0	0.0	0.000	A
AB	148			148			
AC	1740			1740			

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	87	284	0.306	87	0.4	18.267	C
C-A	1561			1561			
C-B	0	188	0.000	0	0.0	0.000	A
AB	148			148			
AC	1740			1740			

18:00 - 18:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	71	377	0.188	72	0.2	11.834	B
C-A	1275			1275			
C-B	0	259	0.000	0	0.0	0.000	A
A-B	120			120			
A-C	1420			1420			

18:15 - 18:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	59	444	0.134	60	0.2	9.379	A
C-A	1068			1068			
C-B	0	310	0.000	0	0.0	0.000	A
A-B	101			101			
A-C	1190			1190			

2031 Base Flows, AM

Data Errors and Warnings

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

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		8.78	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D5	2031 Base Flows	AM	ONE HOUR	08:00	09:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	1861	100.000
B		✓	206	100.000
C		✓	1625	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
From		A	B	C
	A	0	86	1775
	B	0	0	206
	C	1625	0	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
From		A	B	C
	A	0	0	0
	B	0	0	0
	C	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.38	157.23	9.7	F
C-A				
C-B	0.00	0.00	0.0	A
AB				
AC				

Main Results for each time segment

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	155	407	0.381	153	0.6	14.046	B
C-A	1223			1223			
C-B	0	287	0.000	0	0.0	0.000	A
AB	65			65			
AC	1336			1336			

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	185	332	0.557	183	1.2	23.713	C
C-A	1461			1461			
C-B	0	232	0.000	0	0.0	0.000	A
AB	77			77			
AC	1596			1596			

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	227	229	0.989	204	6.9	99.916	F
C-A	1789			1789			
C-B	0	155	0.000	0	0.0	0.000	A
AB	95			95			
AC	1954			1954			

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	227	229	0.989	216	9.7	157.290	F
C-A	1789			1789			
C-B	0	155	0.000	0	0.0	0.000	A
AB	95			95			
AC	1954			1954			

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	185	332	0.557	218	1.4	0.000	E
C-A	1461			1461			
C-B	0	232	0.000	0	0.0	0.000	A
A-B	77			77			
A-C	1596			1596			

09:15 - 09:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	155	407	0.381	158	0.6	14.630	B
C-A	1223			1223			
C-B	0	287	0.000	0	0.0	0.000	A
A-B	65			65			
A-C	1336			1336			

2031 Base Flows, PM

Data Errors and Warnings

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

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		0.73	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D6	2031 Base Flows	PM	ONE HOUR	17:00	18:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	1938	100.000
B		✓	89	100.000
C		✓	1604	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A	B	C
	A	0	152	1786
	B	0	0	89
	C	1604	0	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
		A	B	C
	A	0	0	0
	B	0	0	0
	C	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.45	29.94	0.8	D
C-A				
C-B	0.00	0.00	0.0	A
AB				
AC				

Main Results for each time segment

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	67	399	0.168	66	0.2	10.797	B
C-A	1208			1208			
C-B	0	276	0.000	0	0.0	0.000	A
AB	114			114			
AC	1345			1345			

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	80	323	0.248	80	0.3	14.761	B
C-A	1442			1442			
C-B	0	218	0.000	0	0.0	0.000	A
AB	137			137			
AC	1606			1606			

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	98	218	0.450	96	0.8	29.156	D
C-A	1766			1766			
C-B	0	138	0.000	0	0.0	0.000	A
AB	167			167			
AC	1966			1966			

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	98	218	0.450	98	0.8	29.939	D
C-A	1766			1766			
C-B	0	138	0.000	0	0.0	0.000	A
AB	167			167			
AC	1966			1966			

18:00 - 18:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	80	323	0.248	82	0.3	15.042	C
C-A	1442			1442			
C-B	0	218	0.000	0	0.0	0.000	A
A-B	137			137			
A-C	1606			1606			

18:15 - 18:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	67	399	0.168	68	0.2	10.882	B
C-A	1208			1208			
C-B	0	276	0.000	0	0.0	0.000	A
A-B	114			114			
A-C	1345			1345			

2022 Assessment Flows, AM

Data Errors and Warnings

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

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		2.11	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D7	2022 Assessment Flows	AM	ONE HOUR	08:00	09:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	1614	100.000
B		✓	188	100.000
C		✓	1390	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A	B	C
	A	0	88	1526
	B	0	0	188
	C	1390	0	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
		A	B	C
	A	0	0	0
	B	0	0	0
	C	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.68	35.75	2.0	E
C-A				
C-B	0.00	0.00	0.0	A
AB				
AC				

Main Results for each time segment

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	142	459	0.308	140	0.4	11.209	B
C-A	1046			1046			
C-B	0	325	0.000	0	0.0	0.000	A
AB	66			66			
AC	1149			1149			

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	169	395	0.428	168	0.7	15.760	C
C-A	1250			1250			
C-B	0	277	0.000	0	0.0	0.000	A
AB	79			79			
AC	1372			1372			

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	207	306	0.676	202	1.9	33.273	D
C-A	1530			1530			
C-B	0	211	0.000	0	0.0	0.000	A
AB	97			97			
AC	1680			1680			

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	207	306	0.676	207	2.0	35.750	E
C-A	1530			1530			
C-B	0	211	0.000	0	0.0	0.000	A
AB	97			97			
AC	1680			1680			

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	169	395	0.428	174	0.8	16.596	C
C-A	1250			1250			
C-B	0	277	0.000	0	0.0	0.000	A
A-B	79			79			
A-C	1372			1372			

09:15 - 09:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	142	459	0.308	143	0.5	11.418	B
C-A	1046			1046			
C-B	0	325	0.000	0	0.0	0.000	A
A-B	66			66			
A-C	1149			1149			

2022 Assessment Flows, PM

Data Errors and Warnings

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

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		0.44	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D8	2022 Assessment Flows	PM	ONE HOUR	17:00	18:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	1663	100.000
B		✓	81	100.000
C		✓	1351	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A	B	C
	From A	0	162	1501
	From B	0	0	81
	From C	1351	0	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
		A	B	C
	From A	0	0	0
	From B	0	0	0
	From C	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.29	16.67	0.4	C
C-A				
C-B	0.00	0.00	0.0	A
AB				
AC				

Main Results for each time segment

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	61	458	0.133	60	0.2	9.031	A
C-A	1017			1017			
C-B	0	318	0.000	0	0.0	0.000	A
AB	122			122			
AC	1130			1130			

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	73	394	0.185	73	0.2	11.187	B
C-A	1215			1215			
C-B	0	268	0.000	0	0.0	0.000	A
AB	146			146			
AC	1349			1349			

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	89	305	0.292	88	0.4	16.565	C
C-A	1487			1487			
C-B	0	200	0.000	0	0.0	0.000	A
AB	178			178			
AC	1653			1653			

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	89	305	0.292	89	0.4	16.673	C
C-A	1487			1487			
C-B	0	200	0.000	0	0.0	0.000	A
AB	178			178			
AC	1653			1653			

18:00 - 18:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	73	394	0.185	74	0.2	11.258	B
C-A	1215			1215			
C-B	0	268	0.000	0	0.0	0.000	A
A-B	146			146			
A-C	1349			1349			

18:15 - 18:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	61	458	0.133	61	0.2	9.071	A
C-A	1017			1017			
C-B	0	318	0.000	0	0.0	0.000	A
A-B	122			122			
A-C	1130			1130			

2027 Assessment Flows, AM

Data Errors and Warnings

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

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		3.25	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D9	2027 Assessment Flows	AM	ONE HOUR	08:00	09:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	1703	100.000
B		✓	198	100.000
C		✓	1468	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A	B	C
	A	0	92	1611
	B	0	0	198
	C	1468	0	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
		A	B	C
	A	0	0	0
	B	0	0	0
	C	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.78	55.35	3.1	F
C-A				
C-B	0.00	0.00	0.0	A
AB				
AC				

Main Results for each time segment

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	149	441	0.338	147	0.5	12.174	B
C-A	1105			1105			
C-B	0	312	0.000	0	0.0	0.000	A
AB	69			69			
AC	1213			1213			

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	178	373	0.477	176	0.9	18.159	C
C-A	1320			1320			
C-B	0	261	0.000	0	0.0	0.000	A
AB	83			83			
AC	1448			1448			

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	218	280	0.780	210	2.9	47.413	E
C-A	1616			1616			
C-B	0	191	0.000	0	0.0	0.000	A
AB	101			101			
AC	1774			1774			

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	218	280	0.780	217	3.1	55.346	F
C-A	1616			1616			
C-B	0	191	0.000	0	0.0	0.000	A
AB	101			101			
AC	1774			1774			

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	178	373	0.477	187	0.9	20.131	C
C-A	1320			1320			
C-B	0	261	0.000	0	0.0	0.000	A
A-B	83			83			
A-C	1448			1448			

09:15 - 09:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	149	441	0.338	151	0.5	12.475	B
C-A	1105			1105			
C-B	0	312	0.000	0	0.0	0.000	A
A-B	69			69			
A-C	1213			1213			

2027 Assessment Flows, PM

Data Errors and Warnings

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

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		0.51	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D10	2027 Assessment Flows	PM	ONE HOUR	17:00	18:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	1755	100.000
B		✓	85	100.000
C		✓	1427	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
	A	B	C	
From	A	0	169	1586
	B	0	0	85
	C	1427	0	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
	A	B	C	
From	A	0	0	0
	B	0	0	0
	C	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.34	19.53	0.5	C
C-A				
C-B	0.00	0.00	0.0	A
AB				
AC				

Main Results for each time segment

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	64	440	0.146	63	0.2	9.544	A
C-A	1074			1074			
C-B	0	304	0.000	0	0.0	0.000	A
AB	127			127			
AC	1194			1194			

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	76	372	0.206	76	0.3	12.157	B
C-A	1283			1283			
C-B	0	251	0.000	0	0.0	0.000	A
AB	152			152			
AC	1426			1426			

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	94	278	0.337	93	0.5	19.341	C
C-A	1571			1571			
C-B	0	179	0.000	0	0.0	0.000	A
AB	186			186			
AC	1746			1746			

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	94	278	0.337	94	0.5	19.528	C
C-A	1571			1571			
C-B	0	179	0.000	0	0.0	0.000	A
AB	186			186			
AC	1746			1746			

18:00 - 18:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	76	372	0.206	77	0.3	12.265	B
C-A	1283			1283			
C-B	0	251	0.000	0	0.0	0.000	A
A-B	152			152			
A-C	1426			1426			

18:15 - 18:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	64	440	0.146	64	0.2	9.599	A
C-A	1074			1074			
C-B	0	304	0.000	0	0.0	0.000	A
A-B	127			127			
A-C	1194			1194			

2031 Assessment Flows, AM

Data Errors and Warnings

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

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		12.63	B

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D11	2031 Assessment Flows	AM	ONE HOUR	08:00	09:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	1886	100.000
B		✓	217	100.000
C		✓	1629	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A	B	C
	A	0	100	1786
	B	0	0	217
	C	1629	0	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
		A	B	C
	A	0	0	0
	B	0	0	0
	C	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	1.07	217.23	14.8	F
C-A				
C-B	0.00	0.00	0.0	A
AB				
AC				

Main Results for each time segment

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	163	403	0.405	161	0.7	14.700	B
C-A	1226			1226			
C-B	0	284	0.000	0	0.0	0.000	A
AB	75			75			
AC	1345			1345			

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	195	328	0.595	192	1.4	25.962	C
C-A	1464			1464			
C-B	0	227	0.000	0	0.0	0.000	A
AB	90			90			
AC	1606			1606			

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	239	224	1.065	207	9.5	125.129	F
C-A	1794			1794			
C-B	0	149	0.000	0	0.0	0.000	A
AB	110			110			
AC	1966			1966			

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	239	224	1.065	218	14.8	217.293	F
C-A	1794			1794			
C-B	0	149	0.000	0	0.0	0.000	A
AB	110			110			
AC	1966			1966			

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	195	328	0.595	248	1.6	65.789	F
C-A	1464			1464			
C-B	0	227	0.000	0	0.0	0.000	A
A-B	90			90			
A-C	1606			1606			

09:15 - 09:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	163	403	0.405	167	0.7	15.469	C
C-A	1226			1226			
C-B	0	284	0.000	0	0.0	0.000	A
A-B	75			75			
A-C	1345			1345			

2031 Assessment Flows, PM

Data Errors and Warnings

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

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		0.86	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D12	2031 Assessment Flows	PM	ONE HOUR	17:00	18:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	1979	100.000
B		✓	95	100.000
C		✓	1613	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A	B	C
	A	0	187	1792
	B	0	0	95
	C	1613	0	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
		A	B	C
	A	0	0	0
	B	0	0	0
	C	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.49	33.45	0.9	D
C-A				
C-B	0.00	0.00	0.0	A
AB				
AC				

Main Results for each time segment

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	72	395	0.181	71	0.2	11.082	B
C-A	1214			1214			
C-B	0	269	0.000	0	0.0	0.000	A
AB	141			141			
AC	1349			1349			

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	85	318	0.269	85	0.4	15.408	C
C-A	1450			1450			
C-B	0	210	0.000	0	0.0	0.000	A
AB	168			168			
AC	1611			1611			

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	105	212	0.494	102	0.9	32.288	D
C-A	1776			1776			
C-B	0	128	0.000	0	0.0	0.000	A
AB	206			206			
AC	1973			1973			

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	105	212	0.494	104	0.9	33.455	D
C-A	1776			1776			
C-B	0	128	0.000	0	0.0	0.000	A
AB	206			206			
AC	1973			1973			

18:00 - 18:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	85	318	0.269	88	0.4	15.782	C
C-A	1450			1450			
C-B	0	210	0.000	0	0.0	0.000	A
A-B	168			168			
A-C	1611			1611			

18:15 - 18:30

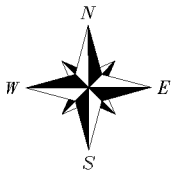
Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	72	395	0.181	72	0.2	11.182	B
C-A	1214			1214			
C-B	0	269	0.000	0	0.0	0.000	A
A-B	141			141			
A-C	1349			1349			

APPENDIX 7

PICADY Output for A27/Arundel Road (Improved Layout Plan)



NORTH SOUTH AERIAL VIEW



NOTES

THIS IS NOT A CONSTRUCTION DRAWING AND IS FOR INDICATIVE PURPOSES ONLY. THE DRAWING WILL BE SUBJECT TO CHANGE FOLLOWING LOCAL AUTHORITY REVIEW AND CONFIRMATION OF PUBLIC HIGHWAY AND THIRD PARTY LAND BOUNDARIES.

REV	DETAILS	DRAWN	CHECKED	DATE
-----	---------	-------	---------	------

CLIENT:

GLADMAN

PROJECT:

ARUNDEL ROAD, ANGMERING

DRAWING TITLE:

**A27 ARUNDEL ROAD JUNCTION
EXISTING LAYOUT WITH VISIBILITY
SPRAY TO THE EAST**

SCALES:

1:500 @ A3

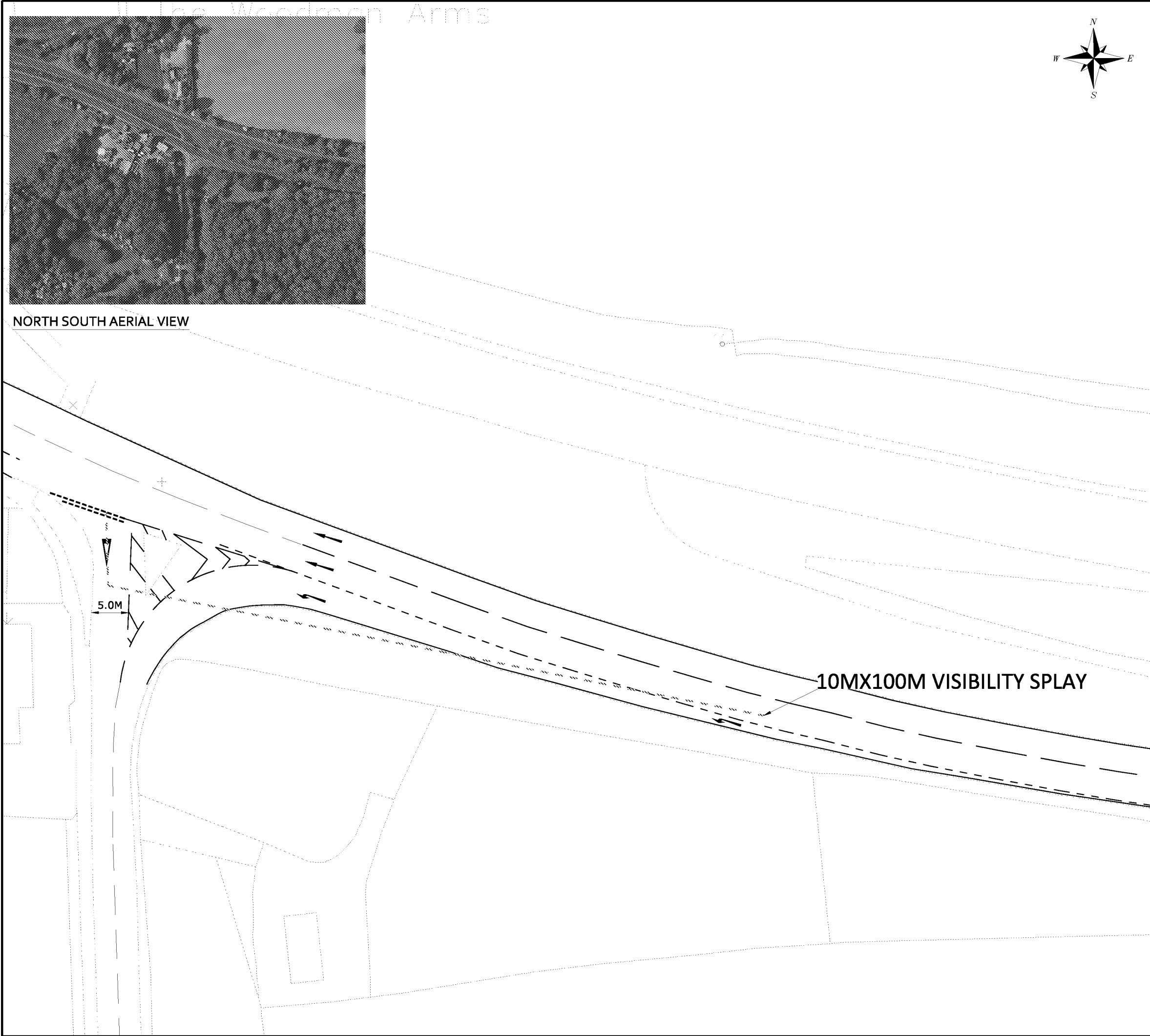
DRAWN:	GM	CHECKED:	MR	DATE:	AUG 18
--------	----	----------	----	-------	--------

Croft Transport Planning & Design
Hill Quays
9 Jordan Street
Manchester
M15 4PY

Email: info@crofts.co.uk
Tel: 0161 667 3746
Web: www.crofts.co.uk

CROFT

DRAWING NUMBER:	2020-05	REVISION:	-
-----------------	---------	-----------	---



Junctions 9

PICADY 9 - Priority Intersection Module

Version: 9.5.0.6896
 © Copyright TRL Limited, 2018

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: A27 - Arundel Road - HE Base and Ass - IMP.j9

Path: Z:\projects\2020 Arundel Road, Angmering\Picady\HE

Report generation date: 09/08/2018 11:02:50

»2022 Base Flows, AM
 »2022 Base Flows, PM
 »2027 Base Flows, AM
 »2027 Base Flows, PM
 »2031 Base Flows, AM
 »2031 Base Flows, PM
 »2022 Assessment Flows, AM
 »2022 Assessment Flows, PM
 »2027 Assessment Flows, AM
 »2027 Assessment Flows, PM
 »2031 Assessment Flows, AM
 »2031 Assessment Flows, PM

Summary of junction performance

	AM				PM			
	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS
2022 Base Flows								
Stream B-AC	1.5	27.81	0.60	D	0.3	14.86	0.25	B
Stream C-B	0.0	0.00	0.00	A	0.0	0.00	0.00	A
2027 Base Flows								
Stream B-AC	2.1	38.95	0.69	E	0.4	17.19	0.29	C
Stream C-B	0.0	0.00	0.00	A	0.0	0.00	0.00	A
2031 Base Flows								
Stream B-AC	7.7	127.88	0.95	F	0.7	27.76	0.43	B
Stream C-B	0.0	0.00	0.00	A	0.0	0.00	0.00	A
2022 Assessment Flows								
Stream B-AC	1.8	31.66	0.65	D	0.4	15.71	0.28	C
Stream C-B	0.0	0.00	0.00	A	0.0	0.00	0.00	A
2027 Assessment Flows								
Stream B-AC	2.7	47.20	0.75	E	0.5	18.33	0.32	C
Stream C-B	0.0	0.00	0.00	A	0.0	0.00	0.00	A
2031 Assessment Flows								
Stream B-AC	11.8	178.39	1.02	F	0.9	30.83	0.47	B
Stream C-B	0.0	0.00	0.00	A	0.0	0.00	0.00	A

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

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

File summary

File Description

Title	(untitled)
Location	
Site number	
Date	06/07/2018
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	Cadworkstation4\Kyle
Description	

Units

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

Analysis Options

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

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2022 Base Flows	AM	ONE HOUR	08:00	09:30	15
D2	2022 Base Flows	PM	ONE HOUR	17:00	18:30	15
D3	2027 Base Flows	AM	ONE HOUR	08:00	09:30	15
D4	2027 Base Flows	PM	ONE HOUR	17:00	18:30	15
D5	2031 Base Flows	AM	ONE HOUR	08:00	09:30	15
D6	2031 Base Flows	PM	ONE HOUR	17:00	18:30	15
D7	2022 Assessment Flows	AM	ONE HOUR	08:00	09:30	15
D8	2022 Assessment Flows	PM	ONE HOUR	17:00	18:30	15
D9	2027 Assessment Flows	AM	ONE HOUR	08:00	09:30	15
D10	2027 Assessment Flows	PM	ONE HOUR	17:00	18:30	15
D11	2031 Assessment Flows	AM	ONE HOUR	08:00	09:30	15
D12	2031 Assessment Flows	PM	ONE HOUR	17:00	18:30	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

2022 Base Flows, AM

Data Errors and Warnings

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

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		1.57	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	A27 (E)		Major
B	Arundel Road		Minor
C	A27 (W)		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C	7.85			0.0		-

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

Minor Arm Geometry

Arm	Minor arm type	Lane width (m)	Visibility to left (m)	Visibility to right (m)
B	One lane	5.00	0	100

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	631	0.106	0.267	0.168	0.382
1	B-C	824	0.116	0.294	-	-
1	C-B	574	0.204	0.204	-	-

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

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

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2022 Base Flows	AM	ONE HOUR	08:00	09:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	1590	100.000
B		✓	178	100.000
C		✓	1387	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A	B	C
	A	0	74	1516
	B	0	0	178
	C	1387	0	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
		A	B	C
	A	0	0	0
	B	0	0	0
	C	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.60	27.81	1.5	D
C-A				
C-B	0.00	0.00	0.0	A
A-B				
A-C				

Main Results for each time segment

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	134	483	0.278	132	0.4	10.236	E
C-A	1044			1044			
C-B	0	329	0.000	0	0.0	0.000	A
AB	56			56			
AC	1141			1141			

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	160	416	0.384	159	0.6	13.938	E
C-A	1247			1247			
C-B	0	282	0.000	0	0.0	0.000	A
AB	67			67			
AC	1363			1363			

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	196	325	0.604	193	1.4	26.652	D
C-A	1527			1527			
C-B	0	216	0.000	0	0.0	0.000	A
AB	81			81			
AC	1669			1669			

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	196	325	0.604	196	1.5	27.813	D
C-A	1527			1527			
C-B	0	216	0.000	0	0.0	0.000	A
AB	81			81			
AC	1669			1669			

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	160	416	0.384	163	0.6	14.400	E
C-A	1247			1247			
C-B	0	282	0.000	0	0.0	0.000	A
AB	67			67			
AC	1363			1363			

09:15 - 09:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	134	483	0.278	135	0.4	10.383	E
C-A	1044			1044			
C-B	0	329	0.000	0	0.0	0.000	A
AB	56			56			
AC	1141			1141			

2022 Base Flows, PM

Data Errors and Warnings

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

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		0.37	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D2	2022 Base Flows	PM	ONE HOUR	17:00	18:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	1622	100.000
B		✓	75	100.000
C		✓	1342	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A	B	C
	A	0	127	1495
	B	0	0	75
	C	1342	0	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
		A	B	C
	A	0	0	0
	B	0	0	0
	C	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.25	14.86	0.3	E
C-A				
C-B	0.00	0.00	0.0	A
AB				
AC				

Main Results for each time segment

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	56	483	0.117	56	0.1	8.425	A
C-A	1010			1010			
C-B	0	324	0.000	0	0.0	0.000	A
AB	96			96			
AC	1126			1126			

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	67	416	0.162	67	0.2	10.300	E
C-A	1206			1206			
C-B	0	276	0.000	0	0.0	0.000	A
AB	114			114			
AC	1344			1344			

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	83	325	0.254	82	0.3	14.796	E
C-A	1478			1478			
C-B	0	209	0.000	0	0.0	0.000	A
AB	140			140			
AC	1646			1646			

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	83	325	0.254	83	0.3	14.863	E
C-A	1478			1478			
C-B	0	209	0.000	0	0.0	0.000	A
AB	140			140			
AC	1646			1646			

18:00 - 18:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	67	416	0.162	68	0.2	10.348	B
C-A	1206			1206			
C-B	0	276	0.000	0	0.0	0.000	A
A-B	114			114			
A-C	1344			1344			

18:15 - 18:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	56	483	0.117	57	0.1	8.456	A
C-A	1010			1010			
C-B	0	324	0.000	0	0.0	0.000	A
A-B	96			96			
A-C	1126			1126			

2027 Base Flows, AM

Data Errors and Warnings

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

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		2.19	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D3	2027 Base Flows	AM	ONE HOUR	08:00	09:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	1679	100.000
B		✓	187	100.000
C		✓	1464	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A	B	C
	A	0	78	1601
	B	0	0	187
	C	1464	0	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
		A	B	C
	A	0	0	0
	B	0	0	0
	C	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.69	38.95	2.1	E
C-A				
C-B	0.00	0.00	0.0	A
AB				
AC				

Main Results for each time segment

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	141	464	0.304	139	0.4	11.038	B
C-A	1102			1102			
C-B	0	315	0.000	0	0.0	0.000	A
AB	59			59			
AC	1205			1205			

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	168	394	0.427	167	0.7	15.802	C
C-A	1316			1316			
C-B	0	265	0.000	0	0.0	0.000	A
AB	70			70			
AC	1439			1439			

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	206	297	0.694	201	2.0	35.781	E
C-A	1612			1612			
C-B	0	196	0.000	0	0.0	0.000	A
AB	86			86			
AC	1763			1763			

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	206	297	0.694	205	2.1	38.954	E
C-A	1612			1612			
C-B	0	196	0.000	0	0.0	0.000	A
AB	86			86			
AC	1763			1763			

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	168	394	0.427	174	0.8	16.737	C
C-A	1316			1316			
C-B	0	265	0.000	0	0.0	0.000	A
A-B	70			70			
A-C	1439			1439			

09:15 - 09:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	141	464	0.304	142	0.4	11.243	B
C-A	1102			1102			
C-B	0	315	0.000	0	0.0	0.000	A
A-B	59			59			
A-C	1205			1205			

2027 Base Flows, PM

Data Errors and Warnings

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

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		0.42	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D4	2027 Base Flows	PM	ONE HOUR	17:00	18:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	1714	100.000
B		✓	79	100.000
C		✓	1418	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A	B	C
	A	0	134	1580
	B	0	0	79
	C	1418	0	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
		A	B	C
	A	0	0	0
	B	0	0	0
	C	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.29	17.19	0.4	C
C-A				
C-B	0.00	0.00	0.0	A
AB				
AC				

Main Results for each time segment

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	59	463	0.128	59	0.1	8.889	A
C-A	1068			1068			
C-B	0	310	0.000	0	0.0	0.000	A
AB	101			101			
AC	1190			1190			

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	71	393	0.181	71	0.2	11.152	B
C-A	1275			1275			
C-B	0	259	0.000	0	0.0	0.000	A
AB	120			120			
AC	1420			1420			

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	87	296	0.294	86	0.4	17.073	C
C-A	1561			1561			
C-B	0	188	0.000	0	0.0	0.000	A
AB	148			148			
AC	1740			1740			

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	87	296	0.294	87	0.4	17.193	C
C-A	1561			1561			
C-B	0	188	0.000	0	0.0	0.000	A
AB	148			148			
AC	1740			1740			

18:00 - 18:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	71	393	0.181	72	0.2	11.225	B
C-A	1275			1275			
C-B	0	259	0.000	0	0.0	0.000	A
A-B	120			120			
A-C	1420			1420			

18:15 - 18:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	59	463	0.128	60	0.1	8.926	A
C-A	1068			1068			
C-B	0	310	0.000	0	0.0	0.000	A
A-B	101			101			
A-C	1190			1190			

2031 Base Flows, AM

Data Errors and Warnings

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

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		7.14	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D5	2031 Base Flows	AM	ONE HOUR	08:00	09:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	1861	100.000
B		✓	206	100.000
C		✓	1625	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A	B	C
	A	0	86	1775
	B	0	0	206
	C	1625	0	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
		A	B	C
	A	0	0	0
	B	0	0	0
	C	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.36	127.88	7.7	F
C-A				
C-B	0.00	0.00	0.0	A
AB				
AC				

Main Results for each time segment

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	155	424	0.365	153	0.6	13.152	B
C-A	1223			1223			
C-B	0	287	0.000	0	0.0	0.000	A
AB	65			65			
AC	1336			1336			

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	185	347	0.534	183	1.1	21.712	C
C-A	1461			1461			
C-B	0	232	0.000	0	0.0	0.000	A
AB	77			77			
AC	1596			1596			

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	227	239	0.947	208	5.8	86.205	F
C-A	1789			1789			
C-B	0	155	0.000	0	0.0	0.000	A
AB	95			95			
AC	1954			1954			

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	227	239	0.947	219	7.7	127.881	F
C-A	1789			1789			
C-B	0	155	0.000	0	0.0	0.000	A
AB	95			95			
AC	1954			1954			

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	185	347	0.534	211	1.2	31.005	B
C-A	1461			1461			
C-B	0	232	0.000	0	0.0	0.000	A
A-B	77			77			
A-C	1596			1596			

09:15 - 09:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	155	424	0.365	158	0.6	13.615	B
C-A	1223			1223			
C-B	0	287	0.000	0	0.0	0.000	A
A-B	65			65			
A-C	1336			1336			

2031 Base Flows, PM

Data Errors and Warnings

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

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		0.68	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D6	2031 Base Flows	PM	ONE HOUR	17:00	18:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	1938	100.000
B		✓	89	100.000
C		✓	1604	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
From		A	B	C	
	A	0	152	1786	
	B	0	0	89	
	C	1604	0	0	

Vehicle Mix

Heavy Vehicle Percentages

		To			
From		A	B	C	
	A	0	0	0	
	B	0	0	0	
	C	0	0	0	

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.43	27.76	0.7	D
C-A				
C-B	0.00	0.00	0.0	A
AB				
AC				

Main Results for each time segment

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	67	416	0.161	66	0.2	10.266	B
C-A	1208			1208			
C-B	0	276	0.000	0	0.0	0.000	A
AB	114			114			
AC	1345			1345			

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	80	337	0.237	80	0.3	13.960	B
C-A	1442			1442			
C-B	0	218	0.000	0	0.0	0.000	A
AB	137			137			
AC	1606			1606			

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	98	227	0.431	96	0.7	27.131	D
C-A	1766			1766			
C-B	0	138	0.000	0	0.0	0.000	A
AB	167			167			
AC	1966			1966			

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	98	227	0.431	98	0.7	27.758	D
C-A	1766			1766			
C-B	0	138	0.000	0	0.0	0.000	A
AB	167			167			
AC	1966			1966			

18:00 - 18:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	80	337	0.237	82	0.3	14.190	B
C-A	1442			1442			
C-B	0	218	0.000	0	0.0	0.000	A
A-B	137			137			
A-C	1606			1606			

18:15 - 18:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	67	416	0.161	67	0.2	10.337	B
C-A	1208			1208			
C-B	0	276	0.000	0	0.0	0.000	A
A-B	114			114			
A-C	1345			1345			

2022 Assessment Flows, AM

Data Errors and Warnings

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

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		1.86	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D7	2022 Assessment Flows	AM	ONE HOUR	08:00	09:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	1614	100.000
B		✓	188	100.000
C		✓	1390	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A	B	C
	A	0	88	1526
	B	0	0	188
	C	1390	0	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
		A	B	C
	A	0	0	0
	B	0	0	0
	C	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.65	31.66	1.8	D
C-A				
C-B	0.00	0.00	0.0	A
AB				
AC				

Main Results for each time segment

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	142	479	0.295	140	0.4	10.558	B
C-A	1046			1046			
C-B	0	325	0.000	0	0.0	0.000	A
AB	66			66			
AC	1149			1149			

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	169	412	0.410	168	0.7	14.668	B
C-A	1250			1250			
C-B	0	277	0.000	0	0.0	0.000	A
AB	79			79			
AC	1372			1372			

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	207	320	0.648	203	1.7	29.876	D
C-A	1530			1530			
C-B	0	211	0.000	0	0.0	0.000	A
AB	97			97			
AC	1680			1680			

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	207	320	0.648	207	1.8	31.658	D
C-A	1530			1530			
C-B	0	211	0.000	0	0.0	0.000	A
AB	97			97			
AC	1680			1680			

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	169	412	0.410	173	0.7	15.302	C
C-A	1250			1250			
C-B	0	277	0.000	0	0.0	0.000	A
A-B	79			79			
A-C	1372			1372			

09:15 - 09:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	142	479	0.295	143	0.4	10.730	B
C-A	1046			1046			
C-B	0	325	0.000	0	0.0	0.000	A
A-B	66			66			
A-C	1149			1149			

2022 Assessment Flows, PM

Data Errors and Warnings

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

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		0.41	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D8	2022 Assessment Flows	PM	ONE HOUR	17:00	18:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	1663	100.000
B		✓	81	100.000
C		✓	1351	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A	B	C
	From A	0	162	1501
	From B	0	0	81
	From C	1351	0	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
		A	B	C
	From A	0	0	0
	From B	0	0	0
	From C	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.28	15.71	0.4	C
C-A				
C-B	0.00	0.00	0.0	A
AB				
AC				

Main Results for each time segment

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	61	478	0.127	60	0.1	8.604	A
C-A	1017			1017			
C-B	0	318	0.000	0	0.0	0.000	A
AB	122			122			
AC	1130			1130			

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	73	411	0.177	73	0.2	10.622	B
C-A	1215			1215			
C-B	0	268	0.000	0	0.0	0.000	A
AB	146			146			
AC	1349			1349			

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	89	318	0.280	89	0.4	15.618	C
C-A	1487			1487			
C-B	0	200	0.000	0	0.0	0.000	A
AB	178			178			
AC	1653			1653			

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	89	318	0.280	89	0.4	15.707	C
C-A	1487			1487			
C-B	0	200	0.000	0	0.0	0.000	A
AB	178			178			
AC	1653			1653			

18:00 - 18:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	73	411	0.177	73	0.2	10.680	B
C-A	1215			1215			
C-B	0	268	0.000	0	0.0	0.000	A
A-B	146			146			
A-C	1349			1349			

18:15 - 18:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	61	478	0.127	61	0.1	8.638	A
C-A	1017			1017			
C-B	0	318	0.000	0	0.0	0.000	A
A-B	122			122			
A-C	1130			1130			

2027 Assessment Flows, AM

Data Errors and Warnings

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

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		2.77	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D9	2027 Assessment Flows	AM	ONE HOUR	08:00	09:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	1703	100.000
B		✓	198	100.000
C		✓	1468	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A	B	C
	A	0	92	1611
	B	0	0	198
	C	1468	0	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
		A	B	C
	A	0	0	0
	B	0	0	0
	C	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.75	47.20	2.7	E
C-A				
C-B	0.00	0.00	0.0	A
AB				
AC				

Main Results for each time segment

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	149	460	0.324	147	0.5	11.436	B
C-A	1105			1105			
C-B	0	312	0.000	0	0.0	0.000	A
AB	69			69			
AC	1213			1213			

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	178	389	0.457	177	0.8	16.806	C
C-A	1320			1320			
C-B	0	261	0.000	0	0.0	0.000	A
AB	83			83			
AC	1448			1448			

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	218	292	0.747	211	2.5	41.753	E
C-A	1616			1616			
C-B	0	191	0.000	0	0.0	0.000	A
AB	101			101			
AC	1774			1774			

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	218	292	0.747	217	2.7	47.203	E
C-A	1616			1616			
C-B	0	191	0.000	0	0.0	0.000	A
AB	101			101			
AC	1774			1774			

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	178	389	0.457	185	0.9	18.214	C
C-A	1320			1320			
C-B	0	261	0.000	0	0.0	0.000	A
A-B	83			83			
A-C	1448			1448			

09:15 - 09:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	149	460	0.324	151	0.5	11.687	B
C-A	1105			1105			
C-B	0	312	0.000	0	0.0	0.000	A
A-B	69			69			
A-C	1213			1213			

2027 Assessment Flows, PM

Data Errors and Warnings

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

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		0.48	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D10	2027 Assessment Flows	PM	ONE HOUR	17:00	18:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	1755	100.000
B		✓	85	100.000
C		✓	1427	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
From		A	B	C
	A	0	169	1586
	B	0	0	85
	C	1427	0	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
From		A	B	C
	A	0	0	0
	B	0	0	0
	C	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.32	18.33	0.5	C
C-A				
C-B	0.00	0.00	0.0	A
AB				
AC				

Main Results for each time segment

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	64	459	0.139	63	0.2	9.086	A
C-A	1074			1074			
C-B	0	304	0.000	0	0.0	0.000	A
AB	127			127			
AC	1194			1194			

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	76	388	0.197	76	0.2	11.530	B
C-A	1283			1283			
C-B	0	251	0.000	0	0.0	0.000	A
AB	152			152			
AC	1426			1426			

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	94	290	0.323	93	0.5	18.173	C
C-A	1571			1571			
C-B	0	179	0.000	0	0.0	0.000	A
AB	186			186			
AC	1746			1746			

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	94	290	0.323	94	0.5	18.327	C
C-A	1571			1571			
C-B	0	179	0.000	0	0.0	0.000	A
AB	186			186			
AC	1746			1746			

18:00 - 18:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	76	388	0.197	77	0.2	11.620	B
C-A	1283			1283			
C-B	0	251	0.000	0	0.0	0.000	A
A-B	152			152			
A-C	1426			1426			

18:15 - 18:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	64	459	0.139	64	0.2	9.132	A
C-A	1074			1074			
C-B	0	304	0.000	0	0.0	0.000	A
A-B	127			127			
A-C	1194			1194			

2031 Assessment Flows, AM

Data Errors and Warnings

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

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		10.37	B

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D11	2031 Assessment Flows	AM	ONE HOUR	08:00	09:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	1886	100.000
B		✓	217	100.000
C		✓	1629	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A	B	C
From	A	0	100	1786
	B	0	0	217
	C	1629	0	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
		A	B	C
From	A	0	0	0
	B	0	0	0
	C	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	1.02	178.33	11.8	F
C-A				
C-B	0.00	0.00	0.0	A
AB				
AC				

Main Results for each time segment

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	163	421	0.388	161	0.6	13.729	B
C-A	1226			1226			
C-B	0	284	0.000	0	0.0	0.000	A
AB	75			75			
AC	1345			1345			

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	195	342	0.570	193	1.3	23.632	C
C-A	1464			1464			
C-B	0	227	0.000	0	0.0	0.000	A
AB	90			90			
AC	1606			1606			

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	239	234	1.021	212	8.0	103.926	F
C-A	1794			1794			
C-B	0	149	0.000	0	0.0	0.000	A
AB	110			110			
AC	1966			1966			

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	239	234	1.021	224	11.8	178.334	F
C-A	1794			1794			
C-B	0	149	0.000	0	0.0	0.000	A
AB	110			110			
AC	1966			1966			

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	195	342	0.570	237	1.4	45.403	E
C-A	1464			1464			
C-B	0	227	0.000	0	0.0	0.000	A
A-B	90			90			
A-C	1606			1606			

09:15 - 09:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	163	421	0.388	166	0.7	14.325	B
C-A	1226			1226			
C-B	0	284	0.000	0	0.0	0.000	A
A-B	75			75			
A-C	1345			1345			

2031 Assessment Flows, PM

Data Errors and Warnings

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

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		0.79	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D12	2031 Assessment Flows	PM	ONE HOUR	17:00	18:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	1979	100.000
B		✓	95	100.000
C		✓	1613	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
	A	B	C	
From	A	0	187	1792
	B	0	0	95
	C	1613	0	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
	A	B	C	
From	A	0	0	0
	B	0	0	0
	C	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.47	30.83	0.9	D
C-A				
C-B	0.00	0.00	0.0	A
AB				
AC				

Main Results for each time segment

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	72	412	0.174	71	0.2	10.529	B
C-A	1214			1214			
C-B	0	269	0.000	0	0.0	0.000	A
AB	141			141			
AC	1349			1349			

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	85	332	0.257	85	0.3	14.551	B
C-A	1450			1450			
C-B	0	210	0.000	0	0.0	0.000	A
AB	168			168			
AC	1611			1611			

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	105	221	0.473	103	0.8	29.909	D
C-A	1776			1776			
C-B	0	128	0.000	0	0.0	0.000	A
AB	206			206			
AC	1973			1973			

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	105	221	0.473	104	0.9	30.832	D
C-A	1776			1776			
C-B	0	128	0.000	0	0.0	0.000	A
AB	206			206			
AC	1973			1973			

18:00 - 18:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	85	332	0.257	87	0.4	14.856	B
C-A	1450			1450			
C-B	0	210	0.000	0	0.0	0.000	A
A-B	168			168			
A-C	1611			1611			

18:15 - 18:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	72	412	0.174	72	0.2	10.615	B
C-A	1214			1214			
C-B	0	269	0.000	0	0.0	0.000	A
A-B	141			141			
A-C	1349			1349			

APPENDIX 8

Location of Accidents by Grid Reference

Instructions: Right-click (or Tap) on the Map to Display the Grid Reference and Location Information

Instructions: Find a grid reference on the Google map by simply right-clicking on the map. Enter a location search below.

Post Code

Go

Location (Road , Town)

Go

Grid Reference

Go

X (Easting) Y (Northing)

Go

Lat

Long

Go



[Link for All Points](#)

[Elevation Chart](#)

[Show Points on OS Map](#)

[Show Points on Mobile Map](#)

[Show Points on OpenStreetMap](#)

[Distance Matrix](#)

[Heatmap](#)

[Toggle Show Pin Labels](#)

[Export Points to CSV](#)

[Export Points to Excel](#)

[Export Points to Google Earth \(KML\)](#)

Instructions: Right-click (or Tap) on the Map to Display the Grid Reference and Location Information

Instructions: Find a grid reference on the Google map by simply right-clicking on the map. Enter a location search below.

Post Code

Go

Location (Road , Town)

Go

Grid Reference

Go

X (Easting) Y (Northing)

506699 105654 Go



Lat Long

Go



[Link for All Points](#)

[Elevation Chart](#)

[Show Points on OS Map](#)

[Show Points on Mobile Map](#)

[Show Points on OpenStreetMap](#)

[Distance Matrix](#)

[Heatmap](#)

[Toggle Show Pin Labels](#)

[Export Points to CSV](#)

[Export Points to Excel](#)

[Export Points to Google Earth \(KML\)](#)

APPENDIX 9

Multi Modal TRICS Output

Calculation Reference: AUDIT-851401-170106-0102

TRIP RATE CALCULATION SELECTION PARAMETERS:

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

MULTI-MODAL CYCLISTS

Selected regions and areas:

02	SOUTH EAST	
	ES EAST SUSSEX	1 days
	EX ESSEX	1 days
	HC HAMPSHIRE	1 days
	SC SURREY	1 days
	WS WEST SUSSEX	2 days
03	SOUTH WEST	
	DV DEVON	3 days
	SM SOMERSET	1 days
04	EAST ANGLIA	
	NF NORFOLK	3 days
	SF SUFFOLK	2 days
05	EAST MIDLANDS	
	LN LINCOLNSHIRE	1 days
06	WEST MIDLANDS	
	SH SHROPSHIRE	4 days
	ST STAFFORDSHIRE	1 days
	WK WARWICKSHIRE	2 days
07	YORKSHIRE & NORTH LINCOLNSHIRE	
	NE NORTH EAST LINCOLNSHIRE	1 days
	NY NORTH YORKSHIRE	5 days
	SY SOUTH YORKSHIRE	1 days
08	NORTH WEST	
	CH CHESHIRE	4 days
	GM GREATER MANCHESTER	1 days
	MS MERSEYSIDE	1 days
09	NORTH	
	CB CUMBRIA	2 days
	TW TYNE & WEAR	1 days
10	WALES	
	PS POWYS	1 days
11	SCOTLAND	
	AG ANGUS	1 days
	EA EAST AYRSHIRE	1 days
	FA FALKIRK	2 days
	HI HIGHLAND	1 days
	PK PERTH & KINROSS	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: 6 to 432 (units:)
Range Selected by User: 6 to 491 (units:)

Public Transport Provision:

Selection by: Include all surveys

Date Range: 01/01/08 to 12/11/15

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	8 days
Tuesday	9 days
Wednesday	10 days
Thursday	12 days
Friday	7 days

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

Selected survey types:

Manual count	46 days
Directional ATC Count	0 days

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

Selected Locations:

Suburban Area (PPS6 Out of Centre)	25
Edge of Town	21

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	40
No Sub Category	6

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

Secondary Filtering selection:

Use Class:

C3	46 days
----	---------

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

Secondary Filtering selection (Cont.):

Population within 1 mile:

1,001 to 5,000	4 days
5,001 to 10,000	11 days
10,001 to 15,000	12 days
15,001 to 20,000	9 days
20,001 to 25,000	6 days
25,001 to 50,000	4 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	5 days
25,001 to 50,000	7 days
50,001 to 75,000	4 days
75,001 to 100,000	14 days
100,001 to 125,000	5 days
125,001 to 250,000	6 days
250,001 to 500,000	4 days
500,001 or More	1 days

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

Car ownership within 5 miles:

0.6 to 1.0	16 days
1.1 to 1.5	30 days

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

Travel Plan:

Yes	4 days
No	42 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	46 days
-----------------	---------

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

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED

MULTI-MODAL PEDESTRIANS

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	46	59	0.026	46	59	0.063	46	59	0.089
08:00 - 09:00	46	59	0.048	46	59	0.161	46	59	0.209
09:00 - 10:00	46	59	0.048	46	59	0.061	46	59	0.109
10:00 - 11:00	46	59	0.046	46	59	0.055	46	59	0.101
11:00 - 12:00	46	59	0.038	46	59	0.032	46	59	0.070
12:00 - 13:00	46	59	0.044	46	59	0.032	46	59	0.076
13:00 - 14:00	46	59	0.036	46	59	0.045	46	59	0.081
14:00 - 15:00	46	59	0.048	46	59	0.057	46	59	0.105
15:00 - 16:00	46	59	0.146	46	59	0.075	46	59	0.221
16:00 - 17:00	46	59	0.093	46	59	0.054	46	59	0.147
17:00 - 18:00	46	59	0.081	46	59	0.042	46	59	0.123
18:00 - 19:00	46	59	0.059	46	59	0.044	46	59	0.103
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.713			0.721			1.434

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: $COUNT/TRP \times FACT$. Trip rates are then rounded to 3 decimal places.

Parameter summary

Trip rate parameter range selected: 6 - 432 (units:)
 Survey date range: 01/01/08 - 12/11/15
 Number of weekdays (Monday-Friday): 46
 Number of Saturdays: 0
 Number of Sundays: 0
 Surveys automatically removed from selection: 1
 Surveys manually removed from selection: 0

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

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED

MULTI-MODAL 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	46	59	0.004	46	59	0.014	46	59	0.018
08:00 - 09:00	46	59	0.002	46	59	0.016	46	59	0.018
09:00 - 10:00	46	59	0.001	46	59	0.005	46	59	0.006
10:00 - 11:00	46	59	0.003	46	59	0.009	46	59	0.012
11:00 - 12:00	46	59	0.003	46	59	0.002	46	59	0.005
12:00 - 13:00	46	59	0.006	46	59	0.005	46	59	0.011
13:00 - 14:00	46	59	0.005	46	59	0.003	46	59	0.008
14:00 - 15:00	46	59	0.004	46	59	0.004	46	59	0.008
15:00 - 16:00	46	59	0.013	46	59	0.004	46	59	0.017
16:00 - 17:00	46	59	0.013	46	59	0.004	46	59	0.017
17:00 - 18:00	46	59	0.017	46	59	0.009	46	59	0.026
18:00 - 19:00	46	59	0.009	46	59	0.005	46	59	0.014
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:			0.080			0.080			0.160

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: $COUNT/TRP \times FACT$. Trip rates are then rounded to 3 decimal places.

Parameter summary

Trip rate parameter range selected: 6 - 432 (units:)
 Survey date range: 01/01/08 - 12/11/15
 Number of weekdays (Monday-Friday): 46
 Number of Saturdays: 0
 Number of Sundays: 0
 Surveys automatically removed from selection: 1
 Surveys manually removed from selection: 0

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

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED

MULTI-MODAL PUBLIC TRANSPORT USERS

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	46	59	0.000	46	59	0.012	46	59	0.012
08:00 - 09:00	46	59	0.002	46	59	0.011	46	59	0.013
09:00 - 10:00	46	59	0.001	46	59	0.007	46	59	0.008
10:00 - 11:00	46	59	0.003	46	59	0.005	46	59	0.008
11:00 - 12:00	46	59	0.005	46	59	0.005	46	59	0.010
12:00 - 13:00	46	59	0.006	46	59	0.007	46	59	0.013
13:00 - 14:00	46	59	0.005	46	59	0.001	46	59	0.006
14:00 - 15:00	46	59	0.005	46	59	0.004	46	59	0.009
15:00 - 16:00	46	59	0.006	46	59	0.005	46	59	0.011
16:00 - 17:00	46	59	0.009	46	59	0.004	46	59	0.013
17:00 - 18:00	46	59	0.011	46	59	0.003	46	59	0.014
18:00 - 19:00	46	59	0.009	46	59	0.000	46	59	0.009
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.062			0.064			0.126

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: $COUNT/TRP \times FACT$. Trip rates are then rounded to 3 decimal places.

Parameter summary

Trip rate parameter range selected: 6 - 432 (units:)
 Survey date range: 01/01/08 - 12/11/15
 Number of weekdays (Monday-Friday): 46
 Number of Saturdays: 0
 Number of Sundays: 0
 Surveys automatically removed from selection: 1
 Surveys manually removed from selection: 0

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

APPENDIX 10

WCHAR Report



Croft Transport Solutions Ltd

**A27/ ARUNDEL ROAD JUNCTION,
ANGMERING**

**WALKING, CYCLING, &
HORSE RIDING ASSESSMENT
JULY 2019**

Transport Planning /Traffic Surveys/ Road Safety Audits

REPORT CONTROL

Document: A27/Arundel Road Jct, Angmering - WCHAR

Project: A27/Arundel Road Jct, Angmering - WCHAR

Client: Croft Transport Solutions Ltd

Job Number: gs-652-2018

File Origin: /go-surveys/Transport Planning/GS652 - A27:Arundel Road Junction, Angmering - WCHAR/GS652-2018 - A27_Arundel Road Jct, Angmering - WCHAR - Final v1.docx

Document Checking:

Primary Author	T Brooks	Initialed:	TB
----------------	----------	------------	----

Contributor	R Lister	Initialed:	RL
-------------	----------	------------	----

Review By	Initialed:
-----------	------------

Issue	Date	Status	Checked for Issue
1	24/09/2018	Draft v1	Tristan Brooks
2	17/10/2018	Final	Tristan Brooks
3	31/07/2019	Final v1	Tristan Brooks
4			



Contents

1	SCHEME DESCRIPTION AND BACKGROUND	2
	Background.....	2
	Proposed Development Scheme.....	3
	Study Area	4
2	WALKING, CYCLING AND HORSE RIDING ASSESSMENT	5
	2-1 - Review of walking, cycling & horse-riding policies and strategies.....	5
	2-2 – Collision Data	5
	2-3 – Public Transport Services and interchange Information	6
	2-4 – Trip Generators/Attractors	6
	2-5 – Site Visit.....	9
	2-6 – Consultation with Key Stakeholders	10
	2-7 – Existing Pedestrian, Cyclist and equestrian facilities within the local area.....	11
	2-8 – Consultation with local user groups and wider public.	11
3	USER OPPORTUNITIES	13
	Pedestrian/cyclist Opportunities	13
	Opportunity 1	13
	Opportunity 2.....	13
	Opportunity 3.....	13
4	WALKING, CYCLING & HORSE-RIDING ASSESSMENT TEAM STATEMENT	14

1 SCHEME DESCRIPTION AND BACKGROUND

Background

- 1.1 This Walking, Cycling and Horse Riding Assessment (WCHAR) is associated with the proposed development of up to 160 residential units and 557m² B1 office use on land to the west of Arundel Road between the A27 to the north and village of Angmering, West Sussex to the south.
- 1.2 The development is being promoted by a third party developer i.e. Gladman Developments Ltd.
- 1.3 The location of the site is shown in **Figure 1**.

Figure 1: Site location



- 1.4 A footway of approximately 1.7 metres wide is provided on the western side of Arundel Road between the site and the A27 to the north and Angmering to the south.