



TRANSPORT ASSESSMENT

AESC UK Plant 3

FEBRUARY 2024

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TABLE OF CONTENTS

1.	INTRODUCTION	5
1.1	OVERVIEW	5
1.2	PURPOSE OF THIS REPORT	5
1.3	SCOPING DISCUSSIONS	5
1.4	REPORT STRUCTURE	5
2.	SITE VISION	7
2.1	INTRODUCTION	7
2.2	SUSTAINABILITY VISION	7
2.3	PEDESTRIAN ACCESS	8
2.4	CYCLING ACCESS	8
2.5	BUS SERVICES	10
2.6	METRO AND TRAIN	11
2.7	KEY TRAVEL PLAN MEASURES	12
2.8	SUSTAINABLE OPPORTUNITIES	13
3.	POLICY CONTEXT	14
3.1	INTRODUCTION	14
3.2	NATIONAL POLICY	14
3.3	REGIONAL AND LOCAL POLICY	15
3.4	SUMMARY	17
4.	BASELINE TRAFFIC CONDITIONS	18
4.1	INTRODUCTION	18
4.2	STUDY AREA	18
4.3	DESCRIPTION OF ROAD NETWORK	19
4.4	PROPOSED A1290 WORKS	21
4.5	ROAD SAFETY REVIEW	22
5.	DEVELOPMENT PROPOSALS	26
5.1	INTRODUCTION	26
5.2	DEVELOPMENT DESCRIPTION	26
5.3	STAFF NUMBERS & SHIFTS	26
5.1	SITE ACCESS	27
5.2	PARKING PROVISION	28
5.3	SERVICING AND DELIVERIES	29
5.4	TRAVEL PLAN	30
5.5	CONSTRUCTION TRAFFIC MANAGEMENT PLAN	30
6.	TRIP GENERATION, MODAL SPLIT & DISTRIBUTION	31
6.1	INTRODUCTION	31
6.2	TRIP GENERATION	31
6.3	MODAL SPLIT	32
6.4	TRIP DISTRIBUTION	33
7.	MODELLING ASSUMPTIONS	34
7.1	INTRODUCTION	34
7.2	ASSESSMENT SCENARIOS	34
7.3	ASSESSMENT TIME PERIODS	34
7.4	TRAFFIC SURVEYS	34
7.5	COMMITTED DEVELOPMENTS	35
8.	TRAFFIC IMPACT ASSESSMENT	38
8.1	INTRODUCTION	38
8.2	MODELLING SOFTWARE	38

8.3	JUNCTION MODEL RESULTS	39
8.4	LOCAL PLAN SITES PARAMICS TEST	46
9.	SUMMARY & CONCLUSION	48

9.1	SUMMARY	48
9.2	CONCLUSION	48

APPENDICES

APPENDIX A – SITE PLANS

APPENDIX B – SCOPING NOTE

APPENDIX C – COLLISION DATA

APPENDIX D – JUNCTION MODELLING OUTPUTS

APPENDIX E – TRAFFIC FLOW DIAGRAMS

1. INTRODUCTION

1.1 Overview

- 1.1.1 AESC UK are bringing forward a planning application for the proposed development of land to the immediate west and north-west of their Gigafactory within IAMP, in Sunderland. The proposal is for the erection of an industrial unit to be used for the manufacture of batteries for electric vehicles, with an accompanying packaging warehouse, office building and associated parking.
- 1.1.2 Within this report, the proposed development will collectively be referred to as “AESC Plant 3”. AESC UK already operate an existing facility within Nissan and the new gigafactory within IAMP ONE is currently under construction, these will be referred to within this report as “AESC Plant 1” and “AESC Plant 2” respectively.
- 1.1.3 SYSTRA has been commissioned by AESC UK to provide highways and transport advice in relation to the site, including the preparation of this Transport Assessment (TA) to support the planning application. A Travel Plan has also been prepared under a separate cover to outline how AESC UK will seek to minimise vehicle trips across Plants 1, 2 and 3.

1.2 Purpose of this Report

- 1.2.1 This report is the Transport Assessment for the proposed AESC Plant 3. The report has been commissioned to help understand and analyse the effects of the proposed development from a transport perspective and to inform the proposals for the site.
- 1.2.2 The purpose of the Transport Assessment to provide a full and systematic review and robust assessment of the transport impacts of the development and identify any mitigations that may be required. Mitigation may include necessary improvements to accessibility and safety for all modes of travel, as well as road network capacity.
- 1.2.3 The intention of this report is to provide the necessary information to assist Sunderland City Council (SCC) as the Planning Authority and Local Highway Authority, determine the planning application. Given the proximity of the site to the Strategic Road Network, it is equally important that sufficient information is contained within this report to satisfy the requirements of National Highways (NH).

1.3 Scoping Discussions

- 1.3.1 During the production of this Transport Assessment, several discussions have been held with highway officers at SCC and National Highways, at which the key transport considerations for the proposed development were discussed and the methodology for assessment broadly agreed. This report has been prepared in accordance with those discussions.

1.4 Report Structure

- 1.4.1 Following this introductory chapter, the remainder of this report is structured as follows:
 - **Chapter 2: Site Vision** – Outlines the sustainable vision of the site
 - **Chapter 3: Policy Context** – reviews the relevant current national, regional and local transport policies, guidance documents

- **Chapter 4: Baseline Conditions** – describes the baseline travel and transport conditions at the site and on the surrounding highway network, including a Road Safety review.
- **Chapter 5: Development Proposals** – sets out the development proposals within the context of the wider area. It includes an overview of the access strategy and a review of car parking.
- **Chapter 6: Trip Generation and Distribution** – details the methodology used to ascertain trip generation and how these trips have been assigned to the road network.
- **Chapter 7: Traffic Impact Assessment** – considers the impact of development traffic at study area junctions in terms of the impacts on queuing and operational capacity;
- **Chapter 8: Summary and Conclusions** – provides a summary and conclusion by highlighting the key points raised within the report.

2. SITE VISION

2.1 Introduction

- 2.1.1 This chapter details the vision for not just the AESC Plant 3, but also the wider context, with AESC Plant 2. It considers sustainable transport access, local workforce proximity and how the locality of the site is beneficial to reduce car residual trips and would not create a significant impact on the transport network.
- 2.1.2 With consideration of the policy paper DfT Circular 01/2022, the context of achieving sustainable development is fundamental to what the planning and development process should achieve. Plan-making and decision-taking should ensure that developments optimise the potential of sites to support local facilities and sustainable transport networks.
- 2.1.3 Both within the site and beyond its boundaries, the successful development of AESC Plant 3 will depend upon a movement network that ensures connections are sustainable for non-motorised users.

2.2 Sustainability Vision

- 2.2.1 It is the vision for AESC Plant 3 (and AESC Plant 2) that walking, wheeling, cycling and public transport will be the natural choice for those who can feasibly take it and AESC UK will seek to maximise opportunities to encourage the use of these modes of travel. Another element of the vision for this development is to enable a reduction in the need to travel by private car and prioritise sustainable transport opportunities - How this vision will be delivered and achieved is explained within the supporting Travel Plan.
- 2.2.2 The AESC Plant 3 will provide and connect to, a movement network that makes connections both within the site and beyond its boundaries. The proposed internal network will be reviewed so that well-considered parking, servicing and manoeuvring areas is incorporated into the development proposals.
- 2.2.3 The AESC Plant 3 will provide high-powered and open-access EV charge points, which will be installed to support the government's objective to decarbonise transport by 2050.
- 2.2.4 The proposed development of AESC Plant 3 is an opportunity to make sustainable transport access between the site and the local workforce viable.
- 2.2.5 The construction of AESC Plant 3 and other local workforces within the IAMP area are integral to achieving mode shift and to deliver the aspirational changes identified for Sunderland City Council. The locality of the AESC Plant 3 is beneficial for a number of transport reasons, such as:
- Close proximity to AESC Plant 1 and 2 can ensure minimised travel between sites
 - Maximised deliveries between local suppliers and other local workforces
 - Close collaboration and proximity to Nissan and other IAMP occupiers
 - Within walking distance to public transport services
 - Pedestrian and cycle accessibility is favourable in the local area

2.3 Pedestrian Access

- 2.3.1 There is generally a good network of footways in the vicinity of the AESC Plant 3 and there is also favourable connections to the new IAMP ONE infrastructure, which offer a choice of suitable routes to nearby bus stops. External pedestrian routes in the vicinity are well lit and in good condition. Figure 1 shows the level of accessibility to the site by walking.
- 2.3.2 Near the Nissan access junction on the A1290, there is a controlled pedestrian crossing facility, which includes a central refuge island, dropped kerbs and tactile paving. There is also a pedestrian guardrail on the A1290 near the bus stops.
- 2.3.3 Pedestrians can travel along Washington Road to access a footbridge over the A19. This route links to the residential area of Town End Farm. To the west of the footbridge is a direct pedestrian access to Nissan, which also links to the AESC Plant 1 factory.
- 2.3.4 New pedestrian links and footways are provided within IAMP ONE and this includes the creation of a non-motorised user (NMU) route along the section of Follingsby Lane within the IAMP ONE site, which has been introduced by virtue of a prohibition of motor vehicles along this route, allowing walkers, cyclists and horse riders to pass through without conflict with motor vehicles.

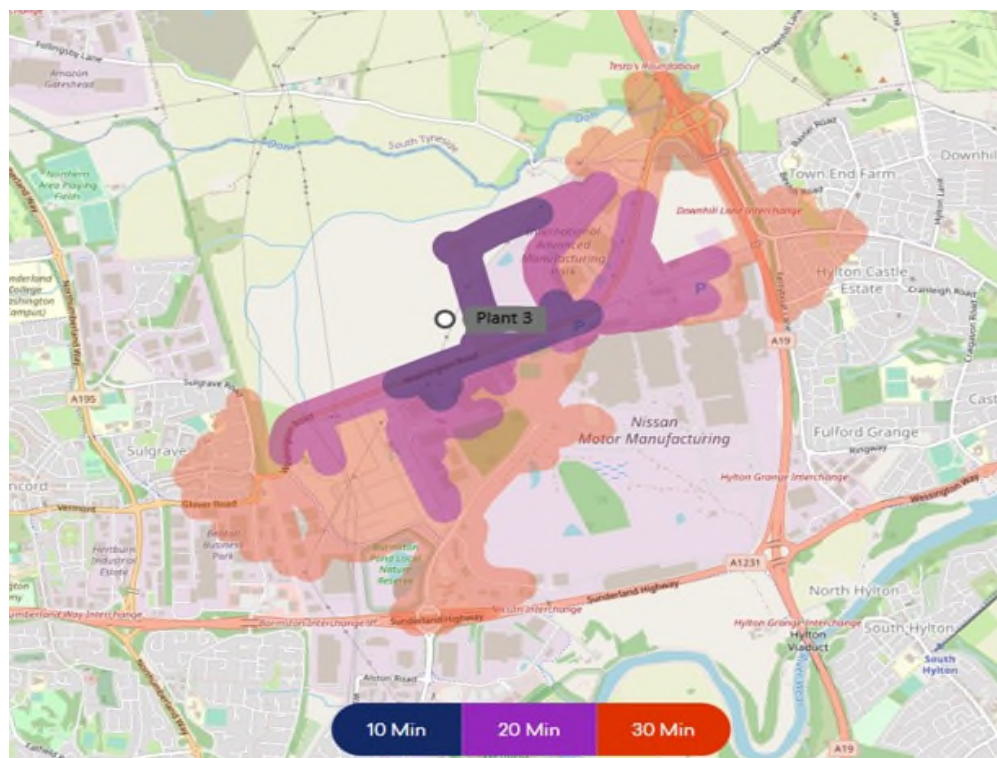


Figure 1. Walking Accessibility

2.4 Cycling Access

- 2.4.1 The A1290 benefits from a shared use pedestrian / cycle provision along its length, which forms part of a wider off-road cycle route. Figure 2 shows the cycling accessibility of the area and also provide an extract of a map indicating the cycle network in the locality. The cycling access map shows that the site is accessible from Washington, Southwick and

Boldon within 30 minutes. Within 20 minutes, you can access the site from Hylton Castle, Fulford Grange and Downhill.

2.4.2 Figure 3 shows the cycle network in the local area and how the site connects to the local cycle network. This, along with the shared use of cycleways and footways mean that sustainable transport access to and from the proposed development is favourable.

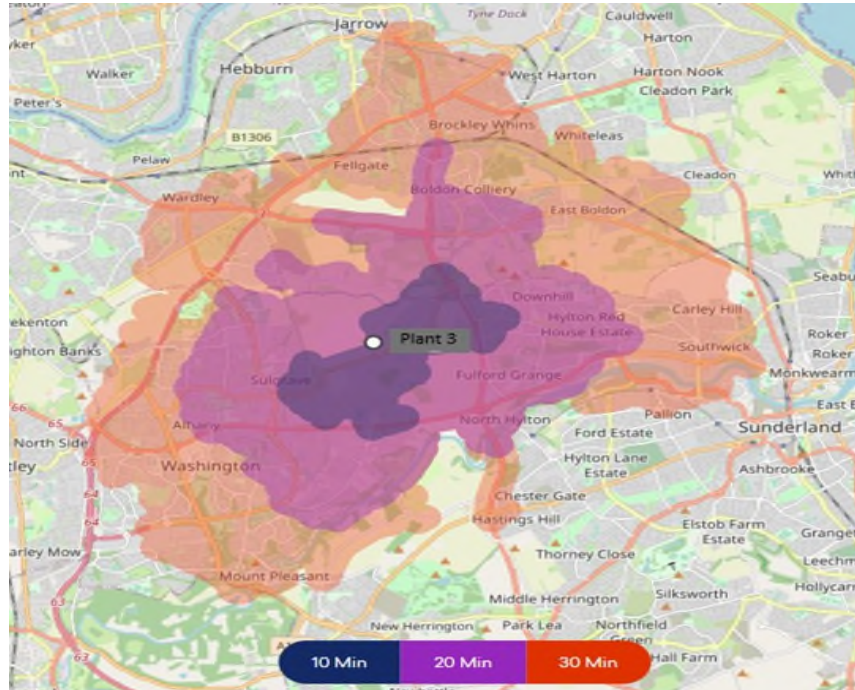


Figure 2. Cycling Accessibility



Figure 3. Cycle Network surrounding the site

2.5 Bus Services

2.5.1 The bus is generally considered a viable mode of travel over short and medium distances although some routes and services with limited stops make longer distances viable. Indeed, bus travel plays an important part of the access equation for the proposed development. Figure 4 provides a visual representation of accessibility to the site by public transport within a timetabled 30-minute journey time.

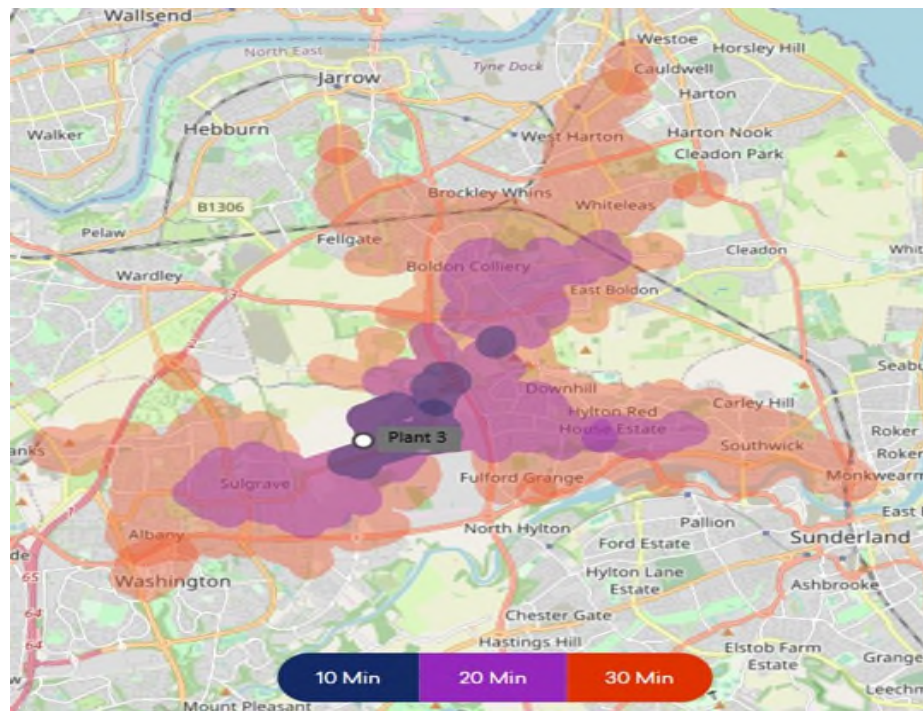


Figure 4. Public Transport Accessibility

2.5.2 Figure 4 shows the 30-minute journey time coverage to and from the site, and within 30 minutes you can access Washington, Southwick and the outer conurbations of Jarrow within 30 minutes. Within 20 minutes you can access Boldon Colliery, Sulgrave and the outer suburbs of Sunderland such as Downhill and Hylton.

2.5.3 In relation to AESC Plant 3, the nearest bus stops are on either side of the A1290 / Washington Road junction where the Nissan access is located, with two more bus stops at the A1290 at the Usworth Cottages junction.

2.5.4 The north bound bus stop near the Nissan access has a shelter with lighting, seating and timetable information. The southbound bus stop has flag/pole and timetable information.

2.5.5 Bus services 50 and '56 Fab Fifty-Six' are located on the A1290, offering a 30-minute and 15-minute frequency respectively Monday to Saturday. On Sunday, the frequency of service is 60 minutes and 20 minutes respectively. The northbound service offers services to Sunderland, Gateshead and South Shields whilst the southbound service offers access to Durham and Chester-le-Street.

2.5.6 The X10 service stops at the nearest provisions on the A184, these services offer regular buses to destinations such as Heworth, Newcastle, Stockton and Middlesbrough.

2.5.7 Several conditions within the IAMP ONE consent (including Conditions 22 and 23) required the implementation of physical infrastructure on the A1290 to support bus services. The following works were agreed:

- Northbound adjacent to West Moor Farm – extension of the existing footway up to the existing bus stop flagpole and installation of raised bus stop kerbs;
- Southbound adjacent to Nissan signals – replacement of the existing bus shelter with a Nexus approved shelter and retention of existing footway to house new shelters;
- Northbound, adjacent to Nissan signals – replacement of the existing modular bus shelter with a Nexus approved shelter and extension of existing footway;
- South and northbound, adjacent to Follingsby Lane – replacement of the existing flagpoles with Nexus approved shelters and extension of existing footways to house new shelters

2.5.8 Also included within the IAMP Early Infrastructure and Northern Employment Area applications was for the A1290 to become a dual carriageway, with two lanes in each direction – these works are due to commence on site in March 2024.

2.6 Metro and Train

2.6.1 The Fellgate Metro Station is located approximately 4.0km north of AESC Plant 3 and therefore travel by Metro would likely only be used as part of a multi-modal journey. From Fellgate Metro, first service on weekdays is at 05:28hrs and 06:04hrs respectively, while the first service on a Saturday is at 05:30hrs. The first service on a Sunday is at 06:36hrs. The Metro operates until approximately midnight seven days a week.

2.6.2 There are no rail stations within the immediate vicinity of AESC Plant 3. The nearest railway station is located in Sunderland City Centre, approximately 6.5km from the site. Also, Newcastle Railway station is located approximately 10km away from the site.

2.6.3 The train stations offer the following regional and nationwide services:

- East Coast main line operates northwards to Scotland and southwards to Yorkshire and London;
- Tyne Valley line operates westwards to Hexham and Carlisle;
- TransPennine rail operates to Leeds and Manchester; and
- Cross-Country line runs to the Midlands and south-west England

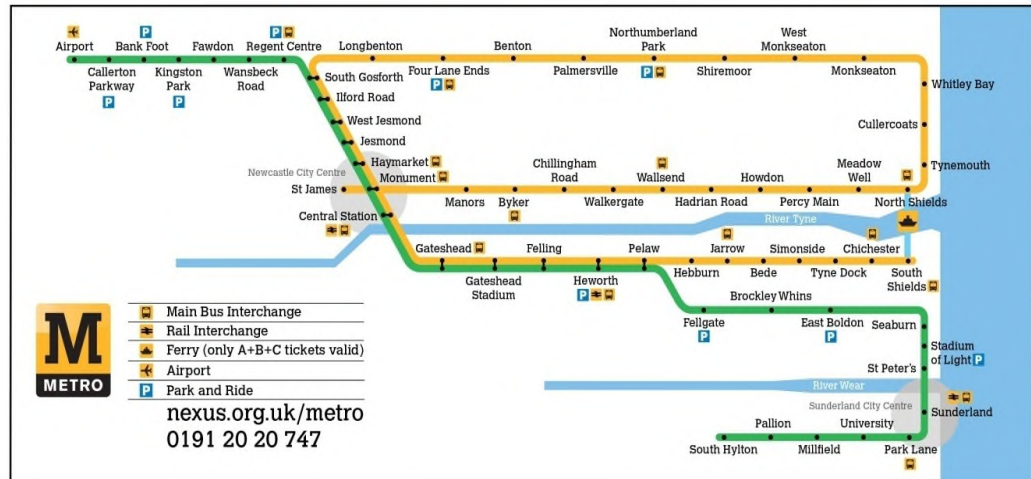


Figure 5. Tyne & Wear Metro Network

2.7 Key Travel Plan Measures

2.7.1 This section outlines sustainable transport measures that are to be implemented to achieve the travel plan targets for AESC Plant 2 and IAMP ONE, and will therefore be equally appropriate for AESC Plant 3.

Pedestrian Measures

- Walking in Design – pedestrian routes within the site will be designed to ensure ease of movement and ensure they link to the surrounding businesses and IAMP area.
- Walking Map - A pedestrian route map will be provided within the sustainable travel information pack for all staff.

Cycling Measures

- Cycle Maps - The Travel Plan Co-ordinator will promote cycling by making local cycle route maps available
- Cycle Check Services - The Travel Plan Co-ordinator will investigate and publicise free cycle check services.
- Cycle Parking - An appropriate level and standard of cycle parking will be made available on site in a convenient location.
- Cycle-to-Work - The Travel Plan Coordinator will investigate the potential for introducing a cycle-to-work scheme which can be made available to staff
- Changing Facilities - Showers and changing facilities will be made available to staff who wish to cycle to work

Public Transport Measures

- The Travel Plan Co-ordinator will ensure that information on bus travel from the site is supplied to all new staff and is available should any other staff or visitors be interested.
- The Travel Plan Coordinator will adopt a proactive approach, working with the Principal Travel Plan coordinator (PTPC), bus operators and Sunderland Council to obtain staff discounts.

2.8 Sustainable Opportunities

- 2.8.1 The travel planning measures provide an opportunity for AESC Plant 3 staff to make less car residual trips to and from the proposed development.
- 2.8.2 Occupiers of adjacent buildings in the vicinity of IAMP have undertaken mode shift surveys and have achieved a shift towards sustainable transport, and in both instances achieving approximately 65% for using the car when travel plan measures have been implemented for their respective sites.
- 2.8.3 A travel survey has been undertaken for existing staff employed at AESC Plant 1 and the survey results portray 85% of people using the car.
- 2.8.4 The vision is for the AESC Plant 2 modal split to be more aligned with the occupiers of the adjacent buildings. Through effective implementation of measures, the results of the other travel surveys demonstrate the levels that can be achieved if measures are instigated from the outset.

3. POLICY CONTEXT

3.1 Introduction

- 3.1.1 Before considering the proposed development, it is important to examine the context of the site and how this relates to relevant planning policies and guidelines. This section sets out national, regional and local planning policy of relevance to the production of this report.

3.2 National Policy

National Planning Policy Framework (NPPF)

- 3.2.1 The NPPF was last updated in December 2023 and sets out the Government's planning policies for England and how these are expected to be applied. It provides a framework for local planning authorities and decision makers, both in drawing up plans and as a material consideration in determining planning applications.
- 3.2.2 The document identifies that the purpose of the planning system is to contribute towards sustainable development, which is defined in terms of economic, environmental and social sustainability.
- 3.2.3 Transport specific policies play a key role in supporting and achieving the core planning principles and are intrinsically linked to the objective of sustainable development. Paragraph 110 of the NPPF specifically states that planning policies should support an appropriate mix of uses across an area, and to be prepared with the active involvement of local highway authorities and other transport providers so sustainable transport implementation is aligned.

National Planning Practice Guidance (NPPG) – Travel Plans, Transport Assessments and Statements, Ministry of Housing, Communities and Local Government

- 3.2.4 The NPPG web-based resource was published in 2014 by the Department for Communities and Local Government (DCLG).
- 3.2.5 Guidance on establishing the need for a Transport Assessment states that:
- "The need for, scale, scope and level of detail required of a Transport Assessment or Statement should be established as early in the development management process as possible as this may therefore positively influence the overall nature or the detailed design of the development."*
- 3.2.6 The NPPG states that Transport Assessments are thorough assessments of the transport implications of development and therefore provides guidance on key issues which should be considered prior to the preparation of a Transport Assessment, including;

- The planning context of the development proposal.
- Appropriate study parameters (i.e. area, scope and duration of study).
- Assessment of public transport capacity, walking/cycling capacity and road network capacity.
- Road trip generation and trip distribution methodologies and/or assumptions about the development proposal.
- Measures to promote sustainable travel.
- Safety implications of the development.

The Strategic Road Network and the Delivery of Sustainable Development, DfT Circular 01/2022

- 3.2.7 The Strategic Road Network and the Delivery of Sustainable Development published by DfT is a document that sets out how National Highways will interact with stakeholders and interested parties to maintain a fully functional Strategic Road Network (SRN), in regard to economic and sustainable growth.
- 3.2.8 The document provides guidance on how the SRN should be assessed when accompanying planning applications which may affect the SRN.
- 3.2.9 The document details that development proposals are likely to be accepted if the volume of traffic it is to generate are within the available capacity of the network, or if they do not increase the demand for a specific link or junction.

Transport White Paper ‘Creating Growth, Cutting Carbon - Making Sustainable Local Transport Happen’

- 3.2.10 The Government’s vision for a sustainable local transport system is set out in this White Paper, which acknowledges that transport provision is essential for economic growth. The Paper also recognises, however, that the current levels of carbon emissions from transport cannot be sustained if the nation is to meet its national commitments on climate change, as well as creating a safer and cleaner environment in which to live. The Government highlights sustainable transport solutions as a means by which the economy can grow, which will also see a positive impact on the local environment.
- 3.2.11 Whilst the Paper outlines the funding options which will be available for sustainable transport schemes, it also recognises that investment alone will not be enough and that help needs to be given to people to ensure that the transport choices they make are good for society. The Paper recognises that it is at the local level where most can be done to encourage sustainable transport modes and implement sustainable transport schemes. Solutions should be developed for the places they serve, tailored for the specific needs and behaviour patterns of individual communities.
- 3.2.12 Within the Paper, sustainable transport considers more than just public transport, walking and cycling schemes, and acknowledges that it is not feasible for some trips to be undertaken by these modes. There is therefore a realisation that the car will continue to be an important mode of transport and a focus should be given to making car travel greener through electric and other low emission vehicles.

3.3 Regional and Local Policy

Strategic Transport Plan, Transport for the North

- 3.3.1 The Strategic Transport Plan is a plan that aims to transcend major connectivity improvements through-out the North of England. The plan poses to create and encourage trade and facilitate investment by improving the connectivity between the region’s ports, airports and roads to create faster links between the economic assets that they serve, and in doing so make the North a more attractive place for business.
- 3.3.2 There are four pan-Northern transport objectives which detail the development of the Strategic Transport Plan and TfN’s work programmes:

- Transforming economic performance,

- Increasing efficiency, integration and resilience in transport systems
- Enhancing inclusivity and access
- Promoting and sustaining our natural, historic and built environments

3.3.3 The overall wider aims of the objectives are to connect people, connect businesses and facilitate the free movement of goods efficiently across all modes of transport.

North East Transport Plan 2021 -2035

3.3.4 The North East Transport Plan is the first comprehensive Transport Plan for the region, bringing together the seven local authorities in North East England: Durham, Gateshead, Newcastle upon Tyne, North Tyneside, Northumberland, South Tyneside and Sunderland.

3.3.5 The Plan has been produced by the North East Joint Transport Committee (NEJTC) and the five objectives of the transport plan are to have:

- Carbon-neutral transport
- Overcome inequality and grow our economy
- Healthier North East
- Appealing sustainable transport choices
- Safe, secure network.

Sunderland Unitary Development Plan (UDP)

3.3.6 The UDP was adopted in September 1998, with a key function to provide a starting point in the consideration of planning applications for the development or use of land. Due to the need to provide a more up-to-date planning framework for the Central Sunderland area, a partial revision of the UDP policies for this area was required. This was taken forward through the statutory planning process as a formal Alteration to the UDP (Alteration No. 2) and was adopted in September 2007.

3.3.7 UDP Alteration No. 2 is not relevant, given that it relates to Central Sunderland, outside the area of consideration of this planning application.

3.3.8 All of the policies of the UDP were saved with the following exceptions: EC10, H3, H5, H9, S5, M4, M7, SA8, SA15, SA41, SA44, SA56, SA59, SA72, SA87, SA91, NA33, NA41, WA4, WA10, WA23. The UDP Proposals Map allocates Nissan, which lies to the south of the proposed development, as an area to be retained and improved for economic development (Policy EC2).

Sunderland Core Strategy and Development Plan (2015-2033)

3.3.9 The Core Strategy and Development Plan sets out the long-term plan for development across the city to 2033. It will ensure that the right type of development is focused in the right places to meet the needs for local people and businesses.

3.3.10 The Core Strategy and Development Plan includes development policies and site allocations, land use designations and development management policies. It states that:

“Sunderland City Council in partnership with South Tyneside Council are seeking to deliver IAMP on land to the north of the existing Nissan plant to build upon the inherent strengths of the area in manufacturing, and particularly the automotive sector. The IAMP will cover an area of 100 hectares, with a further 50 hectares of land safeguarded for future development.

It is anticipated that the IAMP will create over 5,000 jobs directly on the site with many more in the wider area.”

- 3.3.11 Policy CC1: Sustainable travel, states that the council will promote sustainable travel and seek to enhance connectivity for all users by:
- Focusing development close to public transport links and enhancing opportunities for walking and cycling;
 - Enhancing the city’s transport network to improve connectivity from homes to employment sites, designated centres, and to other key trip generators;
 - Utilising traffic management measures in order to manage congestion and mitigate against the environmental and health impacts of traffic;
 - Ensuring that transport initiatives support the development of safer, cleaner and more inclusive centres and neighbourhoods; and
 - Working with the North East Combined Authority (NECA), neighbouring councils and other partners to promote cross-boundary transport initiatives.
- 3.3.12 Policy CC2: Connectivity and transport network, stated that to improve connectivity and enhance the city’s transport network. Of relevance to this study, the Council and its partners will seek to:
- Deliver new highways schemes and initiatives including key junctions on the A19 and providing access to IAMP;
 - Improve the existing main transport routes to reduce congestion and encourage walking and cycling, including A1231 Sunderland Highway (west of the A19), Washington Road (east of A19);
 - Improve the operating conditions for buses throughout the city, through securing improvements to the major bus corridors; and
 - Improve and extend the cycle network within the city.

International Advanced Manufacturing Park Area Action Plan

- 3.3.13 The IAMP Area Action Plan (AAP) is a policy framework to guide the comprehensive development of the DCO Site. The AAP was prepared jointly by Sunderland City Council and South Tyneside Council, in support of the Sunderland City Deal (in partnership with South Tyneside), and was adopted on 30 November 2017. The IAMP AAP is a 15 year plan (covering the period 2017 to 2032).
- 3.3.14 Within the IAMP AAP, the following policies are applicable to Infrastructure, Transport and Access:
- Policy T1: Highway Infrastructure – A public realm strategy is required to accompany the development proposals along with a supported Transport Assessment to assess highway improvements.
 - Policy T2: Walking, Cycling and Horse Riding – The development must promote walking and cycling by design and connecting to the surrounding network.
 - Policy T3: Public Transport – The development must promote sustainable transport by enhancing the existing provisions and consider new improvements as appropriate.
 - Policy T4: Parking – The development must ensure that appropriate provision for car parking is provided in accordance with the Councils’ standards.

3.4 Summary

- 3.4.1 In summary, as it can be seen that there are a number of integrated land use and transport planning policies and policy guidance documents that support and underpin the proposed development.

4. BASELINE TRAFFIC CONDITIONS

4.1 Introduction

4.1.1 The previous chapter of the report set out the relevant policy background with respect to the development proposals. This chapter provides a general overview of the site and the existing transport conditions, including a description of the local highway and strategic road network and a commentary of existing traffic flow and road network operations. A review of the road safety history for the surrounding area is also considered.

4.2 Study Area

4.2.1 The extent of the study area for this Transport Assessment was discussed and agreed with SCC and National Highways at the outset. The junctions included within this report are identified on Figure 6 and replicate the extent of the network previously considered for other recent planning applications – such as IAMP ONE; a notably larger scheme.

4.2.2 On the Strategic Road Network (SRN), the study area focuses on the A19 to the east of the site and includes the following junctions:

- Junction 1 – A19 / A184 (Testos Roundabout)
- Junction 2 – A19 / Downhill Lane
- Junction 3 – A19 / A1231 / Wessington Way

4.2.3 On the Local Road Network (LRN), the study area extends to the following junctions:

- Junction 4 – A1290 / Cherry Blossom Way three-arm signalised Junction.
- Junction 5 – A1290 / Sulgrave Road / Glover Road three-arm priority roundabout.
- Junction 6 – Glover Road / Spire Road four-arm priority roundabout.
- Junction 7 – Glover Road / Silverstone Road four-arm priority roundabout.
- Junction 8 – Glover Road / A195 four-arm priority roundabout.
- Junction 9 – A1290 / Nissan site access signalised junction
- Junction 10 – A1290 / West Site Access
- Junction 11 – A1290 / North Site Access
- Junction 12 – Site Access / International Drive

Figure 6. Study Area



4.3 Description of Road Network

Strategic Road Network

4.3.1 The following provides an overview of the A19 and A184, both of which are de-restricted all-purpose dual carriageway routes forming part of the strategic road network, operated and maintained by National Highways.

- **A19 Testo’s Junction:** The Testo’s junction is located where the A184 and the A19 meet, approximately 3 miles south of the New Tyne Crossing. Improvement works to this junction are now complete. The improvements have seen the A19 carriageway raised above ground level, passing over an enlarged roundabout linked by slip roads. Traffic on the A19 now flows freely above the roundabout, whilst traffic using the A184 still travel around the roundabout.
- **A19 Downhill Lane Junction:** The A19 Downhill Lane junction is grade-separated and provides access to Nissan and IAMP. To the east of this junction there is access to the residential areas of Town End Farm, Downhill and Hylton Castle Estate. The existing north-facing slip roads tie into the link roads for the A19/A184 Testo’s Junction. Washington Road to the east of the A19 and the A1290 to the west of the A19 have been realigned slightly to tie-in to the new Downhill Lane junction circulatory system. The western side of the junction also ties-in with the A1290 as a dual carriageway.
- **A19 Wessington Way Junction:** The A1231 Sunderland Highway meets the A19 at North Hylton / Castletown to form a grade-separated junction. The junction is signalised on all approaches and has a three-lane circulatory carriageway. The northbound off-slip has a free-flow left turn lane onto the A1231.
- **A184:** The A184 is a major east-west route. East from the White Mare Pool junction the A184 is rural dual carriageway which ends at the Testo’s junction, where it meets

the A19. The A184 loses its trunk road status at Testo's and becomes single-carriageway as it continues eastward and becomes more urban in nature as it runs through West Boldon and East Boldon and then meets the B1299.

Local Road Network

4.3.2 The following provides an overview of the local road network in the immediate vicinity of the AESC Plant 3.

- **A184:** The A184 is a major arterial commuter route into South Tyneside and Gateshead and runs in an east-west direction to the north of the site.
- **Washington Road:** To the east of the A19, Washington Road is a single carriageway road as it approaches the Downhill Lane junction. To the west of the A19, Washington Road is a no-through road from its junction with the A1290, becoming a shared footway/cycleway at its eastern end before meeting the footbridge over the A19. The North East Land, Sea and Air Museum is located on Washington Road. This route also provides a Non-Motorised User (NMU) route to Nissan and Gateshead College.
- **A1231:** The A1231 is a dual carriageway which runs parallel to the River Wear, passing the Sunrise Enterprise Park, the Sunderland Enterprise Park and Hylton Riverside Retail Park. Wessington Way ends at the junction with the Queen Alexandra Bridge. The A1231 has been the subject of widening works to the eastbound approach to the A19.
- **Nissan Way:** Nissan Way is the main access to Nissan from the A1231 and is a dual carriageway road with two lanes in each direction, and a footway on its eastern side.
- **A195:** The A195 runs in a north-south direction to the west of the site and meets the A194 (M) to the north.
- **A1290:** The A1290 runs in an east-west direction and provides access to several commercial areas and Infiniti Drive that serves the Hillthorn Business Park. At its western end, a shared use footway is available on both sides of the carriageway, although on the northern side this reduces to a narrow footway towards its eastern end. A T-junction provides access to the Nissan entrance from the A1290. The junction is signalised for all main road movements and for right turn movements into and of the side road. The left turn out from Nissan is signalised on demand by the controlled pedestrian crossing. Vehicles turning into the Nissan plant from the off-side lane of the A1290 east are required to give way, as are vehicles travelling west from the Nissan plant. The Nissan plant access has two lanes for journeys into the Nissan plant and three lanes for vehicles leaving. In this area, a shared use footway is available on the northern side of the road and a narrow footway on the south. As the A1290 continues north towards the A19, the road is single carriageway and is subject to a 40mph speed limit. There is a short length of footway on the northern side of the road between the Nissan access and the bus stop to the east, but no footway between the Nissan access and Usworth Cottages. A shared use footway is however available between Usworth Cottages and the A19 Downhill Lane junction. Along this link is the junction that provides the northern point of access to IAMP ONE.
- **Glover Road:** Glover Road runs in an east-west direction and includes four conventional roundabouts and two priority junctions. It is a single carriageway road which sometimes flares to two lanes on the approach to roundabouts. Most of the road is subject to a 30mph speed limit, except a short section near Vermont roundabout when a derestricted speed limit applies. A shared use footway is available to the northern edge. The footway is set back considerably from the road and has

signposts that indicate use by both pedestrians and cyclists. Street lighting is present along Glover Road.

- **Spire Road:** Spire Road links to the A1231 Sunderland Highway in the south to Glover Road in the north. It is a single carriageway road subject to 30mph speed limit. Access to commercial units along Spire Road is via priority junctions.
- **Cherry Blossom Way:** Cherry Blossom Way connects Nissan Way to commercial units and car parking adjacent to Nissan. It is a single carriageway road subject to 40mph speed limits. Parking is prohibited with tref kerbs and double yellow lines used to enforce this prohibition. Access to units or car parks along Cherry Blossom Way is via priority junctions. A conventional roundabout is also situated on Cherry Blossom Way. Footways and street lighting are present on both sides of the road. One footway has signage that indicates shared use for cyclists and pedestrians.
- **Follingsby Lane:** Follingsby Lane runs from the A1290 through to the A194(M). The eastern end has become a NMU only route as part of the IAMP ONE development. As the road continues westward, it provides access to a limited number of residential buildings and small business before it reaches the Follingsby Park Industrial Estate.
- **International Drive, IAMP ONE:** Two new simple priority-controlled junctions on the A1290 have been established and a new spine road, called 'International Drive' connects the two new junctions allowing through-traffic. One new junction is located approximately 400m south of the A19 / A1290 Downhill Lane junction and the other new junction is provided approximately 300m west of the Nissan access junction and approximately 760m east of Cherry Blossom Way. A 3.0m wide shared use footway is provided along both sides of the junctions which tie into provisions on the A1290. Dropped kerbs, tactile paving and pedestrian refuge are provided to access from the A1290. These are located immediately south of the northern priority junction and immediately west of the southern priority junction.

4.4 Proposed A1290 Works

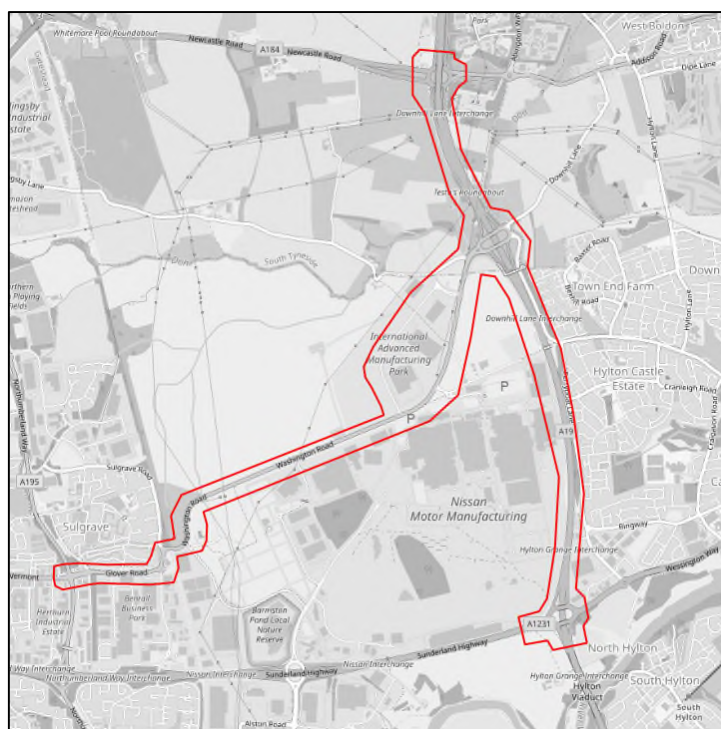
- 4.4.1 As part of the consented planning approval for the IAMP Early Infrastructure and Northern Employment Area, highway improvement works are proposed for the A1290. These works include the A1290 becoming a dual carriageway with two lanes in each direction from Downhill Lane to its southern most junction on International Drive – these works are due to commence on site in March 2024.
- 4.4.2 The proposed infrastructure is key to supporting the access requirements for the development, but is also necessary to provide the additional network capacity and traffic management controls to accommodate the additional traffic to be generated, critically, some are also a requirement of the IAMP AAP (Policy T1: Highway Infrastructure). The upcoming A1290 construction works include:
- The A1290 to be widened from its northern end at the A19 Downhill Lane junction, to a point just west of its junction with International Drive (the southern IAMP ONE access junction). This section will become a dual carriageway, with at least two lanes in each direction, occasionally widening locally to provide flared three lane approaches to junctions. Northbound and southbound carriageways will be separated by a central reservation and shared use footway/cycleway is to be provided along the eastern side.

- The new junctions created on the A1290 to provide access to IAMP ONE will become signal controlled and will include pedestrian crossing provisions with refuge islands as necessary. Street lighting will be provided on both sides of the carriageway.
- A new single carriageway road will be constructed from the northern section of the IAMP ONE infrastructure to lead northwards. This new road will be subject to a 30mph speed limit and pass over the River Don before then turning to run westward along the northern edge of the application boundary and then forming a new junction with Follingsby Lane. This new road will be 7.4 metres wide with 3-metre-wide shared use footway/cycleway on both sides of the road as it passes over the River Don bridge. Shortly after the bridge, the eastern footway/cycleway is curtailed and only the western provision continues westward.
- Access to development plots will be taken via simple priority junctions off the new access road. Due to the outline nature of the application, the final position of the individual plot accesses have not been confirmed. However, junctions will not be positioned closer than 50m centre-to-centre on the same side of the link road, or closer than a 25m stagger on opposite sides of the carriageway.

4.5 Road Safety Review

- 4.5.1 This section has been produced to provide an overview of collisions within the study area for the most recent 5-year period, specifically 2018 – 2022 inclusive. The study area for the road safety analysis focuses on the similar extents to that considered for the traffic assessment.
- 4.5.2 Collision data has been sourced from the Tyne & Wear Traffic and Accident Data Unit (TADU), which compiles road accident data on behalf of the Tyne and Wear Local Authorities. The study area is presented below:

Figure 7. Collision Study Area



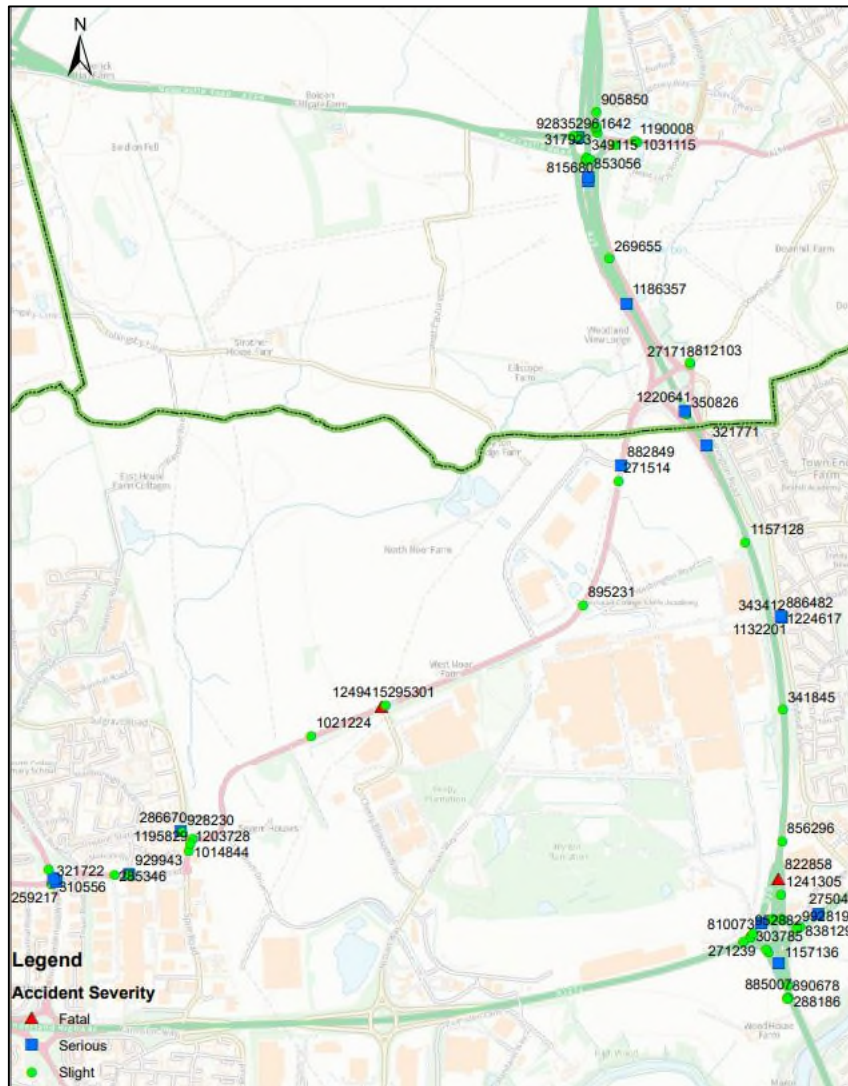
- 4.5.3 A review of the collision records has been undertaken to identify patterns of collision types that may be attributed to issues from existing road design, layout or construction.
- 4.5.4 Within the 5-year study period, there were 50 collisions recorded, of which 39 were considered to be slight in severity, nine were serious and two collisions resulted in a fatality.
- 4.5.5 Due to recent road improvements on the A19 Testos and A19 Downhill Lane junctions, collisions at these junctions have not been considered as the works have notably improved road safety and highway design – collision records will not reflect the updated layouts.
- 4.5.6 Both of the fatal collisions (one located on the A1290 and the other on the A19) can both be attributed to driver error, such as lack of awareness or failing to look.

Table 1. Collision Severity Overview

Overview	Severity			Total
Year	Slight	Serious	Fatal	
2018	13	2	1	16
2019	9	1	1	11
2020	2	1	0	3
2021	4	3	0	7
2022	11	2	0	13
Total	39	9	2	50

- 4.5.7 Figure 8 presents all the collisions in the study area from 2018 – 2022 with their respective collision references. Each collision can be reviewed using the full collision data which is presented in Appendix C.

Figure 8. TADU Collisions (2018 – 2022)



A19 / A1231 Junction

4.5.8 There are 12 slight collisions on the circulatory or on the approach arms to this junction, with two serious collisions.

4.5.9 After a review of the collisions at this junction, it is considered that the majority of the collisions were caused by failing to look properly, failing to judge another driver’s path or speed, or a poor vehicle turning manoeuvre. Both of the serious collisions at this junction were impacted by the driver’s use of alcohol or drugs.

A19 / A184 Junction

4.5.10 After a review of the collisions at this junction, there are no trends or clusters presented which give concern in relation to the development. The majority of the collisions have resulted due to a lack of judgement or failing to look properly.

4.5.11 Of the three serious collisions in the vicinity of this junction, driver error was to blame in all three collisions. One of them involved a motorcyclist.

A1290 / Glover Road / Sulgrave Road

- 4.5.12 There have been three slight collisions at this junction within the latest 5-year available period. Failing to look properly was the causality of one of the collisions at this junction, whilst the remaining two collisions involved a pedestrian and a cyclist.
- 4.5.13 The collision involving a cyclist was in dark hours with high winds and rain present, which may have been a contributory factor.

A1290 / A195

- 4.5.14 There has been five collisions at this junction or on the approaching arms to this junction within the latest 5-year period, with two of them serious collisions and three of them slight collisions. Two of the collisions involved a cyclist, where one was a slight collision and one serious.
- 4.5.15 Driver error, lack of judgement and failing to look properly were major factors as to why the serious collisions have happened here, rather than highway design factors.

Summary

- 4.5.16 The collision records do not indicate any particular road safety concerns. It should be noted that road safety along the A19 is expected to improve with the new layouts at Testos and Downhill Lane junction improving operational performance and provisions for Non-Motorised Users.
- 4.5.17 Having reviewed the full extent of the detailed collision data for the study period, the above analysis notes that the majority of the accidents occurred as a result of driver error and lack of awareness of other road users, rather than highway design issues, and as a result no clusters or trends have been identified.
- 4.5.18 Whilst it is acknowledged that the AESC Plant 3 will lead to the addition of more traffic on the road network, the collision records do not indicate any particular road safety concerns.

5. DEVELOPMENT PROPOSALS

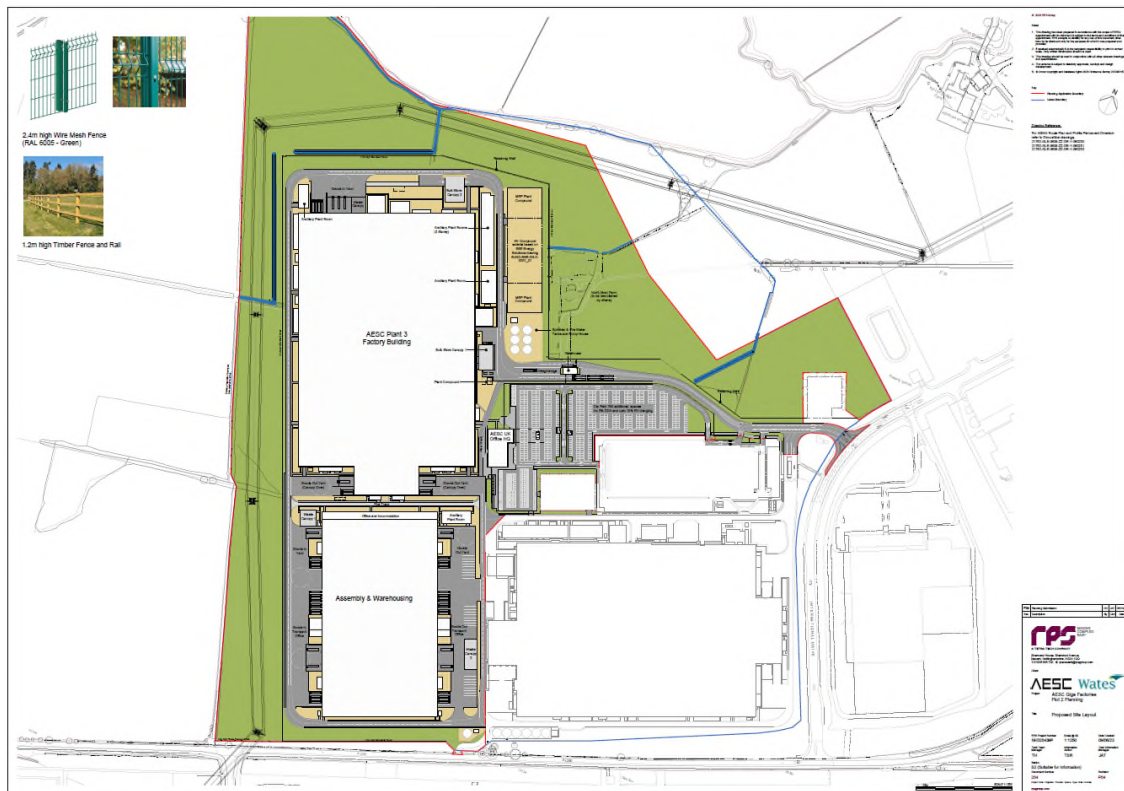
5.1 Introduction

5.1.1 This chapter describes the development proposals and sets out details on staffing numbers, access, servicing and car parking. The following should be read alongside the masterplan.

5.2 Development Description

5.2.1 The planning application for AESC Plant 3 seeks permission for erection of a building to be used for the manufacture of batteries for electric vehicles, an assembly & warehousing building, an office building, a sub-station, gatehouse, ancillary compounds / structures and associated infrastructure provision, access, parking, drainage and landscaping.

Figure 9. Site Masterplan



5.3 Staff Numbers & Shifts

5.3.1 AESC UK have a comprehensive understanding of its operational requirements, which is informed by their other operational plants and defined by their extensively automated process and precise staffing needs. AESC UK has provided SYSTRA with information on staffing numbers and this is set out in the table below, along with shifts to be deployed at the AESC Plant 3.

5.3.2 It is important to note that the staffing numbers provided and stated within this assessment represent the site operating at full capacity. The building design and operations do not freely accommodate an uplift in staff, due to the automated systems deployed and regulation limits.

Table 2. Forecast Staff and Shifts

	Dayshift (Office Staff)	Continental Shifts	3 Shift	2 Shift	Total
UK HQ Office	193				193
Gigafactory	23	752			775
Packaging & Warehouse		751	118	74	943
					1911

5.3.3 The new AESC Plant 3 will operate four different shift patterns: office hours, 2-shift, 3-shift and continental shifts.

5.3.4 It should be noted that the staff levels presented in the previous table are the total number of staff to be employed at the site. As such, the staff levels working a 2-shift pattern will be split between two working groups; 3-shift pattern works split into three groups and continental shift staff split into four groups.

5.3.5 The proposed shift operations are presented below:

Table 3. Proposed Shift Times

	Shift Start	Shift End
Office Day Staff	07:45hrs +/- 1 hr	16:30hrs +/- 1 hr
2-Shift	Days: 06:50hrs	Days: 15:08hrs
	Lates: 15:25hrs	Lates: 00:43hrs
3-Shift	Days: 06:50hrs	Days: 15:25hrs
	Lates: 15:20hrs	Lates: 23:10hrs
	Nights: 23:05hrs	Nights: 06:55hrs
Continental	Days: 06:50hrs	Days: 19:03hrs
	Lates: 18:50hrs	Lates: 07:03hrs

5.3.6 The proposed development will comply with the requirements of the IAMP ONE Highways Operational Management Plan (HOMP), whereby all shift and non-shift-based staff (i.e., office/administrative/managerial) start and finish times will be set out within the document to ensure that thresholds of the number of businesses operating similar shifts to Nissan is controlled.

5.1 Site Access

5.1.1 Access to the site will be taken from the priority-controlled junction on International Drive established as part of the AESC Plant 2. This junction has two exit lanes provided; one dedicated for left turn movements and the other for right turn movements – these are

separated by a pedestrian refuge island. For inbound movements, a short-dedicated taper lane is provided for left turn movements from the south, which then give-way to any right-turning inbound movements.

- 5.1.2 A separate emergency access is provided onto the A1290 to the south in the approximate location of the former West Moor Farm access.
- 5.1.3 Within the site, at the main site entrance, separate access lanes are provided for car and HGVs / delivery vehicles. Signage would be provided to direct vehicles to the correct areas.
- 5.1.4 Once within the site, any cars would travel into the car park or to the drop off / pick up area near the main entrance to the building.
- 5.1.5 HGVs / service vehicles will travel through a gatehouse and along an access route which travels around the perimeter of the AESC Plant 3 and accompanying warehouse.

5.2 Parking Provision

- 5.2.1 It is important that an appropriate level of car parking is provided, although it is acknowledged that too much parking provision increases the reliance on the car, reduces potential for sustainable modes of travel to the site and results in a landscape dominated by vehicles. Notwithstanding this, too little parking provision results in indiscriminate parking, potentially reducing pedestrian and cycle amenity or parking pressures spilling out onto the external highway network.
- 5.2.2 Sunderland City Council's Development Management SPD sets out the requirements for car parking. It also identifies that an appropriate level of electric vehicle parking and charging infrastructure to suit site specific requirements should be provided. The SPD sets out the need for levels of parking to be considered alongside and 'Accessibility Level' score determined from the 'Accessibility Questionnaire'.
- 5.2.3 The results of the Accessibility Questionnaire for the site indicate an Accessibility Level of 10: Low (Less than 15). In the SPD, this score correlates to a car parking provision ratio of 1 per 50 sqm GFA for general industry uses and 1 per 30 sqm GFA for office development.
- 5.2.4 Importantly within the SPD parking standards, it outlines that the emphasis is on providing a level of parking to suit the needs of the development. In this respect, AESC UK has extensive knowledge of its operational needs, including the level of car parking required to accommodate staff and visitors. Indeed, the proposed operations within the battery plant will rely on automated processes, resulting in less dense staffing levels compared to other 'typical' B2 industrial uses.
- 5.2.5 The proposed development will provide 780 spaces for staff and visitors. Of the 780 total spaces to be provided, 5% would be accessible and up to 10% would be electric vehicle charging bays. The accessible bays would be located outside the main entrance to the building.
- 5.2.6 Provision for pedestrians and cyclists has been incorporated into the overall layout of the development area, linking to the external infrastructure. A cycle shelter accommodating up to 80 bicycles / motorcycles, is also proposed close to the main entrance to the building.

5.3 Servicing and Deliveries

- 5.3.1 AESC UK has extensive knowledge of its operational needs, including the internal layout requirements to accommodate its servicing and delivery arrangements.
- 5.3.2 Servicing and delivery vehicles, such as HGV and Vans will be directed through security-controlled barriers to the perimeter bi-directional service road. Both the Goods In Yard and Goods Out Yard will have level access doors and dock levellers.
- 5.3.3 AESC UK are committed to ensuring that servicing and deliveries associated with the site do not have a detrimental impact on the surrounding road network or neighbourhood. The internal layout has been designed to meet operational needs and expected HGV movements, thus ensuring that scheduled servicing and deliveries are accommodated on site safely.
- 5.3.4 It is also important to note the expected supply chain links between the battery plant and Nissan, which mean the impact of freight journeys from ‘supplier’ to ‘consumer’ will be minimised. This will have a positive impact on sustainability and reduce the environmental impact.
- 5.3.5 AESC have provided a breakdown of the forecasted HGV movements below:

Table 4. Forecast HGV Movements

Flow	Quantity Per Day
Inbound Deliveries	
G1 Electrode Arrivals	25
G3 Electrode Arrivals	23
Warehouse Arrivals	35
TOTAL	82
Internal Movements	
Warehouse to G1	4
Warehouse to G3	8
Warehouse to G2 (Current Site)	5
G1 to Pack Line	7
G3 to Pack Line	13
G2 (Current Site) to Pack Line	5
TOTAL	42
Outbound Deliveries	
Pack Line to NMUK	46
G1 to Customer (Coventry Project)	20
TOTAL	66

- 5.3.6 The table above is a forecast of the daily HGV movements arriving and departing the site. The total inbound movements equal 82 deliveries each day, whereas outbound there is forecast to be 66 deliveries. Internal movements within the site are forecast to be at 42 movements daily between all buildings once fully operational.
- 5.3.7 In order to provide a robust consideration, our assessment considers a 25% uplift in the inbound and outbound deliveries, to allow for inaccuracies and possible daily variations. Applying these assumptions gives the following values.

Table 5. HGV Forecasts (25% Uplift)

HGV	Arrive	Depart	Total Two-Way Movements
Inbound	82	82	164
Outbound	66	66	132
TOTAL	148	148	296
25% UPLIFT			
Inbound	103	103	205
Outbound	83	83	206
TOTAL	186	186	411

- 5.3.8 Within our considerations, it has been assumed that the total outbound movements will be equal to the inbound movements on site – on the basic assumption that all inbound deliveries must also depart.
- 5.3.9 AESC UK are committed to ensuring the sites operational needs will not have a detrimental impact on the site’s internal operations and surrounding road network.
- 5.3.10 Parking will provided on site for up to 75 HGV, including docks.

5.4 Travel Plan

- 5.4.1 In accordance with national and local policy requirements a Travel Plan has been prepared to accompany the planning application and this is submitted under separate cover. AESC has already made progress with its drive to reduce staff car travel and have a site-specific Travel Plan produced for the adjacent Plant 2, which has been informed by a staff travel survey of those currently working within Plant 1. It is the expectation that the Plant 2 Travel Plan will be broadened to encompass the whole site (i.e., inclusive of the Plant 3).
- 5.4.2 The Travel Plan is to be read in conjunction with this Transport Assessment and is based on the best practice guidance set out in the Planning Practice Guidance. The Travel Plan seeks to encourage trips to the proposed development to be made by sustainable (non-car) modes of transport, where possible, and to mitigate the impact of traffic.
- 5.4.3 AESC has already commenced discussions with the IAMP ONE Principal Travel Plan Co-ordinator (a role undertaken by Sunderland City Council) and will continue to work together on sustainable travel initiatives.

5.5 Construction Traffic Management Plan

- 5.5.1 Prior to the commencement of construction, a detailed Construction Traffic Management Plan (CTMP), will be submitted to the Council. This will be agreed with the Council, Highways England and other stakeholders and adhered to throughout the construction period. The CTMP will ensure the smooth flow of deliveries & collections to site and no disruption to the operations of neighbouring properties and public.
- 5.5.2 Through the CTMP, the Contractor will coordinate the arrival and departure patterns for deliveries to avoid disruption during Nissan shift change times and school start/finish times. A timetable of construction implementation will also be set out.

6. TRIP GENERATION, MODAL SPLIT & DISTRIBUTION

6.1 Introduction

6.1.1 This chapter provides details on the methodology used to calculate the forecast number of trips the AESC Plant 3 will generate and how these trips will be distributed on the highway network for assessment purposes.

6.2 Trip Generation

6.2.1 The vehicle trip generation has been determined information that has been provided by the AESC.

6.2.2 Using the staff numbers and shifts presented previously in Table 3, within the peak hour of 06:30hrs – 07:30hrs, 452 arrival person trips will be travelling to the site within this time period, comprising of:

- 37 staff working a 2-shift pattern
- 39 staff working a 3-shift pattern; and
- 376 staff working a continental shift pattern

6.2.3 Using modal shift data presented in the next section, it is expected that 85% of these trips could be made by single car occupancy trips to the site, therefore equating to potentially 384 vehicle arrival trips associated with the proposed development in the AM period of 06:30hrs – 07:30hrs.

Wider Trip Generation

6.2.4 Wider trip generation throughout the day outside of the assessed time period will also occur, including for example those associated with the office building. However, generally, outside of the main shift change-over periods, the development is expected to generate minimal staff arrivals and departures.

6.2.5 In addition to AESC direct staff, other visitors and contractors will be expected throughout the day. AESC forecast the that the proposed Plant 3 development will generate on average 50 other arrivals each day. To provide a robust consideration of with AESC’s forecast, this expectation has been uplifted by 25% uplift, therefore forecasting 63 visitors on an average per day.

6.2.6 The overall trip generation for the site including deliveries, can therefore be seen in the table below.

Table 6. Trip Generation in Assessed Period and Outside Assessed Period

Trip Generation	Assessed Period	Outside Assessed Period	TOTAL
AESC Staff	384	707	1091
Visitors	0	63	63
HGVs	0	186	186
TOTAL	384	956	1340

6.3 Modal Split

- 6.3.1 In January 2023, SYSTRA were commissioned by AESC to undertake a travel survey of staff currently located at their existing facility on Washington Road – Plant 1. This survey was undertaken in July 2023 to inform the Travel Plan.
- 6.3.2 The results of the survey provides a robust baseline upon which to establish the modal split for staff at the new Gigafactory, just a short distance away. Travel survey responses were received from over 300 staff, are presented in the Table below and are used for vehicle trip generation within this assessment.

Table 7. Modal Split

Mode	Modal Split (%)
Car (Alone)	85
Car Share (As Driver)	6
Car Share (As passenger)	3
Bus	2
Motorcycle or Moped	2
Cycle	1
Walk	1
Total	100

Robustness of Modal Split Assumptions

- 6.3.3 It is important outline that no consideration has been given with our assessment for the impact of implementing an effective Travel Plan.
- 6.3.4 Considerable efforts have been made by the IAMP Travel Plan Co-ordinator and SCC Travel Plan officers to promote sustainable travel. SYSTRA has received copies of the respective Travel Plans for SNOP, Faltec and Unipres, which include the results of Staff Travel Surveys undertaken in April 2021. These Staff Travel Surveys were undertaken by Sunderland City Council, who fulfil the role of IAMP Principal Travel Plan Co-Ordinator – these results are presented below.

Table 8. Modal Split Travel Survey Results

MODE	UNIPRES		IAMP ONE TP SURVEY RESULTS	
WALK	1.4 %	16.8 %	5.3 %	25.0 %
CYCLE	7.7 %		13.1 %	
BUS	7.7 %		6.6 %	
METRO	0 %		0 %	
TRAIN	0 %		0 %	
TAXI	1.0 %		0.6 %	
CAR DRIVE ALONE	56.5 %	67.6%	50.6 %	63.4 %
CAR SHARE DRIVER	11.1 %		12.8 %	
CAR SHARE PASSENGER	12.1 %		9.5 %	
MOTORCYCLE	1.9 %		0.6 %	
WORK FROM HOME	0 %		0 %	
OTHER	0.5 %		0 %	

6.3.5 As can be seen, the results present much more favourably towards sustainable travel modes and provide a clear indication of the potential targets and aspiration for the Plant 2 and Plant 3.

6.4 Trip Distribution

6.4.1 This section outlines our methodology in calculating the trip distribution for the proposed development.

6.4.2 The AESC staff travel survey outlined previously also collected the home postcode of existing staff. This data has been collated and plotted in a GIS system to then appropriately group trips and assign an appropriate routing to the site and inform a distribution on the road network.

6.4.3 Interestingly, the summary distribution proportions onto the road network using the results of the AESC staff survey present comparable distribution results from those originally forecast in both the IAMP AAP and those returned by similar recent staff travel surveys at SNOP and Faltec, located within IAMP ONE.

6.4.4 This assessment of the Plant 3 uses an average of all distribution results. The proposed distribution is presented in the table below.

Table 9. Distribution Proportion

Arrival	Distribution Proportion (%)
A1231 West	21
A184 West	13
A19 North	15
A184 East	4
Downhill Lane	4
Washington Road	10
A1231 East	1
A19 South	32

7. MODELLING ASSUMPTIONS

7.1 Introduction

- 7.1.1 Whilst an IAMP Paramics micro-simulation traffic model is available for the study area, the base model is calibrated and validated against a 2018 road network and traffic data – i.e., prior to the A19 Testo’s and Downhill Lane junction improvements.
- 7.1.2 The programme for the Gigafactory planning application is intrinsically linked to commitments associated with the UK Government’s Zero Emissions Vehicle Mandate – which includes the annual sales target for manufacturers for all new cars and van sales to be zero emission by 2035.
- 7.1.3 The timescales required to update the IAMP Paramics model do not align with the project programme and as such, this Transport Assessment uses individual junction assessments using LinSig or Junctions 10 software.
- 7.1.4 It is acknowledged that as the site is not currently allocated within the Sunderland City Council Local Plan and falls outside of the land that is allocated for employment uses within the IAMP Area Action Plan, Circular 01/2022 requires a future year assessment beyond the year of opening. Therefore, to enable an understanding of the longer-term network operations, the IAMP Paramics model has been used to run a future year scenario with Local Plan developments, inclusive of the full delivery of the remaining IAMP AAP (including a new bridge over the A19 to Washington Road). Use the Paramics model in this instance is considered acceptable, given that there is an inherent level of robustness due to the uncertainty of how many of the Local Plan sites will be realised and Paramics remains a suitable tool for such horizon forecasting and the changes that may occur to future routing through the network.

7.2 Assessment Scenarios

- 7.2.1 This Transport Assessment considers the impact of the proposed AESC Plant 3 for the year of planning application (2024), plus traffic flows from committed developments and then with the addition of AESC Plant 3 related traffic. The scenarios considered are:
 - Base 2023
 - Base 2027 + Committed Development
 - Base 2027 + Committed Development + AESC Plant 3 development

7.3 Assessment Time Periods

- 7.3.1 The traffic impact assessment considers the weekday morning peak 06:30hrs – 07:30hrs, capturing the critical shift periods. These periods will provide the greatest level of traffic impact on the road network.
- 7.3.2 The traffic models consider the following analysis periods:
 - AM Period: 06:30hrs – 07:30hrs

7.4 Traffic Surveys

- 7.4.1 To inform the junction capacity assessments within this report, baseline traffic survey data for the study was collected in November 2022.

7.5 Committed Developments

7.5.1 The assessment of the traffic and transport impacts uses the 2023 baseline conditions and compares these with a 'Base + Committed Development' and 'Base + Committed + Development' scenarios.

7.5.2 In consultation with officers at Sunderland City Council, the following development sites are included in the future scenario assessments due to them being considered to likely come forward within the next three-year period, or are consented:

1. IAMP Early Infrastructure and Northern Employment Area – 21/02807/HE4 – Hybrid planning application – Approved August 2023
2. IAMP ONE Phase One, Washington – 18/00092/HE4 – Hybrid planning application – Approved May 2018 – First unit and infrastructure delivered
3. IAMP ONE Phase One, Washington – 19/00245/REM – Reserved matters application – Approved May 2019 – Unit built and now occupied
4. IAMP ONE Phase One, Washington – 19/00280/REM – Reserved matters application – Approved April 2019 – Unit built and currently being used at Nightingale Hospital / COVID-19 vaccination centre
5. Unipres, Washington Road – 18/02055/FUL – Full planning application – Approved March 2019
6. Three Horseshoes, Washington Road – 18/01964/FUL – Full planning application – Approved December 2019
7. Unipres UK Ltd, Cherry Blossom Way. 18/01869/FUL and 19/02161/VAR - Full planning application and variation of condition - Approved October 2019 March 2020.
8. Elm Tree Nursery, Washington Road - 18/01964/FUL - Full planning application - Approved December 2019.
9. Hillthorn Farm - 21/00401/HE4 - Full planning application – September 2021
10. Hillthorn Farm - 21/00605/OU4 - Outline planning application – September 2021
11. Follingsby International Enterprise Park and Follingsby Park South - DC/17/01117/OUT - Outline planning application - Approved June 2018.
12. Follingsby International Enterprise Park and Follingsby Park South - DC/18/00111/REM - Reserved matters application - Approved April 2018
13. Follingsby International Enterprise Park and Follingsby Park South - DC/18/00237/OUT - Outline planning application - Approved May 2018
14. Follingsby International Enterprise Park and Follingsby Park South - DC/18/00574/FUL - Variation of condition - Approved April 2019
15. Follingsby International Enterprise Park and Follingsby Park South - DC/18/00573/COU - Change of use application - Approved September 2018.
16. Follingsby International Enterprise Park and Follingsby Park South - DC/20/00021/REM - Reserved matters Application - Approved March 2020
17. Follingsby International Enterprise Park and Follingsby Park South - DC/20/00208/REM - Reserved matters application
18. Follingsby International Enterprise Park and Follingsby Park South - DC/20/00021/REM and DC/20/00208/REM relate to the outline application (DC18/00574/FUL). The outline application is for no more than 225,000 m² of gross external floorspace for Class B2/B8 use, with class B2 use restricted to a maximum of 27,000 m². The total GIA for Unit A is 187,024 m², (which is subject to RM application DC/20/00021/REM) and the total GIA for Plot B is 13,667. The total is therefore

200,691 m² which is 24,309 m² floorspace less than that consented under permission DC/18/00574/FUL and under DC/18/00573/COU

19. Follingsby Park, Gateshead - DC/18/00860/OUT - Outline planning application - Approved September 2018
20. Land North of Follingsby Lane, Gateshead - DC/19/01252/OUT - Outline planning application – Awaiting decision
21. Former Wardley Colliery, Gateshead - DC/16/00698/OUT - Outline planning application – Approved June 2019
22. Former Wardley Colliery, Gateshead - DC/19/00813/REM - Reserved matters application - Approved November 2020.
23. Northern Area Playing Fields Stephenson Road, Washington - 17/02425/LP3 - Approved April 2018 – Works now delivered
24. Unit 1 Spire Road Glover Washington - 18/02226/FUL - Approved October 2019
25. Local Plan Site H3.62, South Tyneside, Residential, 400 dwellings
26. Local Plan Site MSGP1.12, Gateshead, Employment, B2 16,500m²
27. Local Plan Site H3.25, South Tyneside, Residential, 19 dwellings
28. Local Plan Site H3.65, South Tyneside, Residential, 54 dwellings
29. Local Plan Site MSGP1.10, Gateshead, Employment, B2 4650m²

7.5.3 Of these sites considered, the following developments have been identified as generating traffic movements that will increase traffic flows within the study area:

1. 21/02807/HE4, IAMP Early Infrastructure and Northern Employment Area
2. 07/03132/OUT, 10/03039/EXT1 Turbine Business Park, Sunderland
3. 18/00459/FUL, Unipres Extension, 90 parking spaces & 11,100m² B2 extension
4. 18/00092/HE4, IAMP ONE
5. 21/00401/HE4, Hillthorn Farm
6. DC/18/00237/OUT, DC/20/00021/REM, DC/20/00208/REM, Follingsby International Enterprise Park, Industrial / Warehousing, totalling 200,841m² B8 Use
7. DC/18/00860/OUT, Gateshead, Industrial Unit, 7,433m²
8. DC/19/01252/OUT – Gateshead - Industrial Unit, 4,600m²
9. 19/01427/FU4 – Sunderland - Residential, 105 dwellings
10. DC/16/00698/OUT - Gateshead - Residential, 144 dwellings
11. 18/01869/OUT - Sunderland, 36 bed Hotel
12. Local Plan Site H3.62 - South Tyneside - Residential, 400 dwellings
13. Local Plan Site MSGP1.12 - Gateshead - Employment, B2 16,500m²
14. Local Plan Site H3.25, South Tyneside – Residential, 19 dwellings
15. Local Plan Site H3.65, South Tyneside - Residential, 54 dwellings
16. Local Plan Site MSGP1.10, Gateshead - Employment, B2 4650m²

7.5.4 In relation to IAMP ONE, planning application 21/01764/HE4 for an industrial unit to manufacture batteries for vehicles (“AESC Plant 2”) was granted in October 2021, to be located in the south-western area of the IAMP ONE Phase 2. This AESC Plant 2 is forecast to generate fewer trips than assumed under the 18/00092/HE4 consent, however the industrial unit is still under construction and as such, to assume a robust assessment, the trip making potential of the original IAMP ONE planning consent is assumed within assessments.

7.5.5 Trip generation and distribution for committed developments has been taken from the Transport Assessment produced by WSP and submitted in support of the Hillthorn Farm development (21/00401/HE4), which contains full details of their robust assumptions.

8. TRAFFIC IMPACT ASSESSMENT

8.1 Introduction

8.1.1 This section considers the impact of the development proposals on the key junctions on the local and strategic road network within the study area. It provides a summary of the findings from the operational junction capacity assessments that have been undertaken. The scope of the assessments has been discussed with the local highway authority and National Highways during the scoping stage.

8.1.2 Operational capacity assessments have been undertaken to determine the development traffic impact at the junctions:

Strategic Road Network (SRN)

- Junction 1 – A19 / 184 (Testo's Roundabout);
- Junction 2 – A19 / Downhill Lane;
- Junction 3 – A19 / A1231 / Wessington Way

Local Road Network (LRN)

- Junction 4 – A1290 / Cherry Blossom Way three-arm signalised Junction.
- Junction 5 – A1290 / Sulgrave Road / Glover Road three-arm priority roundabout.
- Junction 6 – Glover Road / Spire Road four-arm priority roundabout.
- Junction 7 – Glover Road / Silverstone Road four-arm priority roundabout.
- Junction 8 – Glover Road / A195 four-arm priority roundabout.
- Junction 9 – A1290 / Nissan access signalised junction
- Junction 10 – A1290 / West Site Access
- Junction 11 – A1290 / North Site Access
- Junction 12 – Site Access / International Drive

8.1.3 The remainder of this section summarises the results of standalone junction capacity assessments for the study area junctions. The assessments have been undertaken using TRL industry-standard modelling software Junctions 10, with the ARCADY module for roundabout junctions and the PICADY module for the assessment of priority-controlled junctions. The assessment of signalised junctions has been undertaken using the industry standard software package LinSig version 3

8.2 Modelling Software

8.2.1 The ARCADY and PICADY models return results in RFC (Ratio of Flow to Capacity) and mean maximum queues (MMQ) in each 15-minute time segment, measured in the number of passenger car units (PCUs). Theoretically, RFC values between 0.00 and 0.85 indicate good operating conditions; values of between 0.85 and 1.00 represent variable operation (i.e. queues building at the junction resulting in increased vehicle delay moving through the junction); values in excess of 1.00 represent overloaded conditions.

8.2.2 LinSig 3 reports a Degree of Saturation (DoS) for each link (i.e. demand / available capacity) and MMQ recorded in Passenger Car Units (PCUs). A DoS between 0.00 and 0.90 is generally considered as representing stable operating conditions, values between 0.90 and 1.00 represents a constrained scenario (i.e. possible queues building up at the junction and

increases in vehicle delay). DoS beyond 1.00 represents overloaded conditions and a junction working beyond theoretical capacity.

8.2.3 The full junction modelling reports for all demand sets are provided within the appendices.

8.3 Junction Model Results

8.3.1 This section presents the results and brief commentary of the individual junction assessments undertaken for each considered scenario.

Junction 1 – A19 / A184 (Testo’s Roundabout)

8.3.2 The table below provide a summary of the results of the modelling exercise for this junction.

	0630 - 0730					
	DoS (%)	Queue (PCU)	DoS (%)	Queue (PCU)	DoS (%)	Queue (PCU)
	Base 2023		Base 2027 + Com		Base 2027 + Com + Dev	
A19 NB Ahead	15.3	1.4	15.3	1.4	14.7	1.4
A19 NB Ahead	14.9	1.4	18.9	1.8	20.7	2.0
A19 NB Bypass Left	49.1	5.2	56.8	6.3	64.0	8.0
A19 NB Bypass Left	54.7	6.1	61.9	7.4	58.9	6.8
A184 WB Ped Exit	55.5	6.0	59.8	6.4	63.2	6.9
A184 WB Ped Exit	64.3	4.5	69.1	5.1	71.1	5.8
A184 EB Ahead Left	30.4	2.8	36.8	3.6	28.1	2.7
A184 EB Ahead	44.8	4.8	57.9	6.6	45.8	5.1
A184 EB Ahead	43.4	0.0	47.9	0.0	45.8	0.0
A184 EB Ahead Exit	21.9	0.9	22.9	1.2	26.9	1.2
A184 EB Ahead Exit	8.4	0.0	10.3	0.1	8.1	0.0
S circ Ahead	62.8	4.4	63.5	2.7	65.1	2.9
S circ Right Ahead	63.9	2.7	64.6	4.2	68.7	4.6
W Circ Ahead	37.7	3.3	36.7	4.8	53.9	5.4
W Circ Right	14.8	0.8	18.0	1.9	30.2	2.9
A19 NB Ped Ahead	29.1	0.6	29.7	1.3	29.7	1.3
A19 SB Ahead Left	39.6	0.0	49.7	0.0	49.9	0.0
A19 SB Ahead	54.6	5.0	63.8	5.4	66.3	5.6
N Circ Ahead	23.3	1.5	22.2	0.8	26.9	2.5
N Circ Right Ahead	37.6	1.3	35.9	2.1	39.6	2.2
N Circ Right	32.0	0.6	38.4	0.5	38.4	0.5
E Circ Ahead	49.9	5.6	47.2	3.9	53.7	4.9
E Circ Ahead Right	62.2	6.9	67.8	4.8	69.1	6.0
E Circ Right	62.2	0.0	67.8	0.0	69.1	0.0
A184 WB Left	53.6	0.0	60.7	0.0	61.3	0.0
A184 WB Ahead Left	53.6	5.9	60.7	6.5	61.3	6.5
A184 WB Ahead	48.8	5.1	54.1	5.4	55.7	5.6
A19 SB Exit	50.6	6.5	52.9	5.2	58.2	5.2
A19 SB Exit	31.9	2.6	38.8	2.3	40.7	0.7

8.3.3 The maximum predicted queue is 8 PCUs, occurring on the A19 bypass left turn towards the A184, with a corresponding degree of saturation (DoS) of 64%.

- 8.3.4 All arms of the junction are predicted to operate in a satisfactory manner. It can be seen that the development is predicted to result in only a marginal increase to the reported DoS and queues in comparison to the base scenarios.
- 8.3.5 It is therefore concluded that the proposed development will not have a material impact on the operation of the A19 / A184 Testos junction.

Junction 2 – A19 Downhill Lane

- 8.3.6 The table below provide a summary of the results of the modelling exercise for this junction.

	0630 - 0730					
	DoS (%)	Queue (PCU)	DoS (%)	Queue (PCU)	DoS (%)	Queue (PCU)
	Base 2023		Base 2027 + Com		Base 2027 + Com + Dev	
A19 NB Left	29.5	2.3	26.6	2.5	33.7	3.1
A19 NB Left Ahead	36.1	3.1	0.0	5.4	33.7	5.9
A19 NB Ahead	36.1	0.0	47.3	0.0	57.2	0.0
A1290 EB Left	10.2	0.9	33.7	3.5	49.7	5.9
A1290 EB Left Ahead	19.6	1.6	51.5	4.4	70.2	7.1
A1290 EB Ahead	19.6	0.0	51.5	0.0	70.2	0.0
A19 SB Left Ahead	22.9	2.2	62.1	5.5	53.2	5.1
A19 SB Ahead	23.5	2.5	77.8	8.3	91.9	14.4
Downhill Lane East Left	19.7	0.0	38.0	0.0	59.9	0.0
Downhill Lane East Left Ahead	19.7	0.5	38.0	2.2	59.9	3.4
Washington Road Left Ahead	36.6	0.0	50.7	0.0	52.8	0.0
Washington Road Ahead	36.6	3.4	67.9	5.6	72.8	6.0
S circ Ahead	31.7	1.8	52.0	3.3	51.8	3.1
S circ Ahead	38.1	1.9	75.8	4.3	90.3	4.6
S circ Right	14.1	2.0	25.2	3.3	22.4	3.2
W circ Ahead	23.4	0.4	77.4	7.9	85.0	7.2
W circ Right	23.4	0.0	77.4	0.0	85.0	0.0
N circ Ahead Right	27.5	1.9	78.6	10.2	95.3	10.7
N circ Right	14.3	1.1	30.3	2.3	52.2	8.5
E circ Ahead	0.3	0.0	0.0	0.0	0.0	0.0
E circ Ahead Right	32.1	3.5	50.7	6.6	66.9	6.0
E circ Right	28.8	3.9	39.9	0.6	54.7	11.3

- 8.3.7 The table above details that the A19 / Downhill Lane has demonstrated to operate within capacity in all of the scenarios tested.
- 8.3.8 All arms of the junction are predicted to operate under a 100% capacity threshold. The maximum DoS is 95.3% on the north circulatory, which demonstrates a build-up of traffic with a corresponding maximum average queue of 10.7 PCUs.
- 8.3.9 The development is predicted to result in an acceptable level of impact at this junction with nominal increases in queue lengths in comparison to the base scenarios.

Junction 3 – A19 / A1231 / Wessington Way

8.3.10 The table below provide a summary of the results of the modelling exercise for this junction.

	0630 - 0730					
	DoS (%)	Queue (PCU)	DoS (%)	Queue (PCU)	DoS (%)	Queue (PCU)
	Base 2023		Base 2027 + Com		Base 2027 + Com + Dev	
A19 NB Ahead Left	52.1	3.8	48.3	0.0	58.6	0.0
A19 NB Ahead	52.1	0.0	48.3	3.5	58.6	4.5
A1231 EB Ahead Left	55.4	6.9	54.8	6.8	52.3	6.3
A1231 EB Ahead	42.1	5.1	40.7	4.7	44.8	5.4
A1231 EB Ahead	36.8	4.2	39.9	4.7	41.7	5.1
A19 SB Left	49.3	0.0	53.9	0.0	52.9	0.0
A19 SB Ahead Left	49.7	3.6	53.6	3.7	52.8	3.7
A19 SB Ahead	45.6	3.3	51.7	3.6	54.9	3.8
A1231 WB Left	69.9	0.0	67.4	0.0	71.3	0.0
A1231 WB Ahead Left	69.9	6.5	67.4	6.2	71.3	6.8
A1231 WB Ahead	58.1	6.9	54.1	6.4	59.2	7.0
S circ Ahead	42.1	1.4	42.3	1.8	41.2	1.0
S circ Ahead Right	44.5	1.2	46.4	4.0	43.7	1.3
S circ Right	9.3	0.1	8.3	0.1	12.5	0.1
W circ Ahead	47.8	4.2	37.6	2.9	25.1	1.5
W circ Ahead Right	47.5	3.2	48.8	3.8	46.9	3.1
W circ Right	32.8	1.7	44.3	1.1	50.0	4.7
N circ Ahead	51.7	3.7	51.2	7.3	43.5	2.8
N circ Ahead Right	61.8	6.5	57.5	8.2	63.9	6.7
N circ Right	39.2	1.8	41.5	7.3	42.2	1.8
E circ Ahead	46.8	2.9	47.1	1.2	42.3	2.9
E circ Ahead Right	63.0	5.8	72.4	3.8	66.2	5.9
E circ Right	22.1	3.4	25.1	3.6	24.6	3.8

8.3.11 The maximum predicted queue is 8.2 PCUs for this junction, occurring on the north circulatory, with a corresponding degree of saturation (DoS) of 57.5%. In the future development scenario, all lanes operate under capacity within the assessed time period.

8.3.12 All arms of the junction are predicted to operate well and it can be seen that the development is predicted to result in only a marginal increase to the reported DoS and queues in comparison to the base scenarios.

8.3.13 It is therefore concluded that the proposed development will not have a material impact on the operation of the A19 / A1231 junction.

Junction 4 - A1290 / Cherry Blossom Way

8.3.14 The table below provide a summary of the results of the modelling exercise for this junction.

	0630 - 0730					
	DoS (%)	Queue (PCU)	DoS (%)	Queue (PCU)	DoS (%)	Queue (PCU)
	Base 2023		Base 2027 + Com		Base 2027 + Com + Dev	
A1290 E	33.9	5.1	50.9	8.6	60.2	11.2
A1290 W	35.2	5.4	48.8	2.5	58.4	2.8
Cherry Blossom Way	35.9	1.9	48.5	8.2	57.5	10.6

8.3.15 The maximum predicted queue is 11.2 PCUs for this junction, occurring on the A1290 Eastern arm, with a corresponding degree of saturation (DoS) of 60.2%. In the future development scenario, all lanes operate under capacity within the assessed time period.

8.3.16 All arms of the junction are predicted to operate well and it can be seen that the development is predicted to result in only a marginal increase to the reported DoS and queues in comparison to the base scenarios.

8.3.17 It is therefore concluded that the proposed development will not have a material impact on the operation of the A1290 / Cherry Blossom Way junction.

Junction 5 - A1290 / Sulgrave Road

8.3.18 The table below provide a summary of the results of the modelling exercise for this junction.

	0630 - 0730								
	Queue (PCU)	Delay (s)	RFC	Queue (PCU)	Delay (s)	RFC	Queue (PCU)	Delay (s)	RFC
	Base 2023			Base 2027 + Com			Base 2027 + Com + Dev		
A1290	0.3	4.50	0.24	0.8	6.00	0.43	1.4	8.45	0.56
Glover Road	0.3	3.04	0.25	0.5	3.53	0.35	0.8	4.46	0.44
Sulgrave Road	0.2	3.54	0.14	0.2	3.95	0.16	0.2	4.76	0.18

8.3.19 The table details that the A1290 / Sulgrave Road junction has demonstrated to operate within capacity in all of the scenarios tested.

8.3.20 All arms of the junction are predicted to operate within the 0.85 RFC threshold. The maximum predicted RFC is 0.56, in the assessed period, with a corresponding maximum average queue of 1.4 PCUs.

8.3.21 The development is predicted to result in only a marginal increase to the reported RFCs and queues in comparison to the base scenarios. It is therefore concluded that the proposed development will have no material impact on the operation of the A1290 / Sulgrave Road junction.

Junction 6 - Glover Road / Spire Road

8.3.22 The table below provide a summary of the results of the modelling exercise for this junction.

	0630 - 0730								
	Queue (PCU)	Delay (s)	RFC	Queue (PCU)	Delay (s)	RFC	Queue (PCU)	Delay (s)	RFC
	Base 2023			Base 2027 + Com			Base 2027 + Com + Dev		
Fire station	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00
Spire Road	0.4	3.27	0.27	0.5	3.74	0.34	0.7	4.61	0.39
Glover Road W	0.2	3.40	0.20	0.4	3.86	0.27	0.5	4.79	0.33
Glover Road N	0.2	3.68	0.19	0.5	4.55	0.35	0.9	6.01	0.46

8.3.23 The table details that the Glover Road / Spire Road junction has demonstrated to operate within capacity in all of the scenarios tested.

8.3.24 All arms of the junction are predicted to operate within the 0.85 RFC threshold. The maximum predicted RFC is 0.46, in the assessed period, with a corresponding maximum average queue of 0.9 PCUs.

8.3.25 The development is predicted to result in only a marginal increase to the reported RFCs and queues in comparison to the base scenarios. It is therefore concluded that the proposed development will have no material impact on the operation of the Glover Road / Spire Road junction.

Junction 7 – Glover Road / Silverstone Road

8.3.26 The table below provide a summary of the results of the modelling exercise for this junction.

	0630 - 0730								
	Queue (PCU)	Delay (s)	RFC	Queue (PCU)	Delay (s)	RFC	Queue (PCU)	Delay (s)	RFC
	Base 2023			Base 2027 + Com			Base 2027 + Com + Dev		
Glover Road	0.2	2.43	0.13	0.2	2.59	0.19	0.3	3.00	0.23
Tower Road	0.0	2.26	0.04	0.0	2.35	0.04	0.3	3.00	0.23
Glover Road W	0.2	2.03	0.19	0.3	2.13	0.22	0.0	2.67	0.04
Silverstone Road	0.0	2.20	0.04	0.0	2.28	0.04	0.0	2.58	0.04

8.3.27 The table details that the Glover Road / Silverstone Road junction has demonstrated to operate within capacity in all of the scenarios tested.

8.3.28 All arms of the junction are predicted to operate within the 0.85 RFC threshold. The maximum predicted RFC is 0.23, in the assessed period, with a corresponding maximum average queue of 0.3 PCUs.

8.3.29 The development is predicted to result in only a marginal increase to the reported RFCs and queues in comparison to the base scenarios. It is therefore concluded that the proposed development will have no material impact on the operation of the Glover Road / Silverstone Road junction.

Junction 8 – Glover Road / A195

8.3.30 The table below provide a summary of the results of the modelling exercise for this junction.

0630 - 0730									
	Queue (PCU)	Delay (s)	RFC	Queue (PCU)	Delay (s)	RFC	Queue (PCU)	Delay (s)	RFC
	Base 2023			Base 2027 + Com			Base 2027 + Com + Dev		
A1290 Glover Rd	0.1	1.77	0.13	0.2	1.86	0.17	0.3	2.12	0.20
A195 S	0.4	2.45	0.31	0.5	2.58	0.33	0.6	2.97	0.36
A1290 W	0.1	2.45	0.12	0.2	2.56	0.13	0.2	2.92	0.14
A195 N	0.2	1.97	0.19	0.3	2.05	0.20	0.3	2.33	0.22

8.3.31 The table details that the Glover Road / A195 junction has demonstrated to operate within capacity in all of the scenarios tested.

8.3.32 All arms of the junction are predicted to operate within the 0.85 RFC threshold. The maximum predicted RFC is 0.36, in the assessed period, with a corresponding maximum average queue of 0.6 PCUs.

8.3.33 The development is predicted to result in only a marginal increase to the reported RFCs and queues in comparison to the base scenarios. It is therefore concluded that the proposed development will have no material impact on the operation of the Glover Road / A195 junction.

Junction 9 - A1290 / Nissan Access

8.3.34 The table below provide a summary of the results of the modelling exercise for this junction.

0630 - 0730						
	DoS (%)	Queue (PCU)	DoS (%)	Queue (PCU)	DoS (%)	Queue (PCU)
	Base 2023		Base 2027 + Com		Base 2027 + Com + Dev	
A1290 E Left	37.8	4.6	39.4	4.9	39.4	4.9
A1290 E Ahead	37.6	0.3	37.9	0.3	37.9	0.3
A1290 E Left	37.6	0.0	37.9	0.0	37.9	0.0
NISSAN Access Right	18.5	1.3	21.6	1.5	26.5	1.8
NISSAN Access Right	37.2	2.9	39.6	3.0	39.5	2.8
NISSAN Access Left	37.2	0.0	39.6	0.0	39.5	0.0
A1290 W Ahead	38.9	0.0	39.7	0.0	38.2	0.0
A1290 W Right	38.9	4.0	39.7	4.1	38.2	4.0

8.3.35 The table above details that the A1290 / Nissan Access has demonstrated to operate within capacity in all of the scenarios tested.

8.3.36 All arms of the junction are predicted to operate under an 85% capacity threshold. The maximum DoS is 39.7% on the A1290 West, which demonstrates a build of traffic with a corresponding maximum average queue of 4.1 PCUs.

8.3.37 The development is predicted to result in only a marginal increase to the reported DoS and queues in comparison to the base scenarios. It is therefore concluded that the proposed development will have no material impact on the operation of A1290 / Nissan Access junction.

Junction 10 - A1290 / International Drive (West)

8.3.38 The table below provide a summary of the results of the modelling exercise for this junction.

0630 - 0730						
	DoS (%)	Queue (PCU)	DoS (%)	Queue (PCU)	DoS (%)	Queue (PCU)
	Base 2023		Base 2027 + Com		Base 2027 + Com + Dev	
A1290 S Ahead Left	23.4	3.0	58.7	4.6	90.4	7.6
A1290 S Ahead	25.5	3.5	63.1	5.4	95.9	9.9
A1290 N Ahead	50.3	6.1	54.0	7.8	54.0	7.8
A1290 N Ahead	50.3	6.1	54.0	7.8	54.0	7.8
A1290 N Right	35.0	5.6	65.4	14.9	95.8	38.5
IAMP Access Left	7.8	1.1	50.9	8.7	79.7	20.8
IAMP Access Right	0.0	0.0	0.0	0.0	0.0	0.0

8.3.39 The table above details the junction is predicted to operate under a 100% capacity threshold.

Junction 11 - A1290 / International Drive (North)

8.3.40 The table below provide a summary of the results of the modelling exercise for this junction.

0630 - 0730						
	DoS (%)	Queue (PCU)	DoS (%)	Queue (PCU)	DoS (%)	Queue (PCU)
	Base 2023		Base 2027 + Com		Base 2027 + Com + Dev	
A1290 N Ahead	28.0	4.2	35.8	5.5	43.0	6.4
A1290 N Right	3.3	0.2	3.3	0.2	3.3	0.2
A1290 S Ahead	25.8	2.7	26.5	3.4	39.6	4.5
A1290 S Ahead Left	25.8	2.7	43.5	3.5	52.4	3.6
IAMP Access Filter	18.5	0.0	43.5	3.5	33.2	3.3
IAMP Access Right	6.6	0.3	43.2	4.0	52.8	6.6
IAMP Access Right	6.6	0.0	43.2	0.0	52.8	0.0

8.3.41 The table above details that the A1290 / North site access has demonstrated to operate within capacity in all of the scenarios tested.

8.3.42 All arms of the junction are predicted to operate under an 85% capacity threshold. The maximum DoS is 52.8% on the right turn lane out of the IAMP access, which also has a corresponding maximum average queue of 4.0 PCUs.

8.3.43 The development is predicted to result in only a marginal increase to the reported DoS and queues in comparison to the base scenarios. It is therefore concluded that the proposed development will have no material impact on the operation the junction.

Junction 12 – Site Access off International Drive

8.3.44 The table below provide a summary of the results of the modelling exercise for this junction.

0630 - 0730			
	Queue (PCU)	Delay (s)	RFC
Base 2027 + Com + Dev			
Site Access Left Turn	4.8	37.43	0.83
Site Access Right turn	0.8	23.20	0.43
International Drive North Right Turn / Ahead	3.9	27.34	0.79

8.3.45 The table details that the Site Access off International Drive has demonstrated to operate within capacity in all of the scenarios tested.

8.3.46 All arms of the junction are predicted to operate within the 0.85 RFC threshold. The maximum predicted RFC is 0.83, in the assessed period, with a corresponding maximum average queue of 4.8 PCUs.

8.3.47 Once this junction is operational, the proposed development will have no material impact on the operation of International Drive.

8.4 Local Plan Sites Paramics Test

8.4.1 The following tables present the sensitivity test results of the strategic road network performance with the consideration of all Local Plan sites. These results consider the IAMP Area Action Plan to be delivered in full, including the new bridge over the A19 linking the A1290 with Washington Road.

Junction 1 – A19 Testos

8.4.2 The results below show that the A19 Testos junction is forecast to experience only small increases in queues with the inclusion of AESC Plant 3 traffic.

Junc Number	Junction	Approach	Scenario	Average Queue (over 10 model runs)
J1	A19 / A184 Testos	A19 North	Base	16
			Without AESC Plant 3 Dev	25
			With AESC Plant 3 Dev	26
		A184 East	Base	23
			Without AESC Plant 3 Dev	34
			With AESC Plant 3 Dev	38
		A19 South	Base	25
			Without AESC Plant 3 Dev	45
			With AESC Plant 3 Dev	47
		A184 West	Base	15
			Without AESC Plant 3 Dev	16
			With AESC Plant 3 Dev	16

Junction 2 – A19 Downhill Lane

8.4.3 The results below show that the A19 Downhill Lane junction is forecast to experience only small increases in queues on the side arms when AESC Plant 3 traffic is included. The A19 northern arm sees a more notable increase in queue length, with a reduction reported on the

A19 south. It is of course noted that ample storage capacity is available on the A19 approach to the junction from the north, with traffic exiting the strategic road network at the Testos junction.

Junc Number	Junction	Approach	Scenario	Average Queue (over 10 model runs)
J2	A184 / Downhill Lane	A19 North	Base	32
			Without AESC Plant 3 Dev	21
			With AESC Plant 3 Dev	56
		Downhill Lane East	Base	7
			Without AESC Plant 3 Dev	6
			With AESC Plant 3 Dev	6
		A19 South	Base	21
			Without AESC Plant 3 Dev	37
			With AESC Plant 3 Dev	22
		Downhill Lane West	Base	11
			Without AESC Plant 3 Dev	6
			With AESC Plant 3 Dev	7

Junction 3 – A19 / A1231 Wessington Way

8.4.4 The results below show that the A19 / A1231 Wessington Way junction is forecast to experience only small increases in queues with the inclusion of AESC Plant 3 traffic.

Junc Number	Junction	Approach	Scenario	Average Queue (over 10 model runs)
J3	A19 / A1231 Wessington Way	A19 North	Base	12
			Without AESC Plant 3 Dev	24
			With AESC Plant 3 Dev	26
		A1231 East	Base	13
			Without AESC Plant 3 Dev	45
			With AESC Plant 3 Dev	46
		A19 South	Base	14
			Without AESC Plant 3 Dev	14
			With AESC Plant 3 Dev	18
		A1231 West	Base	19
			Without AESC Plant 3 Dev	67
			With AESC Plant 3 Dev	72

9. SUMMARY & CONCLUSION

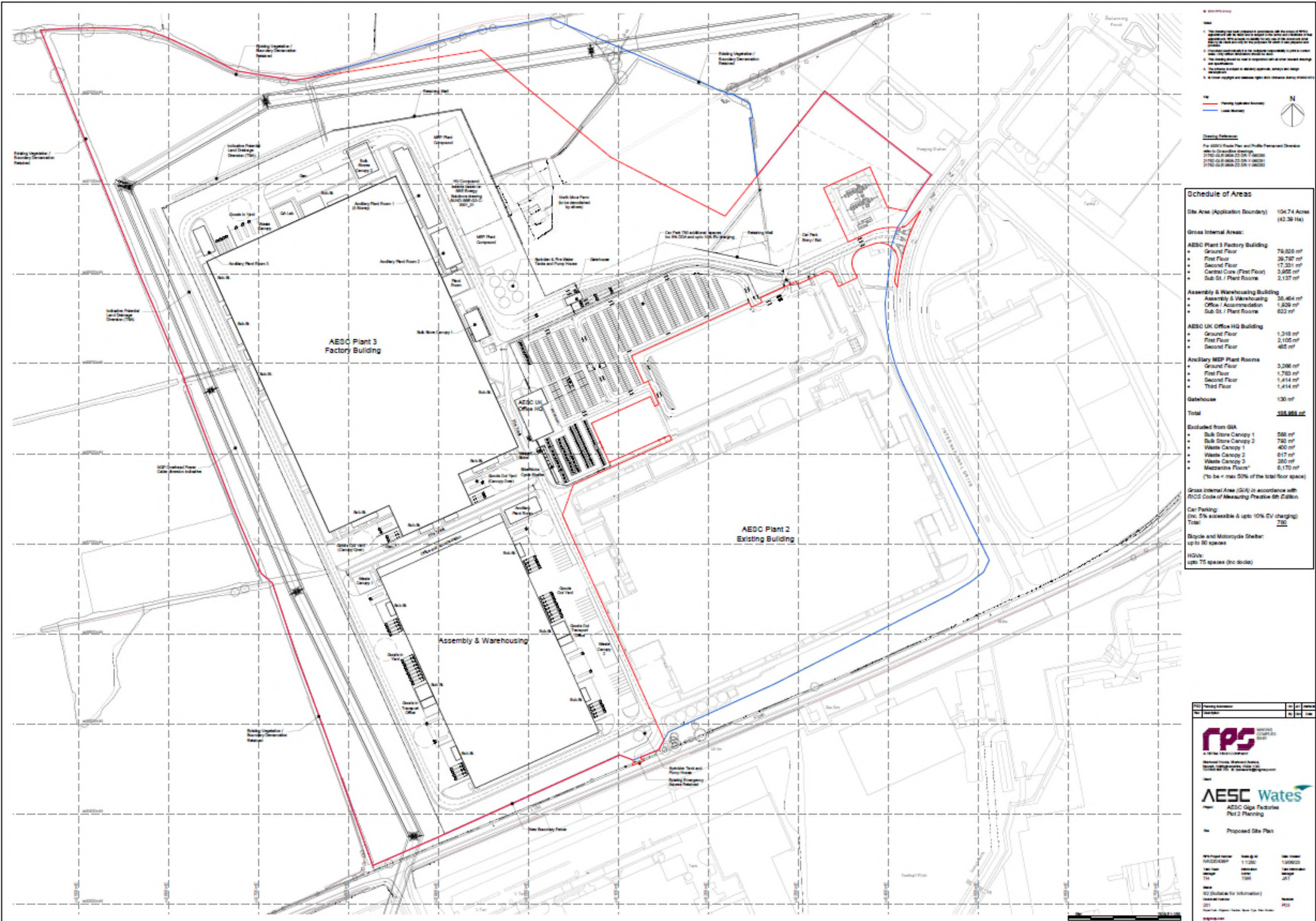
9.1 Summary

- 9.1.1 The proposed development is for AESC Plant 3, a new Gigafactory in Sunderland, which will include the construction of an industrial unit to be used for the manufacture of batteries for electric vehicles, with an accompanying packaging warehouse, office building and associated parking.
- 9.1.2 Access to the site will be taken from the priority-controlled junction on International Drive that will also serve AESC Plant 2. This junction provides two exit lanes; one dedicated for left turn movements and the other for right turn movements – these are separated by a pedestrian refuge island.
- 9.1.3 A site vision has also been presented regarding transport sustainability. Sustainable transport accessibility by public transport, walking and cycling is available. A strong area Travel Plan will further assist with sustainable travel to the site.
- 9.1.4 A review of the most recent 5-year collision data has been undertaken and concludes that the proposed development will not have a detrimental effect on road safety.
- 9.1.5 The vehicle trip generation has been calculated using information that has been provided by the applicant. In the peak hour of 06:30 – 07:30hrs, 384 vehicle trips are expected within the assessed AM time period. Over the course of a typical day, there are expected to be 707 arrivals from shift workers, 63 visitors and 186 arrivals for servicing and deliveries.
- 9.1.6 The multi-modal split data informs us that not everyone will be travelling to the site by car, however, results of travel surveys for near-by businesses suggest that improvements can be made. These are not however reflected within the assessments that instead consider a robust approach to traffic generation.
- 9.1.7 The proposed development will provide 780 spaces for staff, of which 5% are accessible and 10% for EV charging. This level of parking is considered appropriate to meet operational needs without the risk of overspill outside of the site.
- 9.1.8 The impact of the development proposals on the key junctions on the local and strategic road network within the study area have been presented and confirm that junctions will operate in a safe and efficient manner.

9.2 Conclusion

- 9.2.1 With consideration of all of the above, it is concluded that the proposed AESC Plant 3 is acceptable from a transport perspective and as such, should be supported.

Appendix A
Site Plan



- Notes:**
- The boundary lines shown in this plan are intended to show the extent of the development and are not intended to show the extent of the site or the extent of the development.
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Drawing Reference:
 For AESC's Base Plan and Traffic Performance Document
 21740-GB-000-02-01-1-000000
 21740-GB-000-02-01-1-000000
 21740-GB-000-02-01-1-000000

Schedule of Areas

Site Area (Application Boundary)	104.74 Acres (42.29 Ha)
Gross Internal Areas:	
AESC Plant 3 Factory Building	76,028 m ²
• Ground Floor	29,797 m ²
• Second Floor	17,331 m ²
• Central Core (First Floor)	3,855 m ²
• Sub GL / Plant Rooms	2,137 m ²
Assembly & Warehousing Building	36,464 m ²
• Assembly & Warehousing	1,825 m ²
• Sub GL / Plant Rooms	622 m ²
AESC UK Office HQ Building	4,318 m ²
• Ground Floor	2,105 m ²
• Second Floor	465 m ²
Auxiliary MSP Plant Rooms	3,206 m ²
• Ground Floor	1,763 m ²
• First Floor	1,414 m ²
• Second Floor	1,414 m ²
• Third Floor	1,414 m ²
Gatehouse	130 m ²
Total	225,858 m²
Excluded from GIA:	
• Bulk Stone Canopy 1	560 m ²
• Bulk Stone Canopy 2	780 m ²
• Waste Canopy 1	400 m ²
• Waste Canopy 2	617 m ²
• Waste Canopy 3	250 m ²
• Mezzanine Floor(s)	6,170 m ²
(*to be < max 50% of the total floor space)	
Gross Internal Area (GIA) in accordance with BICIS Code of Measuring Practice 6th Edition	
Car Parking: (inc. 5% accessible & up to 10% EV charging)	720
Total	720
Bicycle and Motorcycle Shelter: up to 80 spaces	
HGVs: up to 75 spaces (inc. docks)	

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AESC Wates
 AESC Giga Factory Plot 2 Planning

Proposed Site Plan

Project Name	Plot 2	Scale	1:1000
Client	AESC Wates	Date	15/03/2024
Author	PL	Checked	JL
Drawn	PL	Date	15/03/2024

For further information, please contact:
 Project Manager: PL
 Planning Officer: JL



2.4m high Wire Mesh Fence (RAL 6005 - Green)



1.2m high Timber Fence and Rail

- Notes**
- The site layout plan is subject to approval by the local planning authority and is subject to any conditions of approval.
 - The site layout plan is subject to any conditions of approval.
 - The site layout plan is subject to any conditions of approval.
 - The site layout plan is subject to any conditions of approval.
 - The site layout plan is subject to any conditions of approval.
 - The site layout plan is subject to any conditions of approval.
- Legend**
- Existing Footprint
 - Proposed Footprint
 - Access Road
- Scale**
- For AESC's Site Plan and Traffic Management Plan refer to Drawings 01/20, 01/21, 01/22, 01/23, 01/24, 01/25, 01/26, 01/27, 01/28, 01/29, 01/30, 01/31, 01/32, 01/33, 01/34, 01/35, 01/36, 01/37, 01/38, 01/39, 01/40, 01/41, 01/42, 01/43, 01/44, 01/45, 01/46, 01/47, 01/48, 01/49, 01/50, 01/51, 01/52, 01/53, 01/54, 01/55, 01/56, 01/57, 01/58, 01/59, 01/60, 01/61, 01/62, 01/63, 01/64, 01/65, 01/66, 01/67, 01/68, 01/69, 01/70, 01/71, 01/72, 01/73, 01/74, 01/75, 01/76, 01/77, 01/78, 01/79, 01/80, 01/81, 01/82, 01/83, 01/84, 01/85, 01/86, 01/87, 01/88, 01/89, 01/90, 01/91, 01/92, 01/93, 01/94, 01/95, 01/96, 01/97, 01/98, 01/99, 01/100.

Project Name	AESC Giga Factory	Site No.	01
Project No.	11200	Scale	1:1000
Client	AESC	Author	JAT
Designer	JAT	Checker	JAT
Date	11/08/2023	Project Manager	JAT
Drawn by	JAT	Project Engineer	JAT
Checked by	JAT	Project Director	JAT
Approved by	JAT	Project Manager	JAT

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AESC Wates
AESC Giga Factory
Plot 2 Planning

Proposed Site Layout

11/08/2023

Appendix B
Scoping Note

PROJECT DETAILS

Client	AESC UK
Project	Gigafactory 3 – Battery Plant
Study	Transport Assessment
Date	10/08/2023
Our Reference Number	SYS_SN_AESC_02082023
Document Status	STRICTLY CONFIDENTIAL

Gigafactory 3

Confidentiality

The project described within this Note is confidential. National Highways are kindly asked to not publish this information into the public domain. Please minimise the circulation of this Note to only those necessary.

Introduction

In October 2021, full planning permission was granted to Envision AESC for an industrial unit within the IAMP ONE area to be constructed for the manufacture of batteries for vehicles with ancillary office and welfare space (planning ref: 21/01764/HE4), referred to herein as a “Gigafactory”.

AESC now wish to pursue an application for another Gigafactory on land to the immediate north-west of the consented scheme. A new packaging warehouse is also proposed, to be located on land to the immediate west of the consented scheme and this facility will be used by both Gigafactories.

The purpose of this scoping note is to summarise some of the previous informal discussions and set out the main principles and high-level methodology being used to develop the Transport Assessment (TA) to support the application.

Site Vision

It is firstly noted that DfT Circular 01/2022 requires that Transport Assessments should start with a vision of what the development is seeking to achieve and that the document places a strong emphasis on sustainable travel.

Within the TA, a vision section will be included to outline how walking, wheeling, cycling and public transport will be the play an important role in the access options for the site and look to maximise opportunities to encourage the use of these modes of travel.

The proposed location of the site is of key importance, as it will have the inherent benefits associated with being in the immediate proximity to the consented Gigafactory, sharing a packaging warehouse, car parking and workforce for example. The location of the site is also well placed for collaborative working with Nissan and other similar facilities within IAMP and the surrounding area. Indeed, with AESC being a Nissan supplier, the proximity of the site will see many trips which would otherwise use the Strategic Road Network instead making shorter trips between the two sites.

Transport Scoping Note

Gigafactory 3

Study Area

It is proposed that the extent of the study area to be included within the Transport Assessment replicate the study area that was previously used to assess IAMP ONE.

Whilst the proposed development is significant less than IAMP ONE, it is considered appropriate that a consistent approach be undertaken to allow the highway authorities a fuller understanding of network operations and impact.

The junctions included within the study area are identified on the adjacent plan and include the A19 junctions at Wessington Way, Downhill Lane and Testo's.



Approach to Junction Modelling

Whilst an IAMP Paramics micro-simulation traffic model is available for the study area, the base model is calibrated and validated against a 2018 road network and traffic data – i.e., prior to the A19 Testo's and Downhill Lane junction improvements.

The programme for the Gigafactory planning application is intrinsically linked to commitments associated with the UK Government's Zero Emissions Vehicle Mandate – which includes the annual sales target for manufacturers for all new cars and van sales to be zero emission by 2035.

The timescales required to update the IAMP Paramics model do not align with the project programme and as such, the Transport Assessment will instead undertake individual junction assessments using LinSig or Junctions 10 software. Operational capacity assessments will be undertaken using 2023 traffic survey data.

It is however acknowledged that as the site is not currently allocated within the Sunderland City Council Local Plan and falls outside of the IAMP Area Action Plan, Circular 01/2022 requires a future year assessment beyond the year of opening. Therefore, to enable an understanding of the longer-term network operations, it is intended to use the IAMP Paramics model to run a future year scenario with wider committed developments and inclusive of the full delivery of the remaining IAMP AAP (including a new bridge over the A19 to Washington Road).

Person Trip Generation per Shift

AESC has a comprehensive understanding of its operational requirements and has provided information. The table below sets out the total proposed staffing forecast and shifts to be deployed at the new Gigafactory.

	Dayshift (Office Staff)	Continental Shifts	3 Shift	2 Shift	Total
UK HQ Office	193				193
Gigafactory	23	752			775
Packaging & Warehouse		751	118	74	943

Gigafactory 3

The new Gigafactory and Packaging & Warehouse facility will operate four different shift patterns: office hours, 2-shift, 3-shift and continental shifts.

It should be noted that the staff levels presented in the previous table are the total number of staff to be employed at the site. As such, the staff levels working a 2-shift pattern will be split between two working groups; 3-shift pattern works split into three groups and continental shift staff split into four groups.

The proposed shift operations are presented below:

	Shift Start	Shift End
Office Day Staff	07:45hrs +/- 1 hr	16:30hrs +/- 1 hr
2-Shift	Days: 06:50hrs	Days: 15:08hrs
	Lates: 15:25hrs	Lates: 00:43hrs
3-Shift	Days: 06:50hrs	Days: 15:25hrs
	Lates: 15:20hrs	Lates: 23:10hrs
	Nights: 23:05hrs	Nights: 06:55hrs
Continental	Days: 06:50hrs	Days: 19:03hrs
	Lates: 18:50hrs	Lates: 07:03hrs

Modal Split

With the person trip generation established, the Transport Assessment will set out the calculation for modal split and the residual vehicle trips.

SYSTRA were recently commissioned by AESC to undertake a travel survey of staff currently located at their existing facility on Washington Road. This survey was undertaken in July 2023 and provides a robust baseline upon which to establish the modal split for staff at the new Gigafactory, just a short distance away. These results, received from over 300 staff, are presented in the Table below and will be used for vehicle trip generation within the Transport Assessment.

	Proportion
Car Driver - Alone	85%
Car Share - Driver	6%
Car Share - Passenger	3%
Bus	2%
Motorcycle or Moped	2%
Cycle	1%
Walk	1%

Trip Distribution

The AESC staff travel survey also collected the home postcode of staff. This data has been collated and plotted in a GIS system to then appropriately group trips and assign an appropriate routing to the site and inform a distribution on the road network.

Gigafactory 3

Interestingly, the summary distribution proportions onto the road network using the results of the AESC staff survey present comparable distribution results from those originally forecast in both the IAMP AAP and those returned by similar recent staff travel surveys at SNOP and Faltec, located within IAMP ONE.

The Transport Assessment for the proposed Gigafactory and Packaging & Warehouse will use an average of all distribution results and provide a more detailed analysis. The proposed distribution is presented in the table below.

	Distribution
A1231 West	21%
A184 West	13%
A19 North	15%
A184 East	4%
Downhill Lane	4%
Washington Road	10%
A1231 East	1%
A19 South	32%

Assessment Period

It is known from the previous assessments of IAMP ONE and IAMP EI&NEA applications that peak traffic congestion on the road network occurs during a morning Nissan shift change-over period. Outside of this period, traffic congestion is less significant, and the network performs in a satisfactory manner, including the Late shift change-over period.

The Transport Assessment for the Gigafactory will therefore consider the operational capacity and road network performance for a weekday, during the periods of 06:30hrs to 07:30hrs.

Committed Developments

The future year operational capacity assessments will include traffic of the network resulting from a comprehensive list of committed developments in the area that are either consented, in the planning system and/ or likely to come forward in the next three years. The recent IAMP EI&NEA application included 29 such committed developments and these will again be included in this submission (along with the IAMP EI&NEA itself).

Agreement and Continued Dialogue

We would welcome your comments on the proposed approach set out in this document and seek a meeting with you in the next few weeks to discuss further and present our current working and results.

Appendix C
Collision Data

Slight Accident

Involving 2 Vehicle, 1 Casualty

0271239

Location	Sunderland A 1231 434545E, 557275N	Date/Time	Tuesday 20 February 2018 17:20
Road	Dual Carriageway 70	Junction	Roundabout Automatic traffic signal A 19
Conditions	Daylight - Street Lights Present Fine without high winds Dry None None None within 50 metres No physical crossing facility within 50 metres	Contributory	Failed to look properly (A) Vehicle blind spot (A) Poor turn or manoeuvre (A)

Vehicle 1

Driver Female, 50
Negative
Postcode: SR6 7JB
Commuting to/from work

Collisions Hit no other vehicle
Nearside
None
None

Vehicle Car
No tow or articulation

Location On main carriageway - not in restricted lane
Approaching junction or waiting/parked at junction exit

Movement Vehicle moving from West to East
Changing lane to left
No skidding, jack-knifing or overturning
Did not leave carriageway

Vehicle 2

Driver Male, 32
Negative
Postcode: SR2 7BU
Commuting to/from work

Collisions Hit no other vehicle
Offside
None
None

Vehicle Motorcycle over 500cc
No tow or articulation

Location On main carriageway - not in restricted lane
Approaching junction or waiting/parked at junction exit

Movement Vehicle moving from West to East
Overtaking on nearside
No skidding, jack-knifing or overturning
Did not leave carriageway

Casualty 1 - Slight

Driver or rider
Male 32
SR2 7BU

Not a car passenger
Not a bus or coach passenger

***Description
of Location***

A1231 NEAR JN WITH A19

***Description
of Accident***

VEHICLES 1 AND 2 TRAVELLING EAST ON A1231 APPROACHING TRAFFIC LIGHT CONTROLLED JUNCTION. FOR REASONS YET TO BE ESTABLISHED V1 MOVED TO NEARSIDE FROM LANE 2 INTO LANE 1 COLLIDING WITH V2 PASSING VEHICLES TO NEARSIDE.

Slight Accident

Involving 2 Vehicle, 1 Casualty

0269655

Location	South Tyneside A 19 433896E, 560400N	Date/Time	Wednesday 14 February 2018 15:30
Road	Dual Carriageway 70	Junction	Not at or within 20 metres of junction
Conditions	Daylight - Street Lights Present Fine without high winds Wet/Damp None None None within 50 metres No physical crossing facility within 50 metres	Contributory	Careless, reckless or in a hurry (A) Failed to look properly (B)

Vehicle 1

Driver	Male, 46 Not requested Postcode: NE33 5RX Other	Vehicle	Car No tow or articulation
Collisions	Hit no other vehicle Front None None	Location	On main carriageway - not in restricted lane Not at, or within 20 metres of junction
		Movement	Vehicle moving from North to South Going ahead other No skidding, jack-knifing or overturning Did not leave carriageway

Vehicle 2

Driver	Male, 28 Not requested Postcode: Journey as part of work	Vehicle	Car No tow or articulation
Collisions	Hit no other vehicle Back None Central crash barrier	Location	On main carriageway - not in restricted lane Not at, or within 20 metres of junction
		Movement	Vehicle moving from North to South Going ahead other Skidded Left carriageway offside onto central reservation

Casualty 1 - Slight

Driver or rider		Not a car passenger
Male	28	Not a bus or coach passenger

***Description
of Location***

A19 SOUTHBOUND 200 METRES NORTH OF JUNCTION WITH A1290 A19 NEAR JN WITH A1290

***Description
of Accident***

VEH1 (INSIGNIA) TRAVELLING SOUTHBOUND ON A19 DUAL CARRIAGEWAY AROUND 1530HRS ON 14/02/18 DIRECTLY BEHIND VEH2 (CORSA). BOTH VEHICLES IN LANE 2 IN HEAVY TRAFFIC. VEH2 SLOWS IN HEAVY TRAFFIC AND VEH1 COLLIDES INTO THE REAR OF VEH2 CAUSING SUBSTANTIAL DAMAGE TO BOTH VEHICLES AND PUSHING VEH2 ONOT THE CENTRAL RESERVATION WHERE IT'S OFFSIDE COLLIDE ITH CENTRAL BARRIER. BOTH VEHICLES REMAIN AT SCENE UNTIL POLICE ARRIVE.

Slight Accident

Involving 2 Vehicle, 1 Casualty

0271718

Location	South Tyneside 434268E, 559913N	Date/Time	Monday 26 February 2018 17:30
Road	Single Carriageway 40	Junction	T or staggered junction Give way or uncontrolled
Conditions	Daylight - Street Lights Present Fine without high winds Dry None None None within 50 metres No physical crossing facility within 50 metres	Contributory	Failed to look properly (A)

Vehicle 1

Driver	Female, 38 Not requested Postcode: Other	Vehicle	Car No tow or articulation
Collisions	Hit no other vehicle Offside None None	Location	On main carriageway - not in restricted lane Entering main road
		Movement	Vehicle moving from South West to South West Turning right No skidding, jack-knifing or overturning Did not leave carriageway

Vehicle 2

Driver	Male, 58 Not provided (medical reasons) Postcode: SR5 5JH Not known	Vehicle	Motorcycle over 50cc and up to 125cc No tow or articulation
Collisions	Hit no other vehicle Front None None	Location	On main carriageway - not in restricted lane Approaching junction or waiting/parked at junction exit
		Movement	Vehicle moving from North East to South East Going ahead other No skidding, jack-knifing or overturning Did not leave carriageway

Casualty 1 - Slight

Driver or rider		Not a car passenger
Male	58	Not a bus or coach passenger
SR5 5JH		

***Description
of Location***

DOWNHILL LANE AT JN WITH WASHINGTON ROAD

***Description
of Accident***

VEH1 (PEUGEOT) WAITING AT JUNCTION OF DOWNHILL LANE WAITING TO TURN RIGHT ONTO A190 TOWARDS A19. VEH1 LEAVES JUNCTION TO MAKE RIGHT TURN AND DOES NOT SEE VEH2 (ZENEN MOTORCYCLE) TRAVELLING ALONG A1290 IN NE DIRECTION. VEH1 PULLS OUT O JUNCTION INTO PATH OF VEH2 CAUSING VEH1 TO COLLIDE INTO THE OFFSIDE FRONT WHEEL OF VEH1. DAMAGE CAUSED TO FRONT WHEEL OF VEH2 AND RIDER OF VEH2 SUFFERED SLIGHT BRUISING AND SORENESS INJURIES.

Serious Accident

Involving 1 Vehicle, 1 Casualty

0275045

Location	Sunderland A 1231 434857E, 557386N	Date/Time	Saturday 10 March 2018 21:10
Road	Dual Carriageway 70	Junction	Not at or within 20 metres of junction
Conditions	Darkness - Street Lights present and lit Fine without high winds Wet/Damp None None None within 50 metres No physical crossing facility within 50 metres	Contributory	Impaired by alcohol (A) Impaired by drugs (illicit or medicinal) (B)

Vehicle 1

Driver	Male, 53 Negative Postcode: SR6 8DS Other	Vehicle	Car No tow or articulation
Collisions	Hit no other vehicle Did not impact None None	Location	On main carriageway - not in restricted lane Not at, or within 20 metres of junction
		Movement	Vehicle moving from West to East Going ahead other No skidding, jack-knifing or overturning Did not leave carriageway

Casualty 1 - Serious

Vehicle or pillion passenger	Front seat passenger
Male 19	Not a bus or coach passenger
SR5 5LE	

Description of Location A1231 NEAR JN WITH A19

Description of Accident VEHICLE 1 WAS TRAVELLING EAST ON THE A1231 APPROX 100 METRES FROM THE ROUNDABOUT JUNCTION WITH THE A19. THE FRONT SEAT PASSENGER OF THE VEHICLE WHO WAS EXTREMELY DRUNK TOOK OFF HIS SEAT BELT, OPENED THE DOOR AND JUMPED OUT OF THE MOVING VEHICLE DRIVEN BY HIS FATHER.

Slight Accident

Involving 2 Vehicle, 1 Casualty

0259217

Location	Sunderland A 195 431325E, 557519N	Date/Time	Tuesday 16 January 2018 16:25
Road	Single Carriageway 60	Junction	Roundabout Give way or uncontrolled A 1290
Conditions	Darkness - Street Lights present and lit Raining without high winds Wet/Damp None None None within 50 metres Central refuge - no other controls	Contributory	

Vehicle 1

Driver Male, 40
Not applicable
Postcode:
Not known

Collisions Hit no other vehicle
Front
None
None

Vehicle Pedal Cycle
No tow or articulation

Location On main carriageway - not in restricted lane
Approaching junction or waiting/parked at junction exit

Movement Vehicle moving from East to West
Moving off
No skidding, jack-knifing or overturning
Did not leave carriageway

Casualty 1 - Slight

Driver or rider
Male 40

Not a car passenger
Not a bus or coach passenger

Vehicle 2

Driver Female, 55
Driver not contacted at time of accident
Postcode: NE38 8TU
Other

Collisions Hit no other vehicle
Front
None
None

Vehicle Car
No tow or articulation

Location On main carriageway - not in restricted lane
Approaching junction or waiting/parked at junction exit

Movement Vehicle moving from North to South
Moving off
No skidding, jack-knifing or overturning
Did not leave carriageway

***Description
of Location***

NORTHUMBERLAND WAY A195 NEAR JN WITH GLOVER ROAD A1290

***Description
of Accident***

V2 WAS TRAVELLING SOUTH ALONG A195 TOWARDS THE VERMONT ROUNDABOUT WHERE THEY WERE TURNING RIGHT ONTO A1290. AS THEY WERE APPROUCHING THE ROUNDABOUT A MALE CYCLIST CROSSES IN FRONT OF V2 FROM SULGRAVE TOWARDS CONCORD. THEY DO NOT STOP OR LOOK AT THE TRAFFIC BEFORE CROSSING. V2 IS TRAVELLING SLOWLY AS IT IS HEAVY TRAFFIC AND SHE IS APPROCHING THE RA. THE PEDAL CYCLIST COLLIDES WITH THE FRONT OF V2 AND THE WINDSCREEN IS SMASHED IN THE DRIVERS SIDE BOTTOM CORNER. THE CYCLIST REFUSE

Slight Accident

Involving 2 Vehicle, 1 Casualty

0285346

Location Sunderland
A 1290
431614E, 557562N

Date/Time Tuesday
17 April 2018
16:27

Road Single Carriageway
30

Junction T or staggered junction
Give way or uncontrolled

Conditions Daylight - Street Lights Present
Fine without high winds
Dry
None
None

None within 50 metres
No physical crossing facility within 50 metres

Contributory
Disobeyed "Give Way" or "Stop" sign or markings (A)

Vehicle 1

Driver Male, 36
Negative
Postcode: SR5 1LL
Commuting to/from work

Vehicle Car
No tow or articulation

Location On main carriageway - not in restricted lane
Entering main road

Collisions Hit no other vehicle
Front
None
None

Movement Vehicle moving from South to East
Turning right
No skidding, jack-knifing or overturning
Did not leave carriageway

Vehicle 2

Driver Male, 47
Negative
Postcode: NE28 9NT
Journey as part of work

Vehicle Car
No tow or articulation

Location On main carriageway - not in restricted lane
Cleared junction or waiting/parked at junction exit

Collisions Hit no other vehicle
Offside
None
None

Movement Vehicle moving from West to East
Going ahead other
No skidding, jack-knifing or overturning
Did not leave carriageway

Casualty 1 - Slight

Driver or rider
Male 47
NE28 9NT

Not a car passenger
Not a bus or coach passenger

***Description
of Location***

N/A GLOVER ROAD A1290 AT JN WITH BENTNALL BUSINESS PARK

***Description
of Accident***

V2 TRAVELLING EAST ALONG GLOVER ROAD AND V1 TURNS RIGHT OUT OF BUISNESS PARK ENTRANCE WHILST V2 UNSIGHTED BEHIND CAR INFROM. V2 COLLIDES ONTO OFFSIDE FRONT DRIVERS DOOR PANALE CAUSING DAMAGE AND MINOR INURY TO DRIVER

Slight Accident

Involving 1 Vehicle, 3 Casualties

0288186

Location	Sunderland A 19 434721E, 557000N	Date/Time	Sunday 29 April 2018 17:15
Road	Dual Carriageway 70	Junction	Not at or within 20 metres of junction
Conditions	Daylight - Street Lights Present Fine without high winds Dry None None None within 50 metres No physical crossing facility within 50 metres	Contributory	Impaired by alcohol (A)

Vehicle 1

Driver	Female, 43 Positive Postcode: NE10 8WJ Other	Vehicle	Car No tow or articulation
Collisions	Hit no other vehicle Front None None	Location	On main carriageway - not in restricted lane Not at, or within 20 metres of junction
		Movement	Vehicle moving from South to North Going ahead other Skidded Left carriageway offside and rebounded

Casualty 1 - Slight

Driver or rider		Not a car passenger
Female	43	Not a bus or coach passenger
NE10 8WJ		

Casualty 3 - Slight

Vehicle or pillion passenger		Rear seat passenger
Female	7	Not a bus or coach passenger

Casualty 2 - Slight

Vehicle or pillion passenger		Rear seat passenger
Female	7	Not a bus or coach passenger
NE10 8WJ		

Description of Location SUNDERLAND BY PASS A19 NEAR JN WITH WASHINGTON HIGHWAY A1231

Description of Accident V1 TRAVELLING NORTHBOUND. V1 LOSES CONTROL, COLLIDES WITH CENTRAL BARRIER BEFORE REBOUNDING AND COLLIDING WITH NEAR-SIDE BARRIER. V1 THEN COMES TO REST IN CARRIAGEWAY. DRIVER OF V1 FOUND TO BE INTOXICATED AND OVER PRESCRIBED LIMIT.

Slight Accident

Involving 2 Vehicle, 1 Casualty

0303785

Location	Sunderland A 1231 434547E, 557279N	Date/Time	Thursday 21 June 2018 14:15
Road	Roundabout 30	Junction	Roundabout Automatic traffic signal A 19
Conditions	Daylight - Street Lights Present Fine without high winds Dry None None None within 50 metres No physical crossing facility within 50 metres	Contributory	

Vehicle 1

Driver Male, 40
Driver not contacted at time of accident
Postcode: NE22 7EF
Journey as part of work

Collisions Hit no other vehicle
Front
None
None

Vehicle Goods Vehicle - Unknown Weight
No tow or articulation

Location On main carriageway - not in restricted lane
Entering roundabout

Movement Vehicle moving from West to East
Slowing or stopping
No skidding, jack-knifing or overturning
Did not leave carriageway

Vehicle 2

Driver Male, 38
Driver not contacted at time of accident
Postcode: SR5 4EA
Commuting to/from work

Collisions Hit no other vehicle
Back
None
None

Vehicle Car
No tow or articulation

Location On main carriageway - not in restricted lane
Approaching junction or waiting/parked at junction exit

Movement Vehicle moving from West to East
Waiting to go ahead but held up
No skidding, jack-knifing or overturning
Did not leave carriageway

Casualty 1 - Slight

Driver or rider
Male 38
SR5 4EA

Not a car passenger
Not a bus or coach passenger

***Description
of Location***

SUNDRLAND HIGHWAY A1231 AT JN WITH A19

***Description
of Accident***

VEHICLE 1 HAS BEEN BEHIND VEHICLE 2 BOTH TRAVELING EAST ON THE SUNDERLAND HIGHWAY THE A1231 TOWARDS THE A19. BOTH VEHICLES HAVE BEEN IN THE INSIDE LANE. V2 HAS SLOWED AND STOPPED FOR TRAFFIC, STATIONARY AT A RED LIGHT. VEHICLE 2 HS STARTED TO MOVE OFF AND VEHICLE 1 HAS COLLIDED WITH THE REAR OF VEHICLE 2 CAUSING DAMAGE TO BOTH VEHICLES AND INJURY O DRIVER 2. BOTH DRIVERS HAVE STOPPED AND EXCHANGED DETAILS, DIVER 1 TAKING DRIVER 2 HOME.

Slight Accident

Involving 2 Vehicle, 2 Casualties

0305661

Location	South Tyneside A 19 433790E, 560857N	Date/Time	Wednesday 27 June 2018 08:56
Road	Roundabout 70	Junction	Roundabout Automatic traffic signal A 184
Conditions	Daylight - Street Lights Present Fine without high winds Dry None None None within 50 metres No physical crossing facility within 50 metres	Contributory	Following too close (A)

Vehicle 1

Driver Male, 54
Negative
Postcode: M26 3QS
Journey as part of work

Collisions Hit no other vehicle
Front
None
None

Vehicle Goods vehicle 7.5 tonnes mgw and over
Articulated Vehicle

Location On main carriageway - not in restricted lane
Mid junction - on roundabout or on main road

Movement Vehicle moving from South to North
Slowing or stopping
No skidding, jack-knifing or overturning
Did not leave carriageway

Vehicle 2

Driver Female, 20
Negative
Postcode: SR5 5UB
Other

Collisions Hit no other vehicle
Back
None
None

Vehicle Car
No tow or articulation

Location On main carriageway - not in restricted lane
Mid junction - on roundabout or on main road

Movement Vehicle moving from South to North
Slowing or stopping
No skidding, jack-knifing or overturning
Did not leave carriageway

Casualty 1 - Slight

Driver or rider
Female 20
SR5 5UB

Not a car passenger
Not a bus or coach passenger

Casualty 2 - Slight

Vehicle or pillion passenger

Front seat passenger

Male 42

Not a bus or coach passenger

SR5 1LD

Description of Location

TESTOS ROUNDABOUT A19 NEAR JN WITH A184

Description of Accident

IT APPEARS VEH 1 HAS BEEN TRAVELLING TOO CLOSE TO VEH 2 WHILST ENTERING THE ROUNDABOUT, VEH 2 BRAKE SHARPLY AT THE TRAFFIC LIGHT SIGNAL, RESULTING IN VEH 1 COLLIDING INTO THE REAR OF VEH 2. SLIGHT INJURY TO DRIVER/FRONT SEAT PASSENGER OF VEH 2.

Slight Accident

Involving 2 Vehicle, 3 Casualties

0310556

Location	Sunderland A 195 431335E, 557550N	Date/Time	Tuesday 17 July 2018 00:30
Road	Roundabout 60	Junction	Roundabout Give way or uncontrolled A 1290
Conditions	Darkness - Street Lights present and lit Fine without high winds Wet/Damp None None None within 50 metres Central refuge - no other controls	Contributory	Failed to look properly (A)

Vehicle 1

Driver Male, 33
Negative
Postcode: SR7 9PT
Commuting to/from work

Collisions Hit no other vehicle
Front
None
None

Vehicle Goods vehicle 3.5 tonnes maximum gross weight (mgw) and under
No tow or articulation

Location On main carriageway - not in restricted lane
Entering roundabout

Movement Vehicle moving from East to West
Going ahead other
No skidding, jack-knifing or overturning
Did not leave carriageway

Casualty 1 - Slight

Driver or rider
Male 33
SR7 9PT

Not a car passenger
Not a bus or coach passenger

Vehicle 2

Driver Male, 29
Negative
Postcode: SR4 7UP
Other

Collisions Hit no other vehicle
Nearside
None
None

Vehicle Car
No tow or articulation

Location On main carriageway - not in restricted lane
Leaving roundabout

Movement Vehicle moving from North to South
Going ahead other
No skidding, jack-knifing or overturning
Did not leave carriageway

Casualty 2 - Slight

Driver or rider
Male 29
SR4 7UP

Not a car passenger
Not a bus or coach passenger

Casualty 3 - Slight

Vehicle or pillion passenger

Front seat passenger

Female 20

Not a bus or coach passenger

SR4 7UR

Description of Location

NORTHUMBERLAND ROAD A195 AT JN WITH GLOVER ROAD A1290

Description of Accident

APPARENTLY V2 IS TRAVELLING SOUTH ON THE A195 NORTHUMBERLAND ROAD, WASHINGTON. AS IT ENTERS THE ROUNDABOUT WITH GLOVER ROAD V1 ENTERS THE ROUNDABOUT AND FAILS TO GIVE WAY TO V2 WHICH IS ESTABLISHED ON THE ROUNDABOUT AND HAS PRIORITY. V1 COLLIDES WITH THE MID NEAR SIDE (PASSENGER SIDE) CAUSING V2 TO SPIN INTO STREET FURNITURE.

Slight Accident

Involving 3 Vehicle, 1 Casualty

0318316

Location South Tyneside
A 19
433841E, 560979N

Date/Time Friday
10 August 2018
07:33

Road Roundabout
70

Junction Roundabout
Automatic traffic signal
A 184

Conditions Daylight - Street Lights Present
Fine without high winds
Dry
None
None

None within 50 metres
No physical crossing facility within 50 metres

Contributory
Disobeyed automatic traffic signal (A)
Disobeyed automatic traffic signal (A)
Disobeyed automatic traffic signal (A)

Vehicle 1

Driver Male, 57
Negative
Postcode: SR3 1JN
Journey as part of work

Vehicle Goods vehicle 7.5 tonnes mgw and over
No tow or articulation

Location On main carriageway - not in restricted lane
Entering roundabout

Collisions Hit no other vehicle
Offside
None
None

Movement Vehicle moving from North to South
Going ahead other
No skidding, jack-knifing or overturning
Did not leave carriageway

Vehicle 2

Driver Male, 29
Not provided (medical reasons)
Postcode: DH4 4BW
Journey as part of work

Vehicle Goods Vehicle - Unknown Weight
No tow or articulation

Location On main carriageway - not in restricted lane
Mid junction - on roundabout or on main road

Collisions Hit no other vehicle
Front
None
None

Movement Vehicle moving from West to East
Moving off
No skidding, jack-knifing or overturning
Did not leave carriageway

Casualty 1 - Slight

Driver or rider
Male 29
DH4 4BW

Not a car passenger
Not a bus or coach passenger

Vehicle 3

Driver Male, 32
Driver not contacted at time of accident
Postcode:
Commuting to/from work

Collisions Hit no other vehicle
Nearside
None
None

Vehicle Car
No tow or articulation

Location On main carriageway - not in restricted lane
Mid junction - on roundabout or on main road

Movement Vehicle moving from West to East
Moving off
No skidding, jack-knifing or overturning
Did not leave carriageway

Description of Location A19 AT JN WITH A184

Description of Accident V1 CONTRAVENES RED TRAFFIC SIGNAL ON APPROACH TO ROUNDABOUT, COLLIDES WITH V2 PUSHING V2 SIDE-WAYS IN TO V3. DRIVER V2 SUFFERS MINOR WHIPLASH TYPE INJURY AS A RESULT OF THE COLLISION

Slight Accident

Involving 2 Vehicle, 1 Casualty

0321722

Location	Sunderland A 195 431326E, 557523N	Date/Time	Thursday 23 August 2018 18:18
Road	Dual Carriageway 70	Junction	Roundabout Give way or uncontrolled
Conditions	Daylight - Street Lights Present Unknown Dry None None None within 50 metres No physical crossing facility within 50 metres	Contributory	

Vehicle 1

Driver Male, 37
Driver not contacted at time of accident
Postcode: NE9 5LB
Other

Collisions Hit no other vehicle
Front
None
None

Vehicle Car
No tow or articulation
Location On main carriageway - not in restricted lane
Leaving roundabout
Movement Vehicle moving from East to West
Going ahead other
No skidding, jack-knifing or overturning
Did not leave carriageway

Casualty 1 - Slight

Driver or rider
Male 37
NE9 5LB

Not a car passenger
Not a bus or coach passenger

Vehicle 2

Driver Male,
Driver not contacted at time of accident
Postcode: NE37 2RE
Other

Collisions Hit no other vehicle
Offside
None
None

Vehicle Car
No tow or articulation
Location On main carriageway - not in restricted lane
Entering roundabout
Movement Vehicle moving from South to North
Going ahead other
No skidding, jack-knifing or overturning
Did not leave carriageway

***Description
of Location***

NORTHUMBERLAND WAY A195 NEAR JN WITH GLOVER ROAD

***Description
of Accident***

UNABLE TO GIVE ANY OPINION AT THIS TIME

Serious Accident

Involving 1 Vehicle, 1 Casualty

0286670

Location	Sunderland 431919E, 557763N	Date/Time	Friday 20 April 2018 00:45
Road	Single Carriageway 30	Junction	T or staggered junction Give way or uncontrolled
Conditions	Darkness - Street Lights present and lit Fine without high winds Dry None None None within 50 metres No physical crossing facility within 50 metres	Contributory	Poor turn or manoeuvre (A) Loss of Control (A) Careless, reckless or in a hurry (B) Learner or inexperienced driver/rider (B)

Vehicle 1

Driver	Male, 27 Not provided (medical reasons) Postcode: DH4 7NT Other	Vehicle	Motorcycle over 125cc and up to 500cc No tow or articulation
Collisions	Hit no other vehicle Front Kerb None	Location	On main carriageway - not in restricted lane Approaching junction or waiting/parked at junction exit
		Movement	Vehicle moving from West to East Going ahead other Skidded Left carriageway offside

Casualty 1 - Serious

Driver or rider	Not a car passenger
Male 27	Not a bus or coach passenger
DH4 7NT	

Description of Location USWORTH STATION ROAD NEAR JN WITH SULGRAVE ROAD

Description of Accident VEHICLE 1 WAS BEING RIDDEN EAST ALONG USWORTH STATION ROAD WHEN FOR REASONS YET TO BE ESTABLISHED IT HAS LEFT THE AD TO TE OFFSIE, COLLIDED WITH A KERB WHEREUPON THE RIDER, WHO IS BELIEVED TO HAVE NOT BEEN WEARING A SAFETY HELMET HAS BEEN THROWN FROM THE MOTORCYCLE LANDING ON THE GRASS

Fatal Accident

Involving 4 Vehicle, 3 Casualties

0295301

Location	Sunderland A 1290 432844E, 558336N	Date/Time	Tuesday 22 May 2018 22:53
Road	Single Carriageway 40	Junction	T or staggered junction Automatic traffic signal
Conditions	Darkness - Street Lights present and lit Fine without high winds Dry None None None within 50 metres No physical crossing facility within 50 metres	Contributory	Exceeding speed limit (A) Failed to look properly (A)

Vehicle 1

Driver	Male, 26 Not provided (medical reasons) Postcode: NE38 0PX Commuting to/from work	Vehicle	Car No tow or articulation
Collisions	Hit no other vehicle Front None None	Location	On main carriageway - not in restricted lane Mid junction - on roundabout or on main road
		Movement	Vehicle moving from West to East Going ahead other No skidding, jack-knifing or overturning Did not leave carriageway

Casualty 1 - Fatal

Driver or rider		Not a car passenger
Male	26	Not a bus or coach passenger
NE38 0PX		

Vehicle 2

Driver	Male, 39 Negative Postcode: NE38 0QN Commuting to/from work	Vehicle	Car No tow or articulation
Collisions	Hit no other vehicle Back None None	Location	On main carriageway - not in restricted lane Approaching junction or waiting/parked at junction exit
		Movement	Vehicle moving from West to East Waiting to go ahead but held up No skidding, jack-knifing or overturning Did not leave carriageway

Casualty 2 - Slight

Driver or rider		Not a car passenger
Male	39	Not a bus or coach passenger
NE38 0QN		

Vehicle 3

Driver Male, 45
Negative
Postcode: SR7 8JW
Commuting to/from work

Collisions Hit no other vehicle
Back
None
None

Vehicle Car
No tow or articulation

Location On main carriageway - not in restricted lane
Approaching junction or waiting/parked at junction exit

Movement Vehicle moving from West to East
Waiting to turn right
No skidding, jack-knifing or overturning
Did not leave carriageway

Casualty 3 - Slight

Driver or rider
Male 45
SR7 8JW

Not a car passenger
Not a bus or coach passenger

Vehicle 4

Driver Male, 58
Negative
Postcode: NE31 2EA
Journey as part of work

Collisions Hit no other vehicle
Front
None
None

Vehicle Goods Vehicle - Unknown Weight
Articulated Vehicle

Location On main carriageway - not in restricted lane
Mid junction - on roundabout or on main road

Movement Vehicle moving from East to West
Going ahead other
No skidding, jack-knifing or overturning
Did not leave carriageway

Description of Location A1290 AT JUNCTION WITH CHERRY BLOSSOM WAY

Description of Accident VEHICLE 3 HAD TRAVELLED EAST ON THE A1290 AND WAS WAITING TO TURN RIGHT ONTO CHERRY BLOSSOM WAY, BUT WAS HELD UP BY ONCOMING VEHICLES. VEHICLE 2 HAD ALSO TRAVELLED EAST ALONG THE A1290 AND WAS STATIONARY BEHIND VEHICLE 3. VEHICLE 1 WAS TRAVELLING EAST ALONG THE A1290, WHEN FOR REASONS YET TO BE ESTABLISHED HAS COLLIDED WITH THE REAR OF VEHICLE 2 PUSHING IT FORWARDS INTO VEHICLE 3. DUE TO THE IMPACT, VEHICLE 1 HAS ENTERED THE OPPOSING LANE IN FRONT OF VEHICLE 4 THAT WAS TRAVELLING WEST ALONG THE

Slight Accident

Involving 2 Vehicle, 2 Casualties

0317923

Location South Tyneside
A 19
433836E, 561000N

Date/Time Saturday
11 August 2018
22:12

Road Dual Carriageway
70

Junction Roundabout
Automatic traffic signal
A 184

Conditions Darkness - Street Lights present and lit
Fine without high winds
Wet/Damp
None
None

None within 50 metres
Pedestrian phase at traffic signal junction

Contributory

Vehicle 1

Driver Female, 47
Positive
Postcode: NE32 3PT

Other

Vehicle Car
No tow or articulation

Location On main carriageway - not in restricted lane
Entering roundabout

Collisions Hit no other vehicle

Front
None
None

Movement Vehicle moving from North to South
Going ahead other
No skidding, jack-knifing or overturning
Did not leave carriageway

Casualty 1 - Slight

Driver or rider
Female 47
NE32 3PT

Not a car passenger
Not a bus or coach passenger

Vehicle 2

Driver Male, 44
Negative
Postcode: SR7 9AG

Other

Vehicle Goods vehicle 3.5 tonnes maximum gross weight (mgw) and under
No tow or articulation

Location On main carriageway - not in restricted lane
Approaching junction or waiting/parked at junction exit

Collisions Hit no other vehicle

Back
None
None

Movement Vehicle moving from North to South
Waiting to go ahead but held up
Skidded
Left carriageway straight ahead at junction

Casualty 2 - Slight

Driver or rider
Male 44
SR7 9AG

Not a car passenger
Not a bus or coach passenger

***Description
of Location***

TESTOS A19 AT JN WITH TESTO A184

***Description
of Accident***

V1 TRAVELLING SOUTH ON THE A19 APPROACHES V2 WHICH IS TEMPORARILY HELD AT RED TRAFFIC SIGNAL ON TESTO ROUNDABOUT JUNCTION A184. DRIVER OF V1 FAILS TO SEE V2 AND COLLIDES WITH REAR OF V2 PUSHING IT ACROSS ALL THREE LANES AND INTO CENTRE OF ROUNDABOUT. V1 COMES TO A STOP IN CARRIAGEWAY

Serious Accident

Involving 1 Vehicle, 1 Casualty

0321771

Location	Sunderland A 19 434343E, 559542N	Date/Time	Saturday 25 August 2018 17:35
Road	Dual Carriageway 70	Junction	Not at or within 20 metres of junction
Conditions	Daylight - Street Lights Present Fine without high winds Dry None None None within 50 metres No physical crossing facility within 50 metres	Contributory	Impaired by alcohol (B) Loss of Control (A)

Vehicle 1

Driver	Male, 38 Driver not contacted at time of accident Postcode: Other	Vehicle	Goods Vehicle - Unknown Weight No tow or articulation
Collisions	Hit no other vehicle Nearside None Tree	Location	On main carriageway - not in restricted lane Not at, or within 20 metres of junction
		Movement	Vehicle moving from North to South Going ahead other Skidded and overturned Left carriageway nearside and rebounded

Casualty 1 - Serious

Driver or rider	Not a car passenger
Male 38	Not a bus or coach passenger

Description of Location A19 NEAR JN WITH A1290

Description of Accident VEHICLE 1 HAS BEEN TRAVELLING SOUTH ON THE A19 IN LANE 1, APPROXIMATELY 400 METRES SOUTH OF THE JUNCTION WITH THE A1290, USWORTH, WASHINGTON, WHEN FOR REASONS YET TO BE ESTABLISHED IT HAS LOST CONTROL AND OVERTURNED. THE MALE DRIVER WAS HELPED OUT OF THE VEHICLE BEFORE MAKING OFF ON FOOT PRIOR TO POLICE ARRIVAL

Slight Accident

Involving 2 Vehicle, 1 Casualty

0343412

Location	Sunderland 434689E, 558748N	Date/Time	Sunday 11 November 2018 09:30
Road	Single Carriageway 30	Junction	T or staggered junction Give way or uncontrolled
Conditions	Daylight - Street Lights Present Fine without high winds Wet/Damp None None None within 50 metres No physical crossing facility within 50 metres	Contributory	

Vehicle 1

Driver Male, 44
Driver not contacted at time of accident
Postcode: SR5 3QR
Other

Collisions Hit no other vehicle
Front
None
None

Vehicle Car
No tow or articulation

Location On main carriageway - not in restricted lane
Mid junction - on roundabout or on main road

Movement Vehicle moving from East to South
Turning left
No skidding, jack-knifing or overturning
Did not leave carriageway

Vehicle 2

Driver Male, 43
Not applicable
Postcode: SR6 8JJ
Not known

Collisions Hit no other vehicle
Nearside
None
None

Vehicle Pedal Cycle
No tow or articulation

Location On main carriageway - not in restricted lane
Mid junction - on roundabout or on main road

Movement Vehicle moving from North to South
Going ahead other
No skidding, jack-knifing or overturning
Did not leave carriageway

Casualty 1 - Slight

Driver or rider
Male 43
SR6 8JJ

Not a car passenger
Not a bus or coach passenger

***Description
of Location***

FERRYBOAT LANE AT JN WITH CAITHNESS ROAD

***Description
of Accident***

V2 WAS RIDING ALONG CAITHNESS ROAD SUNDERLAND WHEN IT PASSED THE JUNCTION OF FERRY BOAT LANE IT WAS HIT BY
V1

Slight Accident

Involving 2 Vehicle, 1 Casualty

0271514

Location	Sunderland A 1290 433938E, 559377N	Date/Time	Saturday 24 February 2018 13:47
Road	Single Carriageway 60	Junction	Not at or within 20 metres of junction
Conditions	Daylight - Street Lights Present Unknown Dry None None None within 50 metres No physical crossing facility within 50 metres	Contributory	

Vehicle 1

Driver	Male, 22 Not requested Postcode: TS25 2NJ Not known	Vehicle	Car No tow or articulation
Collisions	Hit no other vehicle Front None None	Location	On main carriageway - not in restricted lane Not at, or within 20 metres of junction
		Movement	Vehicle moving from East to East No skidding, jack-knifing or overturning Did not leave carriageway

Vehicle 2

Driver	Male, 37 Not requested Postcode: NE28 8EG Not known	Vehicle	Car No tow or articulation
Collisions	Hit no other vehicle Back None None	Location	On main carriageway - not in restricted lane Not at, or within 20 metres of junction
		Movement	Vehicle moving from East to East No skidding, jack-knifing or overturning Did not leave carriageway

Casualty 1 - Slight

Driver or rider		Not a car passenger
Male	37	Not a bus or coach passenger
NE28 8EG		

***Description
of Location***

A1290

***Description
of Accident***

8 - VEHICLES HAVE BEEN TRAVELLING FROM NISSAN TOWARDS THE A19, V2 HAS APPLIED THE BRAKE AFTER THE TRAFFIC IN FRONT HAS COME TO AN ABRUPT HALT, THE VEHICLE HAS STOPPED IN TIME, HOWEVER THE OFFENDING VEHICLE V1 HAS CONTINUED TO TRAVEL AND APPLIED THE BRAKE AT THEN BEEN UNABLE TO STOP IN TIME. THE VEHICLE HAS GONE INTO THE BACK OF V2 . V1 HAS CONSIDERABLE DAMAGE TO 'A616 THE FRONT AND BOTH AIRBAGS DEPLOYED. V2 HAS DAMAGE TO THE REAR BUMPER AREA THE VEHICLE WAS DRIVABLE.

Slight Accident

Involving 2 Vehicle, 6 Casualties

0349115

Location	South Tyneside A 184 433791E, 560865N	Date/Time	Saturday 01 December 2018 18:45
Road	Roundabout 60	Junction	Roundabout Automatic traffic signal A 19
Conditions	Darkness - Street Lights present and lit Fine without high winds Wet/Damp None None None within 50 metres No physical crossing facility within 50 metres	Contributory	

Vehicle 1

Driver	Male, 34 Negative Postcode: SR4 0HZ Not known	Vehicle	Car No tow or articulation
Collisions	Hit no other vehicle Front None None	Location	On main carriageway - not in restricted lane Entering roundabout
		Movement	Vehicle moving from West to East Going ahead other No skidding, jack-knifing or overturning Did not leave carriageway

Vehicle 2

Driver	Male, 40 Driver not contacted at time of accident Postcode: Journey as part of work	Vehicle	Taxi/Private hire car No tow or articulation
Collisions	Hit no other vehicle Nearside None None	Location	On main carriageway - not in restricted lane Entering roundabout
		Movement	Vehicle moving from North to South Waiting to go ahead but held up No skidding, jack-knifing or overturning Did not leave carriageway

Casualty 1 - Slight

Vehicle or pillion passenger	Rear seat passenger
Female 54	Not a bus or coach passenger
SR5 3SY	

Casualty 2 - Slight

Vehicle or pillion passenger
Male 55
SR5 3SY

Rear seat passenger
Not a bus or coach passenger

Casualty 3 - Slight

Vehicle or pillion passenger
Male 74

Rear seat passenger
Not a bus or coach passenger

Casualty 4 - Slight

Vehicle or pillion passenger
Female 71
SR5 3QF

Rear seat passenger
Not a bus or coach passenger

Casualty 5 - Slight

Vehicle or pillion passenger
Male 51

Rear seat passenger
Not a bus or coach passenger

Casualty 6 - Slight

Vehicle or pillion passenger
Female 52
SR5 3LG

Rear seat passenger
Not a bus or coach passenger

Description of Location

WEST BOLDON A184 AT JN WITH A19

Description of Accident

V2 IS A MINIBUS TAXI CONVEYING SEVERAL PASSENGERS THAT WAS TRAVELLING EAST STATIONARY AT TRAFFIC LIGHTS HEADING ONTO THE A184. V1 COLLIDED WITH THE REAR NEARSIDE OF V2 CAUSING SEVERAL PASSENGERS TO SUFFER WHIPLASH INJURIES. DRIVERS STOPPED AT SCENE AND EXCHANGED DETAILS.

Slight Accident

Involving 4 Vehicle, 1 Casualty

0341845

Location	Sunderland A 19 434695E, 558323N	Date/Time	Tuesday 06 November 2018 17:14
Road	Dual Carriageway 70	Junction	Not at or within 20 metres of junction
Conditions	Darkness - No Street Lighting Fine without high winds Dry None None None within 50 metres No physical crossing facility within 50 metres	Contributory	Failed to look properly (A)

Vehicle 1

Driver	Male, 82 Not requested Postcode: NE8 3NQ Not known	Vehicle	Car No tow or articulation
Collisions	Hit no other vehicle Front None None	Location	On main carriageway - not in restricted lane Not at, or within 20 metres of junction
		Movement	Vehicle moving from South to North Going ahead other Skidded Did not leave carriageway

Casualty 1 - Slight

Driver or rider	Not a car passenger
Male 82	Not a bus or coach passenger
NE8 3NQ	

Vehicle 2

Driver	Male, 71 Negative Postcode: NE2 2PL Commuting to/from work	Vehicle	Car No tow or articulation
Collisions	Hit no other vehicle Back None None	Location	On main carriageway - not in restricted lane Not at, or within 20 metres of junction
		Movement	Vehicle moving from South to North Going ahead other No skidding, jack-knifing or overturning Did not leave carriageway

Vehicle 3

Driver Female, 63
Negative
Postcode:
Commuting to/from work

Collisions Hit no other vehicle
Back
None
None

Vehicle Car
No tow or articulation
Location On main carriageway - not in restricted lane
Not at, or within 20 metres of junction

Movement Vehicle moving from South to North
Going ahead other
No skidding, jack-knifing or overturning
Did not leave carriageway

Vehicle 4

Driver Male, 59
Negative
Postcode: NE10 8XB
Commuting to/from work

Collisions Hit no other vehicle
Back
None
None

Vehicle Car
No tow or articulation
Location On main carriageway - not in restricted lane
Not at, or within 20 metres of junction

Movement Vehicle moving from South to North
Going ahead other
No skidding, jack-knifing or overturning
Did not leave carriageway

**Description
of Location** A19

**Description
of Accident** V1,V2,V3 AND V4 TRAVELLING NORTH ON A19 FOR REASONS UNKNOWN AT THIS TIME V1 WENT INTO THE REAR OF V2 WHO IN TURN WAS PUSHED FORWARD INTO V3 WHO THEN WENT INTO REAR OF V4 CASING DAMAGE AND MINOR INJURY

Slight Accident

Involving 2 Vehicle, 1 Casualty

0350826

Location	South Tyneside A 19 434250E, 559681N	Date/Time	Friday 14 December 2018 08:45
Road	Dual Carriageway 70	Junction	Slip Road Give way or uncontrolled A 1290
Conditions	Daylight - Street Lights Present Fine without high winds Wet/Damp None None None within 50 metres No physical crossing facility within 50 metres	Contributory	Failed to judge other person's path or speed (A)

Vehicle 1

Driver	Male, 29 Negative Postcode: TS28 5FD Commuting to/from work	Vehicle	Car No tow or articulation
Collisions	Hit no other vehicle Front None None	Location	On main carriageway - not in restricted lane Cleared junction or waiting/parked at junction exit
		Movement	Vehicle moving from South to North Going ahead other No skidding, jack-knifing or overturning Did not leave carriageway

Vehicle 2

Driver	Female, 28 Negative Postcode: TS27 4HL Commuting to/from work	Vehicle	Car No tow or articulation
Collisions	Hit no other vehicle Back None None	Location	On main carriageway - not in restricted lane Cleared junction or waiting/parked at junction exit
		Movement	Vehicle moving from South to North Going ahead other No skidding, jack-knifing or overturning Did not leave carriageway

Casualty 1 - Slight

Driver or rider		Not a car passenger
Female	28	Not a bus or coach passenger
TS27 4HL		

***Description
of Location***

A19 NEAR JN WITH A1290

***Description
of Accident***

VEHICLE 1 HAS FAILED TO NOTICED VEHICLE 2 HAS SLOWED DOWN AHEAD. AS A RESULT V1 HAS COLLIDED WITH THE REAR OF V2.

Slight Accident

Involving 2 Vehicle, 1 Casualty

0838129

Location	Sunderland A 1231 434776E, 557324N	Date/Time	Thursday 09 May 2019 11:13
Road	Dual Carriageway 30	Junction	Not at or within 20 metres of junction
Conditions	Daylight - Street Lights Present Raining without high winds Wet/Damp None None None within 50 metres No physical crossing facility within 50 metres	Contributory	

Vehicle 1

Driver Female,
Driver not contacted at time of accident
Postcode: SR2 8EZ

Not known

Collisions Hit no other vehicle

Back
None
None

Vehicle Car
No tow or articulation

Location On main carriageway - not in restricted lane
Not at, or within 20 metres of junction

Movement Vehicle moving from East to West
Changing lane to right
No skidding, jack-knifing or overturning
Did not leave carriageway

Vehicle 2

Driver Female, 20
Driver not contacted at time of accident
Postcode:

Other

Collisions Hit no other vehicle

Front
None
None

Vehicle Car
No tow or articulation

Location On main carriageway - not in restricted lane
Not at, or within 20 metres of junction

Movement Vehicle moving from East to West
Going ahead right hand bend
No skidding, jack-knifing or overturning
Did not leave carriageway

Casualty 1 - Slight

Driver or rider
Female 20
Not a car passenger
Not a bus or coach passenger

***Description
of Location***

WESSINGTON WAY (A1231) - 49 METRES FROM JUNCTION WITH A1231

***Description
of Accident***

VEHICLE 2 TRAVELLING WEST ON A1231 IN CENTRE LANE TRAVELLING TOWARD A19.V1 TRAVELLING IN OUTSIDE LANE CUTS ACROSS THE PATH OF V2 COLLIDING WITH FRONT NEAR SIDE OF VEHICLE CAUSING DAMAGE TO V2 AND WHIPLASH INJURIES TO DRIVER V2. DRIVER V2 FLASHES TO DRIVER V1 TO STOP.BOTH VEHICLES PULL OVER AT THE REAR OF THE GREENS PUBLIC HOUSE.DRIVER V1 CHECKS HER VEHICLE AND ARGUES NO DAMAGE HAS BEEN CAUSED AND MAKES OFF.

Slight Accident

Involving 2 Vehicle, 1 Casualty

0812103

Location	South Tyneside 434266E, 559920N	Date/Time	Friday 11 January 2019 16:15
Road	Single Carriageway 30	Junction	T or staggered junction Give way or uncontrolled
Conditions	Daylight - Street Lights Present Fine without high winds Dry None None None within 50 metres No physical crossing facility within 50 metres	Contributory	

Vehicle 1

Driver Male, 77
Driver not contacted at time of accident
Postcode: SR06 7RD
Not known

Collisions Hit no other vehicle
Offside
None
None

Vehicle Car
No tow or articulation

Location On main carriageway - not in restricted lane
Approaching junction or waiting/parked at junction exit

Movement Vehicle moving from North East to South West
Going ahead other
No skidding, jack-knifing or overturning
Did not leave carriageway

Vehicle 2

Driver Male, 49
Driver not contacted at time of accident
Postcode: SR6 9DY
Other

Collisions Hit no other vehicle
Front
None
None

Vehicle Car
No tow or articulation

Location On main carriageway - not in restricted lane
Approaching junction or waiting/parked at junction exit

Movement Vehicle moving from South West to South
Going ahead other
No skidding, jack-knifing or overturning
Did not leave carriageway

Casualty 1 - Slight

Driver or rider
Male 49
SR6 9DY

Not a car passenger
Not a bus or coach passenger

***Description
of Location***

DOWNHILL LANE NEAR JUNCTION WITH DOWNHILL LANE (A1290)

***Description
of Accident***

DRIVER OF V2 WAS TRAVELLING ALONG DOWNHILL LANE AND V1 WAS APPROACHING THE JUNCTION TO V2 NEARSIDE. V1 FAILS TO STOP AT THE GIVE WAY AND PULLS STRAIGHT INTO THE PATH OF V2

Fatal Accident

Involving 2 Vehicle, 1 Casualty

0822858

Location	Sunderland A 19 434675E, 557545N	Date/Time	Wednesday 13 March 2019 00:01
Road	Dual Carriageway 70	Junction	Not at or within 20 metres of junction
Conditions	Darkness - Street Lights present and lit Fine with high winds Wet/Damp None Other object in carriageway None within 50 metres No physical crossing facility within 50 metres	Contributory	Sudden braking (A)

Vehicle 1

Driver	Male, 56 Negative Postcode: S70 4HY Journey as part of work	Vehicle	Goods vehicle 7.5 tonnes mgw and over No tow or articulation
Collisions	Hit no other vehicle Back None None	Location	On main carriageway - not in restricted lane Not at, or within 20 metres of junction
		Movement	Vehicle moving from North to South Parked No skidding, jack-knifing or overturning Did not leave carriageway

Vehicle 2

Driver	Male, 24 Not requested Postcode: SR8 2BW Commuting to/from work	Vehicle	Car No tow or articulation
Collisions	Hit no other vehicle Front Parked vehicle None	Location	On main carriageway - not in restricted lane Not at, or within 20 metres of junction
		Movement	Vehicle moving from North to South Going ahead other No skidding, jack-knifing or overturning Did not leave carriageway

Casualty 1 - Fatal

Driver or rider		Not a car passenger
Male	24	Not a bus or coach passenger
SR8 2BW		

***Description
of Location***

A19

***Description
of Accident***

V1 AND V2 WERE BOTH IN LANE 1 TRAVELLING SOUTHBOUND ON THE A19. V1 CAME TO A SUDDEN STOP IN LANE 1 WHICH RESULTED IN V2 COLLIDING INTO THE REAR OF V1. AS A RESULT OF THE COLLISION THE DRIVER OF V2 WAS CONFIRMED DEAD AT THE SCENE.

Slight Accident

Involving 3 Vehicle, 1 Casualty

0810073

Location	Sunderland A 1231 434546E, 557275N	Date/Time	Wednesday 23 January 2019 18:32
Road	Dual Carriageway 70	Junction	Not at or within 20 metres of junction
Conditions	Daylight - Street Lights Present Fine without high winds Dry None None None within 50 metres No physical crossing facility within 50 metres	Contributory	

Vehicle 1

Driver	Male, 51 Not applicable Postcode: DH4 5NP Other	Vehicle	Car No tow or articulation
Collisions	Hit no other vehicle Front None None	Location	On main carriageway - not in restricted lane Not at, or within 20 metres of junction
		Movement	Vehicle moving from West to East No skidding, jack-knifing or overturning Did not leave carriageway

Vehicle 2

Driver	Female, 58 Not applicable Postcode: SR5 2AT Other	Vehicle	Car No tow or articulation
Collisions	Hit no other vehicle Back None None	Location	On main carriageway - not in restricted lane Not at, or within 20 metres of junction
		Movement	Vehicle moving from West to East No skidding, jack-knifing or overturning Did not leave carriageway

Casualty 1 - Slight

Driver or rider		Not a car passenger
Female	58	Not a bus or coach passenger
SR5 2AT		

Vehicle 3

Driver Male, 70
Not applicable
Postcode: NE38 7RA
Other

Collisions Hit no other vehicle
Back
None
None

Vehicle Car
No tow or articulation

Location On main carriageway - not in restricted lane
Not at, or within 20 metres of junction

Movement Vehicle moving from West to East
No skidding, jack-knifing or overturning
Did not leave carriageway

Description of Location SUNDERLAND HIGHWAY (A1231) - 20 METRES FROM JUNCTION WITH A19

Description of Accident VEHICLE 2 SLOWS AT APPROACH TO JUNCTION VEHICLE 1 FAILS TO SLOW COLLIDING WITH REAR OF VEHICLE 2 WHICH IS SUBSEQUENTLY PUSHED FORWARD INTO THE REAR OF V3 MINOR INJURY TO LEG OF DRIVER OF V2 WHO RECEIVED TREATMENT FROM PARAMEDICS AND DID NOT REQUIRE FURTHER MEDICAL ATTENETION.

Serious Accident

Involving 2 Vehicle, 1 Casualty

0815680

Location	South Tyneside A 19 433797E, 560757N	Date/Time	Wednesday 13 February 2019 17:40
Road	Dual Carriageway 70	Junction	Not at or within 20 metres of junction
Conditions	Darkness - No Street Lighting Fine without high winds Dry None None None within 50 metres No physical crossing facility within 50 metres	Contributory	

Vehicle 1

Driver	Male, 42 Negative Postcode: NE12 9EN Commuting to/from work	Vehicle	Car No tow or articulation
Collisions	Hit no other vehicle Nearside None None	Location	On main carriageway - not in restricted lane Not at, or within 20 metres of junction
		Movement	Vehicle moving from South to North Changing lane to left No skidding, jack-knifing or overturning Did not leave carriageway

Vehicle 2

Driver	Male, 59 Not requested Postcode: NE30 3QE Other	Vehicle	Motorcycle over 500cc No tow or articulation
Collisions	Hit no other vehicle Offside None None	Location	On main carriageway - not in restricted lane Not at, or within 20 metres of junction
		Movement	Vehicle moving from South to North Going ahead other No skidding, jack-knifing or overturning Did not leave carriageway

Casualty 1 - Serious

Driver or rider		Not a car passenger
Male	59	Not a bus or coach passenger
NE30 3QE		

***Description
of Location***

A19

***Description
of Accident***

V1 HAS BEEN MOVING SLOWLY FORWARDS NORTHBOUND ON A19 IN HEAVY TRAFFIC HEADING TOWARDS TESTO 'B106 ROUNDABOUT IN LANE 2. V2 (MOTORBIKE) HAS BEEN FILTERING BETWEEN SLOW MOVING CARS AND ATTEMPTS TO PASS V1 ON IT'S OFFSIDE (V1'S NEAR SIDE) JUST AS V1 STARTS TO MOVE LEFT INTO LANE 1 COLLIDING WITH V2 AND CAUSING INJURY TO V2 RIDER'S FOOT.

Serious Accident

Involving 2 Vehicle, 3 Casualties

0853056

Location	South Tyneside A 19 433797E, 560776N	Date/Time	Friday 28 June 2019 11:55
Road	Dual Carriageway 70	Junction	Not at or within 20 metres of junction
Conditions	Daylight - Street Lights Present Fine without high winds Dry Roadworks None None within 50 metres No physical crossing facility within 50 metres	Contributory	

Vehicle 1

Driver	Female, 35 Negative Postcode: SR4 8EF Not known	Vehicle	Car No tow or articulation
Collisions	Hit no other vehicle Front None None	Location	On main carriageway - not in restricted lane Not at, or within 20 metres of junction
		Movement	Vehicle moving from South to North Slowing or stopping No skidding, jack-knifing or overturning Did not leave carriageway

Casualty 2 - Serious

Driver or rider		Not a car passenger
Female	35	Not a bus or coach passenger
SR4 8EF		

Vehicle 2

Driver	Female, 25 Negative Postcode: SR7 9BZ Other	Vehicle	Car No tow or articulation
Collisions	Hit no other vehicle Back None None	Location	On main carriageway - not in restricted lane Not at, or within 20 metres of junction
		Movement	Vehicle moving from South to North Slowing or stopping No skidding, jack-knifing or overturning Did not leave carriageway

Casualty 1 - Slight

Driver or rider		Not a car passenger
Female	25	Not a bus or coach passenger
SR7 9BZ		

Casualty 3 - Slight

Vehicle or pillion passenger

Rear seat passenger

Male 0

Not a bus or coach passenger

SR7 9BZ

***Description
of Location***

A19

***Description
of Accident***

V1 AND V2 TRAVELLING NORTHBOUND ON A19 IN CONGESTED TRAFFIC DUE TO ROADWORKS. V2 SLOWS WITH TRAFFIC, V1 FAILS TO STOP IN TIME AND COLLIDES WITH REAR OF V2 CAUSING MINOR DAMAGE.

Slight Accident

Involving 2 Vehicle, 1 Casualty

0856296

Location	Sunderland A 19 434692E, 557718N	Date/Time	Friday 05 July 2019 17:12
Road	Dual Carriageway 70	Junction	Not at or within 20 metres of junction
Conditions	Daylight - Street Lights Present Fine without high winds Dry None Involvement with previous accident None within 50 metres No physical crossing facility within 50 metres	Contributory	

Vehicle 1

Driver	Female, 28 Not requested Postcode: NE38 0NT Not known	Vehicle	Car No tow or articulation
Collisions	Hit no other vehicle Back None None	Location	On main carriageway - not in restricted lane Not at, or within 20 metres of junction
		Movement	Vehicle moving from North to South Going ahead other No skidding, jack-knifing or overturning Did not leave carriageway

Vehicle 2

Driver	Male, 38 Not requested Postcode: SR3 4NL Other	Vehicle	Car No tow or articulation
Collisions	Hit no other vehicle Did not impact None None	Location	On main carriageway - not in restricted lane Not at, or within 20 metres of junction
		Movement	Vehicle moving from North to South Going ahead other No skidding, jack-knifing or overturning Did not leave carriageway

Casualty 1 - Slight

Vehicle or pillion passenger	Front seat passenger
Female 37	Not a bus or coach passenger
SR3 4NL	

***Description
of Location***

A19

***Description
of Accident***

V2 WAS DRIVING ALONG A19 SUNDERLAND AS IT APPROACHED SLIP ROAD TO WESSINGTON WAY V1 OVERTOOK V2 THEN SLAMMED BRAKES ON CAUSING V1 TO MOUNT CENTRAL RESERVATION THEN HIT V1

Slight Accident

Involving 3 Vehicle, 2 Casualties

0865697

Location	Sunderland A 1231 434688E, 557360N	Date/Time	Tuesday 06 August 2019 22:20
Road	Roundabout 70	Junction	Not at or within 20 metres of junction
Conditions	Darkness - Street Lights present and lit Fine without high winds Dry None None None within 50 metres No physical crossing facility within 50 metres	Contributory	

Vehicle 1

Driver Male, 45
Negative
Postcode: SR5 4LB
Other

Collisions Hit no other vehicle
Front
None
None

Vehicle Car
No tow or articulation

Location On main carriageway - not in restricted lane
Not at, or within 20 metres of junction

Movement Vehicle moving from West to East
Slowing or stopping
No skidding, jack-knifing or overturning
Did not leave carriageway

Casualty 1 - Slight

Driver or rider
Male 45
SR5 4LB

Not a car passenger
Not a bus or coach passenger

Vehicle 2

Driver Male, 27
Negative
Postcode: SR4 6UR
Not known

Collisions Hit no other vehicle
Back
None
None

Vehicle Car
No tow or articulation

Location On main carriageway - not in restricted lane
Not at, or within 20 metres of junction

Movement Vehicle moving from West to East
Slowing or stopping
No skidding, jack-knifing or overturning
Did not leave carriageway

Casualty 2 - Slight

Driver or rider
Male 27
SR4 6UR

Not a car passenger
Not a bus or coach passenger

Vehicle 3

Driver Male, 36
Negative
Postcode: NE15 9RT
Journey as part of work

Collisions Hit no other vehicle
Did not impact
None
None

Vehicle Goods vehicle 3.5 tonnes maximum gross weight (mgw) and under
No tow or articulation

Location On main carriageway - not in restricted lane
Not at, or within 20 metres of junction

Movement Vehicle moving from North to South East
Slowing or stopping
No skidding, jack-knifing or overturning
Did not leave carriageway

Description of Location A1231 - 24 METRES FROM JUNCTION WITH A19

Description of Accident V3 AMBULANCE ON EMERGENCY CALL WITH BLUE LIGHTS AND SIRENS ACTIVATED ENTERS RAB AND SLOWS TO A STOP AT RED TRAFFIC LIGHT. V2 TRAVELLING EAST ON RAB STOPS SUDDENLY TO ALLOW V3 TO PROCEED, V1 TRAVELLING EAST BEHIND V2 HEARS SIRENS AND LOOKS IN REAR MIRRORS FOR EMERGENCY VEHICLE, V1 FAILS TO SEE V2 HAS STOPPED AND COLLIDES WITH REAR.

Serious Accident

Involving 2 Vehicle, 1 Casualty

0882849

Location	Sunderland A 1290 433950E, 559448N	Date/Time	Monday 30 September 2019 22:10
Road	Single Carriageway 40	Junction	Not at or within 20 metres of junction
Conditions	Daylight - Street Lights Present Fine without high winds Dry None None None within 50 metres No physical crossing facility within 50 metres	Contributory	Careless, reckless or in a hurry (A)

Vehicle 1

Driver Male, 23
Negative
Postcode: NE35 9EJ
Commuting to/from work

Collisions Hit no other vehicle
Offside
None
None

Vehicle Motorcycle over 500cc
No tow or articulation
Location On main carriageway - not in restricted lane
Not at, or within 20 metres of junction

Movement Vehicle moving from South West to North East
Going ahead other
Skidded
Did not leave carriageway

Casualty 1 - Serious

Driver or rider
Male 23
NE35 9EJ

Not a car passenger
Not a bus or coach passenger

Vehicle 2

Driver Male, 48
Negative
Postcode: DH1 1AH
Commuting to/from work

Collisions Hit no other vehicle
Back
None
None

Vehicle Car
No tow or articulation
Location On main carriageway - not in restricted lane
Not at, or within 20 metres of junction

Movement Vehicle moving from South West to North East
Slowing or stopping
No skidding, jack-knifing or overturning
Did not leave carriageway

***Description
of Location***

WASHINGTON ROAD (A1290)

***Description
of Accident***

V1 TRAVELLING NORTH WEST PASSING SLOWER MOVING VEHICLES. FOR REASONS YET TO BE ESTABLISHED RIDER LOOSES CONTROL AND COLLIDES WITH REAR OF V2

Slight Accident

Involving 2 Vehicle, 1 Casualty

0885007

Location	Sunderland A 19 434716E, 556998N	Date/Time	Monday 07 October 2019 08:20
Road	Dual Carriageway 70	Junction	Not at or within 20 metres of junction
Conditions	Darkness - Street Lights present and lit Fine without high winds Wet/Damp None None None within 50 metres No physical crossing facility within 50 metres	Contributory	Failed to judge other person's path or speed (A)

Vehicle 1

Driver	Male, 50 Negative Postcode: TS25 5HX Commuting to/from work	Vehicle	Goods vehicle 3.5 tonnes maximum gross weight (mgw) and under No tow or articulation
Collisions	Hit no other vehicle Front None None	Location	On main carriageway - not in restricted lane Not at, or within 20 metres of junction
		Movement	Vehicle moving from South to North Slowing or stopping No skidding, jack-knifing or overturning Did not leave carriageway

Vehicle 2

Driver	Male, 31 Negative Postcode: TS17 9BN Commuting to/from work	Vehicle	Car No tow or articulation
Collisions	Hit no other vehicle Back None None	Location	On main carriageway - not in restricted lane Not at, or within 20 metres of junction
		Movement	Vehicle moving from South to North Waiting to go ahead but held up No skidding, jack-knifing or overturning Did not leave carriageway

Casualty 1 - Slight

Driver or rider		Not a car passenger
Male	31	Not a bus or coach passenger
TS17 9BN		

***Description
of Location***

A19

***Description
of Accident***

VEHICLE 1 TRAVELLING NORTH BOUND IN LANE 1 FAILS TO SLOW SUFFICIENTLY FOR STATIONARY TRAFFIC AHEAD AND COLLIDES WITH VEHICLE 2

Slight Accident

Involving 2 Vehicle, 1 Casualty

0886482

Location	Sunderland 434686E, 558756N	Date/Time	Wednesday 09 October 2019 08:00
Road	Single Carriageway 30	Junction	T or staggered junction Give way or uncontrolled
Conditions	Daylight - Street Lights Present Fine without high winds Dry None None None within 50 metres No physical crossing facility within 50 metres	Contributory	Failed to look properly (A)

Vehicle 1

Driver Male, 30
Driver not contacted at time of accident
Postcode: SR5 4LP
Not known

Collisions Hit no other vehicle
Front
None
None

Vehicle Car
No tow or articulation

Location On main carriageway - not in restricted lane
Cleared junction or waiting/parked at junction exit

Movement Vehicle moving from East to South
Moving off
No skidding, jack-knifing or overturning
Did not leave carriageway

Vehicle 2

Driver Male, 26
Not applicable
Postcode: NE32 5YH
Commuting to/from work

Collisions Hit no other vehicle
Nearside
None
None

Vehicle Pedal Cycle
No tow or articulation

Location On main carriageway - not in restricted lane
Approaching junction or waiting/parked at junction exit

Movement Vehicle moving from North to South
Going ahead other
No skidding, jack-knifing or overturning
Did not leave carriageway

Casualty 1 - Slight

Driver or rider
Male 26
NE32 5YH

Not a car passenger
Not a bus or coach passenger

***Description
of Location***

CAITHNESS ROAD AT JUNCTION WITH FERRYBOAT LANE

***Description
of Accident***

RIDER OF V2 (PEDAL CYCLE) APPROACHES JUNCTION DRIVER OF V1 PULLS OUT FROM JUNCTION FAILING TO SEE PEDAL CYCLIST AND COLLIDES WITH THEM

Slight Accident

Involving 3 Vehicle, 2 Casualties

0890678

Location	Sunderland A 19 434716E, 556994N	Date/Time	Tuesday 22 October 2019 06:40
Road	Dual Carriageway 70	Junction	Not at or within 20 metres of junction
Conditions	Darkness - No Street Lighting Raining without high winds Wet/Damp None None None within 50 metres No physical crossing facility within 50 metres	Contributory	Poor turn or manoeuvre (A) Failed to look properly (A) Careless, reckless or in a hurry (A)

Vehicle 1

Driver Male, 42
Negative
Postcode: DH5 0HG
Journey as part of work

Collisions Hit no other vehicle
Front
None
None

Vehicle Car
No tow or articulation
Location On main carriageway - not in restricted lane
Not at, or within 20 metres of junction
Movement Vehicle moving from South to North
Going ahead other
No skidding, jack-knifing or overturning
Did not leave carriageway

Casualty 2 - Slight

Driver or rider
Male 42
DH5 0HG

Not a car passenger
Not a bus or coach passenger

Vehicle 2

Driver Male, 49
Negative
Postcode: LS27 7UT
Commuting to/from work

Collisions Hit no other vehicle
Back
None
None

Vehicle Car
No tow or articulation
Location On main carriageway - not in restricted lane
Not at, or within 20 metres of junction
Movement Vehicle moving from South to North
Going ahead other
No skidding, jack-knifing or overturning
Did not leave carriageway

Casualty 1 - Slight

Driver or rider
Male 49
LS27 7UT

Not a car passenger
Not a bus or coach passenger

Vehicle 3

Driver Female, 38
Negative
Postcode: SR3 2FF
Journey as part of work

Collisions Hit no other vehicle
Back
None
None

Vehicle Car
No tow or articulation

Location On main carriageway - not in restricted lane
Not at, or within 20 metres of junction

Movement Vehicle moving from South to North
Going ahead other
No skidding, jack-knifing or overturning
Did not leave carriageway

**Description
of Location** A19

**Description
of Accident** VEH 3 TRAVELLING NORTH ON A19 SUNDERLAND TOWARDS ROUNDABOUT WITH THE A1231. VEH 3 COMES TO STOP FOR STATIONARY TRAFFIC. VEH 2 TRAVELLING BEHIND ALSO COMES TO A STOP BEHIND VEH 3. VEH 1 FAILS TO NEGOTIATE STATIONARY VEH 2 COLLIDING WITH THE REAR OF THE VEHICLE PUSHING IT INTO THE REAR OF VEH 3 CAUSING DAMAGE AND MINOR INJURIES.

Slight Accident

Involving 1 Vehicle, 1 Casualty

0895231

Location	Sunderland A 1290 433774E, 558804N	Date/Time	Tuesday 05 November 2019 07:03
Road	Single Carriageway 40	Junction	Not at or within 20 metres of junction
Conditions	Darkness - Street Lights present and lit Raining without high winds Wet/Damp None None None within 50 metres Pedestrian phase at traffic signal junction	Contributory	Wrong use of pedestrian crossing facility (A) Failed to look properly (A) Pedestrian wearing dark clothing at night (A)

Vehicle 1

Driver	Female, 20 Negative Postcode: NE32 4TT Other	Vehicle	Car No tow or articulation
Collisions	Hit no other vehicle Offside None None	Location	On main carriageway - not in restricted lane Not at, or within 20 metres of junction
		Movement	Vehicle moving from North to South Going ahead other No skidding, jack-knifing or overturning Did not leave carriageway

Casualty 1 - Slight

Pedestrian		In carriageway, crossing on pedestrian crossing facility
Male	19	Crossing from driver's offside
NE38 0QA		West

Description of Location WASHINGTON ROAD (A1290) AT JUNCTION WITH UNCLASSIFIED ROAD

Description of Accident IT APPEARS THAT V1 HAS BEEN TRAVELLING SOUTH ON THE A1290 APPROACHING TRAFFIC LIGHT SYSTEM WITH ENTRANCE TO NISSAN CAR PLANT WASHINGTON. THE PEDESTRIAN HAS BEEN CROSSING AT THAT POINT WALKING FROM WEST TO EAST. V1 HAS CONTINUED THROUGH THE TRAFFIC LIGHT SYSTEM WHICH IS SHOWING GREEN. V1 HAS THEN COLLIDED WITH THE PEDESTRIAN ON THE OFFSIDE CAUSING INJURY.

Slight Accident

Involving 4 Vehicle, 4 Casualties

0899316

Location	Sunderland A 19 434647E, 557363N	Date/Time	Saturday 16 November 2019 12:35
Road	Dual Carriageway 70	Junction	Not at or within 20 metres of junction
Conditions	Daylight - Street Lights Present Raining without high winds Wet/Damp None None None within 50 metres No physical crossing facility within 50 metres	Contributory	Failed to judge other person's path or speed (A)

Vehicle 1

Driver Male, 57
Negative
Postcode: NE31 1FF
Commuting to/from work

Collisions Hit no other vehicle
Front
None
None

Vehicle Goods vehicle 3.5 tonnes maximum gross weight (mgw) and under
No tow or articulation

Location On main carriageway - not in restricted lane
Not at, or within 20 metres of junction

Movement Vehicle moving from South to North
Going ahead other
Skidded
Did not leave carriageway

Casualty 2 - Slight

Driver or rider
Male 57
NE31 1FF

Not a car passenger
Not a bus or coach passenger

Vehicle 2

Driver Male, 26
Negative
Postcode: TS1 3HG
Not known

Collisions Hit no other vehicle
Back
None
None

Vehicle Car
No tow or articulation

Location On main carriageway - not in restricted lane
Not at, or within 20 metres of junction

Movement Vehicle moving from South to North
Going ahead other
No skidding, jack-knifing or overturning
Did not leave carriageway

Casualty 1 - Slight

Driver or rider
Male 26
TS1 3HG

Not a car passenger
Not a bus or coach passenger

Vehicle 3

Driver Male, 42
Negative
Postcode: DH5 9NH
Not known

Collisions Hit no other vehicle
Back
None
None

Vehicle Car
No tow or articulation
Location On main carriageway - not in restricted lane
Not at, or within 20 metres of junction

Movement Vehicle moving from South to North
Going ahead other
No skidding, jack-knifing or overturning
Did not leave carriageway

Casualty 3 - Slight

Driver or rider
Male 42
DH5 9NH

Not a car passenger
Not a bus or coach passenger

Vehicle 4

Driver Male, 49
Negative
Postcode: NE6 4SX
Not known

Collisions Hit no other vehicle
Back
None
None

Vehicle Car
No tow or articulation
Location On main carriageway - not in restricted lane
Not at, or within 20 metres of junction

Movement Vehicle moving from South to North
Going ahead other
No skidding, jack-knifing or overturning
Did not leave carriageway

Casualty 4 - Slight

Driver or rider
Male 49
NE6 4SX

Not a car passenger
Not a bus or coach passenger

**Description
of Location** A19

**Description
of Accident** ALL FOUR VEHICLES TRAVELLING NORTH BOUND ON A19 JUST PASSED THE A1231 JUNCTION WHEN THEY APPROACH SLOW MOVING TRAFFIC DUE TO THE ROADWORKS AT TESTO'S. V4, V3 AND V2 SLOW FOR TRAFFIC V1 COLLIDES WITH REAR OF V2 PUSHING IT 36M INTO THE REAR OF V3 AND THEN V4 CAUSING DAMAGE AND INJURY TO ALL FOUR VEHICLES AND DRIVERS.

Slight Accident

Involving 2 Vehicle, 1 Casualty

0905850

Location	South Tyneside A 19 433836E, 561074N	Date/Time	Tuesday 03 December 2019 17:10
Road	Dual Carriageway 70	Junction	Not at or within 20 metres of junction
Conditions	Darkness - No Street Lighting Fine without high winds Wet/Damp Roadworks None None within 50 metres No physical crossing facility within 50 metres	Contributory	

Vehicle 1

Driver Male, 20
Driver not contacted at time of accident
Postcode: TS27 3ND
Not known

Collisions Hit no other vehicle
Front
None
None

Vehicle Goods vehicle over 3.5 tonnes and under 7.5 tonnes mgw
No tow or articulation

Location On main carriageway - not in restricted lane
Not at, or within 20 metres of junction

Movement Vehicle moving from North to South
Going ahead other
No skidding, jack-knifing or overturning
Did not leave carriageway

Vehicle 2

Driver Female, 39
Driver not contacted at time of accident
Postcode: SR3 2NT
Commuting to/from work

Collisions Hit no other vehicle
Back
None
None

Vehicle Car
No tow or articulation

Location On main carriageway - not in restricted lane
Not at, or within 20 metres of junction

Movement Vehicle moving from North to South
Going ahead other
No skidding, jack-knifing or overturning
Did not leave carriageway

Casualty 2 - Slight

Driver or rider
Female 39
SR3 2NT

Not a car passenger
Not a bus or coach passenger

***Description
of Location***

A19 - 100 METRES FROM JUNCTION WITH NEWCASTLE ROAD (A19)

***Description
of Accident***

VEHICLE 2 WAS DRIVING ALONG A19 SOUTHBOUND IN HEAVY TRAFFIC AT AROUND 15/20 MPH WHEN VEHICLE 1 COLLIDED WITH THE REAR OF VEHICLE 2. BOTH DRIVERS GOT OUT TO ASSES THE DAMAGE WHICH WAS MINOR TO BOTH VEHICLES. BOTH DRIVERS EXCHANGED DETAILS AND MOVED ON QUICKLY DUE TO THE LOCATION. THE DRIVER OF VEHICLE 2 HAS COMPLAINED OF NECK AND LOWER BACK ACHES. DRIVER OF VEHICLE 2 HAS ATTENDED THE WALK IN CENTRE AT STDH AND WAS ASSESSED AS HAVING SOFT TISSUE INJURIES.

Serious Accident

Involving 2 Vehicle, 1 Casualty

0928352

Location	South Tyneside A 184 433753E, 560961N	Date/Time	Sunday 09 February 2020 00:33
Road	Dual Carriageway 70	Junction	Roundabout Automatic traffic signal A 19
Conditions	Darkness - Street Lights present and lit Unknown Wet/Damp None None None within 50 metres No physical crossing facility within 50 metres	Contributory	

Vehicle 1

Driver Male, 23
Driver not contacted at time of accident
Postcode: NE3 3GH
Not known

Collisions Hit no other vehicle
Front
None
None

Vehicle Car
No tow or articulation

Location On main carriageway - not in restricted lane
Approaching junction or waiting/parked at junction exit

Movement Vehicle moving from West to East
Going ahead other
No skidding, jack-knifing or overturning
Did not leave carriageway

Vehicle 2

Driver Male, 40
Driver not contacted at time of accident
Postcode: NE31 2BP
Not known

Collisions Hit no other vehicle
Back
None
None

Vehicle Car
No tow or articulation

Location On main carriageway - not in restricted lane
Approaching junction or waiting/parked at junction exit

Movement Vehicle moving from West to South East
Waiting to go ahead but held up
No skidding, jack-knifing or overturning
Did not leave carriageway

Casualty 1 - Serious

Driver or rider
Male 40
NE31 2BP

Not a car passenger
Not a bus or coach passenger

***Description
of Location***

NEWCASTLE ROAD (A184) NEAR JUNCTION WITH NEWCASTLE ROAD (A19)

***Description
of Accident***

VEHICLE 2 STATIONARY AT TRAFFIC LIGHTS AT ROUNDABOUT JUNCTION. VEHICLE 1 DRIVES INTO BACK OF VEHICLE 2. DRIVER OF VEHICLE 1 THEN DRIVES OFF FAILING TO STOP AND EXCHANGE DETAILS. INJURY SUSTAINED BY DRIVER OF VEHICLE 2 ALONG WITH VEHICLE DAMAGE.

Slight Accident

Involving 2 Vehicle, 1 Casualty

0928230

Location	Sunderland 431926E, 557758N	Date/Time	Friday 07 February 2020 17:20
Road	Single Carriageway 30	Junction	T or staggered junction Give way or uncontrolled
Conditions	Daylight - Street Lights Present Fine without high winds Dry None None None within 50 metres No physical crossing facility within 50 metres	Contributory	

Vehicle 1

Driver	Male, Driver not contacted at time of accident Postcode: Not known	Vehicle	Car No tow or articulation
Collisions	Hit no other vehicle Offside None None	Location	On main carriageway - not in restricted lane Entering main road
		Movement	Vehicle moving from West to East Slowing or stopping Skidded Did not leave carriageway

Vehicle 2

Driver	Male, 31 Driver not contacted at time of accident Postcode: Journey as part of work	Vehicle	Car No tow or articulation
Collisions	Hit no other vehicle Did not impact None None	Location	On main carriageway - not in restricted lane Mid junction - on roundabout or on main road
		Movement	Vehicle moving from South East to North Going ahead other No skidding, jack-knifing or overturning Did not leave carriageway

Casualty 1 - Slight

Driver or rider		Not a car passenger
Male	31	Not a bus or coach passenger

***Description
of Location***

SULGRAVE ROAD - 46 METRES FROM JUNCTION WITH WASHINGTON ROAD (A1290)

***Description
of Accident***

VEHICLE 2 WAS TRAVELLING NORTH ON SULGRAVE ROAD, VEHICLE 1 HAS COME OUT OF THE JUNCTION TO THE NEAR SIDE OUT OF CONTROL AND COLLIDED WITH THE FRONT OF VEHICLE 2

Serious Accident

Involving 2 Vehicle, 1 Casualty

0929943

Location	Sunderland A 1290 431682E, 557565N	Date/Time	Thursday 13 February 2020 06:15
Road	Single Carriageway 30	Junction	T or staggered junction Give way or uncontrolled
Conditions	Darkness - Street Lights present and lit Raining without high winds Wet/Damp None None None within 50 metres No physical crossing facility within 50 metres	Contributory	

Vehicle 1

Driver	Not traced, 21 Driver not contacted at time of accident Postcode: Not known	Vehicle	Car No tow or articulation
Collisions	Hit no other vehicle Front None None	Location	On main carriageway - not in restricted lane Entering main road
		Movement	Vehicle moving from North to West Turning right No skidding, jack-knifing or overturning Did not leave carriageway

Vehicle 2

Driver	Male, 31 Not applicable Postcode: NE37 1QQ Commuting to/from work	Vehicle	Pedal Cycle No tow or articulation
Collisions	Hit no other vehicle Nearside None None	Location	On main carriageway - not in restricted lane Mid junction - on roundabout or on main road
		Movement	Vehicle moving from West to East Going ahead other No skidding, jack-knifing or overturning Did not leave carriageway

Casualty 1 - Serious

Driver or rider		Not a car passenger
Male	31	Not a bus or coach passenger
NE37 1QQ		

***Description
of Location***

GLOVER ROAD (A1290) AT JUNCTION WITH EDGECCOTE

***Description
of Accident***

VEHICLE 1 PULLS OUT OF A SIDE ROAD TO TURN RIGHT AT A JUNCTION. VEHICLE 2 (CYCLIST) WAS ON THE MAIN ROAD TRAVELLING FROM VEHICLES 1'S RIGHT TO LEFT. IN PULLING OUT VEHICLE 1 KNOCKED THE CYCLIST FROM THE BIKE ONTO THE FLOOR CAUSING INJURY. WHILST THE VICTIM WAS LYING ON THE ROAD VEHICLE 1 DROVE OFF FAILING TO SUMMON HELP FOR THE FLOORED CYCLIST AND FAILING TO REPORT THE COLLISION

Slight Accident

Involving 3 Vehicle, 1 Casualty

0952882

Location	Sunderland A 1231 434559E, 557294N	Date/Time	Friday 22 May 2020 16:28
Road	Roundabout 70	Junction	Roundabout Automatic traffic signal A 1231
Conditions	Daylight - Street Lights Present Fine without high winds Dry None None None within 50 metres No physical crossing facility within 50 metres	Contributory	Following too close (A) Failed to look properly (A)

Vehicle 1

Driver Male, 46
Negative
Postcode: SR5 3LG
Not known

Collisions Hit no other vehicle
Front
None
None

Vehicle Car
No tow or articulation

Location On main carriageway - not in restricted lane
Entering roundabout

Movement Vehicle moving from West to East
Going ahead other
No skidding, jack-knifing or overturning
Did not leave carriageway

Vehicle 2

Driver Male, 27
Negative
Postcode: SR5 5QB
Commuting to/from work

Collisions Hit no other vehicle
Did not impact
None
None

Vehicle Car
No tow or articulation

Location On main carriageway - not in restricted lane
Mid junction - on roundabout or on main road

Movement Vehicle moving from West to East
Waiting to go ahead but held up
No skidding, jack-knifing or overturning
Did not leave carriageway

Casualty 1 - Slight

Driver or rider		Not a car passenger
Male	27	Not a bus or coach passenger
SR5 5QB		

Vehicle 3

Driver Male,
Negative
Postcode:
Journey as part of work

Collisions Hit no other vehicle
Did not impact
None
None

Vehicle Car
No tow or articulation

Location On main carriageway - not in restricted lane
Leaving roundabout

Movement Vehicle moving from South East to North East
Slowing or stopping
No skidding, jack-knifing or overturning
Did not leave carriageway

Description of Location SUNDERLAND HIGHWAY (A1231) NEAR JUNCTION WITH A1231

Description of Accident V3 MARKED POLICE VEHICLE TRAVELLING TO GRADE ONE WITH EMERGENCY LIGHTING AND SIREN ACTIVE. V3 COMES TO A STOP ON RA JUST AFTER TRAFFIC LIGHTS. V2 APPROACHING ROUNDABOUT FROM THE WEST A1231 COMES TO A STOP AT RED TRAFFIC SIGNAL AT RA. V1 TRAVELLING BEHIND V2 FAILS TO SEE THAT V2 HAS COME TO A HALT. DRIVER OF V1 COLLIDES WITH THE REAR OF STATIONARY OF V2 CAUSING DAMAGE TO BOTH. DRIVER OF V2 LATER REPORTS WHIPLASH TYPE INJURIES.

Slight Accident

Involving 3 Vehicle, 2 Casualties

0961642

Location	South Tyneside A 184 433755E, 560960N	Date/Time	Thursday 02 July 2020 05:28
Road	Dual Carriageway 70	Junction	Roundabout Automatic traffic signal A 19
Conditions	Daylight - Street Lights Present Raining without high winds Wet/Damp Roadworks None None within 50 metres Pelican, puffin, toucan or similar non-junction pedestrian light c	Contributory	Stolen Vehicle (B) Sudden braking (A) Exceeding speed limit (A) Impaired by drugs (illicit or medicinal) (B) Aggressive driving (A)

Vehicle 1

Driver Male, 33
Negative
Postcode: SR4 0BU
Other

Collisions Hit no other vehicle
Front
Parked vehicle
None

Vehicle Car
No tow or articulation
Location On main carriageway - not in restricted lane
Entering roundabout

Movement Vehicle moving from West to East
Overtaking on nearside
Skidded
Did not leave carriageway

Casualty 1 - Slight

Driver or rider
Male 33
SR4 0BU

Not a car passenger
Not a bus or coach passenger

Vehicle 2

Driver Male, 50
Negative
Postcode:
Journey as part of work

Collisions Hit no other vehicle
Nearside
Roadworks
None

Vehicle Car
No tow or articulation
Location On main carriageway - not in restricted lane
Mid junction - on roundabout or on main road

Movement Vehicle moving from South to North
Waiting to go ahead but held up
No skidding, jack-knifing or overturning
Did not leave carriageway

Casualty 2 - Slight

Driver or rider
Male 50

Not a car passenger
Not a bus or coach passenger

Vehicle 3

Driver Male, 37
Negative
Postcode:
Journey as part of work

Collisions Hit no other vehicle
Did not impact
None
None

Vehicle Car
No tow or articulation
Location On main carriageway - not in restricted lane
Entering roundabout

Movement Vehicle moving from West to East
Slowing or stopping
No skidding, jack-knifing or overturning
Did not leave carriageway

Description of Location NEWCASTLE ROAD (A184) NEAR JUNCTION WITH NEWCASTLE ROAD (A19)

Description of Accident VEHICLE 1 IS A STOLEN MOTOR VEHICLE WHICH WAS SIGHTED BY VEHICLE 2 WHICH IS A MARKED POLICE PATROL VEHICLE. THE DRIVER OF VEHICLE 1 FAILED TO STOP FOR VEHICLE 2 AND A PURSUIT COMMENCED. VEHICLE 3 ANOTHER MARKED POLICE PATROL VEHICLE WAS STATIONARY AT TESTOS ROUNDABOUT WHEN VEHICLE 1 APPROACHED AT EXCESS SPEED, THE DRIVER LOST CONTROL CAUSING VEHICLE 1 TO SPIN OUT OF CONTROL AND COLLIDED WITH VEHICLE 3 CAUSING EXTENSIVE DAMAGE TO BOTH VEHICLES. VEHICLE 2 WAS VICINITY ONLY.

Slight Accident

Involving 2 Vehicle, 1 Casualty

0992819

Location	Sunderland A 1231 434761E, 557317N	Date/Time	Wednesday 21 October 2020 15:31
Road	Dual Carriageway 50	Junction	Not at or within 20 metres of junction
Conditions	Daylight - Street Lights Present Fine without high winds Dry None None None within 50 metres No physical crossing facility within 50 metres	Contributory	Failed to look properly (B)

Vehicle 1

Driver	Female, 44 Negative Postcode: Other	Vehicle	Car No tow or articulation
Collisions	Hit no other vehicle Front None None	Location	On main carriageway - not in restricted lane Not at, or within 20 metres of junction
		Movement	Vehicle moving from North East to South West Moving off No skidding, jack-knifing or overturning Did not leave carriageway

Vehicle 2

Driver	Male, 67 Negative Postcode: Other	Vehicle	Car No tow or articulation
Collisions	Hit no other vehicle Back None None	Location	On main carriageway - not in restricted lane Not at, or within 20 metres of junction
		Movement	Vehicle moving from North East to South West Slowing or stopping No skidding, jack-knifing or overturning Did not leave carriageway

Casualty 1 - Slight

Vehicle or pillion passenger	Front seat passenger
Female 57	Not a bus or coach passenger

***Description
of Location***

WESSINGTON WAY (A1231) - 33 METRES FROM JUNCTION WITH A1231

***Description
of Accident***

V2 WAS TRAVELLING SOUTH WEST ON THE A1231 AND CAME TO A STOP IN STATIONARY TRAFFIC AT THE TRAFFIC SIGNALS. THE TRAFFIC THEN BEGAN MOVING OFF AND SLOWED DOWN AGAIN, WHEN SUDDENLY V1 TRAVELLING IN THE SAME DIRECTION COLLIDED INTO THE REAR OF V2 AT A RELATIVE SLOW SPEED IMPACT.

Slight Accident

Involving 2 Vehicle, 2 Casualties

1004850

Location South Tyneside
A 19
433786E, 560852N

Date/Time Monday
07 December 2020
13:30

Road Dual Carriageway
30

Junction Roundabout
Automatic traffic signal
A 19

Conditions Daylight - Street Lights Present
Fine without high winds
Wet/Damp
Roadworks
None

None within 50 metres
No physical crossing facility within 50 metres

Contributory

Vehicle 1

Driver Male, 41
Not applicable
Postcode: NE9 7XY

Journey as part of work

Vehicle Goods vehicle 3.5 tonnes maximum gross weight (mgw) and under
No tow or articulation

Location On main carriageway - not in restricted lane

Entering roundabout

Collisions Hit no other vehicle

Front
None
None

Movement Vehicle moving from South to North
Moving off
No skidding, jack-knifing or overturning
Did not leave carriageway

Vehicle 2

Driver Male, 22
Driver not contacted at time of accident
Postcode: NE25 9AJ

Journey as part of work

Vehicle Goods vehicle over 3.5 tonnes and under 7.5 tonnes mgw
No tow or articulation

Location On main carriageway - not in restricted lane

Entering roundabout

Collisions Hit no other vehicle

Back
None
None

Movement Vehicle moving from South to North
Moving off
No skidding, jack-knifing or overturning
Did not leave carriageway

Casualty 1 - Slight

Driver or rider
Male 22
NE25 9AJ

Not a car passenger
Not a bus or coach passenger

Casualty 2 - Slight

Vehicle or pillion passenger

Not a car passenger

Male 21

Not a bus or coach passenger

NE30 3PU

Description of Location

A19 NEAR JUNCTION WITH NEWCASTLE ROAD (A19)

Description of Accident

VEHICLE 2 WAS STATIONARY AT TESTOS ROUNDABOUT AND BEGAN TO MOVE FORWARD HOWEVER THE VEHICLE INFRONT STOPPED SO VEHICLE 2 STOPPED THEN VEHICLE 1 COLLIDED WITH THE REAR OF VEHICLE 2. DUE TO THE ROAD BEING BUSY VEHICLES WERE UNABLE TO STOP AT THE SCENE SO DETAILS NOT EXCHANGED

Moderately Serious Accident

Involving 2 Vehicle, 1 Casualty

1005884

Location	Sunderland 434689E, 558747N	Date/Time	Monday 01 June 2020 06:30
Road	Single Carriageway 30	Junction	T or staggered junction Give way or uncontrolled
Conditions	Daylight - Street Lights Present Fine without high winds Dry None None None within 50 metres No physical crossing facility within 50 metres	Contributory	

Vehicle 1

Driver	Male, 47 Not applicable Postcode: SR5 3TL Commuting to/from work	Vehicle	Car No tow or articulation
Collisions	Hit no other vehicle Front None None	Location	On main carriageway - not in restricted lane Entering main road
		Movement	Vehicle moving from West to South No skidding, jack-knifing or overturning Did not leave carriageway

Vehicle 2

Driver	Male, 50 Not applicable Postcode: Commuting to/from work	Vehicle	Pedal Cycle No tow or articulation
Collisions	Hit no other vehicle Front None None	Location	On main carriageway - not in restricted lane Entering main road
		Movement	Vehicle moving from North to South No skidding, jack-knifing or overturning Did not leave carriageway

Casualty 1 - Serious

Driver or rider		Not a car passenger
Male	50	Not a bus or coach passenger

***Description
of Location***

FERRYBOAT LANE NEAR JUNCTION WITH CAITHNESS ROAD

***Description
of Accident***

V1 AT JUNCTION OF CAITHNESS ROAD WAITING TO MOVE OUT ONTO FERRYBOAT LANE. TURNS LEFT ONTO FERRYBOAT LANE FAILING TO SEE CYCLIST. CYCLIST COLLIDES WITH OFFSIDE OF V1.

Slight Accident

Involving 2 Vehicle, 1 Casualty

1014844

Location	Sunderland A 1290 431958E, 557675N	Date/Time	Monday 18 January 2021 06:30
Road	Single Carriageway 30	Junction	Not at or within 20 metres of junction
Conditions	Darkness - Street Lights present and lit Fine without high winds Wet/Damp None None None within 50 metres No physical crossing facility within 50 metres	Contributory	

Vehicle 1

Driver	Not traced, Not applicable Postcode: Not known	Vehicle	Car No tow or articulation
Collisions	Hit no other vehicle Did not impact None None	Location	On main carriageway - not in restricted lane Not at, or within 20 metres of junction
		Movement	Vehicle moving from to No skidding, jack-knifing or overturning Did not leave carriageway

Vehicle 2

Driver	Male, 50 Not applicable Postcode: Commuting to/from work	Vehicle	Pedal Cycle No tow or articulation
Collisions	Hit no other vehicle Back None None	Location	On main carriageway - not in restricted lane Not at, or within 20 metres of junction
		Movement	Vehicle moving from to No skidding, jack-knifing or overturning Did not leave carriageway

Casualty 1 - Slight

Driver or rider		Not a car passenger
Male	50	Not a bus or coach passenger

***Description
of Location***

GLOVER ROAD (A1290) - 39 METRES FROM JUNCTION WITH WASHINGTON ROAD (A1290)

***Description
of Accident***

V2 (PEDAL CYCLE) WAS CYCLING ALONG GLOVER WAY TOWARDS THE FIRE STATION WHEN HE WAS IMPACTED FROM BEHIND BY V1 CAUSING HIM TO FALL OFF HIS CYCLE SUSTAINING MINOR INJURIES. V1 FAILED TO STOP AND FURNISH DETAILS

Slight Accident

Involving 2 Vehicle, 2 Casualties

1015070

Location	Sunderland A 19 434629E, 557207N	Date/Time	Monday 18 January 2021 14:36
Road	Slip Road 70	Junction	Not at or within 20 metres of junction
Conditions	Daylight - Street Lights Present Fine without high winds Dry None None None within 50 metres No physical crossing facility within 50 metres	Contributory	Careless, reckless or in a hurry (A) Exceeding speed limit (B) Poor turn or manoeuvre (B)

Vehicle 1

Driver Male, 58
Negative
Postcode: SR5 3PR
Other

Collisions Hit no other vehicle
Front
None
None

Vehicle Car
No tow or articulation

Location On main carriageway - not in restricted lane
Not at, or within 20 metres of junction

Movement Vehicle moving from South to North
Changing lane to right
No skidding, jack-knifing or overturning
Did not leave carriageway

Casualty 2 - Slight

Driver or rider
Male 58
SR5 3PR

Not a car passenger
Not a bus or coach passenger

Vehicle 2

Driver Male, 33
Negative
Postcode: SR5 4NU
Not known

Collisions Hit no other vehicle
Nearside
None
None

Vehicle Car
No tow or articulation

Location On main carriageway - not in restricted lane
Not at, or within 20 metres of junction

Movement Vehicle moving from South to North
Waiting to go ahead but held up
No skidding, jack-knifing or overturning
Did not leave carriageway

Casualty 1 - Slight

Driver or rider
Male 33
SR5 4NU

Not a car passenger
Not a bus or coach passenger

***Description
of Location***

SUNDERLAND HIGHWAY (A19) - 65 METRES FROM JUNCTION WITH A19

***Description
of Accident***

VEHICLE 2 IS STATIONARY AT THE TRAFFIC LIGHTS ON THE OFFSLIP FROM THE A19 TO THE A1231, NORTHBOUND. VEHICLE 1 WAS TRAVELLING NORTHBOUND ON THE A19 AND TAKES THE OFFSLIP TO THE A1231. FOR REASONS TO BE ESTABLISHED, VEHICLE 1 COLLIDES WITH THE REAR OF V2.

Slight Accident

Involving 2 Vehicle, 2 Casualties

1021224

Location	Sunderland A 1290 432521E, 558202N	Date/Time	Monday 08 February 2021 12:20
Road	Single Carriageway 30	Junction	Not at or within 20 metres of junction
Conditions	Daylight - Street Lights Present Snowing without high winds Snow None None None within 50 metres Zebra Crossing	Contributory	

Vehicle 1

Driver Male, 20
Driver not contacted at time of accident
Postcode: NE38 7DG
Not known

Vehicle Car
No tow or articulation

Location On main carriageway - not in restricted lane
Not at, or within 20 metres of junction

Collisions Hit no other vehicle
Front
None
None

Movement Vehicle moving from East to West
Going ahead other
Skidded
Did not leave carriageway

Casualty 1 - Slight

Driver or rider
Male 20
NE38 7DG

Not a car passenger
Not a bus or coach passenger

Casualty 2 - Slight

Vehicle or pillion passenger
Female 19

Not a car passenger
Not a bus or coach passenger

Vehicle 2

Driver Female, 60
Not applicable
Postcode:
Not known

Vehicle Car
No tow or articulation

Location On main carriageway - not in restricted lane
Not at, or within 20 metres of junction

Collisions Hit no other vehicle
Back
None
None

Movement Vehicle moving from East to West
Waiting to go ahead but held up
No skidding, jack-knifing or overturning
Did not leave carriageway

***Description
of Location***

WASHINGTON ROAD (A1290) - 100 METRES FROM JUNCTION WITH BARMSTON LANE

***Description
of Accident***

V1 WAS TRAVELLING BEHIND V2. V2 BRAKED SHARPLY AT PED CROSSING..V1 APPLIED BRAKES SHARPLY BUT SKIDDED IN ICY CONDITIONS AND HIT REAR V2. BOTH DRIVERS STOPPED AT SCENE AND SPOKE FROM DETAILS KNOWN V1 TO BLAME GIVEN CIRCUMSTANCES

Slight Accident

Involving 2 Vehicle, 1 Casualty

1031115

Location	South Tyneside A 184 434024E, 560936N	Date/Time	Friday 26 March 2021 08:44
Road	Single Carriageway 30	Junction	Not at or within 20 metres of junction
Conditions	Daylight - Street Lights Present Fine without high winds Dry Roadworks None None within 50 metres No physical crossing facility within 50 metres	Contributory	

Vehicle 1

Driver	Male, 16 Not applicable Postcode: Not known	Vehicle	Car No tow or articulation
Collisions	Hit no other vehicle Back None None	Location	On main carriageway - not in restricted lane Not at, or within 20 metres of junction
		Movement	Vehicle moving from North East to North West Moving off No skidding, jack-knifing or overturning Did not leave carriageway

Vehicle 2

Driver	Male, 42 Not applicable Postcode: NE34 9EW Not known	Vehicle	Motorcycle over 500cc No tow or articulation
Collisions	Hit no other vehicle Front None None	Location	On main carriageway - not in restricted lane Not at, or within 20 metres of junction
		Movement	Vehicle moving from North East to North West Moving off No skidding, jack-knifing or overturning Left carriageway straight ahead at junction

Casualty 1 - Slight

Driver or rider		Not a car passenger
Male	42	Not a bus or coach passenger
NE34 9EW		

***Description
of Location***

NEWCASTLE ROAD (A184)

***Description
of Accident***

HIT AND RUN STS THAT WHILST ON HIS MOTORBIKE A CAR JUMPED INFRONT OF HIM, CALLER WENT INTO THE BACK OF HIM AND CALLER FELL OF HIS MOTORBIKE NO INJURY, THE OTHER VEH DROVE OFF AFTER SPEAKING TO HIM. NO OTHER VEH DETAILS.

Moderately Serious Accident

Involving 2 Vehicle, 4 Casualties

1031847

Location Sunderland
A 195
431346E, 557533N

Date/Time Tuesday
30 March 2021
22:15

Road Roundabout
60

Junction Roundabout
Give way or uncontrolled
A 1290

Conditions Darkness - Street Lights present and lit
Fine without high winds
Dry
None
None

None within 50 metres
No physical crossing facility within 50 metres

Contributory
Failed to look properly (A)
Exceeding speed limit (B)

Vehicle 1

Driver Female, 23
Negative
Postcode: NE37 2EF
Other

Vehicle Car
No tow or articulation

Location On main carriageway - not in restricted lane
Entering roundabout

Collisions Hit no other vehicle
Front
None
None

Movement Vehicle moving from North East to West
Moving off
No skidding, jack-knifing or overturning
Did not leave carriageway

Casualty 1 - Serious

Driver or rider
Female 23
NE37 2EF

Not a car passenger
Not a bus or coach passenger

Vehicle 2

Driver Male, 21
Negative
Postcode: TS10 5DE
Other

Vehicle Car
No tow or articulation

Location On main carriageway - not in restricted lane
Entering roundabout

Collisions Hit no other vehicle
Front
None
Lamp Post

Movement Vehicle moving from North West to South
Going ahead other
Skidded
Left carriageway nearside

Casualty 2 - Slight

Vehicle or pillion passenger
Female 19
TS12 1QF

Front seat passenger
Not a bus or coach passenger

Casualty 3 - Slight

Vehicle or pillion passenger

Male 28

TS17 8GP

Rear seat passenger

Not a bus or coach passenger

Casualty 4 - Serious

Vehicle or pillion passenger

Male 25

TS10 4FH

Rear seat passenger

Not a bus or coach passenger

Description of Location

NORTHUMBERLAND WAY (A195) AT JUNCTION WITH GLOVER ROAD (A1290)

Description of Accident

V1 WAS TRAVELLING WESTBOUND ON THE A1290 GLOVER ROAD, APPROACHING ROUNDABOUT WITH A195 NORTHUMBERLAND WAY. V2 WAS TRAVELLING SOUTHBOUND ON A195 NORTHUMBERLAND WAY, APPROACHING JUNCTION WITH A1290 TO THE NEARSIDE. AS V2 HAS ENTERED ROUNDABOUT, V1 HAS DROVE ONTO THE ROUNDABOUT, FAILING TO GIVE WAY TO ITS OFFSIDE CAUSING COLLISION.

Slight Accident

Involving 1 Vehicle, 1 Casualty

1033355

Location	South Tyneside A 184 433925E, 560924N	Date/Time	Friday 02 April 2021 17:30
Road	Dual Carriageway 30	Junction	Not at or within 20 metres of junction
Conditions	Daylight - Street Lights Present Fine without high winds None None None within 50 metres Central refuge - no other controls	Contributory	

Vehicle 1

Driver	Female, Not applicable Postcode: Not known	Vehicle	Car No tow or articulation
Collisions	Hit no other vehicle Did not impact None None	Location	On main carriageway - not in restricted lane Not at, or within 20 metres of junction
		Movement	Vehicle moving from to No skidding, jack-knifing or overturning Did not leave carriageway

Casualty 1 - Slight

Pedestrian	In carriageway, crossing on pedestrian crossing facility
Male	In carriageway, stationary - not crossing (standing or playing), masked by parked or stationary vehicle

Description of Location NEWCASTLE ROAD (A184) - 65 METRES FROM JUNCTION WITH NEWCASTLE ROAD (A19)

Description of Accident THE DRIVER OF VEH 2 HAD ALIGHTED HIS VEHICLE AN AMBULANCE AFTER HE BELIEVED THE DRIVER OF VEH 1 HAD AN ILL PASSENGER. THE AMBULANCE WAS ON A BLUE LIGHT RUN TO A HIGH PRIORITY JOB. THE OFFENDING VEHICLE - VEH 1 HAD BEEN FOLOWING HIM CLOSELY WHILST ON THE A184 .ON EXITING THE VEHICLE THE DRIVER OF VEH 1 DROVE OFF HITTING THE AMBULANCE DRIVER - DRIVER OF VEH 1 WHILST HE WAS STATIONARY IN THE ROAD.

Slight Accident

Involving 1 Vehicle, 1 Casualty

1037989

Location	Sunderland A 19 434620E, 557219N	Date/Time	Wednesday 21 April 2021 13:45
Road	Slip Road 70	Junction	Not at or within 20 metres of junction
Conditions	Daylight - Street Lights Present Fine without high winds Dry None None None within 50 metres No physical crossing facility within 50 metres	Contributory	Disability or illness, mental or physical (A)

Vehicle 1

Driver	Male, 87 Not provided (medical reasons) Postcode: DH3 2JQ Not known	Vehicle	Car No tow or articulation
Collisions	Hit no other vehicle Front Bollard/Refuge None	Location	On main carriageway - not in restricted lane Not at, or within 20 metres of junction
		Movement	Vehicle moving from South to North Going ahead other No skidding, jack-knifing or overturning Did not leave carriageway

Casualty 2 - Slight

Vehicle or pillion passenger	Front seat passenger
Female 85	Not a bus or coach passenger
DH3 2JQ	

Description of Location SUNDERLAND HIGHWAY (A19) - 80 METRES FROM JUNCTION WITH A19

Description of Accident V1 TRAVELLING NORTH ON A19, V1 TAKES THE OFF SLIP TOWARDS THE A1231. FOR REASONS UNKNOWN AT THIS TIME DRIVER OF V1 COLLIDES WITH TRAFFIC SIGNALS AND STOPS, BELIEVED TO BE A MEDICAL EPISODE.

Slight Accident

Involving 2 Vehicle, 1 Casualty

1055283

Location South Tyneside
A 19
433832E, 561005N

Date/Time Friday
11 June 2021
18:45

Road Dual Carriageway
50

Junction Not at or within 20 metres of junction

Conditions Daylight - Street Lights Present
Fine without high winds
Dry
Roadworks
None

None within 50 metres
No physical crossing facility within 50 metres

Contributory

Vehicle 1

Driver Male,
Not applicable
Postcode:
Not known

Vehicle Goods vehicle 3.5 tonnes maximum gross weight (mgw) and under
No tow or articulation

Location On main carriageway - not in restricted lane
Not at, or within 20 metres of junction

Collisions Hit no other vehicle

Front
None
None

Movement Vehicle moving from North to South
Going ahead other
No skidding, jack-knifing or overturning
Did not leave carriageway

Vehicle 2

Driver Female, 35
Driver not contacted at time of accident
Postcode: NE4 7ER
Other

Vehicle Car
No tow or articulation

Location On main carriageway - not in restricted lane
Not at, or within 20 metres of junction

Collisions Hit no other vehicle

Back
None
None

Movement Vehicle moving from North to South
Going ahead left hand bend
No skidding, jack-knifing or overturning
Did not leave carriageway

Casualty 1 - Slight

Driver or rider
Female 35
NE4 7ER

Not a car passenger
Not a bus or coach passenger

***Description
of Location***

A19 - 33 METRES FROM JUNCTION WITH NEWCASTLE ROAD (A19)

***Description
of Accident***

DRIVER OF VEH 2 WAITING AT TRAFFIC LIGHTS AT TESTOS ROUNDABOUT HEADING SOUTH. IN THE CORNER OF HER EYE SHE HAS SEEN VAN COMING AT SPEED AT IT HAS COLLIDED WITH HER REAR OF CAR. IN VEH 1 THERE WERE 3 MALES, THEY TOLD HER TO GO TO ASDA SO THEY COULD FIX IT. IP REFUSED AND THEY REFUSED TO GIVE DETAILS BUT IP MANAGER TO GET A PHOTO OF REG. VEH 1 SHOWING NO INSURANCE.

Moderately Serious Accident

Involving 2 Vehicle, 1 Casualty

1065848

Location	Sunderland A 1231 434595E, 557341N	Date/Time	Tuesday 13 July 2021 16:08
Road	Roundabout 40	Junction	Roundabout Automatic traffic signal A 19
Conditions	Daylight - Street Lights Present Fine without high winds Dry None None None within 50 metres No physical crossing facility within 50 metres	Contributory	Poor turn or manoeuvre (A)

Vehicle 1

Driver Male, 37
Negative
Postcode: DH4 4SU
Not known

Collisions Hit no other vehicle
Nearside
None
None

Vehicle Motorcycle over 500cc
No tow or articulation

Location On main carriageway - not in restricted lane
Mid junction - on roundabout or on main road

Movement Vehicle moving from West to East
Changing lane to left
No skidding, jack-knifing or overturning
Did not leave carriageway

Casualty 1 - Serious

Driver or rider
Male 37
DH4 4SU

Not a car passenger
Not a bus or coach passenger

Vehicle 2

Driver Male, 61
Negative
Postcode: DH4 7PA
Journey as part of work

Collisions Hit no other vehicle
Offside
None
None

Vehicle Goods vehicle 3.5 tonnes maximum gross weight (mgw) and under
No tow or articulation

Location On main carriageway - not in restricted lane
Mid junction - on roundabout or on main road

Movement Vehicle moving from West to East
Going ahead other
No skidding, jack-knifing or overturning
Did not leave carriageway

***Description
of Location***

A1231 - 25 METRES FROM JUNCTION WITH A19

***Description
of Accident***

VEHICLE 2 NEGOTIATES RAB IN LANE 1 OF 3 TRAVELLING AHEAD AS PERMITTED BY LANE MARKINGS. VEHICLE 1 INTENDS TO TAKE FIRST EXIT HOWEVER PROCEEDS IN LANE 2 CONTRARY TO LANE MARKINGS AND COLLIDES WITH OFFSIDE OF VEHICLE 2.

Moderately Serious Accident

Involving 2 Vehicle, 1 Casualty

1109831

Location	Sunderland A 195 431333E, 557547N	Date/Time	Saturday 13 November 2021 05:40
Road	Roundabout 60	Junction	Roundabout Give way or uncontrolled A 1290
Conditions	Darkness - Street Lights present and lit Fine without high winds Wet/Damp None None None within 50 metres Central refuge - no other controls	Contributory	

Vehicle 1

Driver	Male, 50 Negative Postcode: Journey as part of work	Vehicle	Car No tow or articulation
Collisions	Hit no other vehicle Front None None	Location	On main carriageway - not in restricted lane Mid junction - on roundabout or on main road
		Movement	Vehicle moving from North to South Going ahead other No skidding, jack-knifing or overturning Did not leave carriageway

Vehicle 2

Driver	Male, 29 Not applicable Postcode: NE32 4SZ Other	Vehicle	Pedal Cycle No tow or articulation
Collisions	Hit no other vehicle Nearside None None	Location	On main carriageway - not in restricted lane Mid junction - on roundabout or on main road
		Movement	Vehicle moving from West to East Going ahead other Skidded and overturned Did not leave carriageway

Casualty 1 - Serious

Driver or rider		Not a car passenger
Male	29	Not a bus or coach passenger
NE32 4SZ		

***Description
of Location***

NORTHUMBERLAND WAY (A195) NEAR JUNCTION WITH GLOVER ROAD (A1290)

***Description
of Accident***

APPARENTLY TAXI WAS TRAVELLING SOUTH ON A195 AND ENTERED ROUNDABOUT JUNCTION WITH GLOVER ROAD, FAILING TO SEE CYCLIST TRAVELLING WEST TO EAST ACROSS THE JUNCTION AND COLLIDING WITH HIM CAUSING SERIOUS INJURY

Slight Accident

Involving 2 Vehicle, 1 Casualty

1132201

Location	Sunderland 434686E, 558752N	Date/Time	Friday 14 January 2022 15:15
Road	Single Carriageway 30	Junction	T or staggered junction Give way or uncontrolled
Conditions	Daylight - Street Lights Present Fine without high winds Dry None None None within 50 metres No physical crossing facility within 50 metres	Contributory	

Vehicle 1

Driver	Female, 52 Negative Postcode: Other	Vehicle	Car No tow or articulation
Collisions	Hit no other vehicle Front None None	Location	On main carriageway - not in restricted lane Approaching junction or waiting/parked at junction exit
		Movement	Vehicle moving from South to North Going ahead other No skidding, jack-knifing or overturning Did not leave carriageway

Casualty 1 - Slight

Driver or rider	Not a car passenger
Female 52	Not a bus or coach passenger

Vehicle 2

Driver	Male, 32 Negative Postcode: SR5 1DR Other	Vehicle	Car No tow or articulation
Collisions	Hit no other vehicle Back None None	Location	On main carriageway - not in restricted lane Approaching junction or waiting/parked at junction exit
		Movement	Vehicle moving from South to East Waiting to turn right No skidding, jack-knifing or overturning Did not leave carriageway

***Description
of Location***

FERRYBOAT LANE AT JUNCTION WITH CAITHNESS ROAD

***Description
of Accident***

V1 WAS TRAVELLING IN A NORTHERLY DIRECTION, V2 WAS WAITING TO TURN RIGHT INTO THE JUNCTION AT WHICH POINT V1 HAS COLLIDED WITH THE REAR OF V2, THIS HAS RESULTED IN MINOR INJURY TO THE DRIVER OF V1.

Slight Accident

Involving 2 Vehicle, 1 Casualty

1157128

Location	Sunderland 434522E, 559094N	Date/Time	Wednesday 23 March 2022 17:30
Road	Unknown 70	Junction	Not at or within 20 metres of junction
Conditions	Daylight - Street Lights Present Fine without high winds Dry None None None within 50 metres No physical crossing facility within 50 metres	Contributory	

Vehicle 1

Driver	Not traced, Driver not contacted at time of accident Postcode: Not known	Vehicle	Motorcycle - Unknown cc No tow or articulation
Collisions	Hit no other vehicle Offside None None	Location	Cycleway or shared use footway (not part of main carriageway) Not at, or within 20 metres of junction
		Movement	Vehicle moving from North East to South West Going ahead other No skidding, jack-knifing or overturning Did not leave carriageway

Vehicle 2

Driver	Male, 37 Not applicable Postcode: SR2 7RJ Commuting to/from work	Vehicle	Pedal Cycle No tow or articulation
Collisions	Hit no other vehicle Offside None None	Location	Cycleway or shared use footway (not part of main carriageway) Not at, or within 20 metres of junction
		Movement	Vehicle moving from South West to North East Going ahead other No skidding, jack-knifing or overturning Did not leave carriageway

Casualty 1 - Slight

Driver or rider		Not a car passenger
Male	37	Not a bus or coach passenger
SR2 7RJ		

***Description
of Location***

A19 FOOTBRIDGE

***Description
of Accident***

RIDER OF V2 WAS RIDING HIS PEDAL CYCLE ACROSS THE FOOTBRIDGE OVER THE A19 WHEN UNKNOWN V1 (MOTORCYCLE) WITH RIDER AND PILLION PASSENGER WAS TRAVELLING TOWARDS HIM AND COLLIDED WITH THE RIDER OF V2. THIS CAUSED A MINOR INJURY TO THE RIDER OF V2'S RIGHT ARM. RIDER OF V1 FAILED TO STOP AFTER RTC.

Moderately Serious Accident

Involving 1 Vehicle, 1 Casualty

1157136

Location	Sunderland A 19 434676E, 557157N	Date/Time	Thursday 24 March 2022 04:20
Road	Dual Carriageway 70	Junction	Not at or within 20 metres of junction
Conditions	Darkness - No Street Lighting Fine without high winds Dry None None None within 50 metres No physical crossing facility within 50 metres	Contributory	Impaired by alcohol (A)

Vehicle 1

Driver	Female, 22 Positive Postcode: SR2 9QZ Other	Vehicle	Car No tow or articulation
Collisions	Hit no other vehicle Front None Tree	Location	On main carriageway - not in restricted lane Not at, or within 20 metres of junction
		Movement	Vehicle moving from South to North Going ahead other Overturned Left carriageway nearside and rebounded

Casualty 1 - Serious

Driver or rider		Not a car passenger
Female	22	Not a bus or coach passenger
SR2 9QZ		

**Description
of Location**

A19

**Description
of Accident**

VEH 1 TRAVELLING NORTH BOUND, WHEN THE VEHICLE HAS LEFT THE ROAD, DRIVING UP THE EMBANKMENT AND ROLLING BANK ONTO THE MAIN CARRIAGEWAY

Slight Accident

Involving 2 Vehicle, 1 Casualty

1164056

Location	Sunderland A 19 434720E, 557055N	Date/Time	Friday 08 April 2022 08:30
Road	Dual Carriageway 70	Junction	Not at or within 20 metres of junction
Conditions	Daylight - Street Lights Present Fine without high winds Dry None None None within 50 metres No physical crossing facility within 50 metres	Contributory	Failed to judge other person's path or speed (A) Failed to look properly (A)

Vehicle 1

Driver Male, 40
Negative
Postcode: NE24 1DL
Commuting to/from work

Collisions Hit no other vehicle
Front
None
None

Vehicle Car
No tow or articulation

Location On main carriageway - not in restricted lane
Not at, or within 20 metres of junction

Movement Vehicle moving from South to South
Changing lane to right
No skidding, jack-knifing or overturning
Did not leave carriageway

Casualty 1 - Slight

Driver or rider
Male 40
NE24 1DL

Not a car passenger
Not a bus or coach passenger

Vehicle 2

Driver Female, 30
Negative
Postcode: NE15 7JY
Commuting to/from work

Collisions Hit no other vehicle
Back
Bollard/Refuge
None

Vehicle Car
No tow or articulation

Location On main carriageway - not in restricted lane
Not at, or within 20 metres of junction

Movement Vehicle moving from South to South
Going ahead other
Skidded
Left carriageway offside onto central reservation and rebounded

***Description
of Location***

A19, SUNDERLAND

***Description
of Accident***

V2 HEADED DOWN THE ONSLIP FROM THE A1231 ONTO THE A19(S), AND PROCEEDED OVER INTO LANE 3. V1 HAS MOVED FROM LANE 2 OF THE A19(S) INTO LANE 3, AND WHILST DOING SO COLLIDED WITH THE REAR OF V2 CAUSING COLLISION.

Slight Accident

Involving 2 Vehicle, 2 Casualties

1182059

Location	South Tyneside A 184 433730E, 560967N	Date/Time	Wednesday 25 May 2022 22:10
Road	Dual Carriageway 70	Junction	Not at or within 20 metres of junction
Conditions	Darkness - Street Lights present and lit Unknown Dry Roadworks None None within 50 metres Pelican, puffin, toucan or similar non-junction pedestrian light c	Contributory	

Vehicle 1

Driver Female, 30
Driver not contacted at time of accident
Postcode: SR2 7HN
Not known

Vehicle Car
No tow or articulation
Location On main carriageway - not in restricted lane
Not at, or within 20 metres of junction

Collisions Hit no other vehicle
Front
None
None

Movement Vehicle moving from West to East
Slowing or stopping
No skidding, jack-knifing or overturning
Did not leave carriageway

Vehicle 2

Driver Female, 35
Driver not contacted at time of accident
Postcode: OX12 8FF
Not known

Vehicle Car
No tow or articulation
Location On main carriageway - not in restricted lane
Not at, or within 20 metres of junction

Collisions Hit no other vehicle
Back
None
None

Movement Vehicle moving from West to East
Waiting to go ahead but held up
No skidding, jack-knifing or overturning
Did not leave carriageway

Casualty 1 - Slight

Vehicle or pillion passenger
Male 39
OX12 8FF

Front seat passenger
Not a bus or coach passenger

Casualty 2 - Slight

Driver or rider

Not a car passenger

Female 35

Not a bus or coach passenger

OX12 8FF

Description of Location

NEWCASTLE ROAD (A184) - 36 METRES FROM JUNCTION WITH NEWCASTLE ROAD (A19), WEST BOLDON, SOUTH TYNESIDE

Description of Accident

V2 WAS STATIONARY AT THE TRAFFIC LIGHTS ON THE A184 ROUNDABOUT WITH THE A19, WHEN V1 COLLIDES WITH THE REAR OF V2, CAUSING INJURY TO THE DRIVER AND PASSENGER OF V2, AND DAMAGE TO V2. DETAILS BETWEEN PARTIES WERE EXCHANGED AT SCENE.

Slight Accident

Involving 4 Vehicle, 1 Casualty

1187211

Location Sunderland
A 1290
431682E, 557566N

Date/Time Monday
13 June 2022
16:22

Road Single Carriageway
30

Junction T or staggered junction
Give way or uncontrolled

Conditions Daylight - Street Lights Present
Fine without high winds
Dry
None
None

None within 50 metres
No physical crossing facility within 50 metres

Contributory

Vehicle 1

Driver Female, 22
Not applicable
Postcode: NE31 1SQ
Other

Vehicle Motorcycle over 50cc and up to 125cc
No tow or articulation

Location On main carriageway - not in restricted lane
Approaching junction or waiting/parked at junction exit

Collisions Hit no other vehicle
Front
None
None

Movement Vehicle moving from East to West
Going ahead other
No skidding, jack-knifing or overturning
Did not leave carriageway

Casualty 1 - Slight

Driver or rider
Female 22
NE31 1SQ

Not a car passenger
Not a bus or coach passenger

Vehicle 2

Driver Female, 60
Not applicable
Postcode: NE37 1HW
Other

Vehicle Car
No tow or articulation

Location On main carriageway - not in restricted lane
Approaching junction or waiting/parked at junction exit

Collisions Hit no other vehicle
Back
None
None

Movement Vehicle moving from East to North
Waiting to turn right
No skidding, jack-knifing or overturning
Did not leave carriageway

Vehicle 3

Driver Male,
Not applicable
Postcode:
Other

Collisions Hit no other vehicle
Did not impact
None
None

Vehicle Car
No tow or articulation
Location On main carriageway - not in restricted lane
Approaching junction or waiting/parked at junction exit

Movement Vehicle moving from East to West
Going ahead other
No skidding, jack-knifing or overturning
Did not leave carriageway

Vehicle 4

Driver Male,
Not applicable
Postcode:
Journey as part of work

Collisions Hit no other vehicle
Did not impact
None
None

Vehicle Car
No tow or articulation
Location On main carriageway - not in restricted lane
Approaching junction or waiting/parked at junction exit

Movement Vehicle moving from North to East
Waiting to turn left
No skidding, jack-knifing or overturning
Did not leave carriageway

Description of Location GLOVER ROAD (A1290) AT JUNCTION WITH EDGE COTE, SULGRAVE, WASHINGTON, SUNDERLAND

Description of Accident V1 TRAVELING WEST ON THE A1290 GLOVER ROAD FOLLOWING V2 FOR REASONS TO BE ESTABLISHED COLIDES WITH THE REAR OF V2 V3 FOLLOWING V1 V4 STATIONARY AT JUNCTION WAITING TO JOIN THE A1290

Moderately Serious Accident

Involving 2 Vehicle, 1 Casualty

1186357

Location	South Tyneside A 19 433974E, 560194N	Date/Time	Friday 10 June 2022 12:15
Road	Dual Carriageway 70	Junction	Not at or within 20 metres of junction
Conditions	Daylight - Street Lights Present Fine without high winds Dry None None None within 50 metres No physical crossing facility within 50 metres	Contributory	Sudden braking (A)

Vehicle 1

Driver	Female, 54 Negative Postcode: NE61 5AE Journey as part of work	Vehicle	Car No tow or articulation
Collisions	Hit no other vehicle Back None None	Location	On main carriageway - not in restricted lane Not at, or within 20 metres of junction
		Movement	Vehicle moving from North to North Slowing or stopping No skidding, jack-knifing or overturning Did not leave carriageway

Casualty 1 - Serious

Driver or rider	Not a car passenger
Female 54	Not a bus or coach passenger
NE61 5AE	

Vehicle 2

Driver	Male, 27 Negative Postcode: NE24 4JA Journey as part of work	Vehicle	Goods Vehicle - Unknown Weight Articulated Vehicle
Collisions	Hit no other vehicle Front None None	Location	On main carriageway - not in restricted lane Not at, or within 20 metres of junction
		Movement	Vehicle moving from North to North Slowing or stopping No skidding, jack-knifing or overturning Did not leave carriageway

***Description
of Location***

A19, WEST BOLDON, SOUTH TYNESIDE

***Description
of Accident***

V1 TRAVELLING NORTH ON A19 IN LANE 1 V2 TRAVELLING BEHIND ALSO IN LANE 1 FOR REASONS YET TO BE ESTABLISHED V1 BRAKES AND SLOWS FROM 50 MPH TO AROUND 35 MPH. HAZARD WARNING LIGHTS ACTIVATE V2 BRAKES AND BEGINS TO SLOW V1 BEGINS TO INCREASE SPEED AND MOVE OVER WHEN FOR REASONS YET TO BE ESTABLISHED THE VEHICLE STOPS IN LANE 1 A LIVE RUNNING LANE V2 BEGINS TO BRAKE AND SUBSEQUENTLY COLLIDES WITH THE REAR OF V1.

Slight Accident

Involving 2 Vehicle, 2 Casualties

1190008

Location	South Tyneside A 184 434012E, 560941N	Date/Time	Tuesday 21 June 2022 08:09
Road	Single Carriageway 40	Junction	Not at or within 20 metres of junction
Conditions	Daylight - Street Lights Present Fine without high winds Dry None None None within 50 metres No physical crossing facility within 50 metres	Contributory	Poor turn or manoeuvre (A) Failed to look properly (A) Loss of Control (B) Impaired by drugs (illicit or medicinal) (B) Fatigue (B) Careless, reckless or in a hurry (A)

Vehicle 1

Driver	Male, 33 Negative Postcode: NE32 4DS Other	Vehicle	Car No tow or articulation
Collisions	Hit no other vehicle Front None None	Location	On main carriageway - not in restricted lane Not at, or within 20 metres of junction
		Movement	Vehicle moving from East to West Going ahead other No skidding, jack-knifing or overturning Did not leave carriageway

Casualty 2 - Slight

Driver or rider		Not a car passenger
Male	33	Not a bus or coach passenger
NE32 4DS		

Vehicle 2

Driver	Female, 38 Negative Postcode: SR3 3JP Commuting to/from work	Vehicle	Car No tow or articulation
Collisions	Hit no other vehicle Front None None	Location	On main carriageway - not in restricted lane Not at, or within 20 metres of junction
		Movement	Vehicle moving from West to East Going ahead other No skidding, jack-knifing or overturning Did not leave carriageway

Casualty 1 - Slight

Driver or rider		Not a car passenger
Female	38	Not a bus or coach passenger
SR3 3JP		

***Description
of Location***

NEWCASTLE ROAD (A184), WEST BOLDON, SOUTH TYNESIDE

***Description
of Accident***

VEH 1 HAS BEEN TRAVELLING WESTBOUND TOWARDS A19 VEH 2 HAS BEEN TRAVELLING EASTBOUND TOWARDS BOLDON
VEH 1 HAS BEEN SEEN TO DRIFT INTO THE ONCOMING LANE BY NUMEROUS WITNESSES AND THE DRIVER OF VEH 1 VEH 1 HAS
MADE EFFORTS TO STOP AND VEH 2 HAS DRIVEN OVER THE WHITE LINE INTO ONCOMING TRAFFIC AND COLLIDED HEAD ON
WITH VEH 2 PUSHING VEH 2 BACK AND UP ONTO THE KERB.

Slight Accident

Involving 2 Vehicle, 1 Casualty

1195829

Location Sunderland
A 1290
431976E, 557731N

Date/Time Wednesday
06 July 2022
16:06

Road Single Carriageway
30

Junction Roundabout
Give way or uncontrolled

Conditions Daylight - Street Lights Present
Fine without high winds
Dry
None
None

None within 50 metres
Central refuge - no other controls

Contributory
Failed to look properly (A)
Careless, reckless or in a hurry (A)

Vehicle 1

Driver Male, 36
Negative
Postcode:
Not known

Vehicle Car
No tow or articulation

Location On main carriageway - not in restricted lane
Leaving roundabout

Collisions Hit no other vehicle
Front
None
None

Movement Vehicle moving from North to South
Slowing or stopping
No skidding, jack-knifing or overturning
Did not leave carriageway

Vehicle 2

Driver Male, 15
Not applicable
Postcode: NE34 9HL
Not known

Vehicle Pedal Cycle
No tow or articulation

Location Footway (pavement)
Approaching junction or waiting/parked at junction exit

Collisions Hit no other vehicle
Front
None
None

Movement Vehicle moving from East to West
Going ahead other
No skidding, jack-knifing or overturning
Did not leave carriageway

Casualty 1 - Slight

Driver or rider
Male 15
NE34 9HL

Not a car passenger
Not a bus or coach passenger

***Description
of Location***

WASHINGTON ROAD (A1290), USWORTH, SUNDERLAND

***Description
of Accident***

V2 TRAVELLING WEST AT SPEED ON PEDAL CYCLE ALONG PEDESTRIAN PATH ALONG A1290 IN WASHINGTON TOWARDS THE JUNCTION JOINING THE A1290, SULGRAVE ROAD AND GLOVER ROAD. V1 IS TRAVELLING SOUTH ON SULGRAVE ROAD IN WASHINGTON TOWARDS THE JUNCTION AT SULGRAVE ROAD, A1290 AND GLOVER ROAD. AS V2 APPROACHES THE JUNCTION THEY DO NOT CHECK TO SEE IF SULGRAVE ROAD IS CLEAR OF ANY VEHICLES AND ATTEMPTS TO CUT ACROSS THE CENTRAL REFUGE THAT IS STATIONED ON THE JUNCTION FOR CROSSING PEDESTRIANS. V2 COLLIDES WITH DR

Slight Accident

Involving 3 Vehicle, 1 Casualty

1166522

Location	Sunderland A 195 431311E, 557587N	Date/Time	Wednesday 13 April 2022 16:30
Road	Single Carriageway 60	Junction	Not at or within 20 metres of junction
Conditions	Daylight - Street Lights Present Fine without high winds Dry None None None within 50 metres No physical crossing facility within 50 metres	Contributory	Sudden braking (B) Sudden braking (B) Failed to signal or misleading signal (B) Failed to judge other person's path or speed (A)

Vehicle 1

Driver	Female, Negative Postcode: SR8 5AB Other	Vehicle	Car No tow or articulation
Collisions	Hit no other vehicle Front None None	Location	On main carriageway - not in restricted lane Not at, or within 20 metres of junction
		Movement	Vehicle moving from South to North Going ahead other No skidding, jack-knifing or overturning Did not leave carriageway

Casualty 1 - Slight

Driver or rider	Not a car passenger
Female	Not a bus or coach passenger
SR8 5AB	

Vehicle 2

Driver	Female, 58 Negative Postcode: NE37 3EZ Commuting to/from work	Vehicle	Car No tow or articulation
Collisions	Hit no other vehicle Back None None	Location	On main carriageway - not in restricted lane Not at, or within 20 metres of junction
		Movement	Vehicle moving from South to North Slowing or stopping No skidding, jack-knifing or overturning Did not leave carriageway

Vehicle 3

Driver Female,
Not requested
Postcode: NE10 8UH
Commuting to/from work

Collisions Hit no other vehicle
Did not impact
None
None

Vehicle Car
No tow or articulation

Location On main carriageway - not in restricted lane
Not at, or within 20 metres of junction

Movement Vehicle moving from South to North
Parked
No skidding, jack-knifing or overturning
Did not leave carriageway

Description of Location NORTHUMBERLAND WAY (A195), BIDDICK, WASHINGTON, SUNDERLAND

Description of Accident THE WITNESS, DRIVER OF VEHICLE 3 WAS TRAVELING NORTH AND HAS INDICATED AND MOVED TO THE SIDE OF THE ROAD AND CAME TO A STOP. V2 SLOWED AND WAITED FOR ONCOMING TRAFFIC TO PASS TO ALLOWE THEM TO OVERTAKE THE STATIONARY VEHICLE. WHILE VEHICLE 2 WAS STATIONARY AND INDICATIONG TO OVERTAKE V3, V1 HAS COLLIDED INTO THE REAR OV V2

Slight Accident

Involving 1 Vehicle, 1 Casualty

1203728

Location	Sunderland A 1290 431963E, 557705N	Date/Time	Thursday 28 July 2022 15:00
Road	Roundabout 60	Junction	Roundabout Give way or uncontrolled A 1290
Conditions	Daylight - Street Lights Present Fine without high winds Dry None None None within 50 metres Central refuge - no other controls	Contributory	

Vehicle 1

Driver	Not traced, Driver not contacted at time of accident Postcode: Not known	Vehicle	Car No tow or articulation
Collisions	Hit no other vehicle Did not impact None None	Location	On main carriageway - not in restricted lane Entering roundabout
		Movement	Vehicle moving from to No skidding, jack-knifing or overturning Did not leave carriageway

Casualty 1 - Slight

Pedestrian	Unknown or other
Male 22	Crossing from driver's offside
NE37 2QB	

Description of Location GLOVER ROAD (A1290) NEAR JUNCTION WITH WASHINGTON ROAD (A1290), GLOVER, WASHINGTON, SUNDERLAND

Description of Accident PEDESTRIAN CROSSED ROAD NORTH TOWARDS MIDDLE ISLAND AT JUNCTION AT THE END OF A1290 AT THE ROUNDABOUT. BLACK SALOON TYPE CAR COLLIDES WITH PEDESTRIAN AND DRIVES OFF SOUTH ON GLOVER ROAD. PEDESTRIAN HITS OFF WING MIRROR AND FALLS BACK ONTO KERB.

Moderately Serious Accident

Involving 2 Vehicle, 1 Casualty

1224617

Location	Sunderland 434685E, 558754N	Date/Time	Tuesday 27 September 2022 15:48
Road	Single Carriageway 30	Junction	T or staggered junction Give way or uncontrolled
Conditions	Daylight - Street Lights Present Raining without high winds Wet/Damp None None None within 50 metres No physical crossing facility within 50 metres	Contributory	

Vehicle 1

Driver	Female, 31 Driver not contacted at time of accident Postcode: SR5 3QJ Other	Vehicle	Car No tow or articulation
Collisions	Hit no other vehicle Offside None None	Location	On main carriageway - not in restricted lane Leaving main road
		Movement	Vehicle moving from South to East Turning right No skidding, jack-knifing or overturning Did not leave carriageway

Vehicle 2

Driver	Male, 43 Not applicable Postcode: SR4 0BE Commuting to/from work	Vehicle	Pedal Cycle No tow or articulation
Collisions	Hit no other vehicle Front None None	Location	On main carriageway - not in restricted lane Mid junction - on roundabout or on main road
		Movement	Vehicle moving from North to South Going ahead other No skidding, jack-knifing or overturning Did not leave carriageway

Casualty 1 - Serious

Driver or rider		Not a car passenger
Male	43	Not a bus or coach passenger
SR4 0BE		

***Description
of Location***

FERRYBOAT LANE AT JUNCTION WITH CAITHNESS ROAD, CASTLETOWN, SUNDERLAND, SUNDERLAND

***Description
of Accident***

APPARENTLY ON 27TH SEPTEMBER 2022 15.15HRS V2 IS TRAVELLING SOUTH ON FERRYBOAT LANE, SUNDERLAND. AS V2 PASSES THE JUNCTION TO CAITHNESS DRIVER V1 FAILS TO SEE THE CYCLIST AND TURNS RIGHT ACROSS HIS PATH. RIDER V2 IS UNABLE TO AVOID A COLLISION WITH THE NEARSIDE FRONT PASSENGER DOOR AREA AND IS THROWN FROM HIS CYCLE. DRIVER V1 STOPS TO ASSIST RIDER V2 ALERTING EMERGENCY SERVICES.

Slight Accident

Involving 3 Vehicle, 1 Casualty

1228096

Location	South Tyneside A 19 433836E, 561011N	Date/Time	Thursday 06 October 2022 17:15
Road	Slip Road 30	Junction	Not at or within 20 metres of junction
Conditions	Daylight - Street Lights Present Raining without high winds Wet/Damp None None None within 50 metres No physical crossing facility within 50 metres	Contributory	

Vehicle 1

Driver	Male, Not requested Postcode: Not known	Vehicle	Goods vehicle 3.5 tonnes maximum gross weight (mgw) and under No tow or articulation
Collisions	Hit no other vehicle Front None None	Location	On main carriageway - not in restricted lane Not at, or within 20 metres of junction
		Movement	Vehicle moving from North to South Waiting to go ahead but held up No skidding, jack-knifing or overturning Did not leave carriageway

Vehicle 2

Driver	Male, 49 Not requested Postcode: TS6 7PE Commuting to/from work	Vehicle	Car No tow or articulation
Collisions	Hit no other vehicle Back None None	Location	On main carriageway - not in restricted lane Not at, or within 20 metres of junction
		Movement	Vehicle moving from North to South Waiting to go ahead but held up No skidding, jack-knifing or overturning Did not leave carriageway

Vehicle 3

Driver Male, 41
Not requested
Postcode: SR4 6JJ
Not known

Collisions Hit no other vehicle
Back
None
None

Vehicle Car
No tow or articulation

Location On main carriageway - not in restricted lane
Not at, or within 20 metres of junction

Movement Vehicle moving from North to South
Waiting to go ahead but held up
No skidding, jack-knifing or overturning
Did not leave carriageway

Casualty 1 - Slight

Driver or rider
Male 41
SR4 6JJ

Not a car passenger
Not a bus or coach passenger

Description of Location A19 - 38 METRES FROM JUNCTION WITH NEWCASTLE ROAD (A19), JARROW, SOUTH TYNESIDE

Description of Accident V1 COLLIDES INTO THE REAR OF V2 WHICH SUBSEQUENTLY SHUNTS FORWARD INTO V3 AND V4, V1 DRIVES OFF WITHOUT STOPPING AND PROVIDING DETAILS

Moderately Serious Accident

Involving 2 Vehicle, 2 Casualties

1220641

Location South Tyneside
A 19
434242E, 559697N

Date/Time Sunday
18 September 2022
18:45

Road Dual Carriageway
70

Junction Not at or within 20 metres of junction

Conditions Daylight - Street Lights Present
Fine without high winds
Dry
None
None

None within 50 metres
No physical crossing facility within 50 metres

Contributory
Failed to look properly (A)

Vehicle 1

Driver Female, 35
Negative
Postcode: S73 0NL

Other

Vehicle Car
No tow or articulation

Location On main carriageway - not in restricted lane
Not at, or within 20 metres of junction

Collisions Hit no other vehicle

Front
None
None

Movement Vehicle moving from South to North
Going ahead other
Skidded and overturned
Did not leave carriageway

Casualty 1 - Slight

Driver or rider
Female 35
S73 0NL

Not a car passenger
Not a bus or coach passenger

Vehicle 2

Driver Male, 23
Negative
Postcode: DH2 2FE

Journey as part of work

Vehicle Goods vehicle 3.5 tonnes maximum gross weight (mgw) and under
No tow or articulation

Location On main carriageway - not in restricted lane
Not at, or within 20 metres of junction

Collisions Hit no other vehicle

Back
None
None

Movement Vehicle moving from South to North
Parked
No skidding, jack-knifing or overturning
Did not leave carriageway

Casualty 2 - Serious

Driver or rider
Male 23
DH2 2FE

Not a car passenger
Not a bus or coach passenger

***Description
of Location***

A19, WEST BOLDON, SOUTH TYNESIDE

***Description
of Accident***

V2 (FORD TRANSIT) IS STATIONARY IN LANE 1 OF NORTHBOUND A19 DUAL CARRIAGEWAY AFTER SUFFERING TYRE PUNCTURE. V1 (NISSAN QASHQAI) IS TRAVELLING NORTHBOUND IN LANE 1 ON A19 AND COLLIDES INTO REAR OF STATIONARY V2 CAUSING V1 TO FLIP OVER AND LAND ON ITS ROOF IN LANE 2. THE COLLISION CAUSES INJURIES TO DRIVER OF V2 AND TO DRIVER AND PASSENGER OF V1.

Slight Accident

Involving 2 Vehicle, 1 Casualty

1235668

Location South Tyneside
A 19
433808E, 560858N

Date/Time Wednesday
26 October 2022
09:05

Road Roundabout
40

Junction Roundabout
Automatic traffic signal
A 19

Conditions Daylight - Street Lights Present
Fine without high winds
Dry
None
None

None within 50 metres
No physical crossing facility within 50 metres

Contributory

Vehicle 1

Driver Not traced,
Driver not contacted at time of accident
Postcode:
Not known

Vehicle Car
No tow or articulation

Location On main carriageway - not in restricted lane
Mid junction - on roundabout or on main road

Collisions Hit no other vehicle

Front
None
None

Movement Vehicle moving from East to West
Going ahead other
No skidding, jack-knifing or overturning
Did not leave carriageway

Vehicle 2

Driver Female, 25
Driver not contacted at time of accident
Postcode: NE36 0TQ
Commuting to/from work

Vehicle Car
No tow or articulation

Location On main carriageway - not in restricted lane
Mid junction - on roundabout or on main road

Collisions Hit no other vehicle

Back
None
None

Movement Vehicle moving from East to West
Slowing or stopping
No skidding, jack-knifing or overturning
Did not leave carriageway

Casualty 1 - Slight

Driver or rider
Female 25
NE36 0TQ

Not a car passenger
Not a bus or coach passenger

***Description
of Location***

NEWCASTLE ROAD (A19) NEAR JUNCTION WITH A19, WEST BOLDON, SOUTH TYNESIDE

***Description
of Accident***

V2 IN LANE 1 ON ROUNDABOUT AT A STOP AT TRAFFIC LIGHTS HEADING WEST, V1 DRIVING IN LANE 1 TO THE REAR OF V2 COLLIDES WITH THE REAR BUMPER CAUSING DAMAGE AND WHIPLASH TO DRIVER OF V2. V1 FAILS TO STOP AND LEAVES SCENE

Slight Accident

Involving 2 Vehicle, 1 Casualty

1237843

Location Sunderland
A 1231
434513E, 557256N

Date/Time Wednesday
02 November 2022
17:15

Road Dual Carriageway
70

Junction Not at or within 20 metres of junction

Conditions Darkness - Street Lights present and lit
Fine without high winds
Wet/Damp
None
None

None within 50 metres
No physical crossing facility within 50 metres

Contributory
Slippery road (due to weather) (B)
Failed to judge other person's path or speed (A)

Vehicle 1

Driver Male, 28
Negative
Postcode: SR2 9LG
Not known

Vehicle Car
No tow or articulation

Location On main carriageway - not in restricted lane
Not at, or within 20 metres of junction

Collisions Hit no other vehicle
Front
None
None

Movement Vehicle moving from East to East
Slowing or stopping
No skidding, jack-knifing or overturning
Did not leave carriageway

Vehicle 2

Driver Male, 50
Not requested
Postcode: SR7 7UE
Not known

Vehicle Motorcycle over 500cc
No tow or articulation

Location On main carriageway - not in restricted lane
Not at, or within 20 metres of junction

Collisions Hit no other vehicle
Back
None
None

Movement Vehicle moving from North East to North East
Waiting to go ahead but held up
Overturned
Did not leave carriageway

Casualty 1 - Slight

Driver or rider
Male 50
SR7 7UE

Not a car passenger
Not a bus or coach passenger

***Description
of Location***

SUNDERLAND HIGHWAY (A1231) - 68 METRES FROM JUNCTION WITH A1231, ALBANY, WASHINGTON, SUNDERLAND

***Description
of Accident***

V2 IN SLOW MOVING HEAVY TRAFFIC, V1 COLLIDE WITH REAR OF V2

Slight Accident

Involving 2 Vehicle, 2 Casualties

1241305

Location	Sunderland A 19 434687E, 557473N	Date/Time	Friday 11 November 2022 15:48
Road	Slip Road 70	Junction	Not at or within 20 metres of junction
Conditions	Darkness - No Street Lighting Fine without high winds Dry None None None within 50 metres No physical crossing facility within 50 metres	Contributory	Failed to judge other person's path or speed (A)

Vehicle 1

Driver	Male, 86 Not requested Postcode: NE31 2RT Other	Vehicle	Car No tow or articulation
Collisions	Hit no other vehicle Front None None	Location	On main carriageway - not in restricted lane Not at, or within 20 metres of junction
		Movement	Vehicle moving from South to North Slowing or stopping No skidding, jack-knifing or overturning Did not leave carriageway

Casualty 1 - Slight

Driver or rider		Not a car passenger
Male	86	Not a bus or coach passenger
NE31 2RT		

Casualty 2 - Slight

Vehicle or pillion passenger		Front seat passenger
Female	79	Not a bus or coach passenger
NE31 2RT		

Vehicle 2

Driver	Female, 55 Not requested Postcode: DL3 6EA Other	Vehicle	Car No tow or articulation
Collisions	Hit no other vehicle Back None None	Location	On main carriageway - not in restricted lane Not at, or within 20 metres of junction
		Movement	Vehicle moving from North to South Slowing or stopping No skidding, jack-knifing or overturning Did not leave carriageway

***Description
of Location***

A19 - 120 METRES FROM JUNCTION WITH A1231, SUNDERLAND

***Description
of Accident***

V1 (TOYOTA COROLLA) AND V2 (VAUXHALL CORSA) EXITS A19 SOUTHBOUND CARRIAGEWAY ONTO OFF SLIP FOR A1231. BOTH VEHICLES ARE IN LANE 2 OF THE OFF-SLIP. V2 MAKES AN ABRUPT STOP HALF WAY UP EXIT SLIP ROAD AND V1 COLLIDES INTO THE REAR OF V2.

Slight Accident

Involving 2 Vehicle, 1 Casualty

1249415

Location Sunderland
A 1290
432864E, 558343N

Date/Time Wednesday
30 November 2022
16:27

Road Single Carriageway
30

Junction T or staggered junction
Automatic traffic signal

Conditions Darkness - Street Lights present and lit
Fine without high winds
Wet/Damp
None
None

None within 50 metres
Pedestrian phase at traffic signal junction

Contributory

Vehicle 1

Driver Male, 30
Not applicable
Postcode:
Not known

Vehicle Goods Vehicle - Unknown Weight
No tow or articulation

Location On main carriageway - not in restricted lane
Approaching junction or waiting/parked at junction exit

Collisions Hit no other vehicle

Front
None
None

Movement Vehicle moving from North East to South West
Slowing or stopping
No skidding, jack-knifing or overturning
Did not leave carriageway

Vehicle 2

Driver Male, 49
Not applicable
Postcode: SR5 1RD
Not known

Vehicle Car
No tow or articulation

Location On main carriageway - not in restricted lane
Approaching junction or waiting/parked at junction exit

Collisions Hit no other vehicle

Back
None
None

Movement Vehicle moving from North East to South West
Waiting to go ahead but held up
No skidding, jack-knifing or overturning
Did not leave carriageway

Casualty 1 - Slight

Driver or rider
Male 49
SR5 1RD

Not a car passenger
Not a bus or coach passenger

***Description
of Location***

WASHINGTON ROAD (A1290) NEAR JUNCTION WITH CHERRY BLOSSOM WAY, USWORTH, SUNDERLAND, SUNDERLAND

***Description
of Accident***

VEHICLE 2 STATIONARY, WAITING AT A RED TRAFFIC LIGHT. VEHICLE 1 COLLIDES WITH THE REAR OF VEHICLE 2, CAUSING INJURY TO THE DRIVER.

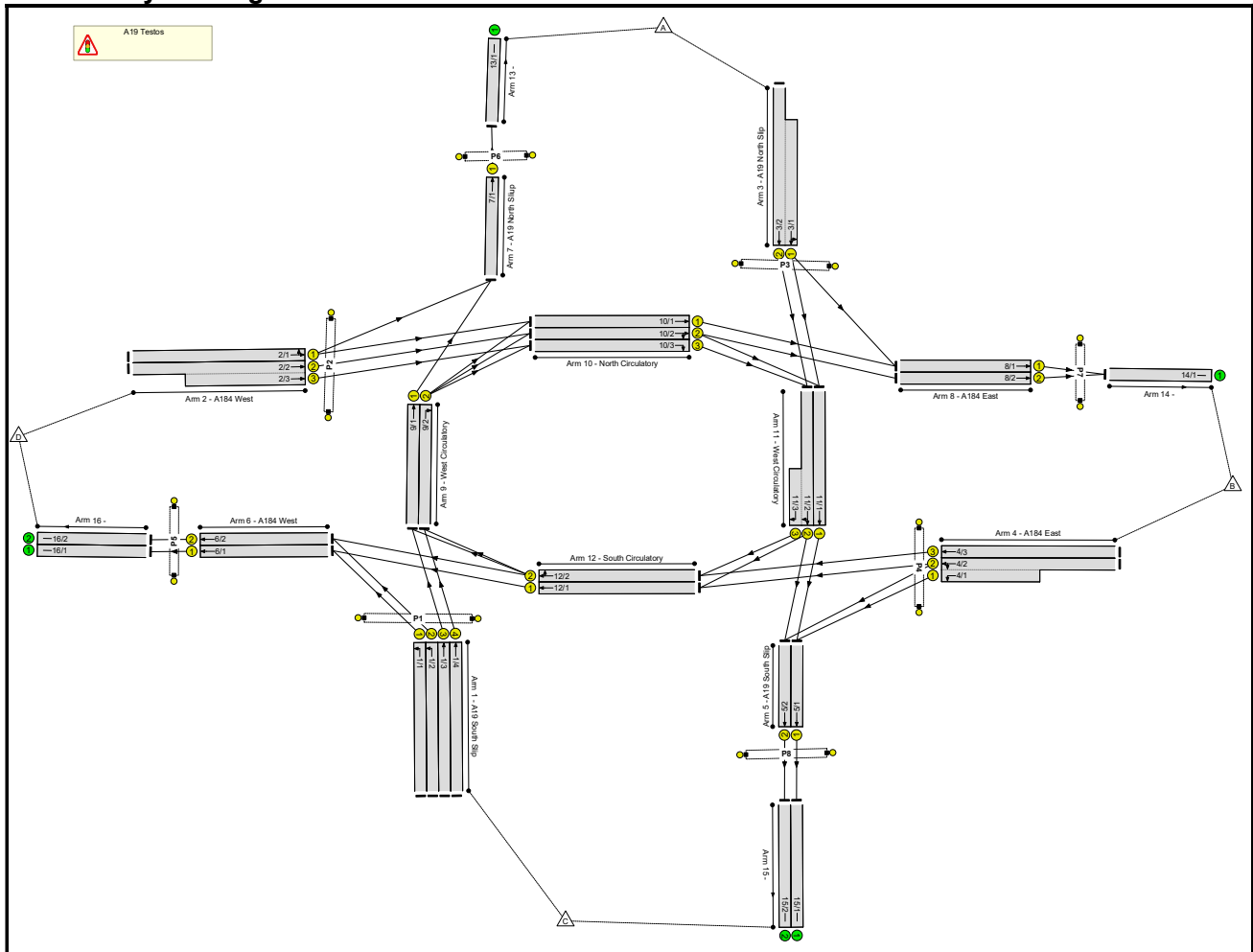
Appendix D
Junction Modelling Outputs

Full Input Data And Results
J1 - A19 Testos - Amended.lsg3x
Full Input Data And Results

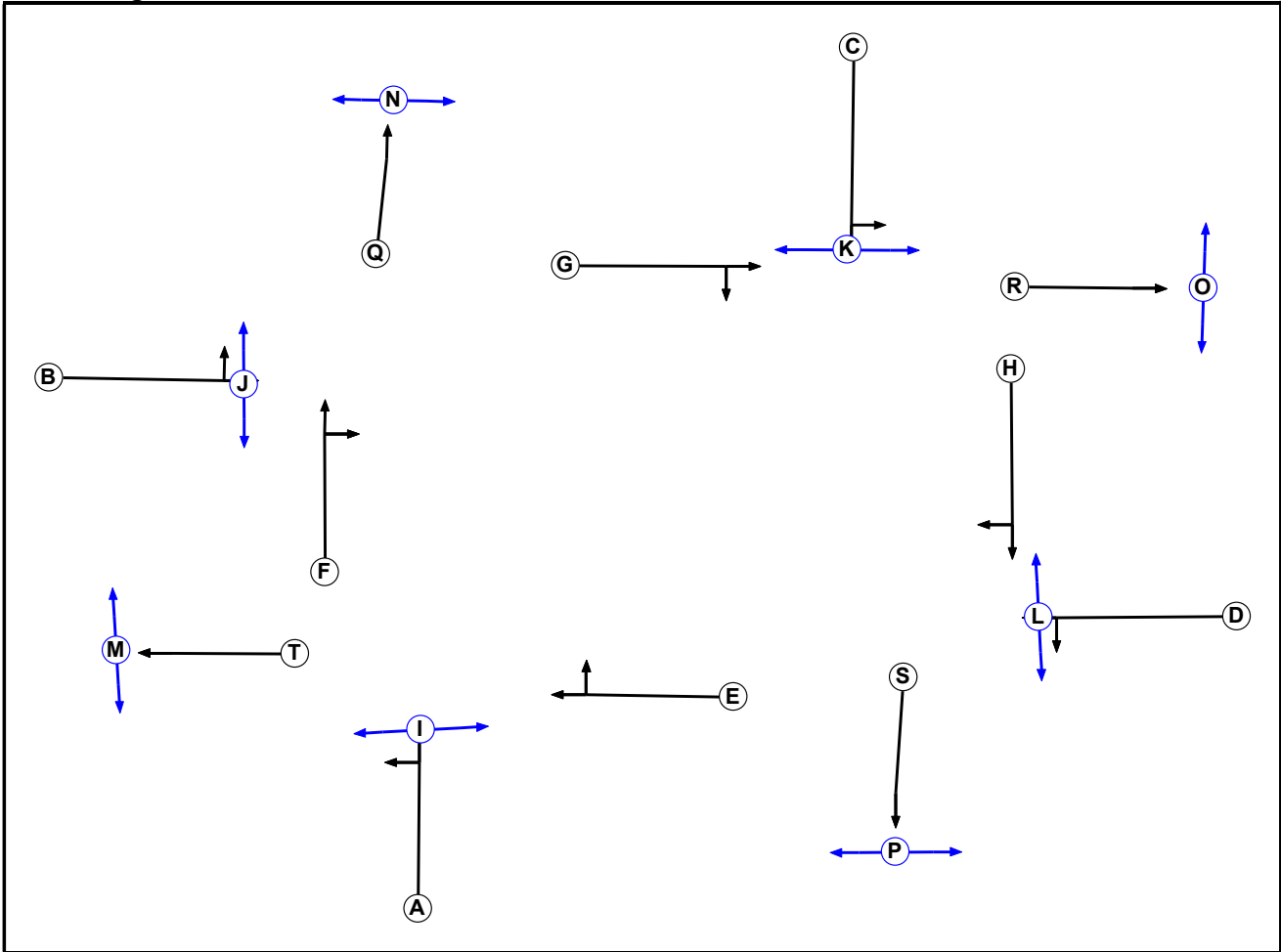
User and Project Details

Project:	
Title:	
Location:	
Additional detail:	
File name:	J1 - A19 Testos - Amended.lsg3x
Author:	
Company:	
Address:	

Network Layout Diagram



Phase Diagram



Phase Input Data

Phase Name	Phase Type	Stage Stream	Assoc. Phase	Street Min	Cont Min
A	Traffic	1		7	7
B	Traffic	2		7	7
C	Traffic	3		7	7
D	Traffic	4		7	7
E	Traffic	1		7	7
F	Traffic	2		7	7
G	Traffic	3		7	7
H	Traffic	4		7	7
I	Pedestrian	1		7	7
J	Pedestrian	2		7	7
K	Pedestrian	3		7	7
L	Pedestrian	4		7	7
M	Pedestrian	5		7	7
N	Pedestrian	8		7	7
O	Pedestrian	6		7	7
P	Pedestrian	7		7	7
Q	Traffic	8		7	7
R	Traffic	6		7	7
S	Traffic	7		7	7
T	Traffic	5		7	7

Phase Intergreens Matrix

		Starting Phase																			
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
Terminating Phase	A	-	-	-	8	-	-	-	7	-	-	-	-	-	-	-	-	-	-	-	-
	B	-	-	-	-	7	-	-	-	7	-	-	-	-	-	-	-	-	-	-	-
	C	-	-	-	-	-	7	-	-	-	7	-	-	-	-	-	-	-	-	-	-
	D	-	-	-	-	-	-	7	-	-	-	7	-	-	-	-	-	-	-	-	-
	E	7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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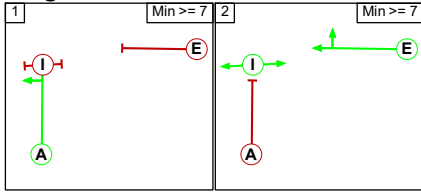
Phases in Stage

Stream	Stage No.	Phases in Stage
1	1	A
1	2	E I
2	1	B
2	2	F J
3	1	C
3	2	G K
4	1	D
4	2	H L
5	1	T
5	2	M
6	1	R
6	2	O
7	1	S
7	2	P
8	1	Q

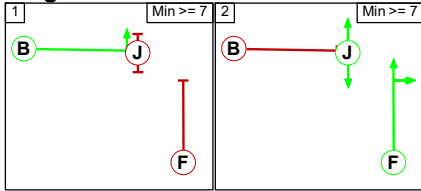
Full Input Data And Results
 J1 - A19 Testos - Amended.lsg3x

8	2	N
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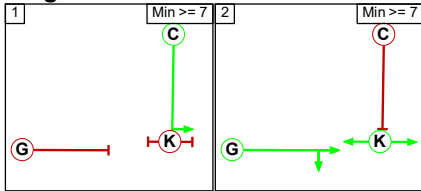
Stage Diagram
Stage Stream: 1



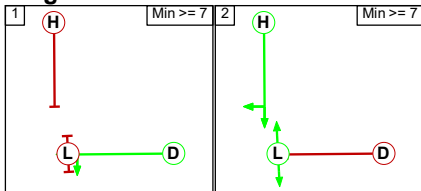
Stage Stream: 2



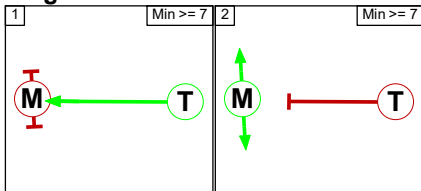
Stage Stream: 3



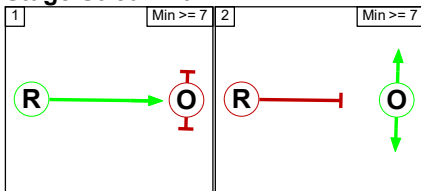
Stage Stream: 4



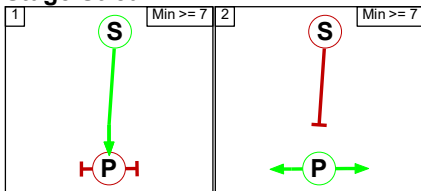
Stage Stream: 5



Stage Stream: 6

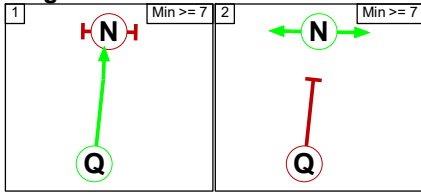


Stage Stream: 7



Full Input Data And Results
 J1 - A19 Testos - Amended.lsg3x

Stage Stream: 8



Phase Delays

Stage Stream: 1

Term. Stage	Start Stage	Phase	Type	Value	Cont value
There are no Phase Delays defined					

Stage Stream: 2

Term. Stage	Start Stage	Phase	Type	Value	Cont value
There are no Phase Delays defined					

Stage Stream: 3

Term. Stage	Start Stage	Phase	Type	Value	Cont value
There are no Phase Delays defined					

Stage Stream: 4

Term. Stage	Start Stage	Phase	Type	Value	Cont value
There are no Phase Delays defined					

Stage Stream: 5

Term. Stage	Start Stage	Phase	Type	Value	Cont value
There are no Phase Delays defined					

Stage Stream: 6

Term. Stage	Start Stage	Phase	Type	Value	Cont value
There are no Phase Delays defined					

Stage Stream: 7

Term. Stage	Start Stage	Phase	Type	Value	Cont value
There are no Phase Delays defined					

Stage Stream: 8

Term. Stage	Start Stage	Phase	Type	Value	Cont value
There are no Phase Delays defined					

Prohibited Stage Change

Stage Stream: 1

	To Stage	
From Stage	1	2
	1	8
	2	7

Stage Stream: 2

	To Stage	
From Stage	1	2
	7	
	2	7

Stage Stream: 3

	To Stage	
From Stage	1	2
	7	
	2	7

Stage Stream: 4

	To Stage	
From Stage	1	2
	7	
	2	7

Stage Stream: 5

	To Stage	
From Stage	1	2
	7	
	2	7

Stage Stream: 6

	To Stage	
From Stage	1	2
	7	
	2	7

Stage Stream: 7

	To Stage	
From Stage	1	2
	7	
	2	7

Stage Stream: 8

	To Stage	
From Stage	1	2
	7	
	2	7

Full Input Data And Results
J1 - A19 Testos - Amended.lsg3x

Give-Way Lane Input Data

Junction: A19 Testos

There are no Opposed Lanes in this Junction

Full Input Data And Results
 J1 - A19 Testos - Amended.lsg3x

Lane Input Data

Junction: A19 Testos												
Lane	Lane Type	Phases	Start Disp.	End Disp.	Physical Length (PCU)	Sat Flow Type	Def User Saturation Flow (PCU/Hr)	Lane Width (m)	Gradient	Nearside Lane	Turns	Turning Radius (m)
1/1 (A19 South Slip)	U	A	2	3	60.0	Geom	-	3.84	0.00	Y	Arm 6 Left	44.00
1/2 (A19 South Slip)	U	A	2	3	60.0	Geom	-	3.67	0.00	N	Arm 6 Left	44.00
1/3 (A19 South Slip)	U	A	2	3	60.0	Geom	-	3.67	0.00	N	Arm 9 Ahead	53.00
1/4 (A19 South Slip)	U	A	2	3	60.0	Geom	-	3.78	0.00	N	Arm 9 Ahead	53.00
2/1 (A184 West)	U	B	2	3	60.0	Geom	-	3.54	0.00	Y	Arm 7 Left	35.00
											Arm 10 Ahead	55.00
2/2 (A184 West)	U	B	2	3	60.0	Geom	-	3.56	0.00	N	Arm 10 Ahead	55.00
2/3 (A184 West)	U	B	2	3	15.0	Geom	-	3.48	0.00	N	Arm 10 Ahead	55.00
3/1 (A19 North Slip)	U	C	2	3	17.6	Geom	-	4.17	0.00	Y	Arm 8 Left	50.00
											Arm 11 Ahead	50.00
3/2 (A19 North Slip)	U	C	2	3	60.0	Geom	-	4.23	0.00	N	Arm 11 Ahead	50.00
4/1 (A184 East)	U	D	2	3	12.3	Geom	-	3.61	0.00	Y	Arm 5 Left	66.00
4/2 (A184 East)	U	D	2	3	60.0	Geom	-	4.29	0.00	N	Arm 5 Left	66.00
											Arm 12 Ahead	62.00
4/3 (A184 East)	U	D	2	3	60.0	Geom	-	3.60	0.00	N	Arm 12 Ahead	62.00
5/1 (A19 South Slip)	U	S	2	3	5.2	Geom	-	3.93	0.00	Y	Arm 15 Ahead	Inf
5/2 (A19 South Slip)	U	S	2	3	5.2	Geom	-	3.36	0.00	N	Arm 15 Ahead	Inf
6/1 (A184 West)	U	T	2	3	4.7	Geom	-	3.70	0.00	Y	Arm 16 Ahead	Inf
6/2 (A184 West)	U	T	2	3	4.7	Geom	-	3.78	0.00	N	Arm 16 Ahead	Inf
7/1 (A19 North Slip)	U	Q	2	3	3.3	Geom	-	3.42	0.00	Y	Arm 13 Ahead	Inf

Full Input Data And Results
 J1 - A19 Testos - Amended.lsg3x

8/1 (A184 East)	U	R	2	3	4.2	Geom	-	3.67	0.00	Y	Arm 14 Ahead	Inf
8/2 (A184 East)	U	R	2	3	4.2	Geom	-	3.45	0.00	N	Arm 14 Ahead	Inf
9/1 (West Circulatory)	U	F	2	3	16.7	Geom	-	4.23	0.00	Y	Arm 7 Ahead	39.00
9/2 (West Circulatory)	U	F	2	3	16.7	Geom	-	3.94	0.00	N	Arm 10 Right	55.00
10/1 (North Circulatory)	U	G	2	3	19.1	Geom	-	3.78	0.00	Y	Arm 8 Ahead	43.00
10/2 (North Circulatory)	U	G	2	3	19.1	Geom	-	4.08	0.00	N	Arm 8 Ahead	43.00
											Arm 11 Right	52.00
10/3 (North Circulatory)	U	G	2	3	19.1	Geom	-	3.91	0.00	N	Arm 11 Right	52.00
11/1 (West Circulatory)	U	H	2	3	14.1	Geom	-	4.10	0.00	Y	Arm 5 Ahead	62.00
11/2 (West Circulatory)	U	H	2	3	14.1	Geom	-	3.98	0.00	N	Arm 5 Ahead	62.00
											Arm 12 Right	56.00
11/3 (West Circulatory)	U	H	2	3	7.1	Geom	-	4.29	0.00	N	Arm 12 Right	56.00
12/1 (South Circulatory)	U	E	2	3	22.8	Geom	-	3.95	0.00	Y	Arm 6 Ahead	55.00
12/2 (South Circulatory)	U	E	2	3	22.8	Geom	-	3.84	0.00	N	Arm 6 Ahead	55.00
											Arm 9 Right	59.00
13/1	U		2	3	60.0	Inf	-	-	-	-	-	-
14/1	U		2	3	60.0	Inf	-	-	-	-	-	-
15/1	U		2	3	60.0	Inf	-	-	-	-	-	-
15/2	U		2	3	60.0	Inf	-	-	-	-	-	-
16/1	U		2	3	60.0	Inf	-	-	-	-	-	-
16/2	U		2	3	60.0	Inf	-	-	-	-	-	-

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: '2023 Base 0630-0730'	06:30	07:30	01:00	
2: '2023 Base + Com Dev'	06:30	07:30	01:00	
3: '2023 Base + Com Dev + Dev'	06:30	07:30	01:00	

Scenario 1: '2022/23 Base 0630-0730' (FG1: '2023 Base 0630-0730', Plan 1: 'Network Control Plan 1')
Traffic Flows, Desired

Desired Flow :

	Destination					
	A	B	C	D	Tot.	
Origin	A	0	57	252	228	537
	B	170	0	233	583	986
	C	126	124	0	829	1079
	D	84	225	636	0	945
	Tot.	380	406	1121	1640	3547

Traffic Lane Flows

Lane	Scenario 1: 2022/23 Base 0630-0730
Junction: A19 Testos	
1/1	380
1/2	449
1/3	126
1/4	124
2/1	232
2/2 (with short)	713(In) 368(Out)
2/3 (short)	345
3/1 (short)	210
3/2 (with short)	537(In) 327(Out)
4/1 (short)	233
4/2 (with short)	633(In) 400(Out)
4/3	353
5/1	677
5/2	444
6/1	851
6/2	789
7/1	380
8/1	289
8/2	117
9/1	296
9/2	124
10/1	232
10/2	408
10/3	345
11/1	444
11/2 (with short)	672(In) 515(Out)
11/3 (short)	157
12/1	471
12/2	510
13/1	380
14/1	406
15/1	677
15/2	444
16/1	851

Full Input Data And Results
J1 - A19 Testos - Amended.lsg3x

16/2	789
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Lane Saturation Flows

Junction: A19 Testos								
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (A19 South Slip)	3.84	0.00	Y	Arm 6 Left	44.00	100.0 %	1933	1933
1/2 (A19 South Slip)	3.67	0.00	N	Arm 6 Left	44.00	100.0 %	2052	2052
1/3 (A19 South Slip)	3.67	0.00	N	Arm 9 Ahead	53.00	100.0 %	2064	2064
1/4 (A19 South Slip)	3.78	0.00	N	Arm 9 Ahead	53.00	100.0 %	2074	2074
2/1 (A184 West)	3.54	0.00	Y	Arm 7 Left	35.00	36.2 %	1906	1906
				Arm 10 Ahead	55.00	63.8 %		
2/2 (A184 West)	3.56	0.00	N	Arm 10 Ahead	55.00	100.0 %	2055	2055
2/3 (A184 West)	3.48	0.00	N	Arm 10 Ahead	55.00	100.0 %	2047	2047
3/1 (A19 North Slip)	4.17	0.00	Y	Arm 8 Left	50.00	27.1 %	1973	1973
				Arm 11 Ahead	50.00	72.9 %		
3/2 (A19 North Slip)	4.23	0.00	N	Arm 11 Ahead	50.00	100.0 %	2115	2115
4/1 (A184 East)	3.61	0.00	Y	Arm 5 Left	66.00	100.0 %	1932	1932
4/2 (A184 East)	4.29	0.00	N	Arm 5 Left	66.00	0.0 %	2132	2132
				Arm 12 Ahead	62.00	100.0 %		
4/3 (A184 East)	3.60	0.00	N	Arm 12 Ahead	62.00	100.0 %	2065	2065
5/1 (A19 South Slip)	3.93	0.00	Y	Arm 15 Ahead	Inf	100.0 %	2008	2008
5/2 (A19 South Slip)	3.36	0.00	N	Arm 15 Ahead	Inf	100.0 %	2091	2091
6/1 (A184 West)	3.70	0.00	Y	Arm 16 Ahead	Inf	100.0 %	1985	1985
6/2 (A184 West)	3.78	0.00	N	Arm 16 Ahead	Inf	100.0 %	2133	2133
7/1 (A19 North Sliup)	3.42	0.00	Y	Arm 13 Ahead	Inf	100.0 %	1957	1957
8/1 (A184 East)	3.67	0.00	Y	Arm 14 Ahead	Inf	100.0 %	1982	1982
8/2 (A184 East)	3.45	0.00	N	Arm 14 Ahead	Inf	100.0 %	2100	2100
9/1 (West Circulatory)	4.23	0.00	Y	Arm 7 Ahead	39.00	100.0 %	1963	1963
9/2 (West Circulatory)	3.94	0.00	N	Arm 10 Right	55.00	100.0 %	2092	2092
10/1 (North Circulatory)	3.78	0.00	Y	Arm 8 Ahead	43.00	100.0 %	1926	1926

Full Input Data And Results
 J1 - A19 Testos - Amended.lsg3x

10/2 (North Circulatory)	4.08	0.00	N	Arm 8 Ahead	43.00	28.7 %	2099	2099
				Arm 11 Right	52.00	71.3 %		
10/3 (North Circulatory)	3.91	0.00	N	Arm 11 Right	52.00	100.0 %	2086	2086
11/1 (West Circulatory)	4.10	0.00	Y	Arm 5 Ahead	62.00	100.0 %	1977	1977
11/2 (West Circulatory)	3.98	0.00	N	Arm 5 Ahead	62.00	86.2 %	2101	2101
				Arm 12 Right	56.00	13.8 %		
11/3 (West Circulatory)	4.29	0.00	N	Arm 12 Right	56.00	100.0 %	2127	2127
12/1 (South Circulatory)	3.95	0.00	Y	Arm 6 Ahead	55.00	100.0 %	1957	1957
12/2 (South Circulatory)	3.84	0.00	N	Arm 6 Ahead	55.00	66.7 %	2083	2083
				Arm 9 Right	59.00	33.3 %		
13/1	Infinite Saturation Flow						Inf	Inf
14/1	Infinite Saturation Flow						Inf	Inf
15/1	Infinite Saturation Flow						Inf	Inf
15/2	Infinite Saturation Flow						Inf	Inf
16/1	Infinite Saturation Flow						Inf	Inf
16/2	Infinite Saturation Flow						Inf	Inf

Scenario 2: '2022/23 Base + Com Dev' (FG2: '2023 Base + Com Dev', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired
Desired Flow :

	Destination					
		A	B	C	D	Tot.
Origin	A	0	61	252	231	544
	B	174	0	260	587	1021
	C	126	157	0	947	1230
	D	87	229	737	0	1053
	Tot.	387	447	1249	1765	3848

Traffic Lane Flows

Lane	Scenario 2: 2022/23 Base + Com Dev
Junction: A19 Testos	
1/1	439
1/2	508
1/3	126
1/4	157
2/1	269
2/2 (with short)	784(In) 330(Out)
2/3 (short)	454
3/1 (short)	229
3/2 (with short)	544(In) 315(Out)
4/1 (short)	257
4/2 (with short)	667(In) 410(Out)
4/3	354
5/1	708
5/2	541
6/1	915
6/2	850
7/1	387
8/1	303
8/2	144
9/1	300
9/2	157
10/1	242
10/2	427
10/3	454
11/1	451
11/2 (with short)	769(In) 607(Out)
11/3 (short)	162
12/1	476
12/2	516
13/1	387
14/1	447
15/1	708
15/2	541
16/1	915

Full Input Data And Results
J1 - A19 Testos - Amended.lsg3x

16/2	850
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Lane Saturation Flows

Junction: A19 Testos								
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (A19 South Slip)	3.84	0.00	Y	Arm 6 Left	44.00	100.0 %	1933	1933
1/2 (A19 South Slip)	3.67	0.00	N	Arm 6 Left	44.00	100.0 %	2052	2052
1/3 (A19 South Slip)	3.67	0.00	N	Arm 9 Ahead	53.00	100.0 %	2064	2064
1/4 (A19 South Slip)	3.78	0.00	N	Arm 9 Ahead	53.00	100.0 %	2074	2074
2/1 (A184 West)	3.54	0.00	Y	Arm 7 Left	35.00	32.3 %	1907	1907
				Arm 10 Ahead	55.00	67.7 %		
2/2 (A184 West)	3.56	0.00	N	Arm 10 Ahead	55.00	100.0 %	2055	2055
2/3 (A184 West)	3.48	0.00	N	Arm 10 Ahead	55.00	100.0 %	2047	2047
3/1 (A19 North Slip)	4.17	0.00	Y	Arm 8 Left	50.00	26.6 %	1973	1973
				Arm 11 Ahead	50.00	73.4 %		
3/2 (A19 North Slip)	4.23	0.00	N	Arm 11 Ahead	50.00	100.0 %	2115	2115
4/1 (A184 East)	3.61	0.00	Y	Arm 5 Left	66.00	100.0 %	1932	1932
4/2 (A184 East)	4.29	0.00	N	Arm 5 Left	66.00	0.7 %	2132	2132
				Arm 12 Ahead	62.00	99.3 %		
4/3 (A184 East)	3.60	0.00	N	Arm 12 Ahead	62.00	100.0 %	2065	2065
5/1 (A19 South Slip)	3.93	0.00	Y	Arm 15 Ahead	Inf	100.0 %	2008	2008
5/2 (A19 South Slip)	3.36	0.00	N	Arm 15 Ahead	Inf	100.0 %	2091	2091
6/1 (A184 West)	3.70	0.00	Y	Arm 16 Ahead	Inf	100.0 %	1985	1985
6/2 (A184 West)	3.78	0.00	N	Arm 16 Ahead	Inf	100.0 %	2133	2133
7/1 (A19 North Sliup)	3.42	0.00	Y	Arm 13 Ahead	Inf	100.0 %	1957	1957
8/1 (A184 East)	3.67	0.00	Y	Arm 14 Ahead	Inf	100.0 %	1982	1982
8/2 (A184 East)	3.45	0.00	N	Arm 14 Ahead	Inf	100.0 %	2100	2100
9/1 (West Circulatory)	4.23	0.00	Y	Arm 7 Ahead	39.00	100.0 %	1963	1963
9/2 (West Circulatory)	3.94	0.00	N	Arm 10 Right	55.00	100.0 %	2092	2092
10/1 (North Circulatory)	3.78	0.00	Y	Arm 8 Ahead	43.00	100.0 %	1926	1926

Full Input Data And Results
 J1 - A19 Testos - Amended.lsg3x

10/2 (North Circulatory)	4.08	0.00	N	Arm 8 Ahead	43.00	33.7 %	2098	2098
				Arm 11 Right	52.00	66.3 %		
10/3 (North Circulatory)	3.91	0.00	N	Arm 11 Right	52.00	100.0 %	2086	2086
11/1 (West Circulatory)	4.10	0.00	Y	Arm 5 Ahead	62.00	100.0 %	1977	1977
11/2 (West Circulatory)	3.98	0.00	N	Arm 5 Ahead	62.00	88.6 %	2102	2102
				Arm 12 Right	56.00	11.4 %		
11/3 (West Circulatory)	4.29	0.00	N	Arm 12 Right	56.00	100.0 %	2127	2127
12/1 (South Circulatory)	3.95	0.00	Y	Arm 6 Ahead	55.00	100.0 %	1957	1957
12/2 (South Circulatory)	3.84	0.00	N	Arm 6 Ahead	55.00	66.3 %	2083	2083
				Arm 9 Right	59.00	33.7 %		
13/1	Infinite Saturation Flow						Inf	Inf
14/1	Infinite Saturation Flow						Inf	Inf
15/1	Infinite Saturation Flow						Inf	Inf
15/2	Infinite Saturation Flow						Inf	Inf
16/1	Infinite Saturation Flow						Inf	Inf
16/2	Infinite Saturation Flow						Inf	Inf

Scenario 3: '2022/23 Base + Com Dev + Dev' (FG3: '2023 Base + Com Dev + Dev', Plan 1: 'Network Control Plan 1')
Traffic Flows, Desired

Desired Flow :

	Destination					
		A	B	C	D	Tot.
Origin	A	0	61	252	231	544
	B	174	0	283	587	1044
	C	126	179	0	1021	1326
	D	87	229	811	0	1127
	Tot.	387	469	1346	1839	4041

Traffic Lane Flows

Lane	Scenario 3: 2022/23 Base + Com Dev + Dev
Junction: A19 Testos	
1/1	474
1/2	547
1/3	126
1/4	179
2/1	277
2/2 (with short)	850(In) 396(Out)
2/3 (short)	454
3/1 (short)	217
3/2 (with short)	544(In) 327(Out)
4/1 (short)	266
4/2 (with short)	680(In) 414(Out)
4/3	364
5/1	779
5/2	567
6/1	941
6/2	898
7/1	387
8/1	355
8/2	114
9/1	300
9/2	179
10/1	294
10/2	471
10/3	454
11/1	513
11/2 (with short)	781(In) 620(Out)
11/3 (short)	161
12/1	467
12/2	525
13/1	387
14/1	469
15/1	779
15/2	567
16/1	941

Full Input Data And Results
J1 - A19 Testos - Amended.lsg3x

16/2	898
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Lane Saturation Flows

Junction: A19 Testos								
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (A19 South Slip)	3.84	0.00	Y	Arm 6 Left	44.00	100.0 %	1933	1933
1/2 (A19 South Slip)	3.67	0.00	N	Arm 6 Left	44.00	100.0 %	2052	2052
1/3 (A19 South Slip)	3.67	0.00	N	Arm 9 Ahead	53.00	100.0 %	2064	2064
1/4 (A19 South Slip)	3.78	0.00	N	Arm 9 Ahead	53.00	100.0 %	2074	2074
2/1 (A184 West)	3.54	0.00	Y	Arm 7 Left	35.00	31.4 %	1908	1908
				Arm 10 Ahead	55.00	68.6 %		
2/2 (A184 West)	3.56	0.00	N	Arm 10 Ahead	55.00	100.0 %	2055	2055
2/3 (A184 West)	3.48	0.00	N	Arm 10 Ahead	55.00	100.0 %	2047	2047
3/1 (A19 North Slip)	4.17	0.00	Y	Arm 8 Left	50.00	28.1 %	1973	1973
				Arm 11 Ahead	50.00	71.9 %		
3/2 (A19 North Slip)	4.23	0.00	N	Arm 11 Ahead	50.00	100.0 %	2115	2115
4/1 (A184 East)	3.61	0.00	Y	Arm 5 Left	66.00	100.0 %	1932	1932
4/2 (A184 East)	4.29	0.00	N	Arm 5 Left	66.00	4.1 %	2133	2133
				Arm 12 Ahead	62.00	95.9 %		
4/3 (A184 East)	3.60	0.00	N	Arm 12 Ahead	62.00	100.0 %	2065	2065
5/1 (A19 South Slip)	3.93	0.00	Y	Arm 15 Ahead	Inf	100.0 %	2008	2008
5/2 (A19 South Slip)	3.36	0.00	N	Arm 15 Ahead	Inf	100.0 %	2091	2091
6/1 (A184 West)	3.70	0.00	Y	Arm 16 Ahead	Inf	100.0 %	1985	1985
6/2 (A184 West)	3.78	0.00	N	Arm 16 Ahead	Inf	100.0 %	2133	2133
7/1 (A19 North Sliup)	3.42	0.00	Y	Arm 13 Ahead	Inf	100.0 %	1957	1957
8/1 (A184 East)	3.67	0.00	Y	Arm 14 Ahead	Inf	100.0 %	1982	1982
8/2 (A184 East)	3.45	0.00	N	Arm 14 Ahead	Inf	100.0 %	2100	2100
9/1 (West Circulatory)	4.23	0.00	Y	Arm 7 Ahead	39.00	100.0 %	1963	1963
9/2 (West Circulatory)	3.94	0.00	N	Arm 10 Right	55.00	100.0 %	2092	2092
10/1 (North Circulatory)	3.78	0.00	Y	Arm 8 Ahead	43.00	100.0 %	1926	1926

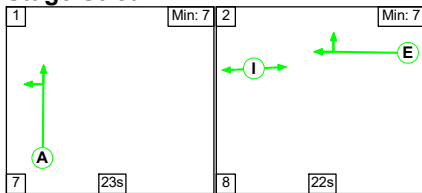
Full Input Data And Results
 J1 - A19 Testos - Amended.lsg3x

10/2 (North Circulatory)	4.08	0.00	N	Arm 8 Ahead	43.00	24.2 %	2099	2099
				Arm 11 Right	52.00	75.8 %		
10/3 (North Circulatory)	3.91	0.00	N	Arm 11 Right	52.00	100.0 %	2086	2086
11/1 (West Circulatory)	4.10	0.00	Y	Arm 5 Ahead	62.00	100.0 %	1977	1977
11/2 (West Circulatory)	3.98	0.00	N	Arm 5 Ahead	62.00	88.7 %	2102	2102
				Arm 12 Right	56.00	11.3 %		
11/3 (West Circulatory)	4.29	0.00	N	Arm 12 Right	56.00	100.0 %	2127	2127
12/1 (South Circulatory)	3.95	0.00	Y	Arm 6 Ahead	55.00	100.0 %	1957	1957
12/2 (South Circulatory)	3.84	0.00	N	Arm 6 Ahead	55.00	66.9 %	2083	2083
				Arm 9 Right	59.00	33.1 %		
13/1	Infinite Saturation Flow						Inf	Inf
14/1	Infinite Saturation Flow						Inf	Inf
15/1	Infinite Saturation Flow						Inf	Inf
15/2	Infinite Saturation Flow						Inf	Inf
16/1	Infinite Saturation Flow						Inf	Inf
16/2	Infinite Saturation Flow						Inf	Inf

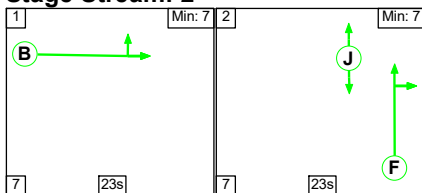
Scenario 1: '2022/23 Base 0630-0730' (FG1: '2023 Base 0630-0730', Plan 1: 'Network Control Plan 1')

Stage Sequence Diagram

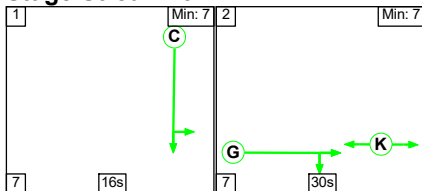
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Stage Stream: 2

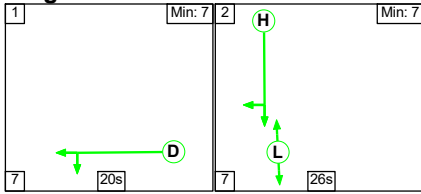


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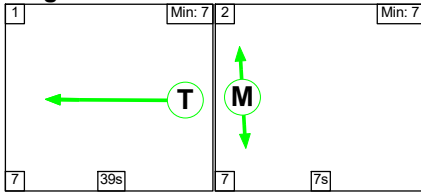


Full Input Data And Results
 J1 - A19 Testos - Amended.lsg3x

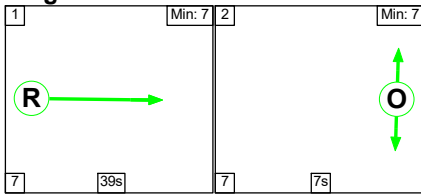
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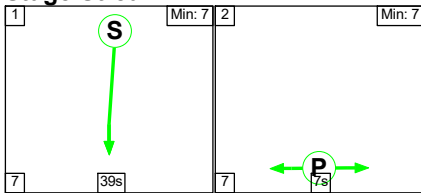
Stage Stream: 5



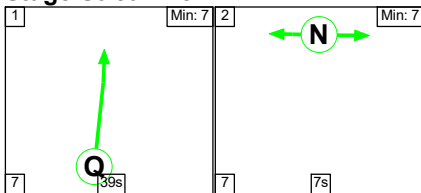
Stage Stream: 6



Stage Stream: 7



Stage Stream: 8



Stage Timings

Stage Stream: 1

Stage	1	2
Duration	23	22
Change Point	0	30

Stage Stream: 2

Stage	1	2
Duration	23	23
Change Point	23	53

Full Input Data And Results
J1 - A19 Testos - Amended.lsg3x

Stage Stream: 3

Stage	1	2
Duration	16	30
Change Point	1	24

Stage Stream: 4

Stage	1	2
Duration	20	26
Change Point	25	52

Stage Stream: 5

Stage	1	2
Duration	39	7
Change Point	33	19

Stage Stream: 6

Stage	1	2
Duration	39	7
Change Point	25	11

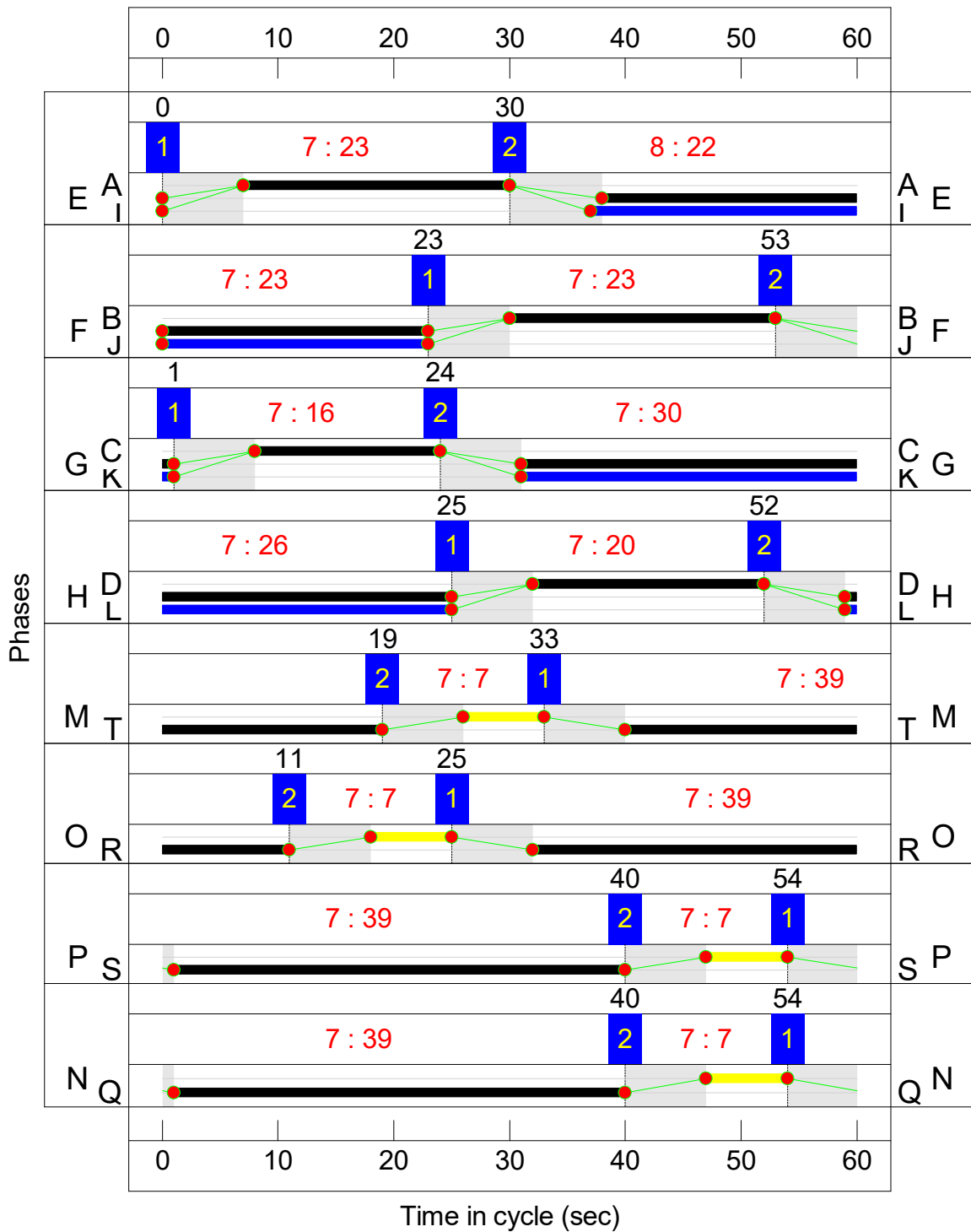
Stage Stream: 7

Stage	1	2
Duration	39	7
Change Point	54	40

Stage Stream: 8

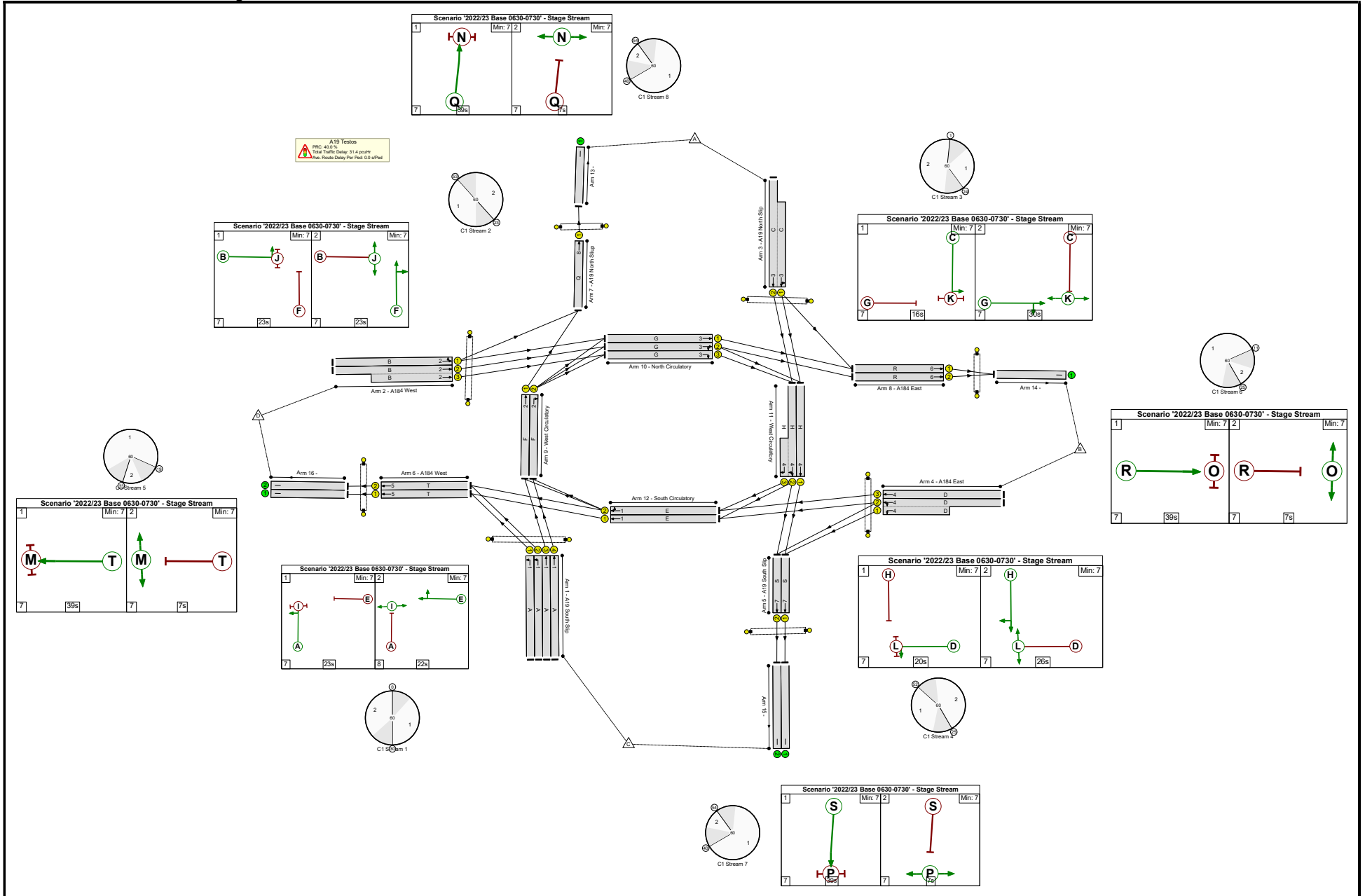
Stage	1	2
Duration	39	7
Change Point	54	40

Signal Timings Diagram



Full Input Data And Results
J1 - A19 Testos - Amended.lsg3x
Network Layout Diagram

Full Input Data And Results
 J1 - A19 Testos - Amended.lsg3x



Full Input Data And Results
J1 - A19 Testos - Amended.lsg3x

Full Input Data And Results
 J1 - A19 Testos - Amended.lsg3x

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	-	-	N/A	-	-		-	-	-	-	-	-	64.3%
A19 Testos	-	-	N/A	-	-		-	-	-	-	-	-	64.3%
1/1	A19 South Slip Left	U	1	N/A	A		1	23	-	380	1933	773	49.1%
1/2	A19 South Slip Left	U	1	N/A	A		1	23	-	449	2052	821	54.7%
1/3	A19 South Slip Ahead	U	1	N/A	A		1	23	-	126	2064	826	15.3%
1/4	A19 South Slip Ahead	U	1	N/A	A		1	23	-	124	2074	830	14.9%
2/1	A184 West Left Ahead	U	2	N/A	B		1	23	-	232	1906	762	30.4%
2/2+2/3	A184 West Ahead	U	2	N/A	B		1	23	-	713	2055:2047	822+796	44.8 : 43.4%
3/2+3/1	A19 North Slip Left Ahead	U	3	N/A	C		1	16	-	537	2115:1973	599+531	54.6 : 39.6%
4/2+4/1	A184 East Left Ahead	U	4	N/A	D		1	20	-	633	2132:1932	746+435	53.6 : 53.6%
4/3	A184 East Ahead	U	4	N/A	D		1	20	-	353	2065	723	48.8%
5/1	A19 South Slip Ahead	U	7	N/A	S		1	39	-	677	2008	1339	50.6%
5/2	A19 South Slip Ahead	U	7	N/A	S		1	39	-	444	2091	1394	31.9%
6/1	A184 West Ahead	U	5	N/A	T		1	39	-	851	1985	1323	64.3%
6/2	A184 West Ahead	U	5	N/A	T		1	39	-	789	2133	1422	55.5%
7/1	A19 North Slip Ahead	U	8	N/A	Q		1	39	-	380	1957	1305	29.1%
8/1	A184 East Ahead	U	6	N/A	R		1	39	-	289	1982	1321	21.9%

Full Input Data And Results
 J1 - A19 Testos - Amended.lsg3x

8/2	A184 East Ahead	U	6	N/A	R		1	39	-	117	2100	1400	8.4%
9/1	West Circulatory Ahead	U	2	N/A	F		1	23	-	296	1963	785	37.7%
9/2	West Circulatory Right	U	2	N/A	F		1	23	-	124	2092	837	14.8%
10/1	North Circulatory Ahead	U	3	N/A	G		1	30	-	232	1926	995	23.3%
10/2	North Circulatory Ahead Right	U	3	N/A	G		1	30	-	408	2099	1084	37.6%
10/3	North Circulatory Right	U	3	N/A	G		1	30	-	345	2086	1078	32.0%
11/1	West Circulatory Ahead	U	4	N/A	H		1	26	-	444	1977	890	49.9%
11/2+11/3	West Circulatory Ahead Right	U	4	N/A	H		1	26	-	672	2101:2127	828+252	62.2 : 62.2%
12/1	South Circulatory Ahead	U	1	N/A	E		1	22	-	471	1957	750	62.8%
12/2	South Circulatory Ahead Right	U	1	N/A	E		1	22	-	510	2083	798	63.9%
13/1		U	N/A	N/A	-		-	-	-	380	Inf	Inf	0.0%
14/1		U	N/A	N/A	-		-	-	-	406	Inf	Inf	0.0%
15/1		U	N/A	N/A	-		-	-	-	677	Inf	Inf	0.0%
15/2		U	N/A	N/A	-		-	-	-	444	Inf	Inf	0.0%
16/1		U	N/A	N/A	-		-	-	-	851	Inf	Inf	0.0%
16/2		U	N/A	N/A	-		-	-	-	789	Inf	Inf	0.0%
Ped Link: P1	Unnamed Ped Link	-	1	-	I		1	23	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	2	-	J		1	23	-	0	-	0	0.0%

Full Input Data And Results

J1 - A19 Testos - Amended.lsg3x

Ped Link: P3	Unnamed Ped Link	-	3	-	K		1	30	-	0	-	0	0.0%
Ped Link: P4	Unnamed Ped Link	-	4	-	L		1	26	-	0	-	0	0.0%
Ped Link: P5	Unnamed Ped Link	-	5	-	M		1	7	-	0	-	0	0.0%
Ped Link: P6	Unnamed Ped Link	-	8	-	N		1	7	-	0	-	0	0.0%
Ped Link: P7	Unnamed Ped Link	-	6	-	O		1	7	-	0	-	0	0.0%
Ped Link: P8	Unnamed Ped Link	-	7	-	P		1	7	-	0	-	0	0.0%

Full Input Data And Results
 J1 - A19 Testos - Amended.lsg3x

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	-	-	0	0	0	21.2	10.1	0.0	31.4	-	-	-	-
A19 Testos	-	-	0	0	0	21.2	10.1	0.0	31.4	-	-	-	-
1/1	380	380	-	-	-	1.4	0.5	-	1.9	18.0	4.6	0.5	5.1
1/2	449	449	-	-	-	1.7	0.6	-	2.3	18.7	5.7	0.6	6.3
1/3	126	126	-	-	-	0.4	0.1	-	0.5	14.1	1.3	0.1	1.4
1/4	124	124	-	-	-	0.4	0.1	-	0.5	14.1	1.3	0.1	1.4
2/1	232	232	-	-	-	0.8	0.2	-	1.0	15.7	2.6	0.2	2.8
2/2+2/3	713	713	-	-	-	2.6	0.4	-	3.0	15.1	4.4	0.4	4.8
3/2+3/1	537	537	-	-	-	2.7	0.5	-	3.1	20.9	4.5	0.5	5.0
4/2+4/1	633	633	-	-	-	2.7	0.6	-	3.2	18.4	5.3	0.6	5.9
4/3	353	353	-	-	-	1.5	0.5	-	2.0	20.1	4.6	0.5	5.1
5/1	677	677	-	-	-	0.3	0.5	-	0.8	4.5	6.0	0.5	6.5
5/2	444	444	-	-	-	0.0	0.2	-	0.2	1.9	2.3	0.2	2.6
6/1	851	851	-	-	-	0.4	0.9	-	1.3	5.6	3.6	0.9	4.5
6/2	789	789	-	-	-	0.6	0.6	-	1.2	5.4	5.3	0.6	6.0
7/1	380	380	-	-	-	0.1	0.2	-	0.3	2.7	0.4	0.2	0.6
8/1	289	289	-	-	-	0.2	0.1	-	0.3	4.3	0.7	0.1	0.9
8/2	117	117	-	-	-	0.0	0.0	-	0.0	1.4	0.0	0.0	0.0
9/1	296	296	-	-	-	0.6	0.3	-	0.9	10.6	3.0	0.3	3.3
9/2	124	124	-	-	-	0.3	0.1	-	0.4	12.2	0.7	0.1	0.8
10/1	232	232	-	-	-	0.3	0.2	-	0.4	6.6	1.4	0.2	1.5
10/2	408	408	-	-	-	0.3	0.3	-	0.6	5.2	1.0	0.3	1.3
10/3	345	345	-	-	-	0.2	0.2	-	0.4	4.3	0.4	0.2	0.6
11/1	444	444	-	-	-	1.0	0.5	-	1.5	12.0	5.1	0.5	5.6
11/2+11/3	672	672	-	-	-	1.4	0.8	-	2.2	12.0	6.1	0.8	6.9
12/1	471	471	-	-	-	0.6	0.8	-	1.4	11.0	1.8	0.8	2.7

Full Input Data And Results
 J1 - A19 Testos - Amended.lsg3x

12/2	510	510	-	-	-	0.8	0.9	-	1.7	11.9	3.5	0.9	4.4																																																																								
13/1	380	380	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0																																																																								
14/1	406	406	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0																																																																								
15/1	677	677	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0																																																																								
15/2	444	444	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0																																																																								
16/1	851	851	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0																																																																								
16/2	789	789	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0																																																																								
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-																																																																								
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-																																																																								
Ped Link: P3	0	0	-	-	-	-	-	-	-	-	-	-	-																																																																								
Ped Link: P4	0	0	-	-	-	-	-	-	-	-	-	-	-																																																																								
Ped Link: P5	0	0	-	-	-	-	-	-	-	-	-	-	-																																																																								
Ped Link: P6	0	0	-	-	-	-	-	-	-	-	-	-	-																																																																								
Ped Link: P7	0	0	-	-	-	-	-	-	-	-	-	-	-																																																																								
Ped Link: P8	0	0	-	-	-	-	-	-	-	-	-	-	-																																																																								
<table> <tbody> <tr> <td>C1</td><td>Stream: 1</td><td>PRC for Signalled Lanes (%)</td><td>40.9</td><td>Total Delay for Signalled Lanes (pcuHr):</td><td>8.33</td><td>Cycle Time (s):</td><td>60</td></tr> <tr> <td>C1</td><td>Stream: 2</td><td>PRC for Signalled Lanes (%)</td><td>101.0</td><td>Total Delay for Signalled Lanes (pcuHr):</td><td>5.28</td><td>Cycle Time (s):</td><td>60</td></tr> <tr> <td>C1</td><td>Stream: 3</td><td>PRC for Signalled Lanes (%)</td><td>64.9</td><td>Total Delay for Signalled Lanes (pcuHr):</td><td>4.54</td><td>Cycle Time (s):</td><td>60</td></tr> <tr> <td>C1</td><td>Stream: 4</td><td>PRC for Signalled Lanes (%)</td><td>44.6</td><td>Total Delay for Signalled Lanes (pcuHr):</td><td>8.93</td><td>Cycle Time (s):</td><td>60</td></tr> <tr> <td>C1</td><td>Stream: 5</td><td>PRC for Signalled Lanes (%)</td><td>40.0</td><td>Total Delay for Signalled Lanes (pcuHr):</td><td>2.52</td><td>Cycle Time (s):</td><td>60</td></tr> <tr> <td>C1</td><td>Stream: 6</td><td>PRC for Signalled Lanes (%)</td><td>311.5</td><td>Total Delay for Signalled Lanes (pcuHr):</td><td>0.39</td><td>Cycle Time (s):</td><td>60</td></tr> <tr> <td>C1</td><td>Stream: 7</td><td>PRC for Signalled Lanes (%)</td><td>78.0</td><td>Total Delay for Signalled Lanes (pcuHr):</td><td>1.08</td><td>Cycle Time (s):</td><td>60</td></tr> <tr> <td>C1</td><td>Stream: 8</td><td>PRC for Signalled Lanes (%)</td><td>209.0</td><td>Total Delay for Signalled Lanes (pcuHr):</td><td>0.28</td><td>Cycle Time (s):</td><td>60</td></tr> <tr> <td></td><td></td><td>PRC Over All Lanes (%)</td><td>40.0</td><td>Total Delay Over All Lanes(pcuHr):</td><td>31.36</td><td></td><td></td></tr> </tbody> </table>														C1	Stream: 1	PRC for Signalled Lanes (%)	40.9	Total Delay for Signalled Lanes (pcuHr):	8.33	Cycle Time (s):	60	C1	Stream: 2	PRC for Signalled Lanes (%)	101.0	Total Delay for Signalled Lanes (pcuHr):	5.28	Cycle Time (s):	60	C1	Stream: 3	PRC for Signalled Lanes (%)	64.9	Total Delay for Signalled Lanes (pcuHr):	4.54	Cycle Time (s):	60	C1	Stream: 4	PRC for Signalled Lanes (%)	44.6	Total Delay for Signalled Lanes (pcuHr):	8.93	Cycle Time (s):	60	C1	Stream: 5	PRC for Signalled Lanes (%)	40.0	Total Delay for Signalled Lanes (pcuHr):	2.52	Cycle Time (s):	60	C1	Stream: 6	PRC for Signalled Lanes (%)	311.5	Total Delay for Signalled Lanes (pcuHr):	0.39	Cycle Time (s):	60	C1	Stream: 7	PRC for Signalled Lanes (%)	78.0	Total Delay for Signalled Lanes (pcuHr):	1.08	Cycle Time (s):	60	C1	Stream: 8	PRC for Signalled Lanes (%)	209.0	Total Delay for Signalled Lanes (pcuHr):	0.28	Cycle Time (s):	60			PRC Over All Lanes (%)	40.0	Total Delay Over All Lanes(pcuHr):	31.36		
C1	Stream: 1	PRC for Signalled Lanes (%)	40.9	Total Delay for Signalled Lanes (pcuHr):	8.33	Cycle Time (s):	60																																																																														
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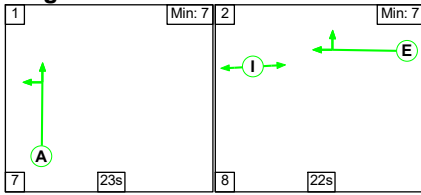
Full Input Data And Results

J1 - A19 Testos - Amended.lsg3x

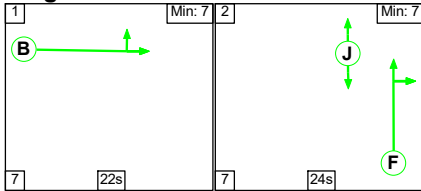
Scenario 2: '2022/23 Base + Com Dev' (FG2: '2023 Base + Com Dev', Plan 1: 'Network Control Plan 1')

Stage Sequence Diagram

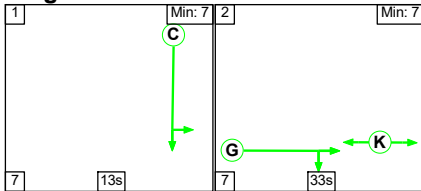
Stage Stream: 1



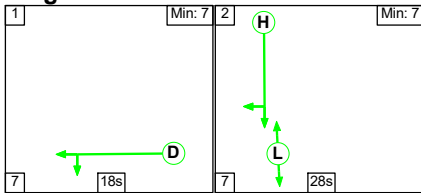
Stage Stream: 2



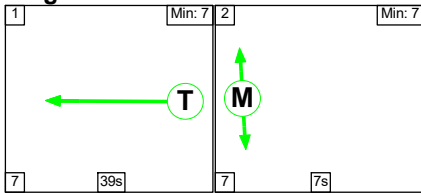
Stage Stream: 3



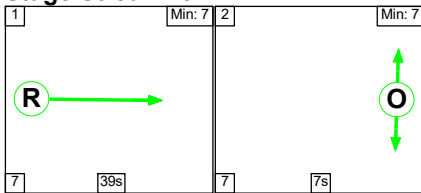
Stage Stream: 4



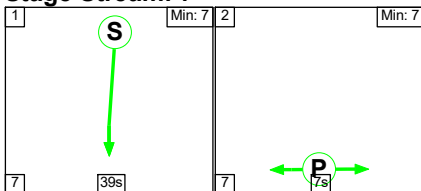
Stage Stream: 5



Stage Stream: 6

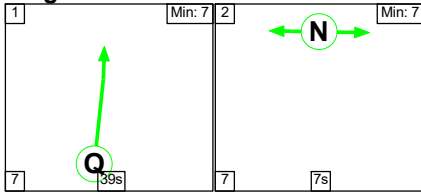


Stage Stream: 7



Full Input Data And Results
 J1 - A19 Testos - Amended.lsg3x

Stage Stream: 8



Stage Timings

Stage Stream: 1

Stage	1	2
Duration	23	22
Change Point	0	30

Stage Stream: 2

Stage	1	2
Duration	22	24
Change Point	46	15

Stage Stream: 3

Stage	1	2
Duration	13	33
Change Point	36	56

Stage Stream: 4

Stage	1	2
Duration	18	28
Change Point	26	51

Stage Stream: 5

Stage	1	2
Duration	39	7
Change Point	34	20

Stage Stream: 6

Stage	1	2
Duration	39	7
Change Point	53	39

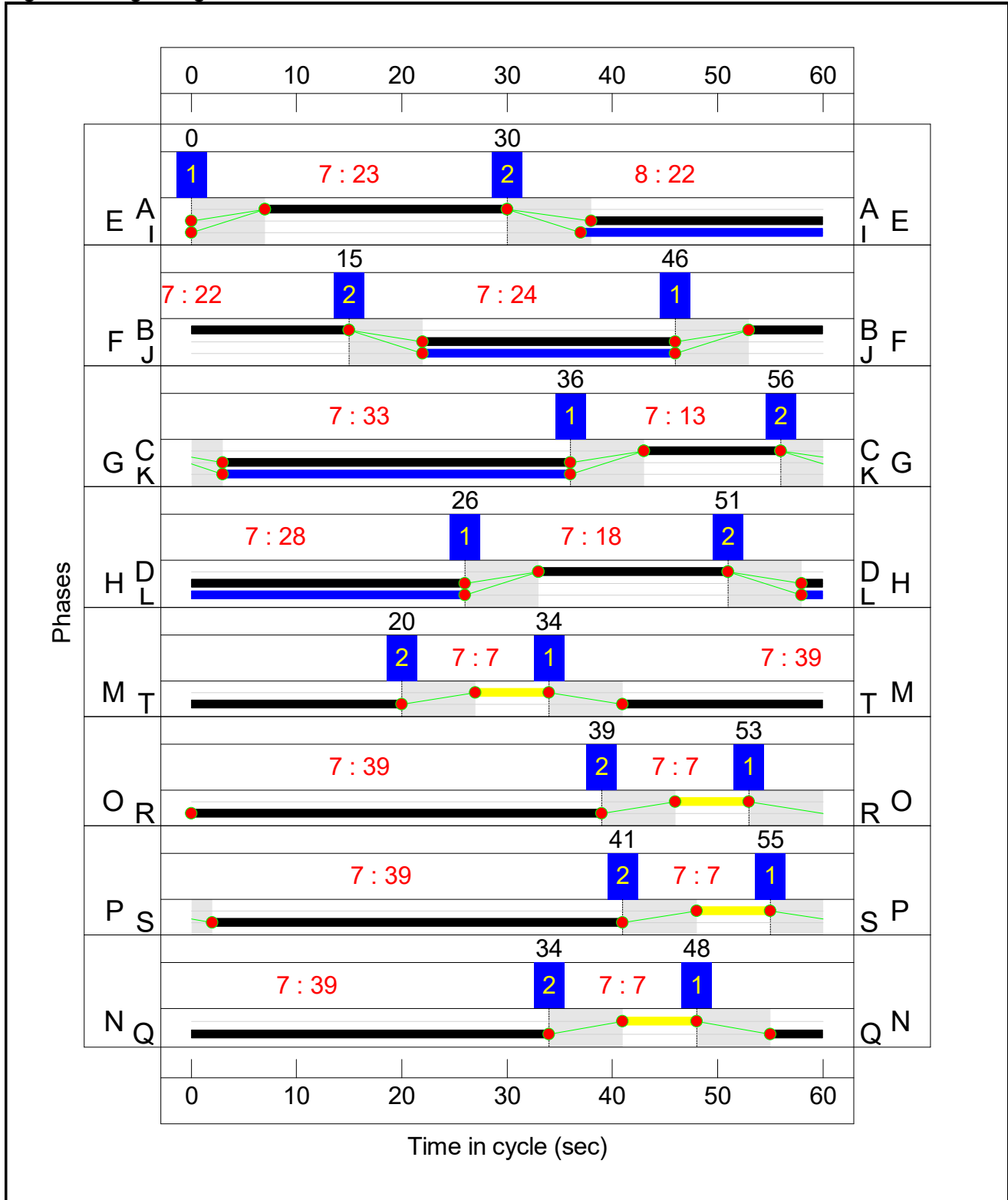
Stage Stream: 7

Stage	1	2
Duration	39	7
Change Point	55	41

Stage Stream: 8

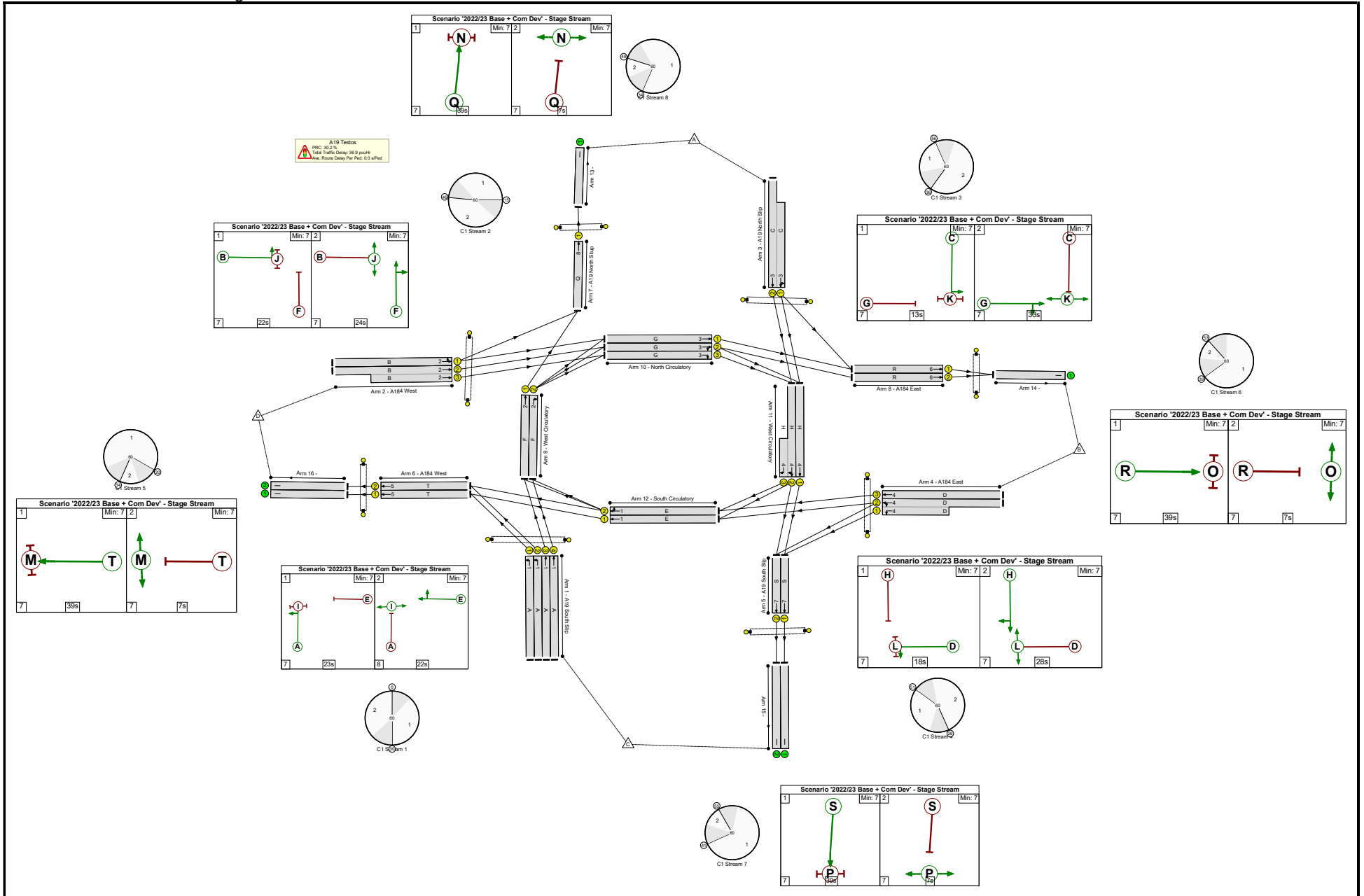
Stage	1	2
Duration	39	7
Change Point	48	34

Signal Timings Diagram



Full Input Data And Results
J1 - A19 Testos - Amended.lsg3x
Network Layout Diagram

Full Input Data And Results
 J1 - A19 Testos - Amended.lsg3x



Full Input Data And Results
J1 - A19 Testos - Amended.lsg3x

Full Input Data And Results
 J1 - A19 Testos - Amended.lsg3x

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	-	-	N/A	-	-		-	-	-	-	-	-	69.1%
A19 Testos	-	-	N/A	-	-		-	-	-	-	-	-	69.1%
1/1	A19 South Slip Left	U	1	N/A	A		1	23	-	439	1933	773	56.8%
1/2	A19 South Slip Left	U	1	N/A	A		1	23	-	508	2052	821	61.9%
1/3	A19 South Slip Ahead	U	1	N/A	A		1	23	-	126	2064	826	15.3%
1/4	A19 South Slip Ahead	U	1	N/A	A		1	23	-	157	2074	830	18.9%
2/1	A184 West Left Ahead	U	2	N/A	B		1	22	-	269	1907	731	36.8%
2/2+2/3	A184 West Ahead	U	2	N/A	B		1	22	-	784	2055:2047	570+785	57.9 : 57.9%
3/2+3/1	A19 North Slip Left Ahead	U	3	N/A	C		1	13	-	544	2115:1973	493+460	63.8 : 49.7%
4/2+4/1	A184 East Left Ahead	U	4	N/A	D		1	18	-	667	2132:1932	675+423	60.7 : 60.7%
4/3	A184 East Ahead	U	4	N/A	D		1	18	-	354	2065	654	54.1%
5/1	A19 South Slip Ahead	U	7	N/A	S		1	39	-	708	2008	1339	52.9%
5/2	A19 South Slip Ahead	U	7	N/A	S		1	39	-	541	2091	1394	38.8%
6/1	A184 West Ahead	U	5	N/A	T		1	39	-	915	1985	1323	69.1%
6/2	A184 West Ahead	U	5	N/A	T		1	39	-	850	2133	1422	59.8%
7/1	A19 North Slip Ahead	U	8	N/A	Q		1	39	-	387	1957	1305	29.7%
8/1	A184 East Ahead	U	6	N/A	R		1	39	-	303	1982	1321	22.9%

Full Input Data And Results
 J1 - A19 Testos - Amended.lsg3x

8/2	A184 East Ahead	U	6	N/A	R		1	39	-	144	2100	1400	10.3%
9/1	West Circulatory Ahead	U	2	N/A	F		1	24	-	300	1963	818	36.7%
9/2	West Circulatory Right	U	2	N/A	F		1	24	-	157	2092	872	18.0%
10/1	North Circulatory Ahead	U	3	N/A	G		1	33	-	242	1926	1091	22.2%
10/2	North Circulatory Ahead Right	U	3	N/A	G		1	33	-	427	2098	1189	35.9%
10/3	North Circulatory Right	U	3	N/A	G		1	33	-	454	2086	1182	38.4%
11/1	West Circulatory Ahead	U	4	N/A	H		1	28	-	451	1977	956	47.2%
11/2+11/3	West Circulatory Ahead Right	U	4	N/A	H		1	28	-	769	2102:2127	895+239	67.8 : 67.8%
12/1	South Circulatory Ahead	U	1	N/A	E		1	22	-	476	1957	750	63.5%
12/2	South Circulatory Ahead Right	U	1	N/A	E		1	22	-	516	2083	798	64.6%
13/1		U	N/A	N/A	-		-	-	-	387	Inf	Inf	0.0%
14/1		U	N/A	N/A	-		-	-	-	447	Inf	Inf	0.0%
15/1		U	N/A	N/A	-		-	-	-	708	Inf	Inf	0.0%
15/2		U	N/A	N/A	-		-	-	-	541	Inf	Inf	0.0%
16/1		U	N/A	N/A	-		-	-	-	915	Inf	Inf	0.0%
16/2		U	N/A	N/A	-		-	-	-	850	Inf	Inf	0.0%
Ped Link: P1	Unnamed Ped Link	-	1	-	I		1	23	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	2	-	J		1	24	-	0	-	0	0.0%

Full Input Data And Results

J1 - A19 Testos - Amended.lsg3x

Ped Link: P3	Unnamed Ped Link	-	3	-	K		1	33	-	0	-	0	0.0%
Ped Link: P4	Unnamed Ped Link	-	4	-	L		1	28	-	0	-	0	0.0%
Ped Link: P5	Unnamed Ped Link	-	5	-	M		1	7	-	0	-	0	0.0%
Ped Link: P6	Unnamed Ped Link	-	8	-	N		1	7	-	0	-	0	0.0%
Ped Link: P7	Unnamed Ped Link	-	6	-	O		1	7	-	0	-	0	0.0%
Ped Link: P8	Unnamed Ped Link	-	7	-	P		1	7	-	0	-	0	0.0%

Full Input Data And Results
 J1 - A19 Testos - Amended.lsg3x

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	-	-	0	0	0	24.7	12.2	0.0	36.9	-	-	-	-
A19 Testos	-	-	0	0	0	24.7	12.2	0.0	36.9	-	-	-	-
1/1	439	439	-	-	-	1.7	0.7	-	2.4	19.3	5.6	0.7	6.3
1/2	508	508	-	-	-	2.0	0.8	-	2.8	20.1	6.6	0.8	7.4
1/3	126	126	-	-	-	0.4	0.1	-	0.5	14.1	1.3	0.1	1.4
1/4	157	157	-	-	-	0.5	0.1	-	0.6	14.4	1.7	0.1	1.8
2/1	269	269	-	-	-	1.0	0.3	-	1.3	17.2	3.2	0.3	3.5
2/2+2/3	784	784	-	-	-	3.1	0.7	-	3.8	17.4	5.9	0.7	6.6
3/2+3/1	544	544	-	-	-	3.1	0.7	-	3.7	24.8	4.7	0.7	5.4
4/2+4/1	667	667	-	-	-	3.1	0.8	-	3.9	21.1	5.7	0.8	6.5
4/3	354	354	-	-	-	1.7	0.6	-	2.3	22.9	4.8	0.6	5.4
5/1	708	708	-	-	-	0.5	0.6	-	1.0	5.3	4.6	0.6	5.2
5/2	541	541	-	-	-	0.0	0.3	-	0.4	2.4	2.0	0.3	2.3
6/1	915	915	-	-	-	0.5	1.1	-	1.6	6.5	4.0	1.1	5.1
6/2	850	850	-	-	-	0.7	0.7	-	1.5	6.3	5.6	0.7	6.4
7/1	387	387	-	-	-	0.1	0.2	-	0.3	2.9	1.1	0.2	1.3
8/1	303	303	-	-	-	0.2	0.1	-	0.3	4.1	1.0	0.1	1.2
8/2	144	144	-	-	-	0.0	0.1	-	0.1	1.7	0.0	0.1	0.1
9/1	300	300	-	-	-	1.4	0.3	-	1.7	19.9	4.5	0.3	4.8
9/2	157	157	-	-	-	0.1	0.1	-	0.3	5.7	1.8	0.1	1.9
10/1	242	242	-	-	-	0.2	0.1	-	0.3	4.5	0.7	0.1	0.8
10/2	427	427	-	-	-	0.3	0.3	-	0.5	4.6	1.8	0.3	2.1
10/3	454	454	-	-	-	0.0	0.3	-	0.3	2.5	0.2	0.3	0.5
11/1	451	451	-	-	-	0.6	0.4	-	1.1	8.6	3.5	0.4	3.9
11/2+11/3	769	769	-	-	-	1.0	1.0	-	2.1	9.6	3.8	1.0	4.8
12/1	476	476	-	-	-	0.9	0.9	-	1.7	13.0	1.8	0.9	2.7

Full Input Data And Results

J1 - A19 Testos - Amended.lsg3x

12/2	516	516	-	-	-	1.6	0.9	-	2.5	17.2	3.3	0.9	4.2																																																																								
13/1	387	387	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0																																																																								
14/1	447	447	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0																																																																								
15/1	708	708	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0																																																																								
15/2	541	541	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0																																																																								
16/1	915	915	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0																																																																								
16/2	850	850	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0																																																																								
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-																																																																								
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-																																																																								
Ped Link: P3	0	0	-	-	-	-	-	-	-	-	-	-	-																																																																								
Ped Link: P4	0	0	-	-	-	-	-	-	-	-	-	-	-																																																																								
Ped Link: P5	0	0	-	-	-	-	-	-	-	-	-	-	-																																																																								
Ped Link: P6	0	0	-	-	-	-	-	-	-	-	-	-	-																																																																								
Ped Link: P7	0	0	-	-	-	-	-	-	-	-	-	-	-																																																																								
Ped Link: P8	0	0	-	-	-	-	-	-	-	-	-	-	-																																																																								
<table> <tbody> <tr> <td>C1</td> <td>Stream: 1</td> <td>PRC for Signalled Lanes (%)</td> <td>39.3</td> <td>Total Delay for Signalled Lanes (pcuHr):</td> <td>10.50</td> <td>Cycle Time (s):</td> <td>60</td> </tr> <tr> <td>C1</td> <td>Stream: 2</td> <td>PRC for Signalled Lanes (%)</td> <td>55.6</td> <td>Total Delay for Signalled Lanes (pcuHr):</td> <td>6.97</td> <td>Cycle Time (s):</td> <td>60</td> </tr> <tr> <td>C1</td> <td>Stream: 3</td> <td>PRC for Signalled Lanes (%)</td> <td>41.0</td> <td>Total Delay for Signalled Lanes (pcuHr):</td> <td>4.91</td> <td>Cycle Time (s):</td> <td>60</td> </tr> <tr> <td>C1</td> <td>Stream: 4</td> <td>PRC for Signalled Lanes (%)</td> <td>32.7</td> <td>Total Delay for Signalled Lanes (pcuHr):</td> <td>9.29</td> <td>Cycle Time (s):</td> <td>60</td> </tr> <tr> <td>C1</td> <td>Stream: 5</td> <td>PRC for Signalled Lanes (%)</td> <td>30.2</td> <td>Total Delay for Signalled Lanes (pcuHr):</td> <td>3.12</td> <td>Cycle Time (s):</td> <td>60</td> </tr> <tr> <td>C1</td> <td>Stream: 6</td> <td>PRC for Signalled Lanes (%)</td> <td>292.5</td> <td>Total Delay for Signalled Lanes (pcuHr):</td> <td>0.42</td> <td>Cycle Time (s):</td> <td>60</td> </tr> <tr> <td>C1</td> <td>Stream: 7</td> <td>PRC for Signalled Lanes (%)</td> <td>70.2</td> <td>Total Delay for Signalled Lanes (pcuHr):</td> <td>1.40</td> <td>Cycle Time (s):</td> <td>60</td> </tr> <tr> <td>C1</td> <td>Stream: 8</td> <td>PRC for Signalled Lanes (%)</td> <td>203.4</td> <td>Total Delay for Signalled Lanes (pcuHr):</td> <td>0.31</td> <td>Cycle Time (s):</td> <td>60</td> </tr> <tr> <td></td> <td></td> <td>PRC Over All Lanes (%)</td> <td>30.2</td> <td>Total Delay Over All Lanes(pcuHr):</td> <td>36.92</td> <td></td> <td></td> </tr> </tbody> </table>														C1	Stream: 1	PRC for Signalled Lanes (%)	39.3	Total Delay for Signalled Lanes (pcuHr):	10.50	Cycle Time (s):	60	C1	Stream: 2	PRC for Signalled Lanes (%)	55.6	Total Delay for Signalled Lanes (pcuHr):	6.97	Cycle Time (s):	60	C1	Stream: 3	PRC for Signalled Lanes (%)	41.0	Total Delay for Signalled Lanes (pcuHr):	4.91	Cycle Time (s):	60	C1	Stream: 4	PRC for Signalled Lanes (%)	32.7	Total Delay for Signalled Lanes (pcuHr):	9.29	Cycle Time (s):	60	C1	Stream: 5	PRC for Signalled Lanes (%)	30.2	Total Delay for Signalled Lanes (pcuHr):	3.12	Cycle Time (s):	60	C1	Stream: 6	PRC for Signalled Lanes (%)	292.5	Total Delay for Signalled Lanes (pcuHr):	0.42	Cycle Time (s):	60	C1	Stream: 7	PRC for Signalled Lanes (%)	70.2	Total Delay for Signalled Lanes (pcuHr):	1.40	Cycle Time (s):	60	C1	Stream: 8	PRC for Signalled Lanes (%)	203.4	Total Delay for Signalled Lanes (pcuHr):	0.31	Cycle Time (s):	60			PRC Over All Lanes (%)	30.2	Total Delay Over All Lanes(pcuHr):	36.92		
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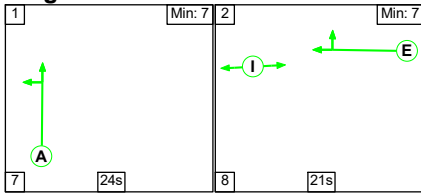
Full Input Data And Results

J1 - A19 Testos - Amended.lsg3x

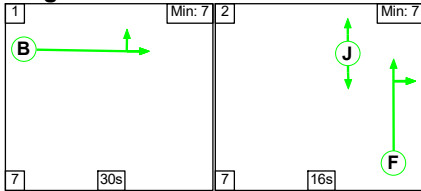
Scenario 3: '2022/23 Base + Com Dev + Dev' (FG3: '2023 Base + Com Dev + Dev', Plan 1: 'Network Control Plan 1')

Stage Sequence Diagram

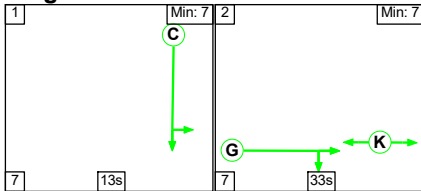
Stage Stream: 1



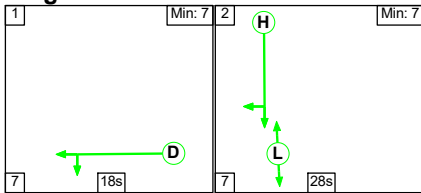
Stage Stream: 2



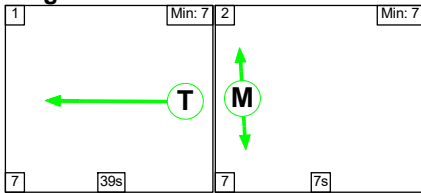
Stage Stream: 3



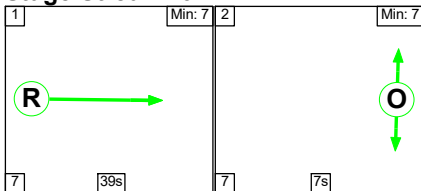
Stage Stream: 4



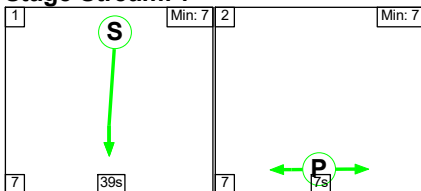
Stage Stream: 5



Stage Stream: 6

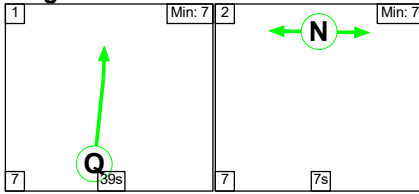


Stage Stream: 7



Full Input Data And Results
 J1 - A19 Testos - Amended.lsg3x

Stage Stream: 8



Stage Timings

Stage Stream: 1

Stage	1	2
Duration	24	21
Change Point	0	31

Stage Stream: 2

Stage	1	2
Duration	30	16
Change Point	48	25

Stage Stream: 3

Stage	1	2
Duration	13	33
Change Point	36	56

Stage Stream: 4

Stage	1	2
Duration	18	28
Change Point	27	52

Stage Stream: 5

Stage	1	2
Duration	39	7
Change Point	35	21

Stage Stream: 6

Stage	1	2
Duration	39	7
Change Point	52	38

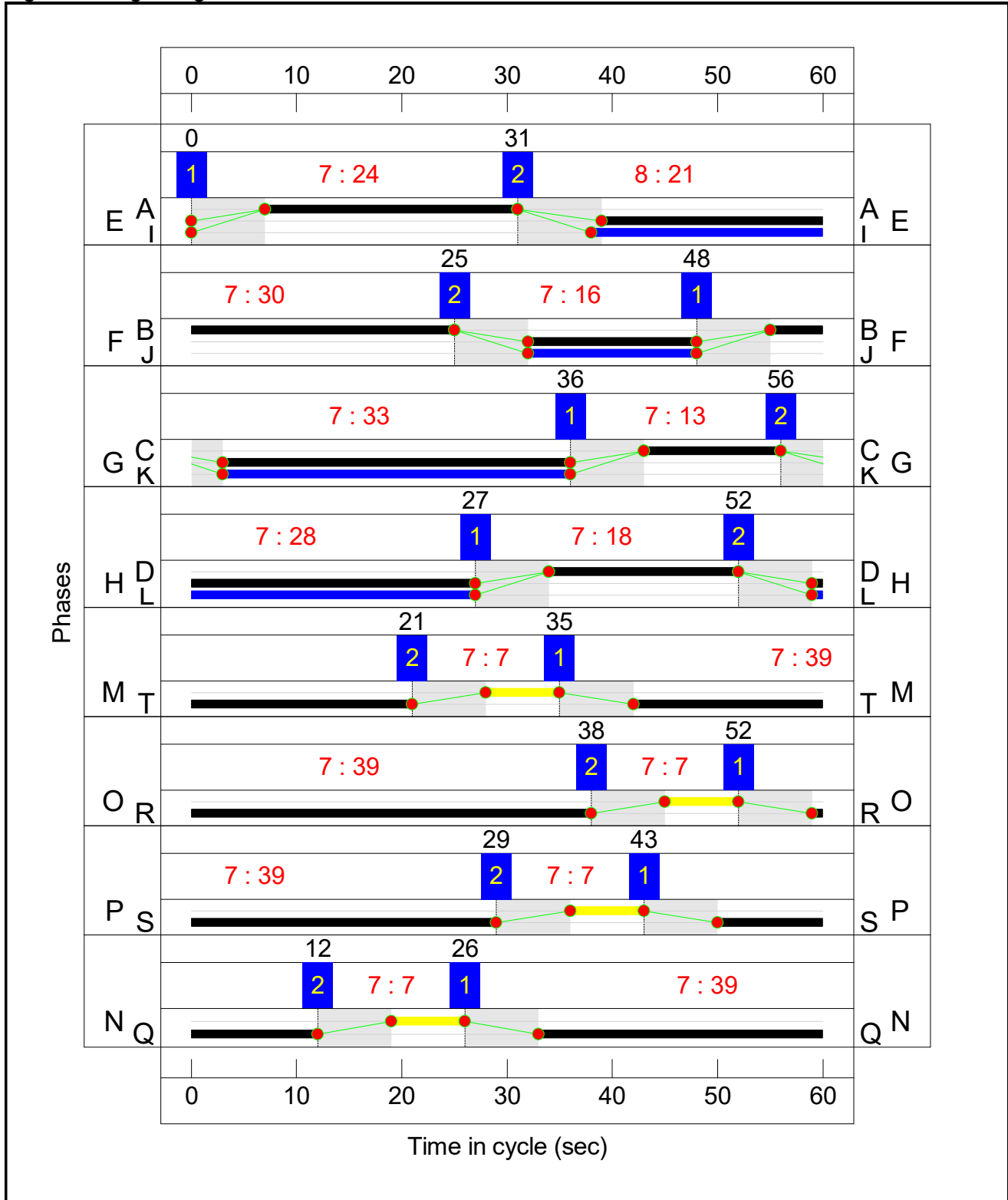
Stage Stream: 7

Stage	1	2
Duration	39	7
Change Point	43	29

Stage Stream: 8

Stage	1	2
Duration	39	7
Change Point	26	12

Signal Timings Diagram



Full Input Data And Results
J1 - A19 Testos - Amended.lsg3x
Network Layout Diagram

Full Input Data And Results
J1 - A19 Testos - Amended.lsg3x

Full Input Data And Results
 J1 - A19 Testos - Amended.lsg3x

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	-	-	N/A	-	-		-	-	-	-	-	-	71.1%
A19 Testos	-	-	N/A	-	-		-	-	-	-	-	-	71.1%
1/1	A19 South Slip Left	U	1	N/A	A		1	24	-	474	1933	805	58.9%
1/2	A19 South Slip Left	U	1	N/A	A		1	24	-	547	2052	855	64.0%
1/3	A19 South Slip Ahead	U	1	N/A	A		1	24	-	126	2064	860	14.7%
1/4	A19 South Slip Ahead	U	1	N/A	A		1	24	-	179	2074	864	20.7%
2/1	A184 West Left Ahead	U	2	N/A	B		1	30	-	277	1908	986	28.1%
2/2+2/3	A184 West Ahead	U	2	N/A	B		1	30	-	850	2055:2047	865+991	45.8 : 45.8%
3/2+3/1	A19 North Slip Left Ahead	U	3	N/A	C		1	13	-	544	2115:1973	493+435	66.3 : 49.9%
4/2+4/1	A184 East Left Ahead	U	4	N/A	D		1	18	-	680	2133:1932	675+434	61.3 : 61.3%
4/3	A184 East Ahead	U	4	N/A	D		1	18	-	364	2065	654	55.7%
5/1	A19 South Slip Ahead	U	7	N/A	S		1	39	-	779	2008	1339	58.2%
5/2	A19 South Slip Ahead	U	7	N/A	S		1	39	-	567	2091	1394	40.7%
6/1	A184 West Ahead	U	5	N/A	T		1	39	-	941	1985	1323	71.1%
6/2	A184 West Ahead	U	5	N/A	T		1	39	-	898	2133	1422	63.2%
7/1	A19 North Slip Ahead	U	8	N/A	Q		1	39	-	387	1957	1305	29.7%
8/1	A184 East Ahead	U	6	N/A	R		1	39	-	355	1982	1321	26.9%

Full Input Data And Results
 J1 - A19 Testos - Amended.lsg3x

8/2	A184 East Ahead	U	6	N/A	R		1	39	-	114	2100	1400	8.1%
9/1	West Circulatory Ahead	U	2	N/A	F		1	16	-	300	1963	556	53.9%
9/2	West Circulatory Right	U	2	N/A	F		1	16	-	179	2092	593	30.2%
10/1	North Circulatory Ahead	U	3	N/A	G		1	33	-	294	1926	1091	26.9%
10/2	North Circulatory Ahead Right	U	3	N/A	G		1	33	-	471	2099	1189	39.6%
10/3	North Circulatory Right	U	3	N/A	G		1	33	-	454	2086	1182	38.4%
11/1	West Circulatory Ahead	U	4	N/A	H		1	28	-	513	1977	956	53.7%
11/2+11/3	West Circulatory Ahead Right	U	4	N/A	H		1	28	-	781	2102:2127	898+233	69.1 : 69.1%
12/1	South Circulatory Ahead	U	1	N/A	E		1	21	-	467	1957	718	65.1%
12/2	South Circulatory Ahead Right	U	1	N/A	E		1	21	-	525	2083	764	68.7%
13/1		U	N/A	N/A	-		-	-	-	387	Inf	Inf	0.0%
14/1		U	N/A	N/A	-		-	-	-	469	Inf	Inf	0.0%
15/1		U	N/A	N/A	-		-	-	-	779	Inf	Inf	0.0%
15/2		U	N/A	N/A	-		-	-	-	567	Inf	Inf	0.0%
16/1		U	N/A	N/A	-		-	-	-	941	Inf	Inf	0.0%
16/2		U	N/A	N/A	-		-	-	-	898	Inf	Inf	0.0%
Ped Link: P1	Unnamed Ped Link	-	1	-	I		1	22	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	2	-	J		1	16	-	0	-	0	0.0%

Full Input Data And Results

J1 - A19 Testos - Amended.lsg3x

Ped Link: P3	Unnamed Ped Link	-	3	-	K		1	33	-	0	-	0	0.0%
Ped Link: P4	Unnamed Ped Link	-	4	-	L		1	28	-	0	-	0	0.0%
Ped Link: P5	Unnamed Ped Link	-	5	-	M		1	7	-	0	-	0	0.0%
Ped Link: P6	Unnamed Ped Link	-	8	-	N		1	7	-	0	-	0	0.0%
Ped Link: P7	Unnamed Ped Link	-	6	-	O		1	7	-	0	-	0	0.0%
Ped Link: P8	Unnamed Ped Link	-	7	-	P		1	7	-	0	-	0	0.0%

Full Input Data And Results
 J1 - A19 Testos - Amended.lsg3x

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	-	-	0	0	0	27.1	13.4	0.0	40.5	-	-	-	-
A19 Testos	-	-	0	0	0	27.1	13.4	0.0	40.5	-	-	-	-
1/1	474	474	-	-	-	1.8	0.7	-	2.5	18.9	6.1	0.7	6.8
1/2	547	547	-	-	-	2.1	0.9	-	3.0	19.7	7.1	0.9	8.0
1/3	126	126	-	-	-	0.4	0.1	-	0.5	13.3	1.3	0.1	1.4
1/4	179	179	-	-	-	0.6	0.1	-	0.7	13.8	1.9	0.1	2.0
2/1	277	277	-	-	-	0.6	0.2	-	0.8	10.7	2.5	0.2	2.7
2/2+2/3	850	850	-	-	-	2.1	0.4	-	2.5	10.6	4.7	0.4	5.1
3/2+3/1	544	544	-	-	-	3.1	0.7	-	3.8	25.1	4.9	0.7	5.6
4/2+4/1	680	680	-	-	-	3.2	0.8	-	4.0	21.1	5.8	0.8	6.5
4/3	364	364	-	-	-	1.7	0.6	-	2.3	23.2	5.0	0.6	5.6
5/1	779	779	-	-	-	0.9	0.7	-	1.6	7.5	4.5	0.7	5.2
5/2	567	567	-	-	-	0.1	0.3	-	0.4	2.7	0.4	0.3	0.7
6/1	941	941	-	-	-	0.6	1.2	-	1.8	6.9	4.5	1.2	5.8
6/2	898	898	-	-	-	0.8	0.9	-	1.6	6.5	6.1	0.9	6.9
7/1	387	387	-	-	-	0.1	0.2	-	0.3	2.7	1.1	0.2	1.3
8/1	355	355	-	-	-	0.2	0.2	-	0.4	3.7	1.0	0.2	1.2
8/2	114	114	-	-	-	0.0	0.0	-	0.0	1.5	0.0	0.0	0.0
9/1	300	300	-	-	-	2.0	0.6	-	2.6	31.5	4.8	0.6	5.4
9/2	179	179	-	-	-	0.6	0.2	-	0.8	15.5	2.7	0.2	2.9
10/1	294	294	-	-	-	0.6	0.2	-	0.7	9.1	2.3	0.2	2.5
10/2	471	471	-	-	-	0.4	0.3	-	0.8	5.9	1.8	0.3	2.2
10/3	454	454	-	-	-	0.1	0.3	-	0.4	3.2	0.2	0.3	0.5
11/1	513	513	-	-	-	1.1	0.6	-	1.7	11.6	4.3	0.6	4.9
11/2+11/3	781	781	-	-	-	1.5	1.1	-	2.6	11.9	4.9	1.1	6.0
12/1	467	467	-	-	-	0.9	0.9	-	1.9	14.4	2.0	0.9	2.9

Full Input Data And Results

J1 - A19 Testos - Amended.lsg3x

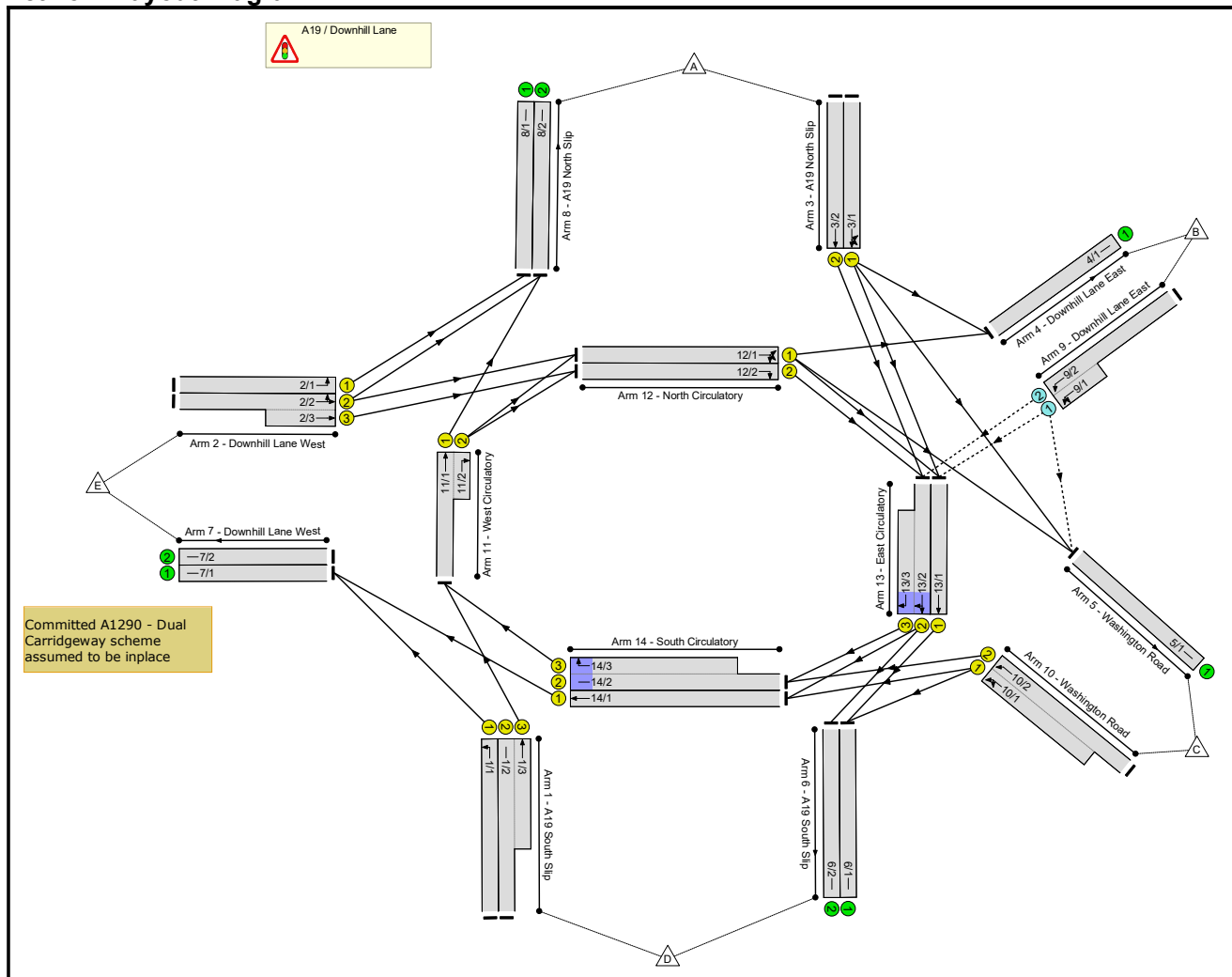
12/2	525	525	-	-	-	1.7	1.1	-	2.8	18.9	3.5	1.1	4.6		
13/1	387	387	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0		
14/1	469	469	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0		
15/1	779	779	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0		
15/2	567	567	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0		
16/1	941	941	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0		
16/2	898	898	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0		
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-		
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-		
Ped Link: P3	0	0	-	-	-	-	-	-	-	-	-	-	-		
Ped Link: P4	0	0	-	-	-	-	-	-	-	-	-	-	-		
Ped Link: P5	0	0	-	-	-	-	-	-	-	-	-	-	-		
Ped Link: P6	0	0	-	-	-	-	-	-	-	-	-	-	-		
Ped Link: P7	0	0	-	-	-	-	-	-	-	-	-	-	-		
Ped Link: P8	0	0	-	-	-	-	-	-	-	-	-	-	-		
			C1	Stream: 1 PRC for Signalled Lanes (%):	30.9				Total Delay for Signalled Lanes (pcuHr):	11.27				Cycle Time (s):	60
			C1	Stream: 2 PRC for Signalled Lanes (%):	66.9				Total Delay for Signalled Lanes (pcuHr):	6.74				Cycle Time (s):	60
			C1	Stream: 3 PRC for Signalled Lanes (%):	35.8				Total Delay for Signalled Lanes (pcuHr):	5.71				Cycle Time (s):	60
			C1	Stream: 4 PRC for Signalled Lanes (%):	30.3				Total Delay for Signalled Lanes (pcuHr):	10.58				Cycle Time (s):	60
			C1	Stream: 5 PRC for Signalled Lanes (%):	26.6				Total Delay for Signalled Lanes (pcuHr):	3.43				Cycle Time (s):	60
			C1	Stream: 6 PRC for Signalled Lanes (%):	235.0				Total Delay for Signalled Lanes (pcuHr):	0.42				Cycle Time (s):	60
			C1	Stream: 7 PRC for Signalled Lanes (%):	54.7				Total Delay for Signalled Lanes (pcuHr):	2.05				Cycle Time (s):	60
			C1	Stream: 8 PRC for Signalled Lanes (%):	203.4				Total Delay for Signalled Lanes (pcuHr):	0.29				Cycle Time (s):	60
			PRC Over All Lanes (%):		26.6				Total Delay Over All Lanes(pcuHr):	40.48					

Full Input Data And Results
Full Input Data And Results

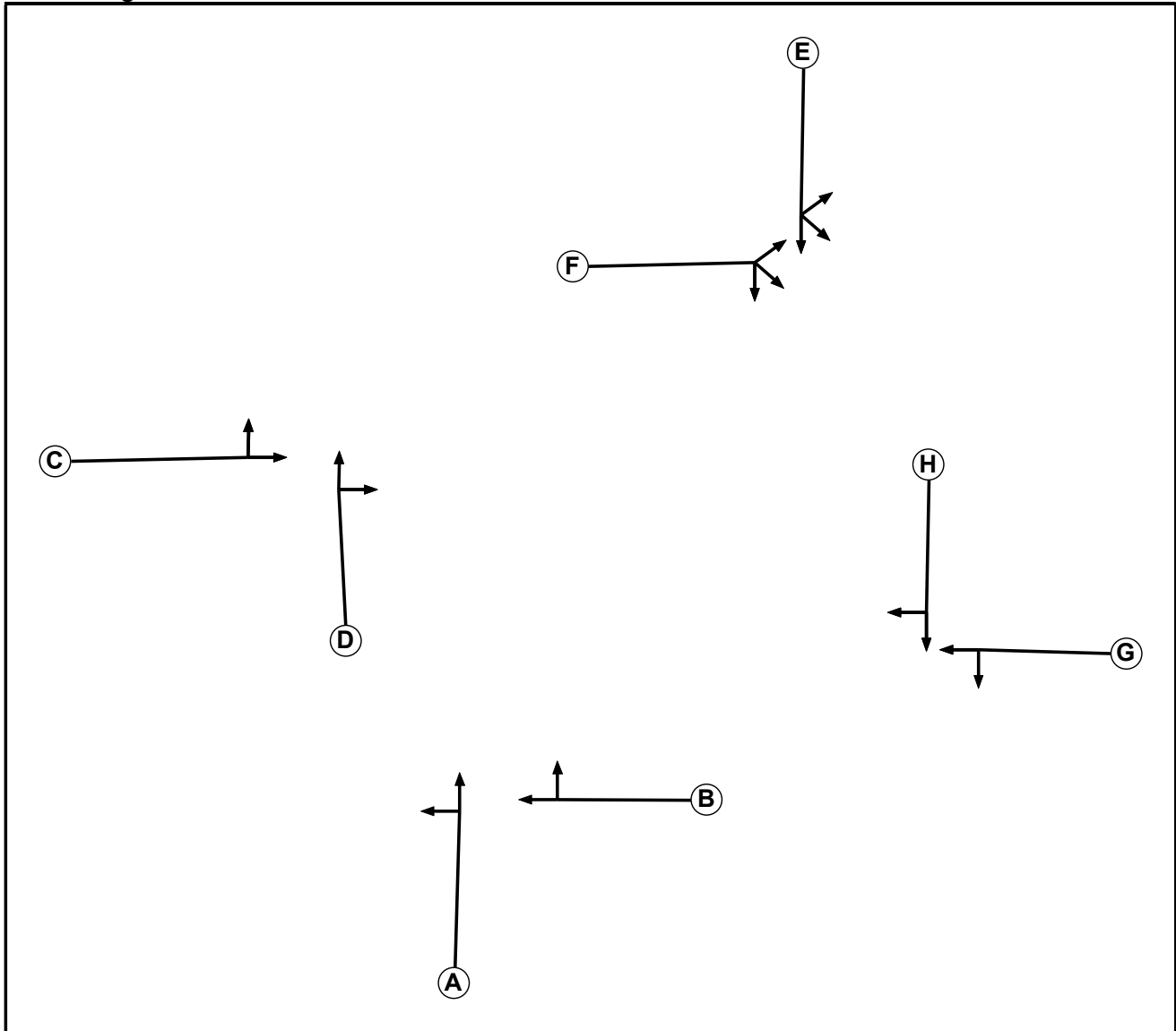
User and Project Details

Project:	
Title:	
Location:	
Additional detail:	
File name:	J2 - A19 Downhill Lane - Calibration.lsg3x
Author:	
Company:	
Address:	

Network Layout Diagram



Phase Diagram



Phase Input Data

Phase Name	Phase Type	Stage Stream	Assoc. Phase	Street Min	Cont Min
A	Traffic	1		7	7
B	Traffic	1		7	7
C	Traffic	2		7	7
D	Traffic	2		7	7
E	Traffic	3		7	7
F	Traffic	3		7	7
G	Traffic	4		7	7
H	Traffic	4		7	7

Full Input Data And Results

Phase Intergreens Matrix

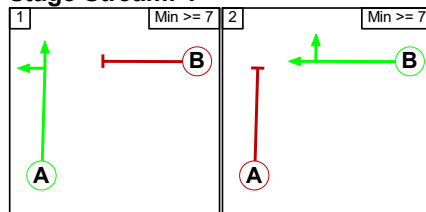
		Starting Phase							
		A	B	C	D	E	F	G	H
Terminating Phase	A	7	-	-	-	-	-	-	-
	B	7	-	-	-	-	-	-	-
	C	-	-	7	-	-	-	-	-
	D	-	-	7	-	-	-	-	-
	E	-	-	-	-	7	-	-	-
	F	-	-	-	-	7	-	-	-
	G	-	-	-	-	-	-	7	-
	H	-	-	-	-	-	-	7	-

Phases in Stage

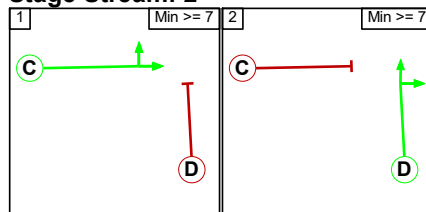
Stream	Stage No.	Phases in Stage
1	1	A
1	2	B
2	1	C
2	2	D
3	1	E
3	2	F
4	1	G
4	2	H

Stage Diagram

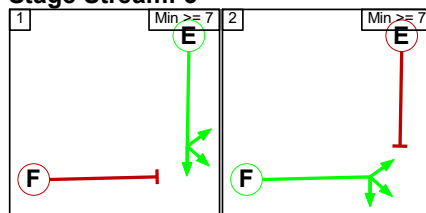
Stage Stream: 1



Stage Stream: 2

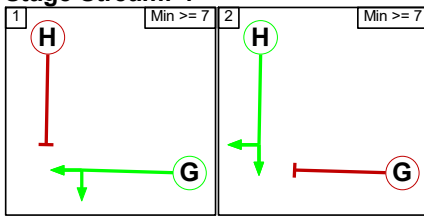


Stage Stream: 3



Full Input Data And Results

Stage Stream: 4



Phase Delays

Stage Stream: 1

Term. Stage	Start Stage	Phase	Type	Value	Cont value
There are no Phase Delays defined					

Stage Stream: 2

Term. Stage	Start Stage	Phase	Type	Value	Cont value
There are no Phase Delays defined					

Stage Stream: 3

Term. Stage	Start Stage	Phase	Type	Value	Cont value
There are no Phase Delays defined					

Stage Stream: 4

Term. Stage	Start Stage	Phase	Type	Value	Cont value
There are no Phase Delays defined					

Prohibited Stage Change

Stage Stream: 1

		To Stage	
		1	2
From Stage	1		7
	2	7	

Stage Stream: 2

		To Stage	
		1	2
From Stage	1		7
	2	7	

Stage Stream: 3

		To Stage	
		1	2
From Stage	1		7
	2	7	

Full Input Data And Results
Stage Stream: 4

		To Stage	
From Stage		1	2
	1		7
	2	7	

Full Input Data And Results

Give-Way Lane Input Data

Junction: A19 / Downhill Lane											
Lane	Movement	Max Flow when Giving Way (PCU/Hr)	Min Flow when Giving Way (PCU/Hr)	Opposing Lane	Opp. Lane Coeff.	Opp. Mvmnts.	Right Turn Storage (PCU)	Non-Blocking Storage (PCU)	RTF	Right Turn Move up (s)	Max Turns in Intergreen (PCU)
9/1 (Downhill Lane East)	5/1 (Left)	1439	0	12/1	1.09	To 5/1 (Ahead) To 13/1 (Right)	-	-	-	-	-
				12/2	1.09	To 13/2 (Right)					
				3/1	1.09	To 5/1 (Left) To 13/1 (Ahead)					
				3/2	1.09	None					
	13/1 (Left)	1439	0	13/1	1.09	None					
				13/2	1.09	None					
13/3				1.09	None						
9/2 (Downhill Lane East)	13/2 (Left)	1439	0	12/1	1.09	To 5/1 (Ahead) To 13/1 (Right)	-	-	-	-	-
				12/2	1.09	To 13/2 (Right)					
				3/1	1.09	To 5/1 (Left) To 13/1 (Ahead)					
				3/2	1.09	None					

Full Input Data And Results

Lane Input Data

Junction: A19 / Downhill Lane												
Lane	Lane Type	Phases	Start Disp.	End Disp.	Physical Length (PCU)	Sat Flow Type	Def User Saturation Flow (PCU/Hr)	Lane Width (m)	Gradient	Nearside Lane	Turns	Turning Radius (m)
1/1 (A19 South Slip)	U	A	2	3	60.0	User	1800	-	-	-	-	-
1/2 (A19 South Slip)	U	A	2	3	60.0	Geom	-	3.80	0.00	Y		
1/3 (A19 South Slip)	U	A	2	3	10.1	Geom	-	3.80	0.00	Y	Arm 11 Ahead	38.00
2/1 (Downhill Lane West)	U	C	2	3	60.0	Geom	-	4.63	0.00	Y	Arm 8 Left	57.00
2/2 (Downhill Lane West)	U	C	2	3	60.0	Geom	-	4.21	0.00	N	Arm 8 Left	57.00
											Arm 12 Ahead	45.00
2/3 (Downhill Lane West)	U	C	2	3	6.4	Geom	-	4.38	0.00	N	Arm 12 Ahead	45.00
3/1 (A19 North Slip)	U	E	2	3	60.0	User	1800	-	-	-	-	-
3/2 (A19 North Slip)	U	E	2	3	60.0	User	1800	-	-	-	-	-
4/1 (Downhill Lane East)	U		2	3	60.0	Inf	-	-	-	-	-	-
5/1 (Washington Road)	U		2	3	60.0	Inf	-	-	-	-	-	-
6/1 (A19 South Slip)	U		2	3	60.0	Inf	-	-	-	-	-	-
6/2 (A19 South Slip)	U		2	3	60.0	Inf	-	-	-	-	-	-
7/1 (Downhill Lane West)	U		2	3	60.0	Inf	-	-	-	-	-	-
7/2 (Downhill Lane West)	U		2	3	60.0	Inf	-	-	-	-	-	-
8/1 (A19 North Slip)	U		2	3	60.0	Inf	-	-	-	-	-	-
8/2 (A19 North Slip)	U		2	3	60.0	Inf	-	-	-	-	-	-
9/1 (Downhill)	O		2	3	5.0	Geom	-	4.19	0.00	Y	Arm 5 Left	52.00

Full Input Data And Results

Lane East)											Arm 13 Left	43.00
9/2 (Downhill Lane East)	O		2	3	60.0	Geom	-	4.45	0.00	N	Arm 13 Left	52.00
10/1 (Washington Road)	U	G	2	3	13.9	Geom	-	4.75	0.00	Y	Arm 6 Left	32.00
											Arm 14 Ahead	35.00
10/2 (Washington Road)	U	G	2	3	60.0	User	1800	-	-	-	-	-
11/1 (West Circulatory)	U	D	2	3	13.6	Geom	-	4.76	0.00	Y	Arm 8 Ahead	43.00
11/2 (West Circulatory)	U	D	2	3	4.3	Geom	-	4.65	0.00	N	Arm 12 Right	32.00
12/1 (North Circulatory)	U	F	2	3	33.0	User	1800	-	-	-	-	-
12/2 (North Circulatory)	U	F	2	3	33.0	User	1800	-	-	-	-	-
13/1 (East Circulatory)	U	H	2	3	16.7	Geom	-	4.61	0.00	Y	Arm 6 Ahead	54.00
13/2 (East Circulatory)	U	H	2	3	16.7	User	1800	-	-	-	-	-
13/3 (East Circulatory)	U	H	2	3	11.0	User	1800	-	-	-	-	-
14/1 (South Circulatory)	U	B	2	3	29.2	Geom	-	4.03	0.00	Y	Arm 7 Ahead	45.00
14/2 (South Circulatory)	U	B	2	3	29.2	User	1800	-	-	-	-	-
14/3 (South Circulatory)	U	B	2	3	18.4	Geom	-	3.69	0.00	Y	Arm 11 Right	35.00

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: '2022/23 Base 0630-0730'	06:30	07:30	01:00	
2: '2022/23 Base + Com Dev'	06:30	07:30	01:00	
3: '2022/23 Base + Com Dev + Dev'	06:30	07:30	01:00	

Full Input Data And Results

Scenario 1: '2022/23 Base 0630-0730' (FG1: '2022/23 Base 0630-0730', Plan 1: 'Network Control Plan 1')
Traffic Flows, Desired

Desired Flow :

		Destination					
		A	B	C	D	E	Tot.
Origin	A	0	0	62	0	442	504
	B	1	0	3	41	93	138
	C	145	2	0	39	185	371
	D	0	9	16	0	380	405
	E	138	34	77	82	0	331
	Tot.	284	45	158	162	1100	1749

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 1: 2022/23 Base 0630-0730
Junction: A19 / Downhill Lane	
1/1	380
1/2 (with short)	25(In) 0(Out)
1/3 (short)	25
2/1	88
2/2 (with short)	243(In) 162(Out)
2/3 (short)	81
3/1	62
3/2	442
4/1	45
5/1	158
6/1	40
6/2	122
7/1	1100
7/2	0
8/1	88
8/2	196
9/1 (short)	3
9/2 (with short)	138(In) 135(Out)
10/1 (short)	224
10/2 (with short)	371(In) 147(Out)
11/1 (with short)	173(In) 146(Out)
11/2 (short)	27
12/1	139
12/2	81
13/1	1
13/2 (with short)	658(In) 657(Out)
13/3 (short)	1
14/1	720
14/2 (with short)	148(In) 0(Out)
14/3 (short)	148

Full Input Data And Results

Lane Saturation Flows

Junction: A19 / Downhill Lane								
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (A19 South Slip Lane 1)	This lane uses a directly entered Saturation Flow						1800	1800
1/2 (A19 South Slip)	3.80	0.00	Y				1995	1995
1/3 (A19 South Slip)	3.80	0.00	Y	Arm 11 Ahead	38.00	100.0 %	1919	1919
2/1 (Downhill Lane West)	4.63	0.00	Y	Arm 8 Left	57.00	100.0 %	2025	2025
2/2 (Downhill Lane West)	4.21	0.00	N	Arm 8 Left	57.00	30.9 %	2110	2110
				Arm 12 Ahead	45.00	69.1 %		
2/3 (Downhill Lane West)	4.38	0.00	N	Arm 12 Ahead	45.00	100.0 %	2122	2122
3/1 (A19 North Slip Lane 1)	This lane uses a directly entered Saturation Flow						1800	1800
3/2 (A19 North Slip Lane 2)	This lane uses a directly entered Saturation Flow						1800	1800
4/1 (Downhill Lane East Lane 1)	Infinite Saturation Flow						Inf	Inf
5/1 (Washington Road Lane 1)	Infinite Saturation Flow						Inf	Inf
6/1 (A19 South Slip Lane 1)	Infinite Saturation Flow						Inf	Inf
6/2 (A19 South Slip Lane 2)	Infinite Saturation Flow						Inf	Inf
7/1 (Downhill Lane West Lane 1)	Infinite Saturation Flow						Inf	Inf
7/2 (Downhill Lane West Lane 2)	Infinite Saturation Flow						Inf	Inf
8/1 (A19 North Slip Lane 1)	Infinite Saturation Flow						Inf	Inf
8/2 (A19 North Slip Lane 2)	Infinite Saturation Flow						Inf	Inf
9/1 (Downhill Lane East)	4.19	0.00	Y	Arm 5 Left	52.00	100.0 %	1977	1977
				Arm 13 Left	43.00	0.0 %		
9/2 (Downhill Lane East)	4.45	0.00	N	Arm 13 Left	52.00	100.0 %	2138	2138
10/1 (Washington Road)	4.75	0.00	Y	Arm 6 Left	32.00	17.4 %	2003	2003
				Arm 14 Ahead	35.00	82.6 %		
10/2 (Washington Road Lane 2)	This lane uses a directly entered Saturation Flow						1800	1800
11/1 (West Circulatory)	4.76	0.00	Y	Arm 8 Ahead	43.00	100.0 %	2021	2021
11/2 (West Circulatory)	4.65	0.00	N	Arm 12 Right	32.00	100.0 %	2121	2121
12/1 (North Circulatory Lane 1)	This lane uses a directly entered Saturation Flow						1800	1800

Full Input Data And Results

12/2 (North Circulatory Lane 2)	This lane uses a directly entered Saturation Flow						1800	1800
13/1 (East Circulatory)	4.61	0.00	Y	Arm 6 Ahead	54.00	100.0 %	2020	2020
13/2 (East Circulatory Lane 2)	This lane uses a directly entered Saturation Flow						1800	1800
13/3 (East Circulatory Lane 3)	This lane uses a directly entered Saturation Flow						1800	1800
14/1 (South Circulatory)	4.03	0.00	Y	Arm 7 Ahead	45.00	100.0 %	1953	1953
14/2 (South Circulatory Lane 2)	This lane uses a directly entered Saturation Flow						1800	1800
14/3 (South Circulatory)	3.69	0.00	Y	Arm 11 Right	35.00	100.0 %	1902	1902

Scenario 2: '2022/23 Base + Com Dev ' (FG2: '2022/23 Base + Com Dev', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination					
		A	B	C	D	E	Tot.
Origin	A	0	0	114	0	648	762
	B	1	0	21	41	117	180
	C	93	111	0	54	257	515
	D	0	380	24	0	209	613
	E	374	167	120	334	0	995
	Tot.	468	658	279	429	1231	3065

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 2: 2022/23 Base + Com Dev
Junction: A19 / Downhill Lane	
1/1	209
1/2 (with short)	404(In) 0(Out)
1/3 (short)	404
2/1	359
2/2 (with short)	636(In) 392(Out)
2/3 (short)	244
3/1	114
3/2	648
4/1	658
5/1	279
6/1	144
6/2	285
7/1	1231
7/2	0
8/1	359
8/2	109
9/1 (short)	21
9/2 (with short)	180(In) 159(Out)
10/1 (short)	311
10/2 (with short)	515(In) 204(Out)
11/1 (with short)	609(In) 94(Out)
11/2 (short)	515
12/1	892
12/2	244
13/1	90
13/2 (with short)	1051(In) 1050(Out)
13/3 (short)	1
14/1	1022
14/2 (with short)	205(In) 0(Out)
14/3 (short)	205

Full Input Data And Results

Lane Saturation Flows

Junction: A19 / Downhill Lane								
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (A19 South Slip Lane 1)	This lane uses a directly entered Saturation Flow						1800	1800
1/2 (A19 South Slip)	3.80	0.00	Y				1995	1995
1/3 (A19 South Slip)	3.80	0.00	Y	Arm 11 Ahead	38.00	100.0 %	1919	1919
2/1 (Downhill Lane West)	4.63	0.00	Y	Arm 8 Left	57.00	100.0 %	2025	2025
2/2 (Downhill Lane West)	4.21	0.00	N	Arm 8 Left	57.00	3.8 %	2106	2106
				Arm 12 Ahead	45.00	96.2 %		
2/3 (Downhill Lane West)	4.38	0.00	N	Arm 12 Ahead	45.00	100.0 %	2122	2122
3/1 (A19 North Slip Lane 1)	This lane uses a directly entered Saturation Flow						1800	1800
3/2 (A19 North Slip Lane 2)	This lane uses a directly entered Saturation Flow						1800	1800
4/1 (Downhill Lane East Lane 1)	Infinite Saturation Flow						Inf	Inf
5/1 (Washington Road Lane 1)	Infinite Saturation Flow						Inf	Inf
6/1 (A19 South Slip Lane 1)	Infinite Saturation Flow						Inf	Inf
6/2 (A19 South Slip Lane 2)	Infinite Saturation Flow						Inf	Inf
7/1 (Downhill Lane West Lane 1)	Infinite Saturation Flow						Inf	Inf
7/2 (Downhill Lane West Lane 2)	Infinite Saturation Flow						Inf	Inf
8/1 (A19 North Slip Lane 1)	Infinite Saturation Flow						Inf	Inf
8/2 (A19 North Slip Lane 2)	Infinite Saturation Flow						Inf	Inf
9/1 (Downhill Lane East)	4.19	0.00	Y	Arm 5 Left	52.00	100.0 %	1977	1977
				Arm 13 Left	43.00	0.0 %		
9/2 (Downhill Lane East)	4.45	0.00	N	Arm 13 Left	52.00	100.0 %	2138	2138
10/1 (Washington Road)	4.75	0.00	Y	Arm 6 Left	32.00	17.4 %	2003	2003
				Arm 14 Ahead	35.00	82.6 %		
10/2 (Washington Road Lane 2)	This lane uses a directly entered Saturation Flow						1800	1800
11/1 (West Circulatory)	4.76	0.00	Y	Arm 8 Ahead	43.00	100.0 %	2021	2021
11/2 (West Circulatory)	4.65	0.00	N	Arm 12 Right	32.00	100.0 %	2121	2121
12/1 (North Circulatory Lane 1)	This lane uses a directly entered Saturation Flow						1800	1800

Full Input Data And Results

12/2 (North Circulatory Lane 2)	This lane uses a directly entered Saturation Flow						1800	1800
13/1 (East Circulatory)	4.61	0.00	Y	Arm 6 Ahead	54.00	100.0 %	2020	2020
13/2 (East Circulatory Lane 2)	This lane uses a directly entered Saturation Flow						1800	1800
13/3 (East Circulatory Lane 3)	This lane uses a directly entered Saturation Flow						1800	1800
14/1 (South Circulatory)	4.03	0.00	Y	Arm 7 Ahead	45.00	100.0 %	1953	1953
14/2 (South Circulatory Lane 2)	This lane uses a directly entered Saturation Flow						1800	1800
14/3 (South Circulatory)	3.69	0.00	Y	Arm 11 Right	35.00	100.0 %	1902	1902

Scenario 3: '2022/23 Base + Com Dev + Dev' (FG3: '2022/23 Base + Com Dev + Dev', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination					
		A	B	C	D	E	Tot.
Origin	A	0	0	114	0	829	943
	B	1	0	21	41	139	202
	C	93	111	0	54	313	571
	D	0	380	24	0	396	800
	E	556	190	176	522	0	1444
	Tot.	650	681	335	617	1677	3960

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 3: 2022/23 Base + Com Dev + Dev
Junction: A19 / Downhill Lane	
1/1	396
1/2 (with short)	404(In) 0(Out)
1/3 (short)	404
2/1	501
2/2 (with short)	943(In) 521(Out)
2/3 (short)	422
3/1	114
3/2	829
4/1	681
5/1	335
6/1	154
6/2	463
7/1	1677
7/2	0
8/1	501
8/2	149
9/1 (short)	21
9/2 (with short)	202(In) 181(Out)
10/1 (short)	367
10/2 (with short)	571(In) 204(Out)
11/1 (with short)	609(In) 94(Out)
11/2 (short)	515
12/1	981
12/2	422
13/1	100
13/2 (with short)	1432(In) 1431(Out)
13/3 (short)	1
14/1	1281
14/2 (with short)	205(In) 0(Out)
14/3 (short)	205

Full Input Data And Results

Lane Saturation Flows

Junction: A19 / Downhill Lane								
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (A19 South Slip Lane 1)	This lane uses a directly entered Saturation Flow						1800	1800
1/2 (A19 South Slip)	3.80	0.00	Y				1995	1995
1/3 (A19 South Slip)	3.80	0.00	Y	Arm 11 Ahead	38.00	100.0 %	1919	1919
2/1 (Downhill Lane West)	4.63	0.00	Y	Arm 8 Left	57.00	100.0 %	2025	2025
2/2 (Downhill Lane West)	4.21	0.00	N	Arm 8 Left	57.00	10.6 %	2107	2107
				Arm 12 Ahead	45.00	89.4 %		
2/3 (Downhill Lane West)	4.38	0.00	N	Arm 12 Ahead	45.00	100.0 %	2122	2122
3/1 (A19 North Slip Lane 1)	This lane uses a directly entered Saturation Flow						1800	1800
3/2 (A19 North Slip Lane 2)	This lane uses a directly entered Saturation Flow						1800	1800
4/1 (Downhill Lane East Lane 1)	Infinite Saturation Flow						Inf	Inf
5/1 (Washington Road Lane 1)	Infinite Saturation Flow						Inf	Inf
6/1 (A19 South Slip Lane 1)	Infinite Saturation Flow						Inf	Inf
6/2 (A19 South Slip Lane 2)	Infinite Saturation Flow						Inf	Inf
7/1 (Downhill Lane West Lane 1)	Infinite Saturation Flow						Inf	Inf
7/2 (Downhill Lane West Lane 2)	Infinite Saturation Flow						Inf	Inf
8/1 (A19 North Slip Lane 1)	Infinite Saturation Flow						Inf	Inf
8/2 (A19 North Slip Lane 2)	Infinite Saturation Flow						Inf	Inf
9/1 (Downhill Lane East)	4.19	0.00	Y	Arm 5 Left	52.00	100.0 %	1977	1977
				Arm 13 Left	43.00	0.0 %		
9/2 (Downhill Lane East)	4.45	0.00	N	Arm 13 Left	52.00	100.0 %	2138	2138
10/1 (Washington Road)	4.75	0.00	Y	Arm 6 Left	32.00	14.7 %	2003	2003
				Arm 14 Ahead	35.00	85.3 %		
10/2 (Washington Road Lane 2)	This lane uses a directly entered Saturation Flow						1800	1800
11/1 (West Circulatory)	4.76	0.00	Y	Arm 8 Ahead	43.00	100.0 %	2021	2021
11/2 (West Circulatory)	4.65	0.00	N	Arm 12 Right	32.00	100.0 %	2121	2121
12/1 (North Circulatory Lane 1)	This lane uses a directly entered Saturation Flow						1800	1800

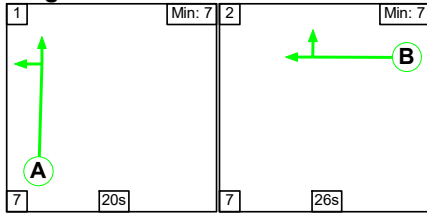
Full Input Data And Results

12/2 (North Circulatory Lane 2)	This lane uses a directly entered Saturation Flow					1800	1800	
13/1 (East Circulatory)	4.61	0.00	Y	Arm 6 Ahead	54.00	100.0 %	2020	2020
13/2 (East Circulatory Lane 2)	This lane uses a directly entered Saturation Flow					1800	1800	
13/3 (East Circulatory Lane 3)	This lane uses a directly entered Saturation Flow					1800	1800	
14/1 (South Circulatory)	4.03	0.00	Y	Arm 7 Ahead	45.00	100.0 %	1953	1953
14/2 (South Circulatory Lane 2)	This lane uses a directly entered Saturation Flow					1800	1800	
14/3 (South Circulatory)	3.69	0.00	Y	Arm 11 Right	35.00	100.0 %	1902	1902

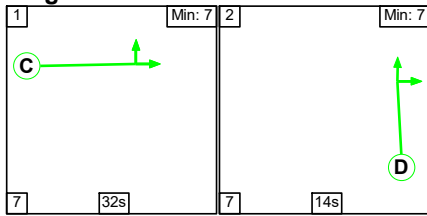
Scenario 1: '2022/23 Base 0630-0730' (FG1: '2022/23 Base 0630-0730', Plan 1: 'Network Control Plan 1')

Stage Sequence Diagram

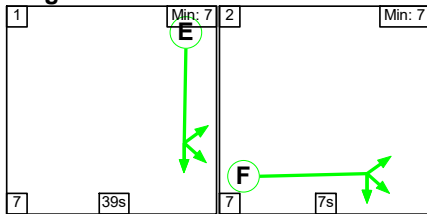
Stage Stream: 1



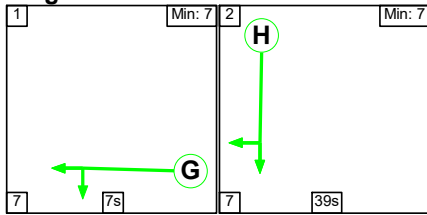
Stage Stream: 2



Stage Stream: 3



Stage Stream: 4



Stage Timings

Stage Stream: 1

Stage	1	2
Duration	20	26
Change Point	0	27

Stage Stream: 2

Stage	1	2
Duration	32	14
Change Point	56	35

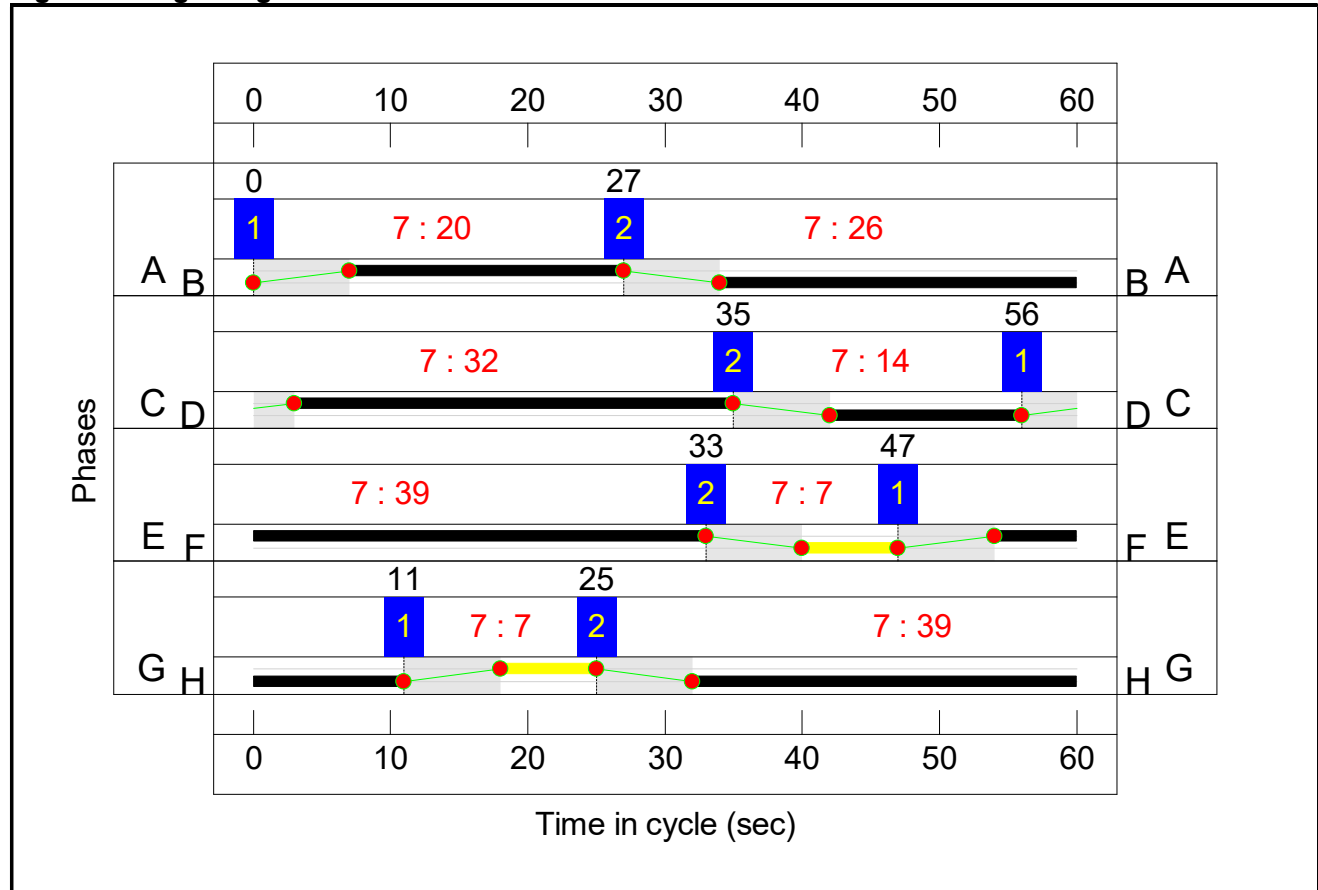
Stage Stream: 3

Stage	1	2
Duration	39	7
Change Point	47	33

Stage Stream: 4

Stage	1	2
Duration	7	39
Change Point	11	25

Signal Timings Diagram



Full Input Data And Results
Network Layout Diagram

Full Input Data And Results

Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	-	-	N/A	-	-		-	-	-	-	-	-	83.9%
A19 / Downhill Lane	-	-	N/A	-	-		-	-	-	-	-	-	83.9%
1/1	A19 South Slip Left	U	1	N/A	A		1	20	-	380	1800	630	60.3%
1/2+1/3	A19 South Slip Ahead	U	1	N/A	A		1	20	-	25	1995:1919	0+667	0.0 : 3.7%
2/1	Downhill Lane West Left	U	2	N/A	C		1	32	-	88	2025	1114	7.9%
2/2+2/3	Downhill Lane West Left Ahead	U	2	N/A	C		1	32	-	243	2110:2122	917+459	17.7 : 17.7%
3/1	A19 North Slip Left Left2 Ahead	U	3	N/A	E		1	39	-	62	1800	1200	5.2%
3/2	A19 North Slip Ahead	U	3	N/A	E		1	39	-	442	1800	1200	36.8%
4/1	Downhill Lane East	U	N/A	N/A	-		-	-	-	45	Inf	Inf	0.0%
5/1	Washington Road	U	N/A	N/A	-		-	-	-	158	Inf	Inf	0.0%
6/1	A19 South Slip	U	N/A	N/A	-		-	-	-	40	Inf	Inf	0.0%
6/2	A19 South Slip	U	N/A	N/A	-		-	-	-	122	Inf	Inf	0.0%
7/1	Downhill Lane West	U	N/A	N/A	-		-	-	-	1100	Inf	Inf	0.0%
7/2	Downhill Lane West	U	N/A	N/A	-		-	-	-	0	Inf	Inf	-
8/1	A19 North Slip	U	N/A	N/A	-		-	-	-	88	Inf	Inf	0.0%
8/2	A19 North Slip	U	N/A	N/A	-		-	-	-	196	Inf	Inf	0.0%
9/2+9/1	Downhill Lane East Left Left2	O	N/A	N/A	-		-	-	-	138	2138:1977	1255+28	10.8 : 10.8%
10/2+10/1	Washington Road Left Ahead	U	4	N/A	G		1	7	-	371	1800:2003	240+267	61.3 : 83.9%

Full Input Data And Results

11/1+11/2	West Circulatory Ahead Right	U	2	N/A	D		1	14	-	173	2021:2121	479+89	30.5 : 30.5%
12/1	North Circulatory Ahead Ahead2 Right	U	3	N/A	F		1	7	-	139	1800	240	57.9%
12/2	North Circulatory Right	U	3	N/A	F		1	7	-	81	1800	240	33.8%
13/1	East Circulatory Ahead	U	4	N/A	H		1	39	-	1	2020	1347	0.1%
13/2+13/3	East Circulatory Ahead Right	U	4	N/A	H		1	39	-	658	1800:1800	1199+2	54.8 : 54.8%
14/1	South Circulatory Ahead	U	1	N/A	B		1	26	-	720	1953	879	81.9%
14/2+14/3	South Circulatory Right	U	1	N/A	B		1	26	-	148	1800:1902	0+856	0.0 : 17.3%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	-	-	221	55	0	9.5	2.6	0.0	12.1	-	-	-	-
A19 / Downhill Lane	-	-	221	55	0	9.5	2.6	0.0	12.1	-	-	-	-
1/1	380	380	-	-	-	1.7	0.8	-	2.5	23.2	5.2	0.8	5.9
1/2+1/3	25	25	-	-	-	0.1	0.0	-	0.1	15.8	0.3	0.0	0.3
2/1	88	88	-	-	-	0.2	0.0	-	0.2	8.1	0.7	0.0	0.7
2/2+2/3	243	243	-	-	-	0.4	0.1	-	0.5	8.1	1.3	0.1	1.4
3/1	62	62	-	-	-	0.1	0.0	-	0.1	5.1	0.3	0.0	0.4
3/2	442	442	-	-	-	0.5	0.3	-	0.8	6.8	3.2	0.3	3.5
4/1	45	45	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	158	158	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	40	40	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/2	122	122	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	1100	1100	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/2	-	-	-	-	-	-	-	-	-	-	-	-	-
8/1	88	88	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/2	196	196	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
9/2+9/1	138	138	221	55	0	0.0	0.1	-	0.1	1.8	0.2	0.1	0.2
10/2+10/1	371	371	-	-	-	2.6	1.3	-	3.9	38.0	3.6	1.3	4.9
11/1+11/2	173	173	-	-	-	0.2	0.0	-	0.2	3.5	0.4	0.0	0.4
12/1	139	139	-	-	-	0.8	0.0	-	0.8	21.9	2.2	0.0	2.2
12/2	81	81	-	-	-	0.4	0.0	-	0.4	17.5	1.2	0.0	1.2
13/1	1	1	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
13/2+13/3	658	658	-	-	-	0.8	0.0	-	0.8	4.6	11.2	0.0	11.2
14/1	720	720	-	-	-	1.7	0.0	-	1.7	8.3	7.9	0.0	7.9
14/2+14/3	148	148	-	-	-	0.0	0.0	-	0.0	0.1	0.0	0.0	0.0

Full Input Data And Results

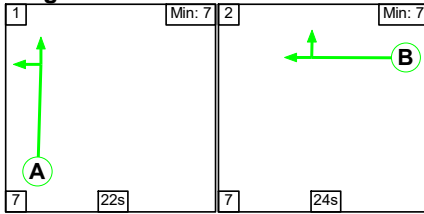
C1	Stream: 1 PRC for Signalled Lanes (%):	9.9	Total Delay for Signalled Lanes (pcuHr):	4.23	Cycle Time (s):	60
C1	Stream: 2 PRC for Signalled Lanes (%):	195.6	Total Delay for Signalled Lanes (pcuHr):	0.91	Cycle Time (s):	60
C1	Stream: 3 PRC for Signalled Lanes (%):	55.4	Total Delay for Signalled Lanes (pcuHr):	2.16	Cycle Time (s):	60
C1	Stream: 4 PRC for Signalled Lanes (%):	7.3	Total Delay for Signalled Lanes (pcuHr):	4.76	Cycle Time (s):	60
	PRC Over All Lanes (%):	7.3	Total Delay Over All Lanes(pcuHr):	12.13		

Full Input Data And Results

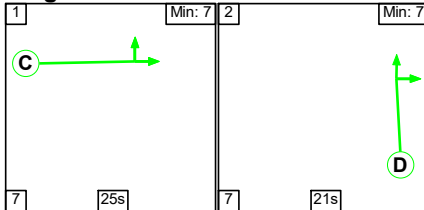
Scenario 2: '2022/23 Base + Com Dev' (FG2: '2022/23 Base + Com Dev', Plan 1: 'Network Control Plan 1')

Stage Sequence Diagram

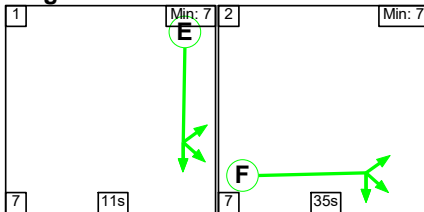
Stage Stream: 1



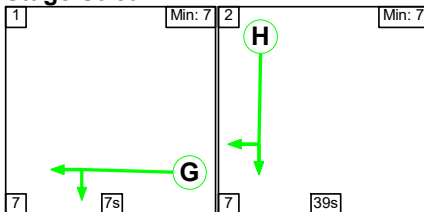
Stage Stream: 2



Stage Stream: 3



Stage Stream: 4



Stage Timings

Stage Stream: 1

Stage	1	2
Duration	22	24
Change Point	0	29

Stage Stream: 2

Stage	1	2
Duration	25	21
Change Point	25	57

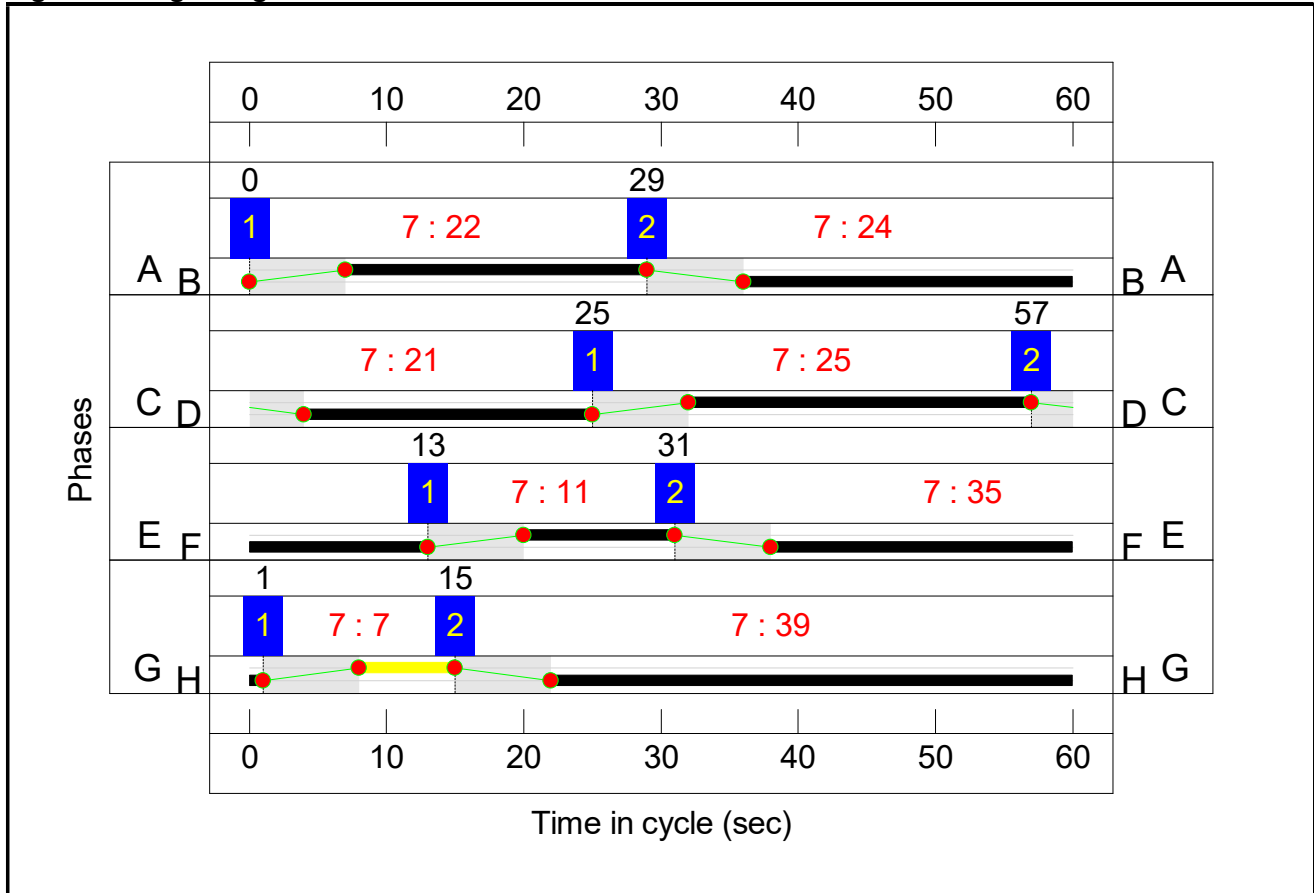
Stage Stream: 3

Stage	1	2
Duration	11	35
Change Point	13	31

Full Input Data And Results
Stage Stream: 4

Stage	1	2
Duration	7	39
Change Point	1	15

Signal Timings Diagram



Full Input Data And Results
Network Layout Diagram

Full Input Data And Results

Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	-	-	N/A	-	-		-	-	-	-	-	-	180.0%
A19 / Downhill Lane	-	-	N/A	-	-		-	-	-	-	-	-	180.0%
1/1	A19 South Slip Left	U	1	N/A	A		1	22	-	209	1800	690	30.3%
1/2+1/3	A19 South Slip Ahead	U	1	N/A	A		1	22	-	404	1995:1919	0+731	0.0 : 55.3%
2/1	Downhill Lane West Left	U	2	N/A	C		1	25	-	359	2025	878	40.9%
2/2+2/3	Downhill Lane West Left Ahead	U	2	N/A	C		1	25	-	636	2106:2122	725+451	54.1 : 54.1%
3/1	A19 North Slip Left Left2 Ahead	U	3	N/A	E		1	11	-	114	1800	360	31.7%
3/2	A19 North Slip Ahead	U	3	N/A	E		1	11	-	648	1800	360	180.0%
4/1	Downhill Lane East	U	N/A	N/A	-		-	-	-	658	Inf	Inf	0.0%
5/1	Washington Road	U	N/A	N/A	-		-	-	-	279	Inf	Inf	0.0%
6/1	A19 South Slip	U	N/A	N/A	-		-	-	-	144	Inf	Inf	0.0%
6/2	A19 South Slip	U	N/A	N/A	-		-	-	-	285	Inf	Inf	0.0%
7/1	Downhill Lane West	U	N/A	N/A	-		-	-	-	1231	Inf	Inf	0.0%
7/2	Downhill Lane West	U	N/A	N/A	-		-	-	-	0	Inf	Inf	-
8/1	A19 North Slip	U	N/A	N/A	-		-	-	-	359	Inf	Inf	0.0%
8/2	A19 North Slip	U	N/A	N/A	-		-	-	-	109	Inf	Inf	0.0%
9/2+9/1	Downhill Lane East Left Left2	O	N/A	N/A	-		-	-	-	180	2138:1977	848+112	18.7 : 18.7%
10/2+10/1	Washington Road Left Ahead	U	4	N/A	G		1	7	-	515	1800:2003	240+267	85.0 : 116.5%

Full Input Data And Results

11/1+11/2	West Circulatory Ahead Right	U	2	N/A	D		1	21	-	609	2021:2121	127+695	74.1 : 74.1%
12/1	North Circulatory Ahead Ahead2 Right	U	3	N/A	F		1	35	-	892	1800	1080	82.6%
12/2	North Circulatory Right	U	3	N/A	F		1	35	-	244	1800	1080	22.6%
13/1	East Circulatory Ahead	U	4	N/A	H		1	39	-	90	2020	1347	6.7%
13/2+13/3	East Circulatory Ahead Right	U	4	N/A	H		1	39	-	1051	1800:1800	1199+1	63.5 : 87.5%
14/1	South Circulatory Ahead	U	1	N/A	B		1	24	-	1022	1953	814	85.7%
14/2+14/3	South Circulatory Right	U	1	N/A	B		1	24	-	205	1800:1902	0+793	0.0 : 25.9%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	-	-	288	72	0	31.0	178.7	0.0	209.7	-	-	-	-
A19 / Downhill Lane	-	-	288	72	0	31.0	178.7	0.0	209.7	-	-	-	-
1/1	209	209	-	-	-	0.7	0.2	-	1.0	16.7	2.4	0.2	2.6
1/2+1/3	404	404	-	-	-	1.6	0.6	-	2.2	19.9	5.2	0.6	5.8
2/1	359	359	-	-	-	1.2	0.3	-	1.5	15.2	4.1	0.3	4.4
2/2+2/3	636	636	-	-	-	2.0	0.6	-	2.6	14.8	4.5	0.6	5.1
3/1	114	114	-	-	-	0.6	0.2	-	0.9	27.8	1.6	0.2	1.8
3/2	648	360	-	-	-	11.8	145.1	-	157.0	872.0	15.7	145.1	160.8
4/1	658	658	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	279	279	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	136	136	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/2	285	285	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	907	907	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/2	-	-	-	-	-	-	-	-	-	-	-	-	-
8/1	359	359	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/2	109	109	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
9/2+9/1	180	180	288	72	0	0.1	0.1	-	0.2	3.5	0.5	0.1	0.6
10/2+10/1	515	471	-	-	-	5.0	31.5	-	36.5	255.1	5.9	31.5	37.4
11/1+11/2	609	609	-	-	-	2.0	0.0	-	2.0	11.7	3.4	0.0	3.4
12/1	892	892	-	-	-	2.2	0.0	-	2.2	8.9	13.6	0.0	13.6
12/2	244	244	-	-	-	0.1	0.0	-	0.1	1.9	0.4	0.0	0.4
13/1	90	90	-	-	-	0.2	0.0	-	0.2	9.2	1.3	0.0	1.3
13/2+13/3	763	763	-	-	-	1.1	0.0	-	1.1	5.0	12.1	0.0	12.1
14/1	698	698	-	-	-	1.7	0.0	-	1.7	8.8	6.6	0.0	6.6
14/2+14/3	205	205	-	-	-	0.6	0.0	-	0.6	10.5	3.4	0.0	3.4

Full Input Data And Results

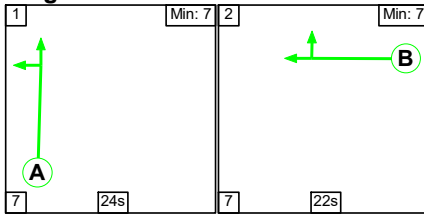
C1	Stream: 1 PRC for Signalled Lanes (%):	5.0	Total Delay for Signalled Lanes (pcuHr):	5.50	Cycle Time (s):	60
C1	Stream: 2 PRC for Signalled Lanes (%):	21.5	Total Delay for Signalled Lanes (pcuHr):	6.11	Cycle Time (s):	60
C1	Stream: 3 PRC for Signalled Lanes (%):	-100.0	Total Delay for Signalled Lanes (pcuHr):	160.16	Cycle Time (s):	60
C1	Stream: 4 PRC for Signalled Lanes (%):	-29.4	Total Delay for Signalled Lanes (pcuHr):	37.77	Cycle Time (s):	60
	PRC Over All Lanes (%):	-100.0	Total Delay Over All Lanes(pcuHr):	209.72		

Full Input Data And Results

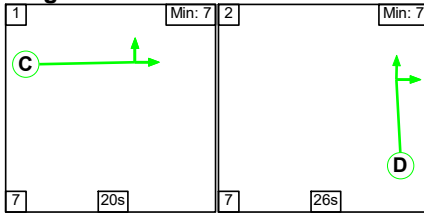
Scenario 3: '2022/23 Base + Com Dev + Dev' (FG3: '2022/23 Base + Com Dev + Dev', Plan 1: 'Network Control Plan 1')

Stage Sequence Diagram

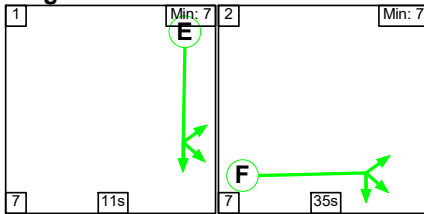
Stage Stream: 1



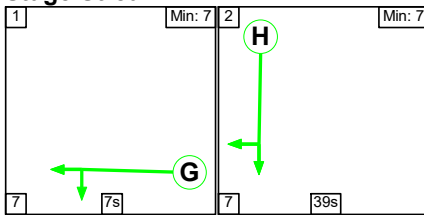
Stage Stream: 2



Stage Stream: 3



Stage Stream: 4



Stage Timings

Stage Stream: 1

Stage	1	2
Duration	24	22
Change Point	0	31

Stage Stream: 2

Stage	1	2
Duration	20	26
Change Point	58	25

Stage Stream: 3

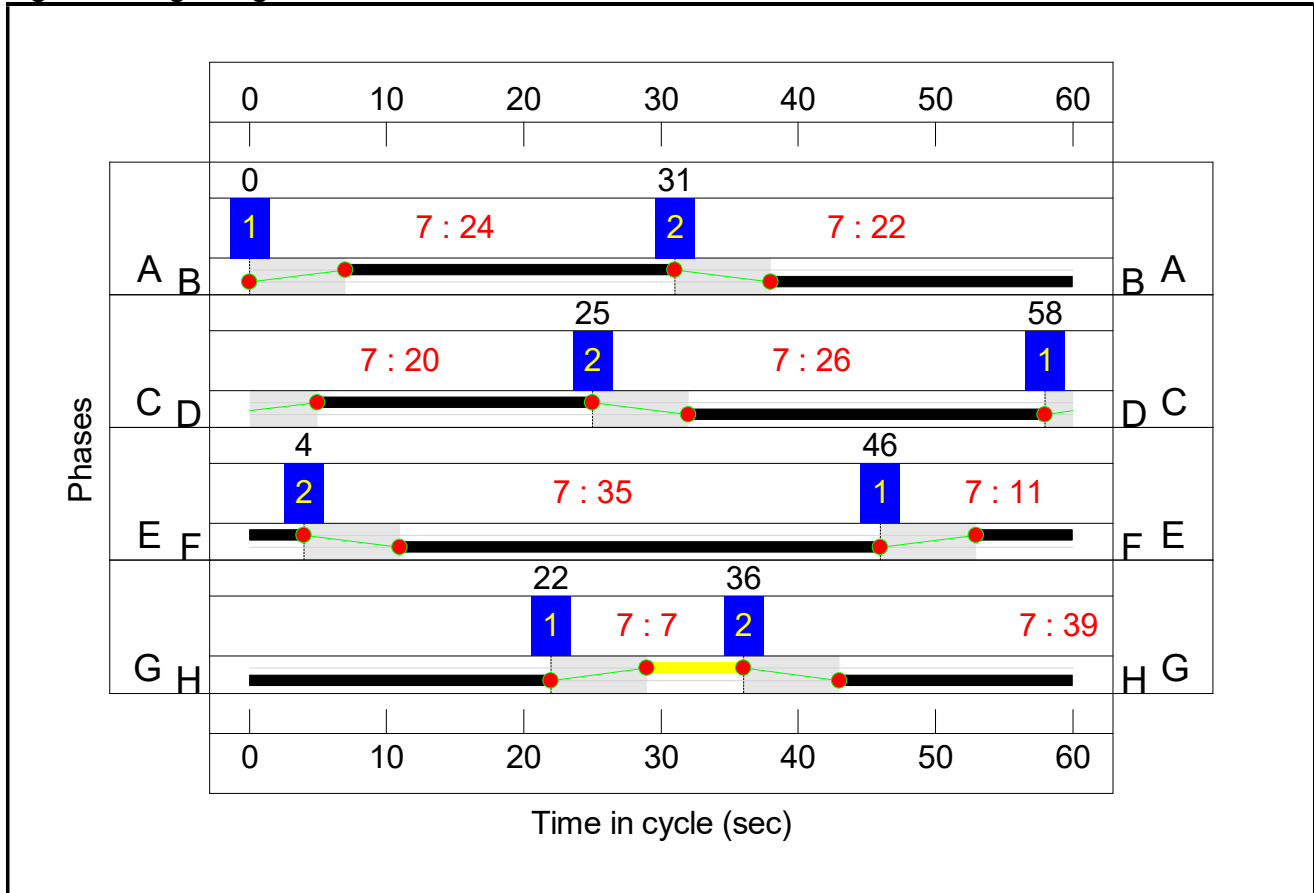
Stage	1	2
Duration	11	35
Change Point	46	4

Full Input Data And Results

Stage Stream: 4

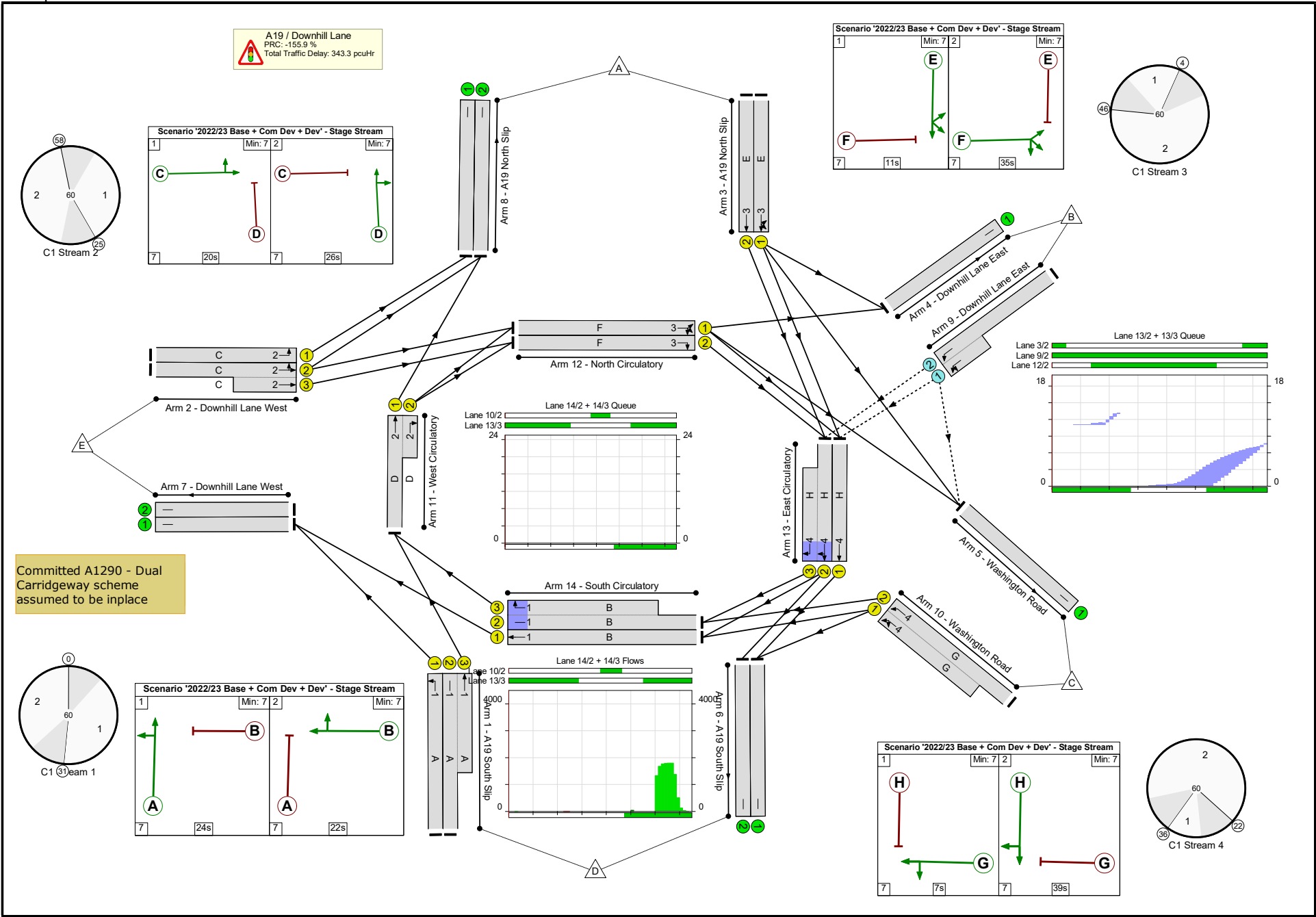
Stage	1	2
Duration	7	39
Change Point	22	36

Signal Timings Diagram



Full Input Data And Results
Network Layout Diagram

Full Input Data And Results



Full Input Data And Results

Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	-	-	N/A	-	-		-	-	-	-	-	-	230.3%
A19 / Downhill Lane	-	-	N/A	-	-		-	-	-	-	-	-	230.3%
1/1	A19 South Slip Left	U	1	N/A	A		1	24	-	396	1800	750	52.8%
1/2+1/3	A19 South Slip Ahead	U	1	N/A	A		1	24	-	404	1995:1919	0+795	0.0 : 50.8%
2/1	Downhill Lane West Left	U	2	N/A	C		1	20	-	501	2025	709	70.7%
2/2+2/3	Downhill Lane West Left Ahead	U	2	N/A	C		1	20	-	943	2107:2122	593+480	87.9 : 87.9%
3/1	A19 North Slip Left Left2 Ahead	U	3	N/A	E		1	11	-	114	1800	360	31.7%
3/2	A19 North Slip Ahead	U	3	N/A	E		1	11	-	829	1800	360	230.3%
4/1	Downhill Lane East	U	N/A	N/A	-		-	-	-	681	Inf	Inf	0.0%
5/1	Washington Road	U	N/A	N/A	-		-	-	-	335	Inf	Inf	0.0%
6/1	A19 South Slip	U	N/A	N/A	-		-	-	-	154	Inf	Inf	0.0%
6/2	A19 South Slip	U	N/A	N/A	-		-	-	-	463	Inf	Inf	0.0%
7/1	Downhill Lane West	U	N/A	N/A	-		-	-	-	1677	Inf	Inf	0.0%
7/2	Downhill Lane West	U	N/A	N/A	-		-	-	-	0	Inf	Inf	-
8/1	A19 North Slip	U	N/A	N/A	-		-	-	-	501	Inf	Inf	0.0%
8/2	A19 North Slip	U	N/A	N/A	-		-	-	-	149	Inf	Inf	0.0%
9/2+9/1	Downhill Lane East Left Left2	O	N/A	N/A	-		-	-	-	202	2138:1977	755+88	24.0 : 24.0%
10/2+10/1	Washington Road Left Ahead	U	4	N/A	G		1	7	-	571	1800:2003	240+267	85.0 : 137.4%

Full Input Data And Results

11/1+11/2	West Circulatory Ahead Right	U	2	N/A	D		1	26	-	609	2021:2121	154+843	61.1 : 61.1%
12/1	North Circulatory Ahead Ahead2 Right	U	3	N/A	F		1	35	-	981	1800	1080	90.8%
12/2	North Circulatory Right	U	3	N/A	F		1	35	-	422	1800	1080	39.1%
13/1	East Circulatory Ahead	U	4	N/A	H		1	39	-	100	2020	1347	7.4%
13/2+13/3	East Circulatory Ahead Right	U	4	N/A	H		1	39	-	1432	1800:1800	1200+1	80.2 : 119.3%
14/1	South Circulatory Ahead	U	1	N/A	B		1	22	-	1281	1953	749	97.1%
14/2+14/3	South Circulatory Right	U	1	N/A	B		1	22	-	205	1800:1902	0+729	0.0 : 28.1%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	-	-	291	113	0	47.8	295.5	0.0	343.3	-	-	-	-
A19 / Downhill Lane	-	-	291	113	0	47.8	295.5	0.0	343.3	-	-	-	-
1/1	396	396	-	-	-	1.4	0.6	-	2.0	18.2	4.8	0.6	5.4
1/2+1/3	404	404	-	-	-	1.5	0.5	-	2.0	17.5	4.9	0.5	5.5
2/1	501	501	-	-	-	2.3	1.2	-	3.5	25.4	7.1	1.2	8.3
2/2+2/3	943	943	-	-	-	4.3	3.4	-	7.8	29.7	9.0	3.4	12.5
3/1	114	114	-	-	-	0.6	0.2	-	0.9	27.8	1.6	0.2	1.8
3/2	829	360	-	-	-	21.1	235.4	-	256.5	1113.8	27.8	235.4	263.2
4/1	681	681	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	335	335	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	139	139	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/2	463	463	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	1123	1123	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/2	-	-	-	-	-	-	-	-	-	-	-	-	-
8/1	501	501	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/2	149	149	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
9/2+9/1	202	202	291	113	0	0.2	0.2	-	0.4	6.3	1.1	0.2	1.3
10/2+10/1	571	471	-	-	-	6.5	53.9	-	60.4	380.8	7.8	53.9	61.7
11/1+11/2	609	609	-	-	-	2.4	0.0	-	2.4	14.1	7.4	0.0	7.4
12/1	981	981	-	-	-	3.2	0.0	-	3.2	11.8	15.7	0.0	15.7
12/2	422	422	-	-	-	0.1	0.0	-	0.1	1.2	0.4	0.0	0.4
13/1	100	100	-	-	-	0.0	0.0	-	0.0	1.3	0.5	0.0	0.5
13/2+13/3	963	963	-	-	-	1.1	0.1	-	1.2	4.4	13.2	0.1	13.2
14/1	727	727	-	-	-	3.0	0.0	-	3.0	14.8	12.0	0.0	12.0
14/2+14/3	205	205	-	-	-	0.0	0.0	-	0.0	0.1	0.0	0.0	0.0

Full Input Data And Results

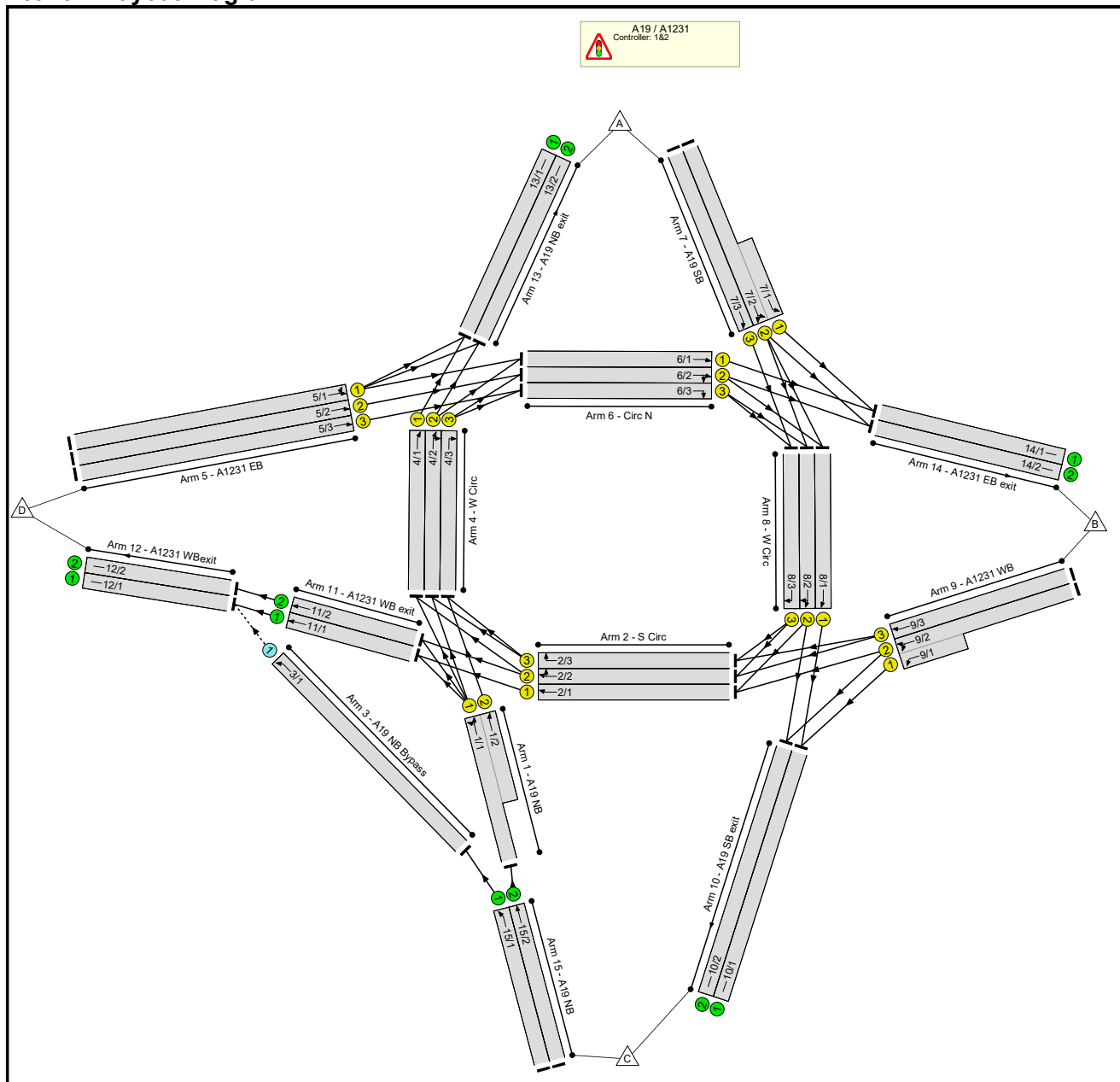
C1	Stream: 1 PRC for Signalled Lanes (%):	-7.9	Total Delay for Signalled Lanes (pcuHr):	6.96	Cycle Time (s):	60
C1	Stream: 2 PRC for Signalled Lanes (%):	2.4	Total Delay for Signalled Lanes (pcuHr):	13.70	Cycle Time (s):	60
C1	Stream: 3 PRC for Signalled Lanes (%):	-155.9	Total Delay for Signalled Lanes (pcuHr):	260.70	Cycle Time (s):	60
C1	Stream: 4 PRC for Signalled Lanes (%):	-52.7	Total Delay for Signalled Lanes (pcuHr):	61.61	Cycle Time (s):	60
	PRC Over All Lanes (%):	-155.9	Total Delay Over All Lanes(pcuHr):	343.33		

Full Input Data And Results
Full Input Data And Results

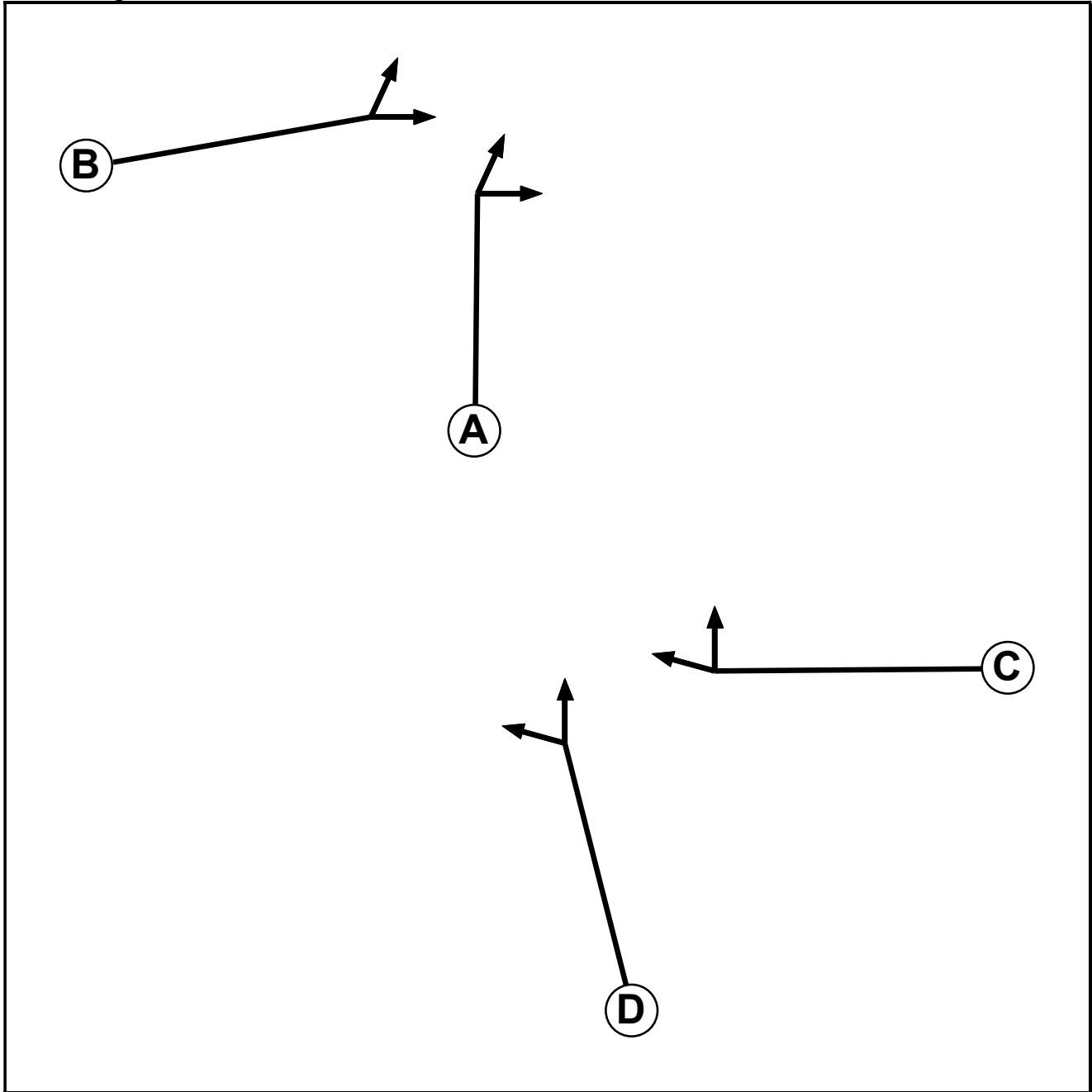
User and Project Details

Project:	AESC Plant 3
Title:	A19 - A1231
Location:	
Additional detail:	
File name:	J3 - A19 - A1231 - Amended.lsg3x
Author:	RM
Company:	SYSTRA
Address:	NEWCASTLE

Network Layout Diagram



C1
Phase Diagram



Phase Input Data

Phase Name	Phase Type	Stage Stream	Assoc. Phase	Street Min	Cont Min
A	Traffic	1		7	7
B	Traffic	1		7	7
C	Traffic	2		7	7
D	Traffic	2		7	7

Full Input Data And Results

Phase Intergreens Matrix

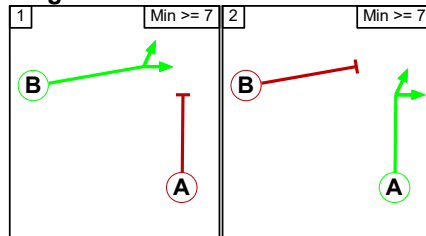
	Starting Phase			
	A	B	C	D
Terminating Phase	A	6	-	-
	B	6	-	-
	C	-	-	6
	D	-	-	6

Phases in Stage

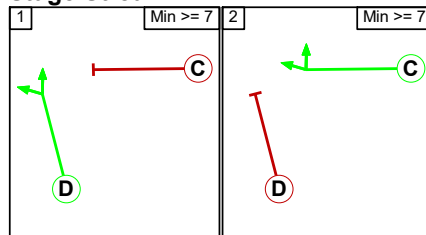
Stream	Stage No.	Phases in Stage
1	1	B
1	2	A
2	1	D
2	2	C

Stage Diagram

Stage Stream: 1



Stage Stream: 2



Phase Delays

Stage Stream: 1

Term. Stage	Start Stage	Phase	Type	Value	Cont value
There are no Phase Delays defined					

Stage Stream: 2

Term. Stage	Start Stage	Phase	Type	Value	Cont value
There are no Phase Delays defined					

Full Input Data And Results

Prohibited Stage Change

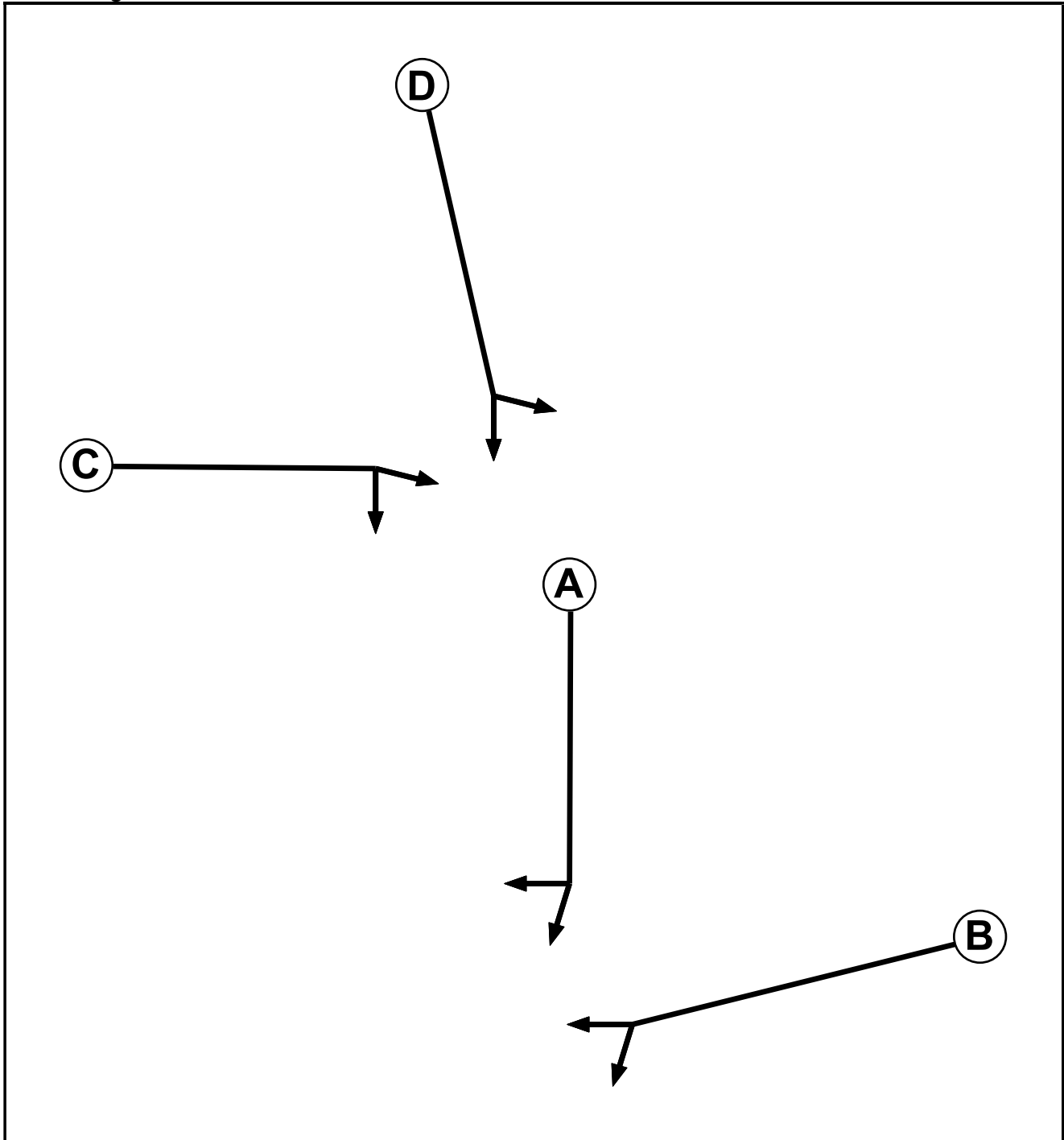
Stage Stream: 1

		To Stage	
From Stage		1	2
	1		6
	2	6	

Stage Stream: 2

		To Stage	
From Stage		1	2
	1		6
	2	6	

C2
Phase Diagram



Phase Input Data

Phase Name	Phase Type	Stage Stream	Assoc. Phase	Street Min	Cont Min
A	Traffic	2		7	7
B	Traffic	2		7	7
C	Traffic	1		7	7
D	Traffic	1		7	7

Full Input Data And Results

Phase Intergreens Matrix

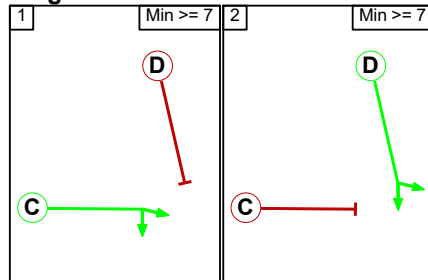
	Starting Phase			
	A	B	C	D
Terminating Phase	A	6	-	-
	B	6	-	-
	C	-	-	6
	D	-	-	6

Phases in Stage

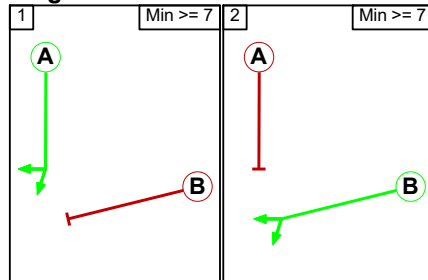
Stream	Stage No.	Phases in Stage
1	1	C
1	2	D
2	1	A
2	2	B

Stage Diagram

Stage Stream: 1



Stage Stream: 2



Phase Delays

Stage Stream: 1

Term. Stage	Start Stage	Phase	Type	Value	Cont value
There are no Phase Delays defined					

Stage Stream: 2

Term. Stage	Start Stage	Phase	Type	Value	Cont value
There are no Phase Delays defined					

Full Input Data And Results

Prohibited Stage Change

Stage Stream: 1

		To Stage	
From Stage		1	2
	1		6
	2	6	

Stage Stream: 2

		To Stage	
From Stage		1	2
	1		6
	2	6	

Full Input Data And Results

Give-Way Lane Input Data

Junction: A19 / A1231											
Lane	Movement	Max Flow when Giving Way (PCU/Hr)	Min Flow when Giving Way (PCU/Hr)	Opposing Lane	Opp. Lane Coeff.	Opp. Mvmnts.	Right Turn Storage (PCU)	Non-Blocking Storage (PCU)	RTF	Right Turn Move up (s)	Max Turns in Intergreen (PCU)
3/1 (A19 NB Bypass)	12/1 (Ahead)	2000	0	11/1	0.75	All	-	-	-	-	-

Full Input Data And Results

Lane Input Data

Junction: A19 / A1231												
Lane	Lane Type	Phases	Start Disp.	End Disp.	Physical Length (PCU)	Sat Flow Type	Def User Saturation Flow (PCU/Hr)	Lane Width (m)	Gradient	Nearside Lane	Turns	Turning Radius (m)
1/1 (A19 NB)	U	D	2	3	60.0	Geom	-	4.33	0.00	Y	Arm 4 Ahead	58.00
											Arm 11 Left	47.00
1/2 (A19 NB)	U	D	2	3	8.7	Geom	-	4.33	0.00	N	Arm 4 Ahead	58.00
2/1 (S Circ)	U	C	2	3	17.4	Geom	-	3.00	0.00	Y	Arm 11 Ahead	69.00
2/2 (S Circ)	U	C	2	3	17.4	Geom	-	3.00	0.00	N	Arm 4 Right	49.00
											Arm 11 Ahead	69.00
2/3 (S Circ)	U	C	2	3	17.4	Geom	-	3.00	0.00	N	Arm 4 Right	49.00
3/1 (A19 NB Bypass)	O		2	3	50.4	User	2500	-	-	-	-	-
4/1 (W Circ)	U	A	2	3	8.7	Geom	-	4.00	0.00	Y	Arm 13 Ahead	Inf
4/2 (W Circ)	U	A	2	3	8.7	Geom	-	3.75	0.00	N	Arm 6 Right	Inf
											Arm 13 Ahead	Inf
4/3 (W Circ)	U	A	2	3	8.7	Geom	-	3.89	0.00	N	Arm 6 Right	Inf
5/1 (A1231 EB)	U	B	2	3	60.0	Geom	-	3.65	0.00	Y	Arm 6 Ahead	62.00
											Arm 13 Left	57.00
5/2 (A1231 EB)	U	B	2	3	60.0	Geom	-	3.97	0.00	N	Arm 6 Ahead	62.00
5/3 (A1231 EB)	U	B	2	3	60.0	Geom	-	4.12	0.00	N	Arm 6 Ahead	62.00
6/1 (Circ N)	U	C	2	3	17.4	Geom	-	2.91	0.00	Y	Arm 14 Ahead	49.00
6/2 (Circ N)	U	C	2	3	17.4	Geom	-	3.25	0.00	N	Arm 8 Right	42.00
											Arm 14 Ahead	49.00
6/3 (Circ N)	U	C	2	3	17.4	Geom	-	3.00	0.00	N	Arm 8 Right	42.00
7/1 (A19 SB)	U	D	2	3	7.8	Geom	-	3.07	0.00	Y	Arm 14 Left	41.00
7/2 (A19 SB)	U	D	2	3	60.0	Geom	-	3.00	0.00	N	Arm 8 Ahead	48.00
											Arm 14 Left	41.00

Full Input Data And Results

7/3 (A19 SB)	U	D	2	3	60.0	Geom	-	3.00	0.00	N	Arm 8 Ahead	48.00
8/1 (W Circ)	U	A	2	3	8.7	Geom	-	4.00	0.00	Y	Arm 10 Ahead	Inf
8/2 (W Circ)	U	A	2	3	8.7	Geom	-	4.00	0.00	N	Arm 2 Right	Inf
											Arm 10 Ahead	Inf
8/3 (W Circ)	U	A	2	3	8.7	Geom	-	3.85	0.00	N	Arm 2 Right	Inf
9/1 (A1231 WB)	U	B	2	3	6.4	Geom	-	3.00	0.00	Y	Arm 10 Left	61.00
9/2 (A1231 WB)	U	B	2	3	60.0	Geom	-	3.00	0.00	N	Arm 2 Ahead	63.00
											Arm 10 Left	61.00
9/3 (A1231 WB)	U	B	2	3	60.0	Geom	-	3.00	0.00	N	Arm 2 Ahead	63.00
10/1 (A19 SB exit)	U		2	3	60.0	Inf	-	-	-	-	-	-
10/2 (A19 SB exit)	U		2	3	60.0	Inf	-	-	-	-	-	-
11/1 (A1231 WB exit)	U		2	3	60.0	Inf	-	-	-	-	-	-
11/2 (A1231 WB exit)	U		2	3	60.0	Inf	-	-	-	-	-	-
12/1 (A1231 WBexit)	U		2	3	60.0	Inf	-	-	-	-	-	-
12/2 (A1231 WBexit)	U		2	3	60.0	Inf	-	-	-	-	-	-
13/1 (A19 NB exit)	U		2	3	60.0	Inf	-	-	-	-	-	-
13/2 (A19 NB exit)	U		2	3	60.0	Inf	-	-	-	-	-	-
14/1 (A1231 EB exit)	U		2	3	60.0	Inf	-	-	-	-	-	-
14/2 (A1231 EB exit)	U		2	3	60.0	Inf	-	-	-	-	-	-
15/1 (A19 NB)	U		2	3	60.0	Inf	-	-	-	-	-	-
15/2 (A19 NB)	U		2	3	60.0	Inf	-	-	-	-	-	-

Full Input Data And Results

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: '2022/23 Base 0630-0730'	06:30	07:30	01:00	
2: '2022/23 Base + Com Dev'	06:30	07:30	01:00	
3: '2022/23 Base + Com Dev + Dev'	06:30	07:30	01:00	

Scenario 1: '2022/23 Base 0630-0730' (FG1: '2022/23 Base 0630-0730', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	306	20	283	609
	B	227	0	391	673	1291
	C	33	324	0	1242	1599
	D	172	660	853	0	1685
	Tot.	432	1290	1264	2198	5184

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 1: 2022/23 Base 0630-0730
Junction: A19 / A1231	
1/1 (with short)	357(In) 176(Out)
1/2 (short)	181
2/1	474
2/2	615
2/3	94
3/1	1242
4/1	166
4/2	237
4/3	181
5/1	590
5/2	583
5/3	512
6/1	561
6/2	764
6/3	512
7/1 (short)	182
7/2 (with short)	377(In) 195(Out)
7/3	232
8/1	361
8/2	563
8/3	232
9/1 (short)	368
9/2 (with short)	814(In) 446(Out)
9/3	477
10/1	729
10/2	535
11/1	474
11/2	482
12/1	1716
12/2	482
13/1	252
13/2	180
14/1	743
14/2	547
15/1	1242
15/2	357

Full Input Data And Results

Lane Saturation Flows

Junction: A19 / A1231								
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (A19 NB)	4.33	0.00	Y	Arm 4 Ahead	58.00	100.0 %	1996	1996
				Arm 11 Left	47.00	0.0 %		
1/2 (A19 NB)	4.33	0.00	N	Arm 4 Ahead	58.00	100.0 %	2132	2132
2/1 (S Circ)	3.00	0.00	Y	Arm 11 Ahead	69.00	100.0 %	1874	1874
2/2 (S Circ)	3.00	0.00	N	Arm 4 Right	49.00	21.6 %	2008	2008
				Arm 11 Ahead	69.00	78.4 %		
2/3 (S Circ)	3.00	0.00	N	Arm 4 Right	49.00	100.0 %	1994	1994
3/1 (A19 NB Bypass Lane 1)	This lane uses a directly entered Saturation Flow						2500	2500
4/1 (W Circ)	4.00	0.00	Y	Arm 13 Ahead	Inf	100.0 %	2015	2015
4/2 (W Circ)	3.75	0.00	N	Arm 6 Right	Inf	60.3 %	2130	2130
				Arm 13 Ahead	Inf	39.7 %		
4/3 (W Circ)	3.89	0.00	N	Arm 6 Right	Inf	100.0 %	2144	2144
5/1 (A1231 EB)	3.65	0.00	Y	Arm 6 Ahead	62.00	70.8 %	1932	1932
				Arm 13 Left	57.00	29.2 %		
5/2 (A1231 EB)	3.97	0.00	N	Arm 6 Ahead	62.00	100.0 %	2101	2101
5/3 (A1231 EB)	4.12	0.00	N	Arm 6 Ahead	62.00	100.0 %	2116	2116
6/1 (Circ N)	2.91	0.00	Y	Arm 14 Ahead	49.00	100.0 %	1849	1849
6/2 (Circ N)	3.25	0.00	N	Arm 8 Right	42.00	44.6 %	2014	2014
				Arm 14 Ahead	49.00	55.4 %		
6/3 (Circ N)	3.00	0.00	N	Arm 8 Right	42.00	100.0 %	1984	1984
7/1 (A19 SB)	3.07	0.00	Y	Arm 14 Left	41.00	100.0 %	1854	1854
7/2 (A19 SB)	3.00	0.00	N	Arm 8 Ahead	48.00	36.4 %	1986	1986
				Arm 14 Left	41.00	63.6 %		
7/3 (A19 SB)	3.00	0.00	N	Arm 8 Ahead	48.00	100.0 %	1993	1993
8/1 (W Circ)	4.00	0.00	Y	Arm 10 Ahead	Inf	100.0 %	2015	2015
8/2 (W Circ)	4.00	0.00	N	Arm 2 Right	Inf	9.1 %	2155	2155
				Arm 10 Ahead	Inf	90.9 %		
8/3 (W Circ)	3.85	0.00	N	Arm 2 Right	Inf	100.0 %	2140	2140

Full Input Data And Results

9/1 (A1231 WB)	3.00	0.00	Y	Arm 10 Left	61.00	100.0 %	1869	1869
9/2 (A1231 WB)	3.00	0.00	N	Arm 2 Ahead	63.00	94.8 %	2007	2007
				Arm 10 Left	61.00	5.2 %		
9/3 (A1231 WB)	3.00	0.00	N	Arm 2 Ahead	63.00	100.0 %	2007	2007
10/1 (A19 SB exit Lane 1)	Infinite Saturation Flow						Inf	Inf
10/2 (A19 SB exit Lane 2)	Infinite Saturation Flow						Inf	Inf
11/1 (A1231 WB exit Lane 1)	Infinite Saturation Flow						Inf	Inf
11/2 (A1231 WB exit Lane 2)	Infinite Saturation Flow						Inf	Inf
12/1 (A1231 WB exit Lane 1)	Infinite Saturation Flow						Inf	Inf
12/2 (A1231 WB exit Lane 2)	Infinite Saturation Flow						Inf	Inf
13/1 (A19 NB exit Lane 1)	Infinite Saturation Flow						Inf	Inf
13/2 (A19 NB exit Lane 2)	Infinite Saturation Flow						Inf	Inf
14/1 (A1231 EB exit Lane 1)	Infinite Saturation Flow						Inf	Inf
14/2 (A1231 EB exit Lane 2)	Infinite Saturation Flow						Inf	Inf
15/1 (A19 NB Lane 1)	Infinite Saturation Flow						Inf	Inf
15/2 (A19 NB Lane 2)	Infinite Saturation Flow						Inf	Inf

Scenario 2: ' 2022/23 Base + Com Dev' (FG2: '2022/23 Base + Com Dev', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

	Destination					
		A	B	C	D	Tot.
Origin	A	0	316	20	283	619
	B	237	0	392	677	1306
	C	33	325	0	1254	1612
	D	172	664	865	0	1701
	Tot.	442	1305	1277	2214	5238

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 2: 2022/23 Base + Com Dev
Junction: A19 / A1231	
1/1 (with short)	358(In) 122(Out)
1/2 (short)	236
2/1	515
2/2	560
2/3	122
3/1	1254
4/1	148
4/2	211
4/3	236
5/1	666
5/2	546
5/3	489
6/1	583
6/2	782
6/3	489
7/1 (short)	207
7/2 (with short)	429(In) 222(Out)
7/3	190
8/1	396
8/2	582
8/3	190
9/1 (short)	368
9/2 (with short)	814(In) 446(Out)
9/3	492
10/1	764
10/2	513
11/1	515
11/2	445
12/1	1769
12/2	445
13/1	234
13/2	208
14/1	790
14/2	515
15/1	1254
15/2	358

Full Input Data And Results

Lane Saturation Flows

Junction: A19 / A1231								
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (A19 NB)	4.33	0.00	Y	Arm 4 Ahead	58.00	100.0 %	1996	1996
				Arm 11 Left	47.00	0.0 %		
1/2 (A19 NB)	4.33	0.00	N	Arm 4 Ahead	58.00	100.0 %	2132	2132
2/1 (S Circ)	3.00	0.00	Y	Arm 11 Ahead	69.00	100.0 %	1874	1874
2/2 (S Circ)	3.00	0.00	N	Arm 4 Right	49.00	20.5 %	2008	2008
				Arm 11 Ahead	69.00	79.5 %		
2/3 (S Circ)	3.00	0.00	N	Arm 4 Right	49.00	100.0 %	1994	1994
3/1 (A19 NB Bypass Lane 1)	This lane uses a directly entered Saturation Flow						2500	2500
4/1 (W Circ)	4.00	0.00	Y	Arm 13 Ahead	Inf	100.0 %	2015	2015
4/2 (W Circ)	3.75	0.00	N	Arm 6 Right	Inf	42.2 %	2130	2130
				Arm 13 Ahead	Inf	57.8 %		
4/3 (W Circ)	3.89	0.00	N	Arm 6 Right	Inf	100.0 %	2144	2144
5/1 (A1231 EB)	3.65	0.00	Y	Arm 6 Ahead	62.00	74.2 %	1932	1932
				Arm 13 Left	57.00	25.8 %		
5/2 (A1231 EB)	3.97	0.00	N	Arm 6 Ahead	62.00	100.0 %	2101	2101
5/3 (A1231 EB)	4.12	0.00	N	Arm 6 Ahead	62.00	100.0 %	2116	2116
6/1 (Circ N)	2.91	0.00	Y	Arm 14 Ahead	49.00	100.0 %	1849	1849
6/2 (Circ N)	3.25	0.00	N	Arm 8 Right	42.00	48.1 %	2013	2013
				Arm 14 Ahead	49.00	51.9 %		
6/3 (Circ N)	3.00	0.00	N	Arm 8 Right	42.00	100.0 %	1984	1984
7/1 (A19 SB)	3.07	0.00	Y	Arm 14 Left	41.00	100.0 %	1854	1854
7/2 (A19 SB)	3.00	0.00	N	Arm 8 Ahead	48.00	50.9 %	1988	1988
				Arm 14 Left	41.00	49.1 %		
7/3 (A19 SB)	3.00	0.00	N	Arm 8 Ahead	48.00	100.0 %	1993	1993
8/1 (W Circ)	4.00	0.00	Y	Arm 10 Ahead	Inf	100.0 %	2015	2015
8/2 (W Circ)	4.00	0.00	N	Arm 2 Right	Inf	16.0 %	2155	2155
				Arm 10 Ahead	Inf	84.0 %		
8/3 (W Circ)	3.85	0.00	N	Arm 2 Right	Inf	100.0 %	2140	2140

Full Input Data And Results

9/1 (A1231 WB)	3.00	0.00	Y	Arm 10 Left	61.00	100.0 %	1869	1869
9/2 (A1231 WB)	3.00	0.00	N	Arm 2 Ahead	63.00	94.6 %	2007	2007
				Arm 10 Left	61.00	5.4 %		
9/3 (A1231 WB)	3.00	0.00	N	Arm 2 Ahead	63.00	100.0 %	2007	2007
10/1 (A19 SB exit Lane 1)	Infinite Saturation Flow						Inf	Inf
10/2 (A19 SB exit Lane 2)	Infinite Saturation Flow						Inf	Inf
11/1 (A1231 WB exit Lane 1)	Infinite Saturation Flow						Inf	Inf
11/2 (A1231 WB exit Lane 2)	Infinite Saturation Flow						Inf	Inf
12/1 (A1231 WB exit Lane 1)	Infinite Saturation Flow						Inf	Inf
12/2 (A1231 WB exit Lane 2)	Infinite Saturation Flow						Inf	Inf
13/1 (A19 NB exit Lane 1)	Infinite Saturation Flow						Inf	Inf
13/2 (A19 NB exit Lane 2)	Infinite Saturation Flow						Inf	Inf
14/1 (A1231 EB exit Lane 1)	Infinite Saturation Flow						Inf	Inf
14/2 (A1231 EB exit Lane 2)	Infinite Saturation Flow						Inf	Inf
15/1 (A19 NB Lane 1)	Infinite Saturation Flow						Inf	Inf
15/2 (A19 NB Lane 2)	Infinite Saturation Flow						Inf	Inf

Scenario 3: '2022/23 Base + Com Dev + Dev' (FG3: '2022/23 Base + Com Dev + Dev', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

	Destination					
		A	B	C	D	Tot.
Origin	A	0	322	20	283	625
	B	243	0	392	677	1312
	C	33	325	0	1254	1612
	D	172	664	865	0	1701
	Tot.	448	1311	1277	2214	5250

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 3: 2022/23 Base + Com Dev + Dev
Junction: A19 / A1231	
1/1 (with short)	358(In) 175(Out)
1/2 (short)	183
2/1	485
2/2	610
2/3	108
3/1	1254
4/1	168
4/2	250
4/3	183
5/1	591
5/2	593
5/3	517
6/1	561
6/2	776
6/3	517
7/1 (short)	192
7/2 (with short)	396(In) 204(Out)
7/3	229
8/1	368
8/2	571
8/3	229
9/1 (short)	372
9/2 (with short)	823(In) 451(Out)
9/3	489
10/1	740
10/2	537
11/1	485
11/2	475
12/1	1739
12/2	475
13/1	254
13/2	194
14/1	753
14/2	558
15/1	1254
15/2	358

Full Input Data And Results

Lane Saturation Flows

Junction: A19 / A1231								
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (A19 NB)	4.33	0.00	Y	Arm 4 Ahead	58.00	100.0 %	1996	1996
				Arm 11 Left	47.00	0.0 %		
1/2 (A19 NB)	4.33	0.00	N	Arm 4 Ahead	58.00	100.0 %	2132	2132
2/1 (S Circ)	3.00	0.00	Y	Arm 11 Ahead	69.00	100.0 %	1874	1874
2/2 (S Circ)	3.00	0.00	N	Arm 4 Right	49.00	22.1 %	2007	2007
				Arm 11 Ahead	69.00	77.9 %		
2/3 (S Circ)	3.00	0.00	N	Arm 4 Right	49.00	100.0 %	1994	1994
3/1 (A19 NB Bypass Lane 1)	This lane uses a directly entered Saturation Flow						2500	2500
4/1 (W Circ)	4.00	0.00	Y	Arm 13 Ahead	Inf	100.0 %	2015	2015
4/2 (W Circ)	3.75	0.00	N	Arm 6 Right	Inf	56.8 %	2130	2130
				Arm 13 Ahead	Inf	43.2 %		
4/3 (W Circ)	3.89	0.00	N	Arm 6 Right	Inf	100.0 %	2144	2144
5/1 (A1231 EB)	3.65	0.00	Y	Arm 6 Ahead	62.00	70.9 %	1932	1932
				Arm 13 Left	57.00	29.1 %		
5/2 (A1231 EB)	3.97	0.00	N	Arm 6 Ahead	62.00	100.0 %	2101	2101
5/3 (A1231 EB)	4.12	0.00	N	Arm 6 Ahead	62.00	100.0 %	2116	2116
6/1 (Circ N)	2.91	0.00	Y	Arm 14 Ahead	49.00	100.0 %	1849	1849
6/2 (Circ N)	3.25	0.00	N	Arm 8 Right	42.00	44.8 %	2014	2014
				Arm 14 Ahead	49.00	55.2 %		
6/3 (Circ N)	3.00	0.00	N	Arm 8 Right	42.00	100.0 %	1984	1984
7/1 (A19 SB)	3.07	0.00	Y	Arm 14 Left	41.00	100.0 %	1854	1854
7/2 (A19 SB)	3.00	0.00	N	Arm 8 Ahead	48.00	36.3 %	1986	1986
				Arm 14 Left	41.00	63.7 %		
7/3 (A19 SB)	3.00	0.00	N	Arm 8 Ahead	48.00	100.0 %	1993	1993
8/1 (W Circ)	4.00	0.00	Y	Arm 10 Ahead	Inf	100.0 %	2015	2015
8/2 (W Circ)	4.00	0.00	N	Arm 2 Right	Inf	9.5 %	2155	2155
				Arm 10 Ahead	Inf	90.5 %		
8/3 (W Circ)	3.85	0.00	N	Arm 2 Right	Inf	100.0 %	2140	2140

Full Input Data And Results

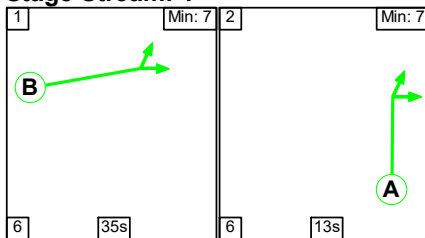
9/1 (A1231 WB)	3.00	0.00	Y	Arm 10 Left	61.00	100.0 %	1869	1869
9/2 (A1231 WB)	3.00	0.00	N	Arm 2 Ahead	63.00	95.6 %	2007	2007
				Arm 10 Left	61.00	4.4 %		
9/3 (A1231 WB)	3.00	0.00	N	Arm 2 Ahead	63.00	100.0 %	2007	2007
10/1 (A19 SB exit Lane 1)	Infinite Saturation Flow						Inf	Inf
10/2 (A19 SB exit Lane 2)	Infinite Saturation Flow						Inf	Inf
11/1 (A1231 WB exit Lane 1)	Infinite Saturation Flow						Inf	Inf
11/2 (A1231 WB exit Lane 2)	Infinite Saturation Flow						Inf	Inf
12/1 (A1231 WB exit Lane 1)	Infinite Saturation Flow						Inf	Inf
12/2 (A1231 WB exit Lane 2)	Infinite Saturation Flow						Inf	Inf
13/1 (A19 NB exit Lane 1)	Infinite Saturation Flow						Inf	Inf
13/2 (A19 NB exit Lane 2)	Infinite Saturation Flow						Inf	Inf
14/1 (A1231 EB exit Lane 1)	Infinite Saturation Flow						Inf	Inf
14/2 (A1231 EB exit Lane 2)	Infinite Saturation Flow						Inf	Inf
15/1 (A19 NB Lane 1)	Infinite Saturation Flow						Inf	Inf
15/2 (A19 NB Lane 2)	Infinite Saturation Flow						Inf	Inf

Scenario 1: '2022/23 Base 0630-0730' (FG1: '2022/23 Base 0630-0730', Plan 1: 'Network Control Plan 1')

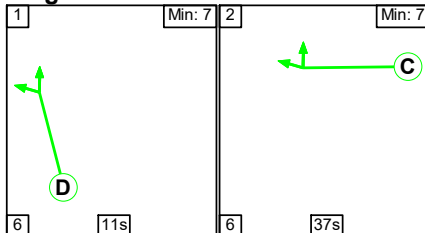
C1

Stage Sequence Diagram

Stage Stream: 1



Stage Stream: 2



Full Input Data And Results

Stage Timings

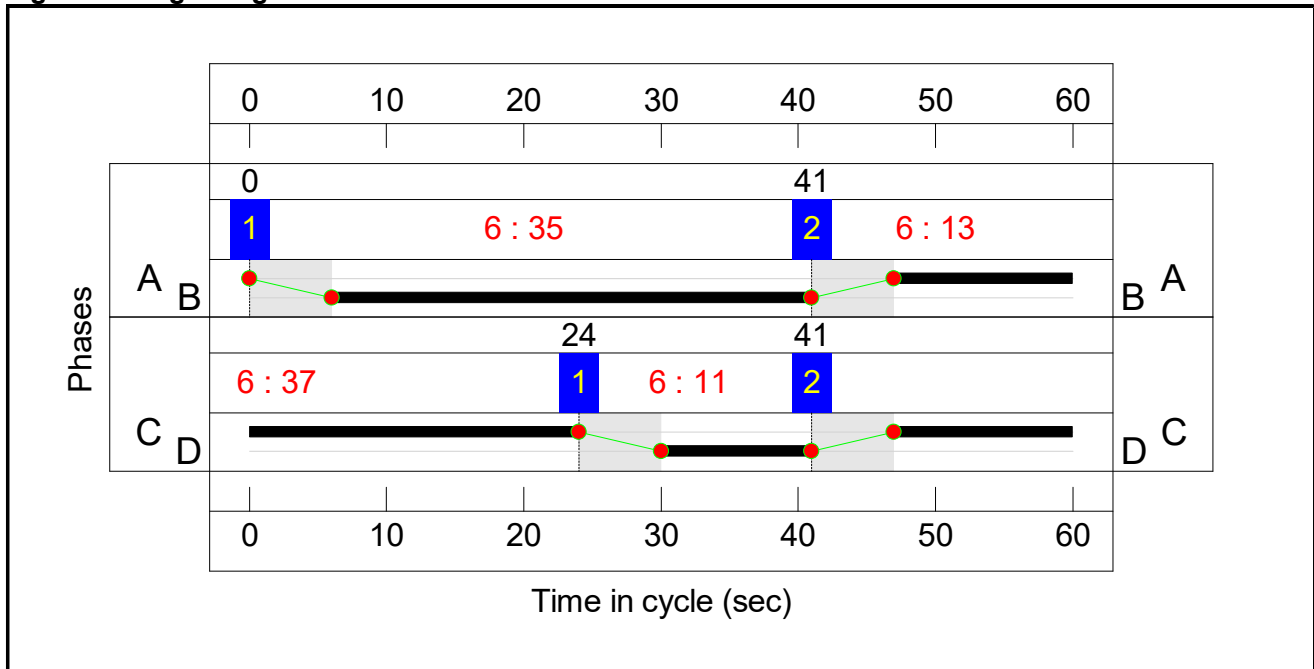
Stage Stream: 1

Stage	1	2
Duration	35	13
Change Point	0	41

Stage Stream: 2

Stage	1	2
Duration	11	37
Change Point	24	41

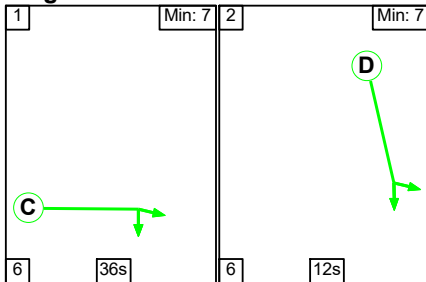
Signal Timings Diagram



C2

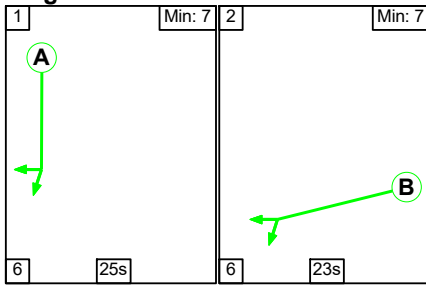
Stage Sequence Diagram

Stage Stream: 1



Full Input Data And Results

Stage Stream: 2



Stage Timings

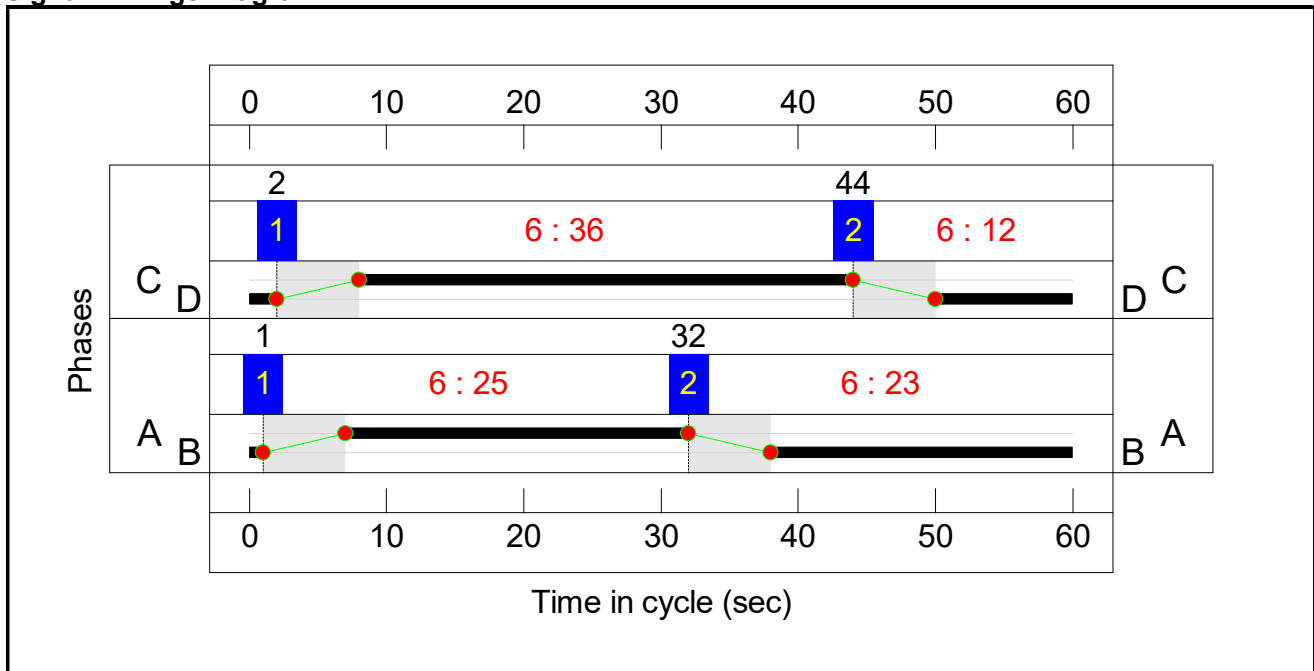
Stage Stream: 1

Stage	1	2
Duration	36	12
Change Point	2	44

Stage Stream: 2

Stage	1	2
Duration	25	23
Change Point	1	32

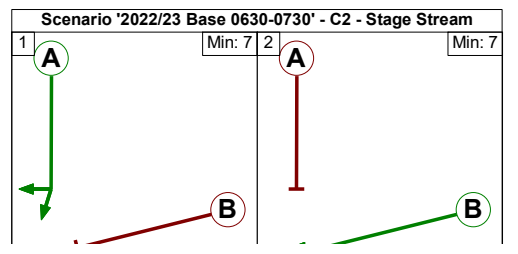
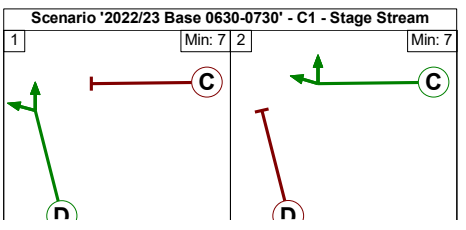
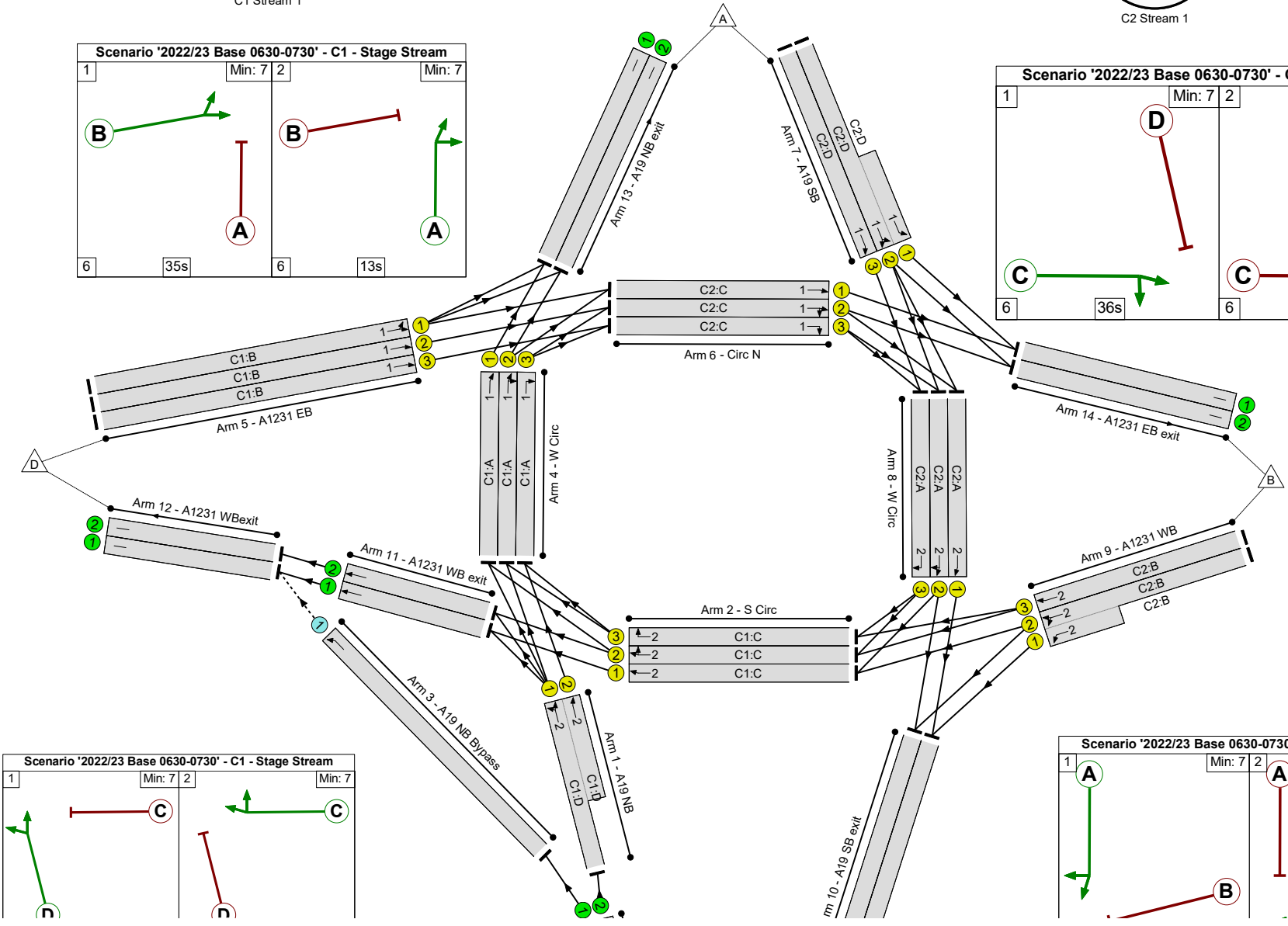
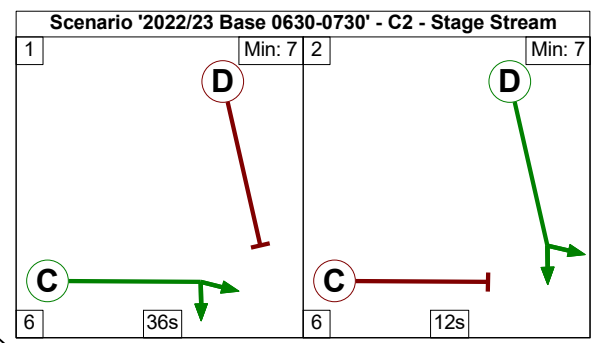
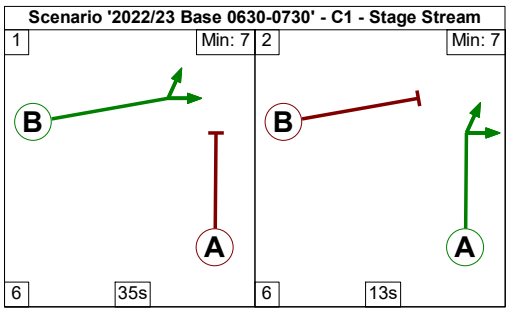
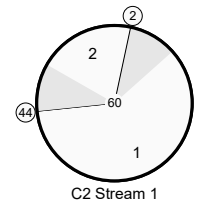
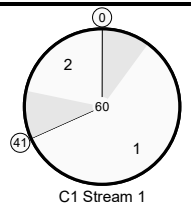
Signal Timings Diagram



Full Input Data And Results
Network Layout Diagram

Full Input Data And Results

A19 / A1231
 PRC: 19.2 %
 Total Traffic Delay: 32.5 pcuHr
 Controller: 1&2



Full Input Data And Results

Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: A19 - A1231	-	-	N/A	-	-		-	-	-	-	-	-	75.5%
A19 / A1231	-	-	N/A	-	-		-	-	-	-	-	-	75.5%
1/1+1/2	A19 NB Ahead Left	U	1:2	N/A	C1:D		1	11	-	357	1996:2132	399+426	44.1 : 42.4%
2/1	S Circ Ahead	U	1:2	N/A	C1:C		1	37	-	474	1874	1187	39.9%
2/2	S Circ Right Ahead	U	1:2	N/A	C1:C		1	37	-	615	2008	1272	48.4%
2/3	S Circ Right	U	1:2	N/A	C1:C		1	37	-	94	1994	1263	7.4%
3/1	A19 NB Bypass Ahead	O	N/A	N/A	-		-	-	-	1242	2500	1644	75.5%
4/1	W Circ Ahead	U	1:1	N/A	C1:A		1	13	-	166	2015	470	35.3%
4/2	W Circ Right Ahead	U	1:1	N/A	C1:A		1	13	-	237	2130	497	47.7%
4/3	W Circ Right	U	1:1	N/A	C1:A		1	13	-	181	2144	500	36.2%
5/1	A1231 EB Ahead Left	U	1:1	N/A	C1:B		1	35	-	590	1932	1159	50.9%
5/2	A1231 EB Ahead	U	1:1	N/A	C1:B		1	35	-	583	2101	1261	46.2%
5/3	A1231 EB Ahead	U	1:1	N/A	C1:B		1	35	-	512	2116	1270	40.3%
6/1	Circ N Ahead	U	2:1	N/A	C2:C		1	36	-	561	1849	1140	49.2%
6/2	Circ N Right Ahead	U	2:1	N/A	C2:C		1	36	-	764	2014	1242	61.5%
6/3	Circ N Right	U	2:1	N/A	C2:C		1	36	-	512	1984	1223	41.8%
7/2+7/1	A19 SB Ahead Left	U	2:1	N/A	C2:D		1	12	-	377	1986:1854	430+402	45.3 : 45.3%
7/3	A19 SB Ahead	U	2:1	N/A	C2:D		1	12	-	232	1993	432	53.7%
8/1	W Circ Ahead	U	2:2	N/A	C2:A		1	25	-	361	2015	873	41.3%

Full Input Data And Results

8/2	W Circ Right Ahead	U	2:2	N/A	C2:A		1	25	-	563	2155	934	60.3%
8/3	W Circ Right	U	2:2	N/A	C2:A		1	25	-	232	2140	927	25.0%
9/2+9/1	A1231 WB Ahead Left	U	2:2	N/A	C2:B		1	23	-	814	2007:1869	610+503	73.1 : 73.1%
9/3	A1231 WB Ahead	U	2:2	N/A	C2:B		1	23	-	477	2007	803	59.4%
10/1	A19 SB exit	U	N/A	N/A	-		-	-	-	729	Inf	Inf	0.0%
10/2	A19 SB exit	U	N/A	N/A	-		-	-	-	535	Inf	Inf	0.0%
11/1	A1231 WB exit Ahead	U	N/A	N/A	-		-	-	-	474	Inf	Inf	0.0%
11/2	A1231 WB exit Ahead	U	N/A	N/A	-		-	-	-	482	Inf	Inf	0.0%
12/1	A1231 WBexit	U	N/A	N/A	-		-	-	-	1716	Inf	Inf	0.0%
12/2	A1231 WBexit	U	N/A	N/A	-		-	-	-	482	Inf	Inf	0.0%
13/1	A19 NB exit	U	N/A	N/A	-		-	-	-	252	Inf	Inf	0.0%
13/2	A19 NB exit	U	N/A	N/A	-		-	-	-	180	Inf	Inf	0.0%
14/1	A1231 EB exit	U	N/A	N/A	-		-	-	-	743	Inf	Inf	0.0%
14/2	A1231 EB exit	U	N/A	N/A	-		-	-	-	547	Inf	Inf	0.0%
15/1	A19 NB Ahead	U	N/A	N/A	-		-	-	-	1242	Inf	Inf	0.0%
15/2	A19 NB Ahead	U	N/A	N/A	-		-	-	-	357	Inf	Inf	0.0%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: A19 - A1231	-	-	1242	0	0	21.5	11.0	0.0	32.5	-	-	-	-
A19 / A1231	-	-	1242	0	0	21.5	11.0	0.0	32.5	-	-	-	-
1/1+1/2	357	357	-	-	-	2.1	0.4	-	2.5	24.9	2.6	0.4	3.0
2/1	474	474	-	-	-	0.1	0.3	-	0.4	3.0	0.6	0.3	0.9
2/2	615	615	-	-	-	0.2	0.5	-	0.6	3.7	0.8	0.5	1.3
2/3	94	94	-	-	-	0.0	0.0	-	0.0	1.6	0.0	0.0	0.1
3/1	1242	1242	1242	0	0	0.0	1.5	-	1.5	4.4	2.4	1.5	3.9
4/1	166	166	-	-	-	0.9	0.3	-	1.1	24.5	1.7	0.3	1.9
4/2	237	237	-	-	-	1.0	0.5	-	1.5	22.2	3.2	0.5	3.7
4/3	181	181	-	-	-	0.6	0.3	-	0.8	16.8	3.0	0.3	3.3
5/1	590	590	-	-	-	1.1	0.5	-	1.7	10.1	5.6	0.5	6.1
5/2	583	583	-	-	-	1.1	0.4	-	1.5	9.3	5.3	0.4	5.8
5/3	512	512	-	-	-	0.9	0.3	-	1.2	8.7	4.4	0.3	4.7
6/1	561	561	-	-	-	0.7	0.5	-	1.2	7.8	3.3	0.5	3.8
6/2	764	764	-	-	-	1.1	0.8	-	1.9	8.7	5.0	0.8	5.8
6/3	512	512	-	-	-	0.4	0.4	-	0.7	5.1	1.1	0.4	1.5
7/2+7/1	377	377	-	-	-	2.1	0.4	-	2.6	24.4	2.8	0.4	3.2
7/3	232	232	-	-	-	1.3	0.6	-	1.9	29.8	3.4	0.6	4.0
8/1	361	361	-	-	-	0.9	0.4	-	1.3	12.6	2.2	0.4	2.5
8/2	563	563	-	-	-	1.4	0.8	-	2.2	14.1	3.8	0.8	4.5
8/3	232	232	-	-	-	0.7	0.2	-	0.9	13.6	3.9	0.2	4.0
9/2+9/1	814	814	-	-	-	3.1	1.3	-	4.4	19.7	5.7	1.3	7.0
9/3	477	477	-	-	-	1.9	0.7	-	2.6	19.7	6.2	0.7	7.0
10/1	729	729	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
10/2	535	535	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

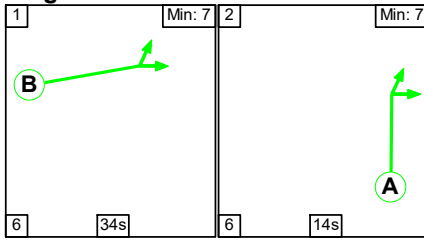
Full Input Data And Results

11/1	474	474	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
11/2	482	482	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
12/1	1716	1716	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
12/2	482	482	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
13/1	252	252	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
13/2	180	180	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
14/1	743	743	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
14/2	547	547	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
15/1	1242	1242	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
15/2	357	357	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
			C1	Stream: 1 PRC for Signalled Lanes (%)	76.8	Total Delay for Signalled Lanes (pcuHr):			7.83	Cycle Time (s): 60			
			C1	Stream: 2 PRC for Signalled Lanes (%)	86.1	Total Delay for Signalled Lanes (pcuHr):			3.53	Cycle Time (s): 60			
			C2	Stream: 1 PRC for Signalled Lanes (%)	46.3	Total Delay for Signalled Lanes (pcuHr):			8.25	Cycle Time (s): 60			
			C2	Stream: 2 PRC for Signalled Lanes (%)	23.1	Total Delay for Signalled Lanes (pcuHr):			11.40	Cycle Time (s): 60			
			PRC Over All Lanes (%)		19.2	Total Delay Over All Lanes(pcuHr):			32.55				

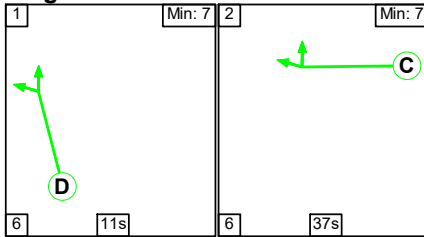
C1

Stage Sequence Diagram

Stage Stream: 1



Stage Stream: 2



Stage Timings

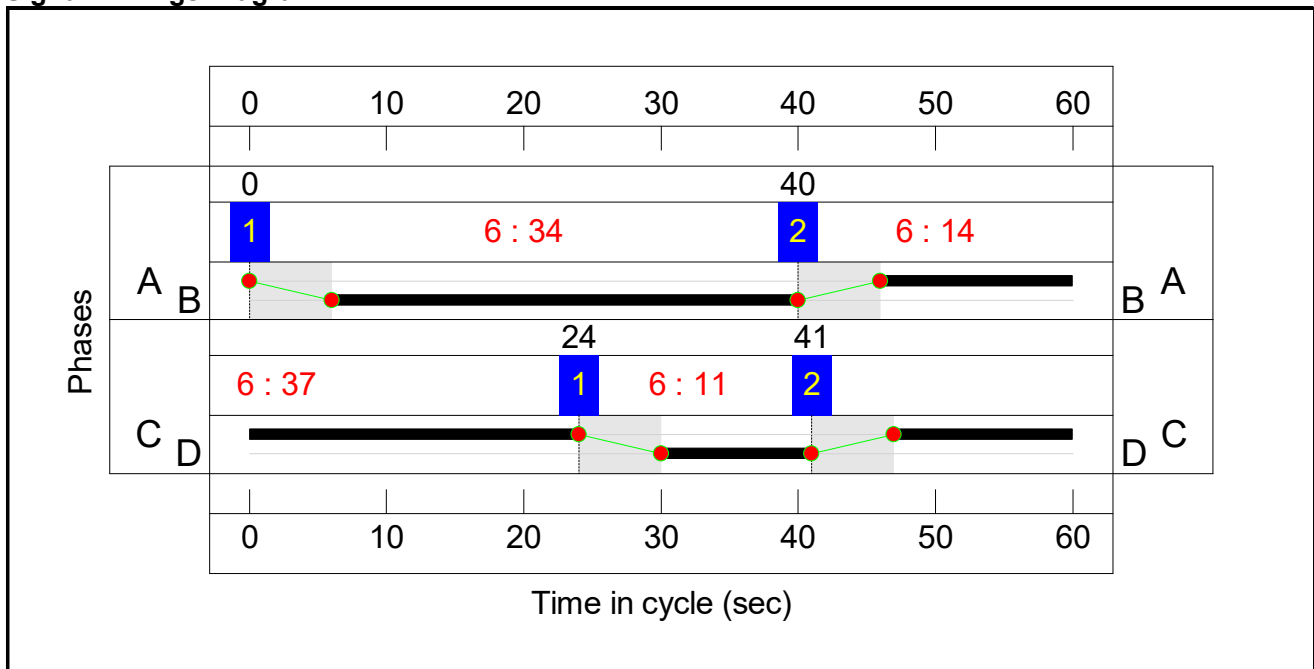
Stage Stream: 1

Stage	1	2
Duration	34	14
Change Point	0	40

Stage Stream: 2

Stage	1	2
Duration	11	37
Change Point	24	41

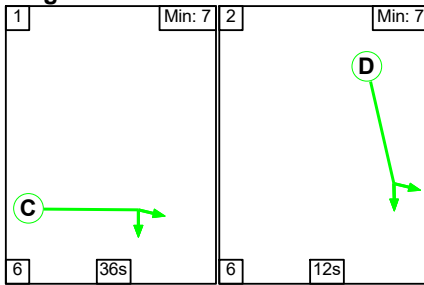
Signal Timings Diagram



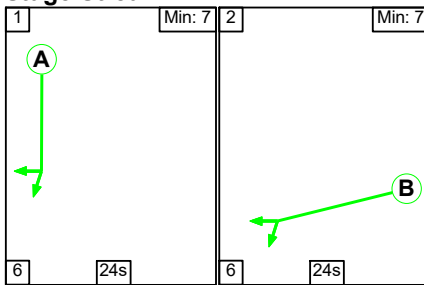
C2

Stage Sequence Diagram

Stage Stream: 1



Stage Stream: 2



Stage Timings

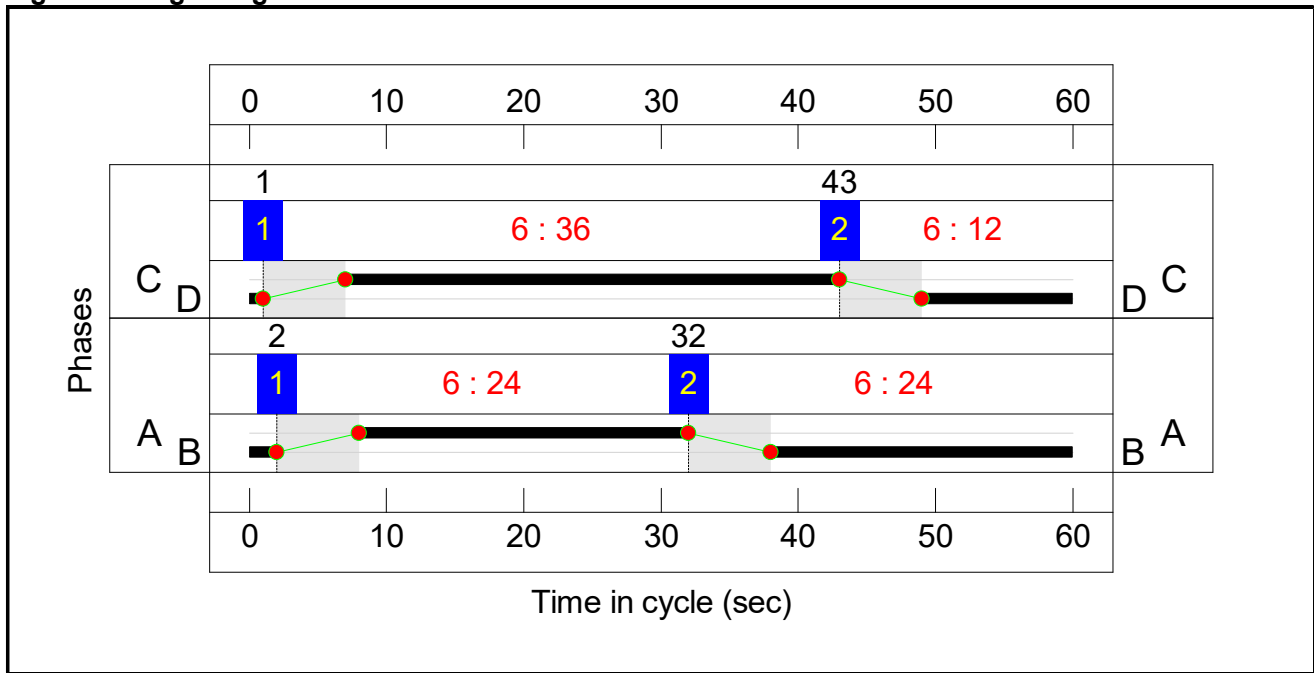
Stage Stream: 1

Stage	1	2
Duration	36	12
Change Point	1	43

Stage Stream: 2

Stage	1	2
Duration	24	24
Change Point	2	32

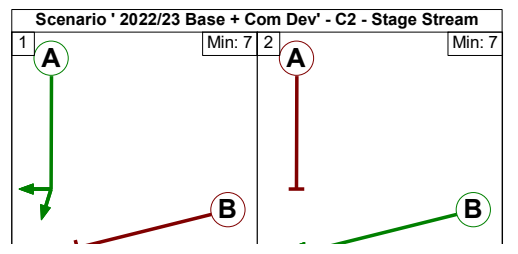
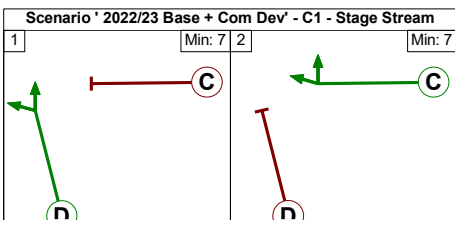
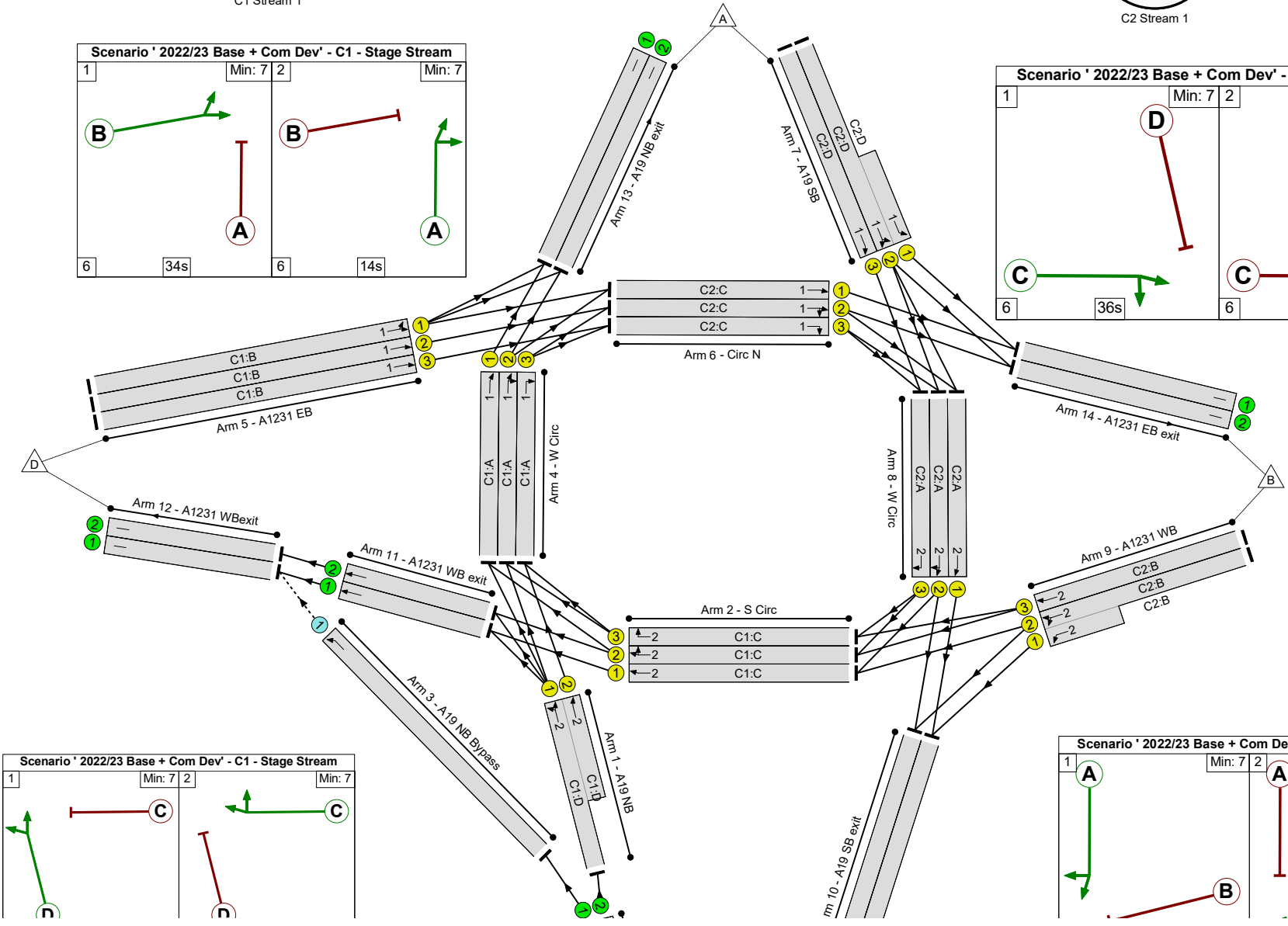
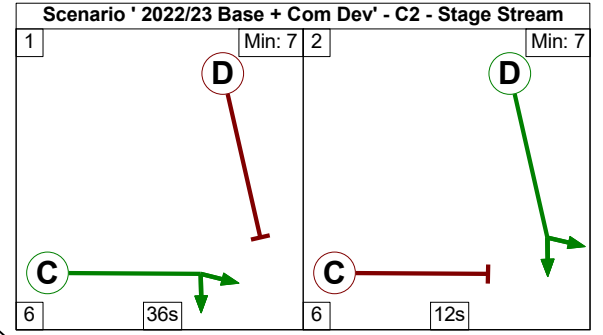
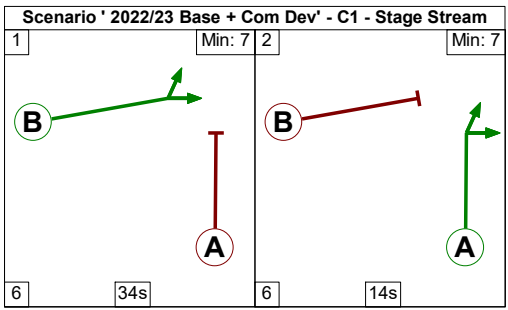
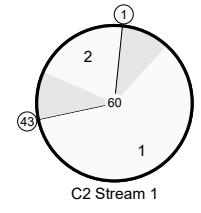
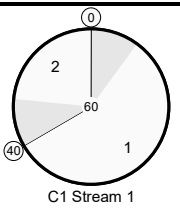
Signal Timings Diagram



Full Input Data And Results
Network Layout Diagram

Full Input Data And Results

A19 / A1231
 PRC: 15.8 %
 Total Traffic Delay: 33.7 pcuHr
 Controller: 1&2



Full Input Data And Results

Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: A19 - A1231	-	-	N/A	-	-		-	-	-	-	-	-	77.7%
A19 / A1231	-	-	N/A	-	-		-	-	-	-	-	-	77.7%
1/1+1/2	A19 NB Ahead Left	U	1:2	N/A	C1:D		1	11	-	358	1996:2132	220+426	55.3 : 55.3%
2/1	S Circ Ahead	U	1:2	N/A	C1:C		1	37	-	515	1874	1187	43.4%
2/2	S Circ Right Ahead	U	1:2	N/A	C1:C		1	37	-	560	2008	1272	44.0%
2/3	S Circ Right	U	1:2	N/A	C1:C		1	37	-	122	1994	1263	9.7%
3/1	A19 NB Bypass Ahead	O	N/A	N/A	-		-	-	-	1254	2500	1614	77.7%
4/1	W Circ Ahead	U	1:1	N/A	C1:A		1	14	-	148	2015	504	29.4%
4/2	W Circ Right Ahead	U	1:1	N/A	C1:A		1	14	-	211	2130	533	39.6%
4/3	W Circ Right	U	1:1	N/A	C1:A		1	14	-	236	2144	536	44.0%
5/1	A1231 EB Ahead Left	U	1:1	N/A	C1:B		1	34	-	666	1932	1127	59.1%
5/2	A1231 EB Ahead	U	1:1	N/A	C1:B		1	34	-	546	2101	1226	44.6%
5/3	A1231 EB Ahead	U	1:1	N/A	C1:B		1	34	-	489	2116	1234	39.6%
6/1	Circ N Ahead	U	2:1	N/A	C2:C		1	36	-	583	1849	1140	51.1%
6/2	Circ N Right Ahead	U	2:1	N/A	C2:C		1	36	-	782	2013	1241	63.0%
6/3	Circ N Right	U	2:1	N/A	C2:C		1	36	-	489	1984	1223	40.0%
7/2+7/1	A19 SB Ahead Left	U	2:1	N/A	C2:D		1	12	-	429	1988:1854	431+402	51.5 : 51.5%
7/3	A19 SB Ahead	U	2:1	N/A	C2:D		1	12	-	190	1993	432	44.0%
8/1	W Circ Ahead	U	2:2	N/A	C2:A		1	24	-	396	2015	840	47.2%

Full Input Data And Results

8/2	W Circ Right Ahead	U	2:2	N/A	C2:A		1	24	-	582	2155	898	64.8%
8/3	W Circ Right	U	2:2	N/A	C2:A		1	24	-	190	2140	892	21.3%
9/2+9/1	A1231 WB Ahead Left	U	2:2	N/A	C2:B		1	24	-	814	2007:1869	628+518	71.1 : 71.1%
9/3	A1231 WB Ahead	U	2:2	N/A	C2:B		1	24	-	492	2007	836	58.8%
10/1	A19 SB exit	U	N/A	N/A	-		-	-	-	764	Inf	Inf	0.0%
10/2	A19 SB exit	U	N/A	N/A	-		-	-	-	513	Inf	Inf	0.0%
11/1	A1231 WB exit Ahead	U	N/A	N/A	-		-	-	-	515	Inf	Inf	0.0%
11/2	A1231 WB exit Ahead	U	N/A	N/A	-		-	-	-	445	Inf	Inf	0.0%
12/1	A1231 WBexit	U	N/A	N/A	-		-	-	-	1769	Inf	Inf	0.0%
12/2	A1231 WBexit	U	N/A	N/A	-		-	-	-	445	Inf	Inf	0.0%
13/1	A19 NB exit	U	N/A	N/A	-		-	-	-	234	Inf	Inf	0.0%
13/2	A19 NB exit	U	N/A	N/A	-		-	-	-	208	Inf	Inf	0.0%
14/1	A1231 EB exit	U	N/A	N/A	-		-	-	-	790	Inf	Inf	0.0%
14/2	A1231 EB exit	U	N/A	N/A	-		-	-	-	515	Inf	Inf	0.0%
15/1	A19 NB Ahead	U	N/A	N/A	-		-	-	-	1254	Inf	Inf	0.0%
15/2	A19 NB Ahead	U	N/A	N/A	-		-	-	-	358	Inf	Inf	0.0%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: A19 - A1231	-	-	1254	0	0	22.1	11.6	0.0	33.7	-	-	-	-
A19 / A1231	-	-	1254	0	0	22.1	11.6	0.0	33.7	-	-	-	-
1/1+1/2	358	358	-	-	-	2.1	0.6	-	2.7	27.4	3.5	0.6	4.1
2/1	515	515	-	-	-	0.2	0.4	-	0.5	3.8	1.2	0.4	1.5
2/2	560	560	-	-	-	0.1	0.4	-	0.5	3.5	0.7	0.4	1.1
2/3	122	122	-	-	-	0.0	0.1	-	0.1	1.6	0.0	0.1	0.1
3/1	1254	1254	1254	0	0	0.0	1.7	-	1.7	5.0	3.5	1.7	5.2
4/1	148	148	-	-	-	0.7	0.2	-	1.0	23.2	1.5	0.2	1.8
4/2	211	211	-	-	-	1.0	0.3	-	1.3	22.1	2.5	0.3	2.9
4/3	236	236	-	-	-	0.7	0.4	-	1.1	16.3	3.9	0.4	4.3
5/1	666	666	-	-	-	1.5	0.7	-	2.2	11.8	7.0	0.7	7.8
5/2	546	546	-	-	-	1.1	0.4	-	1.5	9.7	5.0	0.4	5.4
5/3	489	489	-	-	-	0.9	0.3	-	1.2	9.2	4.3	0.3	4.7
6/1	583	583	-	-	-	0.6	0.5	-	1.1	7.0	2.5	0.5	3.1
6/2	782	782	-	-	-	1.2	0.8	-	2.1	9.5	6.8	0.8	7.6
6/3	489	489	-	-	-	0.3	0.3	-	0.7	5.0	1.1	0.3	1.4
7/2+7/1	429	429	-	-	-	2.5	0.5	-	3.0	25.2	3.2	0.5	3.7
7/3	190	190	-	-	-	1.1	0.4	-	1.5	27.8	2.7	0.4	3.1
8/1	396	396	-	-	-	1.0	0.4	-	1.5	13.2	2.4	0.4	2.9
8/2	582	582	-	-	-	1.6	0.9	-	2.5	15.7	5.0	0.9	5.9
8/3	190	190	-	-	-	0.7	0.1	-	0.8	15.5	3.2	0.1	3.3
9/2+9/1	814	814	-	-	-	2.9	1.2	-	4.1	18.3	5.6	1.2	6.8
9/3	492	492	-	-	-	1.8	0.7	-	2.6	18.7	6.3	0.7	7.0
10/1	764	764	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
10/2	513	513	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

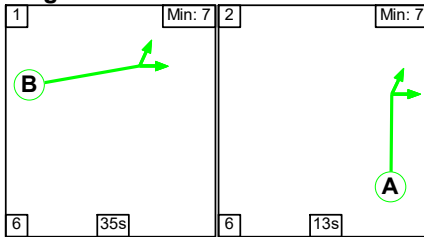
Full Input Data And Results

11/1	515	515	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
11/2	445	445	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
12/1	1769	1769	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
12/2	445	445	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
13/1	234	234	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
13/2	208	208	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
14/1	790	790	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
14/2	515	515	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
15/1	1254	1254	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
15/2	358	358	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
			C1	Stream: 1 PRC for Signalled Lanes (%)	52.3	Total Delay for Signalled Lanes (pcuHr):			8.23	Cycle Time (s): 60			
			C1	Stream: 2 PRC for Signalled Lanes (%)	62.6	Total Delay for Signalled Lanes (pcuHr):			3.86	Cycle Time (s): 60			
			C2	Stream: 1 PRC for Signalled Lanes (%)	42.9	Total Delay for Signalled Lanes (pcuHr):			8.35	Cycle Time (s): 60			
			C2	Stream: 2 PRC for Signalled Lanes (%)	26.7	Total Delay for Signalled Lanes (pcuHr):			11.52	Cycle Time (s): 60			
			PRC Over All Lanes (%)		15.8	Total Delay Over All Lanes(pcuHr):			33.69				

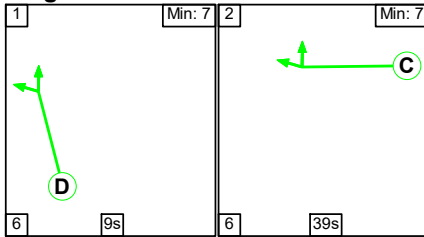
C1

Stage Sequence Diagram

Stage Stream: 1



Stage Stream: 2



Stage Timings

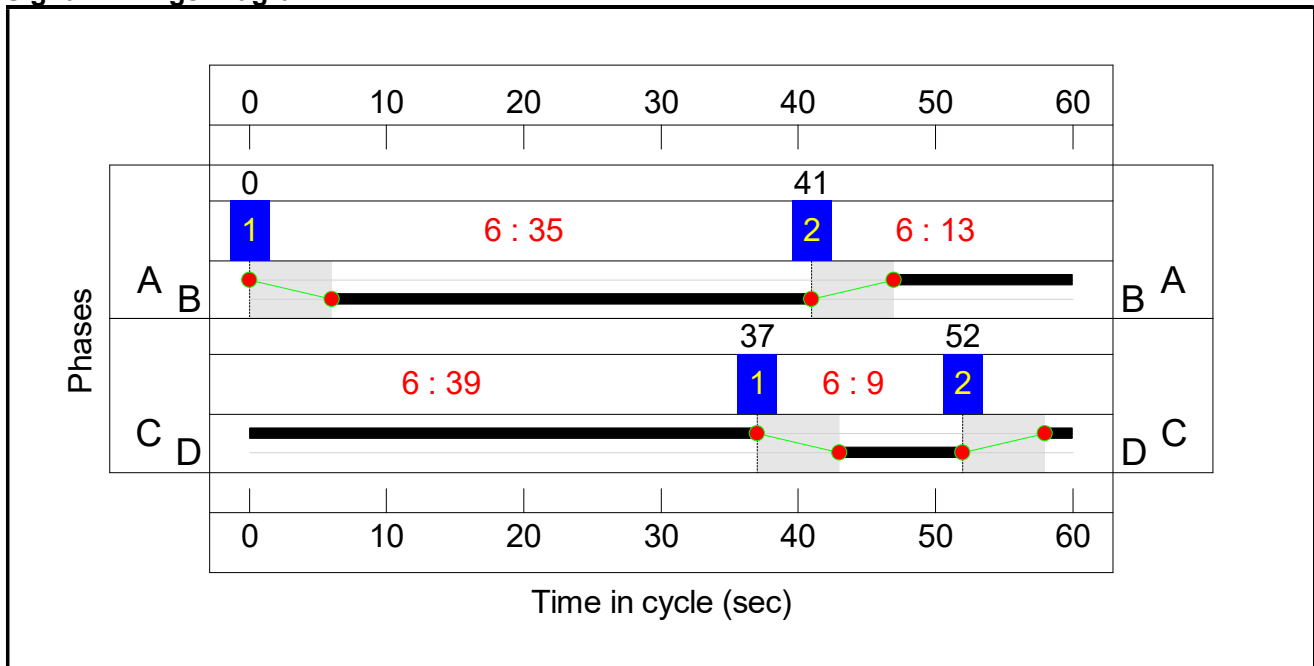
Stage Stream: 1

Stage	1	2
Duration	35	13
Change Point	0	41

Stage Stream: 2

Stage	1	2
Duration	9	39
Change Point	37	52

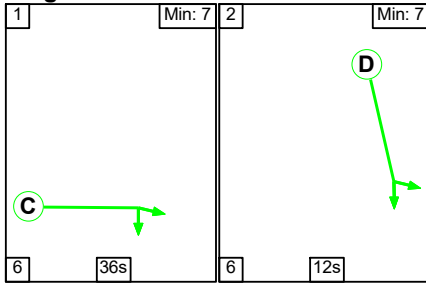
Signal Timings Diagram



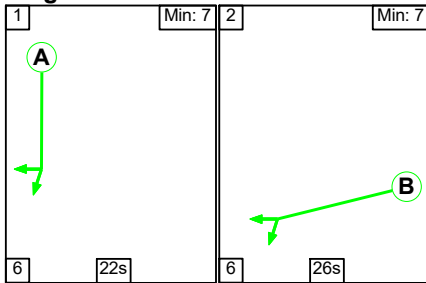
C2

Stage Sequence Diagram

Stage Stream: 1



Stage Stream: 2



Stage Timings

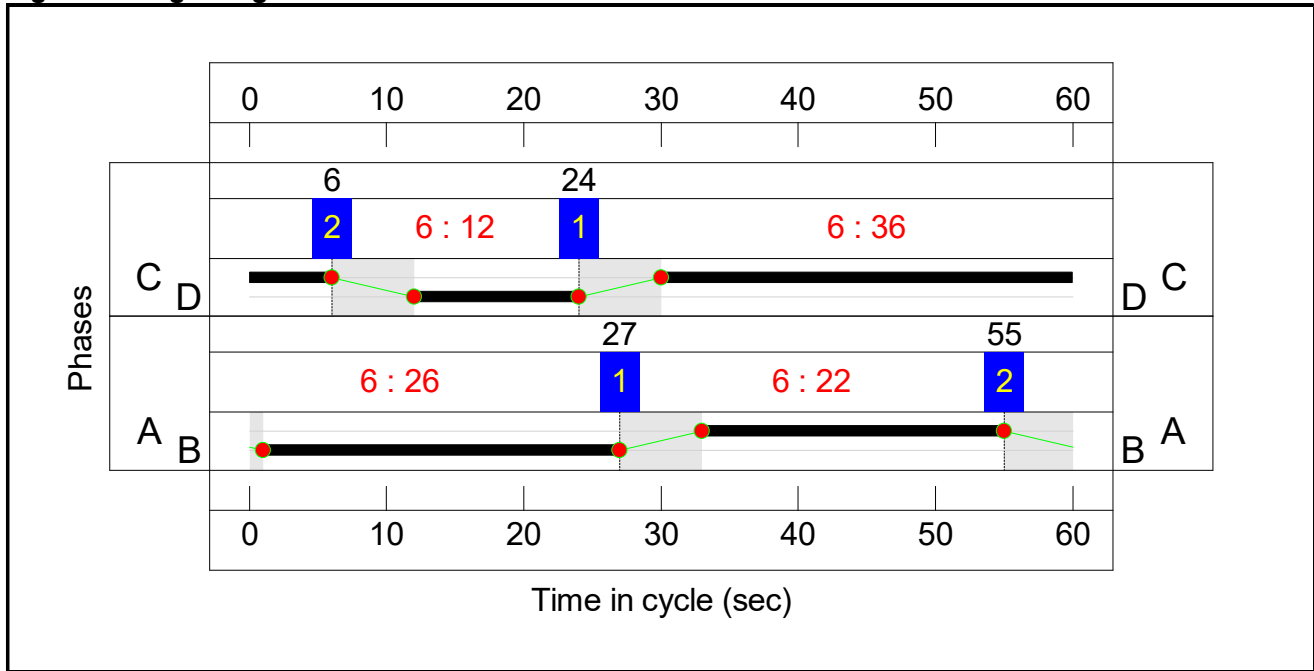
Stage Stream: 1

Stage	1	2
Duration	36	12
Change Point	24	6

Stage Stream: 2

Stage	1	2
Duration	22	26
Change Point	27	55

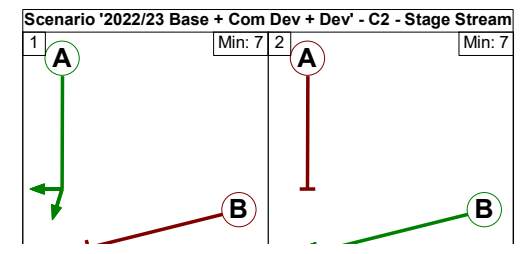
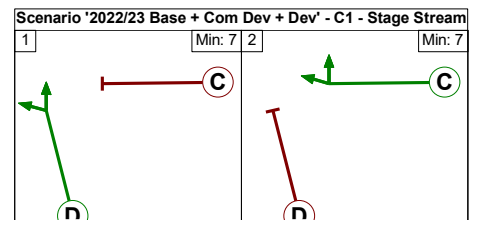
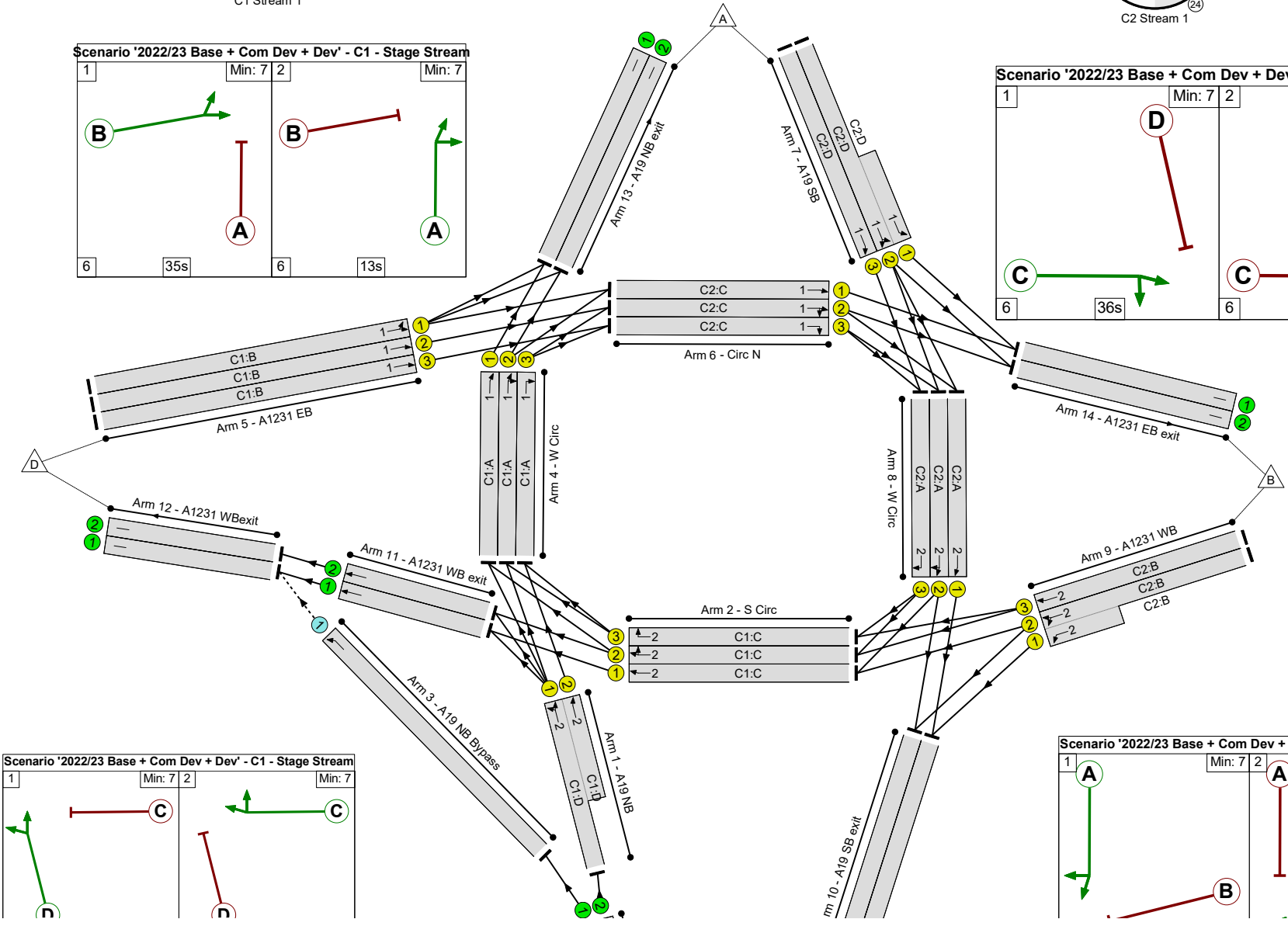
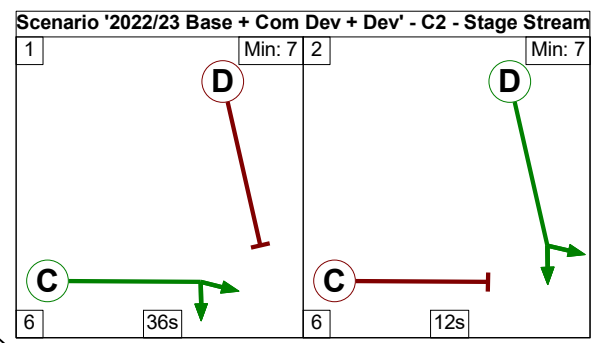
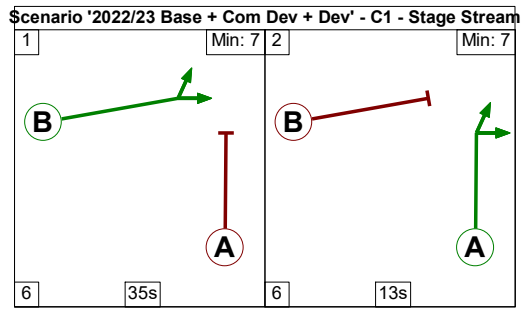
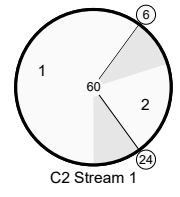
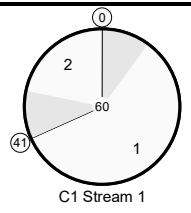
Signal Timings Diagram



Full Input Data And Results
Network Layout Diagram

Full Input Data And Results

A19 / A1231
 PRC: 17.4 %
 Total Traffic Delay: 33.5 pcuHr
 Controller: 1&2



Full Input Data And Results

Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: A19 - A1231	-	-	N/A	-	-		-	-	-	-	-	-	76.6%
A19 / A1231	-	-	N/A	-	-		-	-	-	-	-	-	76.6%
1/1+1/2	A19 NB Ahead Left	U	1:2	N/A	C1:D		1	9	-	358	1996:2132	333+355	52.6 : 51.5%
2/1	S Circ Ahead	U	1:2	N/A	C1:C		1	39	-	485	1874	1249	38.8%
2/2	S Circ Right Ahead	U	1:2	N/A	C1:C		1	39	-	610	2007	1338	45.6%
2/3	S Circ Right	U	1:2	N/A	C1:C		1	39	-	108	1994	1329	8.1%
3/1	A19 NB Bypass Ahead	O	N/A	N/A	-		-	-	-	1254	2500	1636	76.6%
4/1	W Circ Ahead	U	1:1	N/A	C1:A		1	13	-	168	2015	470	35.7%
4/2	W Circ Right Ahead	U	1:1	N/A	C1:A		1	13	-	250	2130	497	50.3%
4/3	W Circ Right	U	1:1	N/A	C1:A		1	13	-	183	2144	500	36.6%
5/1	A1231 EB Ahead Left	U	1:1	N/A	C1:B		1	35	-	591	1932	1159	51.0%
5/2	A1231 EB Ahead	U	1:1	N/A	C1:B		1	35	-	593	2101	1261	47.0%
5/3	A1231 EB Ahead	U	1:1	N/A	C1:B		1	35	-	517	2116	1270	40.7%
6/1	Circ N Ahead	U	2:1	N/A	C2:C		1	36	-	561	1849	1140	49.2%
6/2	Circ N Right Ahead	U	2:1	N/A	C2:C		1	36	-	776	2014	1242	62.5%
6/3	Circ N Right	U	2:1	N/A	C2:C		1	36	-	517	1984	1223	42.3%
7/2+7/1	A19 SB Ahead Left	U	2:1	N/A	C2:D		1	12	-	396	1986:1854	430+402	47.4 : 47.8%
7/3	A19 SB Ahead	U	2:1	N/A	C2:D		1	12	-	229	1993	432	53.0%
8/1	W Circ Ahead	U	2:2	N/A	C2:A		1	22	-	368	2015	772	47.6%

Full Input Data And Results

8/2	W Circ Right Ahead	U	2:2	N/A	C2:A		1	22	-	571	2155	826	69.1%
8/3	W Circ Right	U	2:2	N/A	C2:A		1	22	-	229	2140	820	27.9%
9/2+9/1	A1231 WB Ahead Left	U	2:2	N/A	C2:B		1	26	-	823	2007:1869	663+547	68.0 : 68.0%
9/3	A1231 WB Ahead	U	2:2	N/A	C2:B		1	26	-	489	2007	903	54.1%
10/1	A19 SB exit	U	N/A	N/A	-		-	-	-	740	Inf	Inf	0.0%
10/2	A19 SB exit	U	N/A	N/A	-		-	-	-	537	Inf	Inf	0.0%
11/1	A1231 WB exit Ahead	U	N/A	N/A	-		-	-	-	485	Inf	Inf	0.0%
11/2	A1231 WB exit Ahead	U	N/A	N/A	-		-	-	-	475	Inf	Inf	0.0%
12/1	A1231 WBexit	U	N/A	N/A	-		-	-	-	1739	Inf	Inf	0.0%
12/2	A1231 WBexit	U	N/A	N/A	-		-	-	-	475	Inf	Inf	0.0%
13/1	A19 NB exit	U	N/A	N/A	-		-	-	-	254	Inf	Inf	0.0%
13/2	A19 NB exit	U	N/A	N/A	-		-	-	-	194	Inf	Inf	0.0%
14/1	A1231 EB exit	U	N/A	N/A	-		-	-	-	753	Inf	Inf	0.0%
14/2	A1231 EB exit	U	N/A	N/A	-		-	-	-	558	Inf	Inf	0.0%
15/1	A19 NB Ahead	U	N/A	N/A	-		-	-	-	1254	Inf	Inf	0.0%
15/2	A19 NB Ahead	U	N/A	N/A	-		-	-	-	358	Inf	Inf	0.0%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: A19 - A1231	-	-	1254	0	0	22.1	11.4	0.0	33.5	-	-	-	-
A19 / A1231	-	-	1254	0	0	22.1	11.4	0.0	33.5	-	-	-	-
1/1+1/2	358	358	-	-	-	2.3	0.5	-	2.8	28.3	2.7	0.5	3.3
2/1	485	485	-	-	-	0.3	0.3	-	0.6	4.3	1.1	0.3	1.4
2/2	610	610	-	-	-	1.0	0.4	-	1.4	8.3	4.0	0.4	4.4
2/3	108	108	-	-	-	0.0	0.0	-	0.1	1.9	0.0	0.0	0.1
3/1	1254	1254	1254	0	0	0.0	1.6	-	1.6	4.7	1.7	1.6	3.4
4/1	168	168	-	-	-	0.9	0.3	-	1.2	25.4	2.5	0.3	2.8
4/2	250	250	-	-	-	0.8	0.5	-	1.3	18.2	3.7	0.5	4.2
4/3	183	183	-	-	-	0.0	0.3	-	0.3	5.9	0.0	0.3	0.3
5/1	591	591	-	-	-	1.1	0.5	-	1.7	10.1	5.6	0.5	6.1
5/2	593	593	-	-	-	1.1	0.4	-	1.5	9.4	5.4	0.4	5.9
5/3	517	517	-	-	-	0.9	0.3	-	1.3	8.7	4.5	0.3	4.8
6/1	561	561	-	-	-	1.1	0.5	-	1.6	10.2	5.9	0.5	6.4
6/2	776	776	-	-	-	1.8	0.8	-	2.6	12.3	9.1	0.8	9.9
6/3	517	517	-	-	-	1.3	0.4	-	1.7	11.9	7.2	0.4	7.6
7/2+7/1	396	396	-	-	-	2.3	0.5	-	2.7	24.7	2.9	0.5	3.4
7/3	229	229	-	-	-	1.3	0.6	-	1.9	29.6	3.4	0.6	3.9
8/1	368	368	-	-	-	0.2	0.5	-	0.7	6.6	0.6	0.5	1.0
8/2	571	571	-	-	-	0.4	1.1	-	1.5	9.6	1.9	1.1	3.0
8/3	229	229	-	-	-	1.0	0.2	-	1.1	18.1	3.8	0.2	4.0
9/2+9/1	823	823	-	-	-	2.6	1.1	-	3.7	16.2	5.3	1.1	6.3
9/3	489	489	-	-	-	1.6	0.6	-	2.2	16.3	5.8	0.6	6.4
10/1	740	740	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
10/2	537	537	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

Full Input Data And Results

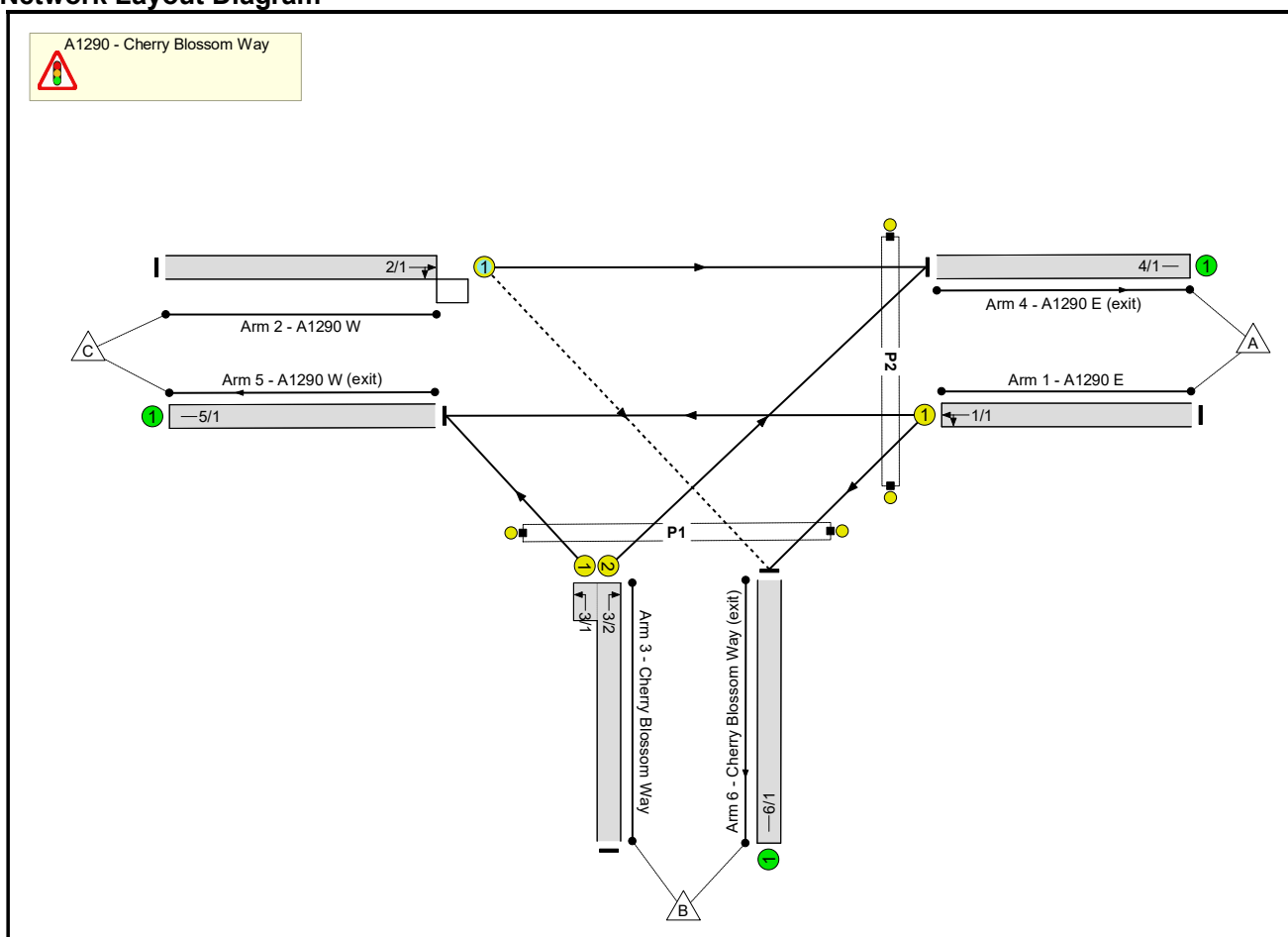
11/1	485	485	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
11/2	475	475	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
12/1	1739	1739	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
12/2	475	475	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
13/1	254	254	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
13/2	194	194	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
14/1	753	753	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
14/2	558	558	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
15/1	1254	1254	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
15/2	358	358	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
			C1	Stream: 1 PRC for Signalled Lanes (%)	76.5	Total Delay for Signalled Lanes (pcuHr):			7.20	Cycle Time (s): 60			
			C1	Stream: 2 PRC for Signalled Lanes (%)	71.1	Total Delay for Signalled Lanes (pcuHr):			4.85	Cycle Time (s): 60			
			C2	Stream: 1 PRC for Signalled Lanes (%)	44.0	Total Delay for Signalled Lanes (pcuHr):			10.54	Cycle Time (s): 60			
			C2	Stream: 2 PRC for Signalled Lanes (%)	30.2	Total Delay for Signalled Lanes (pcuHr):			9.26	Cycle Time (s): 60			
			PRC Over All Lanes (%)		17.4	Total Delay Over All Lanes(pcuHr):			33.49				

Full Input Data And Results

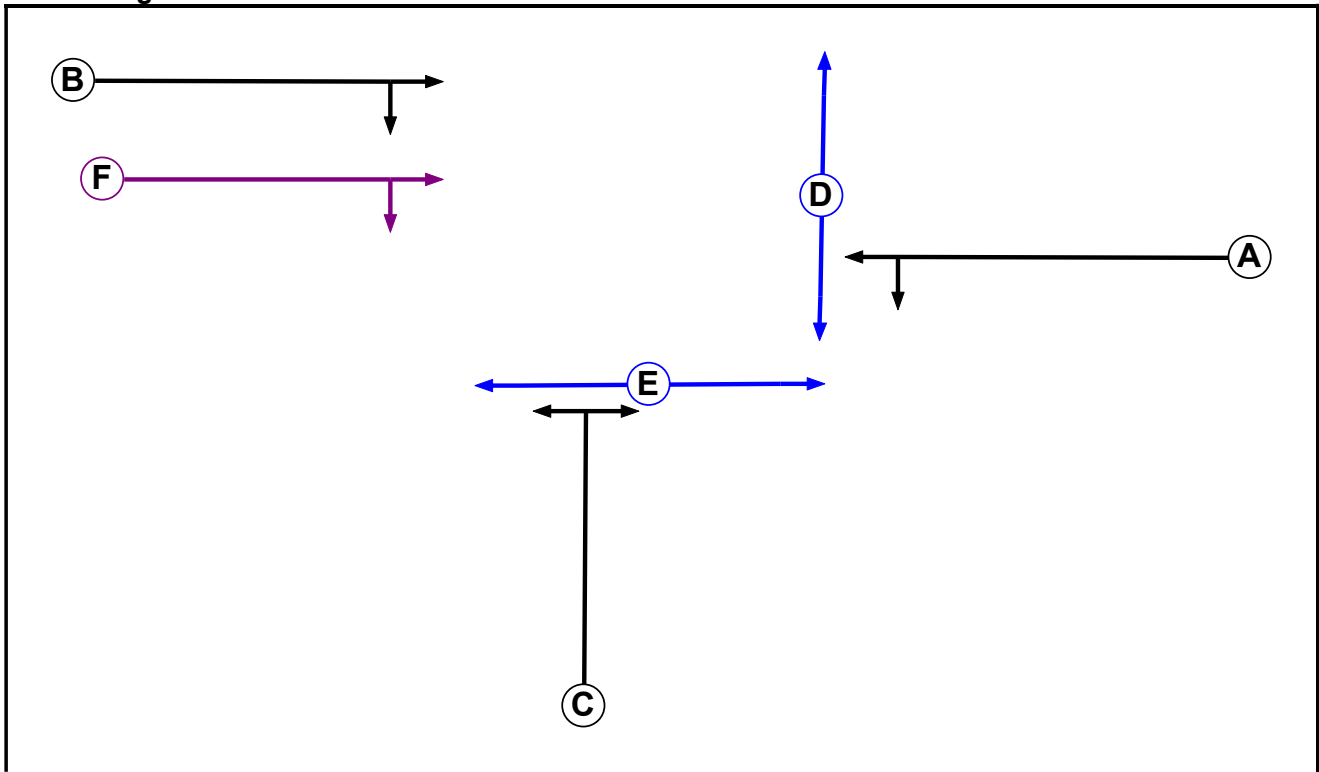
User and Project Details

Project:	
Title:	A1290 / Cherry Blossom Way
Location:	Sunderland
Additional detail:	
File name:	J4 - A1290 - Cherry Blossom Way - Amended.lsg3x
Author:	
Company:	SYSTRA
Address:	Newcastle

Network Layout Diagram



Phase Diagram



Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	Pedestrian		7	7
E	Pedestrian		7	7
F	Ind. Arrow	B	4	4

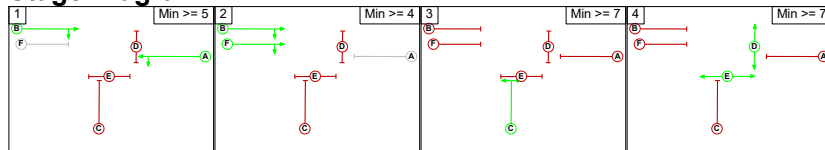
Phase Intergrens Matrix

		Starting Phase					
		A	B	C	D	E	F
Terminating Phase	A	-	-	8	7	8	-
	B	-	-	8	10	8	-
	C	8	8	-	8	7	8
	D	7	10	8	-	-	-
	E	8	8	7	-	-	8
	F	-	-	8	-	8	-

Phases in Stage

Stage No.	Phases in Stage
1	A B
2	B F
3	C
4	D E

Stage Diagram



Phase Delays

Term. Stage	Start Stage	Phase	Type	Value	Cont value
There are no Phase Delays defined					

Prohibited Stage Change

		To Stage			
		1	2	3	4
From Stage	1	-	0	8	10
	2	2	-	8	10
	3	8	8	-	8
	4	10	X	8	-

Give-Way Lane Input Data

Junction: A1290 - Cherry Blossom Way											
Lane	Movement	Max Flow when Giving Way (PCU/Hr)	Min Flow when Giving Way (PCU/Hr)	Opposing Lane	Opp. Lane Coeff.	Opp. Mvmnts.	Right Turn Storage (PCU)	Non-Blocking Storage (PCU)	RTF	Right Turn Move up (s)	Max Turns in Intergreen (PCU)
2/1 (A1290 W)	6/1 (Right)	1439	0	1/1	1.09	All	2.00	2.00	0.50	2	2.00

Lane Input Data

Junction: A1290 - Cherry Blossom Way												
Lane	Lane Type	Phases	Start Disp.	End Disp.	Physical Length (PCU)	Sat Flow Type	Def User Saturation Flow (PCU/Hr)	Lane Width (m)	Gradient	Nearside Lane	Turns	Turning Radius (m)
1/1 (A1290 E)	U	A	2	3	60.0	Geom	-	3.25	0.00	Y	Arm 5 Ahead	Inf
											Arm 6 Left	18.68
2/1 (A1290 W)	O	B F	2	3	60.0	Geom	-	3.25	0.00	Y	Arm 4 Ahead	Inf
											Arm 6 Right	20.59
3/1 (Cherry Blossom Way)	U	C	2	3	2.4	Geom	-	3.00	0.00	Y	Arm 5 Left	16.32
3/2 (Cherry Blossom Way)	U	C	2	3	60.0	Geom	-	3.00	0.00	Y	Arm 4 Right	18.90
4/1 (A1290 E (exit))	U		2	3	60.0	Inf	-	-	-	-	-	-
5/1 (A1290 W (exit))	U		2	3	60.0	Inf	-	-	-	-	-	-
6/1 (Cherry Blossom Way (exit))	U		2	3	60.0	Inf	-	-	-	-	-	-

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: '2022/23 Base 0630-0730'	06:30	07:30	01:00	
2: '2022/23 Base + Com Dev '	06:30	07:30	01:00	
3: '2022/23 Base + Com Dev + Dev'	06:30	07:30	01:00	

Scenario 1: '2022/23 Base 0630 - 0730' (FG1: '2022/23 Base 0630-0730', Plan 2: 'Network Control Plan 2')

Traffic Flows, Desired

Desired Flow :

	Destination				
	A	B	C	Tot.	
Origin	A	0	126	200	326
	B	73	0	16	89
	C	331	31	0	362
	Tot.	404	157	216	777

Traffic Lane Flows

Lane	Scenario 1: 2022/23 Base 0630 - 0730
Junction: A1290 - Cherry Blossom Way	
1/1	326
2/1	362
3/1 (short)	16
3/2 (with short)	89(In) 73(Out)
4/1	404
5/1	216
6/1	157

Lane Saturation Flows

Junction: A1290 - Cherry Blossom Way								
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (A1290 E)	3.25	0.00	Y	Arm 5 Ahead	Inf	61.3 %	1882	1882
				Arm 6 Left	18.68	38.7 %		
2/1 (A1290 W)	3.25	0.00	Y	Arm 4 Ahead	Inf	91.4 %	1928	1928
				Arm 6 Right	20.59	8.6 %		
3/1 (Cherry Blossom Way)	3.00	0.00	Y	Arm 5 Left	16.32	100.0 %	1754	1754
3/2 (Cherry Blossom Way)	3.00	0.00	Y	Arm 4 Right	18.90	100.0 %	1774	1774
4/1 (A1290 E (exit) Lane 1)	Infinite Saturation Flow						Inf	Inf
5/1 (A1290 W (exit) Lane 1)	Infinite Saturation Flow						Inf	Inf
6/1 (Cherry Blossom Way (exit) Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 2: '2022/23 Base + Com Dev' (FG2: '2022/23 Base + Com Dev ', Plan 2: 'Network Control Plan 2')

Traffic Flows, Desired

Desired Flow :

	Destination				
	A	B	C	Tot.	
Origin	A	0	141	363	504
	B	88	0	28	116
	C	466	43	0	509
	Tot.	554	184	391	1129

Traffic Lane Flows

Lane	Scenario 2: 2022/23 Base + Com Dev
Junction: A1290 - Cherry Blossom Way	
1/1	504
2/1	509
3/1 (short)	28
3/2 (with short)	116(In) 88(Out)
4/1	554
5/1	391
6/1	184

Lane Saturation Flows

Junction: A1290 - Cherry Blossom Way								
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (A1290 E)	3.25	0.00	Y	Arm 5 Ahead	Inf	72.0 %	1897	1897
				Arm 6 Left	18.68	28.0 %		
2/1 (A1290 W)	3.25	0.00	Y	Arm 4 Ahead	Inf	91.6 %	1928	1928
				Arm 6 Right	20.59	8.4 %		
3/1 (Cherry Blossom Way)	3.00	0.00	Y	Arm 5 Left	16.32	100.0 %	1754	1754
3/2 (Cherry Blossom Way)	3.00	0.00	Y	Arm 4 Right	18.90	100.0 %	1774	1774
4/1 (A1290 E (exit) Lane 1)	Infinite Saturation Flow						Inf	Inf
5/1 (A1290 W (exit) Lane 1)	Infinite Saturation Flow						Inf	Inf
6/1 (Cherry Blossom Way (exit) Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 3: '2022/23 Base + Com Dev + Dev' (FG3: '2022/23 Base + Com Dev + Dev', Plan 2: 'Network Control Plan 2')

Traffic Flows, Desired

Desired Flow :

	Destination				
	A	B	C	Tot.	
Origin	A	0	141	483	624
	B	88	0	28	116
	C	586	43	0	629
	Tot.	674	184	511	1369

Traffic Lane Flows

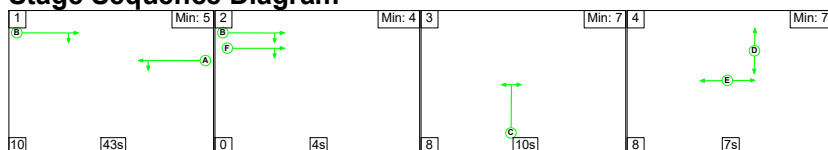
Lane	Scenario 3: 2022/23 Base + Com Dev + Dev
Junction: A1290 - Cherry Blossom Way	
1/1	624
2/1	629
3/1 (short)	28
3/2 (with short)	116(In) 88(Out)
4/1	674
5/1	511
6/1	184

Lane Saturation Flows

Junction: A1290 - Cherry Blossom Way								
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (A1290 E)	3.25	0.00	Y	Arm 5 Ahead	Inf	77.4 %	1905	1905
				Arm 6 Left	18.68	22.6 %		
2/1 (A1290 W)	3.25	0.00	Y	Arm 4 Ahead	Inf	93.2 %	1930	1930
				Arm 6 Right	20.59	6.8 %		
3/1 (Cherry Blossom Way)	3.00	0.00	Y	Arm 5 Left	16.32	100.0 %	1754	1754
3/2 (Cherry Blossom Way)	3.00	0.00	Y	Arm 4 Right	18.90	100.0 %	1774	1774
4/1 (A1290 E (exit) Lane 1)	Infinite Saturation Flow						Inf	Inf
5/1 (A1290 W (exit) Lane 1)	Infinite Saturation Flow						Inf	Inf
6/1 (Cherry Blossom Way (exit) Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 1: '2022/23 Base 0630 - 0730' (FG1: '2022/23 Base 0630-0730', Plan 2: 'Network Control Plan 2')

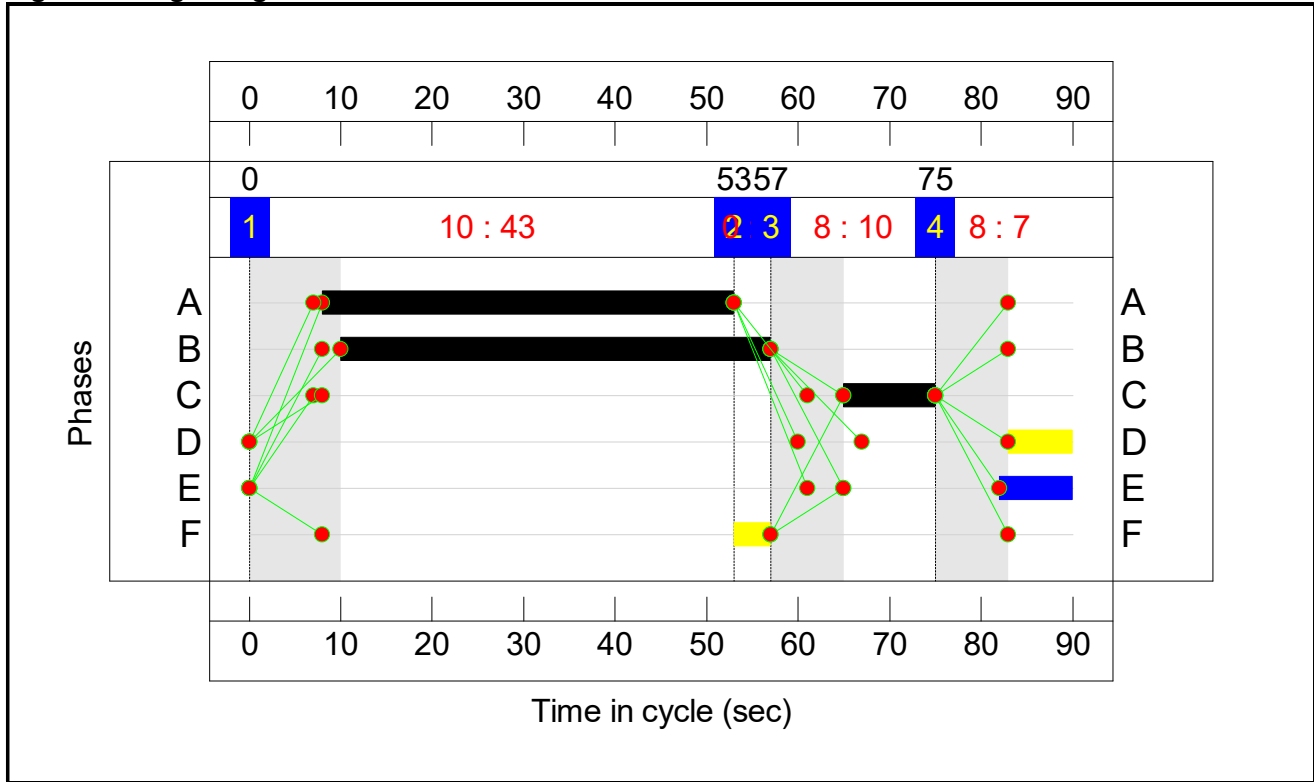
Stage Sequence Diagram




Stage Timings

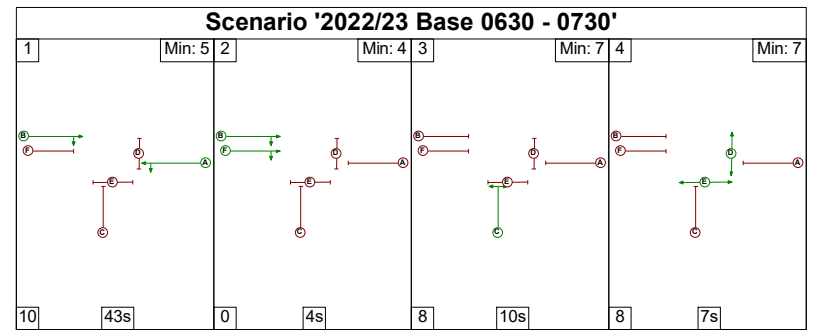
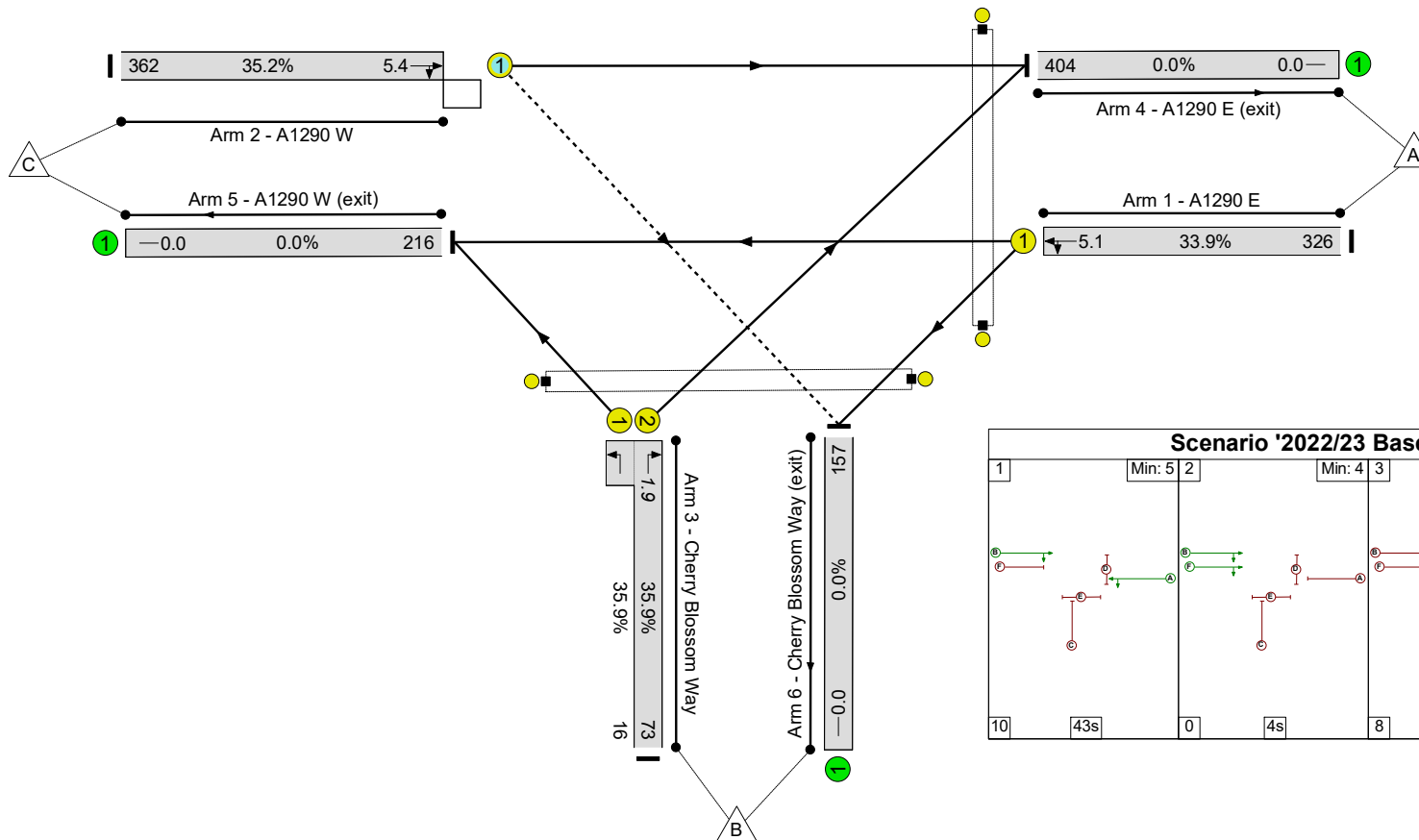
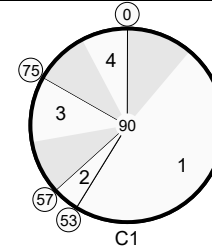
Stage	1	2	3	4
Duration	43	4	10	7
Change Point	0	53	57	75

Signal Timings Diagram



Network Layout Diagram


A1290 - Cherry Blossom Way
 PRC: 150.6 %
 Total Traffic Delay: 4.1 pcuHr
 Ave. Route Delay Per Ped: 0.0 s/Ped



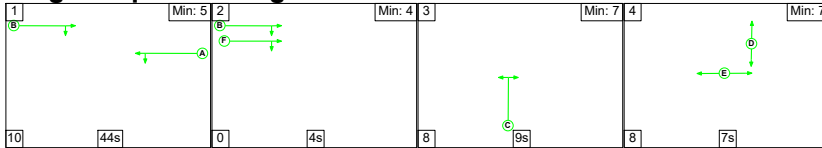
Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: A1290 / Cherry Blossom Way	-	-	N/A	-	-		-	-	-	-	-	-	35.9%
A1290 - Cherry Blossom Way	-	-	N/A	-	-		-	-	-	-	-	-	35.9%
1/1	A1290 E Ahead Left	U	N/A	N/A	A		1	45	-	326	1882	962	33.9%
2/1	A1290 W Ahead Right	O	N/A	N/A	B	F	1	47	4	362	1928	1028	35.2%
3/2+3/1	Cherry Blossom Way Right Left	U	N/A	N/A	C		1	10	-	89	1774:1754	203+45	35.9 : 35.9%
4/1	A1290 E (exit)	U	N/A	N/A	-		-	-	-	404	Inf	Inf	0.0%
5/1	A1290 W (exit)	U	N/A	N/A	-		-	-	-	216	Inf	Inf	0.0%
6/1	Cherry Blossom Way (exit)	U	N/A	N/A	-		-	-	-	157	Inf	Inf	0.0%
Ped Link: P1	CBW	-	N/A	-	E		1	8	-	0	-	0	0.0%
Ped Link: P2	A1290	-	N/A	-	D		1	7	-	0	-	0	0.0%

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: A1290 / Cherry Blossom Way	-	-	30	1	1	3.3	0.8	0.0	4.1	-	-	-	-
A1290 - Cherry Blossom Way	-	-	30	1	1	3.3	0.8	0.0	4.1	-	-	-	-
1/1	326	326	-	-	-	1.2	0.3	-	1.4	15.8	4.8	0.3	5.1
2/1	362	362	30	1	1	1.2	0.3	0.0	1.5	14.9	5.1	0.3	5.4
3/2+3/1	89	89	-	-	-	0.9	0.3	-	1.2	47.3	1.7	0.3	1.9
4/1	404	404	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	216	216	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	157	157	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-
<p>C1 PRC for Signalled Lanes (%): 150.6 Total Delay for Signalled Lanes (pcuHr): 4.11 Cycle Time (s): 90 PRC Over All Lanes (%): 150.6 Total Delay Over All Lanes(pcuHr): 4.11</p>													

Scenario 2: '2022/23 Base + Com Dev' (FG2: '2022/23 Base + Com Dev ', Plan 2: 'Network Control Plan 2')

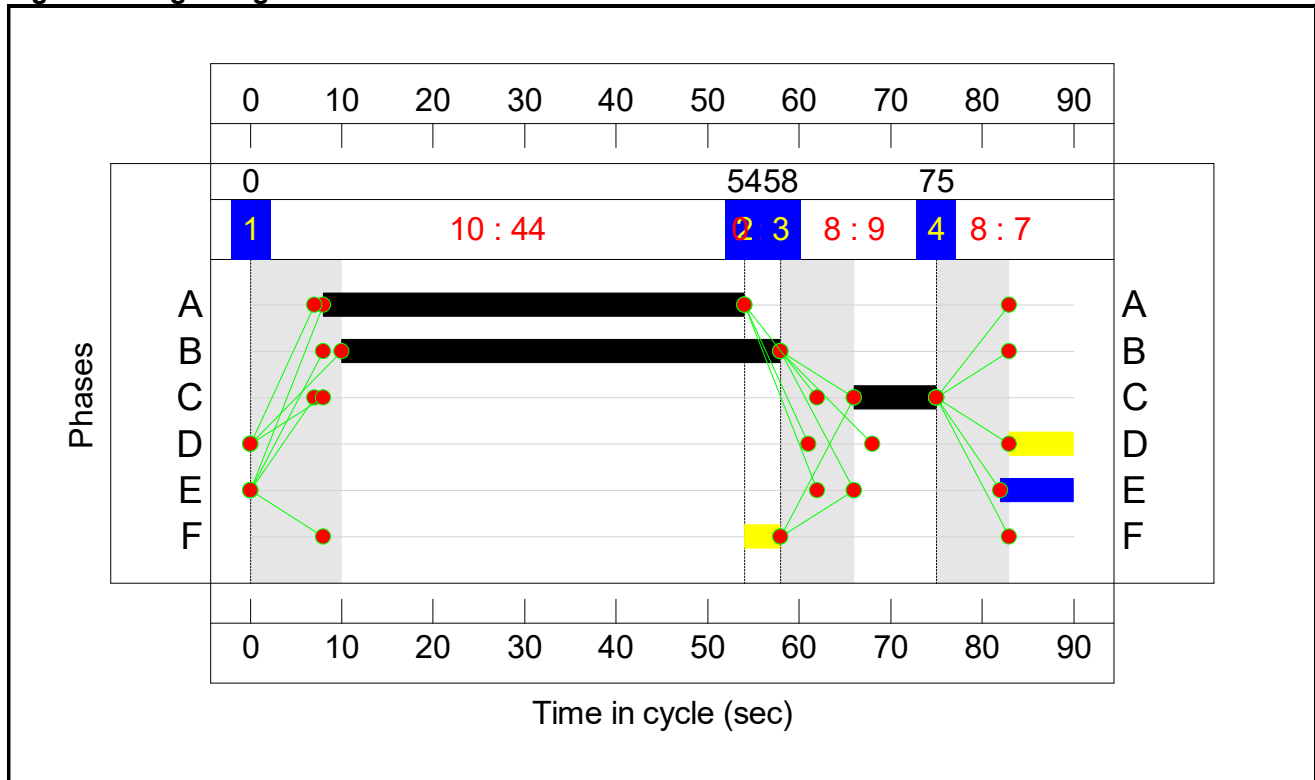
Stage Sequence Diagram




Stage Timings

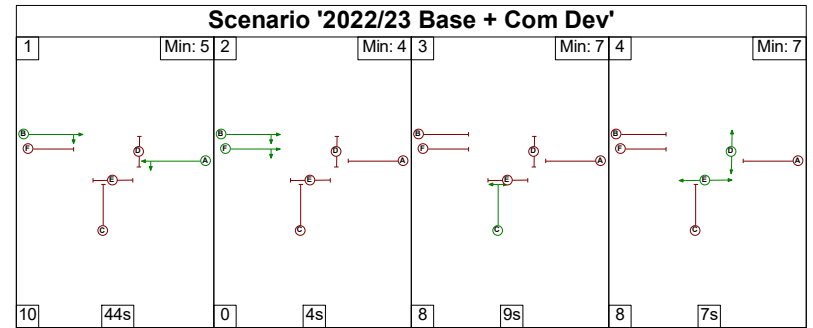
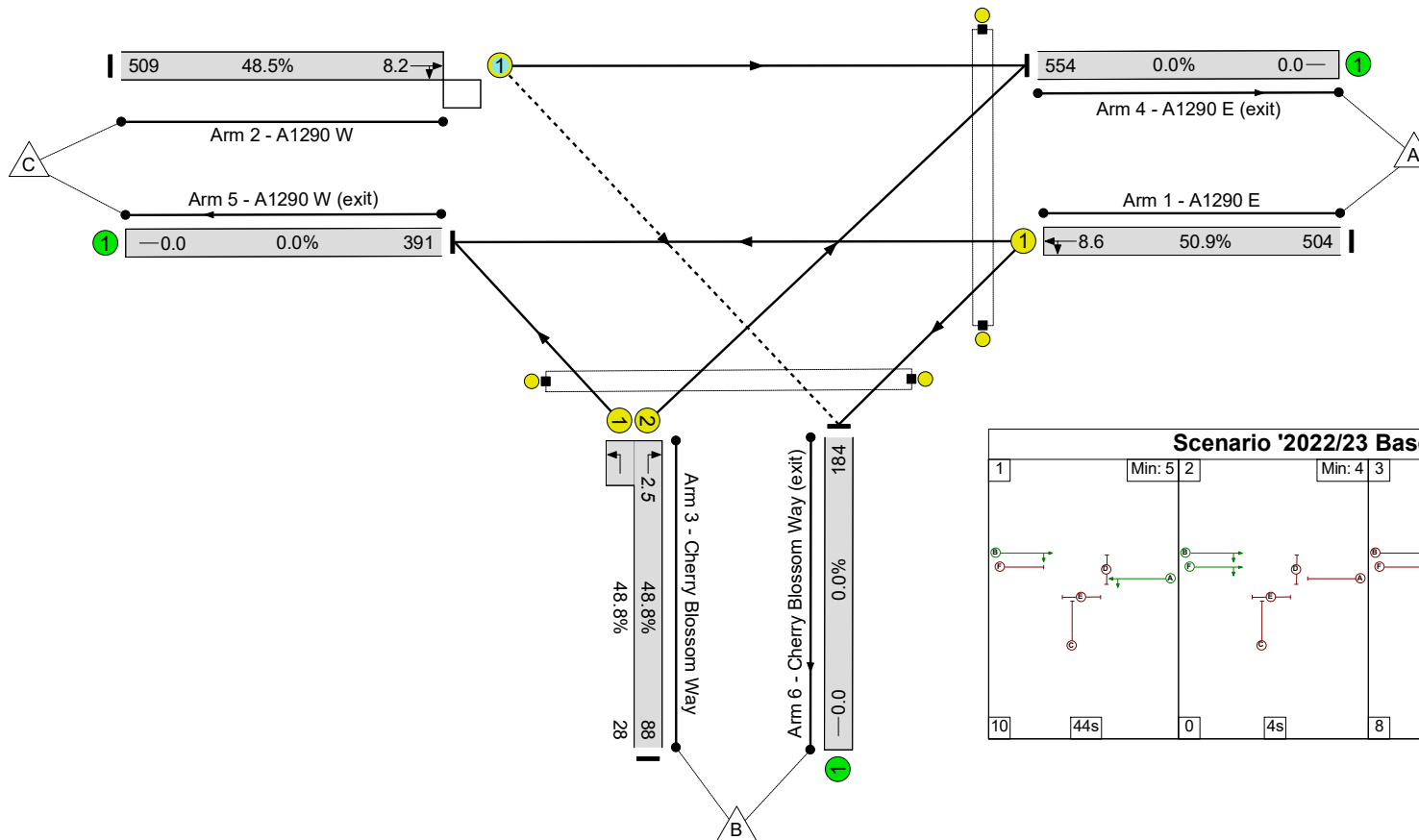
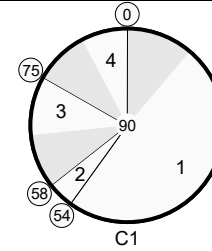
Stage	1	2	3	4
Duration	44	4	9	7
Change Point	0	54	58	75

Signal Timings Diagram



Network Layout Diagram


A1290 - Cherry Blossom Way
 PRC: 76.9 %
 Total Traffic Delay: 6.5 pcuHr
 Ave. Route Delay Per Ped: 0.0 s/Ped

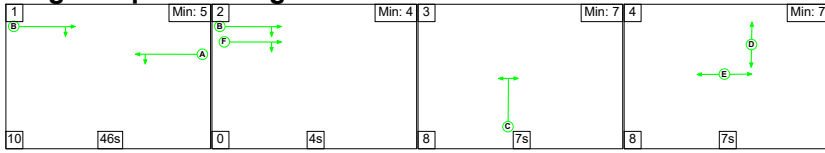


Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: A1290 / Cherry Blossom Way	-	-	N/A	-	-		-	-	-	-	-	-	50.9%
A1290 - Cherry Blossom Way	-	-	N/A	-	-		-	-	-	-	-	-	50.9%
1/1	A1290 E Ahead Left	U	N/A	N/A	A		1	46	-	504	1897	991	50.9%
2/1	A1290 W Ahead Right	O	N/A	N/A	B	F	1	48	4	509	1928	1050	48.5%
3/2+3/1	Cherry Blossom Way Right Left	U	N/A	N/A	C		1	9	-	116	1774:1754	180+57	48.8 : 48.8%
4/1	A1290 E (exit)	U	N/A	N/A	-		-	-	-	554	Inf	Inf	0.0%
5/1	A1290 W (exit)	U	N/A	N/A	-		-	-	-	391	Inf	Inf	0.0%
6/1	Cherry Blossom Way (exit)	U	N/A	N/A	-		-	-	-	184	Inf	Inf	0.0%
Ped Link: P1	CBW	-	N/A	-	E		1	8	-	0	-	0	0.0%
Ped Link: P2	A1290	-	N/A	-	D		1	7	-	0	-	0	0.0%

Scenario 3: '2022/23 Base + Com Dev + Dev' (FG3: '2022/23 Base + Com Dev + Dev', Plan 2: 'Network Control Plan 2')

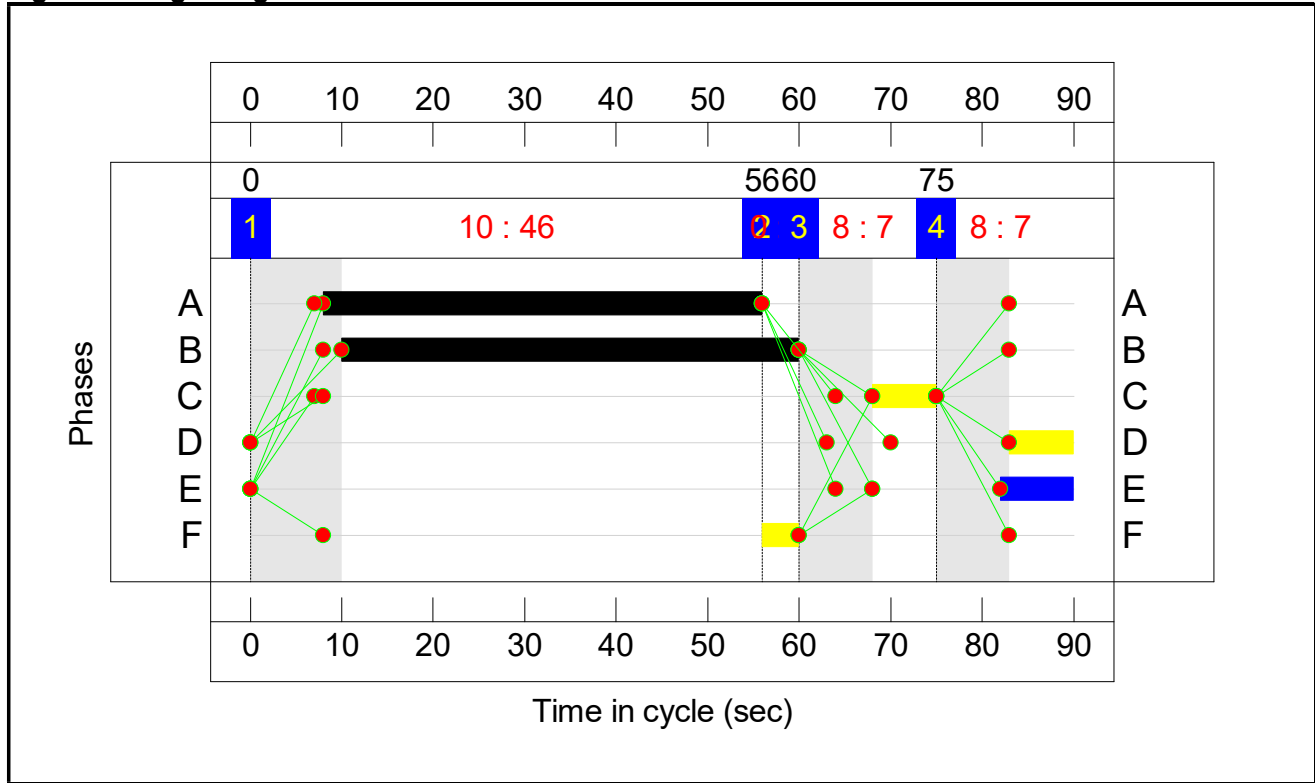
Stage Sequence Diagram



Stage Timings

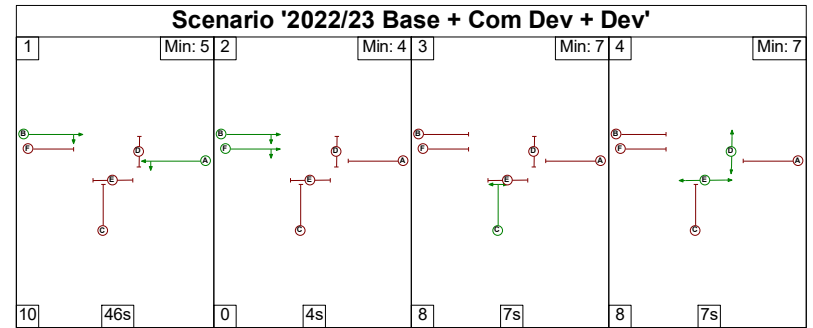
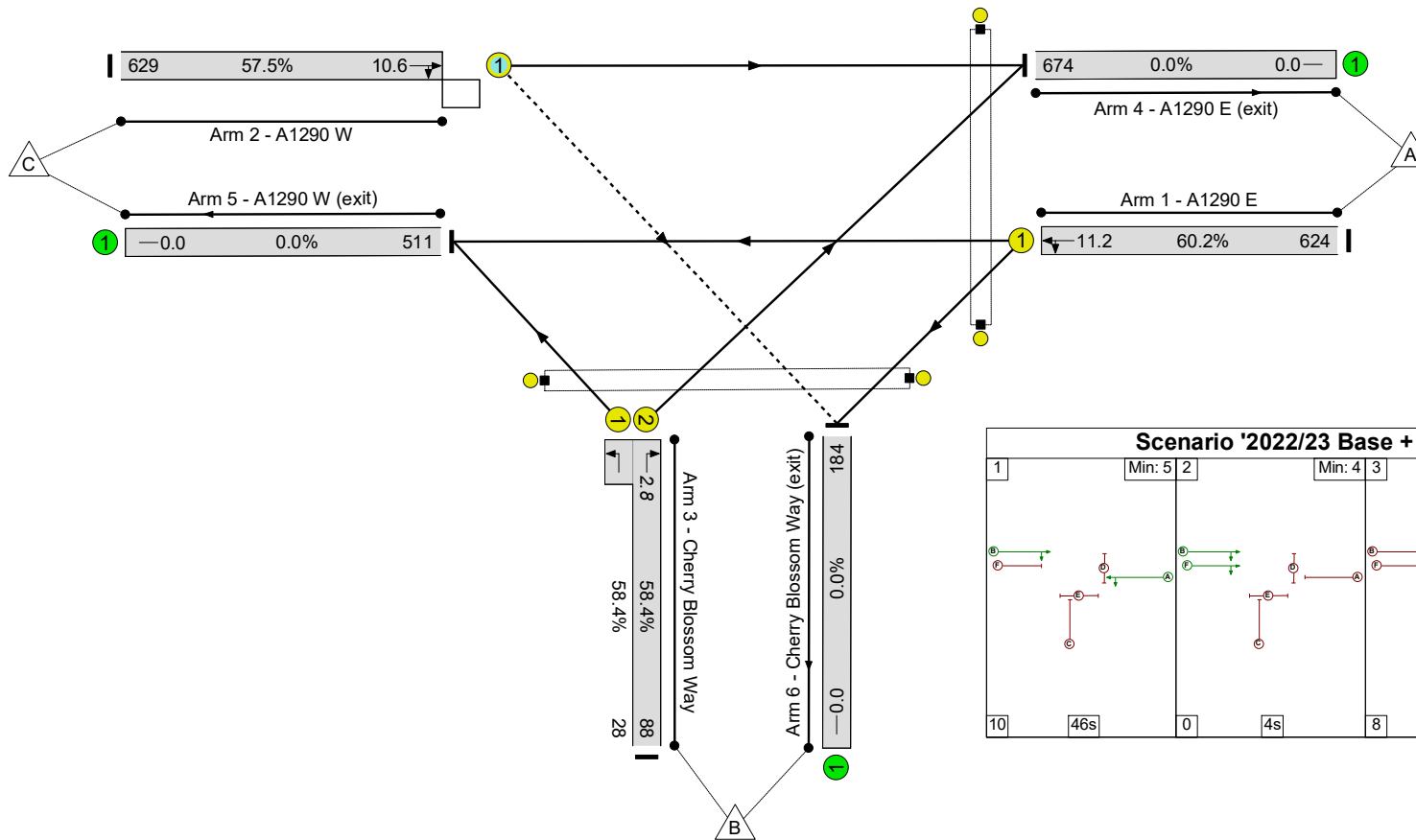
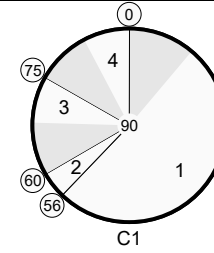
Stage	1	2	3	4
Duration	46	4	7	7
Change Point	0	56	60	75

Signal Timings Diagram



Network Layout Diagram

A1290 - Cherry Blossom Way
 PRC: 49.6 %
 Total Traffic Delay: 8.1 pcuHr
 Ave. Route Delay Per Ped: 0.0 s/Ped



Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: A1290 / Cherry Blossom Way	-	-	N/A	-	-		-	-	-	-	-	-	60.2%
A1290 - Cherry Blossom Way	-	-	N/A	-	-		-	-	-	-	-	-	60.2%
1/1	A1290 E Ahead Left	U	N/A	N/A	A		1	48	-	624	1905	1037	60.2%
2/1	A1290 W Ahead Right	O	N/A	N/A	B	F	1	50	4	629	1930	1094	57.5%
3/2+3/1	Cherry Blossom Way Right Left	U	N/A	N/A	C		1	7	-	116	1774:1754	151+48	58.4 : 58.4%
4/1	A1290 E (exit)	U	N/A	N/A	-		-	-	-	674	Inf	Inf	0.0%
5/1	A1290 W (exit)	U	N/A	N/A	-		-	-	-	511	Inf	Inf	0.0%
6/1	Cherry Blossom Way (exit)	U	N/A	N/A	-		-	-	-	184	Inf	Inf	0.0%
Ped Link: P1	CBW	-	N/A	-	E		1	8	-	0	-	0	0.0%
Ped Link: P2	A1290	-	N/A	-	D		1	7	-	0	-	0	0.0%

Junctions 10
ARCADY 10 - Roundabout Module
Version: 10.1.1.1905 © Copyright TRL Software Limited, 2023
For sales and distribution information, program advice and maintenance, contact TRL Software: +44 (0)1344 379777 software@trl.co.uk trlsoftware.com
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Filename: J5 - A1290 - Sulgrave Road - Amended.j10
Path: T:\ProjectData\Giga1, Envision\Giga 3\Modelling\Giga 3 Models
Report generation date: 06/02/2024 12:45:09

- »A1290 - Sulgrave Road - 2022/23 Base 0630-0730, AM
- »A1290 - Sulgrave Road - 2022/23 Base + Com Dev, AM
- »A1290 - Sulgrave Road - 2022/23 Base + Com Dev + Dev, AM

Summary of junction performance

AM				
	Set ID	Queue (PCU)	Delay (s)	RFC
A1290 - Sulgrave Road - 2022/23 Base 0630-0730				
A - Sulgrave Road	D1	0.2	3.54	0.14
B - A1290		0.3	4.50	0.24
C - Glover Road		0.3	3.04	0.25
A1290 - Sulgrave Road - 2022/23 Base + Com Dev				
A - Sulgrave Road	D2	0.2	3.95	0.16
B - A1290		0.8	6.00	0.43
C - Glover Road		0.5	3.53	0.35
A1290 - Sulgrave Road - 2022/23 Base + Com Dev + Dev				
A - Sulgrave Road	D3	0.2	4.76	0.18
B - A1290		1.4	8.45	0.56
C - Glover Road		0.8	4.46	0.44

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.

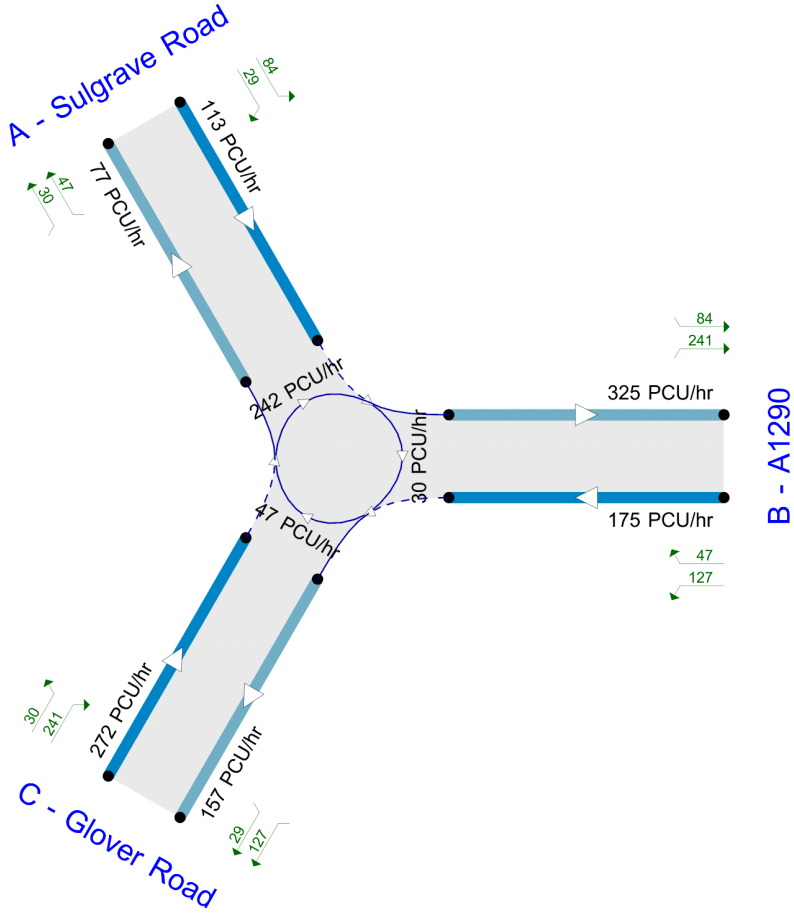
File summary

File Description

Title	A1290 / Sulgrave Road
Location	Sunderland
Site number	
Date	04/10/2017
Version	
Status	(new file)
Identifier	
Client	IAMP
Jobnumber	
Enumerator	ah
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



Flows show modelled flow through junction (PCU/hr).

Time Segment: 06:15-06:30

The junction diagram reflects the last run of Junctions.

Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Show lane queues in feet / metres	Show all PICADY stream intercepts	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)	Use simulation for HCM roundabouts	Use iterations for HCM roundabouts
5.75						0.85	36.00	20.00		

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2022/23 Base 0630-0730	AM	ONE HOUR	06:15	07:45	15	✓
D2	2022/23 Base + Com Dev	AM	ONE HOUR	06:15	07:45	15	✓
D3	2022/23 Base + Com Dev + Dev	AM	ONE HOUR	06:15	07:45	15	✓

Analysis Set Details

ID	Name	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	A1290 - Sulgrave Road	✓	100.000	100.000

A1290 - Sulgrave Road - 2022/23 Base 0630-0730, 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	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A1290 - Sulgrave Road	Standard Roundabout		A, B, C	3.60	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	3.60	A

Arms

Arms

Arm	Name	Description	No give-way line
A	Sulgrave Road		
B	A1290		
C	Glover Road		

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)	Entry only	Exit only
A - Sulgrave Road	3.30	4.80	29.9	36.1	29.4	36.0		
B - A1290	3.50	3.58	21.5	24.9	29.0	34.0		
C - Glover Road	3.56	6.11	22.7	78.5	30.0	44.0		

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
A - Sulgrave Road	0.596	1393
B - A1290	0.530	1080
C - Glover Road	0.639	1627

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)	Run automatically
D1	2022/23 Base 0630-0730	AM	ONE HOUR	06:15	07:45	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Sulgrave Road		ONE HOUR	✓	151	100.000
B - A1290		ONE HOUR	✓	233	100.000
C - Glover Road		ONE HOUR	✓	362	100.000

Origin-Destination Data

Demand (PCU/hr)

From	To			
	A - Sulgrave Road	B - A1290	C - Glover Road	
A - Sulgrave Road	0	112	39	
B - A1290	63	0	170	
C - Glover Road	40	321	1	

Proportions

From	To			
	A - Sulgrave Road	B - A1290	C - Glover Road	
A - Sulgrave Road	0.00	0.74	0.26	
B - A1290	0.27	0.00	0.73	
C - Glover Road	0.11	0.89	0.00	

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

From	To			
	A - Sulgrave Road	B - A1290	C - Glover Road	
A - Sulgrave Road	0	0	0	
B - A1290	0	0	0	
C - Glover Road	0	0	0	

Average PCU Per Veh

From	To			
	A - Sulgrave Road	B - A1290	C - Glover Road	
A - Sulgrave Road	1.000	1.000	1.000	
B - A1290	1.000	1.000	1.000	
C - Glover Road	1.000	1.000	1.000	

Detailed Demand Data

Demand for each time segment

Time Segment	Arm	Demand (PCU/hr)	Demand in PCU (PCU/hr)
06:15-06:30	A - Sulgrave Road	114	114
	B - A1290	175	175
	C - Glover Road	273	273
06:30-06:45	A - Sulgrave Road	136	136
	B - A1290	209	209
	C - Glover Road	325	325
06:45-07:00	A - Sulgrave Road	166	166
	B - A1290	257	257
	C - Glover Road	399	399
07:00-07:15	A - Sulgrave Road	166	166
	B - A1290	257	257
	C - Glover Road	399	399
07:15-07:30	A - Sulgrave Road	136	136
	B - A1290	209	209
	C - Glover Road	325	325
07:30-07:45	A - Sulgrave Road	114	114
	B - A1290	175	175
	C - Glover Road	273	273

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A - Sulgrave Road	0.14	3.54	0.2	A	139	208
B - A1290	0.24	4.50	0.3	A	214	321
C - Glover Road	0.25	3.04	0.3	A	332	498

Main Results for each time segment

06:15 - 06:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Sulgrave Road	114	28	242	1249	0.091	113	77	0.0	0.1	3.170	A
B - A1290	175	44	30	1064	0.165	175	325	0.0	0.2	4.045	A
C - Glover Road	273	68	47	1597	0.171	272	157	0.0	0.2	2.715	A

06:30 - 06:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Sulgrave Road	136	34	289	1221	0.111	136	93	0.1	0.1	3.317	A
B - A1290	209	52	36	1061	0.197	209	389	0.2	0.2	4.226	A
C - Glover Road	325	81	57	1591	0.205	325	189	0.2	0.3	2.843	A

06:45 - 07:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Sulgrave Road	166	42	354	1182	0.141	166	113	0.1	0.2	3.544	A
B - A1290	257	64	44	1056	0.243	256	476	0.2	0.3	4.498	A
C - Glover Road	399	100	69	1583	0.252	398	231	0.3	0.3	3.038	A

07:00 - 07:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Sulgrave Road	166	42	355	1182	0.141	166	113	0.2	0.2	3.544	A
B - A1290	257	64	44	1056	0.243	257	477	0.3	0.3	4.499	A
C - Glover Road	399	100	69	1583	0.252	399	231	0.3	0.3	3.038	A

07:15 - 07:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Sulgrave Road	136	34	290	1220	0.111	136	93	0.2	0.1	3.322	A
B - A1290	209	52	36	1061	0.197	210	390	0.3	0.2	4.233	A
C - Glover Road	325	81	57	1591	0.205	326	189	0.3	0.3	2.845	A

07:30 - 07:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Sulgrave Road	114	28	243	1248	0.091	114	78	0.1	0.1	3.175	A
B - A1290	175	44	30	1064	0.165	176	326	0.2	0.2	4.055	A
C - Glover Road	273	68	47	1597	0.171	273	158	0.3	0.2	2.718	A

A1290 - Sulgrave Road - 2022/23 Base + Com Dev, 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	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A1290 - Sulgrave Road	Standard Roundabout		A, B, C	4.54	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	4.54	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D2	2022/23 Base + Com Dev	AM	ONE HOUR	06:15	07:45	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Sulgrave Road		ONE HOUR	✓	161	100.000
B - A1290		ONE HOUR	✓	415	100.000
C - Glover Road		ONE HOUR	✓	505	100.000

Origin-Destination Data

Demand (PCU/hr)

From	To		
	A - Sulgrave Road	B - A1290	C - Glover Road
A - Sulgrave Road	0	122	39
B - A1290	73	0	342
C - Glover Road	40	465	0

Proportions

From	To		
	A - Sulgrave Road	B - A1290	C - Glover Road
A - Sulgrave Road	0.00	0.76	0.24
B - A1290	0.18	0.00	0.82
C - Glover Road	0.08	0.92	0.00

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

		To		
From		A - Sulgrave Road	B - A1290	C - Glover Road
	A - Sulgrave Road	0	0	0
	B - A1290	0	0	0
	C - Glover Road	0	0	0

Average PCU Per Veh

		To		
From		A - Sulgrave Road	B - A1290	C - Glover Road
	A - Sulgrave Road	1.000	1.000	1.000
	B - A1290	1.000	1.000	1.000
	C - Glover Road	1.000	1.000	1.000

Detailed Demand Data

Demand for each time segment

Time Segment	Arm	Demand (PCU/hr)	Demand in PCU (PCU/hr)
06:15-06:30	A - Sulgrave Road	121	121
	B - A1290	312	312
	C - Glover Road	380	380
06:30-06:45	A - Sulgrave Road	145	145
	B - A1290	373	373
	C - Glover Road	454	454
06:45-07:00	A - Sulgrave Road	177	177
	B - A1290	457	457
	C - Glover Road	556	556
07:00-07:15	A - Sulgrave Road	177	177
	B - A1290	457	457
	C - Glover Road	556	556
07:15-07:30	A - Sulgrave Road	145	145
	B - A1290	373	373
	C - Glover Road	454	454
07:30-07:45	A - Sulgrave Road	121	121
	B - A1290	312	312
	C - Glover Road	380	380

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A - Sulgrave Road	0.16	3.95	0.2	A	148	222
B - A1290	0.43	6.00	0.8	A	381	571
C - Glover Road	0.35	3.53	0.5	A	463	695

Main Results for each time segment

06:15 - 06:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Sulgrave Road	121	30	349	1185	0.102	121	85	0.0	0.1	3.380	A
B - A1290	312	78	29	1064	0.294	311	440	0.0	0.4	4.766	A
C - Glover Road	380	95	55	1592	0.239	379	285	0.0	0.3	2.964	A

06:30 - 06:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Sulgrave Road	145	36	418	1144	0.127	145	101	0.1	0.1	3.601	A
B - A1290	373	93	35	1061	0.352	373	527	0.4	0.5	5.224	A
C - Glover Road	454	113	66	1585	0.286	454	342	0.3	0.4	3.181	A

06:45 - 07:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Sulgrave Road	177	44	511	1088	0.163	177	124	0.1	0.2	3.950	A
B - A1290	457	114	43	1057	0.432	456	646	0.5	0.8	5.981	A
C - Glover Road	556	139	80	1576	0.353	555	419	0.4	0.5	3.525	A

07:00 - 07:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Sulgrave Road	177	44	512	1088	0.163	177	124	0.2	0.2	3.953	A
B - A1290	457	114	43	1057	0.432	457	646	0.8	0.8	5.997	A
C - Glover Road	556	139	80	1576	0.353	556	419	0.5	0.5	3.528	A

07:15 - 07:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Sulgrave Road	145	36	419	1143	0.127	145	102	0.2	0.1	3.607	A
B - A1290	373	93	35	1061	0.352	374	528	0.8	0.5	5.245	A
C - Glover Road	454	113	66	1585	0.286	455	343	0.5	0.4	3.184	A

07:30 - 07:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Sulgrave Road	121	30	350	1184	0.102	121	85	0.1	0.1	3.389	A
B - A1290	312	78	29	1064	0.294	313	442	0.5	0.4	4.796	A
C - Glover Road	380	95	55	1592	0.239	381	287	0.4	0.3	2.971	A

A1290 - Sulgrave Road - 2022/23 Base + Com Dev + Dev, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A1290 - Sulgrave Road	Standard Roundabout		A, B, C	6.11	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	6.11	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D3	2022/23 Base + Com Dev + Dev	AM	ONE HOUR	06:15	07:45	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Sulgrave Road		ONE HOUR	✓	161	100.000
B - A1290		ONE HOUR	✓	534	100.000
C - Glover Road		ONE HOUR	✓	625	100.000

Origin-Destination Data

Demand (PCU/hr)

From	To			
	A - Sulgrave Road	B - A1290	C - Glover Road	
A - Sulgrave Road	0	122	39	
B - A1290	73	0	461	
C - Glover Road	40	584	1	

Proportions

From	To			
	A - Sulgrave Road	B - A1290	C - Glover Road	
A - Sulgrave Road	0.00	0.76	0.24	
B - A1290	0.14	0.00	0.86	
C - Glover Road	0.06	0.93	0.00	

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

		To		
From		A - Sulgrave Road	B - A1290	C - Glover Road
	A - Sulgrave Road	10	10	10
	B - A1290	10	10	10
	C - Glover Road	10	10	10

Average PCU Per Veh

		To		
From		A - Sulgrave Road	B - A1290	C - Glover Road
	A - Sulgrave Road	1.100	1.100	1.100
	B - A1290	1.100	1.100	1.100
	C - Glover Road	1.100	1.100	1.100

Detailed Demand Data

Demand for each time segment

Time Segment	Arm	Demand (PCU/hr)	Demand in PCU (PCU/hr)
06:15-06:30	A - Sulgrave Road	121	121
	B - A1290	402	402
	C - Glover Road	471	471
06:30-06:45	A - Sulgrave Road	145	145
	B - A1290	480	480
	C - Glover Road	562	562
06:45-07:00	A - Sulgrave Road	177	177
	B - A1290	588	588
	C - Glover Road	688	688
07:00-07:15	A - Sulgrave Road	177	177
	B - A1290	588	588
	C - Glover Road	688	688
07:15-07:30	A - Sulgrave Road	145	145
	B - A1290	480	480
	C - Glover Road	562	562
07:30-07:45	A - Sulgrave Road	121	121
	B - A1290	402	402
	C - Glover Road	471	471

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A - Sulgrave Road	0.18	4.76	0.2	A	148	222
B - A1290	0.56	8.45	1.4	A	490	735
C - Glover Road	0.44	4.46	0.8	A	574	860

Main Results for each time segment

06:15 - 06:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Sulgrave Road	121	30	439	1131	0.107	121	85	0.0	0.1	3.916	A
B - A1290	402	101	30	1064	0.378	399	529	0.0	0.7	5.935	A
C - Glover Road	471	118	55	1592	0.295	469	375	0.0	0.5	3.517	A

06:30 - 06:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Sulgrave Road	145	36	525	1080	0.134	145	101	0.1	0.2	4.234	A
B - A1290	480	120	36	1061	0.453	479	634	0.7	0.9	6.796	A
C - Glover Road	562	140	65	1585	0.354	561	450	0.5	0.6	3.865	A

06:45 - 07:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Sulgrave Road	177	44	643	1010	0.176	177	124	0.2	0.2	4.755	A
B - A1290	588	147	44	1057	0.557	586	776	0.9	1.4	8.384	A
C - Glover Road	688	172	80	1576	0.437	687	550	0.6	0.8	4.450	A

07:00 - 07:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Sulgrave Road	177	44	644	1009	0.176	177	124	0.2	0.2	4.760	A
B - A1290	588	147	44	1056	0.557	588	777	1.4	1.4	8.448	A
C - Glover Road	688	172	80	1576	0.437	688	552	0.8	0.8	4.460	A

07:15 - 07:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Sulgrave Road	145	36	527	1079	0.134	145	102	0.2	0.2	4.240	A
B - A1290	480	120	36	1061	0.453	482	636	1.4	0.9	6.860	A
C - Glover Road	562	140	66	1585	0.354	563	452	0.8	0.6	3.876	A

07:30 - 07:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Sulgrave Road	121	30	441	1130	0.107	121	85	0.2	0.1	3.925	A
B - A1290	402	101	30	1064	0.378	403	532	0.9	0.7	6.000	A
C - Glover Road	471	118	55	1592	0.296	471	378	0.6	0.5	3.533	A

Junctions 10
ARCADY 10 - Roundabout Module
Version: 10.1.1.1905 © Copyright TRL Software Limited, 2023
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Filename: J6 - Glover Road - Spire Road - Amended.j10
Path: T:\ProjectData\Giga1, Envision\Giga 3\Modelling\Giga 3 Models
Report generation date: 06/02/2024 12:46:45

- »A1290 - Sulgrave Road - 2022/23 Base 0630-0730, AM
- »A1290 - Sulgrave Road - 2022/23 Base + Com Dev, AM
- »A1290 - Sulgrave Road - 2022/23 Base + Com Dev + Dev, AM

Summary of junction performance

AM				
	Set ID	Queue (PCU)	Delay (s)	RFC
A1290 - Sulgrave Road - 2022/23 Base 0630-0730				
A - Glover Road N	D1	0.2	3.68	0.19
B - Fire station		0.0	0.00	0.00
C - Spire Road		0.4	3.27	0.27
D - Glover Road W		0.2	3.40	0.20
A1290 - Sulgrave Road - 2022/23 Base + Com Dev				
A - Glover Road N	D2	0.5	4.55	0.35
B - Fire station		0.0	0.00	0.00
C - Spire Road		0.5	3.74	0.34
D - Glover Road W		0.4	3.86	0.27
A1290 - Sulgrave Road - 2022/23 Base + Com Dev + Dev				
A - Glover Road N	D3	0.9	6.01	0.46
B - Fire station		0.0	0.00	0.00
C - Spire Road		0.7	4.61	0.39
D - Glover Road W		0.5	4.79	0.33

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.

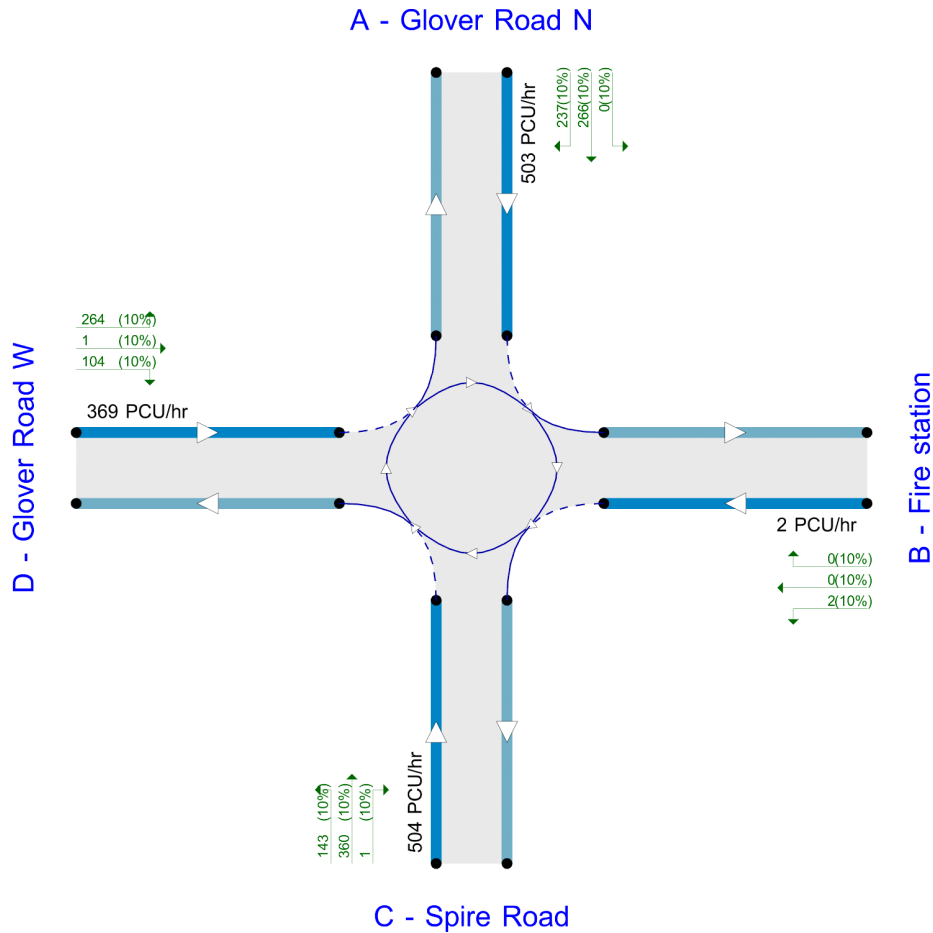
File summary

File Description

Title	Glover Road / Spire Road
Location	Sunderland
Site number	
Date	04/10/2017
Version	
Status	(new file)
Identifier	
Client	IAMP
Jobnumber	
Enumerator	ah
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



Flows show original traffic demand (PCU/hr).

The junction diagram reflects the last run of Junctions.

Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Show lane queues in feet / metres	Show all PICADY stream intercepts	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)	Use simulation for HCM roundabouts	Use iterations for HCM roundabouts
5.75						0.85	36.00	20.00		

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2022/23 Base 0630-0730	AM	ONE HOUR	06:15	07:45	15	✓
D2	2022/23 Base + Com Dev	AM	ONE HOUR	06:15	07:45	15	✓
D3	2022/23 Base + Com Dev + Dev	AM	ONE HOUR	06:15	07:45	15	✓

Analysis Set Details

ID	Name	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	A1290 - Sulgrave Road	✓	100.000	100.000

A1290 - Sulgrave Road - 2022/23 Base 0630-0730, 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	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A1290 - Sulgrave Road	Standard Roundabout		A, B, C, D	3.41	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	3.41	A

Arms

Arms

Arm	Name	Description	No give-way line
A	Glover Road N		
B	Fire station		
C	Spire Road		
D	Glover Road W		

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	I' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Entry only	Exit only
A - Glover Road N	4.07	6.82	25.1	3.0	35.7	41.0		
B - Fire station	3.44	6.31	12.6	8.5	35.7	32.0		
C - Spire Road	3.73	6.29	21.6	10.9	35.7	39.0		
D - Glover Road W	3.72	5.16	24.0	21.1	35.7	35.0		

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
A - Glover Road N	0.466	1267
B - Fire station	0.574	1432
C - Spire Road	0.602	1571
D - Glover Road W	0.600	1471

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)	Run automatically
D1	2022/23 Base 0630-0730	AM	ONE HOUR	06:15	07:45	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Glover Road N		ONE HOUR	✓	212	100.000
B - Fire station		ONE HOUR	✓	2	100.000
C - Spire Road		ONE HOUR	✓	372	100.000
D - Glover Road W		ONE HOUR	✓	238	100.000

Origin-Destination Data

Demand (PCU/hr)

From	To				
	A - Glover Road N	B - Fire station	C - Spire Road	D - Glover Road W	
A - Glover Road N	0	0	121	91	
B - Fire station	0	0	2	0	
C - Spire Road	228	1	0	143	
D - Glover Road W	133	1	104	0	

Proportions

From	To				
	A - Glover Road N	B - Fire station	C - Spire Road	D - Glover Road W	
A - Glover Road N	0.00	0.00	0.57	0.43	
B - Fire station	0.00	0.00	1.00	0.00	
C - Spire Road	0.61	0.00	0.00	0.38	
D - Glover Road W	0.56	0.00	0.44	0.00	

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

From	To				
	A - Glover Road N	B - Fire station	C - Spire Road	D - Glover Road W	
A - Glover Road N	0	0	0	0	
B - Fire station	0	0	0	0	
C - Spire Road	0	0	0	0	
D - Glover Road W	0	0	0	0	

Average PCU Per Veh

From	To				
	A - Glover Road N	B - Fire station	C - Spire Road	D - Glover Road W	
A - Glover Road N	1.000	1.000	1.000	1.000	
B - Fire station	1.000	1.000	1.000	1.000	
C - Spire Road	1.000	1.000	1.000	1.000	
D - Glover Road W	1.000	1.000	1.000	1.000	

Detailed Demand Data

Demand for each time segment

Time Segment	Arm	Demand (PCU/hr)	Demand in PCU (PCU/hr)
06:15-06:30	A - Glover Road N	160	160
	B - Fire station	0	0
	C - Spire Road	280	280
	D - Glover Road W	179	179
06:30-06:45	A - Glover Road N	191	191
	B - Fire station	0	0
	C - Spire Road	334	334
	D - Glover Road W	214	214
06:45-07:00	A - Glover Road N	233	233
	B - Fire station	0	0
	C - Spire Road	410	410
	D - Glover Road W	262	262
07:00-07:15	A - Glover Road N	233	233
	B - Fire station	0	0
	C - Spire Road	410	410
	D - Glover Road W	262	262
07:15-07:30	A - Glover Road N	191	191
	B - Fire station	0	0
	C - Spire Road	334	334
	D - Glover Road W	214	214
07:30-07:45	A - Glover Road N	160	160
	B - Fire station	0	0
	C - Spire Road	280	280
	D - Glover Road W	179	179

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A - Glover Road N	0.19	3.68	0.2	A	195	292
B - Fire station	0.00	0.00	0.0	A	0	0
C - Spire Road	0.27	3.27	0.4	A	341	512
D - Glover Road W	0.20	3.40	0.2	A	218	328

Main Results for each time segment

06:15 - 06:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Glover Road N	160	40	80	1230	0.130	159	271	0.0	0.1	3.359	A
B - Fire station	0	0	237	1296	0.000	0	2	0.0	0.0	0.000	A
C - Spire Road	280	70	68	1530	0.183	279	169	0.0	0.2	2.878	A
D - Glover Road W	179	45	172	1368	0.131	179	176	0.0	0.2	3.025	A

06:30 - 06:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Glover Road N	191	48	95	1223	0.156	190	324	0.1	0.2	3.487	A
B - Fire station	0	0	284	1269	0.000	0	2	0.0	0.0	0.000	A
C - Spire Road	334	84	82	1521	0.220	334	202	0.2	0.3	3.032	A
D - Glover Road W	214	53	206	1348	0.159	214	210	0.2	0.2	3.174	A

06:45 - 07:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Glover Road N	233	58	117	1213	0.192	233	397	0.2	0.2	3.675	A
B - Fire station	0	0	348	1233	0.000	0	2	0.0	0.0	0.000	A
C - Spire Road	410	102	100	1510	0.271	409	248	0.3	0.4	3.269	A
D - Glover Road W	262	66	252	1320	0.199	262	257	0.2	0.2	3.402	A

07:00 - 07:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Glover Road N	233	58	117	1213	0.192	233	397	0.2	0.2	3.675	A
B - Fire station	0	0	348	1233	0.000	0	2	0.0	0.0	0.000	A
C - Spire Road	410	102	100	1510	0.271	410	248	0.4	0.4	3.269	A
D - Glover Road W	262	66	252	1320	0.199	262	258	0.2	0.2	3.402	A

07:15 - 07:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Glover Road N	191	48	95	1223	0.156	191	325	0.2	0.2	3.489	A
B - Fire station	0	0	284	1269	0.000	0	2	0.0	0.0	0.000	A
C - Spire Road	334	84	82	1521	0.220	335	202	0.4	0.3	3.036	A
D - Glover Road W	214	53	206	1347	0.159	214	211	0.2	0.2	3.176	A

07:30 - 07:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Glover Road N	160	40	80	1230	0.130	160	272	0.2	0.1	3.366	A
B - Fire station	0	0	238	1296	0.000	0	2	0.0	0.0	0.000	A
C - Spire Road	280	70	69	1529	0.183	280	170	0.3	0.2	2.884	A
D - Glover Road W	179	45	173	1367	0.131	179	176	0.2	0.2	3.029	A

A1290 - Sulgrave Road - 2022/23 Base + Com Dev, 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	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A1290 - Sulgrave Road	Standard Roundabout		A, B, C, D	4.04	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	4.04	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D2	2022/23 Base + Com Dev	AM	ONE HOUR	06:15	07:45	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Glover Road N		ONE HOUR	✓	383	100.000
B - Fire station		ONE HOUR	✓	2	100.000
C - Spire Road		ONE HOUR	✓	447	100.000
D - Glover Road W		ONE HOUR	✓	307	100.000

Origin-Destination Data

Demand (PCU/hr)

From	To			
	A - Glover Road N	B - Fire station	C - Spire Road	D - Glover Road W
A - Glover Road N	0	0	209	174
B - Fire station	0	0	2	0
C - Spire Road	303	1	0	143
D - Glover Road W	202	1	104	0

Proportions

From	To			
	A - Glover Road N	B - Fire station	C - Spire Road	D - Glover Road W
A - Glover Road N	0.00	0.00	0.55	0.45
B - Fire station	0.00	0.00	1.00	0.00
C - Spire Road	0.68	0.00	0.00	0.32
D - Glover Road W	0.66	0.00	0.34	0.00

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

From	To				
	A - Glover Road N	B - Fire station	C - Spire Road	D - Glover Road W	
A - Glover Road N	0	0	0	0	
B - Fire station	0	0	0	0	
C - Spire Road	0	0	0	0	
D - Glover Road W	0	0	0	0	

Average PCU Per Veh

From	To				
	A - Glover Road N	B - Fire station	C - Spire Road	D - Glover Road W	
A - Glover Road N	1.000	1.000	1.000	1.000	
B - Fire station	1.000	1.000	1.000	1.000	
C - Spire Road	1.000	1.000	1.000	1.000	
D - Glover Road W	1.000	1.000	1.000	1.000	

Detailed Demand Data

Demand for each time segment

Time Segment	Arm	Demand (PCU/hr)	Demand in PCU (PCU/hr)
06:15-06:30	A - Glover Road N	288	288
	B - Fire station	0	0
	C - Spire Road	337	337
	D - Glover Road W	231	231
06:30-06:45	A - Glover Road N	344	344
	B - Fire station	0	0
	C - Spire Road	402	402
	D - Glover Road W	276	276
06:45-07:00	A - Glover Road N	422	422
	B - Fire station	0	0
	C - Spire Road	492	492
	D - Glover Road W	338	338
07:00-07:15	A - Glover Road N	422	422
	B - Fire station	0	0
	C - Spire Road	492	492
	D - Glover Road W	338	338
07:15-07:30	A - Glover Road N	344	344
	B - Fire station	0	0
	C - Spire Road	402	402
	D - Glover Road W	276	276
07:30-07:45	A - Glover Road N	288	288
	B - Fire station	0	0
	C - Spire Road	337	337
	D - Glover Road W	231	231

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A - Glover Road N	0.35	4.55	0.5	A	351	527
B - Fire station	0.00	0.00	0.0	A	0	0
C - Spire Road	0.34	3.74	0.5	A	410	615
D - Glover Road W	0.27	3.86	0.4	A	282	423

Main Results for each time segment

06:15 - 06:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Glover Road N	288	72	80	1230	0.234	287	379	0.0	0.3	3.813	A
B - Fire station	0	0	365	1223	0.000	0	2	0.0	0.0	0.000	A
C - Spire Road	337	84	130	1492	0.226	335	235	0.0	0.3	3.109	A
D - Glover Road W	231	58	228	1334	0.173	230	238	0.0	0.2	3.260	A

06:30 - 06:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Glover Road N	344	86	95	1223	0.282	344	454	0.3	0.4	4.094	A
B - Fire station	0	0	437	1181	0.000	0	2	0.0	0.0	0.000	A
C - Spire Road	402	100	156	1477	0.272	402	281	0.3	0.4	3.349	A
D - Glover Road W	276	69	273	1307	0.211	276	285	0.2	0.3	3.490	A

06:45 - 07:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Glover Road N	422	105	117	1213	0.348	421	555	0.4	0.5	4.545	A
B - Fire station	0	0	536	1125	0.000	0	2	0.0	0.0	0.000	A
C - Spire Road	492	123	191	1455	0.338	492	344	0.4	0.5	3.733	A
D - Glover Road W	338	85	334	1270	0.266	338	349	0.3	0.4	3.857	A

07:00 - 07:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Glover Road N	422	105	117	1213	0.348	422	556	0.5	0.5	4.551	A
B - Fire station	0	0	536	1125	0.000	0	2	0.0	0.0	0.000	A
C - Spire Road	492	123	192	1455	0.338	492	345	0.5	0.5	3.737	A
D - Glover Road W	338	85	335	1270	0.266	338	349	0.4	0.4	3.861	A

07:15 - 07:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Glover Road N	344	86	95	1223	0.282	345	455	0.5	0.4	4.103	A
B - Fire station	0	0	438	1181	0.000	0	2	0.0	0.0	0.000	A
C - Spire Road	402	100	157	1476	0.272	402	282	0.5	0.4	3.353	A
D - Glover Road W	276	69	274	1307	0.211	276	285	0.4	0.3	3.496	A

07:30 - 07:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Glover Road N	288	72	80	1230	0.234	289	381	0.4	0.3	3.825	A
B - Fire station	0	0	367	1222	0.000	0	2	0.0	0.0	0.000	A
C - Spire Road	337	84	131	1492	0.226	337	236	0.4	0.3	3.120	A
D - Glover Road W	231	58	229	1334	0.173	231	239	0.3	0.2	3.268	A

A1290 - Sulgrave Road - 2022/23 Base + Com Dev + Dev, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A1290 - Sulgrave Road	Standard Roundabout		A, B, C, D	5.17	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	5.17	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D3	2022/23 Base + Com Dev + Dev	AM	ONE HOUR	06:15	07:45	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Glover Road N		ONE HOUR	✓	503	100.000
B - Fire station		ONE HOUR	✓	2	100.000
C - Spire Road		ONE HOUR	✓	504	100.000
D - Glover Road W		ONE HOUR	✓	369	100.000

Origin-Destination Data

Demand (PCU/hr)

From		To			
		A - Glover Road N	B - Fire station	C - Spire Road	D - Glover Road W
From	A - Glover Road N	0	0	266	237
	B - Fire station	0	0	2	0
	C - Spire Road	360	1	0	143
	D - Glover Road W	264	1	104	0

Proportions

From		To			
		A - Glover Road N	B - Fire station	C - Spire Road	D - Glover Road W
From	A - Glover Road N	0.00	0.00	0.53	0.47
	B - Fire station	0.00	0.00	1.00	0.00
	C - Spire Road	0.71	0.00	0.00	0.28
	D - Glover Road W	0.72	0.00	0.28	0.00

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

From	To				
	A - Glover Road N	B - Fire station	C - Spire Road	D - Glover Road W	
A - Glover Road N	10	10	10	10	
B - Fire station	10	10	10	10	
C - Spire Road	10	10	10	10	
D - Glover Road W	10	10	10	10	

Average PCU Per Veh

From	To				
	A - Glover Road N	B - Fire station	C - Spire Road	D - Glover Road W	
A - Glover Road N	1.100	1.100	1.100	1.100	
B - Fire station	1.100	1.100	1.100	1.100	
C - Spire Road	1.100	1.100	1.100	1.100	
D - Glover Road W	1.100	1.100	1.100	1.100	

Detailed Demand Data

Demand for each time segment

Time Segment	Arm	Demand (PCU/hr)	Demand in PCU (PCU/hr)
06:15-06:30	A - Glover Road N	379	379
	B - Fire station	0	0
	C - Spire Road	379	379
	D - Glover Road W	278	278
06:30-06:45	A - Glover Road N	452	452
	B - Fire station	0	0
	C - Spire Road	453	453
	D - Glover Road W	332	332
06:45-07:00	A - Glover Road N	554	554
	B - Fire station	0	0
	C - Spire Road	555	555
	D - Glover Road W	406	406
07:00-07:15	A - Glover Road N	554	554
	B - Fire station	0	0
	C - Spire Road	555	555
	D - Glover Road W	406	406
07:15-07:30	A - Glover Road N	452	452
	B - Fire station	0	0
	C - Spire Road	453	453
	D - Glover Road W	332	332
07:30-07:45	A - Glover Road N	379	379
	B - Fire station	0	0
	C - Spire Road	379	379
	D - Glover Road W	278	278

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A - Glover Road N	0.46	6.01	0.9	A	462	692
B - Fire station	0.00	0.00	0.0	A	0	0
C - Spire Road	0.39	4.61	0.7	A	462	694
D - Glover Road W	0.33	4.79	0.5	A	339	508

Main Results for each time segment

06:15 - 06:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Glover Road N	379	95	79	1230	0.308	377	468	0.0	0.5	4.631	A
B - Fire station	0	0	455	1171	0.000	0	1	0.0	0.0	0.000	A
C - Spire Road	379	95	178	1464	0.259	378	277	0.0	0.4	3.642	A
D - Glover Road W	278	69	271	1309	0.212	277	285	0.0	0.3	3.833	A

06:30 - 06:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Glover Road N	452	113	95	1223	0.370	452	560	0.5	0.6	5.131	A
B - Fire station	0	0	545	1120	0.000	0	2	0.0	0.0	0.000	A
C - Spire Road	453	113	213	1442	0.314	453	332	0.4	0.5	3.999	A
D - Glover Road W	332	83	324	1277	0.260	331	341	0.3	0.4	4.189	A

06:45 - 07:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Glover Road N	554	138	117	1213	0.457	553	686	0.6	0.9	5.990	A
B - Fire station	0	0	667	1049	0.000	0	2	0.0	0.0	0.000	A
C - Spire Road	555	139	260	1414	0.393	554	407	0.5	0.7	4.603	A
D - Glover Road W	406	102	397	1233	0.330	406	418	0.4	0.5	4.784	A

07:00 - 07:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Glover Road N	554	138	117	1213	0.457	554	687	0.9	0.9	6.010	A
B - Fire station	0	0	668	1049	0.000	0	2	0.0	0.0	0.000	A
C - Spire Road	555	139	261	1413	0.393	555	407	0.7	0.7	4.611	A
D - Glover Road W	406	102	397	1233	0.330	406	418	0.5	0.5	4.791	A

07:15 - 07:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Glover Road N	452	113	95	1223	0.370	453	562	0.9	0.7	5.154	A
B - Fire station	0	0	547	1118	0.000	0	2	0.0	0.0	0.000	A
C - Spire Road	453	113	214	1442	0.314	454	333	0.7	0.5	4.010	A
D - Glover Road W	332	83	325	1276	0.260	332	342	0.5	0.4	4.198	A

07:30 - 07:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Glover Road N	379	95	80	1230	0.308	379	470	0.7	0.5	4.661	A
B - Fire station	0	0	458	1170	0.000	0	2	0.0	0.0	0.000	A
C - Spire Road	379	95	179	1463	0.259	380	279	0.5	0.4	3.656	A
D - Glover Road W	278	69	272	1308	0.212	278	287	0.4	0.3	3.848	A

Junctions 10
ARCADY 10 - Roundabout Module
Version: 10.1.1.1905 © Copyright TRL Software Limited, 2023
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Filename: J7 - A1290 Glover Road - Silverstone Road - Amended.j10
Path: T:\ProjectData\Giga1, Envision\Giga 3\Modelling\Giga 3 Models
Report generation date: 06/02/2024 12:48:08

- »A1290 Glover Road - Silverstone Road - 2022/23 Base 0630-0730, AM
- »A1290 Glover Road - Silverstone Road - 2022/23 Base + Com Dev, AM
- »A1290 Glover Road - Silverstone Road - 2022/23 Base + Com Dev + Dev, AM

Summary of junction performance

AM				
	Set ID	Queue (PCU)	Delay (s)	RFC
A1290 Glover Road - Silverstone Road - 2022/23 Base 0630-0730				
A - Silverstone Road	D1	0.0	2.20	0.04
B - Glover Road		0.2	2.43	0.13
C - Tower Road		0.0	2.26	0.04
D - Glover Road W		0.2	2.03	0.19
A1290 Glover Road - Silverstone Road - 2022/23 Base + Com Dev				
A - Silverstone Road	D2	0.0	2.28	0.04
B - Glover Road		0.2	2.59	0.19
C - Tower Road		0.0	2.35	0.04
D - Glover Road W		0.3	2.13	0.22
A1290 Glover Road - Silverstone Road - 2022/23 Base + Com Dev + Dev				
A - Silverstone Road	D3	0.0	2.58	0.04
B - Glover Road		0.3	3.00	0.23
C - Tower Road		0.0	2.67	0.04
D - Glover Road W		0.4	2.44	0.26

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.

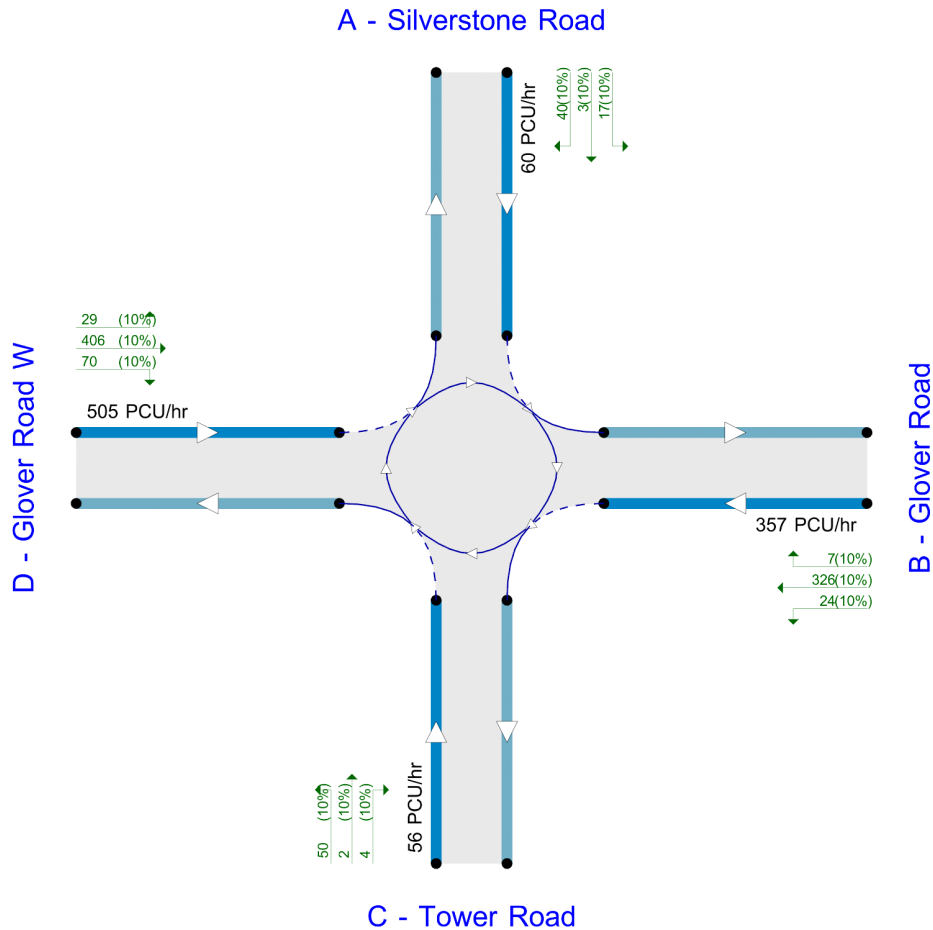
File summary

File Description

Title	A1290 Glover Road / Silverstone Road
Location	Sunderland
Site number	
Date	04/10/2017
Version	
Status	(new file)
Identifier	
Client	IAMP
Jobnumber	
Enumerator	ahogg
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



Flows show original traffic demand (PCU/hr).

The junction diagram reflects the last run of Junctions.

Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Show lane queues in feet / metres	Show all PICADY stream intercepts	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)	Use simulation for HCM roundabouts	Use iterations for HCM roundabouts
5.75						0.85	36.00	20.00		

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2022/23 Base 0630-0730	AM	ONE HOUR	06:15	07:45	15	✓
D2	2022/23 Base + Com Dev	AM	ONE HOUR	06:15	07:45	15	✓
D3	2022/23 Base + Com Dev + Dev	AM	ONE HOUR	06:15	07:45	15	✓

Analysis Set Details

ID	Name	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	A1290 Glover Road - Silverstone Road	✓	100.000	100.000

A1290 Glover Road - Silverstone Road - 2022/23

Base 0630-0730, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	A - Silverstone Road - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	B - Glover Road - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	C - Tower Road - 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	A1290 Glover Road - Silverstone Road	Standard Roundabout		A, B, C, D	2.18	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	2.18	A

Arms

Arms

Arm	Name	Description	No give-way line
A	Silverstone Road		
B	Glover Road		
C	Tower Road		
D	Glover Road W		

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	I' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Entry only	Exit only
A - Silverstone Road	3.89	7.39	37.0	25.0	33.8	36.0		
B - Glover Road	3.22	7.00	34.0	17.9	34.5	32.0		
C - Tower Road	3.71	7.00	35.0	28.4	34.3	45.0		
D - Glover Road W	7.43	7.65	19.0	22.0	34.4	47.0		

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
A - Silverstone Road	0.705	1971
B - Glover Road	0.668	1797
C - Tower Road	0.665	1819
D - Glover Road W	0.735	2189

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)	Run automatically
D1	2022/23 Base 0630-0730	AM	ONE HOUR	06:15	07:45	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Silverstone Road		ONE HOUR	✓	60	100.000
B - Glover Road		ONE HOUR	✓	210	100.000
C - Tower Road		ONE HOUR	✓	56	100.000
D - Glover Road W		ONE HOUR	✓	370	100.000

Origin-Destination Data

Demand (PCU/hr)

From	To			
	A - Silverstone Road	B - Glover Road	C - Tower Road	D - Glover Road W
A - Silverstone Road	0	17	3	40
B - Glover Road	7	0	24	179
C - Tower Road	2	4	0	50
D - Glover Road W	29	271	70	0

Proportions

From	To			
	A - Silverstone Road	B - Glover Road	C - Tower Road	D - Glover Road W
A - Silverstone Road	0.00	0.28	0.05	0.67
B - Glover Road	0.03	0.00	0.11	0.85
C - Tower Road	0.04	0.07	0.00	0.89
D - Glover Road W	0.08	0.73	0.19	0.00

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

From	To			
	A - Silverstone Road	B - Glover Road	C - Tower Road	D - Glover Road W
A - Silverstone Road	0	0	0	0
B - Glover Road	0	0	0	0
C - Tower Road	0	0	0	0
D - Glover Road W	0	0	0	0

Average PCU Per Veh

From	To			
	A - Silverstone Road	B - Glover Road	C - Tower Road	D - Glover Road W
A - Silverstone Road	1.000	1.000	1.000	1.000
B - Glover Road	1.000	1.000	1.000	1.000
C - Tower Road	1.000	1.000	1.000	1.000
D - Glover Road W	1.000	1.000	1.000	1.000

Detailed Demand Data

Demand for each time segment

Time Segment	Arm	Demand (PCU/hr)	Demand in PCU (PCU/hr)
06:15-06:30	A - Silverstone Road	45	45
	B - Glover Road	158	158
	C - Tower Road	42	42
	D - Glover Road W	279	279
06:30-06:45	A - Silverstone Road	54	54
	B - Glover Road	189	189
	C - Tower Road	50	50
	D - Glover Road W	333	333
06:45-07:00	A - Silverstone Road	66	66
	B - Glover Road	231	231
	C - Tower Road	62	62
	D - Glover Road W	407	407
07:00-07:15	A - Silverstone Road	66	66
	B - Glover Road	231	231
	C - Tower Road	62	62
	D - Glover Road W	407	407
07:15-07:30	A - Silverstone Road	54	54
	B - Glover Road	189	189
	C - Tower Road	50	50
	D - Glover Road W	333	333
07:30-07:45	A - Silverstone Road	45	45
	B - Glover Road	158	158
	C - Tower Road	42	42
	D - Glover Road W	279	279

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A - Silverstone Road	0.04	2.20	0.0	A	55	83
B - Glover Road	0.13	2.43	0.2	A	193	289
C - Tower Road	0.04	2.26	0.0	A	51	77
D - Glover Road W	0.19	2.03	0.2	A	340	509

Main Results for each time segment

06:15 - 06:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Silverstone Road	45	11	259	1788	0.025	45	29	0.0	0.0	2.065	A
B - Glover Road	158	40	85	1741	0.091	158	219	0.0	0.1	2.274	A
C - Tower Road	42	11	170	1707	0.025	42	73	0.0	0.0	2.162	A
D - Glover Road W	279	70	10	2182	0.128	278	202	0.0	0.1	1.890	A

06:30 - 06:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Silverstone Road	54	13	310	1752	0.031	54	34	0.0	0.0	2.119	A
B - Glover Road	189	47	102	1730	0.109	189	262	0.1	0.1	2.336	A
C - Tower Road	50	13	203	1684	0.030	50	87	0.0	0.0	2.202	A
D - Glover Road W	333	83	12	2181	0.153	332	242	0.1	0.2	1.947	A

06:45 - 07:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Silverstone Road	66	17	380	1703	0.039	66	42	0.0	0.0	2.198	A
B - Glover Road	231	58	124	1714	0.135	231	321	0.1	0.2	2.426	A
C - Tower Road	62	15	249	1654	0.037	62	107	0.0	0.0	2.260	A
D - Glover Road W	407	102	14	2179	0.187	407	296	0.2	0.2	2.032	A

07:00 - 07:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Silverstone Road	66	17	380	1703	0.039	66	42	0.0	0.0	2.198	A
B - Glover Road	231	58	124	1714	0.135	231	321	0.2	0.2	2.427	A
C - Tower Road	62	15	249	1654	0.037	62	107	0.0	0.0	2.260	A
D - Glover Road W	407	102	14	2179	0.187	407	296	0.2	0.2	2.032	A

07:15 - 07:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Silverstone Road	54	13	310	1752	0.031	54	34	0.0	0.0	2.119	A
B - Glover Road	189	47	102	1729	0.109	189	263	0.2	0.1	2.336	A
C - Tower Road	50	13	203	1684	0.030	50	87	0.0	0.0	2.204	A
D - Glover Road W	333	83	12	2181	0.153	333	242	0.2	0.2	1.949	A

07:30 - 07:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Silverstone Road	45	11	260	1788	0.025	45	29	0.0	0.0	2.067	A
B - Glover Road	158	40	85	1740	0.091	158	220	0.1	0.1	2.276	A
C - Tower Road	42	11	170	1706	0.025	42	73	0.0	0.0	2.164	A
D - Glover Road W	279	70	10	2182	0.128	279	203	0.2	0.1	1.893	A

A1290 Glover Road - Silverstone Road - 2022/23 Base + Com Dev, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	A - Silverstone Road - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	B - Glover Road - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	C - Tower Road - 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	A1290 Glover Road - Silverstone Road	Standard Roundabout		A, B, C, D	2.31	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	2.31	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D2	2022/23 Base + Com Dev	AM	ONE HOUR	06:15	07:45	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Silverstone Road		ONE HOUR	✓	60	100.000
B - Glover Road		ONE HOUR	✓	294	100.000
C - Tower Road		ONE HOUR	✓	56	100.000
D - Glover Road W		ONE HOUR	✓	442	100.000

Origin-Destination Data

Demand (PCU/hr)

From	To			
	A - Silverstone Road	B - Glover Road	C - Tower Road	D - Glover Road W
A - Silverstone Road	0	17	3	40
B - Glover Road	7	0	24	263
C - Tower Road	2	4	0	50
D - Glover Road W	29	343	70	0

Proportions

From	To			
	A - Silverstone Road	B - Glover Road	C - Tower Road	D - Glover Road W
A - Silverstone Road	0.00	0.28	0.05	0.67
B - Glover Road	0.02	0.00	0.08	0.89
C - Tower Road	0.04	0.07	0.00	0.89
D - Glover Road W	0.07	0.78	0.16	0.00

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

From	To				
	A - Silverstone Road	B - Glover Road	C - Tower Road	D - Glover Road W	
A - Silverstone Road	0	0	0	0	
B - Glover Road	0	0	0	0	
C - Tower Road	0	0	0	0	
D - Glover Road W	0	0	0	0	

Average PCU Per Veh

From	To				
	A - Silverstone Road	B - Glover Road	C - Tower Road	D - Glover Road W	
A - Silverstone Road	1.000	1.000	1.000	1.000	
B - Glover Road	1.000	1.000	1.000	1.000	
C - Tower Road	1.000	1.000	1.000	1.000	
D - Glover Road W	1.000	1.000	1.000	1.000	

Detailed Demand Data

Demand for each time segment

Time Segment	Arm	Demand (PCU/hr)	Demand in PCU (PCU/hr)
06:15-06:30	A - Silverstone Road	45	45
	B - Glover Road	221	221
	C - Tower Road	42	42
	D - Glover Road W	333	333
06:30-06:45	A - Silverstone Road	54	54
	B - Glover Road	264	264
	C - Tower Road	50	50
	D - Glover Road W	397	397
06:45-07:00	A - Silverstone Road	66	66
	B - Glover Road	324	324
	C - Tower Road	62	62
	D - Glover Road W	487	487
07:00-07:15	A - Silverstone Road	66	66
	B - Glover Road	324	324
	C - Tower Road	62	62
	D - Glover Road W	487	487
07:15-07:30	A - Silverstone Road	54	54
	B - Glover Road	264	264
	C - Tower Road	50	50
	D - Glover Road W	397	397
07:30-07:45	A - Silverstone Road	45	45
	B - Glover Road	221	221
	C - Tower Road	42	42
	D - Glover Road W	333	333

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A - Silverstone Road	0.04	2.28	0.0	A	55	83
B - Glover Road	0.19	2.59	0.2	A	270	405
C - Tower Road	0.04	2.35	0.0	A	51	77
D - Glover Road W	0.22	2.13	0.3	A	406	608

Main Results for each time segment

06:15 - 06:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Silverstone Road	45	11	313	1750	0.026	45	29	0.0	0.0	2.111	A
B - Glover Road	221	55	85	1741	0.127	221	273	0.0	0.1	2.369	A
C - Tower Road	42	11	233	1665	0.025	42	73	0.0	0.0	2.218	A
D - Glover Road W	333	83	10	2182	0.153	332	265	0.0	0.2	1.946	A

06:30 - 06:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Silverstone Road	54	13	375	1707	0.032	54	34	0.0	0.0	2.177	A
B - Glover Road	264	66	102	1730	0.153	264	327	0.1	0.2	2.456	A
C - Tower Road	50	13	279	1634	0.031	50	87	0.0	0.0	2.272	A
D - Glover Road W	397	99	12	2181	0.182	397	317	0.2	0.2	2.018	A

06:45 - 07:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Silverstone Road	66	17	459	1647	0.040	66	42	0.0	0.0	2.276	A
B - Glover Road	324	81	124	1714	0.189	323	401	0.2	0.2	2.588	A
C - Tower Road	62	15	341	1592	0.039	62	107	0.0	0.0	2.351	A
D - Glover Road W	487	122	14	2179	0.223	486	388	0.2	0.3	2.127	A

07:00 - 07:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Silverstone Road	66	17	459	1647	0.040	66	42	0.0	0.0	2.276	A
B - Glover Road	324	81	124	1714	0.189	324	401	0.2	0.2	2.588	A
C - Tower Road	62	15	341	1592	0.039	62	107	0.0	0.0	2.351	A
D - Glover Road W	487	122	14	2179	0.223	487	389	0.3	0.3	2.127	A

07:15 - 07:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Silverstone Road	54	13	375	1706	0.032	54	34	0.0	0.0	2.178	A
B - Glover Road	264	66	102	1729	0.153	265	327	0.2	0.2	2.457	A
C - Tower Road	50	13	279	1634	0.031	50	87	0.0	0.0	2.274	A
D - Glover Road W	397	99	12	2181	0.182	398	318	0.3	0.2	2.020	A

07:30 - 07:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Silverstone Road	45	11	314	1749	0.026	45	29	0.0	0.0	2.112	A
B - Glover Road	221	55	85	1740	0.127	221	274	0.2	0.1	2.371	A
C - Tower Road	42	11	234	1664	0.025	42	73	0.0	0.0	2.219	A
D - Glover Road W	333	83	10	2182	0.153	333	266	0.2	0.2	1.948	A

A1290 Glover Road - Silverstone Road - 2022/23 Base + Com Dev + Dev, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	A - Silverstone Road - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	B - Glover Road - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	C - Tower Road - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A1290 Glover Road - Silverstone Road	Standard Roundabout		A, B, C, D	2.66	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	2.66	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D3	2022/23 Base + Com Dev + Dev	AM	ONE HOUR	06:15	07:45	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Silverstone Road		ONE HOUR	✓	60	100.000
B - Glover Road		ONE HOUR	✓	357	100.000
C - Tower Road		ONE HOUR	✓	56	100.000
D - Glover Road W		ONE HOUR	✓	505	100.000

Origin-Destination Data

Demand (PCU/hr)

From	To			
	A - Silverstone Road	B - Glover Road	C - Tower Road	D - Glover Road W
A - Silverstone Road	0	17	3	40
B - Glover Road	7	0	24	326
C - Tower Road	2	4	0	50
D - Glover Road W	29	406	70	0

Proportions

From	To			
	A - Silverstone Road	B - Glover Road	C - Tower Road	D - Glover Road W
A - Silverstone Road	0.00	0.28	0.05	0.67
B - Glover Road	0.02	0.00	0.07	0.91
C - Tower Road	0.04	0.07	0.00	0.89
D - Glover Road W	0.06	0.80	0.14	0.00

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

From	To			
	A - Silverstone Road	B - Glover Road	C - Tower Road	D - Glover Road W
A - Silverstone Road	10	10	10	10
B - Glover Road	10	10	10	10
C - Tower Road	10	10	10	10
D - Glover Road W	10	10	10	10

Average PCU Per Veh

From	To			
	A - Silverstone Road	B - Glover Road	C - Tower Road	D - Glover Road W
A - Silverstone Road	1.100	1.100	1.100	1.100
B - Glover Road	1.100	1.100	1.100	1.100
C - Tower Road	1.100	1.100	1.100	1.100
D - Glover Road W	1.100	1.100	1.100	1.100

Detailed Demand Data

Demand for each time segment

Time Segment	Arm	Demand (PCU/hr)	Demand in PCU (PCU/hr)
06:15-06:30	A - Silverstone Road	45	45
	B - Glover Road	269	269
	C - Tower Road	42	42
	D - Glover Road W	380	380
06:30-06:45	A - Silverstone Road	54	54
	B - Glover Road	321	321
	C - Tower Road	50	50
	D - Glover Road W	454	454
06:45-07:00	A - Silverstone Road	66	66
	B - Glover Road	393	393
	C - Tower Road	62	62
	D - Glover Road W	556	556
07:00-07:15	A - Silverstone Road	66	66
	B - Glover Road	393	393
	C - Tower Road	62	62
	D - Glover Road W	556	556
07:15-07:30	A - Silverstone Road	54	54
	B - Glover Road	321	321
	C - Tower Road	50	50
	D - Glover Road W	454	454
07:30-07:45	A - Silverstone Road	45	45
	B - Glover Road	269	269
	C - Tower Road	42	42
	D - Glover Road W	380	380

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A - Silverstone Road	0.04	2.58	0.0	A	55	83
B - Glover Road	0.23	3.00	0.3	A	328	491
C - Tower Road	0.04	2.67	0.0	A	51	77
D - Glover Road W	0.26	2.44	0.4	A	463	695

Main Results for each time segment

06:15 - 06:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Silverstone Road	45	11	360	1717	0.026	45	29	0.0	0.0	2.368	A
B - Glover Road	269	67	85	1741	0.154	268	321	0.0	0.2	2.687	A
C - Tower Road	42	11	280	1633	0.026	42	73	0.0	0.0	2.488	A
D - Glover Road W	380	95	10	2182	0.174	379	312	0.0	0.2	2.195	A

06:30 - 06:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Silverstone Road	54	13	431	1667	0.032	54	34	0.0	0.0	2.454	A
B - Glover Road	321	80	102	1730	0.186	321	384	0.2	0.2	2.810	A
C - Tower Road	50	13	335	1596	0.032	50	87	0.0	0.0	2.560	A
D - Glover Road W	454	113	12	2181	0.208	454	374	0.2	0.3	2.293	A

06:45 - 07:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Silverstone Road	66	17	528	1598	0.041	66	42	0.0	0.0	2.583	A
B - Glover Road	393	98	124	1714	0.229	393	470	0.2	0.3	2.996	A
C - Tower Road	62	15	410	1546	0.040	62	107	0.0	0.0	2.666	A
D - Glover Road W	556	139	14	2179	0.255	556	458	0.3	0.4	2.439	A

07:00 - 07:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Silverstone Road	66	17	528	1598	0.041	66	42	0.0	0.0	2.584	A
B - Glover Road	393	98	124	1714	0.229	393	470	0.3	0.3	2.996	A
C - Tower Road	62	15	411	1546	0.040	62	107	0.0	0.0	2.666	A
D - Glover Road W	556	139	14	2179	0.255	556	458	0.4	0.4	2.439	A

07:15 - 07:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Silverstone Road	54	13	432	1666	0.032	54	34	0.0	0.0	2.455	A
B - Glover Road	321	80	102	1729	0.186	321	384	0.3	0.3	2.812	A
C - Tower Road	50	13	336	1596	0.032	50	87	0.0	0.0	2.561	A
D - Glover Road W	454	113	12	2181	0.208	454	374	0.4	0.3	2.295	A

07:30 - 07:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Silverstone Road	45	11	362	1716	0.026	45	29	0.0	0.0	2.369	A
B - Glover Road	269	67	85	1740	0.154	269	322	0.3	0.2	2.693	A
C - Tower Road	42	11	281	1632	0.026	42	73	0.0	0.0	2.489	A
D - Glover Road W	380	95	10	2182	0.174	380	313	0.3	0.2	2.197	A

Junctions 10
ARCADY 10 - Roundabout Module
Version: 10.1.1.1905 © Copyright TRL Software Limited, 2023
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Filename: J8 - A1290 Glover Road - A195 - Amended.j10
Path: T:\ProjectData\Giga1, Envision\Giga 3\Modelling\Giga 3 Models
Report generation date: 06/02/2024 12:49:07

- »A1290 Glover Road - A195 - 2022/23 Base 0630-0730, AM
- »A1290 Glover Road - A195 - 2022/23 Base + Com Dev, AM
- »A1290 Glover Road - A195 - 2022/23 Base + Com Dev + Dev, AM

Summary of junction performance

AM				
	Set ID	Queue (PCU)	Delay (s)	RFC
A1290 Glover Road - A195 - 2022/23 Base 0630-0730				
A - A195 N	D1	0.2	1.97	0.19
B - A1290 Glover Rd		0.1	1.77	0.13
C - A195 S		0.4	2.45	0.31
D - A1290 W		0.1	2.45	0.12
A1290 Glover Road - A195 - 2022/23 Base + Com Dev				
A - A195 N	D2	0.3	2.05	0.20
B - A1290 Glover Rd		0.2	1.86	0.17
C - A195 S		0.5	2.58	0.33
D - A1290 W		0.2	2.56	0.13
A1290 Glover Road - A195 - 2022/23 Base + Com Dev + Dev				
A - A195 N	D3	0.3	2.33	0.22
B - A1290 Glover Rd		0.3	2.12	0.20
C - A195 S		0.6	2.97	0.36
D - A1290 W		0.2	2.92	0.14

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.

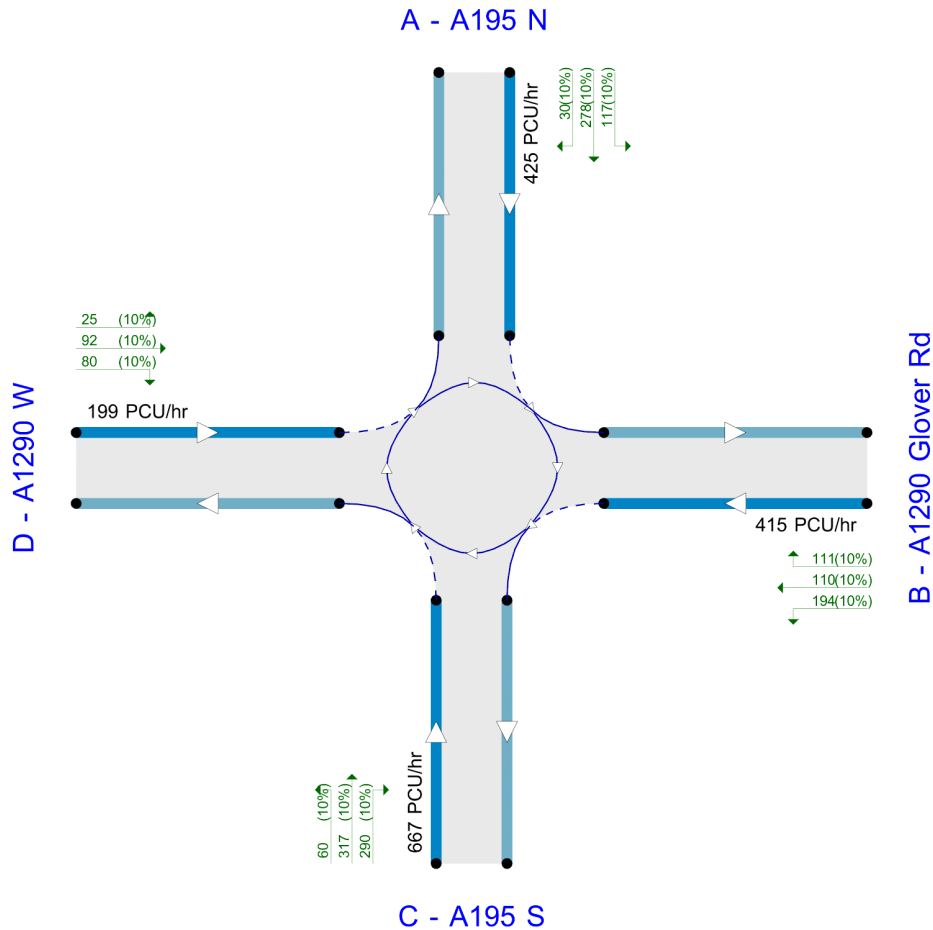
File summary

File Description

Title	A1290 Glover Road / Silverstone Road
Location	Sunderland
Site number	
Date	04/10/2017
Version	
Status	(new file)
Identifier	
Client	IAMP
Jobnumber	
Enumerator	ahogg
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



Flows show original traffic demand (PCU/hr).

The junction diagram reflects the last run of Junctions.

Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Show lane queues in feet / metres	Show all PICADY stream intercepts	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)	Use simulation for HCM roundabouts	Use iterations for HCM roundabouts
5.75						0.85	36.00	20.00		

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2022/23 Base 0630-0730	AM	ONE HOUR	06:15	07:45	15	✓
D2	2022/23 Base + Com Dev	AM	ONE HOUR	06:15	07:45	15	✓
D3	2022/23 Base + Com Dev + Dev	AM	ONE HOUR	06:15	07:45	15	✓

Analysis Set Details

ID	Name	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	A1290 Glover Road - A195	✓	100.000	100.000

A1290 Glover Road - A195 - 2022/23 Base 0630-0730, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	D - A1290 W - 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	A1290 Glover Road - A195	Standard Roundabout		A, B, C, D	2.19	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	2.19	A

Arms

Arms

Arm	Name	Description	No give-way line
A	A195 N		
B	A1290 Glover Rd		
C	A195 S		
D	A1290 W		

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	I' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Entry only	Exit only
A - A195 N	6.00	9.53	27.5	25.0	33.5	31.0		
B - A1290 Glover Rd	7.21	9.53	23.4	19.1	33.5	32.0		
C - A195 S	5.80	8.10	22.3	28.4	33.5	34.0		
D - A1290 W	3.15	9.83	40.1	22.0	34.3	47.0		

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
A - A195 N	0.837	2592
B - A1290 Glover Rd	0.853	2693
C - A195 S	0.772	2283
D - A1290 W	0.727	2150

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)	Run automatically
D1	2022/23 Base 0630-0730	AM	ONE HOUR	06:15	07:45	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - A195 N		ONE HOUR	✓	378	100.000
B - A1290 Glover Rd		ONE HOUR	✓	269	100.000
C - A195 S		ONE HOUR	✓	596	100.000
D - A1290 W		ONE HOUR	✓	185	100.000

Origin-Destination Data

Demand (PCU/hr)

From	To			
	A - A195 N	B - A1290 Glover Rd	C - A195 S	D - A1290 W
A - A195 N	0	71	277	30
B - A1290 Glover Rd	59	0	116	94
C - A195 S	316	220	0	60
D - A1290 W	25	78	80	2

Proportions

From	To			
	A - A195 N	B - A1290 Glover Rd	C - A195 S	D - A1290 W
A - A195 N	0.00	0.19	0.73	0.08
B - A1290 Glover Rd	0.22	0.00	0.43	0.35
C - A195 S	0.53	0.37	0.00	0.10
D - A1290 W	0.14	0.42	0.43	0.01

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

From	To			
	A - A195 N	B - A1290 Glover Rd	C - A195 S	D - A1290 W
A - A195 N	0	0	0	0
B - A1290 Glover Rd	0	0	0	0
C - A195 S	0	0	0	0
D - A1290 W	0	0	0	0

Average PCU Per Veh

From	To			
	A - A195 N	B - A1290 Glover Rd	C - A195 S	D - A1290 W
A - A195 N	1.000	1.000	1.000	1.000
B - A1290 Glover Rd	1.000	1.000	1.000	1.000
C - A195 S	1.000	1.000	1.000	1.000
D - A1290 W	1.000	1.000	1.000	1.000

Detailed Demand Data

Demand for each time segment

Time Segment	Arm	Demand (PCU/hr)	Demand in PCU (PCU/hr)
06:15-06:30	A - A195 N	285	285
	B - A1290 Glover Rd	203	203
	C - A195 S	449	449
	D - A1290 W	139	139
06:30-06:45	A - A195 N	340	340
	B - A1290 Glover Rd	242	242
	C - A195 S	536	536
	D - A1290 W	166	166
06:45-07:00	A - A195 N	416	416
	B - A1290 Glover Rd	296	296
	C - A195 S	656	656
	D - A1290 W	204	204
07:00-07:15	A - A195 N	416	416
	B - A1290 Glover Rd	296	296
	C - A195 S	656	656
	D - A1290 W	204	204
07:15-07:30	A - A195 N	340	340
	B - A1290 Glover Rd	242	242
	C - A195 S	536	536
	D - A1290 W	166	166
07:30-07:45	A - A195 N	285	285
	B - A1290 Glover Rd	203	203
	C - A195 S	449	449
	D - A1290 W	139	139

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A - A195 N	0.19	1.97	0.2	A	347	520
B - A1290 Glover Rd	0.13	1.77	0.1	A	247	370
C - A195 S	0.31	2.45	0.4	A	547	820
D - A1290 W	0.12	2.45	0.1	A	170	255

Main Results for each time segment

06:15 - 06:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A195 N	285	71	285	2353	0.121	284	300	0.0	0.1	1.739	A
B - A1290 Glover Rd	203	51	292	2444	0.083	202	277	0.0	0.1	1.605	A
C - A195 S	449	112	139	2175	0.206	448	355	0.0	0.3	2.083	A
D - A1290 W	139	35	447	1825	0.076	139	140	0.0	0.1	2.135	A

06:30 - 06:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A195 N	340	85	341	2307	0.147	340	359	0.1	0.2	1.829	A
B - A1290 Glover Rd	242	60	350	2395	0.101	242	332	0.1	0.1	1.671	A
C - A195 S	536	134	166	2154	0.249	536	425	0.3	0.3	2.223	A
D - A1290 W	166	42	535	1761	0.094	166	167	0.1	0.1	2.256	A

06:45 - 07:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A195 N	416	104	418	2242	0.186	416	440	0.2	0.2	1.971	A
B - A1290 Glover Rd	296	74	428	2328	0.127	296	406	0.1	0.1	1.771	A
C - A195 S	656	164	204	2125	0.309	656	521	0.3	0.4	2.449	A
D - A1290 W	204	51	655	1674	0.122	204	205	0.1	0.1	2.447	A

07:00 - 07:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A195 N	416	104	418	2242	0.186	416	440	0.2	0.2	1.971	A
B - A1290 Glover Rd	296	74	428	2328	0.127	296	406	0.1	0.1	1.771	A
C - A195 S	656	164	204	2125	0.309	656	521	0.4	0.4	2.449	A
D - A1290 W	204	51	655	1674	0.122	204	205	0.1	0.1	2.448	A

07:15 - 07:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A195 N	340	85	342	2306	0.147	340	360	0.2	0.2	1.830	A
B - A1290 Glover Rd	242	60	350	2394	0.101	242	332	0.1	0.1	1.671	A
C - A195 S	536	134	166	2154	0.249	536	425	0.4	0.3	2.225	A
D - A1290 W	166	42	535	1761	0.094	166	167	0.1	0.1	2.259	A

07:30 - 07:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A195 N	285	71	286	2353	0.121	285	301	0.2	0.1	1.740	A
B - A1290 Glover Rd	203	51	293	2443	0.083	203	278	0.1	0.1	1.606	A
C - A195 S	449	112	139	2175	0.206	449	356	0.3	0.3	2.085	A
D - A1290 W	139	35	448	1824	0.076	139	140	0.1	0.1	2.138	A

A1290 Glover Road - A195 - 2022/23 Base + Com Dev, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	D - A1290 W - 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	A1290 Glover Road - A195	Standard Roundabout		A, B, C, D	2.28	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	2.28	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D2	2022/23 Base + Com Dev	AM	ONE HOUR	06:15	07:45	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - A195 N		ONE HOUR	✓	403	100.000
B - A1290 Glover Rd		ONE HOUR	✓	352	100.000
C - A195 S		ONE HOUR	✓	633	100.000
D - A1290 W		ONE HOUR	✓	194	100.000

Origin-Destination Data

Demand (PCU/hr)

	To				
		A - A195 N	B - A1290 Glover Rd	C - A195 S	D - A1290 W
From	A - A195 N	0	95	278	30
	B - A1290 Glover Rd	88	0	160	104
	C - A195 S	317	256	0	60
	D - A1290 W	25	87	80	2

Proportions

	To				
		A - A195 N	B - A1290 Glover Rd	C - A195 S	D - A1290 W
From	A - A195 N	0.00	0.24	0.69	0.07
	B - A1290 Glover Rd	0.25	0.00	0.45	0.30
	C - A195 S	0.50	0.40	0.00	0.09
	D - A1290 W	0.13	0.45	0.41	0.01

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

From	To			
	A - A195 N	B - A1290 Glover Rd	C - A195 S	D - A1290 W
A - A195 N	0	0	0	0
B - A1290 Glover Rd	0	0	0	0
C - A195 S	0	0	0	0
D - A1290 W	0	0	0	0

Average PCU Per Veh

From	To			
	A - A195 N	B - A1290 Glover Rd	C - A195 S	D - A1290 W
A - A195 N	1.000	1.000	1.000	1.000
B - A1290 Glover Rd	1.000	1.000	1.000	1.000
C - A195 S	1.000	1.000	1.000	1.000
D - A1290 W	1.000	1.000	1.000	1.000

Detailed Demand Data

Demand for each time segment

Time Segment	Arm	Demand (PCU/hr)	Demand in PCU (PCU/hr)
06:15-06:30	A - A195 N	303	303
	B - A1290 Glover Rd	265	265
	C - A195 S	477	477
	D - A1290 W	146	146
06:30-06:45	A - A195 N	362	362
	B - A1290 Glover Rd	316	316
	C - A195 S	569	569
	D - A1290 W	174	174
06:45-07:00	A - A195 N	444	444
	B - A1290 Glover Rd	388	388
	C - A195 S	697	697
	D - A1290 W	214	214
07:00-07:15	A - A195 N	444	444
	B - A1290 Glover Rd	388	388
	C - A195 S	697	697
	D - A1290 W	214	214
07:15-07:30	A - A195 N	362	362
	B - A1290 Glover Rd	316	316
	C - A195 S	569	569
	D - A1290 W	174	174
07:30-07:45	A - A195 N	303	303
	B - A1290 Glover Rd	265	265
	C - A195 S	477	477
	D - A1290 W	146	146

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A - A195 N	0.20	2.05	0.3	A	370	555
B - A1290 Glover Rd	0.17	1.86	0.2	A	323	485
C - A195 S	0.33	2.58	0.5	A	581	871
D - A1290 W	0.13	2.56	0.2	A	178	267

Main Results for each time segment

06:15 - 06:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A195 N	303	76	319	2325	0.130	303	323	0.0	0.1	1.779	A
B - A1290 Glover Rd	265	66	293	2443	0.108	265	329	0.0	0.1	1.652	A
C - A195 S	477	119	168	2153	0.221	475	389	0.0	0.3	2.145	A
D - A1290 W	146	37	496	1789	0.082	146	147	0.0	0.1	2.190	A

06:30 - 06:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A195 N	362	91	382	2273	0.159	362	386	0.1	0.2	1.883	A
B - A1290 Glover Rd	316	79	350	2394	0.132	316	394	0.1	0.2	1.731	A
C - A195 S	569	142	201	2127	0.268	569	465	0.3	0.4	2.310	A
D - A1290 W	174	44	594	1718	0.102	174	176	0.1	0.1	2.331	A

06:45 - 07:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A195 N	444	111	468	2201	0.202	443	473	0.2	0.3	2.048	A
B - A1290 Glover Rd	388	97	429	2327	0.167	387	482	0.2	0.2	1.855	A
C - A195 S	697	174	247	2092	0.333	696	570	0.4	0.5	2.579	A
D - A1290 W	214	53	727	1621	0.132	213	216	0.1	0.2	2.556	A

07:00 - 07:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A195 N	444	111	468	2201	0.202	444	473	0.3	0.3	2.048	A
B - A1290 Glover Rd	388	97	429	2327	0.167	388	482	0.2	0.2	1.855	A
C - A195 S	697	174	247	2092	0.333	697	570	0.5	0.5	2.579	A
D - A1290 W	214	53	728	1621	0.132	214	216	0.2	0.2	2.557	A

07:15 - 07:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A195 N	362	91	382	2272	0.159	363	387	0.3	0.2	1.884	A
B - A1290 Glover Rd	316	79	351	2394	0.132	317	394	0.2	0.2	1.735	A
C - A195 S	569	142	201	2127	0.268	570	466	0.5	0.4	2.311	A
D - A1290 W	174	44	595	1718	0.102	175	176	0.2	0.1	2.332	A

07:30 - 07:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A195 N	303	76	320	2324	0.131	304	324	0.2	0.2	1.783	A
B - A1290 Glover Rd	265	66	294	2442	0.109	265	330	0.2	0.1	1.652	A
C - A195 S	477	119	169	2152	0.221	477	390	0.4	0.3	2.150	A
D - A1290 W	146	37	498	1788	0.082	146	148	0.1	0.1	2.192	A

A1290 Glover Road - A195 - 2022/23 Base + Com Dev + Dev, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	D - A1290 W - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A1290 Glover Road - A195	Standard Roundabout		A, B, C, D	2.60	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	2.60	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D3	2022/23 Base + Com Dev + Dev	AM	ONE HOUR	06:15	07:45	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - A195 N		ONE HOUR	✓	425	100.000
B - A1290 Glover Rd		ONE HOUR	✓	415	100.000
C - A195 S		ONE HOUR	✓	667	100.000
D - A1290 W		ONE HOUR	✓	199	100.000

Origin-Destination Data

Demand (PCU/hr)

From	To			
	A - A195 N	B - A1290 Glover Rd	C - A195 S	D - A1290 W
A - A195 N	0	117	278	30
B - A1290 Glover Rd	111	0	194	110
C - A195 S	317	290	0	60
D - A1290 W	25	92	80	2

Proportions

From	To			
	A - A195 N	B - A1290 Glover Rd	C - A195 S	D - A1290 W
A - A195 N	0.00	0.28	0.65	0.07
B - A1290 Glover Rd	0.27	0.00	0.47	0.27
C - A195 S	0.48	0.43	0.00	0.09
D - A1290 W	0.13	0.46	0.40	0.01

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

From	To			
	A - A195 N	B - A1290 Glover Rd	C - A195 S	D - A1290 W
A - A195 N	10	10	10	10
B - A1290 Glover Rd	10	10	10	10
C - A195 S	10	10	10	10
D - A1290 W	10	10	10	10

Average PCU Per Veh

From	To			
	A - A195 N	B - A1290 Glover Rd	C - A195 S	D - A1290 W
A - A195 N	1.100	1.100	1.100	1.100
B - A1290 Glover Rd	1.100	1.100	1.100	1.100
C - A195 S	1.100	1.100	1.100	1.100
D - A1290 W	1.100	1.100	1.100	1.100

Detailed Demand Data

Demand for each time segment

Time Segment	Arm	Demand (PCU/hr)	Demand in PCU (PCU/hr)
06:15-06:30	A - A195 N	320	320
	B - A1290 Glover Rd	312	312
	C - A195 S	502	502
	D - A1290 W	150	150
06:30-06:45	A - A195 N	382	382
	B - A1290 Glover Rd	373	373
	C - A195 S	600	600
	D - A1290 W	179	179
06:45-07:00	A - A195 N	468	468
	B - A1290 Glover Rd	457	457
	C - A195 S	734	734
	D - A1290 W	219	219
07:00-07:15	A - A195 N	468	468
	B - A1290 Glover Rd	457	457
	C - A195 S	734	734
	D - A1290 W	219	219
07:15-07:30	A - A195 N	382	382
	B - A1290 Glover Rd	373	373
	C - A195 S	600	600
	D - A1290 W	179	179
07:30-07:45	A - A195 N	320	320
	B - A1290 Glover Rd	312	312
	C - A195 S	502	502
	D - A1290 W	150	150

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A - A195 N	0.22	2.33	0.3	A	390	585
B - A1290 Glover Rd	0.20	2.12	0.3	A	381	571
C - A195 S	0.36	2.97	0.6	A	612	918
D - A1290 W	0.14	2.92	0.2	A	183	274

Main Results for each time segment

06:15 - 06:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A195 N	320	80	348	2301	0.139	319	340	0.0	0.2	1.998	A
B - A1290 Glover Rd	312	78	293	2443	0.128	312	375	0.0	0.2	1.857	A
C - A195 S	502	126	190	2136	0.235	501	415	0.0	0.3	2.419	A
D - A1290 W	150	37	539	1758	0.085	149	152	0.0	0.1	2.461	A

06:30 - 06:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A195 N	382	96	417	2243	0.170	382	407	0.2	0.2	2.127	A
B - A1290 Glover Rd	373	93	350	2394	0.156	373	448	0.2	0.2	1.959	A
C - A195 S	600	150	227	2107	0.285	599	496	0.3	0.4	2.626	A
D - A1290 W	179	45	645	1681	0.106	179	181	0.1	0.1	2.635	A

06:45 - 07:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A195 N	468	117	510	2165	0.216	468	498	0.2	0.3	2.332	A
B - A1290 Glover Rd	457	114	429	2327	0.196	457	549	0.2	0.3	2.117	A
C - A195 S	734	184	278	2068	0.355	734	607	0.4	0.6	2.967	A
D - A1290 W	219	55	790	1576	0.139	219	222	0.1	0.2	2.918	A

07:00 - 07:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A195 N	468	117	511	2165	0.216	468	499	0.3	0.3	2.333	A
B - A1290 Glover Rd	457	114	429	2327	0.196	457	549	0.3	0.3	2.117	A
C - A195 S	734	184	279	2068	0.355	734	608	0.6	0.6	2.969	A
D - A1290 W	219	55	791	1575	0.139	219	222	0.2	0.2	2.919	A

07:15 - 07:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A195 N	382	96	418	2243	0.170	382	408	0.3	0.2	2.130	A
B - A1290 Glover Rd	373	93	351	2394	0.156	373	449	0.3	0.2	1.961	A
C - A195 S	600	150	228	2107	0.285	600	497	0.6	0.4	2.629	A
D - A1290 W	179	45	646	1680	0.106	179	182	0.2	0.1	2.639	A

07:30 - 07:45

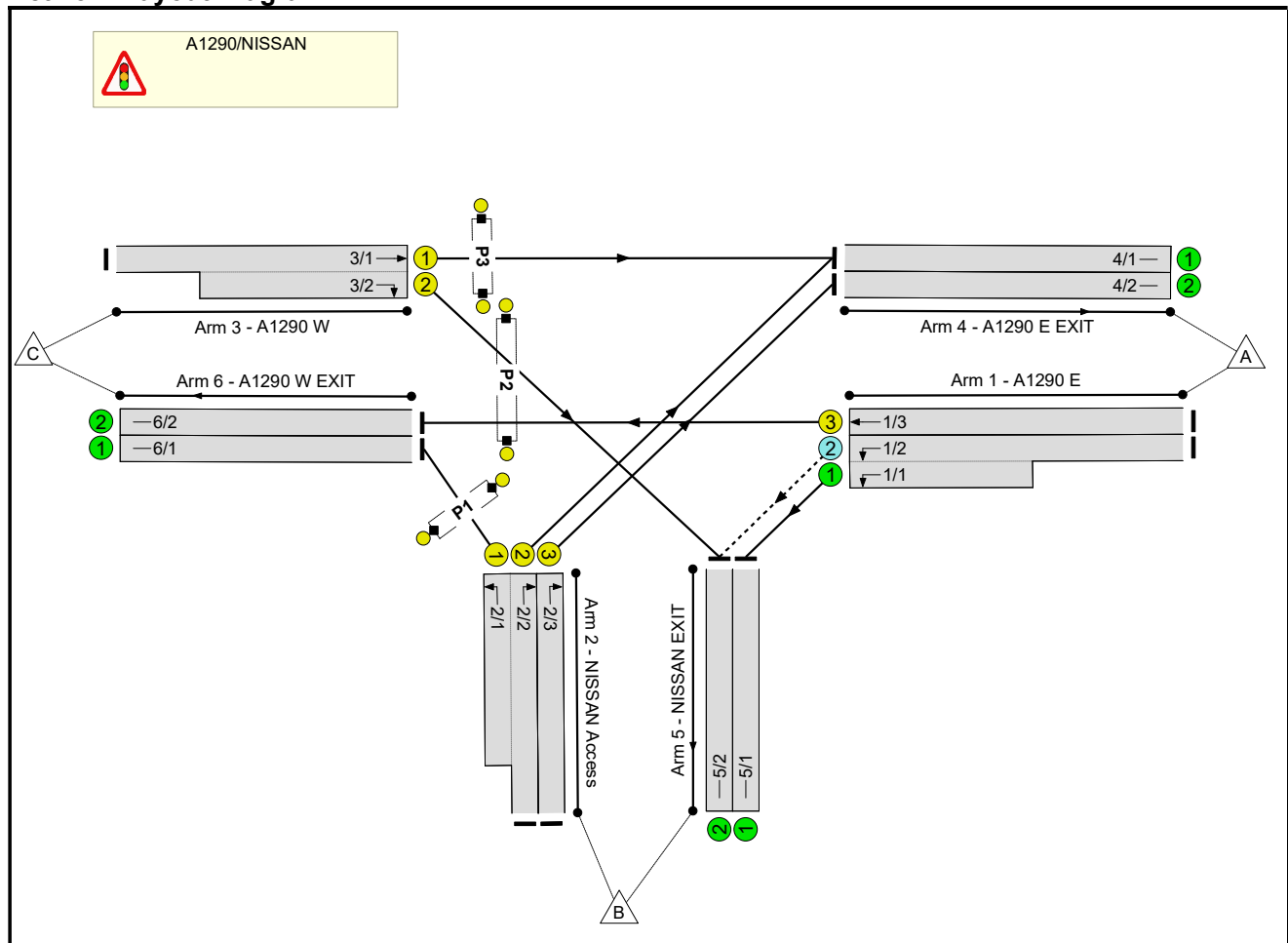
Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A195 N	320	80	350	2300	0.139	320	341	0.2	0.2	2.000	A
B - A1290 Glover Rd	312	78	294	2442	0.128	313	376	0.2	0.2	1.858	A
C - A195 S	502	126	191	2135	0.235	503	416	0.4	0.3	2.425	A
D - A1290 W	150	37	541	1757	0.085	150	152	0.1	0.1	2.466	A

Full Input Data And Results
Full Input Data And Results

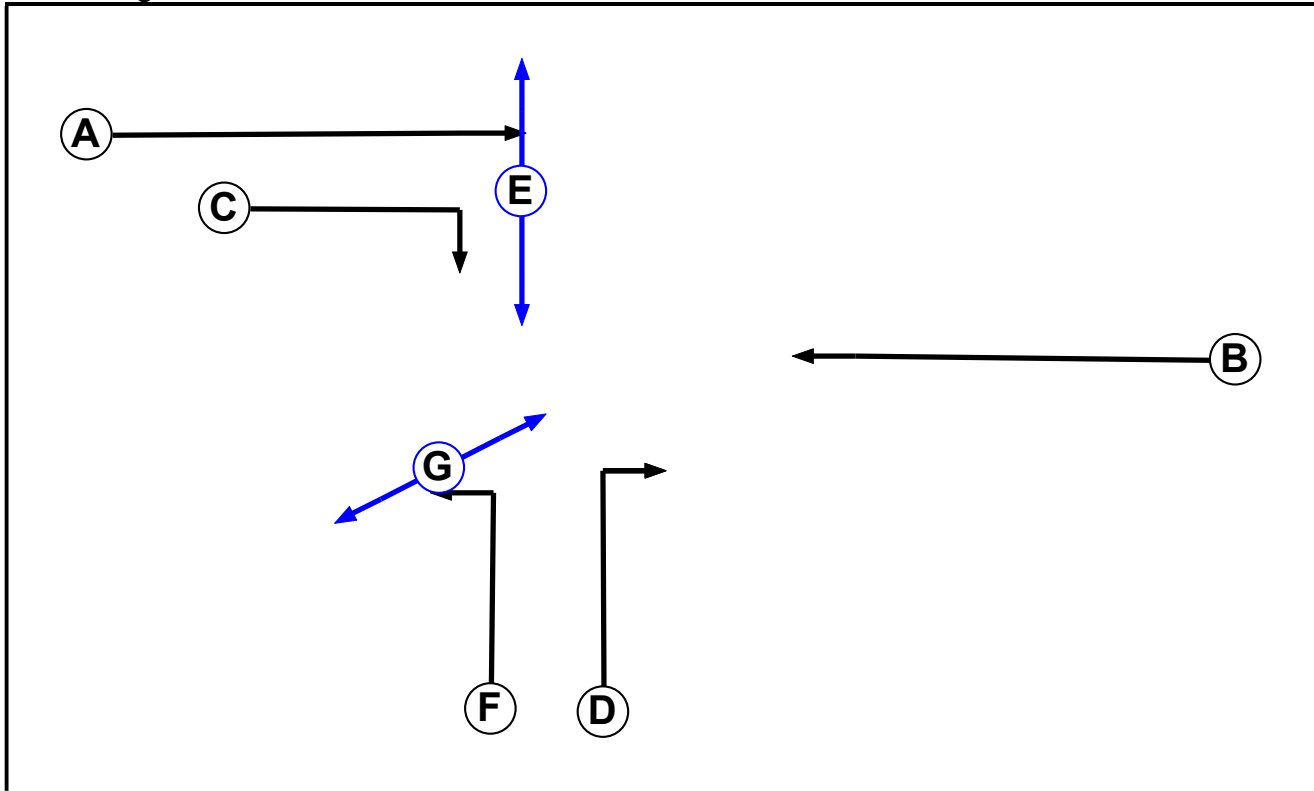
User and Project Details

Project:	
Title:	A1290 / NISSAN Access
Location:	Sunderland
Additional detail:	
File name:	J9 - NISSAN - Amended.lsg3x
Author:	AH
Company:	SYSTRA
Address:	Newcastle

Network Layout Diagram



Phase Diagram



Phase Input Data

Phase Name	Phase Type	Stage Stream	Assoc. Phase	Street Min	Cont Min
A	Traffic	1		7	7
B	Traffic	1		7	7
C	Traffic	1		7	7
D	Traffic	1		7	7
E	Pedestrian	1		7	7
F	Traffic	1		7	7
G	Pedestrian	1		7	7

Full Input Data And Results

Phase Intergreens Matrix

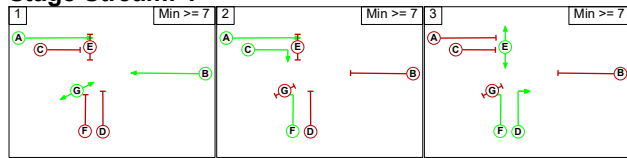
		Starting Phase						
		A	B	C	D	E	F	G
Terminating Phase	A	-	-	7	6	-	-	-
	B	-	-	7	7	7	7	-
	C	-	7	-	7	7	-	-
	D	7	7	7	-	-	-	-
	E	6	7	7	-	-	-	-
	F	-	7	-	-	-	-	7
	G	-	-	-	-	-	7	-

Phases in Stage

Stream	Stage No.	Phases in Stage
1	1	A B G
1	2	A C F
1	3	D E F

Stage Diagram

Stage Stream: 1



Phase Delays

Stage Stream: 1

Term. Stage	Start Stage	Phase	Type	Value	Cont value
There are no Phase Delays defined					

Prohibited Stage Change

Stage Stream: 1

		To Stage		
		1	2	3
From Stage	1	-	7	7
	2	7	-	7
	3	7	7	-

Full Input Data And Results

Give-Way Lane Input Data

Junction: A1290/NISSAN											
Lane	Movement	Max Flow when Giving Way (PCU/Hr)	Min Flow when Giving Way (PCU/Hr)	Opposing Lane	Opp. Lane Coeff.	Opp. Mvmnts.	Right Turn Storage (PCU)	Non-Blocking Storage (PCU)	RTF	Right Turn Move up (s)	Max Turns in Intergreen (PCU)
1/2 (A1290 E)	5/2 (Left)	1439	0	3/2	1.09	All	-	-	-	-	-

Full Input Data And Results

Lane Input Data

Junction: A1290/NISSAN												
Lane	Lane Type	Phases	Start Disp.	End Disp.	Physical Length (PCU)	Sat Flow Type	Def User Saturation Flow (PCU/Hr)	Lane Width (m)	Gradient	Nearside Lane	Turns	Turning Radius (m)
1/1 (A1290 E)	U		2	3	10.4	Geom	-	3.25	0.00	Y	Arm 5 Left	10.00
1/2 (A1290 E)	O		2	3	60.0	Geom	-	3.25	0.00	Y	Arm 5 Left	10.00
1/3 (A1290 E)	U	B	2	3	60.0	Geom	-	3.52	0.00	N	Arm 6 Ahead	Inf
2/1 (NISSAN Access)	U	F	2	3	12.2	Geom	-	3.32	0.00	Y	Arm 6 Left	15.00
2/2 (NISSAN Access)	U	D	2	3	60.0	Geom	-	3.40	0.00	N	Arm 4 Right	20.00
2/3 (NISSAN Access)	U	D	2	3	60.0	Geom	-	3.40	0.00	N	Arm 4 Right	15.00
3/1 (A1290 W)	U	A	2	3	60.0	Geom	-	3.41	0.00	Y	Arm 4 Ahead	Inf
3/2 (A1290 W)	U	C	2	3	11.8	Geom	-	3.14	0.00	N	Arm 5 Right	20.00
4/1 (A1290 E EXIT)	U		2	3	60.0	Inf	-	-	-	-	-	-
4/2 (A1290 E EXIT)	U		2	3	60.0	Inf	-	-	-	-	-	-
5/1 (NISSAN EXIT)	U		2	3	60.0	Inf	-	-	-	-	-	-
5/2 (NISSAN EXIT)	U		2	3	60.0	Inf	-	-	-	-	-	-
6/1 (A1290 W EXIT)	U		2	3	60.0	Inf	-	-	-	-	-	-
6/2 (A1290 W EXIT)	U		2	3	60.0	Inf	-	-	-	-	-	-

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: '2022/23 Base 0630-0730'	06:30	07:30	01:00	
2: '2022/23 Base + Com Dev'	06:30	07:30	01:00	
3: '2022/23 Base + Com Dev + Dev'	06:30	07:30	01:00	

Full Input Data And Results

Scenario 1: '2022/23 Base 0630-0730' (FG1: '2022/23 Base 0630-0730', Plan 1: 'Network Control Plan 1')
Traffic Flows, Desired

Desired Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	635	249	884
	B	202	0	75	277
	C	116	206	0	322
	Tot.	318	841	324	1483

Traffic Lane Flows

Lane	Scenario 1: 2022/23 Base 0630-0730
Junction: A1290/NISSAN	
1/1 (short)	629
1/2 (with short)	635(In) 6(Out)
1/3	249
2/1 (short)	75
2/2 (with short)	211(In) 136(Out)
2/3	66
3/1 (with short)	322(In) 116(Out)
3/2 (short)	206
4/1	252
4/2	66
5/1	629
5/2	212
6/1	75
6/2	249

Full Input Data And Results

Lane Saturation Flows

Junction: A1290/NISSAN								
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (A1290 E)	3.25	0.00	Y	Arm 5 Left	10.00	100.0 %	1687	1687
1/2 (A1290 E)	3.25	0.00	Y	Arm 5 Left	10.00	100.0 %	1687	1687
1/3 (A1290 E)	3.52	0.00	N	Arm 6 Ahead	Inf	100.0 %	2107	2107
2/1 (NISSAN Access)	3.32	0.00	Y	Arm 6 Left	15.00	100.0 %	1770	1770
2/2 (NISSAN Access)	3.40	0.00	N	Arm 4 Right	20.00	100.0 %	1949	1949
2/3 (NISSAN Access)	3.40	0.00	N	Arm 4 Right	15.00	100.0 %	1905	1905
3/1 (A1290 W)	3.41	0.00	Y	Arm 4 Ahead	Inf	100.0 %	1956	1956
3/2 (A1290 W)	3.14	0.00	N	Arm 5 Right	20.00	100.0 %	1925	1925
4/1 (A1290 E EXIT Lane 1)	Infinite Saturation Flow						Inf	Inf
4/2 (A1290 E EXIT Lane 2)	Infinite Saturation Flow						Inf	Inf
5/1 (NISSAN EXIT Lane 1)	Infinite Saturation Flow						Inf	Inf
5/2 (NISSAN EXIT Lane 2)	Infinite Saturation Flow						Inf	Inf
6/1 (A1290 W EXIT Lane 1)	Infinite Saturation Flow						Inf	Inf
6/2 (A1290 W EXIT Lane 2)	Infinite Saturation Flow						Inf	Inf

Scenario 2: '2022/23 Base + Com Dev ' (FG2: '2022/23 Base + Com Dev', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

	Destination				
	A	B	C	Tot.	
Origin	A	0	640	270	910
	B	207	0	79	286
	C	142	210	0	352
	Tot.	349	850	349	1548

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 2: 2022/23 Base + Com Dev
Junction: A1290/NISSAN	
1/1 (short)	633
1/2 (with short)	640(In) 7(Out)
1/3	270
2/1 (short)	79
2/2 (with short)	214(In) 135(Out)
2/3	72
3/1 (with short)	352(In) 142(Out)
3/2 (short)	210
4/1	277
4/2	72
5/1	633
5/2	217
6/1	79
6/2	270

Full Input Data And Results

Lane Saturation Flows

Junction: A1290/NISSAN								
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (A1290 E)	3.25	0.00	Y	Arm 5 Left	10.00	100.0 %	1687	1687
1/2 (A1290 E)	3.25	0.00	Y	Arm 5 Left	10.00	100.0 %	1687	1687
1/3 (A1290 E)	3.52	0.00	N	Arm 6 Ahead	Inf	100.0 %	2107	2107
2/1 (NISSAN Access)	3.32	0.00	Y	Arm 6 Left	15.00	100.0 %	1770	1770
2/2 (NISSAN Access)	3.40	0.00	N	Arm 4 Right	20.00	100.0 %	1949	1949
2/3 (NISSAN Access)	3.40	0.00	N	Arm 4 Right	15.00	100.0 %	1905	1905
3/1 (A1290 W)	3.41	0.00	Y	Arm 4 Ahead	Inf	100.0 %	1956	1956
3/2 (A1290 W)	3.14	0.00	N	Arm 5 Right	20.00	100.0 %	1925	1925
4/1 (A1290 E EXIT Lane 1)	Infinite Saturation Flow						Inf	Inf
4/2 (A1290 E EXIT Lane 2)	Infinite Saturation Flow						Inf	Inf
5/1 (NISSAN EXIT Lane 1)	Infinite Saturation Flow						Inf	Inf
5/2 (NISSAN EXIT Lane 2)	Infinite Saturation Flow						Inf	Inf
6/1 (A1290 W EXIT Lane 1)	Infinite Saturation Flow						Inf	Inf
6/2 (A1290 W EXIT Lane 2)	Infinite Saturation Flow						Inf	Inf

Scenario 3: '2022/23 Base + Com Dev + Dev' (FG3: '2022/23 Base + Com Dev + Dev', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

	Destination				
	A	B	C	Tot.	
Origin	A	0	640	270	910
	B	207	0	79	286
	C	142	210	0	352
	Tot.	349	850	349	1548

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 3: 2022/23 Base + Com Dev + Dev
Junction: A1290/NISSAN	
1/1 (short)	637
1/2 (with short)	640(In) 3(Out)
1/3	270
2/1 (short)	79
2/2 (with short)	204(In) 125(Out)
2/3	82
3/1 (with short)	352(In) 142(Out)
3/2 (short)	210
4/1	267
4/2	82
5/1	637
5/2	213
6/1	79
6/2	270

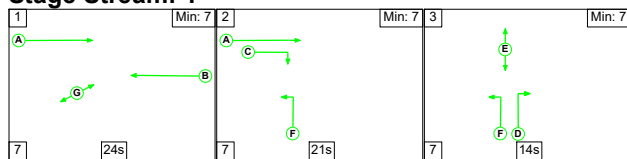
Lane Saturation Flows

Junction: A1290/NISSAN								
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (A1290 E)	3.25	0.00	Y	Arm 5 Left	10.00	100.0 %	1687	1687
1/2 (A1290 E)	3.25	0.00	Y	Arm 5 Left	10.00	100.0 %	1687	1687
1/3 (A1290 E)	3.52	0.00	N	Arm 6 Ahead	Inf	100.0 %	2107	2107
2/1 (NISSAN Access)	3.32	0.00	Y	Arm 6 Left	15.00	100.0 %	1770	1770
2/2 (NISSAN Access)	3.40	0.00	N	Arm 4 Right	20.00	100.0 %	1949	1949
2/3 (NISSAN Access)	3.40	0.00	N	Arm 4 Right	15.00	100.0 %	1905	1905
3/1 (A1290 W)	3.41	0.00	Y	Arm 4 Ahead	Inf	100.0 %	1956	1956
3/2 (A1290 W)	3.14	0.00	N	Arm 5 Right	20.00	100.0 %	1925	1925
4/1 (A1290 E EXIT Lane 1)	Infinite Saturation Flow						Inf	Inf
4/2 (A1290 E EXIT Lane 2)	Infinite Saturation Flow						Inf	Inf
5/1 (NISSAN EXIT Lane 1)	Infinite Saturation Flow						Inf	Inf
5/2 (NISSAN EXIT Lane 2)	Infinite Saturation Flow						Inf	Inf
6/1 (A1290 W EXIT Lane 1)	Infinite Saturation Flow						Inf	Inf
6/2 (A1290 W EXIT Lane 2)	Infinite Saturation Flow						Inf	Inf

Scenario 1: '2022/23 Base 0630-0730' (FG1: '2022/23 Base 0630-0730', Plan 1: 'Network Control Plan 1')

Stage Sequence Diagram

Stage Stream: 1

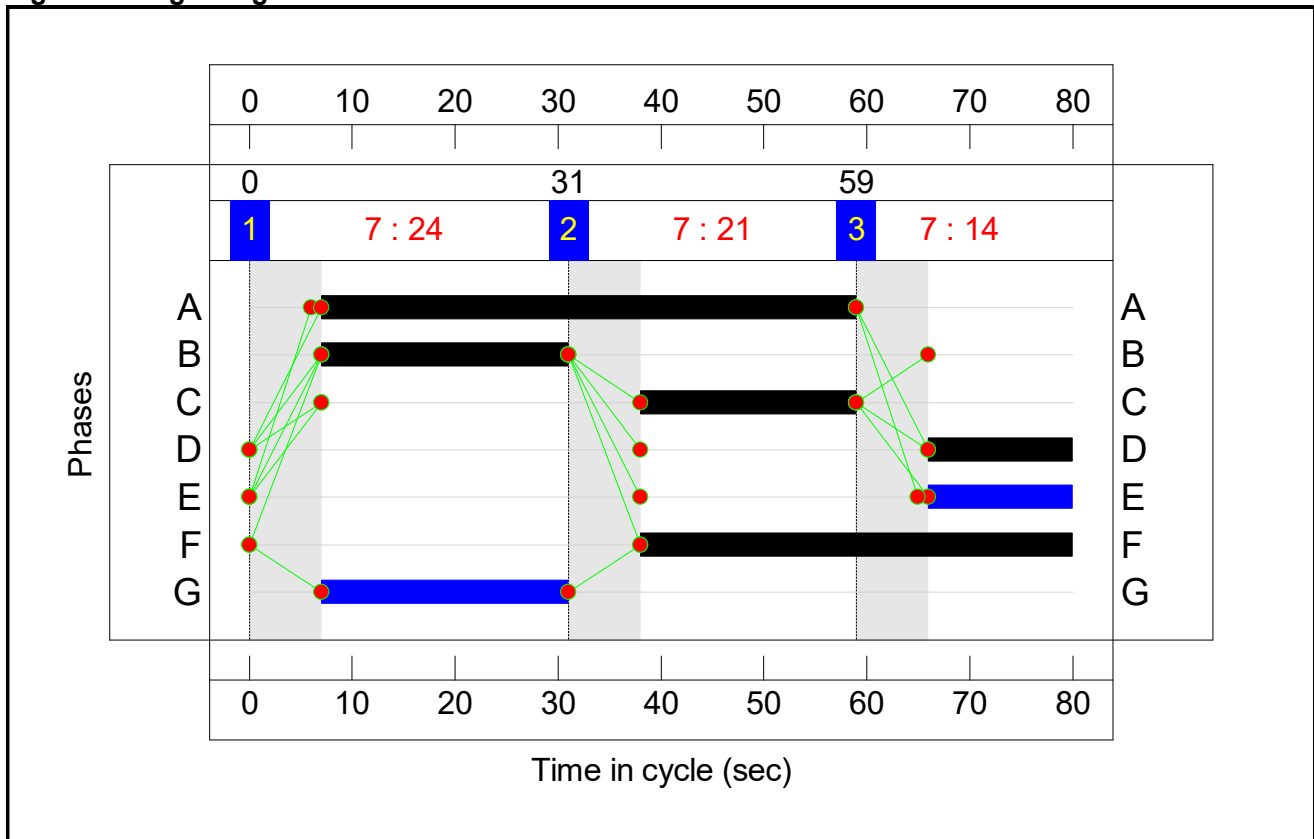


Stage Timings

Stage Stream: 1

Stage	1	2	3
Duration	24	21	14
Change Point	0	31	59

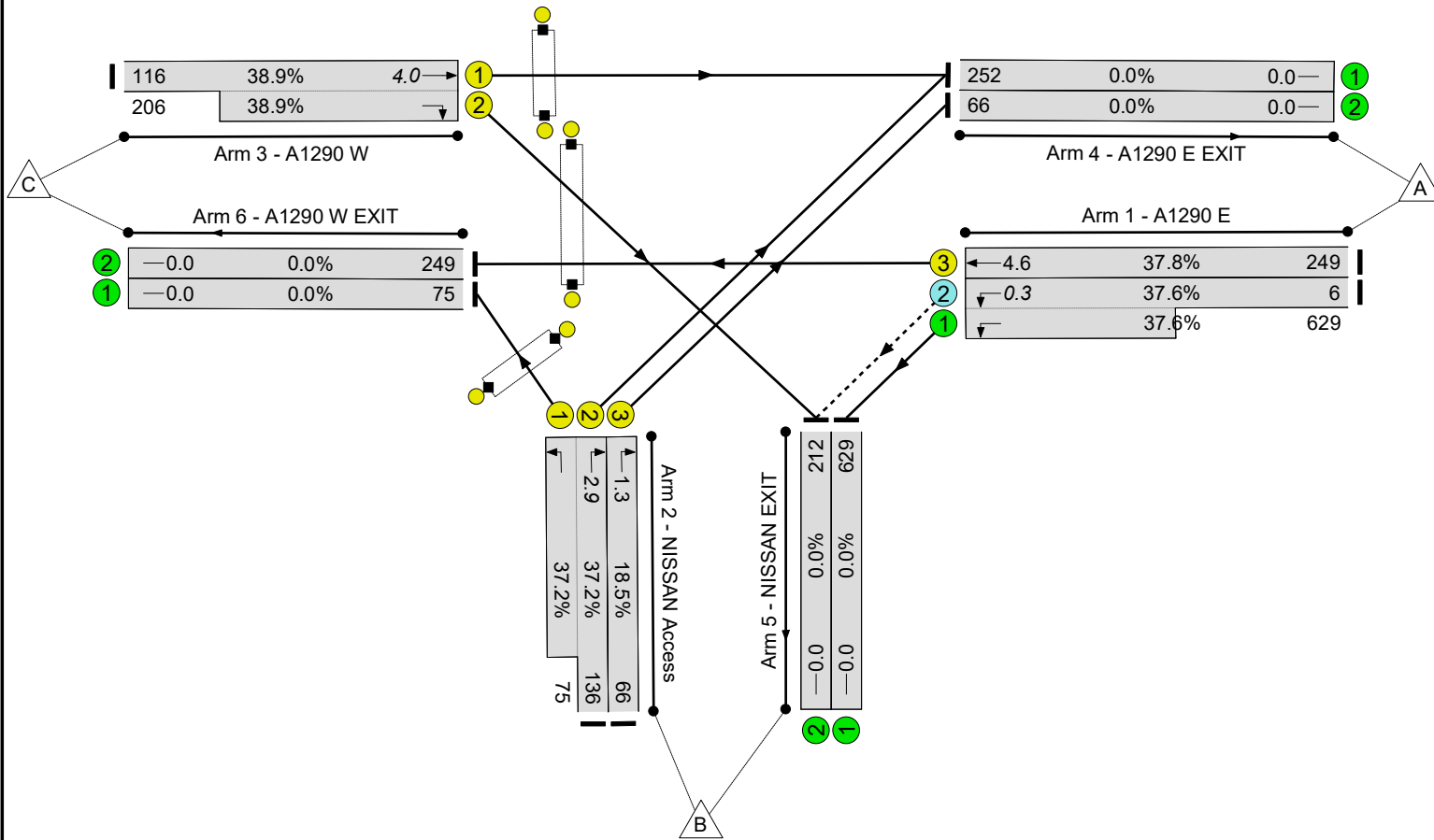
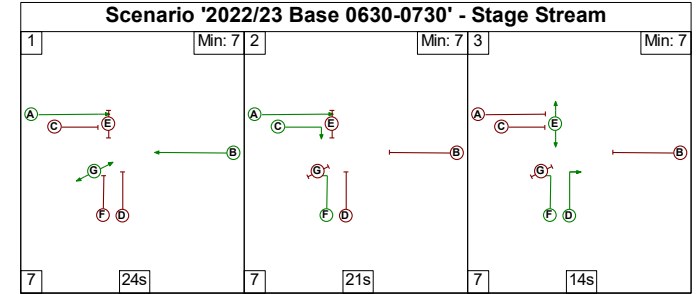
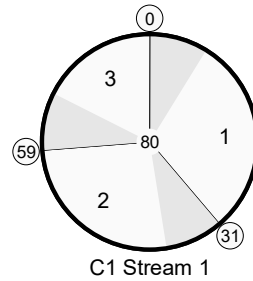
Signal Timings Diagram



Full Input Data And Results
Network Layout Diagram

Full Input Data And Results

A1290/NISSAN
 PRC: 131.3 %
 Total Traffic Delay: 6.1 pcuHr
 Ave. Route Delay Per Ped: 0.0 s/Ped



Full Input Data And Results

Network Results

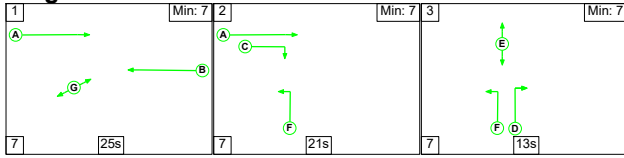
Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: A1290 / NISSAN Access	-	-	N/A	-	-		-	-	-	-	-	-	38.9%
A1290/NISSAN	-	-	N/A	-	-		-	-	-	-	-	-	38.9%
1/2+1/1	A1290 E Left	O+U	N/A	N/A	-		-	-	-	635	1687:1687	16+1671	37.6 : 37.6%
1/3	A1290 E Ahead	U	1	N/A	B		1	24	-	249	2107	658	37.8%
2/2+2/1	NISSAN Access Right Left	U	1	N/A	D F		1	14:42	-	211	1949:1770	365+202	37.2 : 37.2%
2/3	NISSAN Access Right	U	1	N/A	D		1	14	-	66	1905	357	18.5%
3/1+3/2	A1290 W Ahead Right	U	1	N/A	A C		1	52:21	-	322	1956:1925	298+529	38.9 : 38.9%
4/1	A1290 E EXIT	U	N/A	N/A	-		-	-	-	252	Inf	Inf	0.0%
4/2	A1290 E EXIT	U	N/A	N/A	-		-	-	-	66	Inf	Inf	0.0%
5/1	NISSAN EXIT	U	N/A	N/A	-		-	-	-	629	Inf	Inf	0.0%
5/2	NISSAN EXIT	U	N/A	N/A	-		-	-	-	212	Inf	Inf	0.0%
6/1	A1290 W EXIT	U	N/A	N/A	-		-	-	-	75	Inf	Inf	0.0%
6/2	A1290 W EXIT	U	N/A	N/A	-		-	-	-	249	Inf	Inf	0.0%
Ped Link: P1	Unnamed Ped Link	-	1	-	G		1	24	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	1	-	E		1	14	-	0	-	0	0.0%
Ped Link: P3	Unnamed Ped Link	-	1	-	E		1	14	-	0	-	0	0.0%

Full Input Data And Results

Scenario 2: '2022/23 Base + Com Dev ' (FG2: '2022/23 Base + Com Dev', Plan 1: 'Network Control Plan 1')

Stage Sequence Diagram

Stage Stream: 1

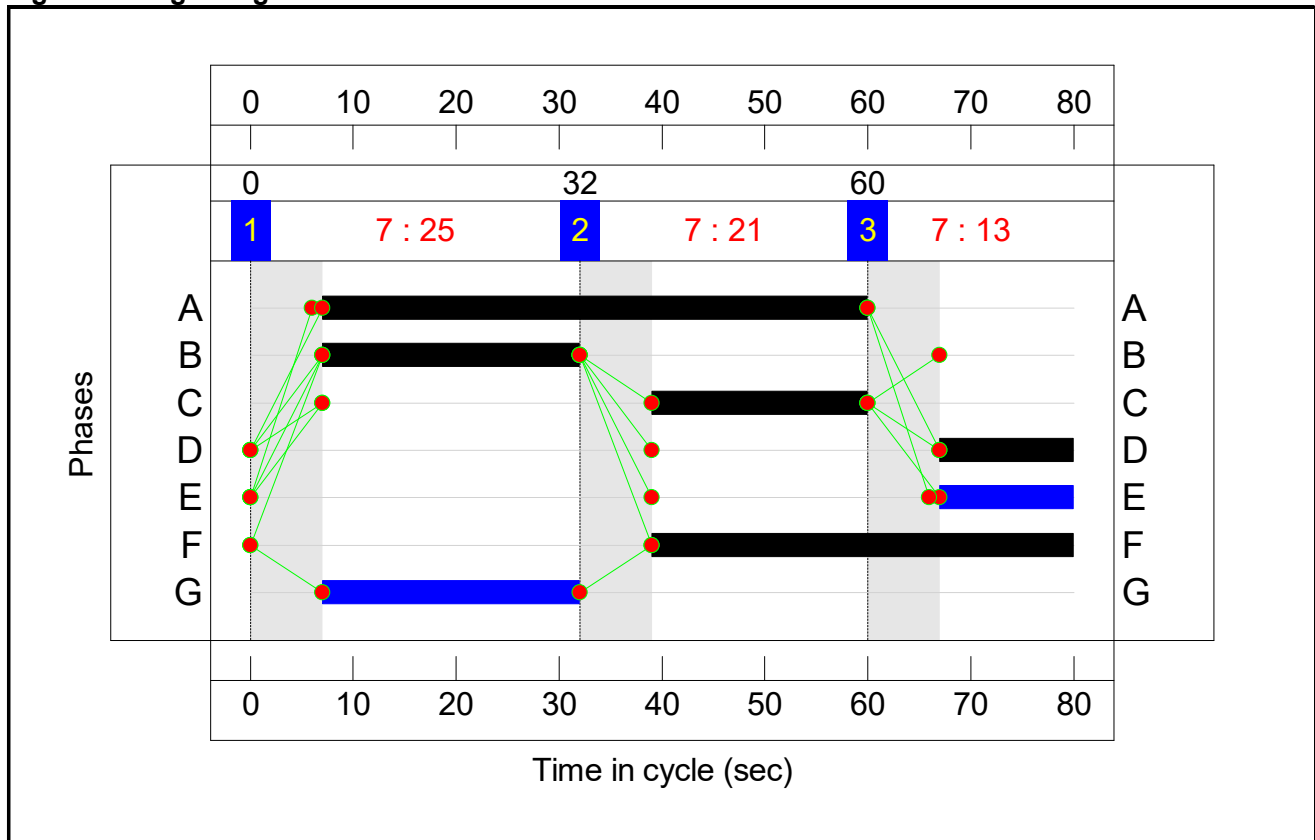


Stage Timings

Stage Stream: 1

Stage	1	2	3
Duration	25	21	13
Change Point	0	32	60

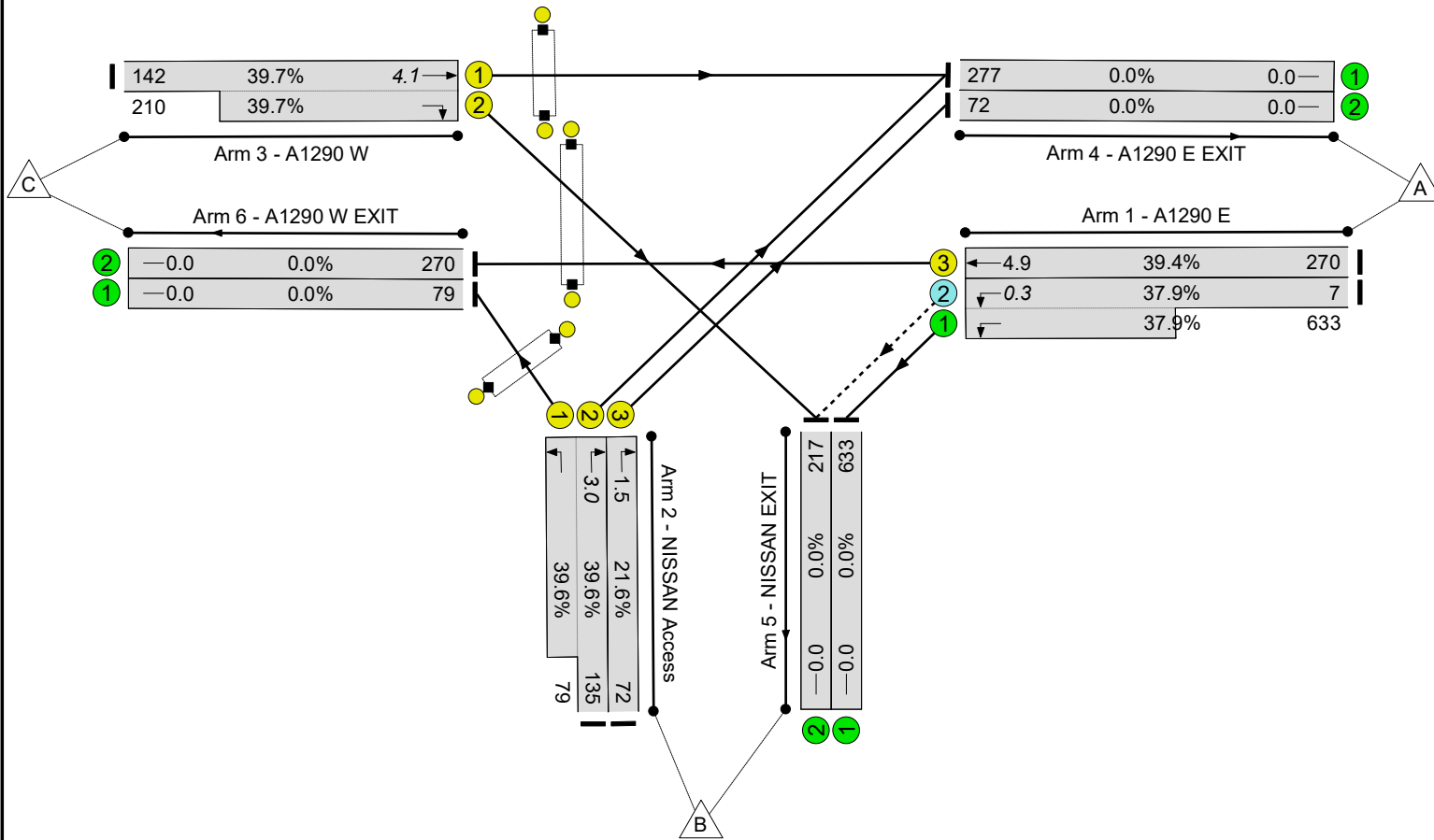
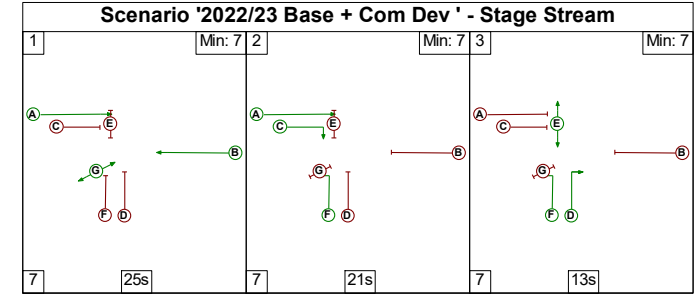
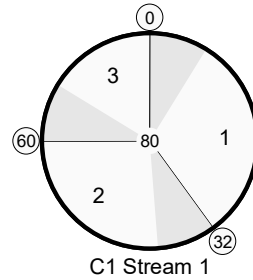
Signal Timings Diagram



Full Input Data And Results
Network Layout Diagram

Full Input Data And Results

A1290/NISSAN
 PRC: 126.9 %
 Total Traffic Delay: 6.4 pcuHr
 Ave. Route Delay Per Ped: 0.0 s/Ped



Full Input Data And Results

Network Results

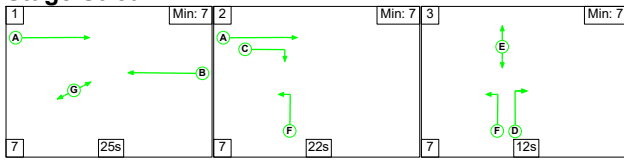
Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: A1290 / NISSAN Access	-	-	N/A	-	-		-	-	-	-	-	-	39.7%
A1290/NISSAN	-	-	N/A	-	-		-	-	-	-	-	-	39.7%
1/2+1/1	A1290 E Left	O+U	N/A	N/A	-		-	-	-	640	1687:1687	18+1669	37.9 : 37.9%
1/3	A1290 E Ahead	U	1	N/A	B		1	25	-	270	2107	685	39.4%
2/2+2/1	NISSAN Access Right Left	U	1	N/A	D F		1	13:41	-	214	1949:1770	341+200	39.6 : 39.6%
2/3	NISSAN Access Right	U	1	N/A	D		1	13	-	72	1905	333	21.6%
3/1+3/2	A1290 W Ahead Right	U	1	N/A	A C		1	53:21	-	352	1956:1925	358+529	39.7 : 39.7%
4/1	A1290 E EXIT	U	N/A	N/A	-		-	-	-	277	Inf	Inf	0.0%
4/2	A1290 E EXIT	U	N/A	N/A	-		-	-	-	72	Inf	Inf	0.0%
5/1	NISSAN EXIT	U	N/A	N/A	-		-	-	-	633	Inf	Inf	0.0%
5/2	NISSAN EXIT	U	N/A	N/A	-		-	-	-	217	Inf	Inf	0.0%
6/1	A1290 W EXIT	U	N/A	N/A	-		-	-	-	79	Inf	Inf	0.0%
6/2	A1290 W EXIT	U	N/A	N/A	-		-	-	-	270	Inf	Inf	0.0%
Ped Link: P1	Unnamed Ped Link	-	1	-	G		1	25	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	1	-	E		1	13	-	0	-	0	0.0%
Ped Link: P3	Unnamed Ped Link	-	1	-	E		1	13	-	0	-	0	0.0%

Full Input Data And Results

Scenario 3: '2022/23 Base + Com Dev + Dev' (FG3: '2022/23 Base + Com Dev + Dev', Plan 1: 'Network Control Plan 1')

Stage Sequence Diagram

Stage Stream: 1

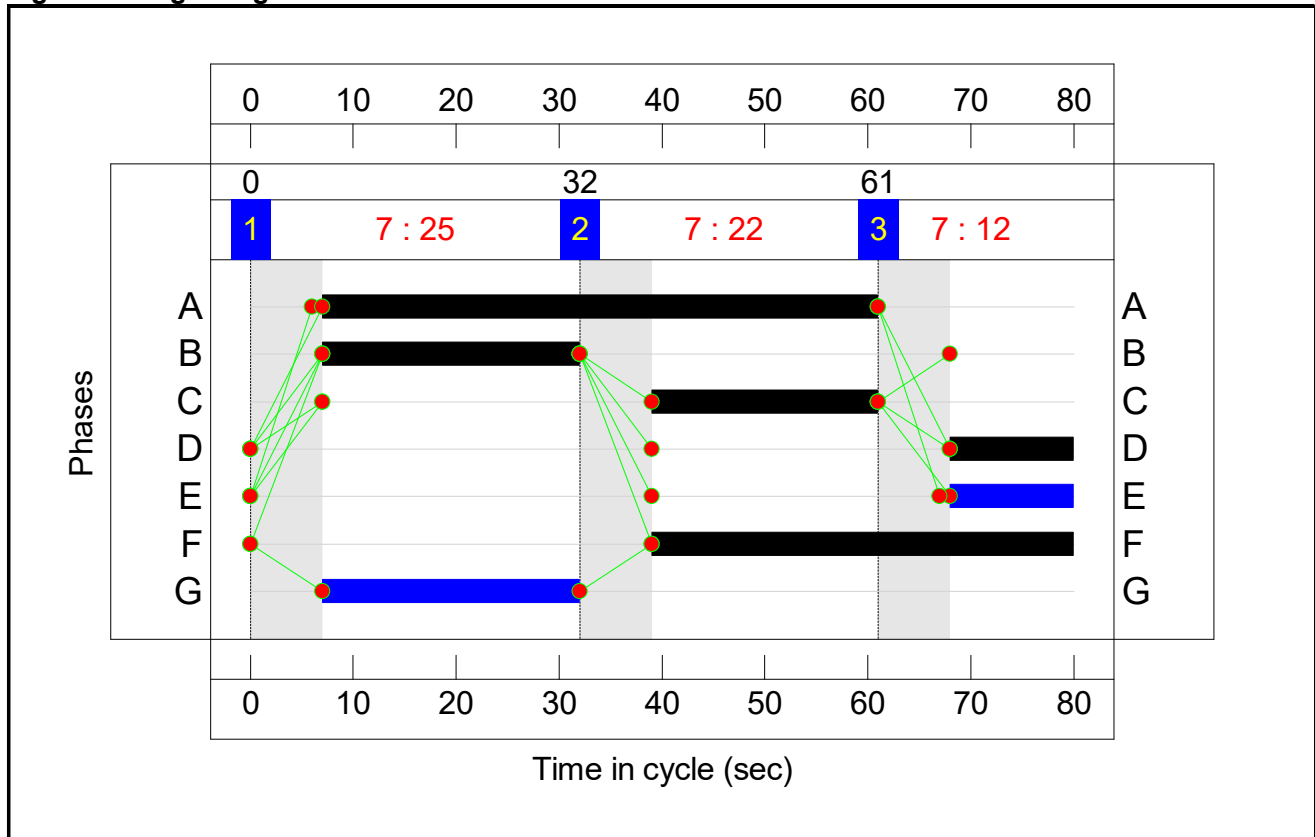


Stage Timings

Stage Stream: 1

Stage	1	2	3
Duration	25	22	12
Change Point	0	32	61

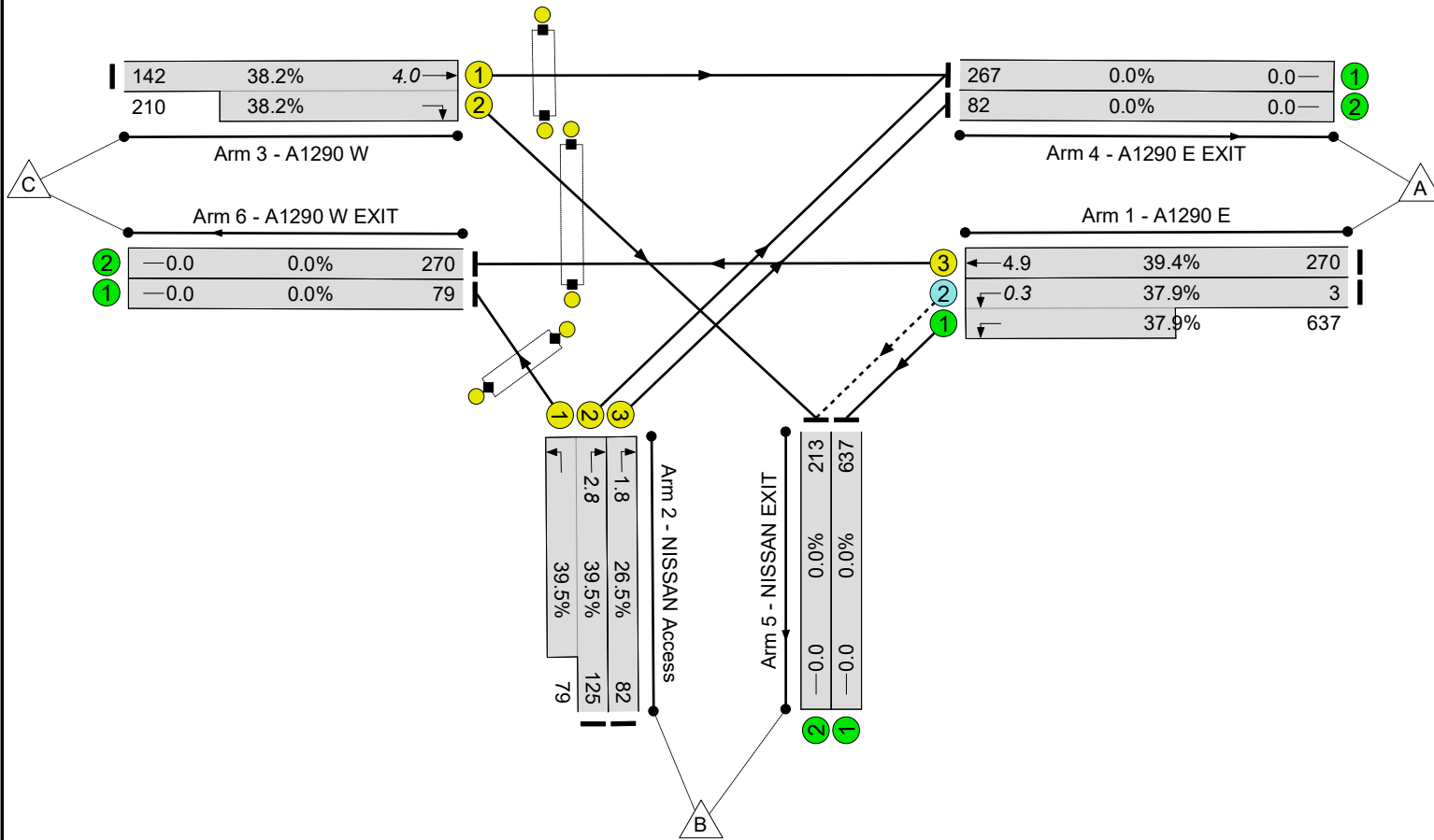
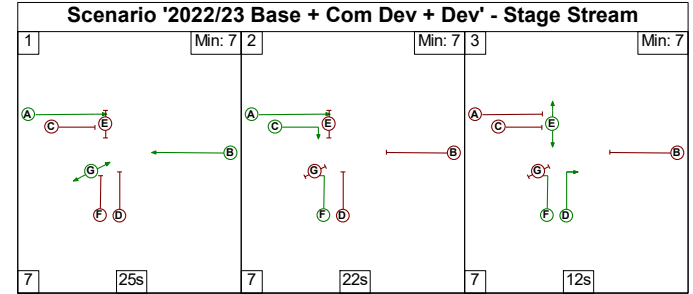
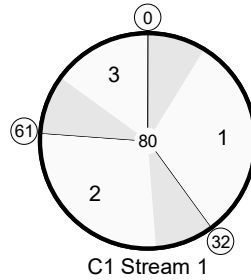
Signal Timings Diagram



Full Input Data And Results
Network Layout Diagram

Full Input Data And Results

A1290/NISSAN
 PRC: 128.0 %
 Total Traffic Delay: 6.4 pcuHr
 Ave. Route Delay Per Ped: 0.0 s/Ped



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: A1290 / NISSAN Access	-	-	N/A	-	-		-	-	-	-	-	-	39.5%
A1290/NISSAN	-	-	N/A	-	-		-	-	-	-	-	-	39.5%
1/2+1/1	A1290 E Left	O+U	N/A	N/A	-		-	-	-	640	1687:1687	8+1679	37.9 : 37.9%
1/3	A1290 E Ahead	U	1	N/A	B		1	25	-	270	2107	685	39.4%
2/2+2/1	NISSAN Access Right Left	U	1	N/A	D F		1	12:41	-	204	1949:1770	317+200	39.5 : 39.5%
2/3	NISSAN Access Right	U	1	N/A	D		1	12	-	82	1905	310	26.5%
3/1+3/2	A1290 W Ahead Right	U	1	N/A	A C		1	54:22	-	352	1956:1925	372+550	38.2 : 38.2%
4/1	A1290 E EXIT	U	N/A	N/A	-		-	-	-	267	Inf	Inf	0.0%
4/2	A1290 E EXIT	U	N/A	N/A	-		-	-	-	82	Inf	Inf	0.0%
5/1	NISSAN EXIT	U	N/A	N/A	-		-	-	-	637	Inf	Inf	0.0%
5/2	NISSAN EXIT	U	N/A	N/A	-		-	-	-	213	Inf	Inf	0.0%
6/1	A1290 W EXIT	U	N/A	N/A	-		-	-	-	79	Inf	Inf	0.0%
6/2	A1290 W EXIT	U	N/A	N/A	-		-	-	-	270	Inf	Inf	0.0%
Ped Link: P1	Unnamed Ped Link	-	1	-	G		1	25	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	1	-	E		1	12	-	0	-	0	0.0%
Ped Link: P3	Unnamed Ped Link	-	1	-	E		1	12	-	0	-	0	0.0%

Full Input Data And Results

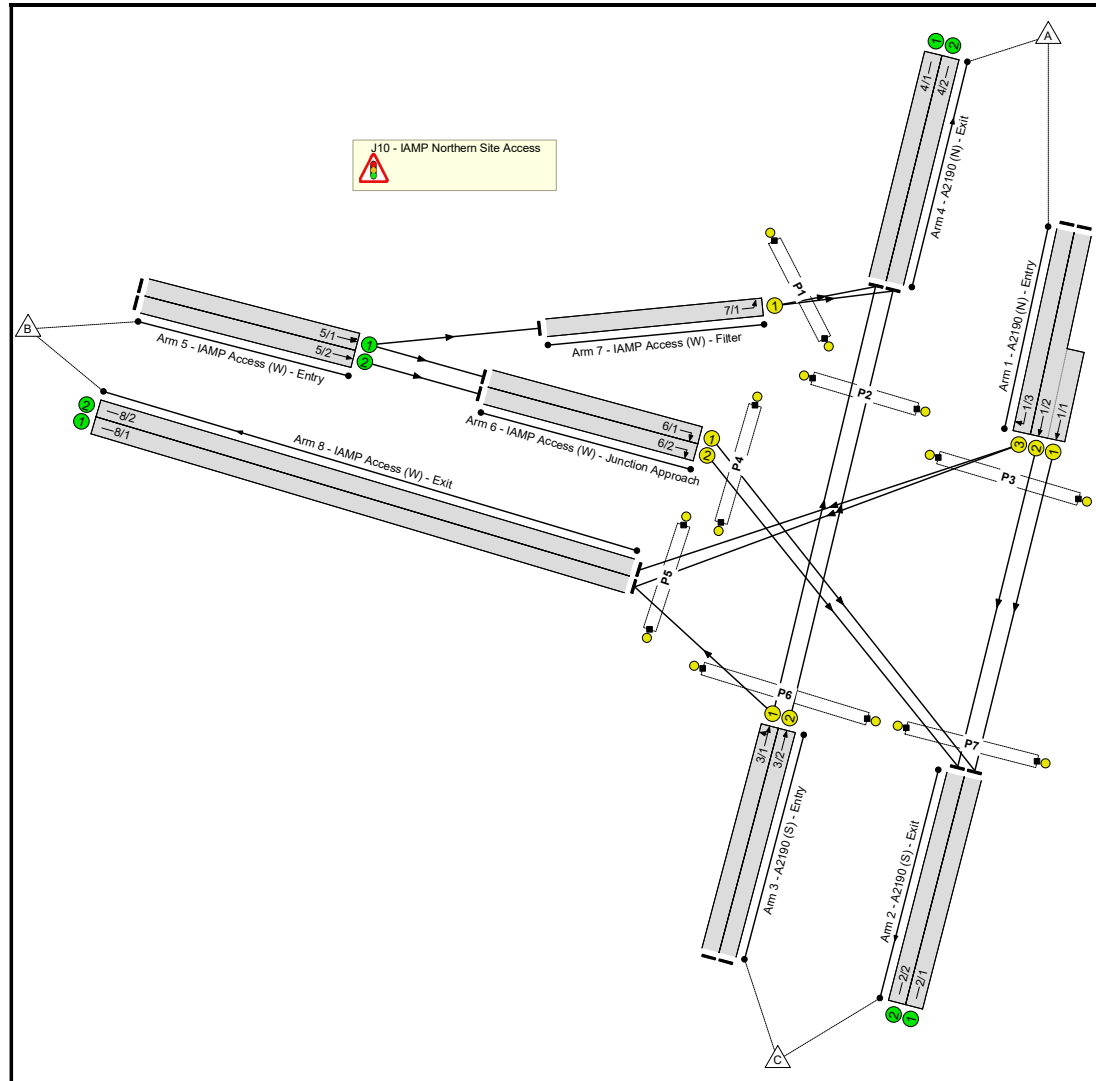
Full Input Data And Results

User and Project Details

Project:	
Title:	IAMP Northern Access / A1290
Location:	
Client:	AESC UK
Site Ref(s):	J 10
Checked By:	AH
Additional detail:	
File name:	J10 - IAMP Northern Site Access - Signalised.lsg3x
Author:	JH
Company:	SYSTRA
Address:	Newcastle

Full Input Data And Results

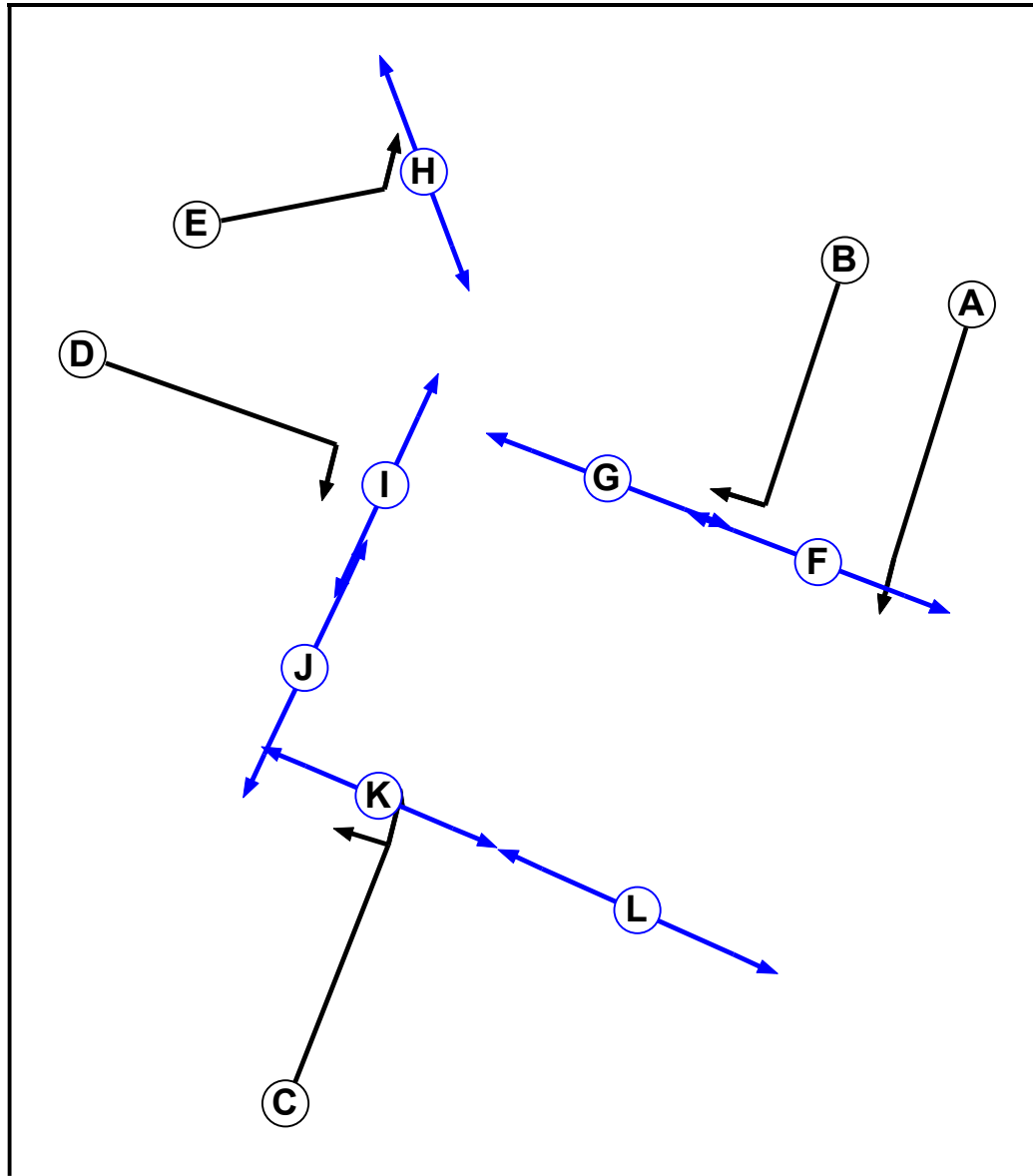
Network Layout Diagram



Full Input Data And Results

Phase Diagram

Full Input Data And Results



Full Input Data And Results

Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	Traffic		7	7
E	Traffic		7	7
F	Pedestrian		7	7
G	Pedestrian		7	7
H	Pedestrian		7	7
I	Pedestrian		7	7
J	Pedestrian		7	7
K	Pedestrian		7	7
L	Pedestrian		7	7

Full Input Data And Results

Phase Intergreens Matrix

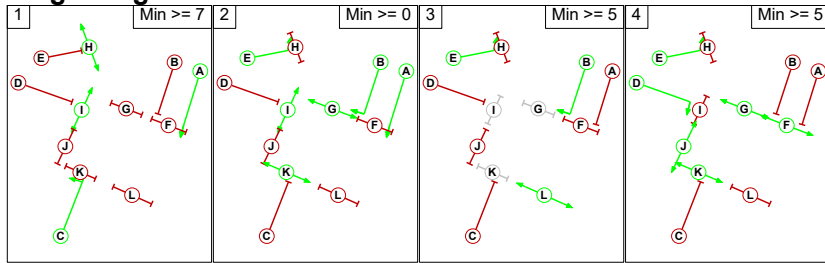
		Starting Phase											
		A	B	C	D	E	F	G	H	I	J	K	L
Terminating Phase	A	-	-	7	-	7	-	-	-	-	-	-	7
	B	-	-	7	7	-	7	-	-	-	7	-	-
	C	-	7	-	7	9	-	8	-	-	7	7	-
	D	7	7	7	-	-	-	-	7	-	-	-	8
	E	-	-	9	-	-	-	7	-	-	-	-	-
	F	7	7	-	-	-	-	-	-	-	-	-	-
	G	-	-	8	-	-	-	-	-	-	-	-	-
	H	-	-	-	-	7	-	-	-	-	-	-	-
	I	-	-	-	7	-	-	-	-	-	-	-	-
	J	-	7	7	-	-	-	-	-	-	-	-	-
	K	-	-	7	-	-	-	-	-	-	-	-	-
	L	7	-	-	8	-	-	-	-	-	-	-	-

Phases in Stage

Stage No.	Phases in Stage
1	A C H I
2	A B E G I K
3	B E L
4	D E F G J K

Full Input Data And Results

Stage Diagram



Phase Delays

Term. Stage	Start Stage	Phase	Type	Value	Cont value
There are no Phase Delays defined					

Prohibited Stage Change

		To Stage			
		1	2	3	4
From Stage	1		9	9	9
	2	9		7	7
	3	9	7		8
	4	9	7	8	

Give-Way Lane Input Data

Junction: J10 - IAMP Northern Site Access
There are no Opposed Lanes in this Junction

Full Input Data And Results

Lane Input Data

Junction: J10 - IAMP Northern Site Access												
Lane	Lane Type	Phases	Start Disp.	End Disp.	Physical Length (PCU)	Sat Flow Type	Def User Saturation Flow (PCU/Hr)	Lane Width (m)	Gradient	Nearside Lane	Turns	Turning Radius (m)
1/1 (A2190 (N) - Entry)	U	A	2	3	7.8	Geom	-	3.65	0.00	Y	Arm 2 Ahead	Inf
1/2 (A2190 (N) - Entry)	U	A	2	3	60.0	Geom	-	3.65	0.00	N	Arm 2 Ahead	Inf
1/3 (A2190 (N) - Entry)	U	B	2	3	60.0	Geom	-	3.75	0.00	N	Arm 8 Right	55.00
2/1 (A2190 (S) - Exit)	U		2	3	60.0	Inf	-	-	-	-	-	-
2/2 (A2190 (S) - Exit)	U		2	3	60.0	Inf	-	-	-	-	-	-
3/1 (A2190 (S) - Entry)	U	C	2	3	60.0	Geom	-	3.65	0.00	Y	Arm 4 Ahead	Inf
											Arm 8 Left	30.00
3/2 (A2190 (S) - Entry)	U	C	2	3	60.0	Geom	-	3.65	0.00	N	Arm 4 Ahead	Inf
4/1 (A2190 (N) - Exit)	U		2	3	60.0	Inf	-	-	-	-	-	-
4/2 (A2190 (N) - Exit)	U		2	3	60.0	Inf	-	-	-	-	-	-
5/1 (IAMP Access (W) - Entry)	U		2	3	60.0	Inf	-	-	-	-	-	-
5/2 (IAMP Access (W) - Entry)	U		2	3	60.0	Inf	-	-	-	-	-	-
6/1 (IAMP Access (W) - Junction Approach)	U	D	2	3	2.6	Geom	-	3.65	0.00	Y	Arm 2 Right	45.00
6/2 (IAMP Access (W) - Junction Approach)	U	D	2	3	2.6	Geom	-	3.65	0.00	N	Arm 2 Right	45.00
7/1 (IAMP Access (W) - Filter)	U	E	2	3	7.8	Geom	-	3.65	0.00	Y	Arm 4 Left	30.00
8/1 (IAMP Access (W) - Exit)	U		2	3	60.0	Inf	-	-	-	-	-	-

Full Input Data And Results

8/2 (IAMP Access (W) - Exit)	U		2	3	60.0	Inf	-	-	-	-	-	-
------------------------------------	---	--	---	---	------	-----	---	---	---	---	---	---

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: '2022/23 Base 0630-0730'	06:30	07:30	01:00	
2: '2023 Base + Com Dev'	06:30	07:30	01:00	
3: '2023 Base + Com Dev + Dev'	06:30	07:30	01:00	

Scenario 1: '2022/23 Base 0630-0730' (FG1: '2022/23 Base 0630-0730', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

	Destination				
	A	B	C	Tot.	
Origin	A	0	279	881	1160
	B	76	0	0	76
	C	316	1	0	317
	Tot.	392	280	881	1553

Traffic Lane Flows

Lane	Scenario 1: 2022/23 Base 0630-0730
Junction: J10 - IAMP Northern Site Access	
1/1 (short)	422
1/2 (with short)	881(In) 459(Out)
1/3	279
2/1	422
2/2	459
3/1	146
3/2	171
4/1	183
4/2	209
5/1	76
5/2	0
6/1	0
6/2	0
7/1	76
8/1	280
8/2	0

Full Input Data And Results

Lane Saturation Flows

Junction: J10 - IAMP Northern Site Access								
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (A2190 (N) - Entry)	3.65	0.00	Y	Arm 2 Ahead	Inf	100.0 %	1980	1980
1/2 (A2190 (N) - Entry)	3.65	0.00	N	Arm 2 Ahead	Inf	100.0 %	2120	2120
1/3 (A2190 (N) - Entry)	3.75	0.00	N	Arm 8 Right	55.00	100.0 %	2073	2073
2/1 (A2190 (S) - Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
2/2 (A2190 (S) - Exit Lane 2)	Infinite Saturation Flow						Inf	Inf
3/1 (A2190 (S) - Entry)	3.65	0.00	Y	Arm 4 Ahead	Inf	99.3 %	1979	1979
				Arm 8 Left	30.00	0.7 %		
3/2 (A2190 (S) - Entry)	3.65	0.00	N	Arm 4 Ahead	Inf	100.0 %	2120	2120
4/1 (A2190 (N) - Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
4/2 (A2190 (N) - Exit Lane 2)	Infinite Saturation Flow						Inf	Inf
5/1 (IAMP Access (W) - Entry Lane 1)	Infinite Saturation Flow						Inf	Inf
5/2 (IAMP Access (W) - Entry Lane 2)	Infinite Saturation Flow						Inf	Inf
6/1 (IAMP Access (W) - Junction Approach)	3.65	0.00	Y	Arm 2 Right	45.00	0.0 %	1980	1980
6/2 (IAMP Access (W) - Junction Approach)	3.65	0.00	N	Arm 2 Right	45.00	0.0 %	2120	2120
7/1 (IAMP Access (W) - Filter)	3.65	0.00	Y	Arm 4 Left	30.00	100.0 %	1886	1886
8/1 (IAMP Access (W) - Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
8/2 (IAMP Access (W) - Exit Lane 2)	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Scenario 2: '2023 Base + Com Dev' (FG2: '2023 Base + Com Dev', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	763	906	1669
	B	667	0	0	667
	C	341	1	0	342
	Tot.	1008	764	906	2678

Traffic Lane Flows

Lane	Scenario 2: 2023 Base + Com Dev
Junction: J10 - IAMP Northern Site Access	
1/1 (short)	356
1/2 (with short)	906(In) 550(Out)
1/3	763
2/1	356
2/2	550
3/1	159
3/2	183
4/1	491
4/2	517
5/1	667
5/2	0
6/1	0
6/2	0
7/1	667
8/1	764
8/2	0

Full Input Data And Results

Lane Saturation Flows

Junction: J10 - IAMP Northern Site Access								
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (A2190 (N) - Entry)	3.65	0.00	Y	Arm 2 Ahead	Inf	100.0 %	1980	1980
1/2 (A2190 (N) - Entry)	3.65	0.00	N	Arm 2 Ahead	Inf	100.0 %	2120	2120
1/3 (A2190 (N) - Entry)	3.75	0.00	N	Arm 8 Right	55.00	100.0 %	2073	2073
2/1 (A2190 (S) - Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
2/2 (A2190 (S) - Exit Lane 2)	Infinite Saturation Flow						Inf	Inf
3/1 (A2190 (S) - Entry)	3.65	0.00	Y	Arm 4 Ahead	Inf	99.4 %	1979	1979
				Arm 8 Left	30.00	0.6 %		
3/2 (A2190 (S) - Entry)	3.65	0.00	N	Arm 4 Ahead	Inf	100.0 %	2120	2120
4/1 (A2190 (N) - Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
4/2 (A2190 (N) - Exit Lane 2)	Infinite Saturation Flow						Inf	Inf
5/1 (IAMP Access (W) - Entry Lane 1)	Infinite Saturation Flow						Inf	Inf
5/2 (IAMP Access (W) - Entry Lane 2)	Infinite Saturation Flow						Inf	Inf
6/1 (IAMP Access (W) - Junction Approach)	3.65	0.00	Y	Arm 2 Right	45.00	0.0 %	1980	1980
6/2 (IAMP Access (W) - Junction Approach)	3.65	0.00	N	Arm 2 Right	45.00	0.0 %	2120	2120
7/1 (IAMP Access (W) - Filter)	3.65	0.00	Y	Arm 4 Left	30.00	100.0 %	1886	1886
8/1 (IAMP Access (W) - Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
8/2 (IAMP Access (W) - Exit Lane 2)	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Scenario 3: '2023 Base + Com Dev + Dev' (FG3: '2023 Base + Com Dev + Dev', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	1212	906	2118
	B	1115	0	0	1115
	C	341	1	0	342
	Tot.	1456	1213	906	3575

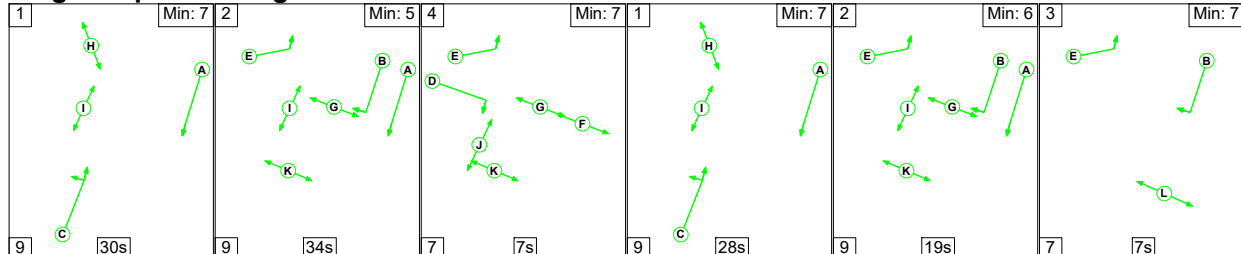
Traffic Lane Flows

Lane	Scenario 3: 2023 Base + Com Dev + Dev
Junction: J10 - IAMP Northern Site Access	
1/1 (short)	356
1/2 (with short)	906(In) 550(Out)
1/3	1212
2/1	356
2/2	550
3/1	160
3/2	182
4/1	716
4/2	740
5/1	1115
5/2	0
6/1	0
6/2	0
7/1	1115
8/1	1213
8/2	0

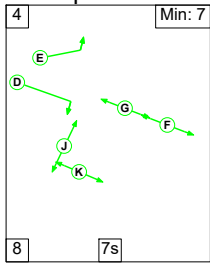
Lane Saturation Flows

Junction: J10 - IAMP Northern Site Access								
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (A2190 (N) - Entry)	3.65	0.00	Y	Arm 2 Ahead	Inf	100.0 %	1980	1980
1/2 (A2190 (N) - Entry)	3.65	0.00	N	Arm 2 Ahead	Inf	100.0 %	2120	2120
1/3 (A2190 (N) - Entry)	3.75	0.00	N	Arm 8 Right	55.00	100.0 %	2073	2073
2/1 (A2190 (S) - Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
2/2 (A2190 (S) - Exit Lane 2)	Infinite Saturation Flow						Inf	Inf
3/1 (A2190 (S) - Entry)	3.65	0.00	Y	Arm 4 Ahead	Inf	99.4 %	1979	1979
				Arm 8 Left	30.00	0.6 %		
3/2 (A2190 (S) - Entry)	3.65	0.00	N	Arm 4 Ahead	Inf	100.0 %	2120	2120
4/1 (A2190 (N) - Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
4/2 (A2190 (N) - Exit Lane 2)	Infinite Saturation Flow						Inf	Inf
5/1 (IAMP Access (W) - Entry Lane 1)	Infinite Saturation Flow						Inf	Inf
5/2 (IAMP Access (W) - Entry Lane 2)	Infinite Saturation Flow						Inf	Inf
6/1 (IAMP Access (W) - Junction Approach)	3.65	0.00	Y	Arm 2 Right	45.00	0.0 %	1980	1980
6/2 (IAMP Access (W) - Junction Approach)	3.65	0.00	N	Arm 2 Right	45.00	0.0 %	2120	2120
7/1 (IAMP Access (W) - Filter)	3.65	0.00	Y	Arm 4 Left	30.00	100.0 %	1886	1886
8/1 (IAMP Access (W) - Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
8/2 (IAMP Access (W) - Exit Lane 2)	Infinite Saturation Flow						Inf	Inf

Scenario 1: '2022/23 Base 0630-0730' (FG1: '2022/23 Base 0630-0730', Plan 1: 'Network Control Plan 1')



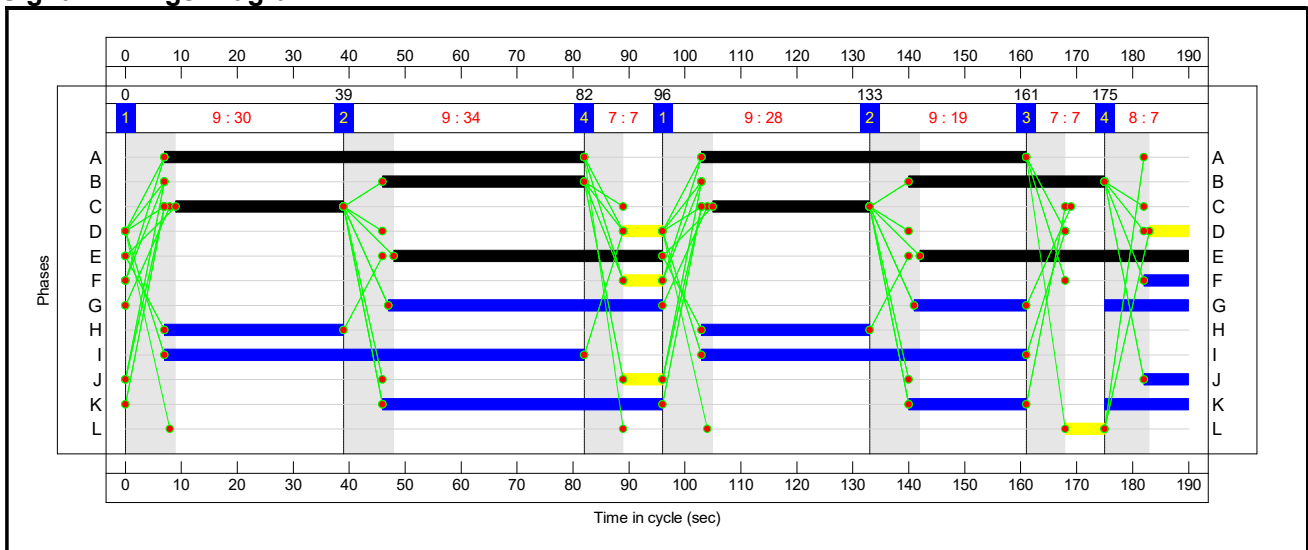
Full Input Data And Results



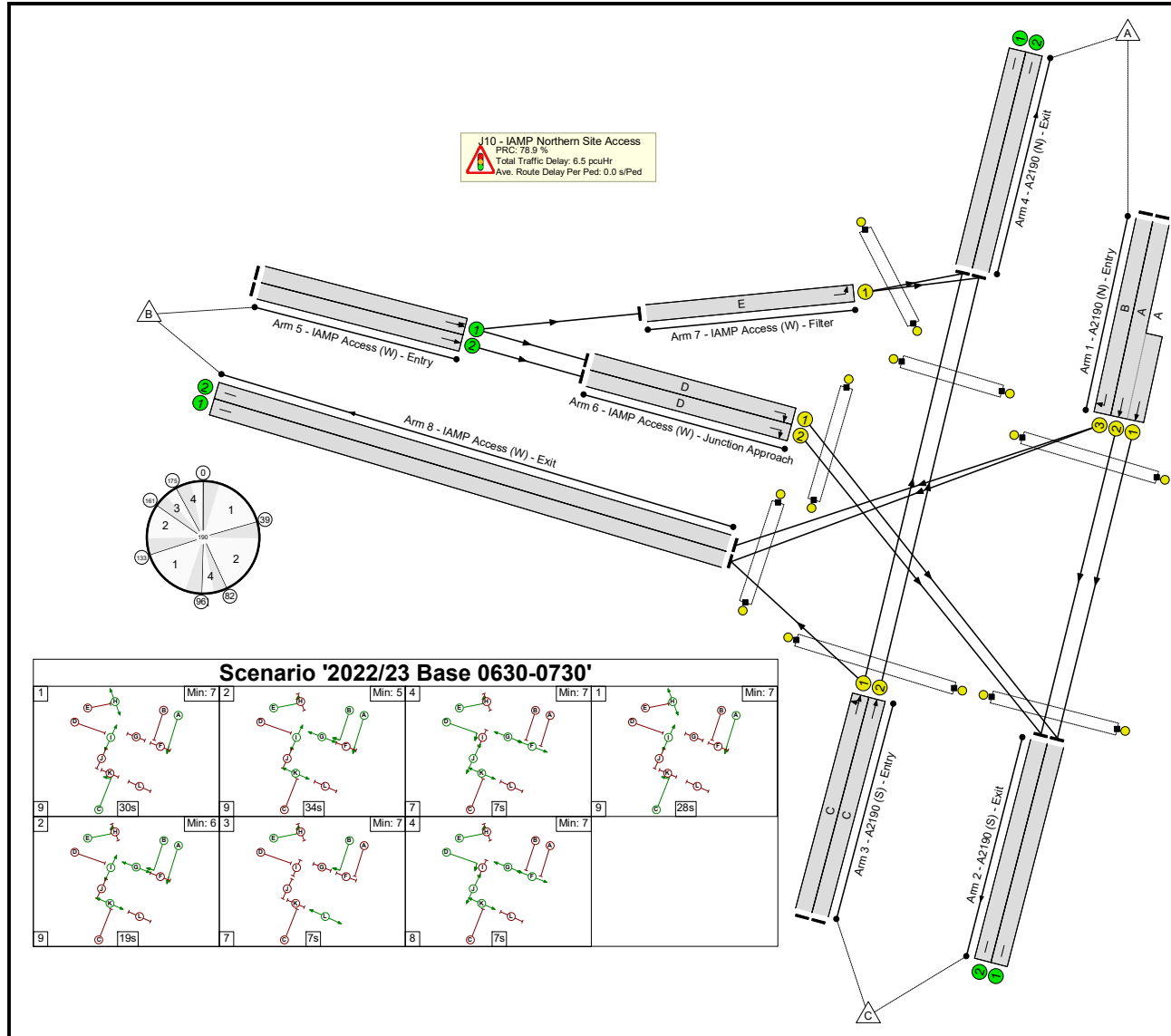
Stage Timings

Stage	1	2	4	1	2	3	4
Duration	30	34	7	28	19	7	7
Change Point	0	39	82	96	133	161	175

Signal Timings Diagram



Full Input Data And Results
Network Layout Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: IAMP Northern Access / A1290	-	-	N/A	-	-		-	-	-	-	-	-	50.3%
J10 - IAMP Northern Site Access	-	-	N/A	-	-		-	-	-	-	-	-	50.3%
1/2+1/1	A2190 (N) - Entry Ahead	U	N/A	N/A	A		2	133	-	881	2120:1980	912+839	50.3 : 50.3%
1/3	A2190 (N) - Entry Right	U	N/A	N/A	B		2	71	-	279	2073	796	35.0%
2/1	A2190 (S) - Exit	U	N/A	N/A	-		-	-	-	422	Inf	Inf	0.0%
2/2	A2190 (S) - Exit	U	N/A	N/A	-		-	-	-	459	Inf	Inf	0.0%
3/1	A2190 (S) - Entry Ahead Left	U	N/A	N/A	C		2	58	-	146	1979	625	23.4%
3/2	A2190 (S) - Entry Ahead	U	N/A	N/A	C		2	58	-	171	2120	669	25.5%
4/1	A2190 (N) - Exit	U	N/A	N/A	-		-	-	-	183	Inf	Inf	0.0%
4/2	A2190 (N) - Exit	U	N/A	N/A	-		-	-	-	209	Inf	Inf	0.0%
5/1	IAMP Access (W) - Entry Ahead Ahead2	U	N/A	N/A	-		-	-	-	76	Inf	Inf	0.0%
5/2	IAMP Access (W) - Entry Ahead	U	N/A	N/A	-		-	-	-	0	Inf	Inf	0.0%
6/1	IAMP Access (W) - Junction Approach Right	U	N/A	N/A	D		2	14	-	0	1980	167	0.0%
6/2	IAMP Access (W) - Junction Approach Right	U	N/A	N/A	D		2	14	-	0	2120	179	0.0%
7/1	IAMP Access (W) - Filter Left	U	N/A	N/A	E		2	96	-	76	1886	973	7.8%

Full Input Data And Results

8/1	IAMP Access (W) - Exit	U	N/A	N/A	-	-	-	-	280	Inf	Inf	0.0%
8/2	IAMP Access (W) - Exit	U	N/A	N/A	-	-	-	-	0	Inf	Inf	-
Ped Link: P1	Unnamed Ped Link	-	N/A	-	H	2	62	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	N/A	-	G	3	84	-	0	-	0	0.0%
Ped Link: P3	Unnamed Ped Link	-	N/A	-	F	2	15	-	0	-	0	0.0%
Ped Link: P4	Unnamed Ped Link	-	N/A	-	I	2	133	-	0	-	0	0.0%
Ped Link: P5	Unnamed Ped Link	-	N/A	-	J	2	15	-	0	-	0	0.0%
Ped Link: P6	Unnamed Ped Link	-	N/A	-	K	3	86	-	0	-	0	0.0%
Ped Link: P7	Unnamed Ped Link	-	N/A	-	L	1	7	-	0	-	0	0.0%

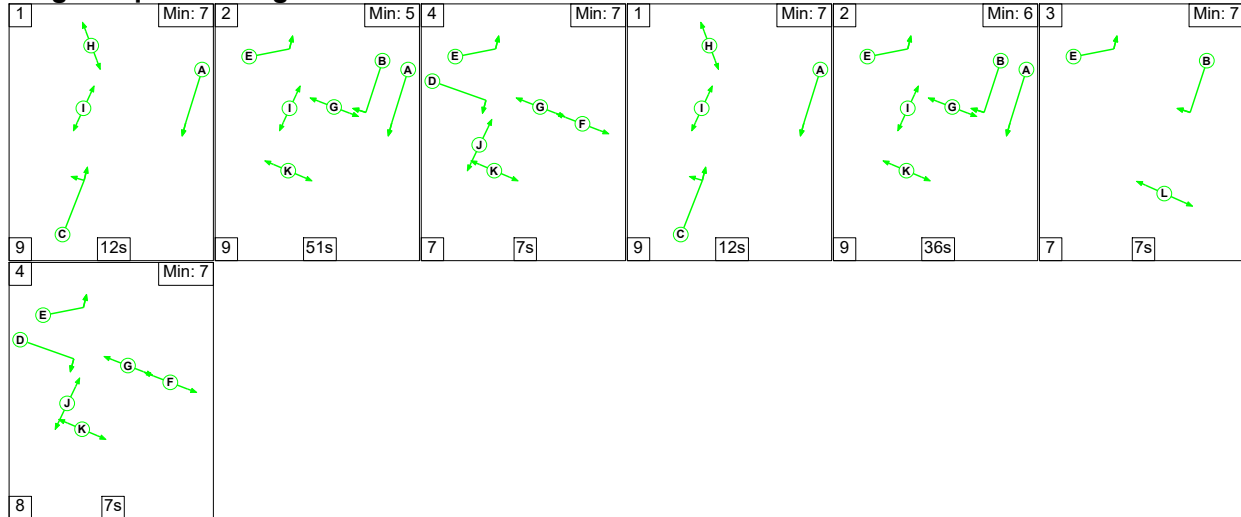
Full Input Data And Results

Ped Link: P7	0	0	-	-	-	-	-	-	-	-	-	-	-
C1		PRC for Signalled Lanes (%):	78.9	Total Delay for Signalled Lanes (pcuHr):		6.46	Cycle Time (s):		190				
		PRC Over All Lanes (%):	78.9	Total Delay Over All Lanes(pcuHr):		6.46							

Full Input Data And Results

Scenario 2: '2023 Base + Com Dev' (FG2: '2023 Base + Com Dev', Plan 1: 'Network Control Plan 1')

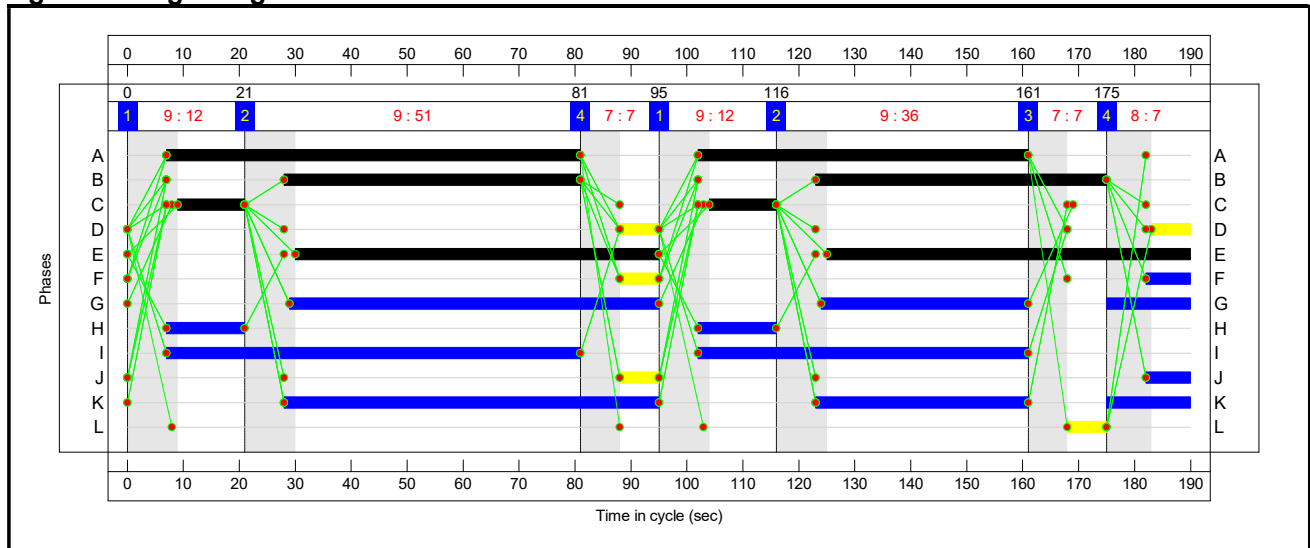
Stage Sequence Diagram



Stage Timings

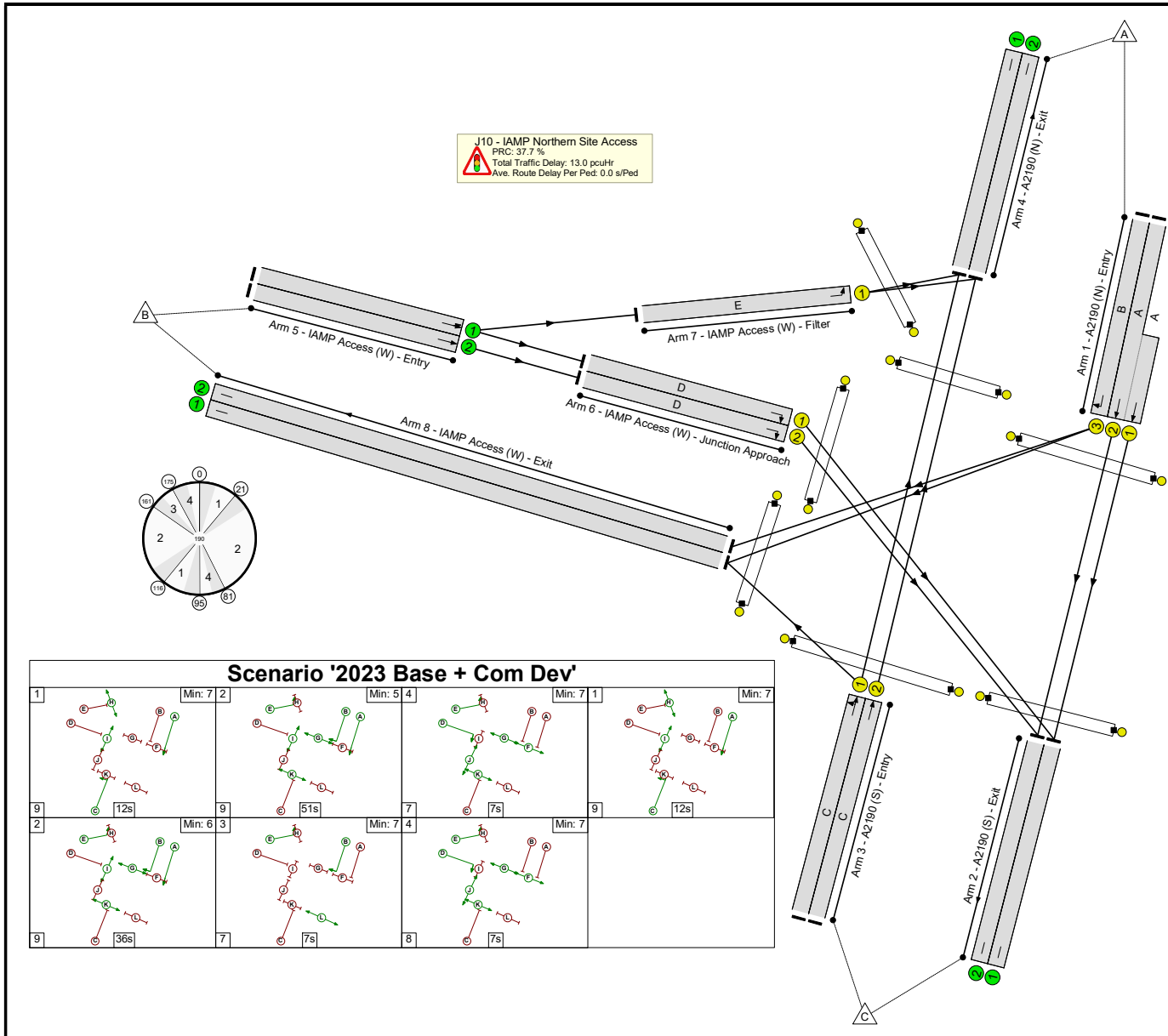
Stage	1	2	4	1	2	3	4
Duration	12	51	7	12	36	7	7
Change Point	0	21	81	95	116	161	175

Signal Timings Diagram



Full Input Data And Results
Network Layout Diagram

Full Input Data And Results



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: IAMP Northern Access / A1290	-	-	N/A	-	-		-	-	-	-	-	-	65.4%
J10 - IAMP Northern Site Access	-	-	N/A	-	-		-	-	-	-	-	-	65.4%
1/2+1/1	A2190 (N) - Entry Ahead	U	N/A	N/A	A		2	133	-	906	2120:1980	1018+659	54.0 : 54.0%
1/3	A2190 (N) - Entry Right	U	N/A	N/A	B		2	105	-	763	2073	1167	65.4%
2/1	A2190 (S) - Exit	U	N/A	N/A	-		-	-	-	356	Inf	Inf	0.0%
2/2	A2190 (S) - Exit	U	N/A	N/A	-		-	-	-	550	Inf	Inf	0.0%
3/1	A2190 (S) - Entry Ahead Left	U	N/A	N/A	C		2	24	-	159	1979	271	58.7%
3/2	A2190 (S) - Entry Ahead	U	N/A	N/A	C		2	24	-	183	2120	290	63.1%
4/1	A2190 (N) - Exit	U	N/A	N/A	-		-	-	-	491	Inf	Inf	0.0%
4/2	A2190 (N) - Exit	U	N/A	N/A	-		-	-	-	517	Inf	Inf	0.0%
5/1	IAMP Access (W) - Entry Ahead Ahead2	U	N/A	N/A	-		-	-	-	667	Inf	Inf	0.0%
5/2	IAMP Access (W) - Entry Ahead	U	N/A	N/A	-		-	-	-	0	Inf	Inf	0.0%
6/1	IAMP Access (W) - Junction Approach Right	U	N/A	N/A	D		2	14	-	0	1980	167	0.0%
6/2	IAMP Access (W) - Junction Approach Right	U	N/A	N/A	D		2	14	-	0	2120	179	0.0%
7/1	IAMP Access (W) - Filter Left	U	N/A	N/A	E		2	130	-	667	1886	1310	50.9%

Full Input Data And Results

8/1	IAMP Access (W) - Exit	U	N/A	N/A	-		-	-	-	764	Inf	Inf	0.0%
8/2	IAMP Access (W) - Exit	U	N/A	N/A	-		-	-	-	0	Inf	Inf	-
Ped Link: P1	Unnamed Ped Link	-	N/A	-	H		2	28	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	N/A	-	G		3	118	-	0	-	0	0.0%
Ped Link: P3	Unnamed Ped Link	-	N/A	-	F		2	15	-	0	-	0	0.0%
Ped Link: P4	Unnamed Ped Link	-	N/A	-	I		2	133	-	0	-	0	0.0%
Ped Link: P5	Unnamed Ped Link	-	N/A	-	J		2	15	-	0	-	0	0.0%
Ped Link: P6	Unnamed Ped Link	-	N/A	-	K		3	120	-	0	-	0	0.0%
Ped Link: P7	Unnamed Ped Link	-	N/A	-	L		1	7	-	0	-	0	0.0%

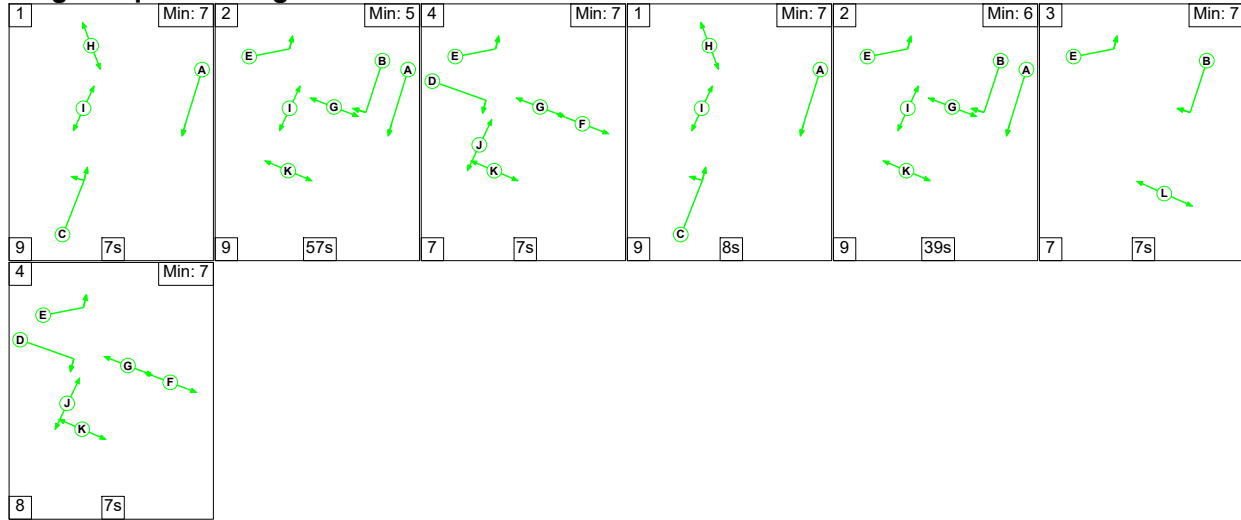
Full Input Data And Results

Ped Link: P7	0	0	-	-	-	-	-	-	-	-	-	-	-
C1		PRC for Signalled Lanes (%):	37.7	Total Delay for Signalled Lanes (pcuHr):	12.96	Cycle Time (s):	190						
		PRC Over All Lanes (%):	37.7	Total Delay Over All Lanes(pcuHr):	12.96								

Full Input Data And Results

Scenario 3: '2023 Base + Com Dev + Dev' (FG3: '2023 Base + Com Dev + Dev', Plan 1: 'Network Control Plan 1')

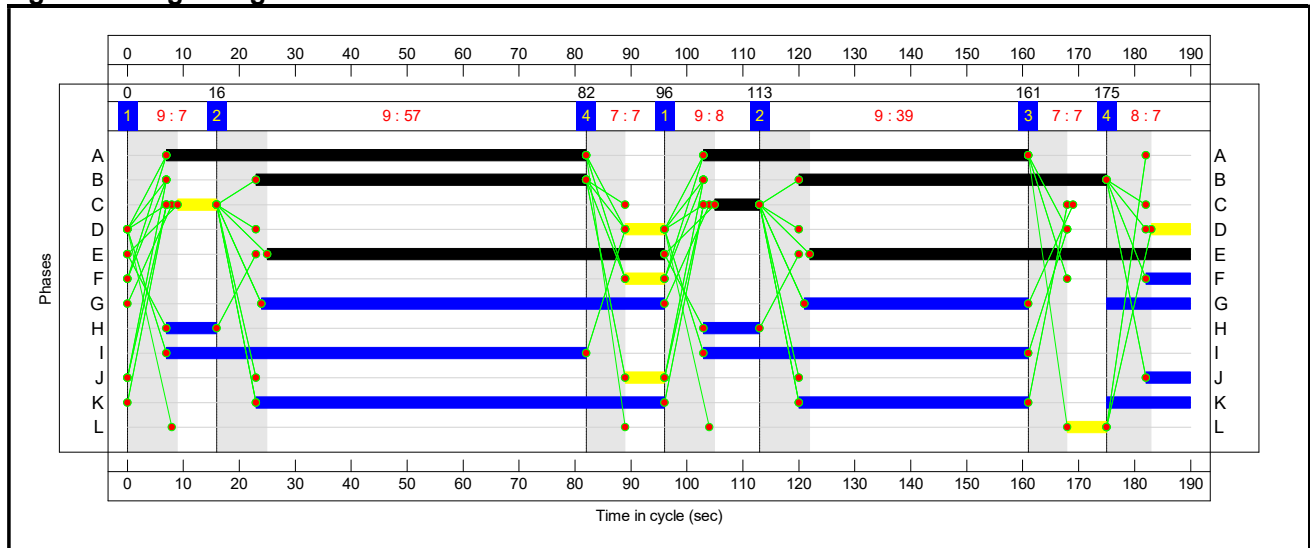
Stage Sequence Diagram



Stage Timings

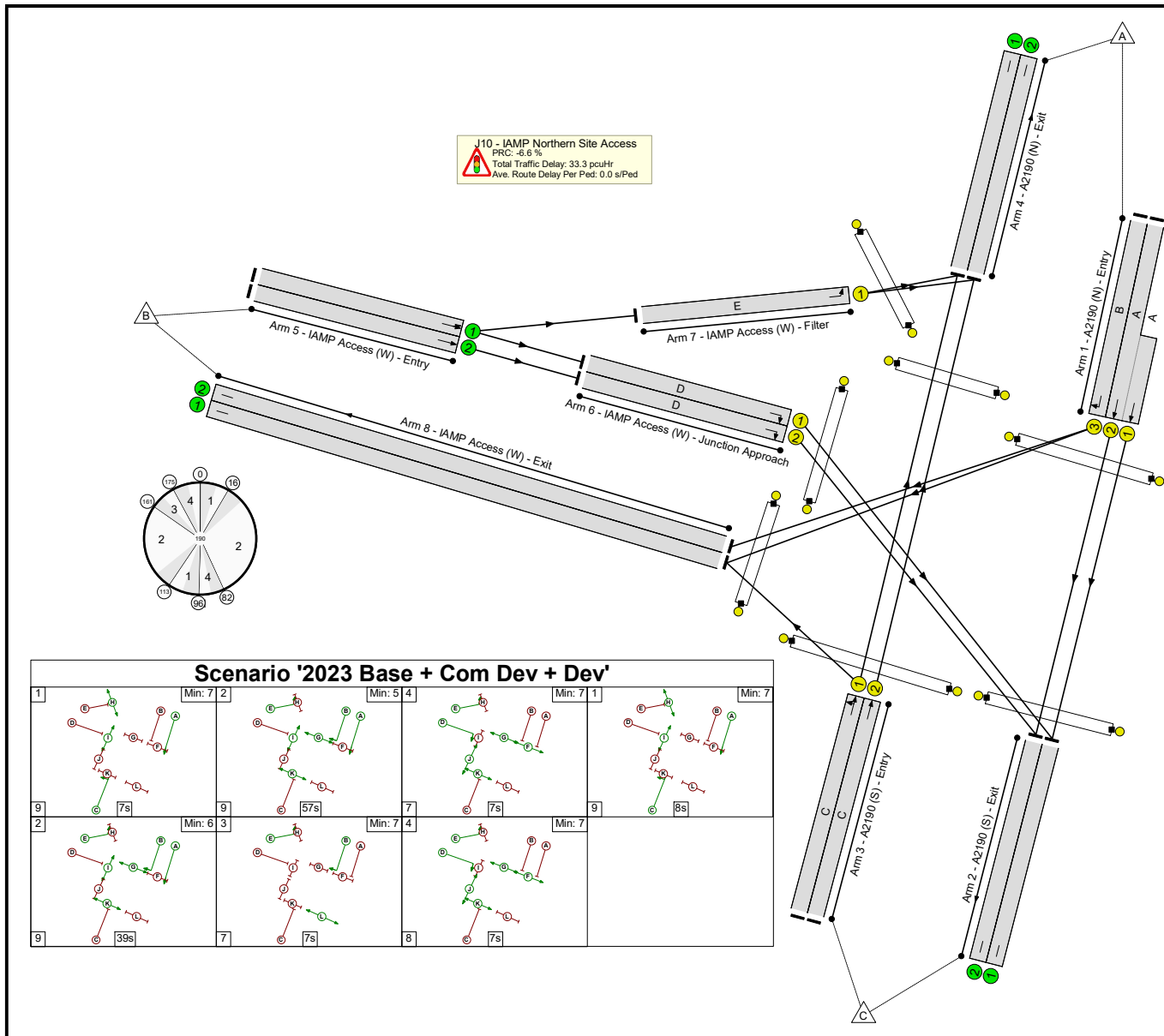
Stage	1	2	4	1	2	3	4
Duration	7	57	7	8	39	7	7
Change Point	0	16	82	96	113	161	175

Signal Timings Diagram



Full Input Data And Results
Network Layout Diagram

Full Input Data And Results



Full Input Data And Results

Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: IAMP Northern Access / A1290	-	-	N/A	-	-		-	-	-	-	-	-	95.9%
J10 - IAMP Northern Site Access	-	-	N/A	-	-		-	-	-	-	-	-	95.9%
1/2+1/1	A2190 (N) - Entry Ahead	U	N/A	N/A	A		2	133	-	906	2120:1980	1018+659	54.0 : 54.0%
1/3	A2190 (N) - Entry Right	U	N/A	N/A	B		2	114	-	1212	2073	1266	95.8%
2/1	A2190 (S) - Exit	U	N/A	N/A	-		-	-	-	356	Inf	Inf	0.0%
2/2	A2190 (S) - Exit	U	N/A	N/A	-		-	-	-	550	Inf	Inf	0.0%
3/1	A2190 (S) - Entry Ahead Left	U	N/A	N/A	C		2	15	-	160	1979	177	90.4%
3/2	A2190 (S) - Entry Ahead	U	N/A	N/A	C		2	15	-	182	2120	190	95.9%
4/1	A2190 (N) - Exit	U	N/A	N/A	-		-	-	-	716	Inf	Inf	0.0%
4/2	A2190 (N) - Exit	U	N/A	N/A	-		-	-	-	740	Inf	Inf	0.0%
5/1	IAMP Access (W) - Entry Ahead Ahead2	U	N/A	N/A	-		-	-	-	1115	Inf	Inf	0.0%
5/2	IAMP Access (W) - Entry Ahead	U	N/A	N/A	-		-	-	-	0	Inf	Inf	0.0%
6/1	IAMP Access (W) - Junction Approach Right	U	N/A	N/A	D		2	14	-	0	1980	167	0.0%
6/2	IAMP Access (W) - Junction Approach Right	U	N/A	N/A	D		2	14	-	0	2120	179	0.0%
7/1	IAMP Access (W) - Filter Left	U	N/A	N/A	E		2	139	-	1115	1886	1400	79.7%

Full Input Data And Results

8/1	IAMP Access (W) - Exit	U	N/A	N/A	-		-	-	-	1213	Inf	Inf	0.0%
8/2	IAMP Access (W) - Exit	U	N/A	N/A	-		-	-	-	0	Inf	Inf	-
Ped Link: P1	Unnamed Ped Link	-	N/A	-	H		2	19	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	N/A	-	G		3	127	-	0	-	0	0.0%
Ped Link: P3	Unnamed Ped Link	-	N/A	-	F		2	15	-	0	-	0	0.0%
Ped Link: P4	Unnamed Ped Link	-	N/A	-	I		2	133	-	0	-	0	0.0%
Ped Link: P5	Unnamed Ped Link	-	N/A	-	J		2	15	-	0	-	0	0.0%
Ped Link: P6	Unnamed Ped Link	-	N/A	-	K		3	129	-	0	-	0	0.0%
Ped Link: P7	Unnamed Ped Link	-	N/A	-	L		1	7	-	0	-	0	0.0%

Full Input Data And Results

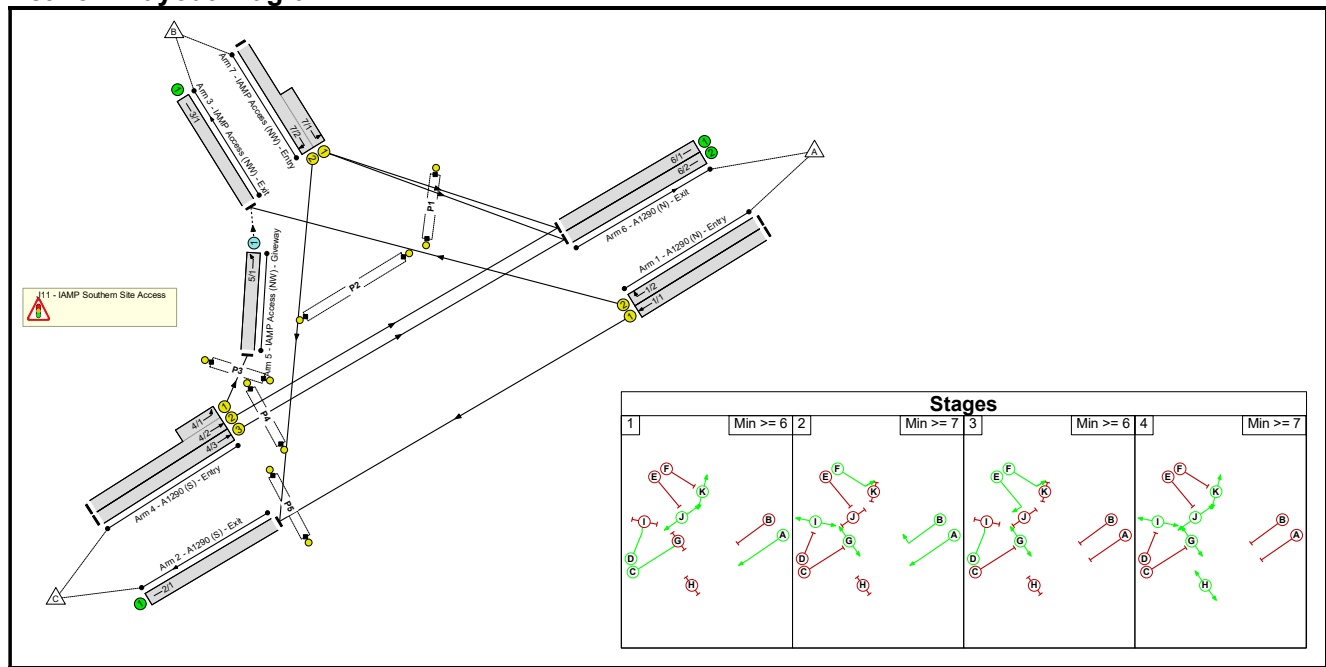
Ped Link: P7	0	0	-	-	-	-	-	-	-	-	-	-	-
C1		PRC for Signalled Lanes (%):	-6.6	Total Delay for Signalled Lanes (pcuHr):	33.26	Cycle Time (s):	190						
		PRC Over All Lanes (%):	-6.6	Total Delay Over All Lanes(pcuHr):	33.26								

Full Input Data And Results
Full Input Data And Results

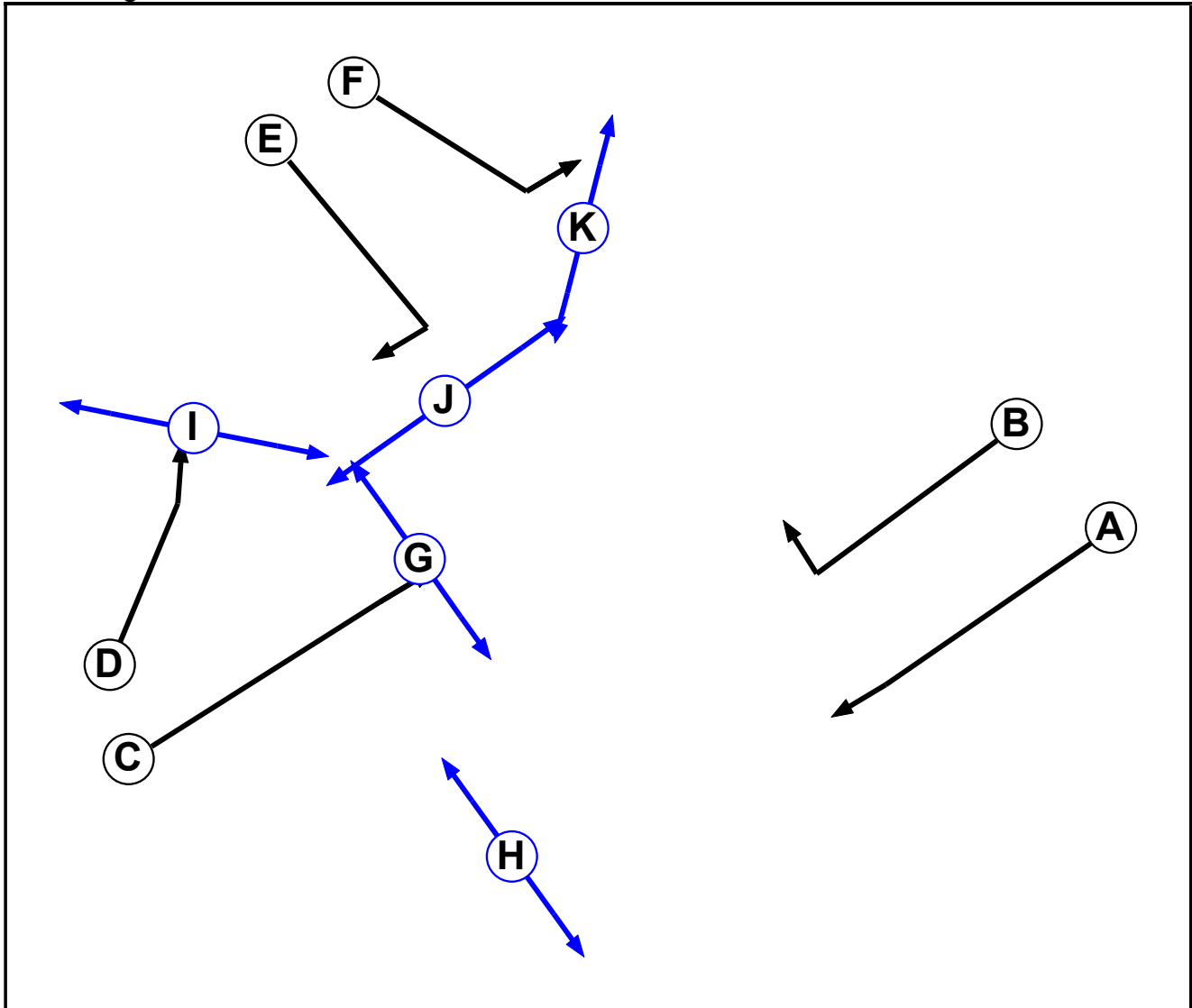
User and Project Details

Project:	
Title:	
Location:	
Additional detail:	
File name:	J11 - IAMP Southern Site Access - Signalised.lsg3x
Author:	
Company:	
Address:	

Network Layout Diagram



Phase Diagram



Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	Traffic		7	7
E	Traffic		7	7
F	Traffic		7	7
G	Pedestrian		7	7
H	Pedestrian		7	7
I	Pedestrian		7	7
J	Pedestrian		7	7
K	Pedestrian		7	7

Full Input Data And Results

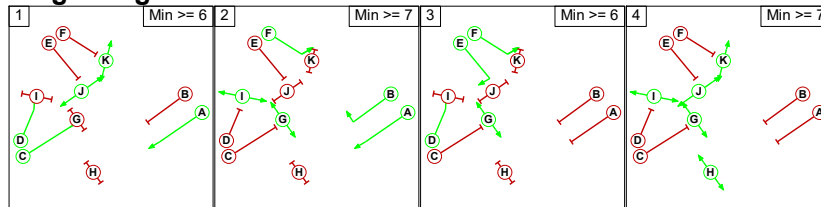
Phase Intergreens Matrix

		Starting Phase										
		A	B	C	D	E	F	G	H	I	J	K
Terminating Phase	A	-	-	-	8	-	-	9	-	-	-	-
	B	-	-	7	8	7	-	-	-	-	9	-
	C	-	7	-	-	7	9	7	-	-	-	-
	D	-	8	-	-	-	-	-	-	8	-	-
	E	8	7	7	-	-	-	-	9	-	7	-
	F	-	-	9	-	-	-	-	-	-	-	7
	G	-	-	7	-	-	-	-	-	-	-	-
	H	9	-	-	-	9	-	-	-	-	-	-
	I	-	-	-	8	-	-	-	-	-	-	-
	J	-	9	-	-	7	-	-	-	-	-	-
	K	-	-	-	-	-	7	-	-	-	-	-

Phases in Stage

Stage No.	Phases in Stage
1	A C D J K
2	A B F G I
3	D E F G
4	G H I J K

Stage Diagram



Phase Delays

Term. Stage	Start Stage	Phase	Type	Value	Cont value
There are no Phase Delays defined					

Prohibited Stage Change

		To Stage			
		1	2	3	4
From Stage	1	-	9	9	9
	2	9	-	8	9
	3	9	8	-	9
	4	9	9	9	-

Full Input Data And Results

Give-Way Lane Input Data

Junction: J11 - IAMP Southern Site Access											
Lane	Movement	Max Flow when Giving Way (PCU/Hr)	Min Flow when Giving Way (PCU/Hr)	Opposing Lane	Opp. Lane Coeff.	Opp. Mvmnts.	Right Turn Storage (PCU)	Non-Blocking Storage (PCU)	RTF	Right Turn Move up (s)	Max Turns in Intergreen (PCU)
5/1 (IAMP Access (NW) - Giveway)	3/1 (Ahead)	1000	0	1/2	0.33	All	-	-	-	-	-

Full Input Data And Results

Lane Input Data

Junction: J11 - IAMP Southern Site Access												
Lane	Lane Type	Phases	Start Disp.	End Disp.	Physical Length (PCU)	Sat Flow Type	Def User Saturation Flow (PCU/Hr)	Lane Width (m)	Gradient	Nearside Lane	Turns	Turning Radius (m)
1/1 (A1290 (N) - Entry)	U	A	2	3	60.0	Geom	-	3.65	0.00	Y	Arm 2 Ahead	Inf
1/2 (A1290 (N) - Entry)	U	B	2	3	60.0	Geom	-	3.65	0.00	N	Arm 3 Right	35.00
2/1 (A1290 (S) - Exit)	U		2	3	60.0	Inf	-	-	-	-	-	-
3/1 (IAMP Access (NW) - Exit)	U		2	3	60.0	Inf	-	-	-	-	-	-
4/1 (A1290 (S) - Entry)	U	D	2	3	5.0	Geom	-	3.65	0.00	Y	Arm 5 Left	14.00
4/2 (A1290 (S) - Entry)	U	C	2	3	60.0	Geom	-	3.65	0.00	N	Arm 6 Ahead	Inf
4/3 (A1290 (S) - Entry)	U	C	2	3	60.0	Geom	-	3.65	0.00	N	Arm 6 Ahead	Inf
5/1 (IAMP Access (NW) - Giveaway)	O		2	3	2.6	Geom	-	3.65	0.00	Y	Arm 3 Ahead	14.00
6/1 (A1290 (N) - Exit)	U		2	3	60.0	Inf	-	-	-	-	-	-
6/2 (A1290 (N) - Exit)	U		2	3	60.0	Inf	-	-	-	-	-	-
7/1 (IAMP Access (NW) - Entry)	U	F	2	3	7.0	Geom	-	3.65	0.00	Y	Arm 6 Left	25.00
7/2 (IAMP Access (NW) - Entry)	U	E	2	3	60.0	Geom	-	3.65	0.00	N	Arm 2 Right	35.00

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: '2022/23 Base 0630-0730'	06:30	07:30	01:00	
2: '2023 Base + Com Dev'	06:30	07:30	01:00	
3: '2023 Base + Com Dev + Dev'	06:30	07:30	01:00	

Full Input Data And Results

Scenario 1: '2022/23 Base 0630-0730' (FG1: '2022/23 Base 0630-0730', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	6	314	320
	B	3	0	12	15
	C	320	86	0	406
	Tot.	323	92	326	741

Traffic Lane Flows

Lane	Scenario 1: 2022/23 Base 0630-0730
Junction: J11 - IAMP Southern Site Access	
1/1	314
1/2	6
2/1	326
3/1	92
4/1 (short)	86
4/2 (with short)	245(In) 159(Out)
4/3	161
5/1	86
6/1	160
6/2	163
7/1 (short)	3
7/2 (with short)	15(In) 12(Out)

Full Input Data And Results

Lane Saturation Flows

Junction: J11 - IAMP Southern Site Access								
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (A1290 (N) - Entry)	3.65	0.00	Y	Arm 2 Ahead	Inf	100.0 %	1980	1980
1/2 (A1290 (N) - Entry)	3.65	0.00	N	Arm 3 Right	35.00	100.0 %	2033	2033
2/1 (A1290 (S) - Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
3/1 (IAMP Access (NW) - Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
4/1 (A1290 (S) - Entry)	3.65	0.00	Y	Arm 5 Left	14.00	100.0 %	1788	1788
4/2 (A1290 (S) - Entry)	3.65	0.00	N	Arm 6 Ahead	Inf	100.0 %	2120	2120
4/3 (A1290 (S) - Entry)	3.65	0.00	N	Arm 6 Ahead	Inf	100.0 %	2120	2120
5/1 (IAMP Access (NW) - Giveaway)	3.65	0.00	Y	Arm 3 Ahead	14.00	100.0 %	1788	1788
6/1 (A1290 (N) - Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
6/2 (A1290 (N) - Exit Lane 2)	Infinite Saturation Flow						Inf	Inf
7/1 (IAMP Access (NW) - Entry)	3.65	0.00	Y	Arm 6 Left	25.00	100.0 %	1868	1868
7/2 (IAMP Access (NW) - Entry)	3.65	0.00	N	Arm 2 Right	35.00	100.0 %	2033	2033

Scenario 2: '2023 Base + Com Dev' (FG2: '2023 Base + Com Dev', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

	Destination				
	A	B	C	Tot.	
Origin	A	0	6	331	337
	B	3	0	166	169
	C	345	211	0	556
	Tot.	348	217	497	1062

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 2: 2023 Base + Com Dev
Junction: J11 - IAMP Southern Site Access	
1/1	331
1/2	6
2/1	497
3/1	217
4/1 (short)	211
4/2 (with short)	381(In) 170(Out)
4/3	175
5/1	211
6/1	171
6/2	177
7/1 (short)	3
7/2 (with short)	169(In) 166(Out)

Lane Saturation Flows

Junction: J11 - IAMP Southern Site Access								
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (A1290 (N) - Entry)	3.65	0.00	Y	Arm 2 Ahead	Inf	100.0 %	1980	1980
1/2 (A1290 (N) - Entry)	3.65	0.00	N	Arm 3 Right	35.00	100.0 %	2033	2033
2/1 (A1290 (S) - Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
3/1 (IAMP Access (NW) - Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
4/1 (A1290 (S) - Entry)	3.65	0.00	Y	Arm 5 Left	14.00	100.0 %	1788	1788
4/2 (A1290 (S) - Entry)	3.65	0.00	N	Arm 6 Ahead	Inf	100.0 %	2120	2120
4/3 (A1290 (S) - Entry)	3.65	0.00	N	Arm 6 Ahead	Inf	100.0 %	2120	2120
5/1 (IAMP Access (NW) - Giveaway)	3.65	0.00	Y	Arm 3 Ahead	14.00	100.0 %	1788	1788
6/1 (A1290 (N) - Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
6/2 (A1290 (N) - Exit Lane 2)	Infinite Saturation Flow						Inf	Inf
7/1 (IAMP Access (NW) - Entry)	3.65	0.00	Y	Arm 6 Left	25.00	100.0 %	1868	1868
7/2 (IAMP Access (NW) - Entry)	3.65	0.00	N	Arm 2 Right	35.00	100.0 %	2033	2033

Full Input Data And Results

Scenario 3: '2023 Base + Com Dev + Dev' (FG3: '2023 Base + Com Dev + Dev', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	6	331	337
	B	3	0	286	289
	C	345	331	0	676
	Tot.	348	337	617	1302

Traffic Lane Flows

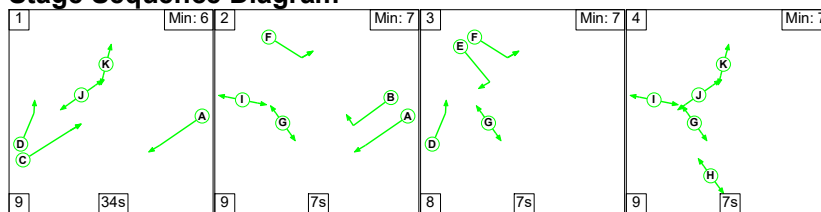
Lane	Scenario 3: 2023 Base + Com Dev + Dev
Junction: J11 - IAMP Southern Site Access	
1/1	331
1/2	6
2/1	617
3/1	337
4/1 (short)	331
4/2 (with short)	480(In) 149(Out)
4/3	196
5/1	331
6/1	150
6/2	198
7/1 (short)	3
7/2 (with short)	289(In) 286(Out)

Lane Saturation Flows

Junction: J11 - IAMP Southern Site Access								
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (A1290 (N) - Entry)	3.65	0.00	Y	Arm 2 Ahead	Inf	100.0 %	1980	1980
1/2 (A1290 (N) - Entry)	3.65	0.00	N	Arm 3 Right	35.00	100.0 %	2033	2033
2/1 (A1290 (S) - Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
3/1 (IAMP Access (NW) - Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
4/1 (A1290 (S) - Entry)	3.65	0.00	Y	Arm 5 Left	14.00	100.0 %	1788	1788
4/2 (A1290 (S) - Entry)	3.65	0.00	N	Arm 6 Ahead	Inf	100.0 %	2120	2120
4/3 (A1290 (S) - Entry)	3.65	0.00	N	Arm 6 Ahead	Inf	100.0 %	2120	2120
5/1 (IAMP Access (NW) - Giveaway)	3.65	0.00	Y	Arm 3 Ahead	14.00	100.0 %	1788	1788
6/1 (A1290 (N) - Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
6/2 (A1290 (N) - Exit Lane 2)	Infinite Saturation Flow						Inf	Inf
7/1 (IAMP Access (NW) - Entry)	3.65	0.00	Y	Arm 6 Left	25.00	100.0 %	1868	1868
7/2 (IAMP Access (NW) - Entry)	3.65	0.00	N	Arm 2 Right	35.00	100.0 %	2033	2033

Scenario 1: '2022/23 Base 0630-0730' (FG1: '2022/23 Base 0630-0730', Plan 1: 'Network Control Plan 1')

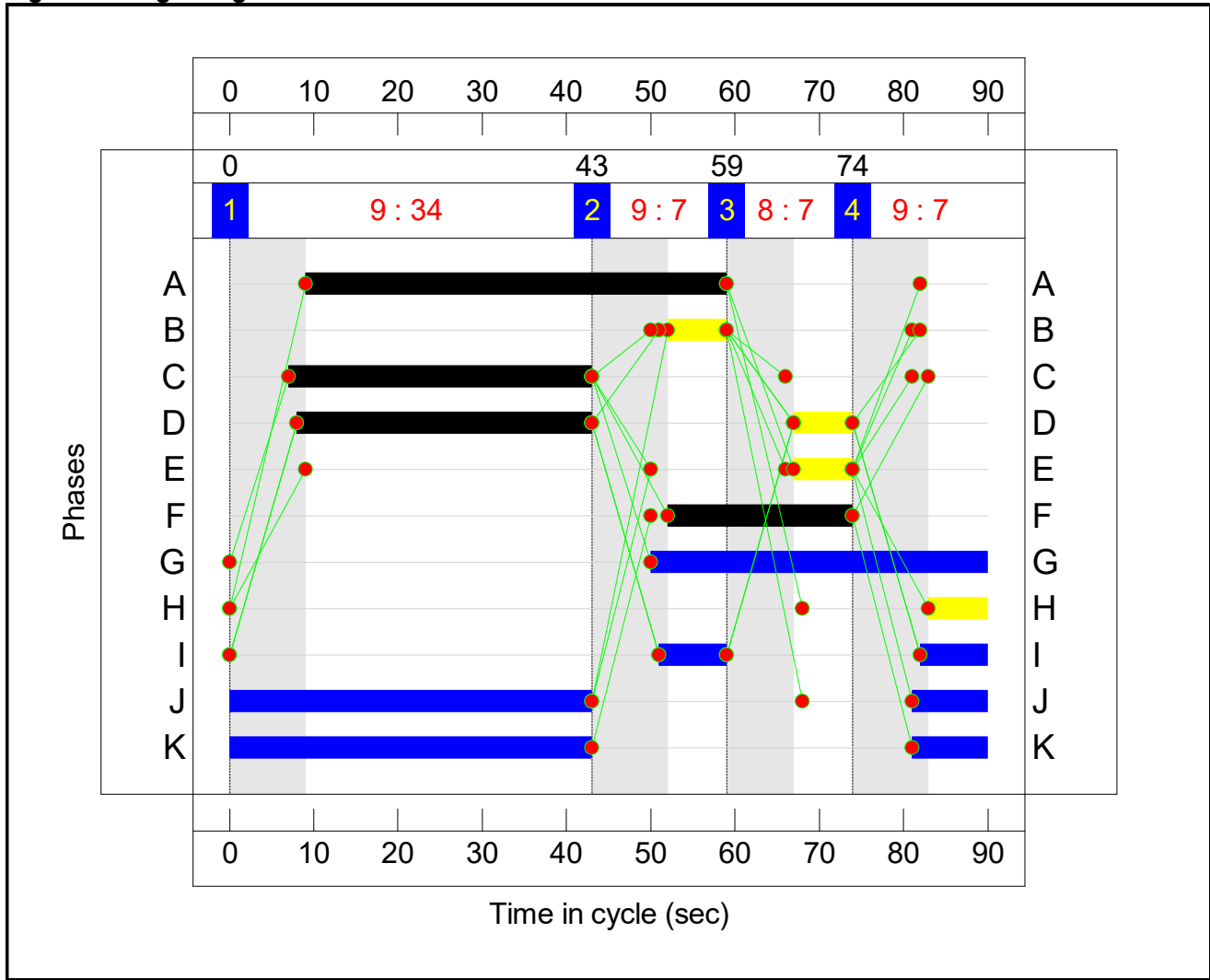
Stage Sequence Diagram



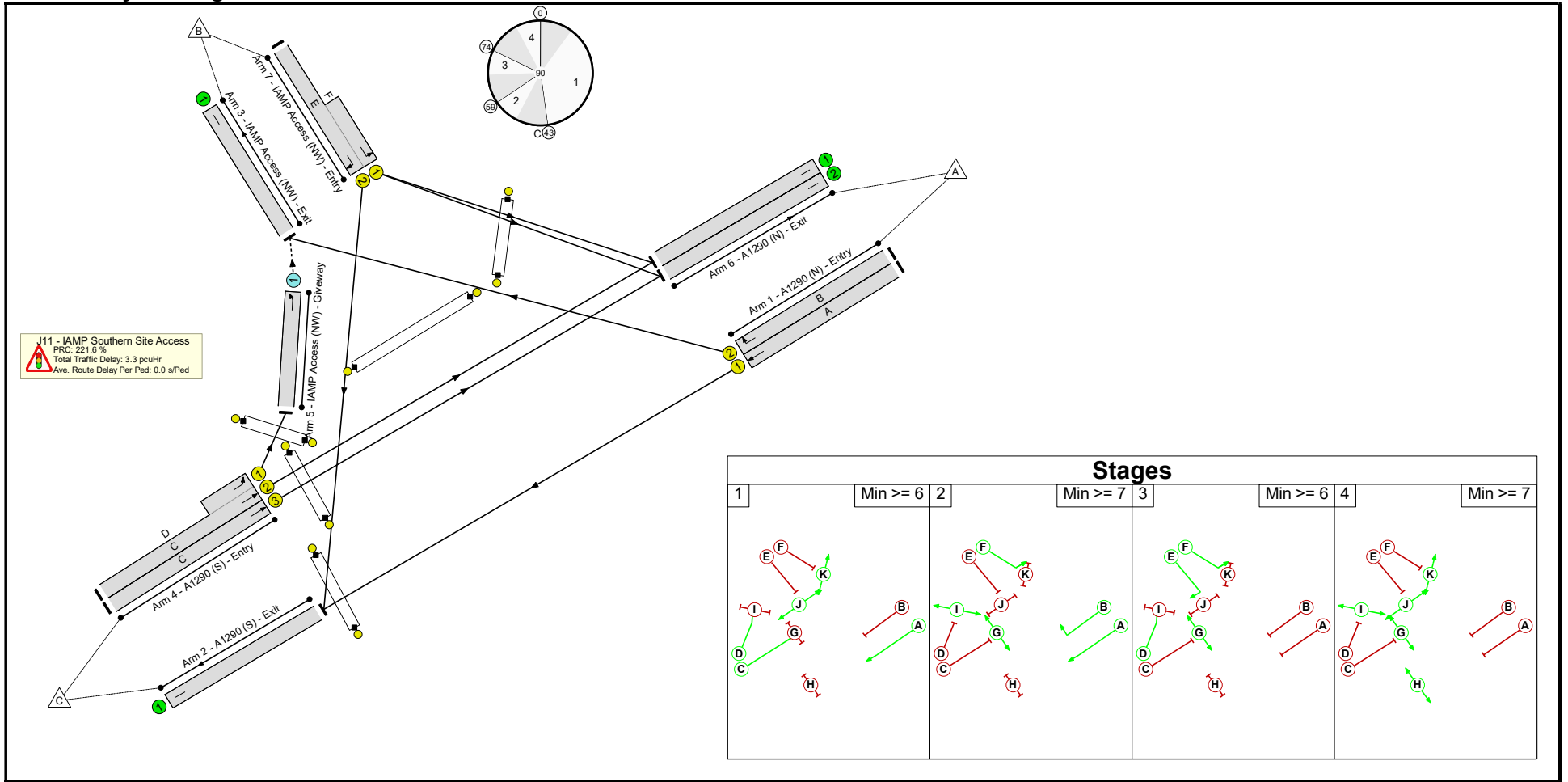
Stage Timings

Stage	1	2	3	4
Duration	34	7	7	7
Change Point	0	43	59	74

Signal Timings Diagram



Full Input Data And Results
Network Layout Diagram



Full Input Data And Results

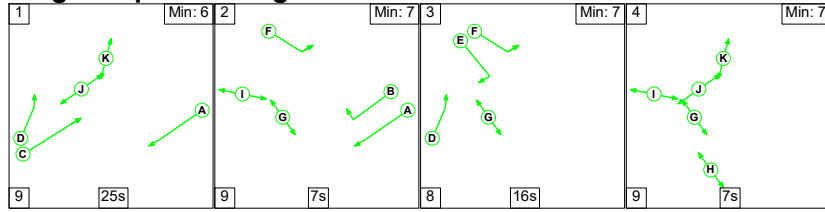
Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	-	-	N/A	-	-		-	-	-	-	-	-	28.0%
J11 - IAMP Southern Site Access	-	-	N/A	-	-		-	-	-	-	-	-	28.0%
1/1	A1290 (N) - Entry Ahead	U	N/A	N/A	A		1	50	-	314	1980	1122	28.0%
1/2	A1290 (N) - Entry Right	U	N/A	N/A	B		1	7	-	6	2033	181	3.3%
2/1	A1290 (S) - Exit	U	N/A	N/A	-		-	-	-	326	Inf	Inf	0.0%
3/1	IAMP Access (NW) - Exit	U	N/A	N/A	-		-	-	-	92	Inf	Inf	0.0%
4/2+4/1	A1290 (S) - Entry Left Ahead	U	N/A	N/A	C D		1:2	36:42	-	245	2120:1788	616+333	25.8 : 25.8%
4/3	A1290 (S) - Entry Ahead	U	N/A	N/A	C		1	36	-	161	2120	872	18.5%
5/1	IAMP Access (NW) - Giveaway Ahead	O	N/A	N/A	-		-	-	-	86	1788	998	8.6%
6/1	A1290 (N) - Exit	U	N/A	N/A	-		-	-	-	160	Inf	Inf	0.0%
6/2	A1290 (N) - Exit	U	N/A	N/A	-		-	-	-	163	Inf	Inf	0.0%
7/2+7/1	IAMP Access (NW) - Entry Right Left	U	N/A	N/A	E F		1	7:22	-	15	2033:1868	181+45	6.6 : 6.6%
Ped Link: P1	Unnamed Ped Link	-	N/A	-	K		1	52	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	N/A	-	J		1	52	-	0	-	0	0.0%
Ped Link: P3	Unnamed Ped Link	-	N/A	-	I		2	16	-	0	-	0	0.0%
Ped Link: P4	Unnamed Ped Link	-	N/A	-	G		1	40	-	0	-	0	0.0%
Ped Link: P5	Unnamed Ped Link	-	N/A	-	H		1	7	-	0	-	0	0.0%

Full Input Data And Results

Scenario 2: '2023 Base + Com Dev' (FG2: '2023 Base + Com Dev', Plan 1: 'Network Control Plan 1')

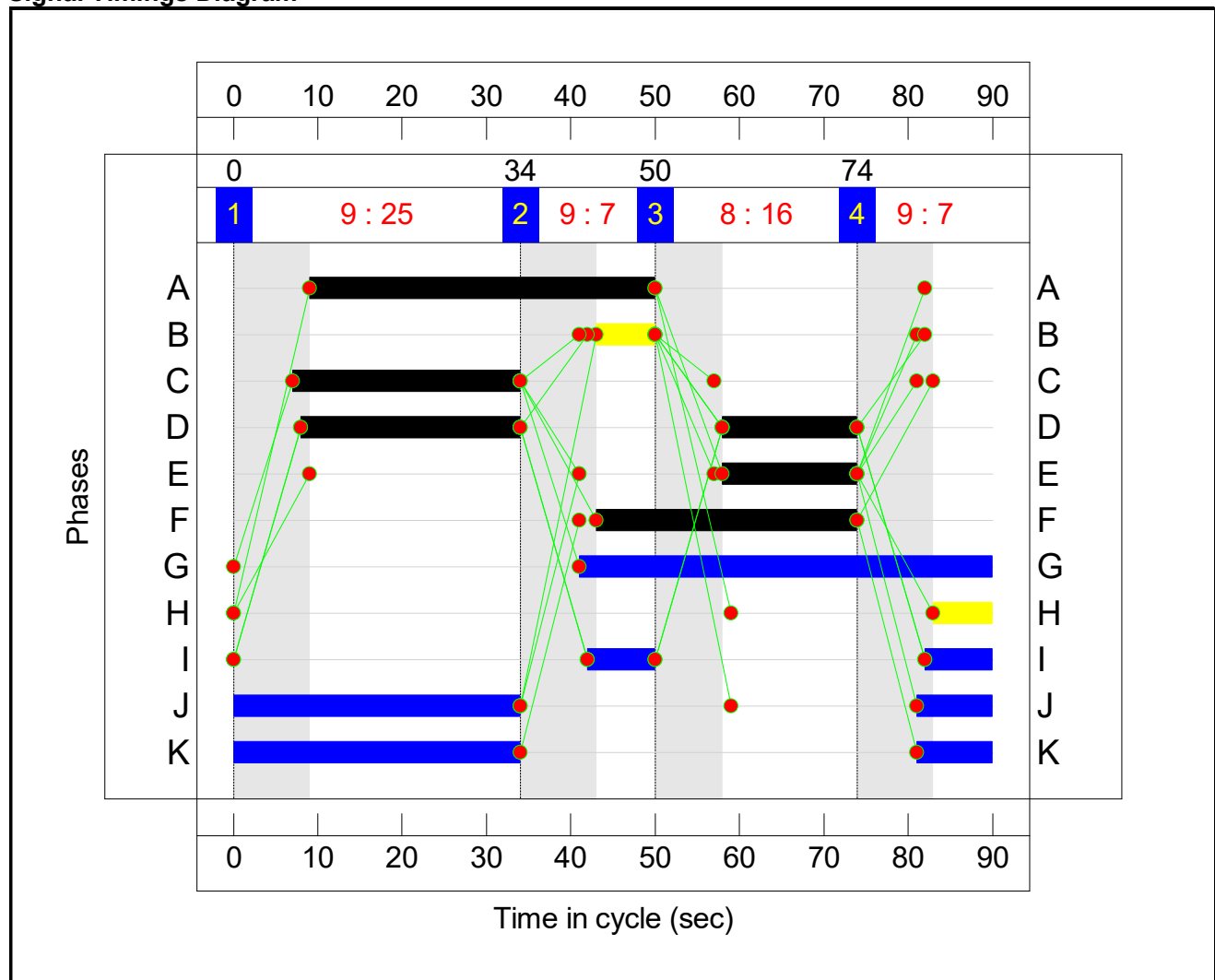
Stage Sequence Diagram



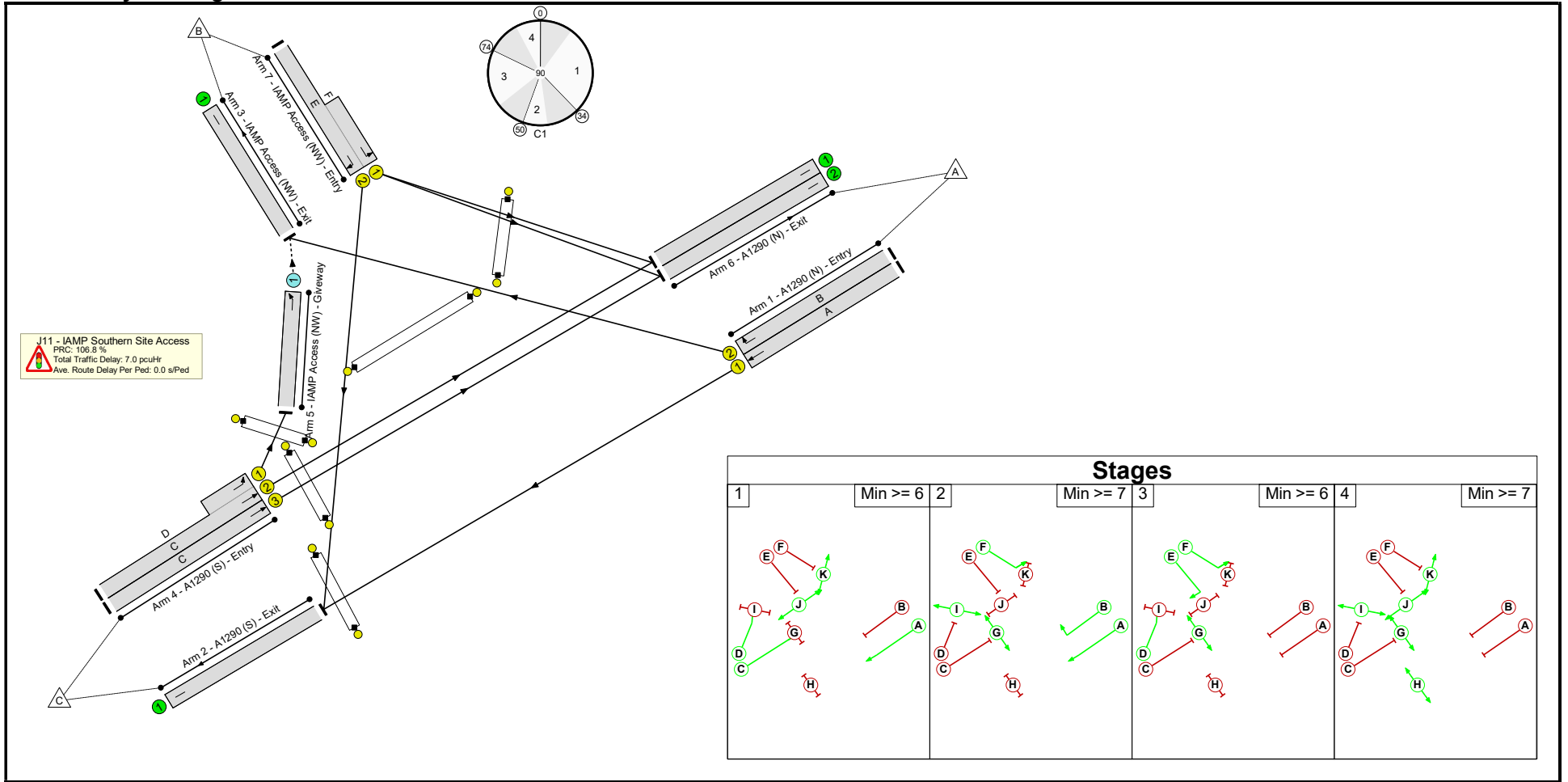
Stage Timings

Stage	1	2	3	4
Duration	25	7	16	7
Change Point	0	34	50	74

Signal Timings Diagram



Full Input Data And Results
Network Layout Diagram



Full Input Data And Results

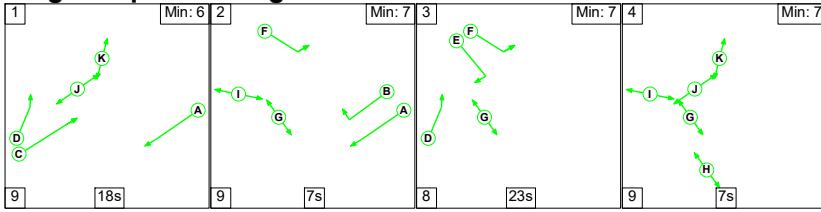
Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	-	-	N/A	-	-		-	-	-	-	-	-	43.5%
J11 - IAMP Southern Site Access	-	-	N/A	-	-		-	-	-	-	-	-	43.5%
1/1	A1290 (N) - Entry Ahead	U	N/A	N/A	A		1	41	-	331	1980	924	35.8%
1/2	A1290 (N) - Entry Right	U	N/A	N/A	B		1	7	-	6	2033	181	3.3%
2/1	A1290 (S) - Exit	U	N/A	N/A	-		-	-	-	497	Inf	Inf	0.0%
3/1	IAMP Access (NW) - Exit	U	N/A	N/A	-		-	-	-	217	Inf	Inf	0.0%
4/2+4/1	A1290 (S) - Entry Left Ahead	U	N/A	N/A	C D		1:2	27:42	-	381	2120:1788	391+485	43.5 : 43.5%
4/3	A1290 (S) - Entry Ahead	U	N/A	N/A	C		1	27	-	175	2120	660	26.5%
5/1	IAMP Access (NW) - Giveaway Ahead	O	N/A	N/A	-		-	-	-	211	1788	998	21.1%
6/1	A1290 (N) - Exit	U	N/A	N/A	-		-	-	-	171	Inf	Inf	0.0%
6/2	A1290 (N) - Exit	U	N/A	N/A	-		-	-	-	177	Inf	Inf	0.0%
7/2+7/1	IAMP Access (NW) - Entry Right Left	U	N/A	N/A	E F		1	16:31	-	169	2033:1868	384+7	43.2 : 43.2%
Ped Link: P1	Unnamed Ped Link	-	N/A	-	K		1	43	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	N/A	-	J		1	43	-	0	-	0	0.0%
Ped Link: P3	Unnamed Ped Link	-	N/A	-	I		2	16	-	0	-	0	0.0%
Ped Link: P4	Unnamed Ped Link	-	N/A	-	G		1	49	-	0	-	0	0.0%
Ped Link: P5	Unnamed Ped Link	-	N/A	-	H		1	7	-	0	-	0	0.0%

Full Input Data And Results

Scenario 3: '2023 Base + Com Dev + Dev' (FG3: '2023 Base + Com Dev + Dev', Plan 1: 'Network Control Plan 1')

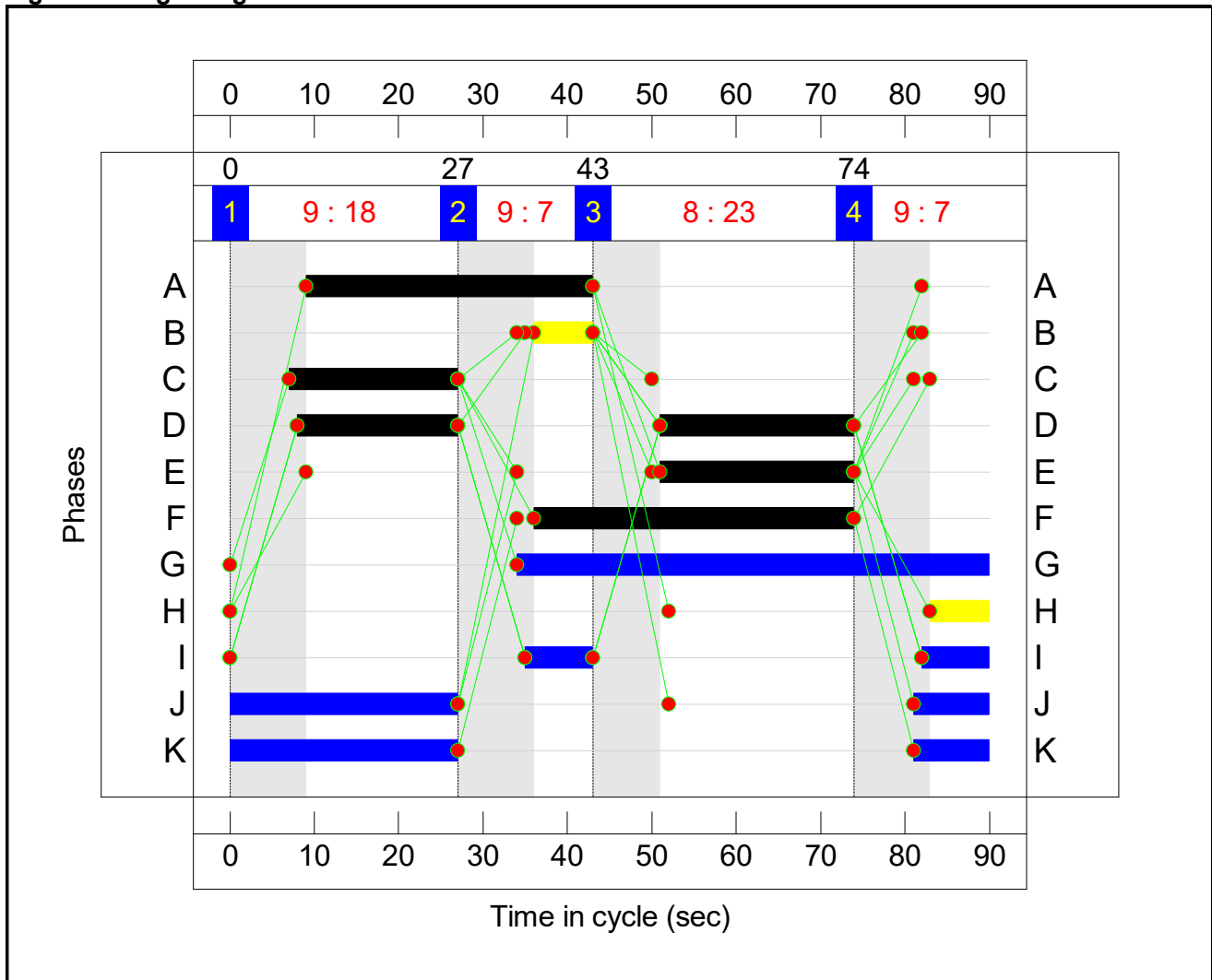
Stage Sequence Diagram



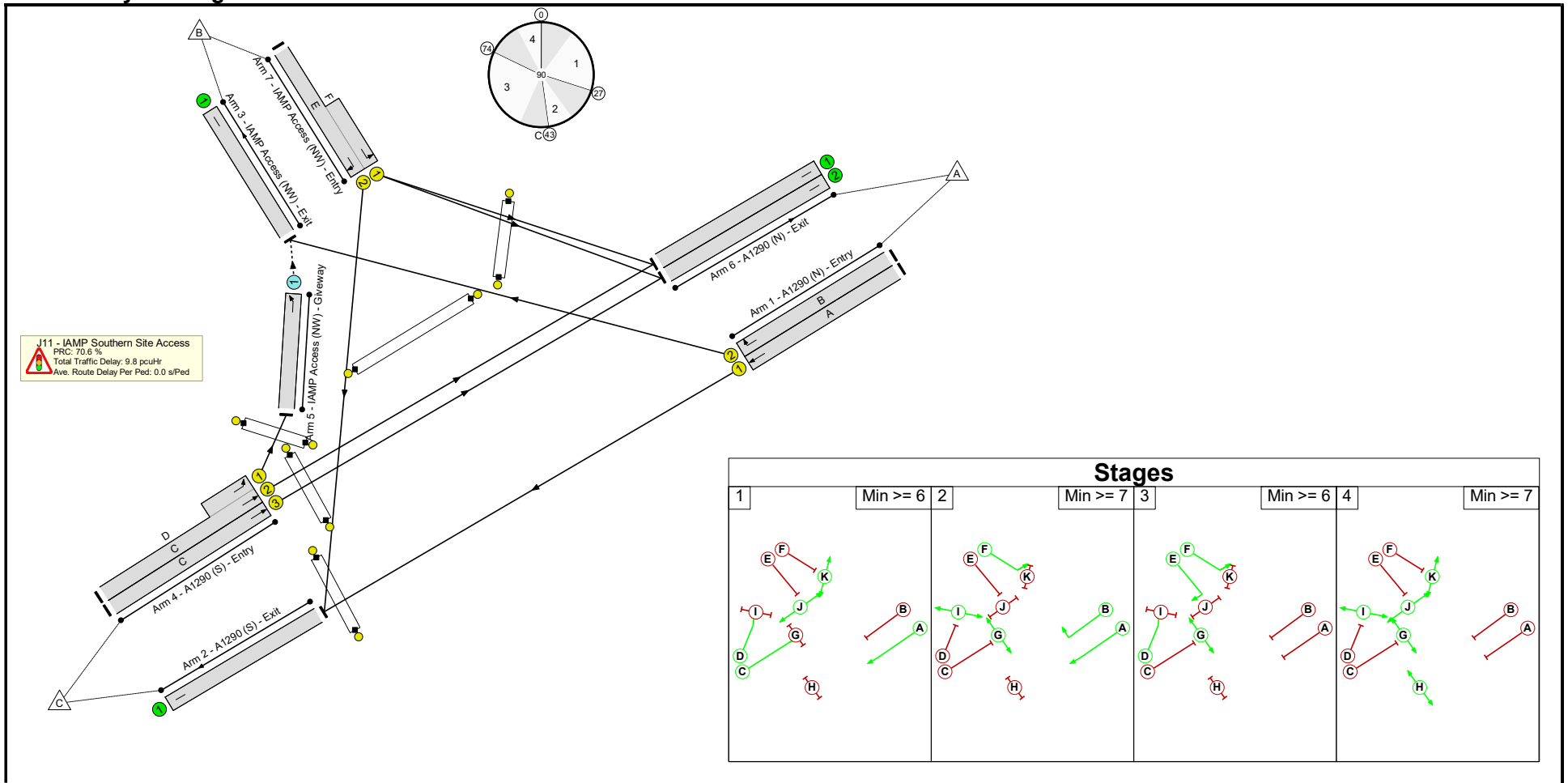
Stage Timings

Stage	1	2	3	4
Duration	18	7	23	7
Change Point	0	27	43	74

Signal Timings Diagram



Full Input Data And Results
Network Layout Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	-	-	N/A	-	-		-	-	-	-	-	-	52.8%
J11 - IAMP Southern Site Access	-	-	N/A	-	-		-	-	-	-	-	-	52.8%
1/1	A1290 (N) - Entry Ahead	U	N/A	N/A	A		1	34	-	331	1980	770	43.0%
1/2	A1290 (N) - Entry Right	U	N/A	N/A	B		1	7	-	6	2033	181	3.3%
2/1	A1290 (S) - Exit	U	N/A	N/A	-		-	-	-	617	Inf	Inf	0.0%
3/1	IAMP Access (NW) - Exit	U	N/A	N/A	-		-	-	-	337	Inf	Inf	0.0%
4/2+4/1	A1290 (S) - Entry Left Ahead	U	N/A	N/A	C D		1:2	20:42	-	480	2120:1788	284+631	52.4 : 52.4%
4/3	A1290 (S) - Entry Ahead	U	N/A	N/A	C		1	20	-	196	2120	495	39.6%
5/1	IAMP Access (NW) - Giveaway Ahead	O	N/A	N/A	-		-	-	-	331	1788	998	33.2%
6/1	A1290 (N) - Exit	U	N/A	N/A	-		-	-	-	150	Inf	Inf	0.0%
6/2	A1290 (N) - Exit	U	N/A	N/A	-		-	-	-	198	Inf	Inf	0.0%
7/2+7/1	IAMP Access (NW) - Entry Right Left	U	N/A	N/A	E F		1	23:38	-	289	2033:1868	542+6	52.8 : 52.8%
Ped Link: P1	Unnamed Ped Link	-	N/A	-	K		1	36	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	N/A	-	J		1	36	-	0	-	0	0.0%
Ped Link: P3	Unnamed Ped Link	-	N/A	-	I		2	16	-	0	-	0	0.0%
Ped Link: P4	Unnamed Ped Link	-	N/A	-	G		1	56	-	0	-	0	0.0%
Ped Link: P5	Unnamed Ped Link	-	N/A	-	H		1	7	-	0	-	0	0.0%

Junctions 10
PICADY 10 - Priority Intersection Module
Version: 10.1.1.1905 © Copyright TRL Software Limited, 2023
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Filename: J12 -Site Access.j10
Path: T:\ProjectData\Giga1, Envision\Giga 3\Modelling\Giga 3 Models
Report generation date: 06/02/2024 12:53:03

- «2023 Base + Com Dev + Dev, AM
 - »Junction Network
 - »Arms
 - »Traffic Demand
 - »Origin-Destination Data
 - »Vehicle Mix
 - »Detailed Demand Data
 - »Results

Summary of junction performance

	AM					
	Queue (PCU)	Delay (s)	RFC	LOS	Junction Delay (s)	Network Residual Capacity
	2023 Base + Com Dev + Dev					
Stream B-C	4.8	37.43	0.83	E	21.12	-1 %
Stream B-A	0.8	23.20	0.43	C		[Stream B-C]
Stream C-AB	3.9	27.34	0.79	D		

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle. Junction LOS and Junction Delay are demand-weighted averages. Network Residual Capacity indicates the amount by which network flow could be increased before a user-definable threshold (see Analysis Options) is met.

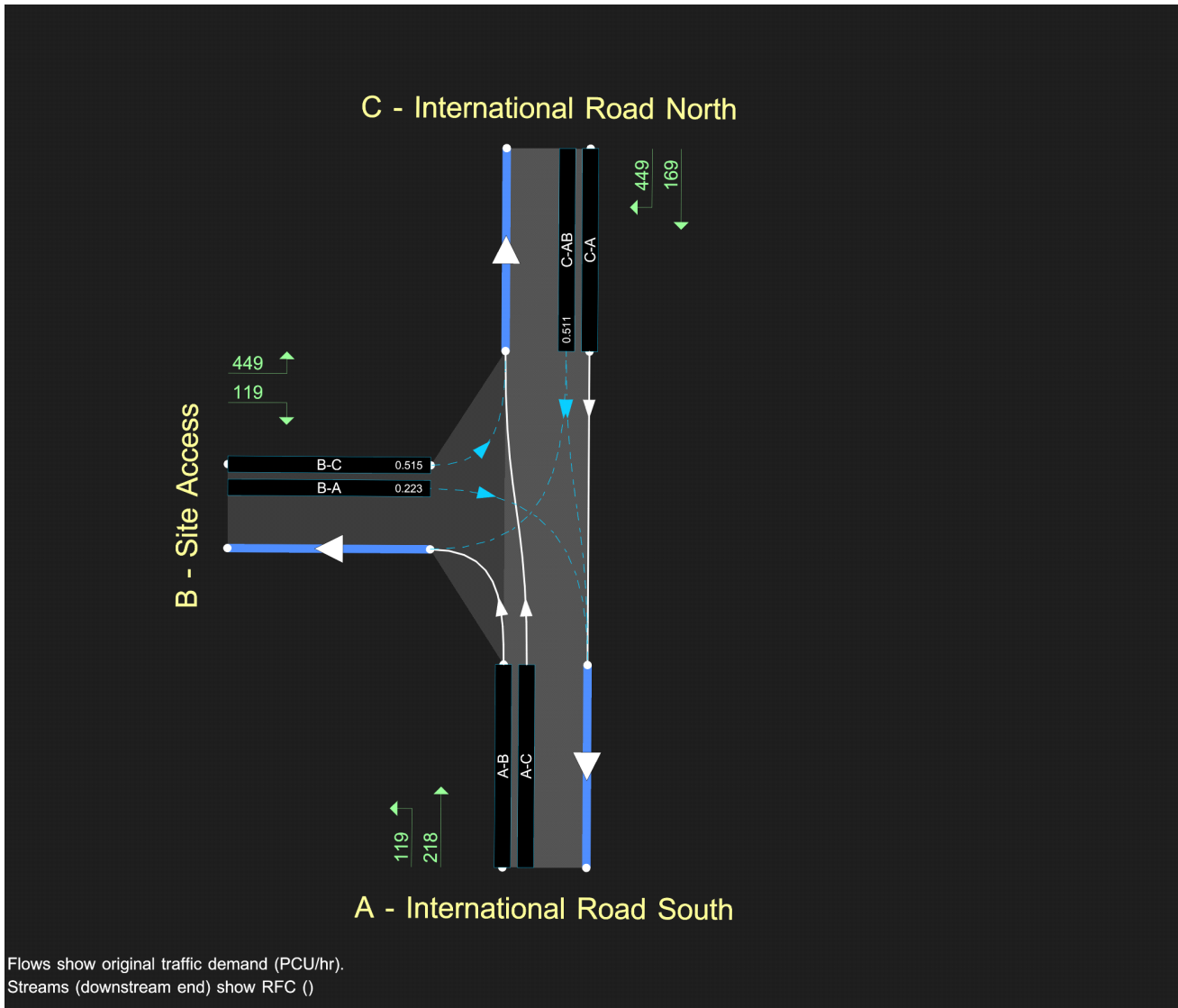
File summary

File Description

Title	
Location	
Site number	
Date	02/08/2023
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	ADSYSTRA\ahogg
Description	

Units

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



The junction diagram reflects the last run of Junctions.

Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Show lane queues in feet / metres	Show all PICADY stream intercepts	Calculate residual capacity	Residual capacity criteria type	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)	Use simulation for HCM roundabouts	Use iterations for HCM roundabouts
5.75					✓	Delay	0.85	36.00	20.00		

Analysis Set Details

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

2023 Base + Com Dev + Dev, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Arm A Direction	Arm B Direction	Arm C Direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	Site Access / Intl Road	T-Junction	Two-way	Two-way	Two-way		21.12	C

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	-1	Stream B-C	21.12	C

Arms

Arms

Arm	Name	Description	Arm type
A	International Road South		Major
B	Site Access		Minor
C	International Road North		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right-turn storage	Width for right-turn storage (m)	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C - International Road North	6.69		✓	3.70	95.0	✓	7.56

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 (Left) (m)	Lane Width (Right) (m)	Visibility to left (m)	Visibility to right (m)
B - Site Access	Two lanes	4.65	4.72	65	36

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
B-A	605	0.106	0.267	0.168	0.382
B-C	753	0.113	0.286	-	-
C-B	732	0.275	0.275	-	-

The slopes and intercepts shown above include custom intercept adjustments only.

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

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D2	2023 Base + Com Dev + Dev	AM	ONE HOUR	08:00	09:30	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - International Road South		ONE HOUR	✓	337	100.000
B - Site Access		ONE HOUR	✓	568	100.000
C - International Road North		ONE HOUR	✓	618	100.000

Origin-Destination Data

Demand (PCU/hr)

From	To			
	A - International Road South	B - Site Access	C - International Road North	
A - International Road South	0	119	218	
B - Site Access	119	0	449	
C - International Road North	169	449	0	

Proportions

From	To			
	A - International Road South	B - Site Access	C - International Road North	
A - International Road South	0.00	0.35	0.6	
B - Site Access	0.21	0.00	0.7	
C - International Road North	0.27	0.73	0.0	

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

From	To			
	A - International Road South	B - Site Access	C - International Road North	
A - International Road South	10	10	10	
B - Site Access	10	10	10	
C - International Road North	10	10	10	

Average PCU Per Veh

From	To			
	A - International Road South	B - Site Access	C - International Road North	
A - International Road South	1.100	1.100	1.1	
B - Site Access	1.100	1.100	1.1	
C - International Road North	1.100	1.100	1.1	

Detailed Demand Data

Demand for each time segment

Time Segment	Arm	Demand (PCU/hr)	Demand in PCU (PCU/hr)
08:00-08:15	A - International Road South	254	254
	B - Site Access	428	428
	C - International Road North	465	465
08:15-08:30	A - International Road South	303	303
	B - Site Access	511	511
	C - International Road North	556	556
08:30-08:45	A - International Road South	371	371
	B - Site Access	625	625
	C - International Road North	680	680
08:45-09:00	A - International Road South	371	371
	B - Site Access	625	625
	C - International Road North	680	680
09:00-09:15	A - International Road South	303	303
	B - Site Access	511	511
	C - International Road North	556	556
09:15-09:30	A - International Road South	254	254
	B - Site Access	428	428
	C - International Road North	465	465

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-C	0.83	37.43	4.8	E	412	618
B-A	0.43	23.20	0.8	C	109	164
C-AB	0.79	27.34	3.9	D	423	634
C-A					144	217
A-B					109	164
A-C					200	300

Main Results for each time segment

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	338	85	657	0.515	333	0.0	1.1	12.082	B
B-A	90	22	401	0.223	88	0.0	0.3	12.611	B
C-AB	339	85	663	0.511	334	0.0	1.1	11.885	B
C-A	127	32			127				
A-B	90	22			90				
A-C	164	41			164				

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	404	101	633	0.637	401	1.1	1.8	16.823	C
B-A	107	27	360	0.297	106	0.3	0.5	15.585	C
C-AB	407	102	654	0.623	405	1.1	1.8	15.713	C
C-A	148	37			148				
A-B	107	27			107				
A-C	196	49			196				

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	494	124	596	0.829	484	1.8	4.4	32.572	D
B-A	131	33	304	0.431	130	0.5	0.8	22.504	C
C-AB	522	131	665	0.785	514	1.8	3.7	25.179	D
C-A	158	40			158				
A-B	131	33			131				
A-C	240	60			240				

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	494	124	595	0.831	493	4.4	4.8	37.434	E
B-A	131	33	301	0.435	131	0.8	0.8	23.197	C
C-AB	522	131	665	0.785	521	3.7	3.9	27.336	D
C-A	158	40			158				
A-B	131	33			131				
A-C	240	60			240				

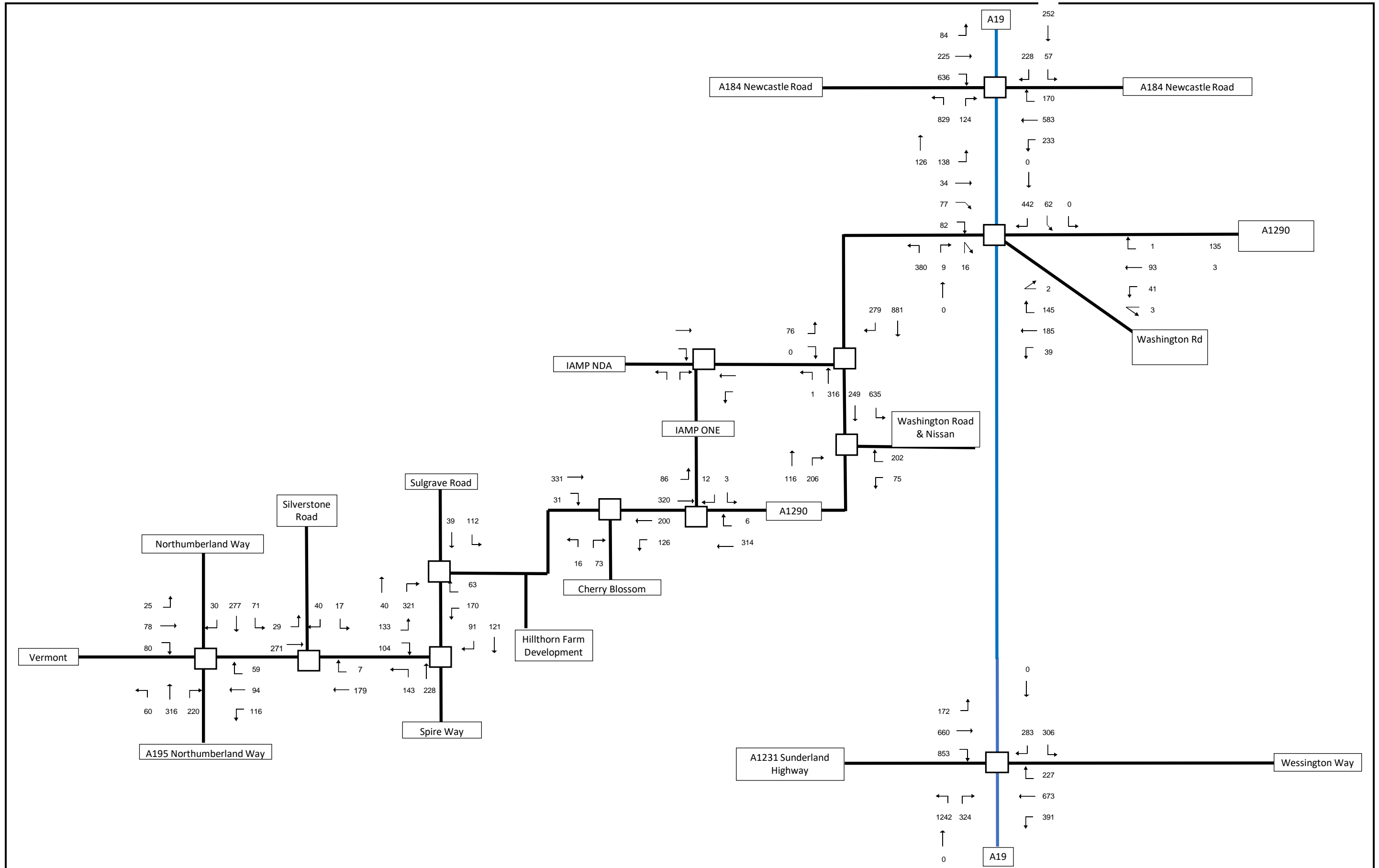
09:00 - 09:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	404	101	632	0.639	415	4.8	2.0	19.099	C
B-A	107	27	356	0.301	108	0.8	0.5	16.091	C
C-AB	407	102	654	0.623	415	3.9	1.9	17.102	C
C-A	148	37			148				
A-B	107	27			107				
A-C	196	49			196				

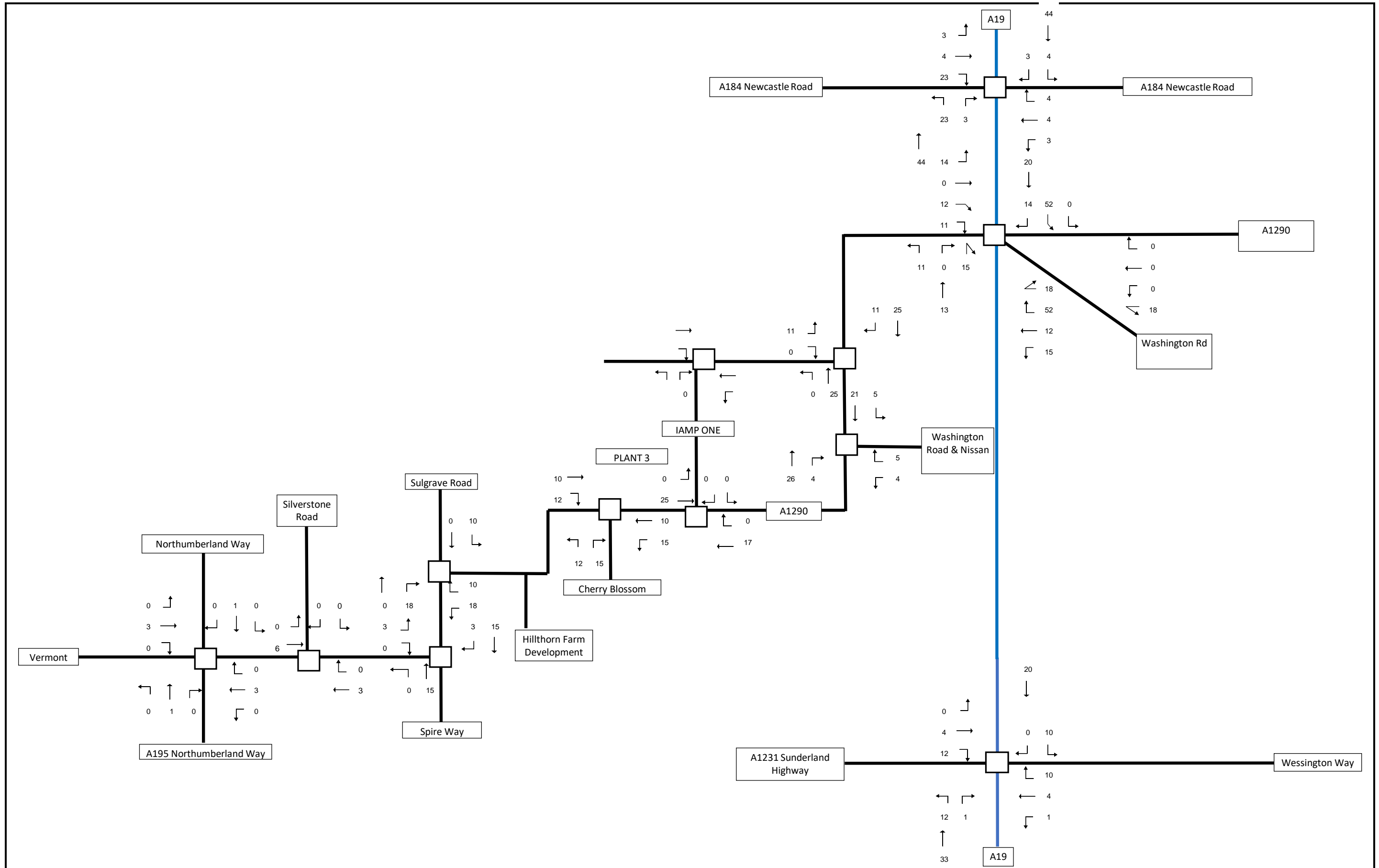
09:15 - 09:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	338	85	656	0.515	341	2.0	1.2	12.728	B
B-A	90	22	398	0.225	90	0.5	0.3	12.881	B
C-AB	339	85	663	0.511	342	1.9	1.2	12.425	B
C-A	127	32			127				
A-B	90	22			90				
A-C	164	41			164				

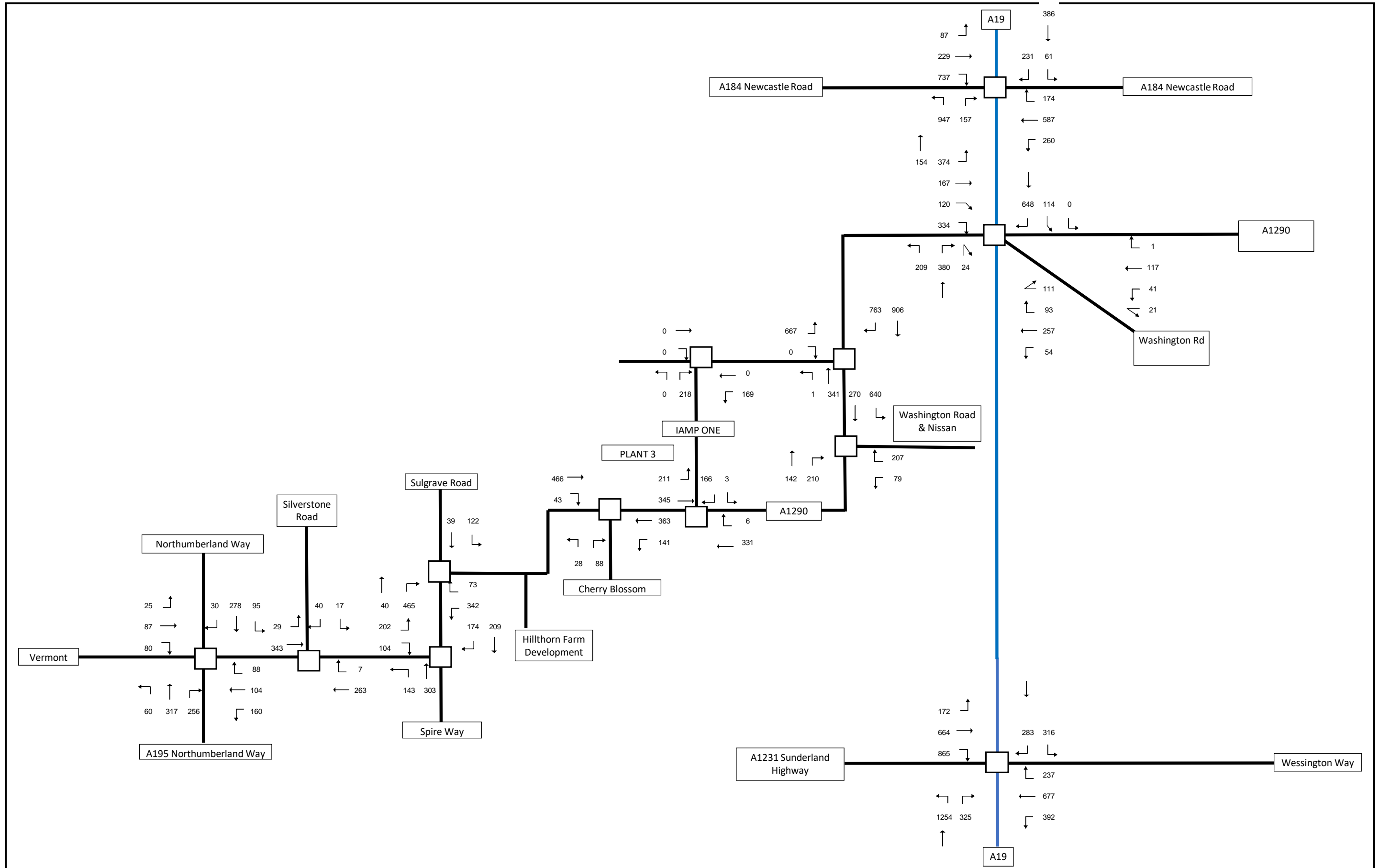
Appendix E
Traffic Flow Diagrams



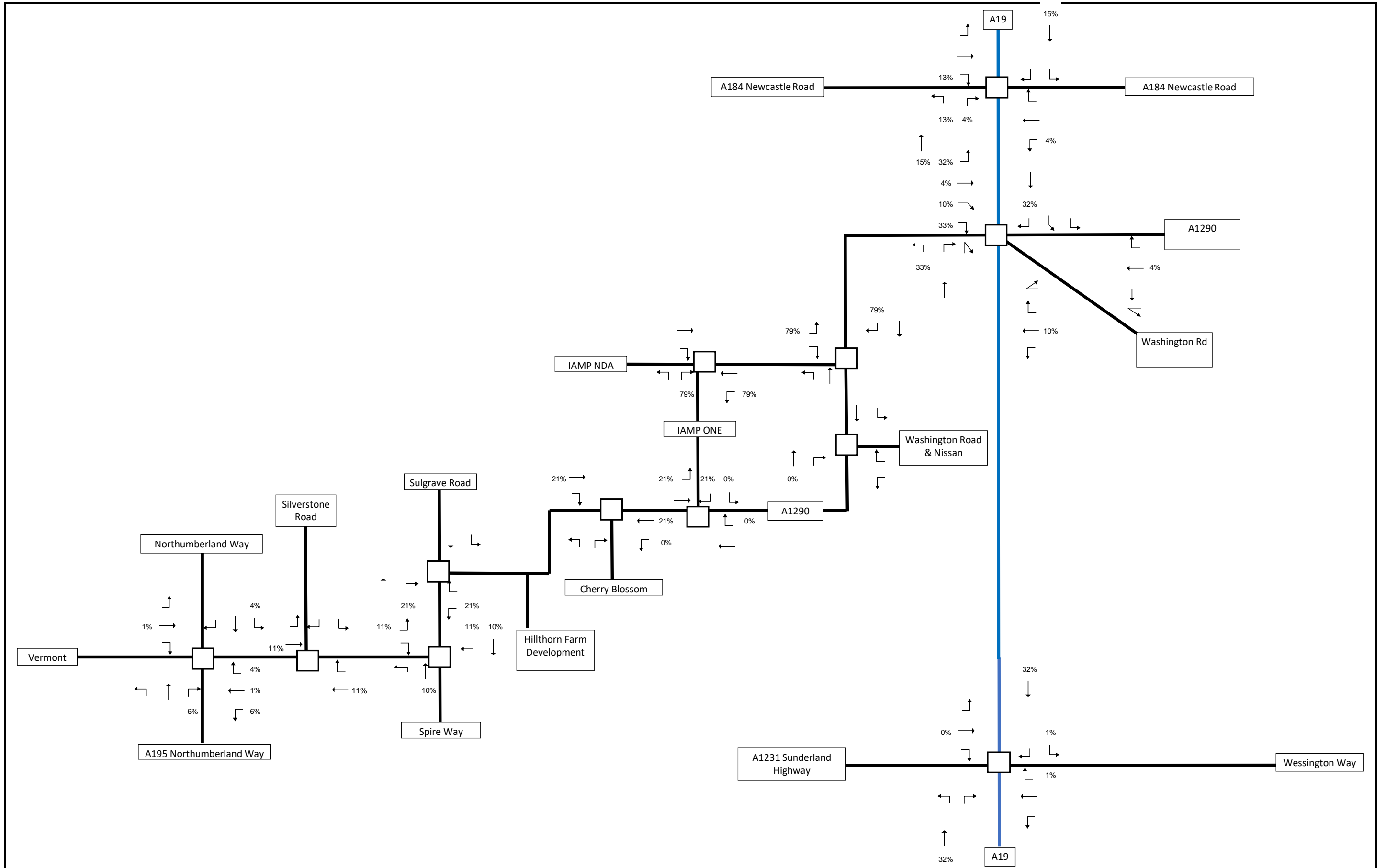
CLIENT	PROJECT	DRAWING TITLE	DRAWN BY	CHECKED BY	APPROVED BY	DATE	
AESC UK	AESC Plant 3	Traffic flows - 2023 Base - Development Peak Hour	MS	RJ		July 2023	SYSTRA



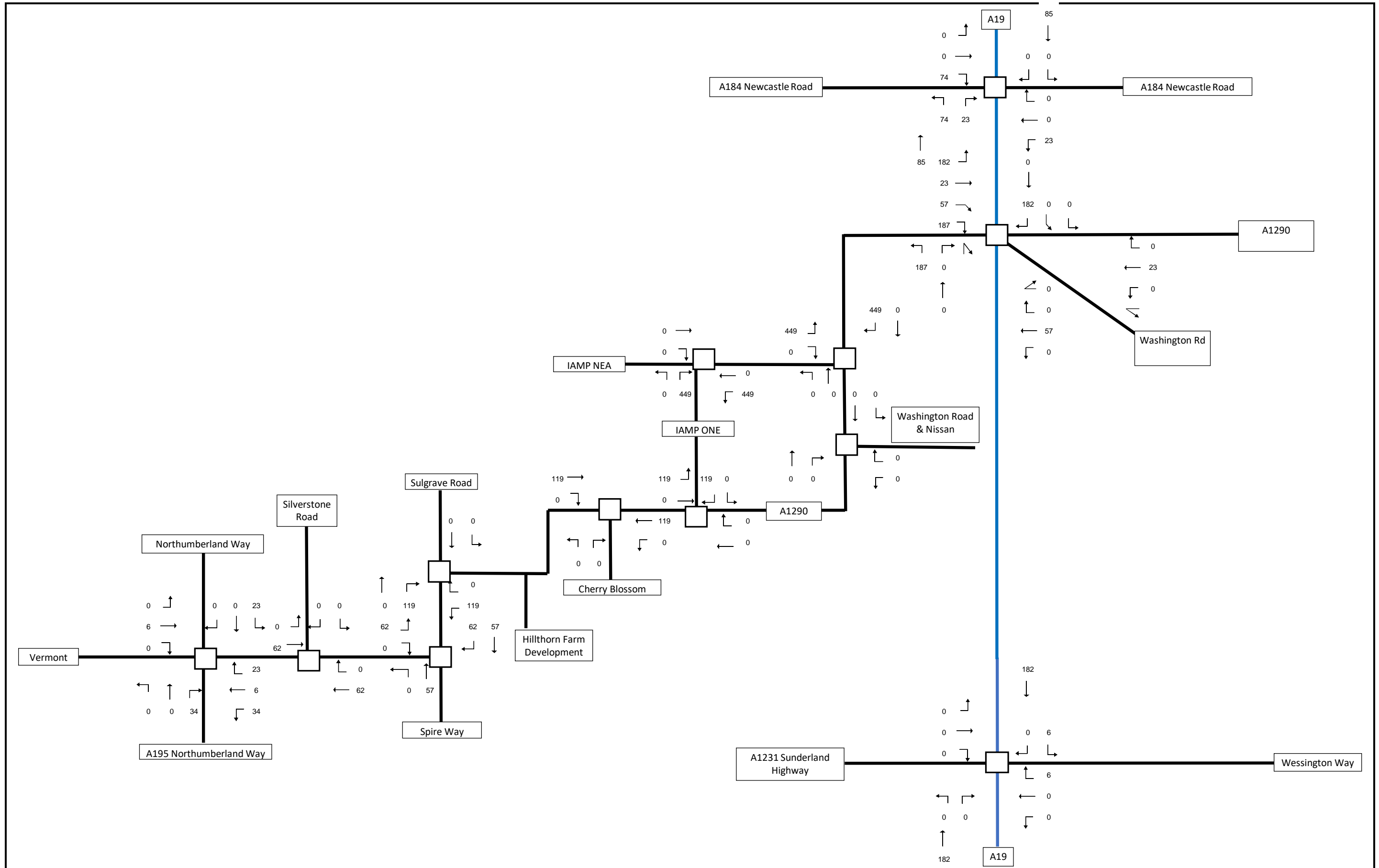
CLIENT	PROJECT	DRAWING TITLE	DRAWN BY	CHECKED BY	APPROVED BY	DATE	
AESC UK	AESC Plant 3	Committed Development Flows - Other sites	MS	RJ		July 2023	SYSTRA



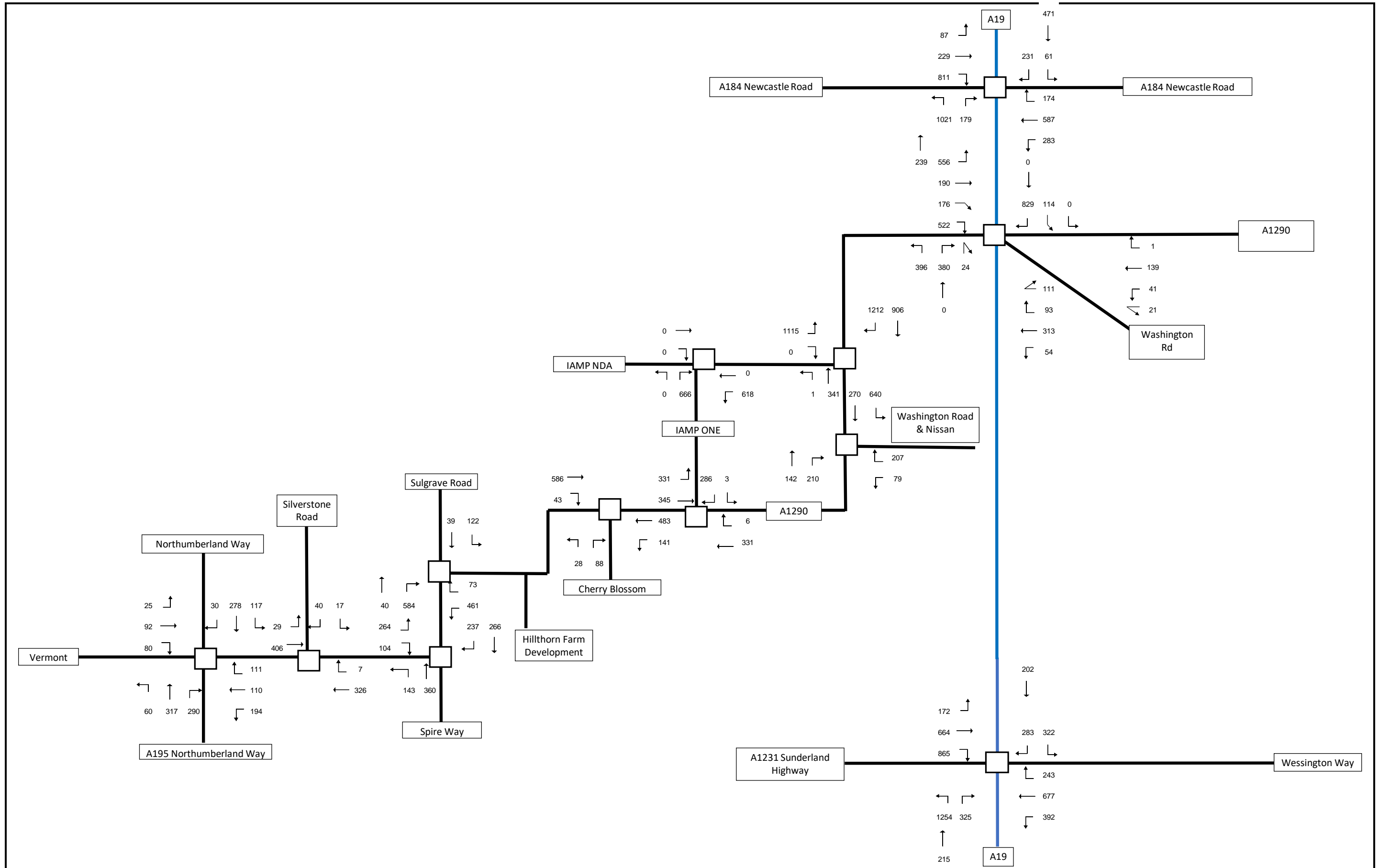
CLIENT	PROJECT	DRAWING TITLE	DRAWN BY	CHECKED BY	APPROVED BY	DATE	
AESC UK	AESC Plant 3	Base + Committed Developments - Development Peak Hour	MS	RJ		July 2023	SYSTRA



CLIENT	PROJECT	DRAWING TITLE	DRAWN BY	CHECKED BY	APPROVED BY	DATE	
AESC UK	AESC Plant 3	Plant 3 Distribution	MS	RJ		July 2023	SYSTRA



CLIENT	PROJECT	DRAWING TITLE	DRAWN BY	CHECKED BY	APPROVED BY	DATE	
AESC UK	AESC Plant 3	Plant 3 Development Flows	MS	RJ		July 2023	SYSTRA



CLIENT	PROJECT	DRAWING TITLE	DRAWN BY	CHECKED BY	APPROVED BY	DATE	
AESC UK	AESC Plant 3	Base + Committed Developments + AESC Plant 3	MS	RJ		July 2023	SYSTRA

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