Transport Assessment

Title	Proposed Industrial Unit 3
Client	Legat Owen
Location	Link 56, Deeside Industrial Park, Weighbridge Road, Deeside
Project number	23-0160
BIM reference	DIPD-BSP-ZZ-XX-RP-D-0004-P03_Transport_Assessment
Date	September 2023

Authorisation Sheet & Revisions Record

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Contents

1.0 Introduction

1.1 Background

1.1.1 This Transport Assessment (TA) has been prepared by BSP Consulting on behalf of Legat Owen in support of a Planning Application for a proposed industrial unit development at a site located in Deeside Industrial Park, Flintshire.

1.1.2 The new facility is for the use of Great Bear Distribution and will extend the existing facilities on the adjacent land. The new unit has a Gross Internal Floor Area (GIFA) of 15,988m^2, and is known as 'Unit 3'. The proposed site layout is included in **Appendix A**.

1.1.3 This TA has been prepared to inform Highways Development Control Officers at Flintshire County Council (FCC) with respect to all highways, traffic and transportation matters associated with the development proposals.

1.2 Scope of Transport Assessment

1.2.1 Following this introduction, the TA will include the following Chapters:

- Chapter 2 analyses the relevant planning and transport policy from a national to a local level
- Chapter 3 describes the baseline situation with reference to the development site's location and the local highway network.
- Chapter 4 investigates the sustainable travel facilities available in the proximity of the site.
- Chapter 5 details the development proposals including the development scale, arrangements for site access, and car, HGV and cycle parking provision.
- Chapter 6 calculates the vehicle trip generation associated with the current development proposals.
- Chapter 7 quantifies the impact of the proposals on the local highway network.
- Chapter 8 assesses highway safety and provides details of the accident data in the vicinity of the site for a recent five year period.
- Chapter 9 summarises and concludes the TA.

2.0 Policy Context

2.1 National Planning Policy Framework (NPPF)

2.1.1 This TA has been prepared in accordance with the National Planning Policy Framework (NPPF) 2021, which states the following in paragraph 113:

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

2.1.2 This TA also reflects the guidance set out in the Planning Practice Guidance for Travel Plans, Transport Assessments and Transport Statements (2014) which state that:

> *"Travel Plans, Transport Assessments and Transport Statements should be:*
>
> - *Proportionate to the size and scope of the proposed development to which they relate and build on existing information wherever possible;*
> - *Established at the earliest practicable possible stage of a development proposal;*
> - *Tailored to particular local circumstances*
> - *Brought forward through collaborative ongoing working between the local planning authority/transport authority, transport operators, rail network operators, Highways Agency where there may be implications for the strategic road network and other relevant bodies. Engaging communities and local north businesses in Travel Plans, Transport Assessments and Statements can be beneficial in positively supporting higher levels of walking and cycling (which in turn can encourage greater social inclusion, community cohesion and healthier communities)"*

2.1.3 In relation to promoting sustainable transport, paragraphs 110 and 111 in the NPPF (2021) state that:

> a) *"Appropriate opportunities to promote sustainable transport modes can be – or have been – taken up, given the type of development and its location;*
> b) *Safe and suitable access to the site can be achieved for all users;*
> c) *The design of streets, parking areas, other transport elements and the content of associated standards reflects current national guidance, including the National Design Guide and the National Model Design Code; and*
> d) *Any significant impacts from the development on the transport network (in terms of capacity or congestion), or on highway safety, can cost effectively mitigated to an acceptable degree.*
>
> *Development should only be prevented or refused on highway grounds if there would be an unacceptable impact on highway safety, or the residual cumulative impacts on the road network would be severe."*

2.2 TAN 18: Transport

2.2.1 TAN 18: Transport explains how an efficient and sustainable transport system is required for a modern, prosperous and inclusive society. The Welsh Government has a statutory duty towards sustainable development. TAN 18 describes how the Welsh Government intends to integrate land use and transport planning in order to achieve their outcomes with regard to climate change. The integration of land use planning can help achieve positive sustainable development outcomes by ensuring new development is located where it is accessible by public transport, walking and cycling.

2.2.2 Section 6 of TAN 18 explains that it is imperative that local councils take walking and cycling into consideration when assessing planning applications. **Section 4** of this TA provides an assessment of the availability of walking and cycling facilities and accessibility of the Application Site using these modes.

2.3 Wales Transport Strategy (2021)

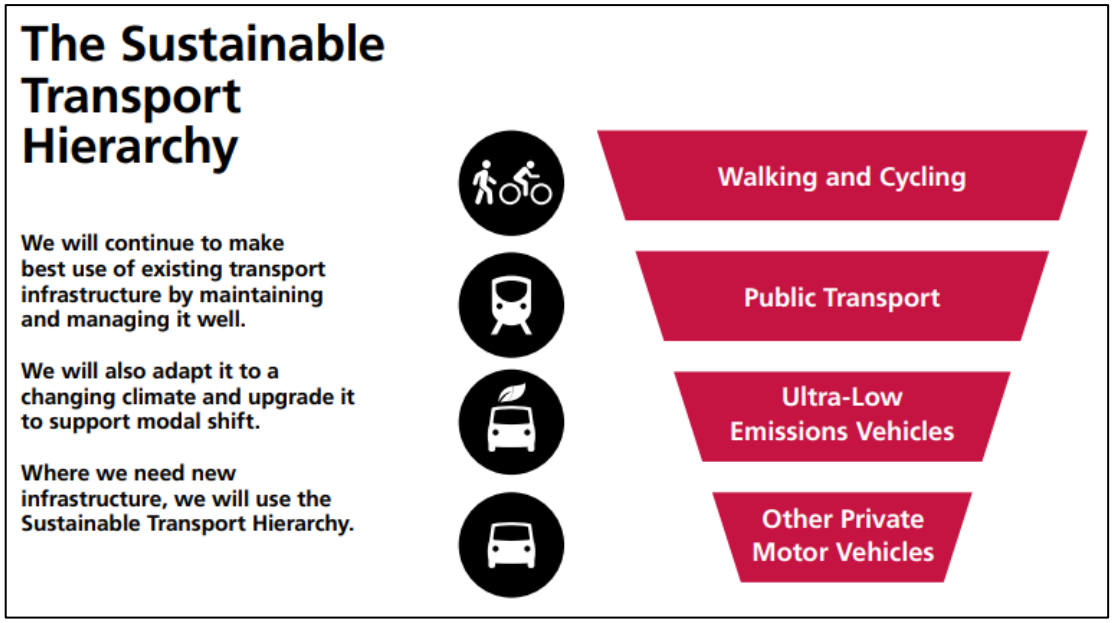
2.3.1 The Wales Transport Strategy (WTS) was published in 2021 with the vision of "an accessible, sustainable and efficient transport system" in order to keep Wales connected, improve the economy, and safeguard the environment. The WTS is implemented through policies and programmes.

2.3.2 The WTS sets out how the Welsh Government intend to achieve their social, economic and environmental outcomes. It also sets out the three key priorities, where substantial progress is required:

- *"Bring services to people in order to reduce the need to travel;*
- *Allow people and goods to move easily from door to door by accessible, sustainable and efficient transport services and infrastructure; and*
- *Encourage people to make the change to more sustainable transport"*

2.3.3 The WTS also describes the Sustainable Transport Hierarchy, shown below in **Figure 2.1**, which will be used as a guide in the decision making process with regards to new transport infrastructure.

Figure 2.1: The Sustainable Transport Hierarchy

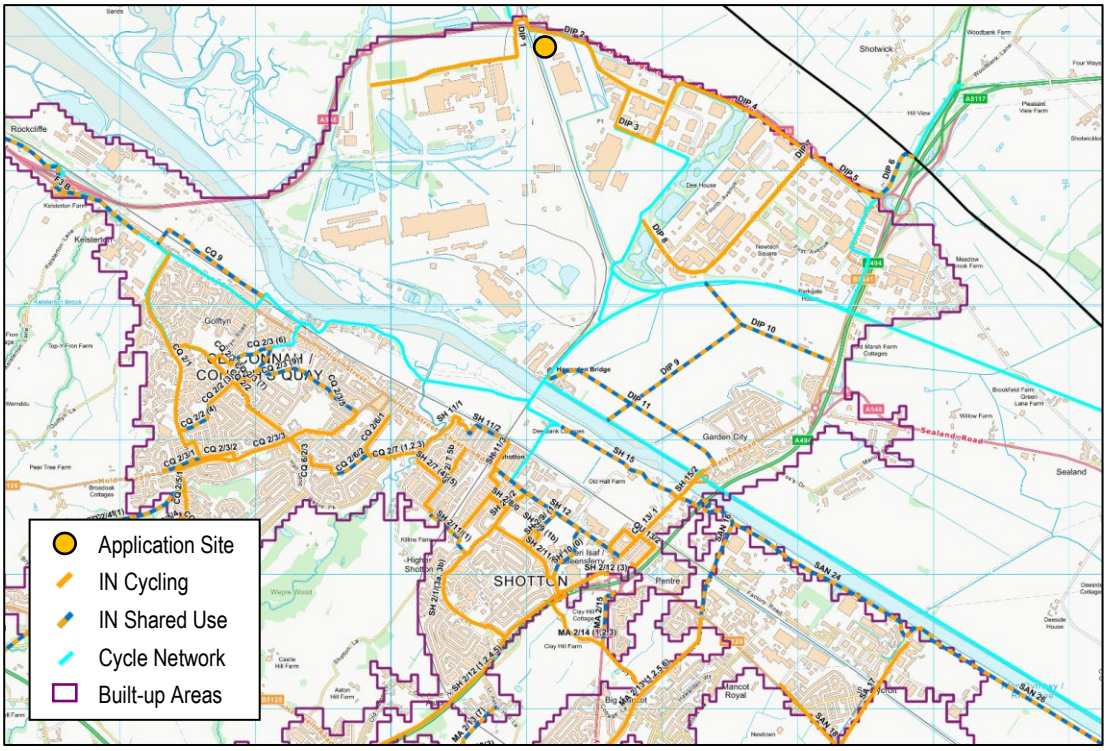


2.4 Active Travel (Wales) Act 2013

2.4.1 The Active Travel (Wales) Act 2013 makes it a legal requirement for Welsh Local Authorities to build and improve walking and cycling infrastructure every year. It creates new duties for highway authorities to make special considerations for walking and cycling as modes of travel and to provide a safer and more effective network. The Act also requires the Welsh Government and the Local Authorities in Wales to promote walking and cycling as modes of travel. Through connecting residential developments with other areas such as workplaces, via active travel routes, the Act encourages people to travel by modes other than single-occupancy cars.

2.4.2 In line with the Active Travel (Wales) Act, FCC has developed an Existing Route Map which is discussed further in **Section 4**, and FCC has also produced Integrated Network Maps (INMs) which identify the existing and proposed active travel routes within the Local Authority. An extract from the INM for Deeside Industrial Park is shown in **Figure 2.2** below.

Figure 2.2: INM Extract for Deeside Industrial Park



2.5 North Wales Joint Local Transport Plan

2.5.1 The North Wales Joint Local Transport Plan (NWJLTP) was published in January 2015. The NWJLTP covers the period from 2015-2020 in detail, and then provides a framework extending to 2030. The NWJLTP sets out following overall vision for transport in North Wales:

> *"The North Wales Local Authorities [Conwy County Borough Council, Denbighshire County Council, Flintshire County Council, Gwynedd Council, Isle of Anglesey County Council and Wrexham County Borough Council] aim to remove barriers to economic growth, prosperity and well-being by delivering safe, sustainable, affordable and effective transport networks."*

2.5.2 The NWJLTP then identifies five key issues which particularly affect transport in the region. These are set out below:

- *"The ability of the strategic trunk road and rail corridors to provide the necessary good connectivity, for people and freight, within North Wales, to the ports and the rest of the UK to support the economy and jobs, including tourism;*
- *The lack of resilience of the road and rail networks to planned and unplanned events including extreme weather;*
- *The need for good access to and between the three Enterprise Zones [Deeside, Anglesey and Snowdonia] in North Wales;*
- *The lack of viable and affordable alternative to the car to access key employment sites and other services; and*
- *The need for good road links to / from the trunk road network into the rural areas to help retain the viability of local businesses and support the Welsh language and culture."*

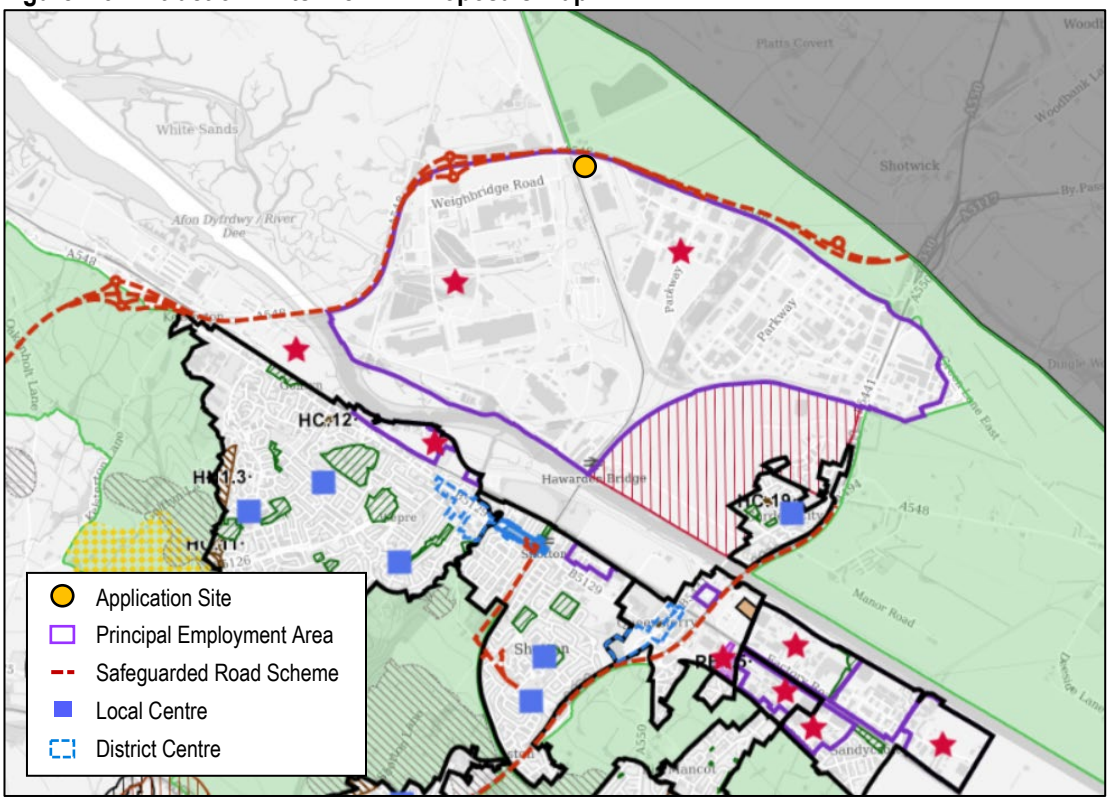
2.5.3 The NWJLTP expands on the overarching vision, and with consideration to both national transport priorities and the key issues for the North Wales region, provides a specific focus to how the vision can be achieved in North Wales through several key transport outcomes, These outcomes form a summary of what the NWJLTP is aiming to achieve over the Plan period:

1. *"**Connections to Key Destinations and Markets:** Support for Economic Growth through an improvement in the efficiency, reliability, resilience, and connectivity of movement, including freight, within and between North Wales and other regions and countries (with a particular focus on accessibility to the Enterprise Zones and an improvement in the vitality and viability of towns and other key centres);*
2. ***Access to Employment:** Providing inclusive and affordable access to employment and training (with a focus on the most deprived communities);*
3. ***Access to Services:** Promotion of social inclusion and well-being through inclusive and affordable access to education, health services and other key services and facilities (with a focus on the most deprived communities);*
4. ***Increasing Levels of Walking and Cycling:** for both necessary travel and recreation, by residents and visitors;*
5. ***Improves Safety and Security**: of both actual and perceived safety of travel by all modes; and*
6. ***Benefits and Minimised Impacts on the Environment:** the potential for transport improvements to positively affect the local global natural and built environment will have been maximized and negative impacts minimized, including adaptation to the effects of climate change."*

2.6 Flintshire Local Development Plan 2015 - 2030

2.6.1 The Flintshire Local Development Plan (LDP) was adopted in January 2023, replacing the Flintshire Unitary Development Plan. **Figure 2.3** below shows an extract of the LDP Proposals Map, which shows that the Application Site is within a Principal Employment Area.

2.6.2 **Figure 2.3: Extract of Flintshire LDP Proposals Map**



2.6.3 The LDP sets out a vision and framework for the future pattern, scale and quality of developments in Flintshire. The vision for the LDP is as follows:

"The LDP is about people and places. It seeks to achieve a sustainable and lasting balance between the economic, social, and environmental needs of Flintshire and its residents, through realising its unique position as a regional gateway and area for economic investment, whilst protecting its strong historic cultural heritage and natural environment."

2.6.4 The LDP sets 19 strategic objectives for Flintshire. The objectives with particular relevance to transport and the Application Site are set out below:

"Enhancing Community Life

- *Ensure communities have access to a mix of services and facilities, such as education and health, to allow community life to flourish, and meet the needs of particular groups such as the elderly.*
- *Promote a sustainable and safe transport system that reduces reliance on the car.*

- *Facilitate the provision of necessary transport, utility and social / community infrastructure.*
- *Create places that are safe, accessible and encourage and support good health, well-being and equality.*

Delivering Growth and Prosperity

- Facilitate growth and diversification of the local economy and an increase in skilled high value employment in key sectors.
- Support development that positions Flintshire as an economically competitive place and an economic driver for the sub-region.

Safeguarding the Environment

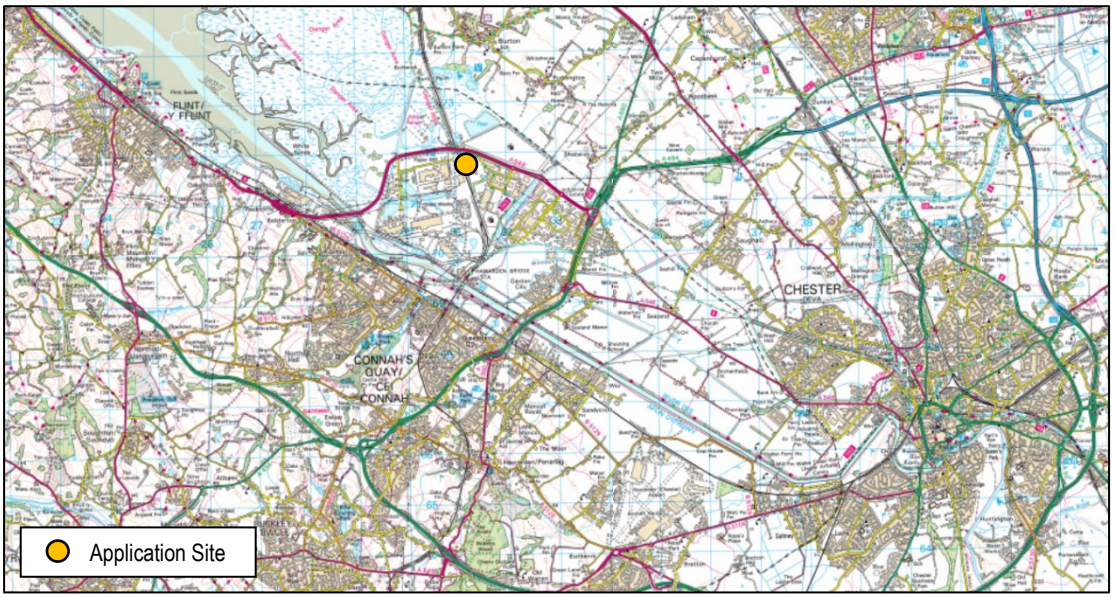
- Minimise the causes and impacts of climate change and pollution.
- Maintain and enhance green infrastructure networks.

3.0 Existing Conditions

3.1 Site Location and Existing Uses

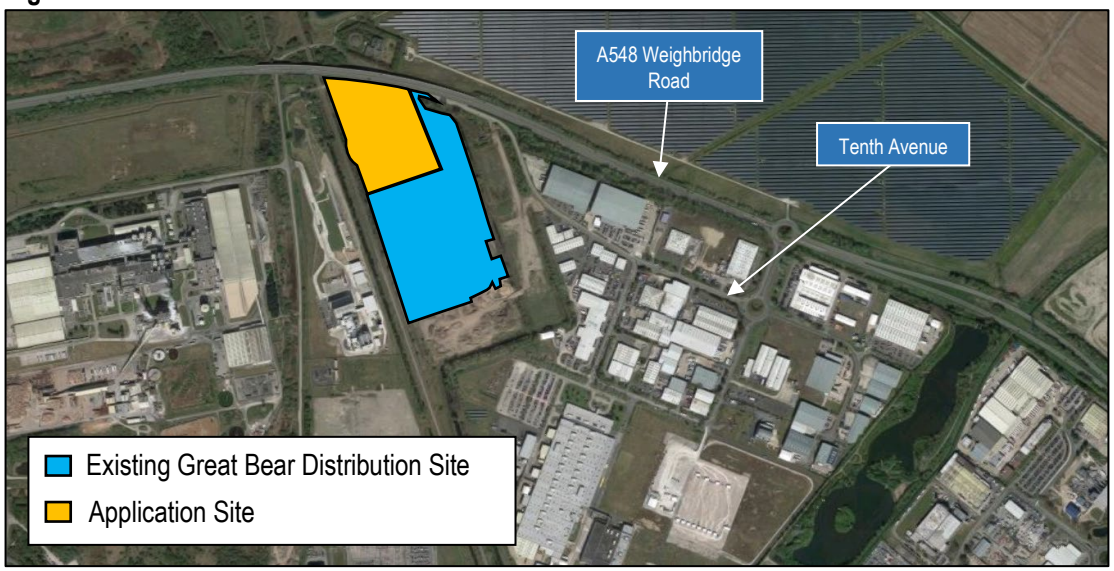
3.1.1 The Application Site is located in Deeside Industrial Park in Flintshire, Wales. The Site is in between the River Dee and the Wales-England border, approximately 10km North West of Chester. **Figure 3.1** shows the site location below.

Figure 3.1: Site Location Plan



3.1.2 The Application Site location is shown in a local context in **Figure 3.2** below.

Figure 3.2: Local Context



3.1.3 The Application Site has an area of 9.96 acres, and was formerly used as a vehicle repair and re-painting workshop. The land is currently being used as a car park for the existing Great Bear Distribution Site whilst work is ongoing to the Unit 2 extension.

3.1.4 The Application Site is bound to the north by an access road and Weighbridge Road which is grade-separated, to the west the site is bound by the Borderlands railway line and to the south and east by the existing Great Bear Distribution industrial units.

3.2 Highway Network

Tenth Avenue

3.2.1 The Application Site is currently accessed via Tenth Avenue through Deeside Industrial Park. Tenth Avenue is a 7.3m wide, two-lane single carriageway road which runs from the A548 Weighbridge Road to the site access and is subject to a 30mph speed limit. Tenth Avenue has parking restrictions on both sides of the road in the form of double yellow lines.

A548 Weighbridge Road

3.2.2 The A548 Weighbridge Road runs adjacent to the site and provides good connectivity to the wider highway network. The A548 runs East to the A494 and West through Flint to Prestatyn. The A548 is accessed from Tenth Avenue by two multi-lane roundabouts.

Strategic Road Network

3.2.3 The A494 and the A550 are the nearest roads on the Strategic Road Network (Traffic Wales) or the Strategic Highways Network (National Highways). The A494 runs broadly North-East – South-West, from the M56 in the north to Dolgellau in the south. There is then good onwards connectivity to the wider highways network, particularly northbound via the M56 and the M6. The A550 runs from Deeside Park Junction to the M53 and provides good connectivity to Liverpool and Ellesmere Port

4.0 Sustainable Transport

4.1 Sustainable Transport Policy

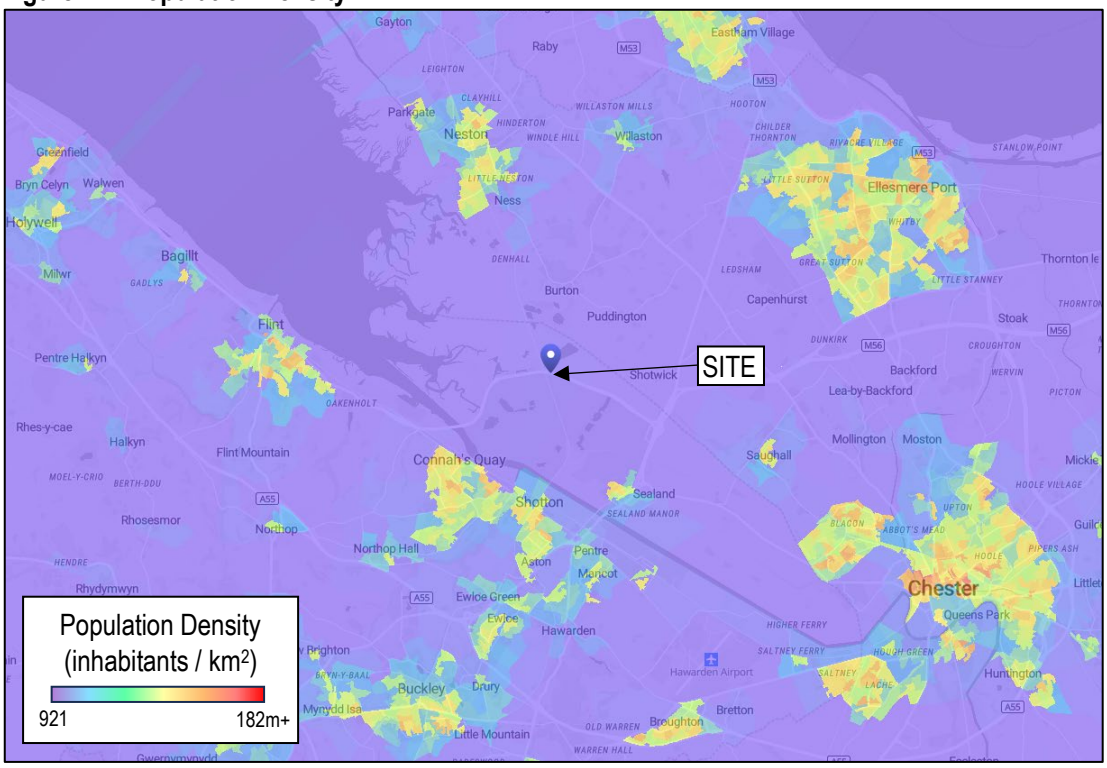
4.1.1 Paragraph 112 of the National Planning Policy Framework (NPPF), July 2021, states that "applications for development should: give priority first to pedestrian and cycle movements, both within the scheme and with neighbouring areas; and second – so far as possible – to facilitating access to high quality public transport, with layouts that maximise the catchment area for bus or other public transport services, and appropriate facilities that encourage public transport use".

4.1.2 Accessibility to the site by sustainable modes of transport is discussed below.

4.2 Local Population

4.2.1 **Figure 4.1** below is a heat map which shows the population density with Deeside and the surrounding areas. It would be expected that a number of the staff working at the Application Site would commute from the more densely populated areas on the map.

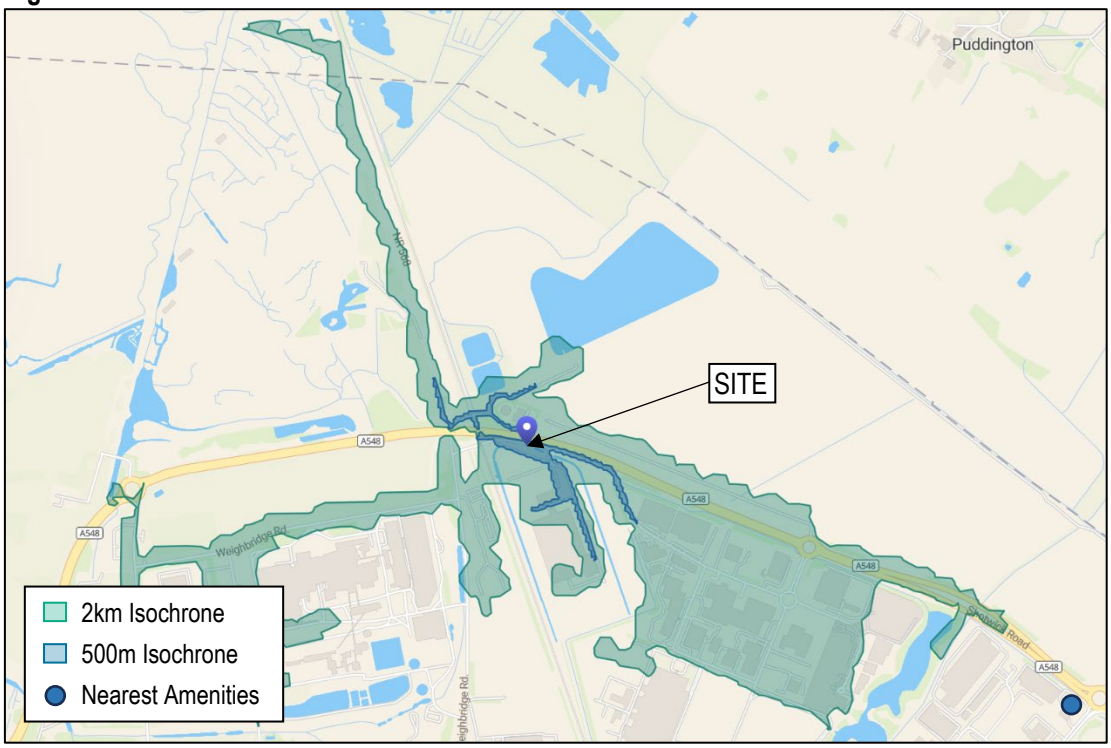
Figure 4.1: Population Density



4.3 Walking

4.3.1 Typically, a distance of 2km would be considered as a threshold distance below which a sustainable approach to transport planning would seek to replace car trips for walking trips. **Figure 4.2** overleaf shows the areas within a 2km and 500m walking distance of the site.

Figure 4.2: 2km and 500m Isochrones from the Site



4.3.2 It can be seen on **Figure 4.2** that the area within a 2km isochrone of the site is primarily industrial land.

4.3.3 Dropped kerbs with tactile paving are provided on all pedestrian and cycleways within the industrial estate as part of a recent upgrade to the available infrastructure. There are good pedestrian links with the adjacent settlements of Connah's Quay and Garden City, including pedestrian footways over the River Dee.

4.3.4 It should be noted that there are no local amenities within a 500m isochrone of the Application Site. The nearest local amenities, shown in **Figure 4.2**, are a local garage, Starbucks and Burger King, approximately a ten minute cycle from the Site.

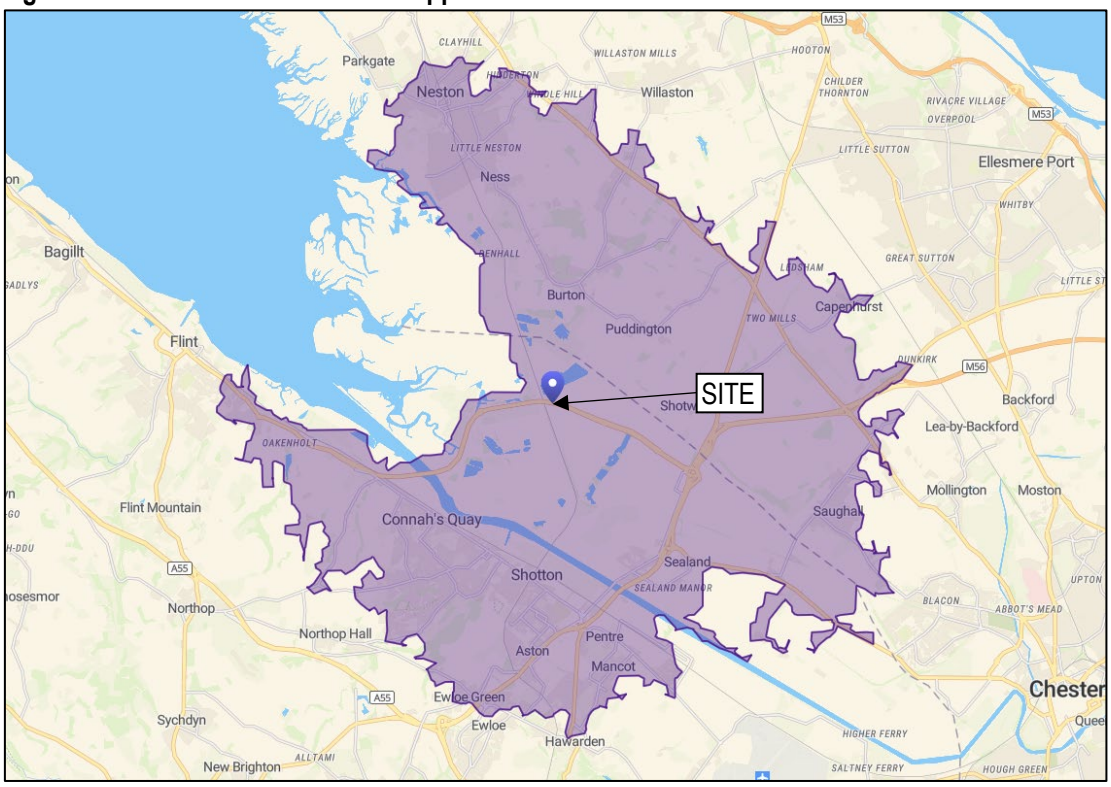
4.3.5 Given the details outlined above, it would be expected that some trips to and from the site may be made using this mode of transport despite most of the local residential areas sitting outside of the 2km isochrone.

4.4 Cycling

4.4.1 Cycling is a very cheap and fast option for accessing amenities at short to medium distances, which would therefore appeal to staff and visitors travelling to and from the site.

4.4.2 Typically, cycling is used for accessing a variety of different destinations, including educational facilities, shops and places of work, up to a range of around 5miles (8km). While some confident and experienced cyclists will cycle longer distances, 8km represents a reasonable maximum cycling distance. **Figure 4.3** overleaf shows the area within 8km of the Application Site.

Figure 4.3: 8km Isochrone from the Application Site



4.4.3 **Figure 4.3** shows that the area within 8km of the site is a mix of rural, industrial and urban land. It would be expected that cycling trips could be made between the site and the existing villages within a reasonable cycling distance of the site including Connah's Quay, Shotton and Neston. Some larger settlements such as Chester, Flint Wirral and Ellesmere Port are also close to the edge of the 8km isochrone, and therefore have the potential to be commuted from by confident cyclists and e-bike users.

4.4.4 As detailed above, there are shared footway / cycleways along the site access carriageway and throughout Deeside Industrial Estate. An example of the local infrastructure showing a shared footway / cycleway with active travel priority is shown below in **Figure 4.4**.

Figure 4.4: Shared Cycle / Footway on Tenth Avenue

4.4.5 Deeside Industrial Estate is part of the National Cycle Network (NCN) which is shown below in **Figure 4.5**. Several NCN routes meet in the immediate vicinity of the application site which provides excellent cycle access from Flint, Connah's Quay and Chester (Route 5); Ellesmere Port (Route 563); Parkgate and Neston (Route 568) and Willaston (Route 56). A significant proportion of the route is designated as "traffic free", which will further encourage cycle use on the routes.

4.4.6 Additionally to the existing NCN routes, a number of cycling routes were shown on the 'Active Travel Existing Routes Map'. These routes are not exhaustive, however they have undergone an audit ensuring that they meet the criteria set out in the 'Active Travel Act Guidance' (July 2021) published by the Welsh Government. An extract of the 'Active Travel Existing Routes Map' which shows routes local to Deeside Industrial Park is shown overleaf in **Figure 4.6**. It should be noted that the extract does not include any information on routes in England.

Figure 4.5: Map of National Cycle Network (NCN) Routes in Vicinity of Site

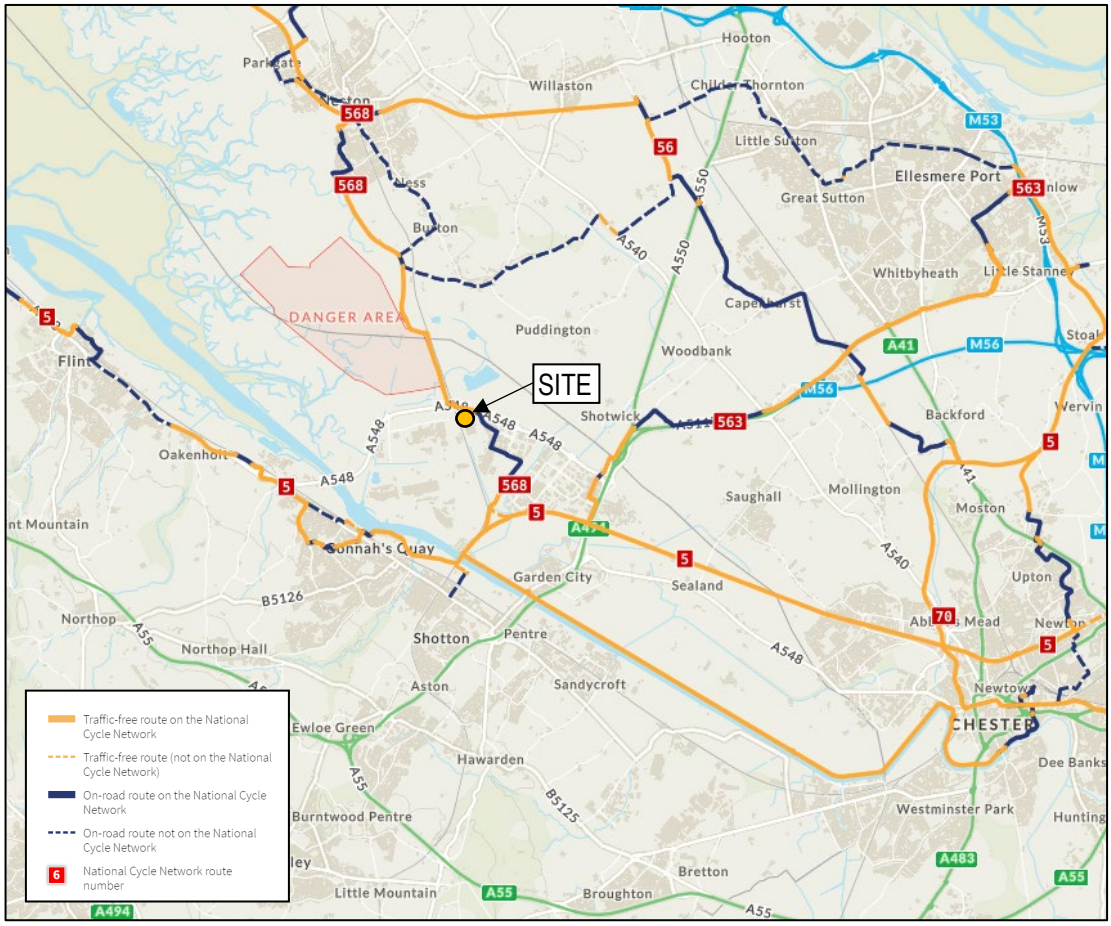
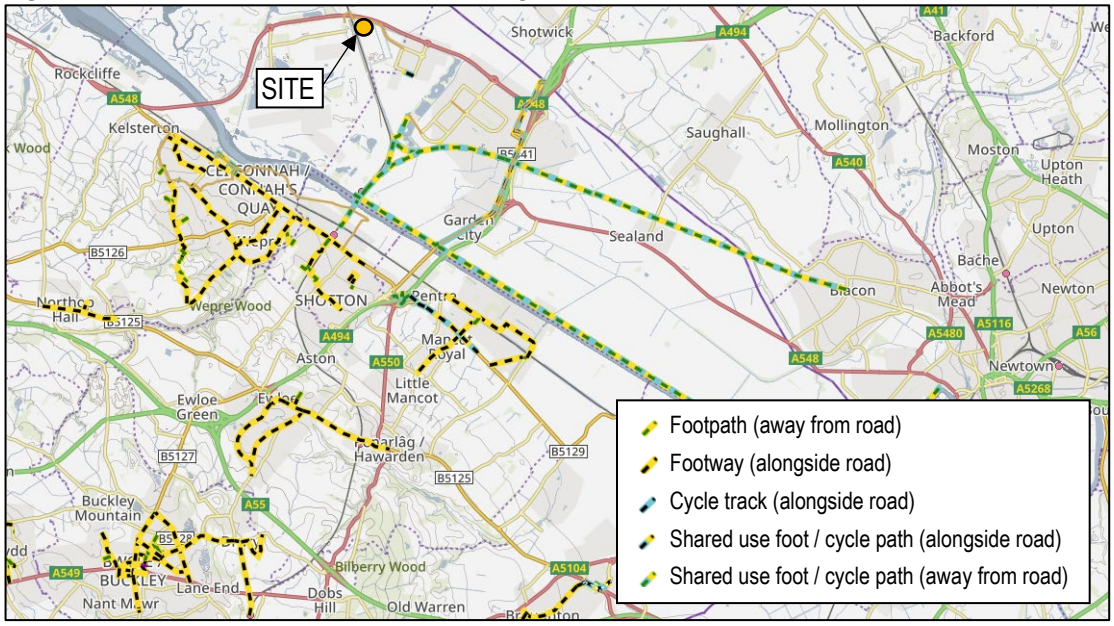
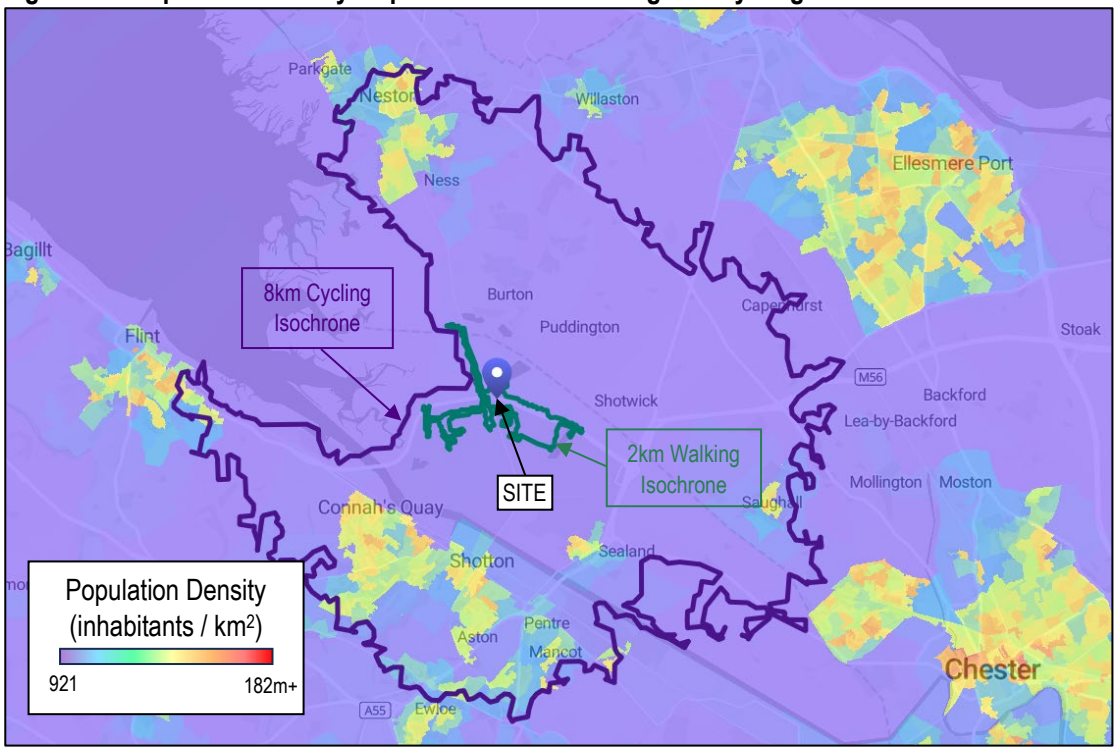


Figure 4.6: Extract from Active Travel Existing Route Map



4.4.7 **Figure 4.7** below shows the population heat map for Deeside overlaid with both the walking and cycling isochrones. It can be seen from **Figure 4.7** that there are no significantly populated areas with the 2km walking isochrone of the Application Site. It can also be seen that the most densely populated areas within the 8km cycling isochrone are Connah's Quay, Shotton and Neston, however Ellesmere Port, the western edge of Chester and Buckley are all densely populated areas near the edge of the 8km cycling isochrone and some people may choose to commute from these areas.

4.4.8 **Figure 4.7: Population Density Map Overlaid with Walking and Cycling Isochrones**



4.4.9 In light of the above, it would be expected that a high number of trips to and from the site would be made by this mode of transport.

4.5 Public Transport

Bus Services

4.5.1 The nearest bus stop to the site is located on Tenth Avenue to the south east of the Application Site. The location is shown in **Figure 4.8** below. The nearest bus stop to the site is 830m walking distance from the site access, which would encourage the use of this mode of transport to access the Site.

Figure 4.8: Bus Stop Location Plan

4.5.2 The bus stops are identified by shelters and road markings as shown in **Figure 4.9** below, and have raised kerbs to increase accessibility.

Figure 4.9: Bus Stop on Tenth Avenue

4.5.3 Comprehensive pedestrian infrastructure, mentioned earlier in **Section 4.3**, will encourage the use of buses as the footpaths are wide, well-lit and accessible.

4.5.4 The bus stops shown in **Figure 4.8** are served by a range of bus services, and the timetables for these services are summarised in **Table 4.1** below.

Table 4.1: Summary of Bus Services

Bus Route	Bus Stop	Route	Days	Times	Approximate Daytime Frequency
D1	Tenth Avenue	Flint (Saturday/Sunday) - Connah's Quay - Garden City - Deeside Industrial Park	Mon - Fri	05.45 - 22.45	60 mins
			Sat	05.55 - 17.55	60mins (with 4hr gap 09.00-13.00)
			Sun	05.55 - 17.55	60mins (with 4hr gap 09.00-13.00)
		Deeside Industrial Park - Flint (Saturday/Sunday) - Connah's Quay - Garden City	Mon - Fri	06.10 - 23.10	60 mins
			Sat	06.05 - 18.05	60mins (with 4hr gap 09.30 - 13.30)
			Sun	06.05 - 18.05	60mins (with 6hr gap 07.00 - 13.00)
D2	Tenth Avenue	Connah's Quay- Deeside Industrial Park	Mon - Fri	05.45 - 22.45	60 mins
			Sat	N/A	N/A
			Sun	N/A	N/A
		Deeside Industrial Park - Connah's Quay	Mon - Fri	06.10 - 23.10	60 mins
			Sat	N/A	N/A
			Sun	N/A	N/A
D3	Tenth Avenue	Flint - Deeside Industrial Park	Mon - Fri	05.48 - 22.48	60 mins
			Sat	N/A	N/A
			Sun	N/A	N/A
		Deeside Industrial Park - Flint	Mon - Fri	06.10 - 23.10	60 mins
			Sat	N/A	N/A
			Sun	N/A	N/A
204	Tenth Avenue	Chester - Deeside Industrial Park	Mon - Fri	07.40 - 17.30	5 services
			Sat	N/A	N/A
			Sun	N/A	N/A
		Deeside Industrial Park - Chester	Mon - Fri	07.40 - 17.30	4 services
			Sat	N/A	N/A
			Sun	N/A	N/A

4.5.5 **Table 4.1** shows that the existing bus services provide regular links to a number of surrounding destinations, including, Flint, Connah's Quay and Chester. There are bus services available throughout the day, with services running 7 days a week.

4.5.6 Journeys from nearby areas such as Flint and Connah's Quay have a high frequency of buses and a short travel time (approximately 20 minutes) which makes it a particularly convenient mode of transport for journeys from those areas.

4.5.7 In light of the above, it would be expected that a high number of trips to and from the site would be made using this mode of transport.

Rail Services

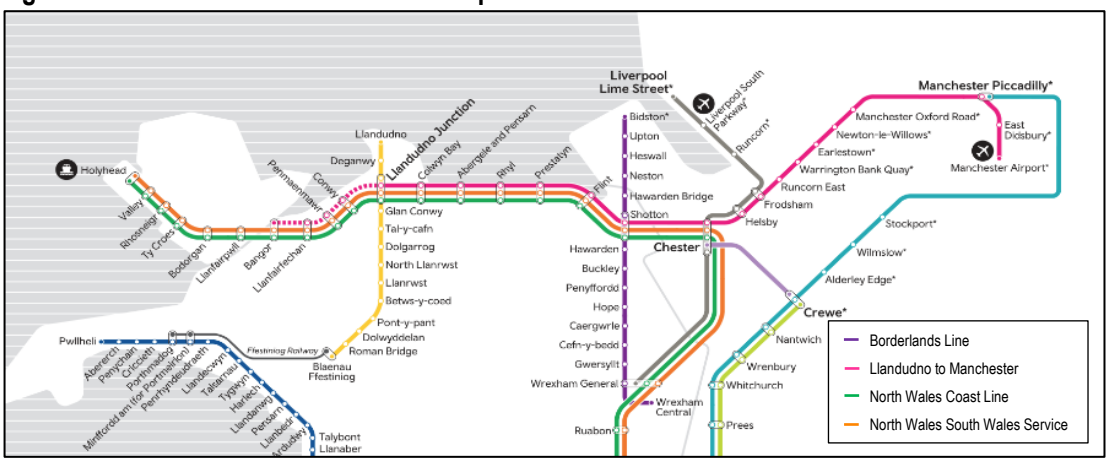
4.5.8 In addition to the bus services outlined above, the site is also well located for easy access to rail services. The site is located in close proximity to Hawarden Bridge and Shotton railway stations, as shown in **Figure 4.10** below. The railway stations are located 3km and 4km respectively from the site and are both on the NCN routes. Both train stations are located within a reasonable cycling distance of the site, and train journeys to the site would therefore be possible from destinations further afield.

Figure 4.10: Railway Station Locations

4.5.9 Both Hawarden Bridge and Shotton Railway Stations are on the north - south Borderlands Line with services connecting Bidston – Wrexham. The service stops daily at Hawarden Bridge and hourly at Shotton. Transport for Wales (TfW) expect that this service will increase in frequency to two per hour during 2023.

4.5.10 Shotton Railway Station is also on the North Wales Coast Line, Llandudno to Manchester Line and North Wales South Wales Line which all run east - west and provide connections from Holyhead, Llandudno, Manchester and Cardiff. **Figure 4.11** overleaf shows an extract from the TfW Network Map.

Figure 4.11: Extract from TfW Network Map



4.5.11 The stations are managed and served by TfW, and there are regular train services available from Monday to Sunday.

4.5.12 Shotton Railway Station has both car and cycle parking available to allow multi-modal journeys, and both railways stations have step-free access.

4.5.13 In light of the above, it would be expected that some trips to and from the Site may be made from further afield using the train services available from both Hawarden Bridge and Shotton railway stations.

4.6 Accessibility Index

4.6.1 The Accessibility Index of the Application Site, a measure of the distance and frequency of public transport in the vicinity of site has been calculated as 1.42 using the BREEAM 2018 Tra01/02 Accessibility Index Calculator. The results are shown in **Appendix B**.

5.0 Development Proposals

5.1 Development Schedule

5.1.1 The development proposals are for the construction of a new Great Bear Distribution warehouse facility (planning use class B8). The warehouse will have a Gross Internal Floor Area (GIFA) of 15,188m² for B8 use and will include a two storey office (planning use class B1) which will have a total GIFA of 800m². The development proposals also include a new car park and service yard. The proposed site layout is shown in **Appendix A**, and the GIFA of the proposed building is summarised below in **Table 5.1**.

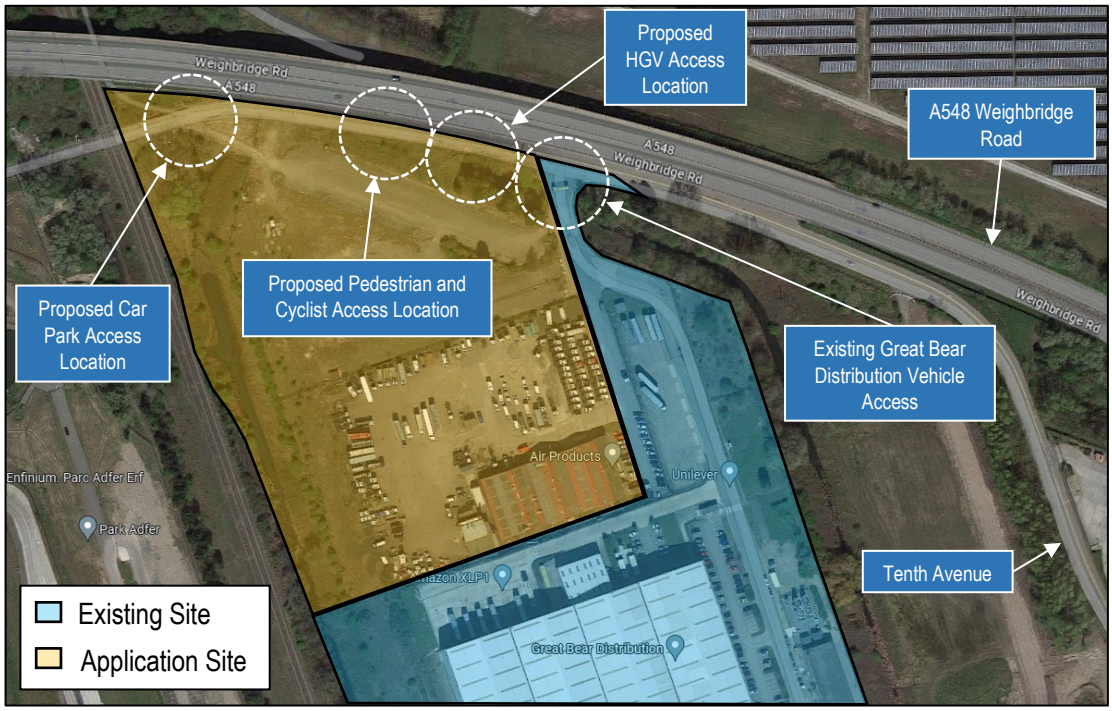
Table 5.1: GIFA

Planning Use Class	GIFA (m²)
B1	800
B8	15,188
Total	**15,988**

5.2 Site Access

5.2.1 It is proposed that the primary vehicular accesses will be to the north of the Application Site via priority junctions off Tenth Avenue. The access locations are shown below in **Figure 5.1**, and the access arrangements are shown in more detail on the proposed site layout in **Appendix A**.

Figure 5.1: Proposed Site Access Locations



5.2.2 It is proposed that access for pedestrians and cyclists is also to the north of the Site as there is existing combined cycle and footway infrastructure adjacent to the Application Site. Crossing points will be provided to enable safe use of the existing infrastructure.

5.3 Car Parking Provision

5.3.1 Car parking would be provided in accordance with the maximum car parking standards shown in Table 1 of FCC's adopted "Supplementary Planning Guidance Note 11: Parking Standards" (SPGN11). **Table 5.2** below shows the maximum number of permitted car parking spaces based on SPGN11, and **Table 5.3** shows the number of parking spaces. The car park will be set out in accordance with the dimensions stated in SPGN11.

Table 5.2: Car Parking Standards

Planning Use Class	Car Parking Standard	GIFA (m^2)	Maximum Car Parking Spaces
B1	1 space / 30m^2	800	800 / 30 = 27
B8	1 space / 100m^2	15,188	15,188 / 100 = 152
Total		**15,988**	**179**

Table 5.3: Proposed Car Parking Provision

GIFA (m^2)	Maximum Car Parking Spaces	Proposed Car Parking Spaces	% of Maximum
15,988	179	160	89.3%

5.3.2 **Table 5.3** shows that in total there are 160 car parking spaces proposed and that the maximum number permitted is 179, and therefore 89.3% of the maximum number of car parking spaces are proposed. The proposed level of car parking would be considered appropriate for the size and location of the proposed development.

5.3.3 According to point 5.6 in SPGN11, 10% of all spaces provided should be at a wider "mobility standard" (3.6m wide compared to 2.4m wide standard car parking spaces), and 60% of those spaces should be designated exclusively as "disabled" spaces. **Table 5.4** below shows the required number of accessible parking spaces. The required number of disabled and mobility spaces are included on the proposed site layout, shown in **Appendix A**.

Table 5.4: Disabled and Mobility Standard Car Parking Provision

Total Car Parking Spaces Proposed	Mobility Standard (Total inc. disabled spaces)	Disabled Spaces
160	16	8

5.3.4 Electric Vehicles (EV's) provide a more sustainable and less polluting alternative to diesel and petrol cars as shown in the Sustainable Transport Hierarchy in **Figure 2.1**. It is proposed that 25% of the car parking spaces are also 7kW Electric Vehicle Charging Points (EVCP's). As such, 40 car parking spaces will have EVCP infrastructure. The parking spaces with EVCP infrastructure are shown on the proposed site layout in **Appendix A**.

5.3.5 8 priority car share parking spaces will be made available, located close to the main building entrance, to encourage a reduction in the number of single occupancy vehicles attending the Application Site every day.

5.4 HGV Parking Provision

5.4.1 The proposals for the service yards include 26 dock levellers and an additional 30 HGV parking spaces. The proposed numbers of HGV parking spaces and dock levellers are summarised below in **Table 5.5** below, and shown on the proposed site layout in **Appendix A**.

Table 5.5: Provision for HGVs

Dock Levellers	HGV Parking Spaces	Total
26	30	56

5.5 Cycle Parking Provision

5.5.1 Given the location of the site and the proximity to the NCN routes, it is anticipated that a number of trips to and from the site will be made by cycling, as was discussed in **Section 4.4**.

5.5.2 Cycle use should be encouraged by the provision of cycle spaces. As cycle theft deters greater cycle use, the type of cycle parking provision is important. Covered 'Sheffield' stands are appropriate for short-term cycle parking.

5.5.3 Cycle parking provision for the proposed development has been planned in accordance with Table 2 in Flintshire's Adopted SPGN11. The required minimum cycle parking provision is shown in **Table 5.6** below.

Table 5.6: Cycle Parking Provision

Planning Use Class	Cycle Parking Standard	GIFA (m2)	Minimum Cycle Parking Spaces	Proposed Parking Provision
B1	1 space / 350m^2	800	800 / 350 = 2.3	
B8	1 space / 1000m^2	15,188	15,188 / 1000 = 15.2	
Total		**15,988**	**18 spaces**	**9 stands (18 spaces)**

5.5.4 Motorcycle parking provision is also in accordance with the guidance set out in SPGN11. **Table 5.7** shows the motorcycle parking requirements below.

Table 5.7: Motorcycle Parking Provision

Motorcycle Parking Standard	No. Proposed Car Parking Spaces	Minimum Motorcycle Parking Spaces	Proposed Parking Provision
1 space / 25 car parking spaces	160	160 / 25 = 7.1	8 spaces

5.5.5 **Table's 5.6** and **5.7** shows that the proposed bicycle and motorcycle parking provision is in accordance with FCC's guidance.

6.0 Traffic Generation

6.1 Traffic Generation – Proposed Use

6.1.1 In order to determine the likely traffic generation for the proposed development, reference was made to the 'employment – office' and 'employment – warehousing (commercial)' categories of the TRICS 7.10.1 database. These categories are considered representative of planning use classes B1 and B8 respectively.

6.1.2 Unsuitable survey sites were filtered out according to survey location and the size of the developments surveyed. Sites surveyed during the Covid-19 pandemic were deselected. Only data gathered between Monday-Friday was used. The TRICS data is included in **Appendix C**, and the trip rates and resultant traffic generation are shown in **Table 6.1** below.

Table 6.1: Trip Rates and Traffic Generation for Proposed Use

		08:00-09:00			17:00-18:00		
		Arrive	Depart	Total	Arrive	Depart	Total
Employment (Offices)	Trip Rate (per 100m²)	1.777	0.18	1.957	0.111	1.546	1.657
	Trip Generation (800m²)	14	1	15	1	12	13
Employment (Warehouse Commercial)	Trip Rate (per 100m²)	0.205	0.111	0.316	0.061	0.157	0.218
	Trip Generation (15,188m²)	31	17	48	9	24	33
Total	Trip Generation	45	18	**63**	10	36	**46**

6.1.3 Based on the figures presented in **Table 6.1** the Application Site can be expected to generate 63 and 46 vehicular trips during the AM and PM peak hours respectively.

6.1.4 The impact of the additional trips on the surrounding highway network is considered in **Section 7** below.

7.0 Highway Capacity Assessment

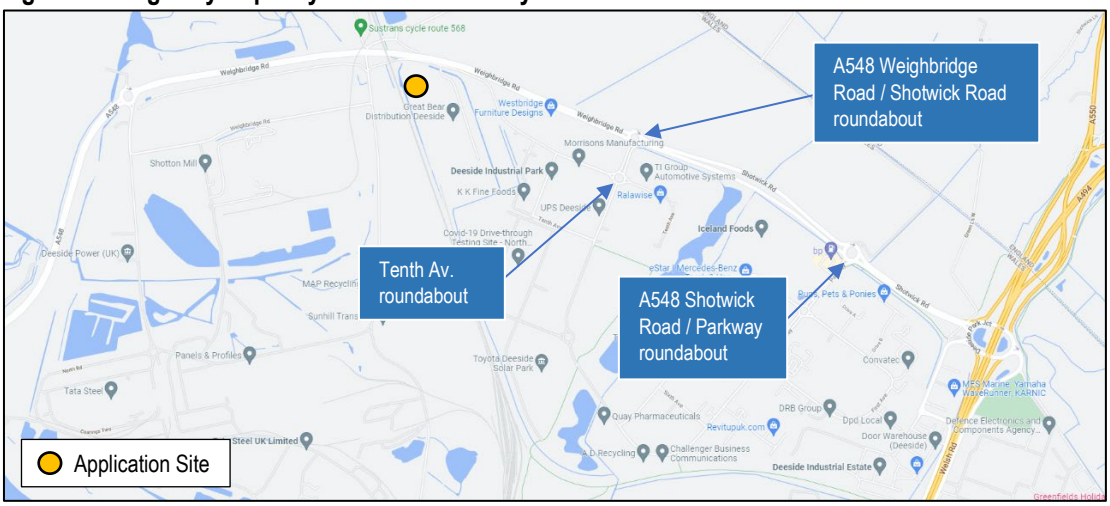
7.1 Study Area

7.1.1 During the scoping stage, it was agreed with FCC that the following junctions should be assessed for capacity;

- Tenth Avenue Roundabout
- A548 Weighbridge Road / Shotwick Road Roundabout
- A548 Shotwick Road / Parkway Roundabout

7.1.2 The proposed study area is identified in **Figure 7.1** below.

Figure 7.1: Highway Capacity Assessment Study Area



7.2 Traffic Counts

7.2.1 Traffic flows at the junctions stated above were obtained from weekday morning and evening peak period traffic counts undertaken on Tuesday 11th January 2022. The observed traffic flows are shown on Flow Diagram 1 in **Appendix D**. The peak hours were found to be 07:30 – 08:30 and 16:30 – 17:30 on weekdays.

7.2.2 The traffic counts were completed during Covid restrictions imposed by the Welsh Government which included 'Work from Home' guidance. To ensure that the traffic counts were robust an additional 'Covid Growth Factor' was proposed. The growth factor was determined by comparing the 2022 traffic count for the A548 Weighbridge Road roundabout with an historical traffic count from a 2014 TA prepared for an Energy Recovery Facility within Deeside Industrial Park. A Tempro growth factor was applied to the 2014 flows (discussed further in **Section 7.3** below) to establish how the 2014 flows would have been expected to have adjusted by 2022. The comparison showed that a 'Covid Growth Factor' of 18.2% would need to be applied to the flow data obtained in 2022, to obtain traffic flows that would be representative of normal conditions. The calculations for the Covid Growth Factor are shown in **Appendix E**. The resulting 2022 traffic flows are shown on Flow Diagram 2 in **Appendix D**.

7.3 Traffic Growth

7.3.1 In order to assess the impact of the development for future design years, growth factors need to be applied to the 2022 base flows. An assessment of the year of proposed opening (2025) and of opening year + five years (2030) would be appropriate for assessment.

7.3.2 Base traffic flows for 2025 and 2030 have been established by applying growth factors to the 2022 base flows. The appropriate growth factors, established using the Tempro software, are shown in **Table 7.1** below. As discussed in **Section 7.2** above, the growth factors applied to the 2014 base flows are also shown.

Table 7.1: Tempro Traffic Growth Factors (Flintshire 008)

Base Year	Future Year	Peak	Localised NTM Factor
2014	2022	AM	1.0763
		PM	1.0729
2022	2025	AM	1.0218
		PM	1.0208
2022	2030	AM	1.0526
		PM	1.0505

7.3.3 The resulting base traffic flows for 2025 and 2030 are shown on Flow Diagrams 3 and 4 in **Appendix D**.

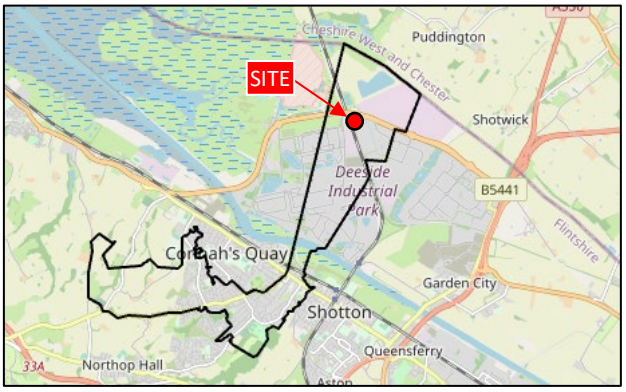
7.4 Committed Developments

7.4.1 No committed developments were identified within the TA study area during the scoping stage.

7.5 Percentage Distribution of Development Flows

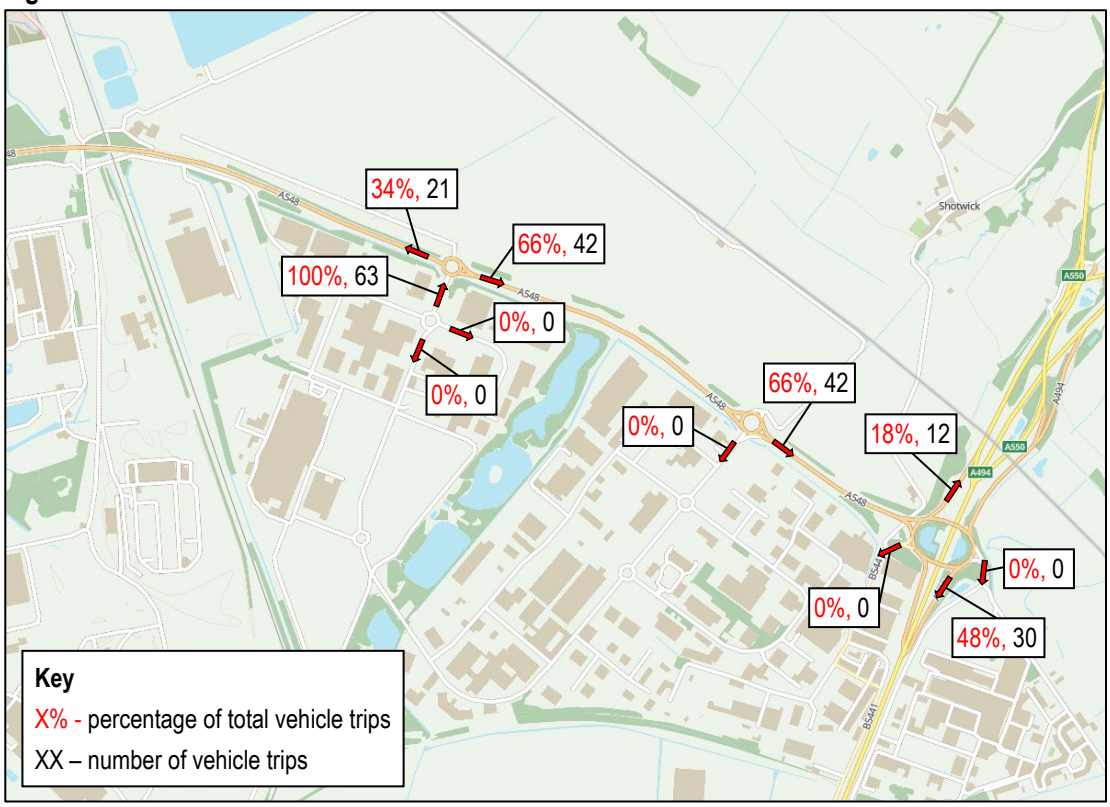
7.5.1 The traffic generated by the site has been distributed in accordance with the traffic patterns generated by an analysis of the existing census travel to work data for the Middle Layer Super Output Area (MSOA) Flintshire 008. The Flintshire 008 MSOA is shown in **Figure 7.2** overleaf.

Figure 7.2: Flintshire 008 MSOA



7.5.2 The summary of the analysis is shown on **Figure 7.3** below, and the full results of the analysis can be found in **Appendix F**.

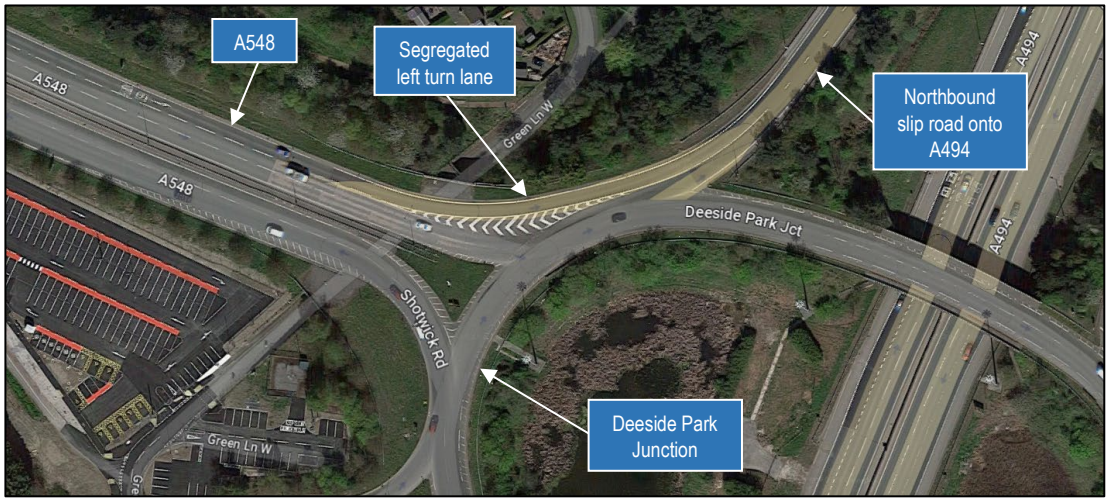
Figure 7.3: MSOA Distribution



7.5.3 The number of vehicle trips shown in **Figure 7.3** are the expected number of trips over a junction based on the worst case scenario, the AM peak hour trip generation which was shown in **Table 7.1**.

7.5.4 It should be noted that Deeside Park Junction has not been included in the proposed study area as the vehicle trips to the north of the roundabout would be via a segregated left turn lane, shown overleaf in **Figure 7.4**, and therefore would not be included within the capacity assessment. As such, the junction would have 30 or less additional two way vehicle trips during each of the peak hours which would be classed as a negligible increase and would not require further assessment.

Figure 7.4: Deeside Park Junction



7.5.5 The percentage distribution is shown on Flow Diagram 5 in **Appendix C**, and the resultant development flows are shown on Flow Diagram 6 in **Appendix D**.

7.5.6 In order to establish the traffic impact at the study area junctions, the development flows have been added to the base flows. The base + development flow scenario is shown for 2025 on Flow Diagram 7 and for 2030 on Flow Diagram 8 in **Appendix D**.

7.6 Highway Impact

7.6.1 To assess the impact of the development traffic, junction capacity assessments have been prepared for the Study Area junctions. Junctions 9 software has been used to assess the priority junctions at Tenth Avenue and the A548 Weighbridge Road / Shotwick Road, whilst LinSig3 has been used to assess the partially signallised junction at the A548 Shotwick Road / Parkway. The full capacity assessments are included in **Appendices F** and **G** respectively, and the results are summarised in **Tables 7.2 – 7.4** below.

Table 7.2: Summary of Junctions 9 Results – Tenth Avenue Roundabout

	AM Peak Hour		PM Peak Hour	
	Max RFC	Queue Length	Max RFC	Queue Length
2025 Base Flows	0.260	0	0.402	1
2025 Base + Dev Flows	0.281	0	0.432	1
2030 Base Flows	0.268	0	0.414	0
2030 Base + Dev Flows	0.289	0	0.444	0

Table 7.3: Summary of Junctions 9 Results – A548 Weighbridge Road / Shotwick Road Roundabout

	AM Peak Hour		PM Peak Hour	
	Max RFC	Queue Length	Max RFC	Queue Length
2025 Base Flows	0.592	2	0.495	1
2025 Base + Dev Flows	0.607	2	0.498	1
2030 Base Flows	0.610	2	0.509	1
2030 Base + Dev Flows	0.626	2	0.513	1

Table 7.4: Summary of LinSig3 Results – A548 Shotwick Road / Parkway Roundabout

	AM Peak Hour		PM Peak Hour	
	PRC	MMQ	PRC	MMQ
2025 Base Flows	36.7%	8.3	7.5%	12.5
2025 Base + Dev Flows	36.7%	8.6	6.7%	12.5
2030 Base Flows	32.8%	8.6	4.4%	13.5
2030 Base + Dev Flows	32.8%	9.0	3.7%	13.5

7.6.2 The maximum RFC value at a priority junction represents the ratio of flow to capacity. A junction is considered to be operating over capacity if the RFC value exceeds 0.85. The results in **Tables 7.2** and **7.3** show that both the Tenth Avenue Roundabout and the A548 Weighbridge Road / Shotwick Road Roundabout will be operating with significant spare capacity and that the impact of the development is minimal.

7.6.3 The PRC at a signal junction refers to practical reserve capacity. A figure greater than 0% indicates that there is spare capacity at a junction. The results in **Table 7.4** show that the A548 Shotwick Road / Parkway Roundabout will operate within capacity for all scenarios. Further junction improvements are not therefore considered necessary on highway capacity grounds.

7.6.4 In light of the above, no mitigation measures are required, and it is not considered necessary to carry out any further capacity assessment work.

8.0 Highway Safety Assessment

8.1 An investigation has been carried out into highway safety in the vicinity of the Application Site. **Figures 8.1** and **8.2** below show the Personal Injury Accidents (PIA's) that have occurred during the five year period from 2017 - 2021. The study area, shown below on **Figure 8.1**, is Tenth Avenue Roundabout, Weighbridge Road / Shotwick Road Roundabout and Shotwick Road / Parkway Roundabout.

Figure 8.1: PIA's Within the Study Area

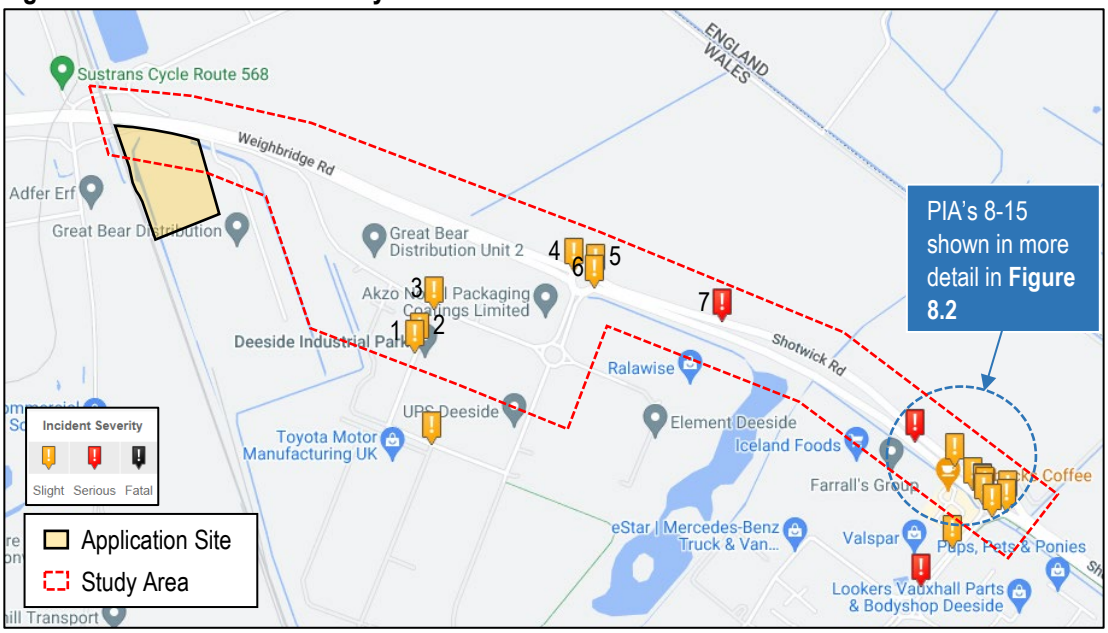
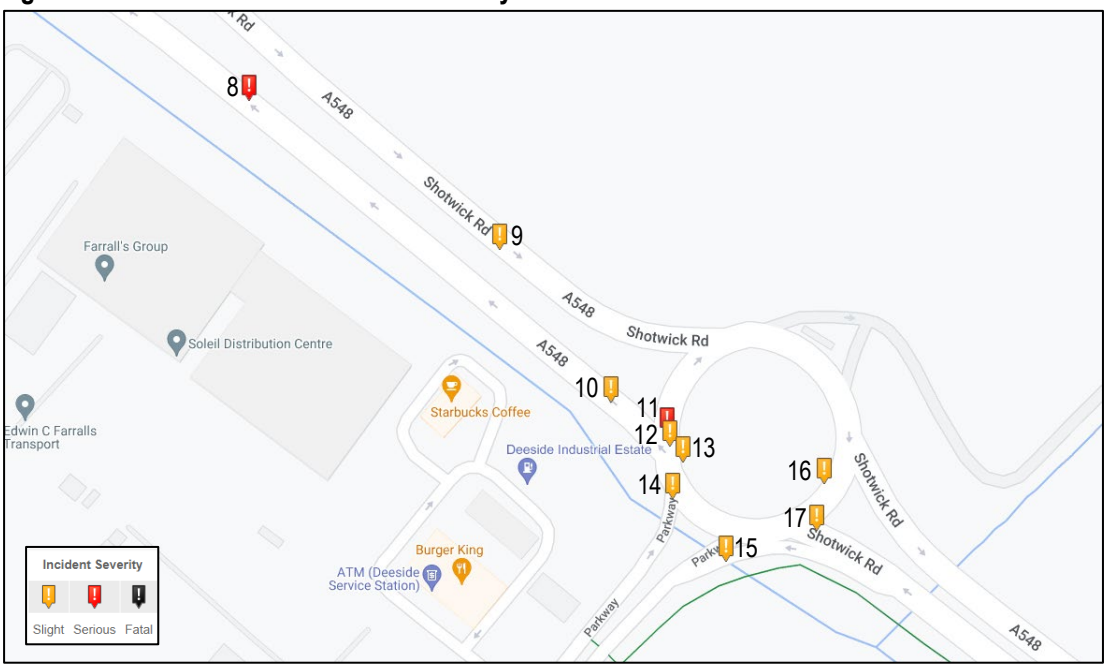


Figure 8.2: PIA's at Shotwick Road / Parkway Roundabout



8.2 It is noted that none of the PIA's shown in **Figure 8.1** occurred in the immediate vicinity of the site access and only one accident occurred directly between the site access and Weighbridge Road.

8.3 Details of the accidents shown in **Figures 8.1** and **8.2** are summarised in **Table 8.1** below.

Table 8.1: Summary of PIA's in 5 year period (2017 – 2021)

PIA No.	Severity	Date	No. Vehicles	No. Casualties
1	Slight	20th August 2019	2	1
2	Slight	7th September 2017	1	1
3	Slight	3rd May 2017	2	1
4	Slight	12th November 2018	2	1
5	Slight	26th February 2018	2	1
6	Slight	2nd October 2021	1	1
7	Serious	3rd April 2018	2	1
8	Serious	16th March 2019	4	3
9	Slight	25th May 2021	4	1
10	Slight	14th September 2021	2	1
11	Serious	27th March 2018	2	1
12	Slight	15th November 2020	2	1
13	Slight	6th September 2017	2	1
14	Slight	12th June 2017	2	1
15	Slight	21st March 2019	2	1
16	Slight	8th May 2018	2	2
17	Slight	20th September 2021	2	2

8.4 **Table 8.1** shows that there have been a total of 17 PIA's within the study area shown in **Figures 8.1** and **8.2**. **Table 8.1** shows that of the 17 accidents recorded, 14 accidents were classed as "slight", three were classed as "serious" and none were classed as "fatal".

8.5 An average of 3.4 PIA's occurred per year over the study area. The only junction within the study area with an average of more than one PIA per year was the Shotwick Road / Parkway Roundabout, with an average of 1.8 PIA's per year.

8.6 **Table 8.2** below shows the instances of PIA's involving Non-Motorised Users (NMU's).

Table 8.2: PIA's which involve Non-Motorised Users (NMU's)

PIA No.	Severity	PIA Involves Cyclist	PIA Involves Pedestrian
3	Slight	X	
4	Slight	X	

8.7 As shown in **Table 8.2**, two of the recorded PIA's involved a cyclist, and none of the PIA's involved a pedestrian.

8.8 On the basis of the PIA records analysed, and when taking into account the presence of a strategic link travelling through the study area, there are no locations that are considered to demonstrate a significant cluster of PIAs over the period. The PIA records do not indicate any particular patterns that could be considered to constitute an existing road safety concern.

9.0 Conclusions

9.1 Development Proposals

9.1.1 This Transport Assessment (TA) has been prepared by BSP Consulting on behalf of Legat Owen in support of a Planning Application for a new industrial unit at a Site located in Deeside Industrial Park, Flintshire. The new facility is for the use of Great Bear Distribution and will extend the existing facilities on the adjacent land. The new unit is known as "Unit 3". This TA has been prepared to inform Highways Development Control Officers at Flintshire County Council (FCC) with respect to all highways, traffic and transportation matters associated with the development proposals.

9.1.2 The current development proposals for the Application Site comprise a new warehouse facility with a Gross Internal Floor Area (GIFA) of 15,188m^2 for B8 use and a two storey office with a GIFA of 800m^2.

9.1.3 Vehicular access to the Application Site would be via the existing access road from Tenth Avenue to the north of the Site. Pedestrian and cycle access would be via a dedicated access to the north of the Site, including a crossing point to enable safe access to the existing shared footway / cycleway on Tenth Avenue.

9.1.4 160 car parking spaces will be provided. A total of 16 of the total spaces will be to 'mobility standard', and 8 of those spaces will be designated exclusively as 'disabled', in accordance with FCC's adopted "Supplementary Planning Guidance Note 11: Parking Standards" (SPGN11).

9.1.5 40 of the proposed car parking spaces will be 7kW Electric Vehicle Charging Points.

9.1.6 8 of the car parking spaces will be designated as priority car sharing spaces to encourage a reduction in the number of single occupancy vehicles.

9.1.7 The proposals for the service yard include 26 dock levellers and 30 HGV parking spaces which would be considered sufficient to prevent on-street parking elsewhere within the industrial park.

9.1.8 Cycle use should be encouraged by the provision of cycle spaces. Covered 'Sheffield' stands are appropriate for short-term cycle parking. Cycle parking provision for the proposed development has been planned in accordance with Flintshire design guidance, which specifies that a minimum bicycle parking provision of 18 spaces and minimum motorcycle parking of 8 spaces would be appropriate on the site.

9.2 Existing Sustainable Transport

9.2.1 The Application Site is accessible by all modes of transport and is therefore well located for employment development. The pedestrian network within Deeside Industrial Park is extensive which provides local access to bus stops and the train stations. There are good opportunities for cycle travel to and from the site, with residential areas within cycling distance and appropriate infrastructure provided, particularly along National Cycle Routes 568 and 5. There are also opportunities for bus travel, with regular bus services running within walking distance of the site, and the potential for some trips to be made by train, via the services accessible from Hawarden Bridge and Shotton railway stations.

9.3 Highway Safety

9.3.1 An accident analysis has been carried out for the area surrounding the site. During a five year study period, there were a low number of Personal Injury Accidents (PIA's), and the PIA's recorded were mostly classified as being 'slight'. The findings do not indicate that there is a cause for concern regarding highway safety in the vicinity of the Site.

9.4 Traffic Generation and Highway Impact

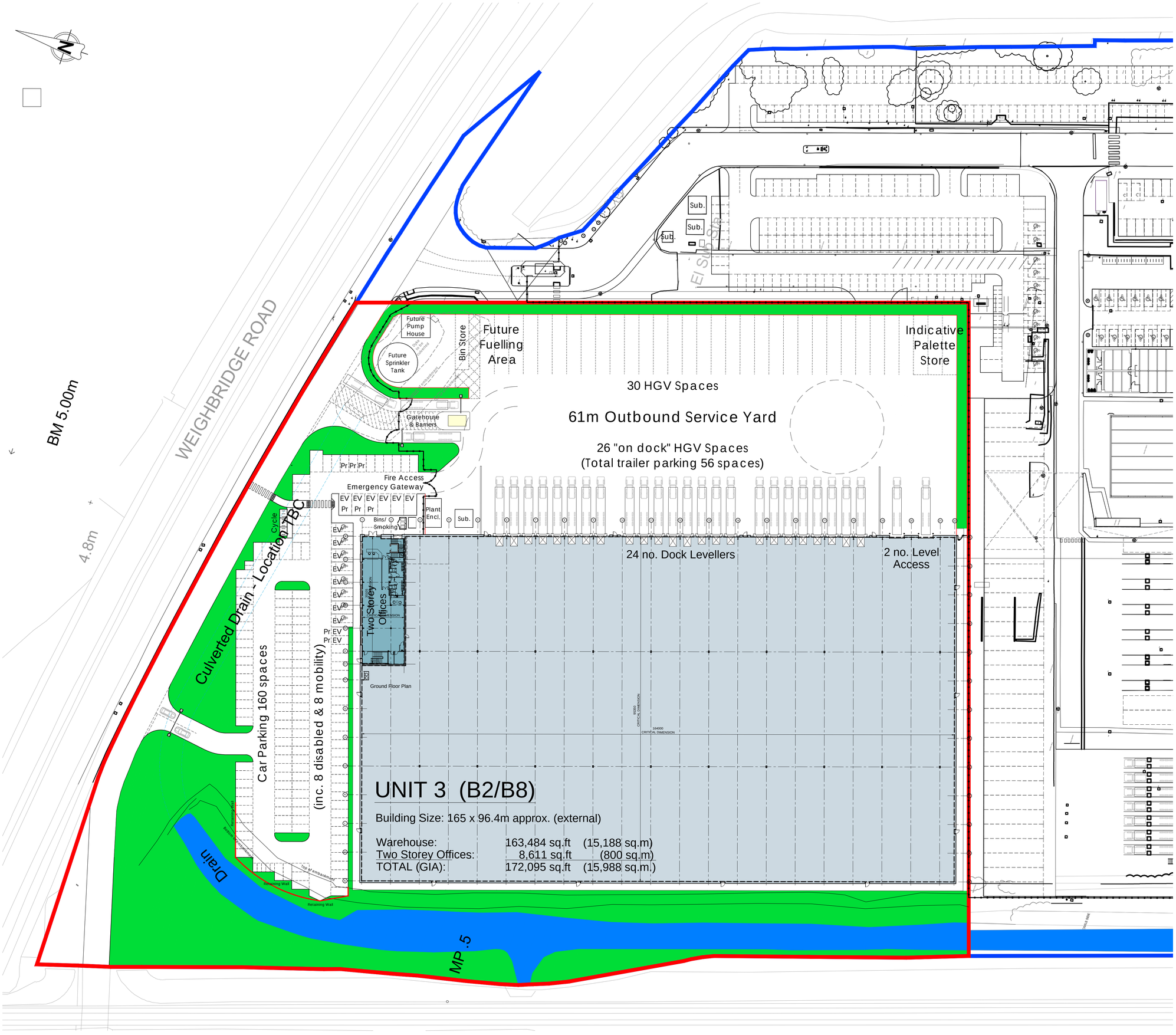
9.4.1 The report forecasts the likely traffic generation of the Application Site. The expected trip generation for the Site was determined using a selection of similar sites from the TRICS database. It can be expected that 63 and 46 vehicular trips would be generated during the AM and PM peak hours respectively.

9.4.2 To assess the impact of the trip generation, the traffic was distributed onto the highway network, and capacity assessments were carried out using the design years of 2025 and 2030. Tenth Avenue Roundabout and the A548 Weighbridge Road / Shotwick Road Roundabout were both assessed using Junctions 9 software, and were found to have significant spare capacity. The A548 Shotwick Road / Parkway Roundabout was assessed using LinSig3 and was found to have significant spare capacity in all modelled scenarios. As such, no mitigation measures are required, and it is not considered necessary to carry out any further capacity assessment work.

In light of the above, the proposed development is considered to be acceptable in transport and highway terms.

Appendix A

Proposed Site Layout



notes

Schedule of Accommodation

All areas are approximate gross internal

Unit 3		
Warehouse:	15,188 sq.m.	163,484 sq.ft.
Two Storey Offices	800 sq.m.	8,611 sq.ft.
Total	15,988 sq.m.	172,095 sq.ft.
Car Parking	160 spaces	(1 in 100sqm)
inc. Disabled parking	8 spaces	(5% of 160 total)
inc. Mobility parking	8 spaces	(5% of 160 total)
Car Parking with EVCP	16 spaces	(10% of 160 total)
Car Parking for Car Share	10 spaces	(6% of 160 total)
Lorry Parking (Yard)	30 spaces	
Lorry Parking (On Dock)	26 spaces	
Lorry Total	56 spaces	
Plot Area (red line)	9.96 acres	4.03 ha.
Site Density	40%	

no.	date	revision	by

aja architects

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client

great bear
Part of the culina GROUP

project

UNIT 3
LINK 56
DEESIDE INDUSTRIAL PARK

drawing

PROPOSED
SITE LAYOUT PLAN

scale	1:500 @ A1	drawn	SRA
checked	SPP	date	22.01.24

no

7205-013

PLANNING - PRELIMINARY

Appendix B

Accessibility Index Calculation

BREEAM 2018 Tra01/02 Accessibility Index calculator

BREEAM® UK delivered by bre

Using the drop down boxes make the relevant selections and press the 'Select' button

Building type: Offices/Industrial

No. nodes required: 1

Select

NODE 1

Public transport type	Bus
Distance to node (m)	830

	Service 1	Service 2	Service 3	Service 4	Service 5	Service 6	Service 7	Service 8	Service 9	Service 10
Average frequency per hour	1	1	1							

Accessibility Index	1.42

Appendix C

TRICS Data for Proposed Use

Calculation Reference: AUDIT-724101-230616-0657

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 02 - EMPLOYMENT
Category : A - OFFICE
TOTAL VEHICLES

Selected regions and areas:

02	SOUTH EAST		
	ES	EAST SUSSEX	2 days
	WS	WEST SUSSEX	3 days
03	SOUTH WEST		
	WL	WILTSHIRE	1 days
04	EAST ANGLIA		
	NF	NORFOLK	4 days
	PB	PETERBOROUGH	1 days
05	EAST MIDLANDS		
	LE	LEICESTERSHIRE	1 days
06	WEST MIDLANDS		
	WK	WARWICKSHIRE	2 days
	WO	WORCESTERSHIRE	1 days
07	YORKSHIRE & NORTH LINCOLNSHIRE		
	NY	NORTH YORKSHIRE	2 days
	WY	WEST YORKSHIRE	1 days
09	NORTH		
	CB	CUMBRIA	1 days
	DA	DARLINGTON	1 days
10	WALES		
	CO	CONWY	1 days
	PS	POWYS	1 days
11	SCOTLAND		
	DU	DUNDEE CITY	1 days

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

Primary Filtering selection:

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

Parameter: Gross floor area
Actual Range: 178 to 9225 (units: sqm)
Range Selected by User: 0 to 30000 (units: sqm)

Parking Spaces Range: All Surveys Included

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/15 to 23/11/22

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

Selected survey days:

Monday	4 days
Tuesday	6 days
Wednesday	6 days
Thursday	4 days
Friday	3 days

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

Selected survey types:

Manual count	23 days
Directional ATC Count	0 days

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

Selected Locations:

Edge of Town Centre	13
Suburban Area (PPS6 Out of Centre)	1
Edge of Town	9

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

Selected Location Sub Categories:

Industrial Zone	2
Commercial Zone	5
Development Zone	2
Residential Zone	3
Built-Up Zone	5
No Sub Category	6

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

Inclusion of Servicing Vehicles Counts:

Servicing vehicles Included	25 days - Selected
Servicing vehicles Excluded	30 days - Selected

Secondary Filtering selection:

Use Class:

Not Known	23 days

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

Filter by Site Operations Breakdown:
All Surveys Included

Population within 500m Range:
All Surveys Included

Population within 1 mile:

1,001 to 5,000	3 days
5,001 to 10,000	3 days
10,001 to 15,000	3 days
15,001 to 20,000	5 days
20,001 to 25,000	4 days
25,001 to 50,000	5 days

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

Population within 5 miles:

5,001 to 25,000	1 days
25,001 to 50,000	4 days
50,001 to 75,000	2 days
75,001 to 100,000	3 days
100,001 to 125,000	4 days
125,001 to 250,000	9 days

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

Car ownership within 5 miles:

0.6 to 1.0	14 days
1.1 to 1.5	8 days
1.6 to 2.0	1 days

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

Travel Plan:

Yes	3 days
No	20 days

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

PTAL Rating:

No PTAL Present	23 days

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

LIST OF SITES relevant to selection parameters

1 CB-02-A-02 OFFICE CUMBRIA
PORT ROAD
CARLISLE

Edge of Town Centre
Industrial Zone
Total Gross floor area: 925 sqm
Survey date: FRIDAY *24/06/16* *Survey Type: MANUAL*

2 CO-02-A-01 GOVERNMENT OFFICES CONWY
NARROW LANE
LLANDUDNO JUNCTION

Edge of Town
Commercial Zone
Total Gross floor area: 6186 sqm
Survey date: WEDNESDAY *28/03/18* *Survey Type: MANUAL*

3 DA-02-A-02 ENGINEERING COMPANY DARLINGTON
ALDERMAN BEST WAY
DARLINGTON

Edge of Town
No Sub Category
Total Gross floor area: 3530 sqm
Survey date: THURSDAY *18/10/18* *Survey Type: MANUAL*

4 DU-02-A-01 OFFICES DUNDEE CITY
GREENMARKET
DUNDEE

Edge of Town Centre
Development Zone
Total Gross floor area: 3200 sqm
Survey date: THURSDAY *27/04/17* *Survey Type: MANUAL*

5 ES-02-A-11 HOUSING COMPANY EAST SUSSEX
THE SIDINGS
HASTINGS
ORE VALLEY
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Gross floor area: 186 sqm
Survey date: TUESDAY *17/11/15* *Survey Type: MANUAL*

6 ES-02-A-12 COUNCIL OFFICES EAST SUSSEX
VICARAGE LANE
HAILSHAM

Edge of Town Centre
Built-Up Zone
Total Gross floor area: 3640 sqm
Survey date: THURSDAY *26/11/15* *Survey Type: MANUAL*

7 LE-02-A-04 COUNCIL OFFICES LEICESTERSHIRE
BURTON STREET
MELTON MOWBRAY

Edge of Town Centre
Built-Up Zone
Total Gross floor area: 3981 sqm
Survey date: WEDNESDAY *30/11/16* *Survey Type: MANUAL*

8 NF-02-A-02 FINANCIAL PLANNERS NORFOLK
NORTH QUAY
GREAT YARMOUTH

Edge of Town Centre
Commercial Zone
Total Gross floor area: 894 sqm
Survey date: MONDAY *11/09/17* *Survey Type: MANUAL*

LIST OF SITES relevant to selection parameters (Cont.)

9 NF-02-A-03 OFFICES NORFOLK
NORTH QUAY
GREAT YARMOUTH

Edge of Town Centre
Commercial Zone
Total Gross floor area: 5500 sqm
Survey date: TUESDAY 12/09/17 *Survey Type: MANUAL*

10 NF-02-A-04 BUILDING CONSULTANT NORFOLK
WHITING ROAD
NORWICH

Edge of Town
Commercial Zone
Total Gross floor area: 500 sqm
Survey date: WEDNESDAY 13/11/19 *Survey Type: MANUAL*

11 NF-02-A-05 COUNCIL OFFICES NORFOLK
YARMOUTH ROAD
NORWICH

Edge of Town
Residential Zone
Total Gross floor area: 3697 sqm
Survey date: MONDAY 12/09/22 *Survey Type: MANUAL*

12 NY-02-A-01 SOLICITORS NORTH YORKSHIRE
NORTH PARK ROAD
HARROGATE

Edge of Town Centre
Built-Up Zone
Total Gross floor area: 178 sqm
Survey date: THURSDAY 04/10/18 *Survey Type: MANUAL*

13 NY-02-A-03 DISTRICT COUNCIL OFFICES NORTH YORKSHIRE
STATION ROAD
RICHMOND

Edge of Town Centre
No Sub Category
Total Gross floor area: 1590 sqm
Survey date: FRIDAY 06/05/22 *Survey Type: MANUAL*

14 PB-02-A-04 OFFICES PETERBOROUGH
LYNCH WOOD
PETERBOROUGH

Edge of Town
Commercial Zone
Total Gross floor area: 4040 sqm
Survey date: WEDNESDAY 19/10/16 *Survey Type: MANUAL*

15 PS-02-A-01 COUNCIL OFFICES POWYS
SEVERN ROAD
WELSHPOOL

Edge of Town Centre
No Sub Category
Total Gross floor area: 3920 sqm
Survey date: TUESDAY 12/05/15 *Survey Type: MANUAL*

16 WK-02-A-02 OFFICES WARWICKSHIRE
WHITEHALL ROAD
RUGBY

Edge of Town Centre
Residential Zone
Total Gross floor area: 540 sqm
Survey date: MONDAY 14/11/22 *Survey Type: MANUAL*

LIST OF SITES relevant to selection parameters (Cont.)

17 WK-02-A-03 ENGINEERING CONSULTANTS WARWICKSHIRE
BUDBROOKE ROAD
WARWICK

Edge of Town
Industrial Zone
Total Gross floor area: 796 sqm
Survey date: WEDNESDAY 23/11/22 Survey Type: MANUAL

18 WL-02-A-01 PET INSURANCE COMPANY WILTSHIRE
THE CRESCENT
AMESBURY
SUNRISE WAY
Edge of Town
Development Zone
Total Gross floor area: 2500 sqm
Survey date: TUESDAY 18/09/18 Survey Type: MANUAL

19 WO-02-A-02 OFFICE WORCESTERSHIRE
MOOR STREET
WORCESTER

Edge of Town Centre
Built-Up Zone
Total Gross floor area: 2000 sqm
Survey date: MONDAY 14/11/16 Survey Type: MANUAL

20 WS-02-A-05 SOCIAL HOUSING COMPANY WEST SUSSEX
NORTH STREET
WORTHING

Edge of Town Centre
Built-Up Zone
Total Gross floor area: 830 sqm
Survey date: TUESDAY 17/05/22 Survey Type: MANUAL

21 WS-02-A-06 SOUTHERN WATER OFFICES WEST SUSSEX
YEOMAN ROAD
WORTHING

Edge of Town
No Sub Category
Total Gross floor area: 5700 sqm
Survey date: WEDNESDAY 18/05/22 Survey Type: MANUAL

22 WS-02-A-07 BUSINESS TECHNOLOGY WEST SUSSEX
HAM ROAD
SHOREHAM-BY-SEA

Edge of Town Centre
No Sub Category
Total Gross floor area: 2780 sqm
Survey date: FRIDAY 11/11/22 Survey Type: MANUAL

23 WY-02-A-05 OFFICES WEST YORKSHIRE
PIONEER WAY
CASTLEFORD
WHITWOOD
Edge of Town
No Sub Category
Total Gross floor area: 1230 sqm
Survey date: TUESDAY 23/05/17 Survey Type: MANUAL

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

MANUALLY DESELECTED SITES

Site Ref	Reason for Deselection
MG-02-A-02	Not in mainland GB

MANUALLY DESELECTED SURVEYS

Site Ref	Survey Date	Reason for Deselection
BG-02-A-01	06/05/21	Surveyed during Covid-19 pandemic
EC-02-A-04	04/05/21	Surveyed during Covid-19 pandemic
LU-02-A-01	09/11/20	Surveyed during Covid-19 pandemic
NM-02-A-01	22/10/20	Surveyed during Covid-19 pandemic
SF-02-A-03	24/09/20	Surveyed during Covid-19 pandemic
SR-02-A-02	08/09/20	Surveyed during Covid-19 pandemic
WO-02-A-03	13/10/20	Surveyed during Covid-19 pandemic

TRIP RATE for Land Use 02 - EMPLOYMENT/A - OFFICE
TOTAL VEHICLES
Calculation factor: 100 sqm
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	22	2644	0.634	22	2644	0.058	22	2644	0.692
08:00 - 09:00	23	2537	1.777	23	2537	0.180	23	2537	1.957
09:00 - 10:00	23	2537	0.980	23	2537	0.238	23	2537	1.218
10:00 - 11:00	23	2537	0.327	23	2537	0.235	23	2537	0.562
11:00 - 12:00	23	2537	0.238	23	2537	0.218	23	2537	0.456
12:00 - 13:00	23	2537	0.357	23	2537	0.562	23	2537	0.919
13:00 - 14:00	23	2537	0.440	23	2537	0.370	23	2537	0.810
14:00 - 15:00	23	2537	0.238	23	2537	0.353	23	2537	0.591
15:00 - 16:00	23	2537	0.178	23	2537	0.437	23	2537	0.615
16:00 - 17:00	23	2537	0.177	23	2537	0.759	23	2537	0.936
17:00 - 18:00	23	2537	0.111	23	2537	1.546	23	2537	1.657
18:00 - 19:00	21	2711	0.047	21	2711	0.504	21	2711	0.551
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			5.504			5.460			10.964

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

Parameter summary

Trip rate parameter range selected:	178 - 9225 (units: sqm)
Survey date date range:	01/01/15 - 23/11/22
Number of weekdays (Monday-Friday):	30
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	8
Surveys manually removed from selection:	1

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

Calculation Reference: AUDIT-724101-230616-0628

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 02 - EMPLOYMENT
Category : F - WAREHOUSING (COMMERCIAL)
TOTAL VEHICLES

Selected regions and areas:

02	SOUTH EAST		
	EX	ESSEX	1 days
	HC	HAMPSHIRE	2 days
	MW	MEDWAY	1 days
03	SOUTH WEST		
	TB	TORBAY	1 days
04	EAST ANGLIA		
	SF	SUFFOLK	1 days

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

Primary Filtering selection:

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

Parameter: Gross floor area
Actual Range: 190 to 17626 (units: sqm)
Range Selected by User: 0 to 30000 (units: sqm)

Parking Spaces Range: All Surveys Included

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/15 to 11/11/21

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

Selected survey days:

Monday	1 days
Thursday	1 days
Friday	4 days

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

Selected survey types:

Manual count	6 days
Directional ATC Count	0 days

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

Selected Locations:

Suburban Area (PPS6 Out of Centre)	1
Edge of Town	5

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

Selected Location Sub Categories:

Industrial Zone	5
Commercial Zone	1

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

Inclusion of Servicing Vehicles Counts:

Servicing vehicles Included	4 days - Selected
Servicing vehicles Excluded	18 days - Selected

Secondary Filtering selection:

Use Class:

n/a	2 days
B8	4 days

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

Filter by Site Operations Breakdown:
All Surveys Included

Population within 500m Range:
All Surveys Included

Population within 1 mile:

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

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

Population within 5 miles:

5,001 to 25,000	1 days
125,001 to 250,000	5 days

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

Car ownership within 5 miles:

0.6 to 1.0	1 days
1.1 to 1.5	5 days

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

Travel Plan:

No	6 days

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

PTAL Rating:

No PTAL Present	6 days

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

LIST OF SITES relevant to selection parameters

1 EX-02-F-01 SPORTS SUPPLEMENTS ESSEX
BRUNEL WAY
COLCHESTER
SEVERALLS INDUSTRIAL PK
Edge of Town
Industrial Zone
Total Gross floor area: 6560 sqm
Survey date: FRIDAY 18/05/18 Survey Type: MANUAL

2 HC-02-F-02 LOGISTICS HAMPSHIRE
RUTHERFORD ROAD
BASINGSTOKE

Suburban Area (PPS6 Out of Centre)
Commercial Zone
Total Gross floor area: 13200 sqm
Survey date: THURSDAY 16/06/16 Survey Type: MANUAL

3 HC-02-F-03 PPE DISTRIBUTION HAMPSHIRE
WARSASH ROAD
PARK GATE

Edge of Town
Industrial Zone
Total Gross floor area: 3665 sqm
Survey date: MONDAY 27/09/21 Survey Type: MANUAL

4 MW-02-F-02 COMMERCIAL WAREHOUSING MEDWAY
MILLS ROAD
AYLESFORD
QUARRY WOOD
Edge of Town
Industrial Zone
Total Gross floor area: 11200 sqm
Survey date: FRIDAY 22/09/17 Survey Type: MANUAL

5 SF-02-F-03 ROAD HAULAGE SUFFOLK
CENTRAL AVENUE
IPSWICH
WARREN HEATH
Edge of Town
Industrial Zone
Total Gross floor area: 4700 sqm
Survey date: FRIDAY 18/09/15 Survey Type: MANUAL

6 TB-02-F-01 OPTICS WAREHOUSE TORBAY
ALDERS WAY
PAIGNTON

Edge of Town
Industrial Zone
Total Gross floor area: 190 sqm
Survey date: FRIDAY 29/03/19 Survey Type: MANUAL

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

MANUALLY DESELECTED SITES

Site Ref	Reason for Deselection
AN-02-F-03	Not in mainland GB
CC-02-F-01	Not in mainland GB
CR-02-F-03	Not in mainland GB
LU-02-F-01	Not in mainland GB

MANUALLY DESELECTED SURVEYS

Site Ref	Survey Date	Reason for Deselection
BO-02-F-01	15/10/20	Surveyed during Covid-19 pandemic
LO-02-F-01	08/06/21	Surveyed during Covid-19 pandemic
LO-02-F-02	11/11/21	Surveyed during Covid-19 pandemic

TRIP RATE for Land Use 02 - EMPLOYMENT/F - WAREHOUSING (COMMERCIAL)
TOTAL VEHICLES
Calculation factor: 100 sqm
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00	1	190	0.000	1	190	0.000	1	190	0.000
06:00 - 07:00	1	190	0.000	1	190	0.000	1	190	0.000
07:00 - 08:00	6	6586	0.225	6	6586	0.101	6	6586	0.326
08:00 - 09:00	6	6586	0.205	6	6586	0.111	6	6586	0.316
09:00 - 10:00	6	6586	0.233	6	6586	0.114	6	6586	0.347
10:00 - 11:00	6	6586	0.202	6	6586	0.152	6	6586	0.354
11:00 - 12:00	6	6586	0.182	6	6586	0.200	6	6586	0.382
12:00 - 13:00	6	6586	0.187	6	6586	0.157	6	6586	0.344
13:00 - 14:00	6	6586	0.202	6	6586	0.225	6	6586	0.427
14:00 - 15:00	6	6586	0.170	6	6586	0.235	6	6586	0.405
15:00 - 16:00	6	6586	0.111	6	6586	0.261	6	6586	0.372
16:00 - 17:00	6	6586	0.084	6	6586	0.190	6	6586	0.274
17:00 - 18:00	6	6586	0.061	6	6586	0.157	6	6586	0.218
18:00 - 19:00	6	6586	0.040	6	6586	0.114	6	6586	0.154
19:00 - 20:00	1	190	0.000	1	190	0.000	1	190	0.000
20:00 - 21:00	1	190	0.000	1	190	0.000	1	190	0.000
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			1.902			2.017			3.919

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

Parameter summary

Trip rate parameter range selected:	190 - 17626 (units: sqm)
Survey date date range:	01/01/15 - 11/11/21
Number of weekdays (Monday-Friday):	9
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	3
Surveys manually removed from selection:	4

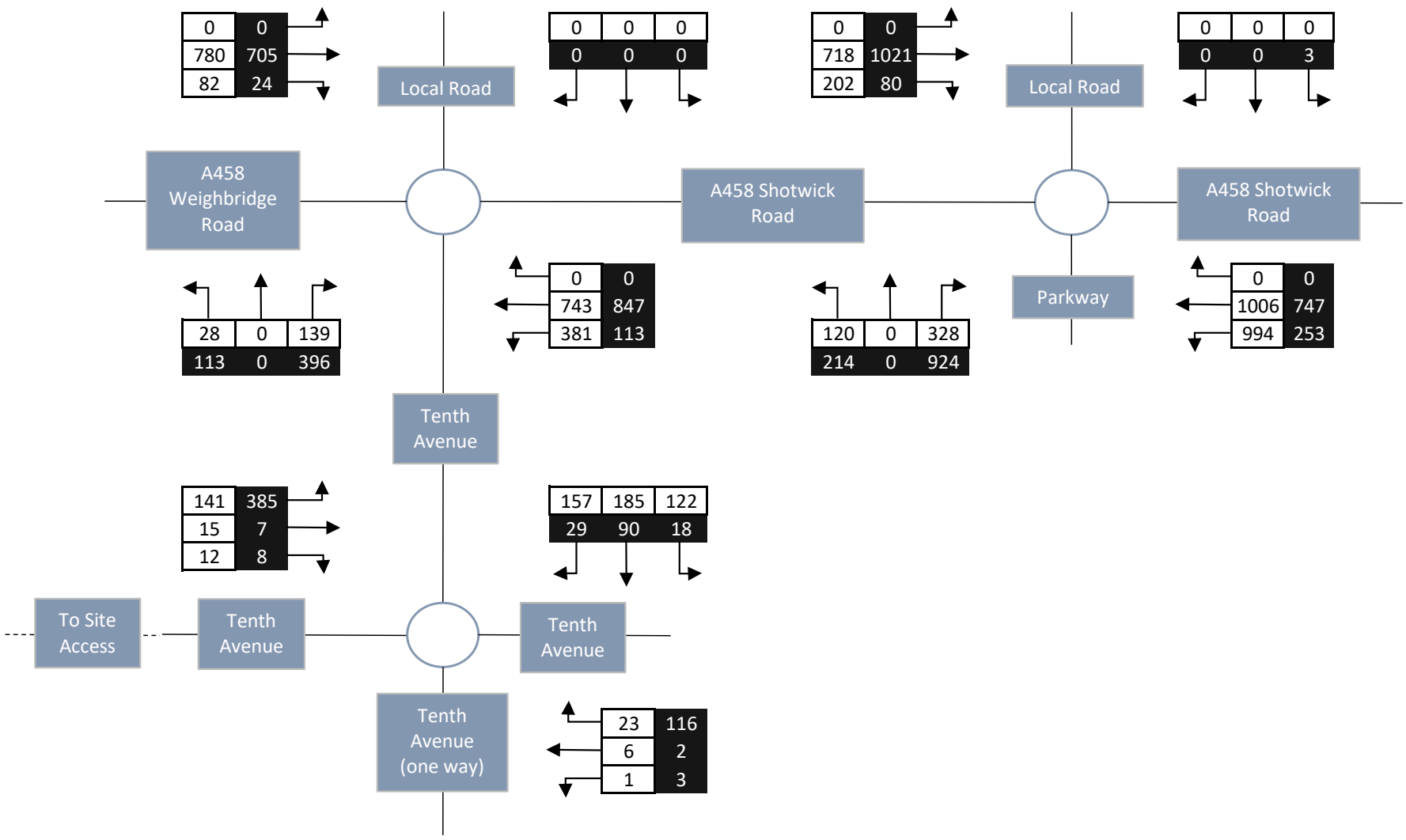
This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected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

Appendix D

Traffic Flow Diagrams

123 = AM Peak Hour
123 = PM Peak Hour

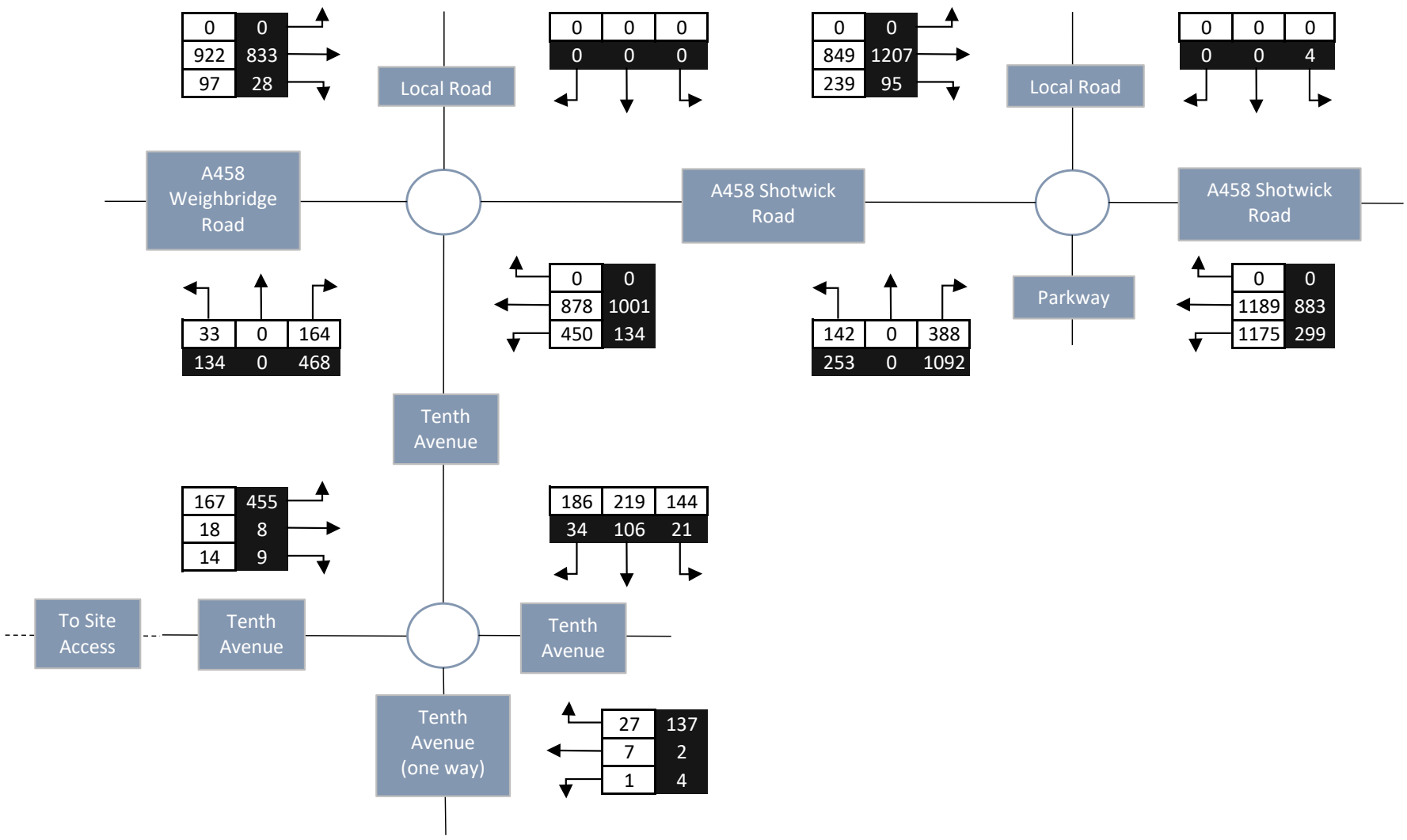
* All flows in vehicles
* Flows determined from 2022 traffic surveys



Flow Diagram 1: 2022 Base Traffic Flows	
Project: Proposed Industrial Unit 3, Deeside Industrial Park	
Client: Legat Owen	Job Number: 23-0160

123 = AM Peak Hour
123 = PM Peak Hour

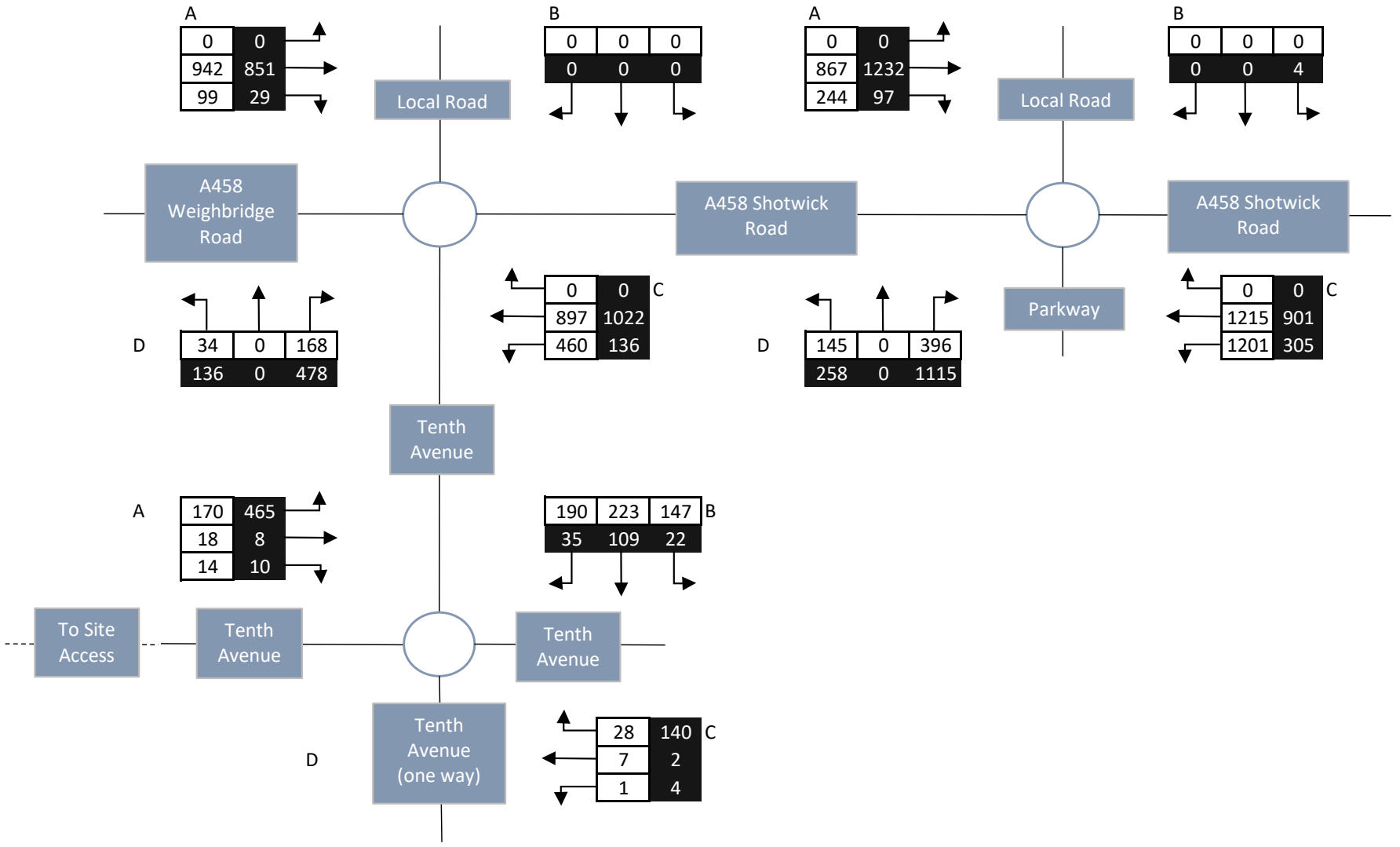
Covid Growth Factor	1.1820



Flow Diagram 2: 2022 Base (Covid Growth Factored)	
Project: Proposed Industrial Unit 3, Deeside Industrial Park	
Client: Legat Owen	Job Number: 23-0160

123 = AM Peak Hour
123 = PM Peak Hour

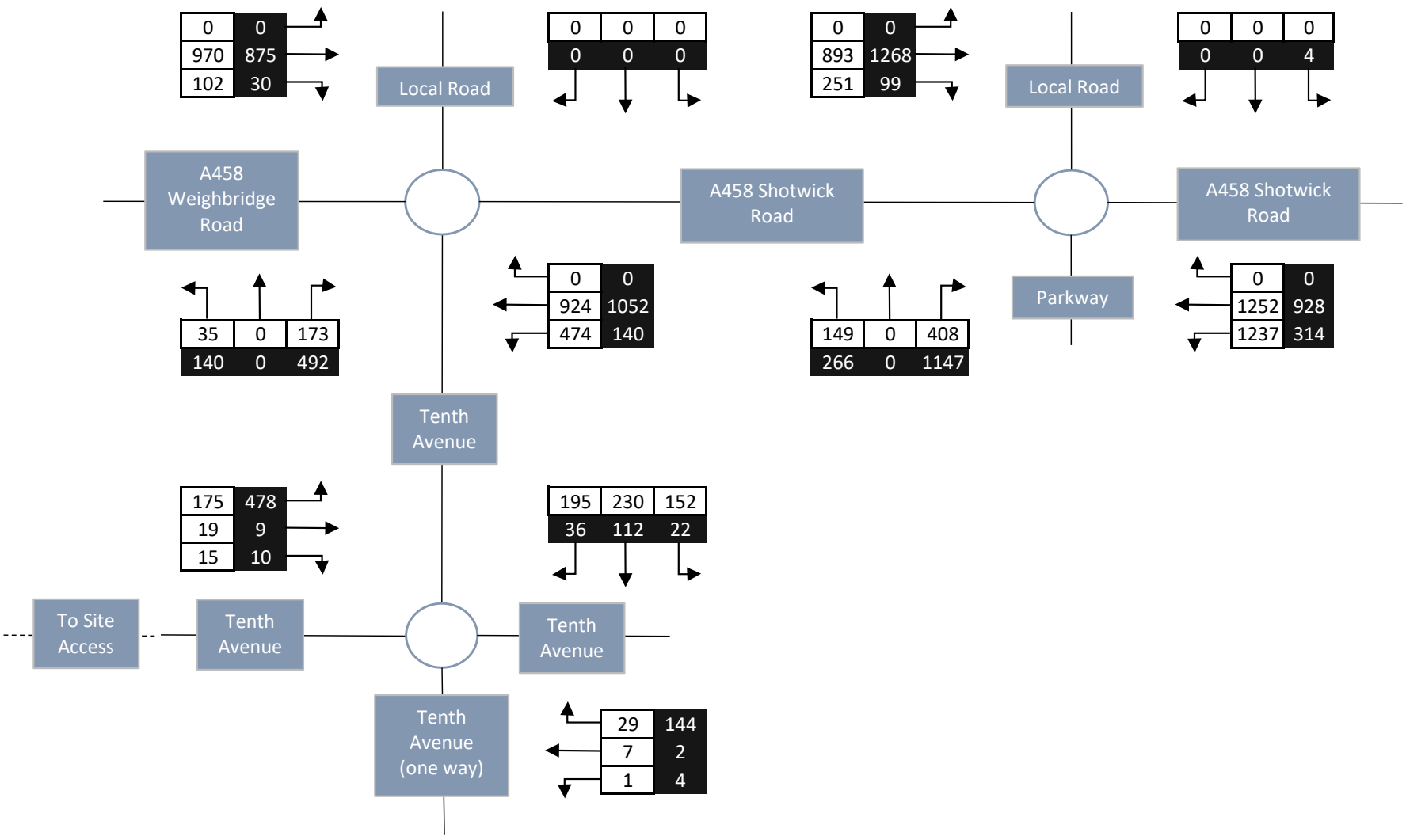
Tempro Growth Factors	
2022 to 2025 AM	1.0218
2022 to 2025 PM	1.0208



Flow Diagram 3: 2025 Base Traffic Flows	
Project: Proposed Industrial Unit 3, Deeside Industrial Park	
Client: Legat Owen	Job Number: 23-0160

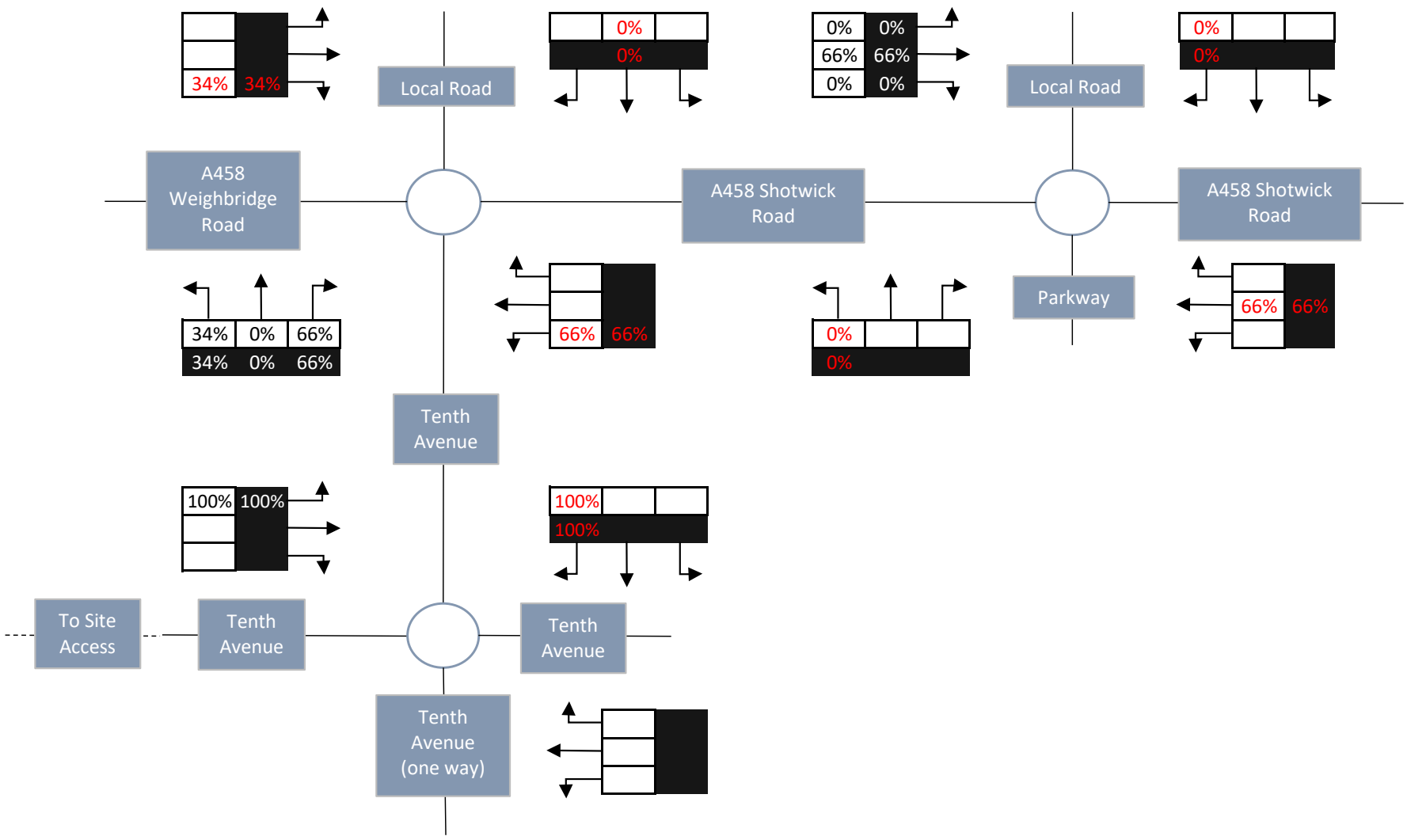
123 = AM Peak Hour
123 = PM Peak Hour

Tempro Growth Factors	
2022 to 2030 AM	1.0526
2022 to 2030 PM	1.0505



Flow Diagram 4: 2030 Base Traffic Flows	
Project: Proposed Industrial Unit 3, Deeside Industrial Park	
Client: Legat Owen	Job Number: 23-0160

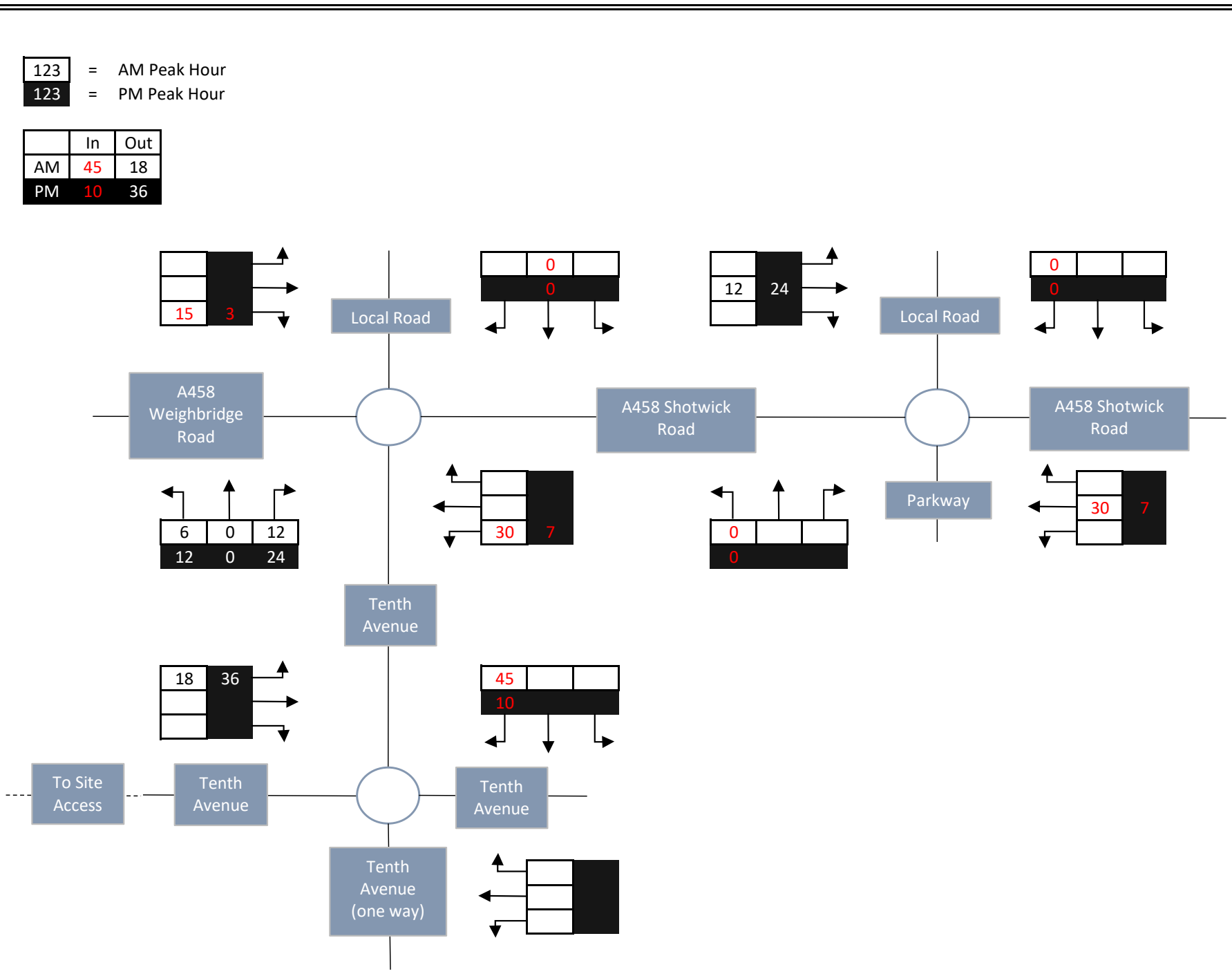
123 = AM Peak Hour
123 = PM Peak Hour
Vehicles In
Vehicles Out



Flow Diagram 5: Distribution	
Project: Proposed Industrial Unit 3, Deeside Industrial Park	
Client: Legat Owen	Job Number: 23-0160

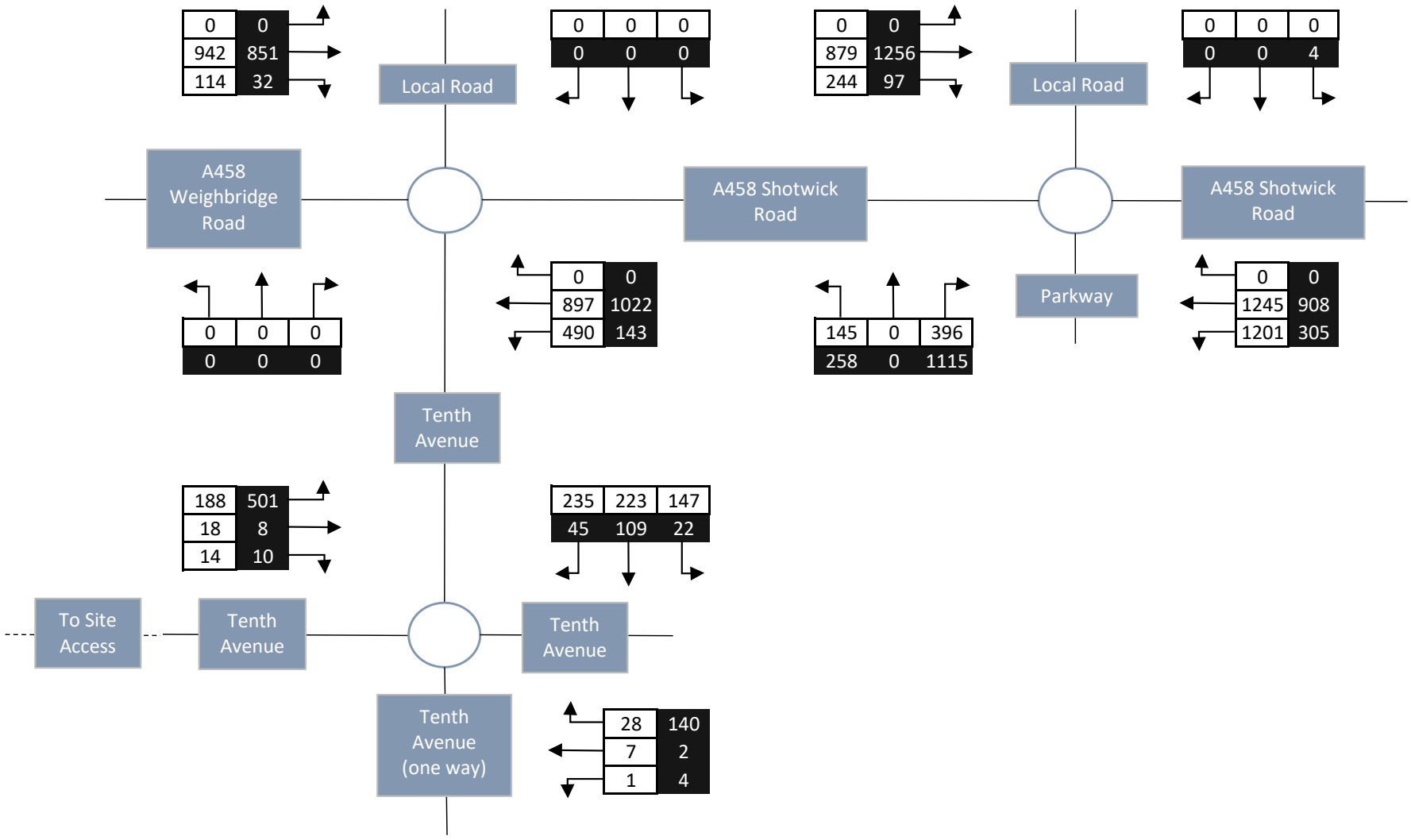
123	=	AM Peak Hour
123	=	PM Peak Hour

	In	Out
AM	45	18
PM	10	36



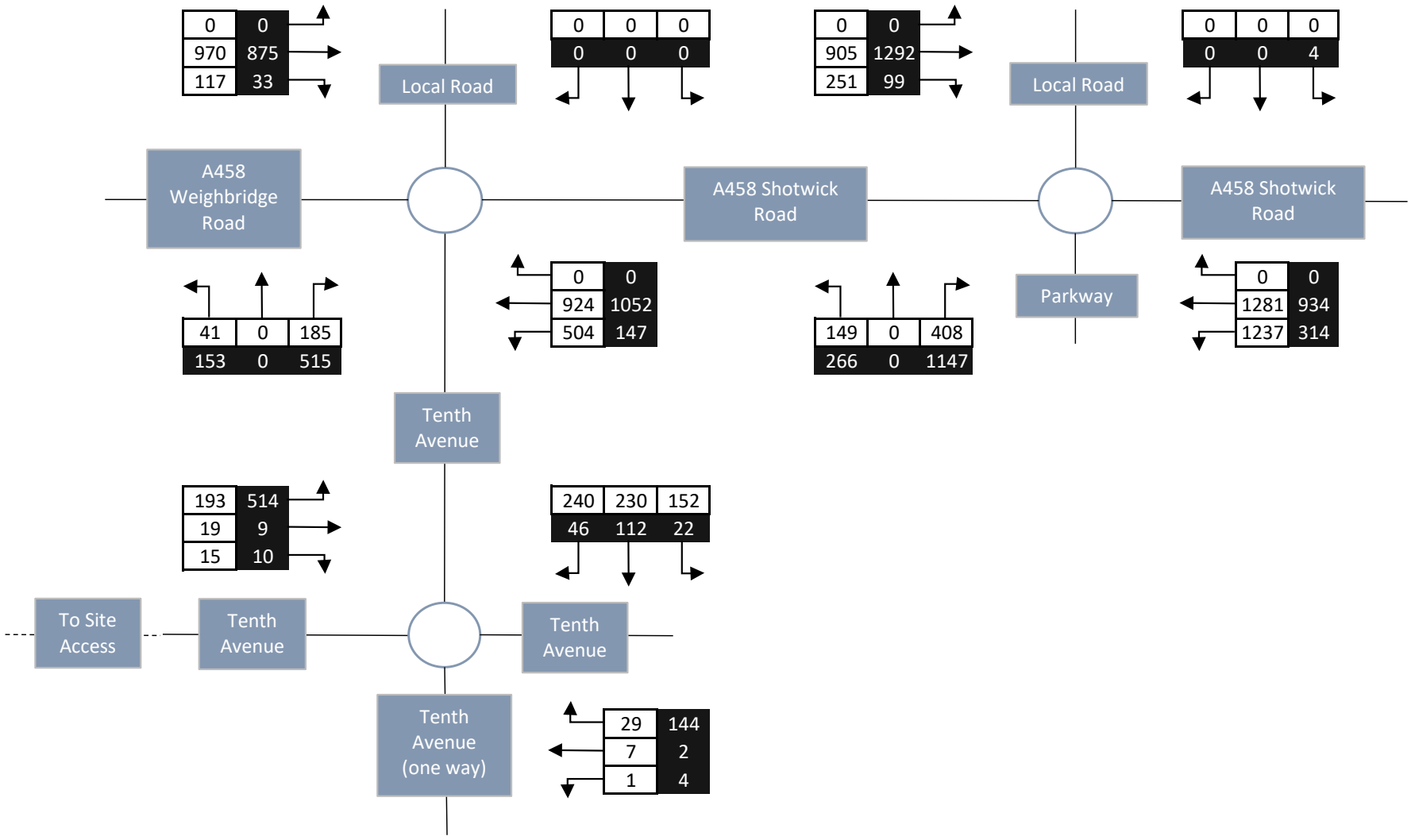
Flow Diagram 6: Development Traffic Flows	
Project: Proposed Industrial Unit 3, Deeside Industrial Park	
Client: Legat Owen	Job Number: 23-0160

123 = AM Peak Hour
123 = PM Peak Hour



Flow Diagram 7: 2025 Base + Development Traffic Flows		
Project: Proposed Industrial Unit 3, Deeside Industrial Park		
Client: Legat Owen	Job Number: 23-0160	

123 = AM Peak Hour
123 = PM Peak Hour



Flow Diagram 8: 2030 Base Traffic Flows	
Project: Proposed Industrial Unit 3, Deeside Industrial Park	
Client: Legat Owen	Job Number: 23-0160

Base Flows 2025 AM

Tenth Avenue Roundabout

	A	B	C	D
A	0	170	18	14
B	190	0	147	223
C	7	28	0	1
D	0	0	0	0

A548 Weighbridge Road / Shotwick Roa

	A	B	C	D
A	0	0	942	99
B	0	0	0	0
C	897	0	0	460
D	34	0	168	0

A548 Shotwick Road / Park

	A	B	C
A	0	0	867
B	0	0	0
C	1215	0	0
D	145	0	396

Base Flows 2025 PM

Tenth Avenue Roundabout

	A	B	C	D
A	0	465	8	10
B	35	0	22	109
C	2	140	0	4
D	0	0	0	0

A548 Weighbridge Road / Shotwick Roa

	A	B	C	D
A	0	0	851	29
B	0	0	0	0
C	1022	0	0	136
D	136	0	478	0

A548 Shotwick Road / Park

	A	B	C
A	0	0	1232
B	0	0	4
C	901	0	0
D	258	0	1115

Base Flows 2030 AM

Tenth Avenue Roundabout

	A	B	C	D
A	0	175	19	15
B	195	0	152	230
C	7	29	0	1
D	0	0	0	0

A548 Weighbridge Road / Shotwick Roa

	A	B	C	D
A	0	0	970	102
B	0	0	0	0
C	924	0	0	474
D	35	0	173	0

A548 Shotwick Road / Park

	A	B	C
A	0	0	893
B	0	0	0
C	1252	0	0
D	149	0	408

Base Flows 2030 PM

Tenth Avenue Roundabout

	A	B	C	D
A	0	478	9	10
B	36	0	22	112
C	2	144	0	4
D	0	0	0	0

A548 Weighbridge Road / Shotwick Roa

	A	B	C	D
A	0	0	875	30
B	0	0	0	0
C	1052	0	0	140
D	140	0	492	0

A548 Shotwick Road / Park

	A	B	C
A	0	0	1268
B	0	0	4
C	928	0	0
D	266	0	1147

Base+Dev Flows 2025 AM

Tenth Avenue Roundabout

0	A	B	C	D
A	0	188	18	14
B	235	0	147	223
C	7	28	0	1
D	0	0	0	0

A548 Weighbridge Road / Shotwick Roa

	A	B	C	D
A	0	0	942	114
B	0	0	0	0
C	897	0	0	490
D	0	0	0	0

A548 Shotwick Road / Park

	A	B	C
A	0	0	879
B	0	0	0
C	1245	0	0
D	145	0	396

Base+Dev Flows 2025 PM

Tenth Avenue Roundabout

	A	B	C	D
A	0	501	8	10
B	45	0	22	109
C	2	140	0	4
D	0	0	0	0

A548 Weighbridge Road / Shotwick Roa

	A	B	C	D
A	0	0	851	32
B	0	0	0	0
C	1022	0	0	143
D	0	0	0	0

A548 Shotwick Road / Park

	A	B	C
A	0	0	1256
B	0	0	4
C	908	0	0
D	258	0	1115

Base+Dev Flows 2030 AM

Tenth Avenue Roundabout

	A	B	C	D
A	0	193	19	15
B	240	0	152	230
C	7	29	0	1
D	0	0	0	0

A548 Weighbridge Road / Shotwick Roa

	A	B	C	D
A	0	0	970	117
B	0	0	0	0
C	924	0	0	504
D	41	0	185	0

A548 Shotwick Road / Park

	A	B	C
A	0	0	905
B	0	0	0
C	1281	0	0
D	149	0	408

Base+Dev Flows 2030 PM

Tenth Avenue Roundabout

	A	B	C	D
A	0	514	9	10
B	46	0	22	112
C	2	144	0	4
D	0	0	0	0

A548 Weighbridge Road / Shotwick Roa

	A	B	C	D
A	0	0	875	33
B	0	0	0	0
C	1052	0	0	147
D	153	0	515	0

A548 Shotwick Road / Park

	A	B	C
A	0	0	1292
B	0	0	4
C	934	0	0
D	266	0	1147

.way Roundabout

D
244
0
1201
0

.way Roundabout

D
97
0
305
0

.way Roundabout

D
251
0
1237
0

.way Roundabout

D
99
0
314
0

.way Roundabout

D
244
0
1201
0

.way Roundabout

D
97
0
305
0

.way Roundabout

D
251
0
1237
0

.way Roundabout

D
99
0
314
0

Northbound

Date	Day	AM Hour	No. PCU's	PM Hour	No. PCU's
24	Friday	08:00-09:0	270	16:00-17:0	214
25	Saturday				
26	Sunday				
27	Monday	08:00-09:0	309	16:00-17:0	184
28	Tuesday	08:00-09:0	249	16:00-17:0	185
29	Wednesday		262		202
30	Thursday		269		205
			271.8		198

Southbound

Date	Day	AM Hour	No. PCU's	PM Hour	No. PCU's
24	Friday	08:00-09:0	192	16:00-17:0	276
25	Saturday				
26	Sunday				
27	Monday	08:00-09:0	208		233
28	Tuesday	08:00-09:0	194		241
29	Wednesday		202		247
30	Thursday		197		250
			198.6		249.4

Appendix E

Covid Growth Factor

Direction	Time Period	Observed 2014 Flows (PCU's)	Tempro Growth Factor	Calculated 2022 Flows (PCU's)	Observed 2022 Flows (PCU's)
Towards 'Test Roundabout'	AM	684	1.0763	736	772
	PM	1208	1.0729	1296	961
From 'Test Roundabout'	AM	945	1.0763	1017	862
	PM	822	1.0729	882	730
Total		3659		3931	3325

Note - Observed 2014 traffic flows from PA ref 052626

Covid Growth Factor	18.2%
Calculated 2022 Flows / Observed 2022 Flows = 3931 / 3325 = 1.182	

Appendix F

MSOA Distribution

WU03EW - Location of usual residence and place of work by method of travel to work (MSOA level)	
ONS Crown Copyright Reserved [from Nomis on 19 June 2023]	
Population	All usual residents aged 16 and over in employment the week before the census
Units	Persons
Census Date	2011
Method of Travel to Work	All categories: Method of travel to work (2001 specification)
Place of Work	W02000065 : Flintshire 008

No. People Travelling in Each Direction												
	Tenth Ave N	Tenth Ave E	Tenth Ave S	Weighbridge Road	Shotwick Road	Shotwick Road	Parkway	A494 N	A548	A494 S	Drome Road	Total
Tenth Ave	1708	0	0									1708
Weighbridge Road / Shotwick Road				582	1126							1708
Shotwick Road / Parkway						1126	0					1126
Deeside Park Jct								311	0	815	0	1126

Junction		Direction										
		Tenth Ave N	Tenth Ave E	Tenth Ave S	Weighbridge Road	Shotwick Road	Shotwick Road	Parkway	A494 N	A548	A494 S	Drome Road
Tenth Ave	% Vehicle Trips	100%	0%	0%								
	No Vehicle Trips (AM)	63	0	0								
Weighbridge Road / Shotwick Road	% Vehicle Trips				34%	66%						
	No Vehicle Trips (AM)				21	42						
Shotwick Road / Parkway	% Vehicle Trips						66%	0%				
	No Vehicle Trips (AM)						42	0				
Deeside Park Jct	% Vehicle Trips								18%	0%	48%	0%
	No Vehicle Trips (AM)								12	0	30	0

Usual Residence : 2011 MSOA	No. People	Junction			
		Tenth Ave	Weighbridge Road / Shotwick Road	Shotwick Road / Parkway	Deeside Park Jct
W02000065 : Flintshire 008	236	North	Weighbridge Road	N/A	N/A
W02000064 : Flintshire 007	148	North	Weighbridge Road	N/A	N/A
W02000067 : Flintshire 010	125	North	Shotwick Road	Shotwick Road	A494 S
W02000066 : Flintshire 009	119	North	Shotwick Road	Shotwick Road	A494 S
W02000070 : Flintshire 013	69	North	Shotwick Road	Shotwick Road	A494 S
W02000060 : Flintshire 003	62	North	Weighbridge Road	N/A	N/A
W02000062 : Flintshire 005	57	North	Weighbridge Road	N/A	N/A
W02000061 : Flintshire 004	53	North	Weighbridge Road	N/A	N/A
W02000063 : Flintshire 006	46	North	Shotwick Road	Shotwick Road	A494 S
W02000068 : Flintshire 011	46	North	Shotwick Road	Shotwick Road	A494 S
W02000071 : Flintshire 014	34	North	Shotwick Road	Shotwick Road	A494 S
W02000073 : Flintshire 016	32	North	Shotwick Road	Shotwick Road	A494 S
W02000074 : Flintshire 017	29	North	Shotwick Road	Shotwick Road	A494 S
W02000076 : Flintshire 019	29	North	Shotwick Road	Shotwick Road	A494 S
W02000069 : Flintshire 012	28	North	Shotwick Road	Shotwick Road	A494 S
W02000075 : Flintshire 018	27	North	Shotwick Road	Shotwick Road	A494 S
W02000072 : Flintshire 015	25	North	Shotwick Road	Shotwick Road	A494 S
W02000059 : Flintshire 002	22	North	Shotwick Road	Shotwick Road	A494 S
E02003847 : Cheshire West and Chester 009	19	North	Shotwick Road	Shotwick Road	A494 N
W02000077 : Flintshire 020	14	North	Shotwick Road	Shotwick Road	A494 S
W02000058 : Flintshire 001	13	North	Weighbridge Road	N/A	N/A
E02003797 : Cheshire West and Chester 028	12	North	Shotwick Road	Shotwick Road	A494 N
E02003852 : Cheshire West and Chester 016	10	North	Shotwick Road	Shotwick Road	A494 N
W02000088 : Wrexham 011	10	North	Shotwick Road	Shotwick Road	A494 S
E02003799 : Cheshire West and Chester 031	9	North	Shotwick Road	Shotwick Road	A494 N
E02003805 : Cheshire West and Chester 039	9	North	Shotwick Road	Shotwick Road	A494 S
E02003841 : Cheshire West and Chester 001	9	North	Shotwick Road	Shotwick Road	A494 N
E02001507 : Wirral 041	9	North	Shotwick Road	Shotwick Road	A494 N
W02000083 : Wrexham 006	9	North	Shotwick Road	Shotwick Road	A494 S
E02003795 : Cheshire West and Chester 025	8	North	Shotwick Road	Shotwick Road	A494 N
E02003801 : Cheshire West and Chester 032	8	North	Shotwick Road	Shotwick Road	A494 N
E02001502 : Wirral 036	8	North	Shotwick Road	Shotwick Road	A494 N
W02000082 : Wrexham 005	8	North	Shotwick Road	Shotwick Road	A494 S
W02000420 : Wrexham 020	8	North	Shotwick Road	Shotwick Road	A494 S
E02003794 : Cheshire West and Chester 022	7	North	Shotwick Road	Shotwick Road	A494 N
E02003850 : Cheshire West and Chester 013	7	North	Shotwick Road	Shotwick Road	A494 N
E02001488 : Wirral 022	7	North	Shotwick Road	Shotwick Road	A494 N
W02000043 : Denbighshire 002	7	North	Weighbridge Road	N/A	N/A
W02000054 : Denbighshire 013	7	North	Shotwick Road	Shotwick Road	A494 S
E02003846 : Cheshire West and Chester 008	6	North	Shotwick Road	Shotwick Road	A494 N
E02003851 : Cheshire West and Chester 014	6	North	Shotwick Road	Shotwick Road	A494 N
E02001504 : Wirral 038	6	North	Shotwick Road	Shotwick Road	A494 N
W02000049 : Denbighshire 008	6	North	Shotwick Road	Shotwick Road	A494 S
W02000419 : Denbighshire 017	6	North	Shotwick Road	Shotwick Road	A494 S
W02000087 : Wrexham 010	6	North	Shotwick Road	Shotwick Road	A494 S
W02000093 : Wrexham 016	6	North	Shotwick Road	Shotwick Road	A494 S
E02003796 : Cheshire West and Chester 027	5	North	Shotwick Road	Shotwick Road	A494 N
E02003802 : Cheshire West and Chester 033	5	North	Shotwick Road	Shotwick Road	A494 N
E02003804 : Cheshire West and Chester 036	5	North	Shotwick Road	Shotwick Road	A494 N
E02003806 : Cheshire West and Chester 041	5	North	Shotwick Road	Shotwick Road	A494 N

Usual Residence : 2011 MSOA	No. People	Junction			
		Tenth Ave	Weighbridge Road / Shotwick Road	Shotwick Road / Parkway	Deeside Park Jct
E02003808 : Cheshire West and Chester 044	5	North	Shotwick Road	Shotwick Road	A494 S
E02003844 : Cheshire West and Chester 006	5	North	Shotwick Road	Shotwick Road	A494 N
E02001474 : Wirral 008	5	North	Shotwick Road	Shotwick Road	A494 N
E02001478 : Wirral 012	5	North	Shotwick Road	Shotwick Road	A494 N
W02000051 : Denbighshire 010	5	North	Shotwick Road	Shotwick Road	A494 S
W02000080 : Wrexham 003	5	North	Shotwick Road	Shotwick Road	A494 S
E02003803 : Cheshire West and Chester 034	4	North	Shotwick Road	Shotwick Road	A494 N
E02003809 : Cheshire West and Chester 046	4	North	Shotwick Road	Shotwick Road	A494 S
E02003842 : Cheshire West and Chester 004	4	North	Shotwick Road	Shotwick Road	A494 N
E02003877 : Cheshire West and Chester 015	4	North	Shotwick Road	Shotwick Road	A494 N
E02001496 : Wirral 030	4	North	Shotwick Road	Shotwick Road	A494 N
E02001497 : Wirral 031	4	North	Shotwick Road	Shotwick Road	A494 N
E02001498 : Wirral 032	4	North	Shotwick Road	Shotwick Road	A494 N
E02001508 : Wirral 042	4	North	Shotwick Road	Shotwick Road	A494 N
W02000050 : Denbighshire 009	4	North	Shotwick Road	Shotwick Road	A494 S
W02000053 : Denbighshire 012	4	North	Shotwick Road	Shotwick Road	A494 S
W02000084 : Wrexham 007	4	North	Shotwick Road	Shotwick Road	A494 S
W02000089 : Wrexham 012	4	North	Shotwick Road	Shotwick Road	A494 S
W02000092 : Wrexham 015	4	North	Shotwick Road	Shotwick Road	A494 S
W02000094 : Wrexham 017	4	North	Shotwick Road	Shotwick Road	A494 S
E02003807 : Cheshire West and Chester 043	3	North	Shotwick Road	Shotwick Road	A494 S
E02003848 : Cheshire West and Chester 010	3	North	Shotwick Road	Shotwick Road	A494 N
E02003849 : Cheshire West and Chester 011	3	North	Shotwick Road	Shotwick Road	A494 N
E02002584 : Halton 011	3	North	Shotwick Road	Shotwick Road	A494 N
E02001467 : Wirral 001	3	North	Shotwick Road	Shotwick Road	A494 N
E02001468 : Wirral 002	3	North	Shotwick Road	Shotwick Road	A494 N
E02001480 : Wirral 014	3	North	Shotwick Road	Shotwick Road	A494 N
E02001485 : Wirral 019	3	North	Shotwick Road	Shotwick Road	A494 N
E02001490 : Wirral 024	3	North	Shotwick Road	Shotwick Road	A494 N
E02001501 : Wirral 035	3	North	Shotwick Road	Shotwick Road	A494 N
E02001505 : Wirral 039	3	North	Shotwick Road	Shotwick Road	A494 N
W02000029 : Conwy 003	3	North	Shotwick Road	Shotwick Road	A494 S
W02000041 : Conwy 015	3	North	Shotwick Road	Shotwick Road	A494 S
W02000042 : Denbighshire 001	3	North	Weighbridge Road	N/A	N/A
W02000044 : Denbighshire 003	3	North	Weighbridge Road	N/A	N/A
W02000047 : Denbighshire 006	3	North	Shotwick Road	Shotwick Road	A494 S
W02000052 : Denbighshire 011	3	North	Shotwick Road	Shotwick Road	A494 S
W02000055 : Denbighshire 014	3	North	Shotwick Road	Shotwick Road	A494 S
W02000081 : Wrexham 004	3	North	Shotwick Road	Shotwick Road	A494 S
W02000085 : Wrexham 008	3	North	Shotwick Road	Shotwick Road	A494 S
W02000086 : Wrexham 009	3	North	Shotwick Road	Shotwick Road	A494 S
W02000090 : Wrexham 013	3	North	Shotwick Road	Shotwick Road	A494 S
E02003836 : Cheshire East 047	2	North	Shotwick Road	Shotwick Road	A494 N
E02003798 : Cheshire West and Chester 029	2	North	Shotwick Road	Shotwick Road	A494 N
E02003845 : Cheshire West and Chester 007	2	North	Shotwick Road	Shotwick Road	A494 N
E02003874 : Cheshire West and Chester 002	2	North	Shotwick Road	Shotwick Road	A494 N
E02003876 : Cheshire West and Chester 012	2	North	Shotwick Road	Shotwick Road	A494 N
E02003882 : Cheshire West and Chester 021	2	North	Shotwick Road	Shotwick Road	A494 N
E02003891 : Cheshire West and Chester 045	2	North	Shotwick Road	Shotwick Road	A494 N
E02002574 : Halton 001	2	North	Shotwick Road	Shotwick Road	A494 N

Usual Residence : 2011 MSOA	No. People	Junction			
		Tenth Ave	Weighbridge Road / Shotwick Road	Shotwick Road / Parkway	Deeside Park Jct
E02002586 : Halton 013	2	North	Shotwick Road	Shotwick Road	A494 N
E02002589 : Halton 016	2	North	Shotwick Road	Shotwick Road	A494 N
E02002607 : Warrington 018	2	North	Shotwick Road	Shotwick Road	A494 N
E02001282 : Trafford 024	2	North	Shotwick Road	Shotwick Road	A494 N
E02001345 : Knowsley 019	2	North	Shotwick Road	Shotwick Road	A494 N
E02001472 : Wirral 006	2	North	Shotwick Road	Shotwick Road	A494 N
E02001476 : Wirral 010	2	North	Shotwick Road	Shotwick Road	A494 N
E02001479 : Wirral 013	2	North	Shotwick Road	Shotwick Road	A494 N
E02001481 : Wirral 015	2	North	Shotwick Road	Shotwick Road	A494 N
E02001484 : Wirral 018	2	North	Shotwick Road	Shotwick Road	A494 N
E02001486 : Wirral 020	2	North	Shotwick Road	Shotwick Road	A494 N
E02001489 : Wirral 023	2	North	Shotwick Road	Shotwick Road	A494 N
E02001499 : Wirral 033	2	North	Shotwick Road	Shotwick Road	A494 N
W02000035 : Conwy 009	2	North	Shotwick Road	Shotwick Road	A494 S
W02000036 : Conwy 010	2	North	Shotwick Road	Shotwick Road	A494 S
W02000040 : Conwy 014	2	North	Shotwick Road	Shotwick Road	A494 S
W02000095 : Wrexham 018	2	North	Shotwick Road	Shotwick Road	A494 S
E02003835 : Cheshire East 046	1	North	Shotwick Road	Shotwick Road	A494 N
E02003857 : Cheshire East 005	1	North	Shotwick Road	Shotwick Road	A494 N
E02003861 : Cheshire East 009	1	North	Shotwick Road	Shotwick Road	A494 N
E02003863 : Cheshire East 010	1	North	Shotwick Road	Shotwick Road	A494 N
E02003800 : Cheshire West and Chester 030	1	North	Shotwick Road	Shotwick Road	A494 N
E02003843 : Cheshire West and Chester 005	1	North	Shotwick Road	Shotwick Road	A494 N
E02003878 : Cheshire West and Chester 017	1	North	Shotwick Road	Shotwick Road	A494 N
E02003886 : Cheshire West and Chester 035	1	North	Shotwick Road	Shotwick Road	A494 N
E02002575 : Halton 002	1	North	Shotwick Road	Shotwick Road	A494 N
E02002581 : Halton 008	1	North	Shotwick Road	Shotwick Road	A494 N
E02002585 : Halton 012	1	North	Shotwick Road	Shotwick Road	A494 N
E02002587 : Halton 014	1	North	Shotwick Road	Shotwick Road	A494 N
E02002596 : Warrington 007	1	North	Shotwick Road	Shotwick Road	A494 N
E02002597 : Warrington 008	1	North	Shotwick Road	Shotwick Road	A494 N
E02002600 : Warrington 011	1	North	Shotwick Road	Shotwick Road	A494 N
E02002604 : Warrington 015	1	North	Shotwick Road	Shotwick Road	A494 N
E02002608 : Warrington 019	1	North	Shotwick Road	Shotwick Road	A494 N
E02001027 : Bury 009	1	North	Shotwick Road	Shotwick Road	A494 N
E02001035 : Bury 017	1	North	Shotwick Road	Shotwick Road	A494 N
E02006917 : Manchester 060	1	North	Shotwick Road	Shotwick Road	A494 N
E02001169 : Salford 013	1	North	Shotwick Road	Shotwick Road	A494 N
E02001204 : Stockport 018	1	North	Shotwick Road	Shotwick Road	A494 N
E02001206 : Stockport 020	1	North	Shotwick Road	Shotwick Road	A494 N
E02001339 : Knowsley 013	1	North	Shotwick Road	Shotwick Road	A494 N
E02001362 : Liverpool 016	1	North	Shotwick Road	Shotwick Road	A494 N
E02001380 : Liverpool 034	1	North	Shotwick Road	Shotwick Road	A494 N
E02001384 : Liverpool 038	1	North	Shotwick Road	Shotwick Road	A494 N
E02001392 : Liverpool 046	1	North	Shotwick Road	Shotwick Road	A494 N
E02001398 : Liverpool 052	1	North	Shotwick Road	Shotwick Road	A494 N
E02001459 : Sefton 031	1	North	Shotwick Road	Shotwick Road	A494 N
E02001418 : St. Helens 013	1	North	Shotwick Road	Shotwick Road	A494 N
E02001419 : St. Helens 014	1	North	Shotwick Road	Shotwick Road	A494 N
E02001421 : St. Helens 016	1	North	Shotwick Road	Shotwick Road	A494 N

Usual Residence : 2011 MSOA	No. People	Junction			
		Tenth Ave	Weighbridge Road / Shotwick Road	Shotwick Road / Parkway	Deeside Park Jct
E02001427 : St. Helens 022	1	North	Shotwick Road	Shotwick Road	A494 N
E02001473 : Wirral 007	1	North	Shotwick Road	Shotwick Road	A494 N
E02001475 : Wirral 009	1	North	Shotwick Road	Shotwick Road	A494 N
E02001483 : Wirral 017	1	North	Shotwick Road	Shotwick Road	A494 N
E02001491 : Wirral 025	1	North	Shotwick Road	Shotwick Road	A494 N
E02001492 : Wirral 026	1	North	Shotwick Road	Shotwick Road	A494 N
E02001494 : Wirral 028	1	North	Shotwick Road	Shotwick Road	A494 N
E02001495 : Wirral 029	1	North	Shotwick Road	Shotwick Road	A494 N
E02001500 : Wirral 034	1	North	Shotwick Road	Shotwick Road	A494 N
E02001503 : Wirral 037	1	North	Shotwick Road	Shotwick Road	A494 N
E02001506 : Wirral 040	1	North	Shotwick Road	Shotwick Road	A494 N
E02002933 : Telford and Wrekin 006	1	North	Shotwick Road	Shotwick Road	A494 S
E02002939 : Telford and Wrekin 012	1	North	Shotwick Road	Shotwick Road	A494 S
E02006150 : Lichfield 005	1	North	Shotwick Road	Shotwick Road	A494 N
W02000010 : Gwynedd 001	1	North	Shotwick Road	Shotwick Road	A494 S
W02000024 : Gwynedd 015	1	North	Shotwick Road	Shotwick Road	A494 S
W02000030 : Conwy 004	1	North	Shotwick Road	Shotwick Road	A494 S
W02000031 : Conwy 005	1	North	Shotwick Road	Shotwick Road	A494 S
W02000032 : Conwy 006	1	North	Shotwick Road	Shotwick Road	A494 S
W02000033 : Conwy 007	1	North	Shotwick Road	Shotwick Road	A494 S
W02000045 : Denbighshire 004	1	North	Shotwick Road	Shotwick Road	A494 S
W02000056 : Denbighshire 015	1	North	Shotwick Road	Shotwick Road	A494 S
W02000057 : Denbighshire 016	1	North	Shotwick Road	Shotwick Road	A494 S
W02000098 : Powys 002	1	North	Shotwick Road	Shotwick Road	A494 S
W02000317 : Blaenau Gwent 004	1	North	Shotwick Road	Shotwick Road	A494 S
W02000320 : Blaenau Gwent 007	1	North	Shotwick Road	Shotwick Road	A494 S
Total	**1,708**				

Appendix G

Junction Capacity Analysis – Junctions 9

Junctions 9

ARCADY 9 - Roundabout Module

Filename: Tenth Ave P01.j9
Path: Z:\Projects\Projects 23\23-0160 - Deeside Industrial Park, Great Bear Unit 3, Weighbridge Rd, Deeside. CH5 2LL\Correspondence\Reports\Transport\TA
Report generation date: 8/29/2023 8:49:18 AM

Summary of junction performance

	AM					PM				
	Queue (PCU)	Delay (s)	RFC	LOS	Network Residual Capacity	Queue (PCU)	Delay (s)	RFC	LOS	Network Residual Capacity
Tenth Avenue Roundabout - 2025 Base										
Arm 1	0.2	3.41	0.16	A	263 %	0.7	5.00	0.40	A	114 %
Arm 2	0.4	2.26	0.26	A	[Arm 2]	0.1	1.80	0.08	A	[Arm 1]
Arm 3	0.0	3.57	0.03	A		0.2	3.49	0.12	A	
Tenth Avenue Roundabout - 2025 Base + Dev										
Arm 1	0.2	3.47	0.18	A	237 %	0.8	5.27	0.43	A	101 %
Arm 2	0.4	2.32	0.28	A	[Arm 2]	0.1	1.81	0.08	A	[Arm 1]
Arm 3	0.0	3.65	0.04	A		0.2	3.51	0.12	A	
Tenth Avenue Roundabout - 2030 Base										
Arm 1	0.2	3.43	0.17	A	252 %	0.8	5.12	0.41	A	108 %
Arm 2	0.4	2.28	0.27	A	[Arm 2]	0.1	1.80	0.08	A	[Arm 1]
Arm 3	0.0	3.59	0.04	A		0.2	3.51	0.13	A	
Tenth Avenue Roundabout - 2030 Base + Dev										
Arm 1	0.2	3.49	0.18	A	227 %	0.9	5.39	0.44	A	96 %
Arm 2	0.4	2.35	0.29	A	[Arm 2]	0.1	1.81	0.08	A	[Arm 1]
Arm 3	0.0	3.67	0.04	A		0.2	3.53	0.13	A	

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle. Network Residual Capacity indicates the amount by which network flow could be increased before a user-definable threshold (see Analysis Options) is met.

File summary

File Description

Title	
Location	
Site number	
Date	8/25/2023
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	BSP-CONSULTING\csimon
Description	

Units

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

Analysis Options

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

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2025 Base	AM	ONE HOUR	08:00	09:30	15
D2	2025 Base	PM	ONE HOUR	17:00	18:30	15
D3	2025 Base + Dev	AM	ONE HOUR	08:00	09:30	15
D4	2025 Base + Dev	PM	ONE HOUR	17:00	18:30	15
D5	2030 Base	AM	ONE HOUR	08:00	09:30	15
D6	2030 Base	PM	ONE HOUR	17:00	18:30	15
D7	2030 Base + Dev	AM	ONE HOUR	08:00	09:30	15
D8	2030 Base + Dev	PM	ONE HOUR	17:00	18:30	15

Analysis Set Details

ID	Name	Network flow scaling factor (%)
A1	Tenth Avenue Roundabout	100.000

Tenth Avenue Roundabout - 2025 Base, 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	untitled	Standard Roundabout		1, 2, 3, 4	2.61	A

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	263	Arm 2

Arms

Arms

Arm	Name	Description
1	Tenth Ave (west)	
2	Tenth Ave (north)	
3	Tenth Ave (east)	
4	Tenth Ave (south)	

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
1	3.45	5.77	6.0	16.8	64.0	19.0	
2	7.10	8.30	5.1	15.9	64.0	22.0	
3	3.75	6.00	3.7	19.4	64.0	28.0	
4							✓

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1	0.492	1399
2	0.654	2394
3	0.482	1376
4		

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2025 Base	AM	ONE HOUR	08:00	09:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	202	100.000
2		✓	560	100.000
3		✓	36	100.000
4				

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	170	18	14
	2	190	0	147	223
	3	7	28	0	1
	4	Exit-only	Exit-only	Exit-only	Exit-only

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	10	10	10	10
	2	10	10	10	10
	3	10	10	10	10
	4	Exit-only	Exit-only	Exit-only	Exit-only

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.16	3.41	0.2	A
2	0.26	2.26	0.4	A
3	0.03	3.57	0.0	A
4				

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	152	21	1389	0.110	152	0.1	3.198	A
2	422	24	2379	0.177	421	0.2	2.021	A
3	27	321	1221	0.022	27	0.0	3.316	A
4		169						

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	182	25	1387	0.131	181	0.2	3.285	A
2	503	29	2376	0.212	503	0.3	2.114	A
3	32	384	1190	0.027	32	0.0	3.418	A
4		202						

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	222	31	1384	0.161	222	0.2	3.408	A
2	617	35	2371	0.260	616	0.4	2.256	A
3	40	470	1149	0.035	40	0.0	3.569	A
4		248						

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	222	31	1384	0.161	222	0.2	3.408	A
2	617	35	2371	0.260	617	0.4	2.256	A
3	40	470	1149	0.035	40	0.0	3.569	A
4		248						

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	182	25	1387	0.131	182	0.2	3.288	A
2	503	29	2376	0.212	504	0.3	2.117	A
3	32	384	1190	0.027	32	0.0	3.422	A
4		202						

09:15 - 09:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	152	21	1389	0.110	152	0.1	3.204	A
2	422	24	2379	0.177	422	0.2	2.023	A
3	27	322	1220	0.022	27	0.0	3.320	A
4		169						

Tenth Avenue Roundabout - 2025 Base, PM

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	untitled	Standard Roundabout		1, 2, 3, 4	4.06	A

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	114	Arm 1

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D2	2025 Base	PM	ONE HOUR	17:00	18:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	483	100.000
2		✓	166	100.000
3		✓	146	100.000
4				

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	465	8	10
	2	35	0	22	109
	3	2	140	0	4
	4	Exit-only	Exit-only	Exit-only	Exit-only

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	10	10	10	10
	2	10	10	10	10
	3	10	10	10	10
	4	Exit-only	Exit-only	Exit-only	Exit-only

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.40	5.00	0.7	A
2	0.08	1.80	0.1	A
3	0.12	3.49	0.2	A
4				

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	364	105	1347	0.270	362	0.4	4.012	A
2	125	13	2386	0.052	125	0.1	1.750	A
3	110	116	1320	0.083	110	0.1	3.272	A
4		133						

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	434	126	1337	0.325	434	0.5	4.381	A
2	149	16	2384	0.063	149	0.1	1.771	A
3	131	138	1309	0.100	131	0.1	3.362	A
4		159						

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	532	154	1323	0.402	531	0.7	4.992	A
2	183	20	2382	0.077	183	0.1	1.800	A
3	161	169	1294	0.124	161	0.2	3.494	A
4		195						

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	532	154	1323	0.402	532	0.7	5.002	A
2	183	20	2381	0.077	183	0.1	1.800	A
3	161	170	1294	0.124	161	0.2	3.494	A
4		195						

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	434	126	1337	0.325	435	0.5	4.395	A
2	149	16	2384	0.063	149	0.1	1.774	A
3	131	139	1309	0.100	131	0.1	3.363	A
4		159						

18:15 - 18:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	364	105	1347	0.270	364	0.4	4.029	A
2	125	14	2386	0.052	125	0.1	1.753	A
3	110	116	1320	0.083	110	0.1	3.275	A
4		133						

Tenth Avenue Roundabout - 2025 Base + 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	untitled	Standard Roundabout		1, 2, 3, 4	2.67	A

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	237	Arm 2

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D3	2025 Base + Dev	AM	ONE HOUR	08:00	09:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	220	100.000
2		✓	605	100.000
3		✓	36	100.000
4				

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	188	18	14
	2	235	0	147	223
	3	7	28	0	1
	4	Exit-only	Exit-only	Exit-only	Exit-only

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	10	10	10	10
	2	10	10	10	10
	3	10	10	10	10
	4	Exit-only	Exit-only	Exit-only	Exit-only

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.18	3.47	0.2	A
2	0.28	2.32	0.4	A
3	0.04	3.65	0.0	A
4				

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	166	21	1389	0.119	165	0.1	3.234	A
2	455	24	2379	0.191	454	0.3	2.057	A
3	27	355	1205	0.023	27	0.0	3.362	A
4		203						

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	198	25	1387	0.143	198	0.2	3.329	A
2	544	29	2376	0.229	544	0.3	2.161	A
3	32	424	1171	0.028	32	0.0	3.477	A
4		243						

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	242	31	1384	0.175	242	0.2	3.467	A
2	666	35	2371	0.281	666	0.4	2.321	A
3	40	519	1125	0.035	40	0.0	3.647	A
4		297						

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	242	31	1384	0.175	242	0.2	3.467	A
2	666	35	2371	0.281	666	0.4	2.321	A
3	40	520	1125	0.035	40	0.0	3.648	A
4		297						

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	198	25	1387	0.143	198	0.2	3.333	A
2	544	29	2376	0.229	544	0.3	2.164	A
3	32	425	1171	0.028	32	0.0	3.480	A
4		243						

09:15 - 09:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	166	21	1389	0.119	166	0.1	3.237	A
2	455	24	2379	0.191	456	0.3	2.060	A
3	27	356	1204	0.023	27	0.0	3.366	A
4		203						

Tenth Avenue Roundabout - 2025 Base + Dev, PM

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	untitled	Standard Roundabout		1, 2, 3, 4	4.24	A

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	101	Arm 1

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D4	2025 Base + Dev	PM	ONE HOUR	17:00	18:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	519	100.000
2		✓	176	100.000
3		✓	146	100.000
4				

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	501	8	10
	2	45	0	22	109
	3	2	140	0	4
	4	Exit-only	Exit-only	Exit-only	Exit-only

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	10	10	10	10
	2	10	10	10	10
	3	10	10	10	10
	4	Exit-only	Exit-only	Exit-only	Exit-only

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.43	5.27	0.8	A
2	0.08	1.81	0.1	A
3	0.12	3.51	0.2	A
4				

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	391	105	1347	0.290	389	0.4	4.124	A
2	133	13	2386	0.056	132	0.1	1.756	A
3	110	123	1316	0.084	110	0.1	3.282	A
4		140						

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	467	126	1337	0.349	466	0.6	4.542	A
2	158	16	2384	0.066	158	0.1	1.778	A
3	131	147	1304	0.101	131	0.1	3.374	A
4		168						

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	571	154	1323	0.432	570	0.8	5.253	A
2	194	20	2382	0.081	194	0.1	1.809	A
3	161	180	1289	0.125	161	0.2	3.510	A
4		206						

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	571	154	1323	0.432	571	0.8	5.266	A
2	194	20	2381	0.081	194	0.1	1.809	A
3	161	181	1288	0.125	161	0.2	3.510	A
4		206						

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	467	126	1337	0.349	468	0.6	4.560	A
2	158	16	2384	0.066	158	0.1	1.781	A
3	131	148	1304	0.101	131	0.1	3.378	A
4		168						

18:15 - 18:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	391	105	1347	0.290	391	0.5	4.144	A
2	133	14	2386	0.056	133	0.1	1.759	A
3	110	124	1316	0.084	110	0.1	3.285	A
4		141						

Tenth Avenue Roundabout - 2030 Base, 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	untitled	Standard Roundabout		1, 2, 3, 4	2.63	A

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	252	Arm 2

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D5	2030 Base	AM	ONE HOUR	08:00	09:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	209	100.000
2		✓	577	100.000
3		✓	37	100.000
4				

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	175	19	15
	2	195	0	152	230
	3	7	29	0	1
	4	Exit-only	Exit-only	Exit-only	Exit-only

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	10	10	10	10
	2	10	10	10	10
	3	10	10	10	10
	4	Exit-only	Exit-only	Exit-only	Exit-only

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.17	3.43	0.2	A
2	0.27	2.28	0.4	A
3	0.04	3.59	0.0	A
4				

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	157	22	1388	0.113	157	0.1	3.213	A
2	434	26	2378	0.183	433	0.2	2.035	A
3	28	330	1216	0.023	28	0.0	3.331	A
4		173						

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	188	26	1386	0.136	188	0.2	3.303	A
2	519	31	2374	0.218	518	0.3	2.133	A
3	33	395	1185	0.028	33	0.0	3.437	A
4		208						

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	230	32	1383	0.166	230	0.2	3.432	A
2	635	37	2370	0.268	635	0.4	2.282	A
3	41	484	1142	0.036	41	0.0	3.594	A
4		254						

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	230	32	1383	0.166	230	0.2	3.432	A
2	635	37	2370	0.268	635	0.4	2.282	A
3	41	484	1142	0.036	41	0.0	3.595	A
4		254						

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	188	26	1386	0.136	188	0.2	3.304	A
2	519	31	2374	0.218	519	0.3	2.134	A
3	33	396	1185	0.028	33	0.0	3.441	A
4		208						

09:15 - 09:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	157	22	1388	0.113	157	0.1	3.219	A
2	434	26	2378	0.183	435	0.2	2.039	A
3	28	331	1216	0.023	28	0.0	3.335	A
4		174						

Tenth Avenue Roundabout - 2030 Base, PM

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	untitled	Standard Roundabout		1, 2, 3, 4	4.13	A

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	108	Arm 1

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D6	2030 Base	PM	ONE HOUR	17:00	18:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	497	100.000
2		✓	170	100.000
3		✓	150	100.000
4				

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	478	9	10
	2	36	0	22	112
	3	2	144	0	4
	4	Exit-only	Exit-only	Exit-only	Exit-only

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	10	10	10	10
	2	10	10	10	10
	3	10	10	10	10
	4	Exit-only	Exit-only	Exit-only	Exit-only

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.41	5.12	0.8	A
2	0.08	1.80	0.1	A
3	0.13	3.51	0.2	A
4				

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	374	108	1346	0.278	372	0.4	4.061	A
2	128	14	2385	0.054	128	0.1	1.753	A
3	113	119	1318	0.086	113	0.1	3.284	A
4		137						

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	447	129	1335	0.335	446	0.5	4.452	A
2	153	17	2383	0.064	153	0.1	1.774	A
3	135	142	1307	0.103	135	0.1	3.377	A
4		164						

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	547	158	1321	0.414	546	0.8	5.106	A
2	187	21	2381	0.079	187	0.1	1.804	A
3	165	174	1292	0.128	165	0.2	3.514	A
4		200						

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	547	159	1321	0.414	547	0.8	5.116	A
2	187	21	2381	0.079	187	0.1	1.804	A
3	165	174	1292	0.128	165	0.2	3.514	A
4		200						

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	447	130	1335	0.335	448	0.6	4.465	A
2	153	17	2383	0.064	153	0.1	1.777	A
3	135	142	1307	0.103	135	0.1	3.378	A
4		164						

18:15 - 18:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	374	109	1346	0.278	375	0.4	4.080	A
2	128	14	2385	0.054	128	0.1	1.753	A
3	113	119	1318	0.086	113	0.1	3.287	A
4		137						

Tenth Avenue Roundabout - 2030 Base + 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	untitled	Standard Roundabout		1, 2, 3, 4	2.70	A

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	227	Arm 2

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D7	2030 Base + Dev	AM	ONE HOUR	08:00	09:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	227	100.000
2		✓	622	100.000
3		✓	37	100.000
4				

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	193	19	15
	2	240	0	152	230
	3	7	29	0	1
	4	Exit-only	Exit-only	Exit-only	Exit-only

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	10	10	10	10
	2	10	10	10	10
	3	10	10	10	10
	4	Exit-only	Exit-only	Exit-only	Exit-only

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.18	3.49	0.2	A
2	0.29	2.35	0.4	A
3	0.04	3.67	0.0	A
4				

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	171	22	1388	0.123	170	0.2	3.249	A
2	468	26	2378	0.197	467	0.3	2.071	A
3	28	364	1200	0.023	28	0.0	3.378	A
4		207						

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	204	26	1386	0.147	204	0.2	3.348	A
2	559	31	2374	0.235	559	0.3	2.181	A
3	33	436	1165	0.029	33	0.0	3.497	A
4		248						

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	250	32	1383	0.181	250	0.2	3.492	A
2	685	37	2370	0.289	684	0.4	2.349	A
3	41	534	1118	0.036	41	0.0	3.674	A
4		304						

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	250	32	1383	0.181	250	0.2	3.492	A
2	685	37	2370	0.289	685	0.4	2.349	A
3	41	534	1118	0.036	41	0.0	3.675	A
4		304						

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	204	26	1386	0.147	204	0.2	3.352	A
2	559	31	2374	0.235	560	0.3	2.183	A
3	33	436	1165	0.029	33	0.0	3.500	A
4		248						

09:15 - 09:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	171	22	1388	0.123	171	0.2	3.252	A
2	468	26	2378	0.197	469	0.3	2.074	A
3	28	365	1199	0.023	28	0.0	3.382	A
4		208						

Tenth Avenue Roundabout - 2030 Base + Dev, PM

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	untitled	Standard Roundabout		1, 2, 3, 4	4.32	A

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	96	Arm 1

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D8	2030 Base + Dev	PM	ONE HOUR	17:00	18:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	533	100.000
2		✓	180	100.000
3		✓	150	100.000
4				

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	514	9	10
	2	46	0	22	112
	3	2	144	0	4
	4	Exit-only	Exit-only	Exit-only	Exit-only

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	10	10	10	10
	2	10	10	10	10
	3	10	10	10	10
	4	Exit-only	Exit-only	Exit-only	Exit-only

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.44	5.39	0.9	A
2	0.08	1.81	0.1	A
3	0.13	3.53	0.2	A
4				

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	401	108	1346	0.298	399	0.5	4.176	A
2	136	14	2385	0.057	135	0.1	1.759	A
3	113	126	1315	0.086	113	0.1	3.294	A
4		144						

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	479	129	1335	0.359	479	0.6	4.618	A
2	162	17	2383	0.068	162	0.1	1.781	A
3	135	151	1303	0.104	135	0.1	3.389	A
4		172						

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	587	158	1321	0.444	586	0.9	5.377	A
2	198	21	2381	0.083	198	0.1	1.813	A
3	165	185	1286	0.128	165	0.2	3.530	A
4		211						

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	587	159	1321	0.444	587	0.9	5.392	A
2	198	21	2381	0.083	198	0.1	1.813	A
3	165	185	1286	0.128	165	0.2	3.531	A
4		211						

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	479	130	1335	0.359	480	0.6	4.635	A
2	162	17	2383	0.068	162	0.1	1.784	A
3	135	151	1303	0.104	135	0.1	3.393	A
4		173						

18:15 - 18:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	401	109	1346	0.298	402	0.5	4.199	A
2	136	14	2385	0.057	136	0.1	1.759	A
3	113	127	1315	0.086	113	0.1	3.295	A
4		145						

Junctions 9

ARCADY 9 - Roundabout Module

Version: 9.5.0.6896

Filename: Weighbridge Road.j9
Path: Z:\Projects\Projects 23\23-0160 - Deeside Industrial Park, Great Bear Unit 3, Weighbridge Rd, Deeside. CH5 2LL\Correspondence\Reports\Transport\TA
Report generation date: 8/29/2023 11:42:31 AM

Summary of junction performance

	AM					PM				
	Queue (PCU)	Delay (s)	RFC	LOS	Network Residual Capacity	Queue (PCU)	Delay (s)	RFC	LOS	Network Residual Capacity
	2025 Base									
Arm 1	0.9	2.70	0.44	A	61 % [Arm 3]	0.8	2.80	0.41	A	72 % [Arm 4]
Arm 2	0.0	0.00	0.00	A		0.0	0.00	0.00	A	
Arm 3	1.6	3.84	0.59	A		1.1	3.04	0.49	A	
Arm 4	0.1	2.39	0.12	A		0.7	3.55	0.38	A	
	2025 Base + Dev									
Arm 1	0.8	2.51	0.42	A	57 % [Arm 3]	0.6	2.24	0.35	A	93 % [Arm 3]
Arm 2	0.0	0.00	0.00	A		0.0	0.00	0.00	A	
Arm 3	1.7	4.01	0.61	A		1.1	3.06	0.50	A	
Arm 4	0.0	0.00	0.00	A		0.0	0.00	0.00	A	
	2030 Base									
Arm 1	0.9	2.77	0.45	A	56 % [Arm 3]	0.8	2.87	0.42	A	67 % [Arm 4]
Arm 2	0.0	0.00	0.00	A		0.0	0.00	0.00	A	
Arm 3	1.7	4.02	0.61	A		1.1	3.13	0.51	A	
Arm 4	0.2	2.42	0.12	A		0.7	3.69	0.39	A	
	2030 Base + Dev									
Arm 1	0.9	2.82	0.46	A	52 % [Arm 3]	0.8	2.92	0.42	A	62 % [Arm 4]
Arm 2	0.0	0.00	0.00	A		0.0	0.00	0.00	A	
Arm 3	1.8	4.21	0.63	A		1.2	3.16	0.51	A	
Arm 4	0.2	2.45	0.13	A		0.8	3.83	0.42	A	

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle. Network Residual Capacity indicates the amount by which network flow could be increased before a user-definable threshold (see Analysis Options) is met.

File summary

File Description

Title	
Location	
Site number	
Date	8/29/2023
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	BSP-CONSULTING\csimon
Description	

Units

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

Analysis Options

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

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2025 Base	AM	ONE HOUR	08:00	09:30	15
D2	2025 Base	PM	ONE HOUR	17:00	18:30	15
D3	2025 Base + Dev	AM	ONE HOUR	08:00	09:30	15
D4	2025 Base + Dev	PM	ONE HOUR	17:00	18:30	15
D5	2030 Base	AM	ONE HOUR	08:00	09:30	15
D6	2030 Base	PM	ONE HOUR	17:00	18:30	15
D7	2030 Base + Dev	AM	ONE HOUR	08:00	09:30	15
D8	2030 Base + Dev	PM	ONE HOUR	17:00	18:30	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

2025 Base, 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	Weighbridge Road / Shotwick Road	Standard Roundabout		1, 2, 3, 4	3.27	A

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	61	Arm 3

Arms

Arms

Arm	Name	Description
1	A548 Weighbridge Road	
2	Local Road	
3	A458 Shotwick Road	
4	Tenth Avenue	

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
1	8.90	9.50	2.0	12.1	68.1	26.0	
2	2.90	4.30	1.2	8.3	68.1	31.0	
3	7.98	8.60	2.3	18.8	68.1	20.0	
4	7.30	8.90	3.7	35.0	68.1	22.0	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1	0.676	2740
2	0.368	898
3	0.666	2598
4	0.659	2533

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2025 Base	AM	ONE HOUR	08:00	09:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	1041	100.000
2		✓	0	100.000
3		✓	1357	100.000
4		✓	202	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	0	942	99
	2	0	0	0	0
	3	897	0	0	460
	4	34	0	168	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	10	10	10	10
	2	10	10	10	10
	3	10	10	10	10
	4	10	10	10	10

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.44	2.70	0.9	A
2	0.00	0.00	0.0	A
3	0.59	3.84	1.6	A
4	0.12	2.39	0.1	A

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	784	126	2655	0.295	782	0.5	2.112	A
2	0	908	564	0.000	0	0.0	0.000	A
3	1022	74	2549	0.401	1019	0.7	2.584	A
4	152	673	2089	0.073	152	0.1	2.044	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	936	151	2638	0.355	935	0.6	2.326	A
2	0	1086	498	0.000	0	0.0	0.000	A
3	1220	89	2539	0.480	1219	1.0	2.996	A
4	182	806	2002	0.091	182	0.1	2.175	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1146	185	2615	0.438	1145	0.9	2.693	A
2	0	1330	408	0.000	0	0.0	0.000	A
3	1494	109	2526	0.592	1492	1.6	3.822	A
4	222	986	1883	0.118	222	0.1	2.384	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1146	185	2615	0.438	1146	0.9	2.695	A
2	0	1331	408	0.000	0	0.0	0.000	A
3	1494	109	2526	0.592	1494	1.6	3.837	A
4	222	988	1882	0.118	222	0.1	2.385	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	936	151	2638	0.355	937	0.6	2.329	A
2	0	1088	497	0.000	0	0.0	0.000	A
3	1220	89	2539	0.480	1222	1.0	3.011	A
4	182	808	2000	0.091	182	0.1	2.177	A

09:15 - 09:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	784	127	2654	0.295	784	0.5	2.117	A
2	0	911	563	0.000	0	0.0	0.000	A
3	1022	75	2549	0.401	1023	0.7	2.596	A
4	152	676	2087	0.073	152	0.1	2.046	A

2025 Base, PM

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	Weighbridge Road / Shotwick Road	Standard Roundabout		1, 2, 3, 4	3.08	A

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	72	Arm 4

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D2	2025 Base	PM	ONE HOUR	17:00	18:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	880	100.000
2		✓	0	100.000
3		✓	1158	100.000
4		✓	614	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	0	851	29
	2	0	0	0	0
	3	1022	0	0	136
	4	136	0	478	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	10	10	10	10
	2	10	10	10	10
	3	10	10	10	10
	4	10	10	10	10

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.41	2.80	0.8	A
2	0.00	0.00	0.0	A
3	0.49	3.04	1.1	A
4	0.38	3.55	0.7	A

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	663	359	2497	0.265	661	0.4	2.154	A
2	0	1020	522	0.000	0	0.0	0.000	A
3	872	22	2584	0.337	870	0.6	2.307	A
4	462	767	2027	0.228	461	0.3	2.526	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	791	429	2450	0.323	791	0.5	2.387	A
2	0	1220	449	0.000	0	0.0	0.000	A
3	1041	26	2581	0.403	1040	0.7	2.568	A
4	552	918	1928	0.286	552	0.4	2.877	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	969	526	2385	0.406	968	0.7	2.794	A
2	0	1494	348	0.000	0	0.0	0.000	A
3	1275	32	2577	0.495	1274	1.1	3.035	A
4	676	1124	1792	0.377	675	0.7	3.542	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	969	526	2384	0.406	969	0.8	2.797	A
2	0	1495	347	0.000	0	0.0	0.000	A
3	1275	32	2577	0.495	1275	1.1	3.040	A
4	676	1125	1791	0.377	676	0.7	3.550	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	791	430	2449	0.323	792	0.5	2.390	A
2	0	1222	448	0.000	0	0.0	0.000	A
3	1041	26	2581	0.403	1042	0.7	2.575	A
4	552	920	1926	0.287	553	0.4	2.886	A

18:15 - 18:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	663	360	2496	0.265	663	0.4	2.161	A
2	0	1023	521	0.000	0	0.0	0.000	A
3	872	22	2584	0.337	873	0.6	2.316	A
4	462	770	2025	0.228	463	0.3	2.536	A

2025 Base + 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	Weighbridge Road / Shotwick Road	Standard Roundabout		1, 2, 3, 4	3.36	A

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	57	Arm 3

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D3	2025 Base + Dev	AM	ONE HOUR	08:00	09:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	1056	100.000
2		✓	0	100.000
3		✓	1387	100.000
4		✓	0	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	0	942	114
	2	0	0	0	0
	3	897	0	0	490
	4	0	0	0	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	10	10	10	10
	2	10	10	10	10
	3	10	10	10	10
	4	10	10	10	10

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.42	2.51	0.8	A
2	0.00	0.00	0.0	A
3	0.61	4.01	1.7	A
4	0.00	0.00	0.0	A

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	795	0	2740	0.290	793	0.4	2.032	A
2	0	793	606	0.000	0	0.0	0.000	A
3	1044	86	2541	0.411	1041	0.8	2.634	A
4	0	673	2089	0.000	0	0.0	0.000	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	949	0	2740	0.346	949	0.6	2.211	A
2	0	949	549	0.000	0	0.0	0.000	A
3	1247	102	2530	0.493	1246	1.1	3.080	A
4	0	806	2002	0.000	0	0.0	0.000	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1163	0	2740	0.424	1162	0.8	2.508	A
2	0	1162	470	0.000	0	0.0	0.000	A
3	1527	125	2515	0.607	1525	1.7	3.990	A
4	0	986	1883	0.000	0	0.0	0.000	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1163	0	2740	0.424	1163	0.8	2.510	A
2	0	1163	470	0.000	0	0.0	0.000	A
3	1527	126	2515	0.607	1527	1.7	4.009	A
4	0	988	1882	0.000	0	0.0	0.000	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	949	0	2740	0.346	950	0.6	2.213	A
2	0	950	548	0.000	0	0.0	0.000	A
3	1247	103	2530	0.493	1249	1.1	3.097	A
4	0	808	2000	0.000	0	0.0	0.000	A

09:15 - 09:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	795	0	2740	0.290	796	0.5	2.036	A
2	0	796	605	0.000	0	0.0	0.000	A
3	1044	86	2541	0.411	1045	0.8	2.651	A
4	0	676	2087	0.000	0	0.0	0.000	A

2025 Base + Dev, PM

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	Weighbridge Road / Shotwick Road	Standard Roundabout		1, 2, 3, 4	2.71	A

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	93	Arm 3

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D4	2025 Base + Dev	PM	ONE HOUR	17:00	18:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	883	100.000
2		✓	0	100.000
3		✓	1165	100.000
4		✓	0	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	0	851	32
	2	0	0	0	0
	3	1022	0	0	143
	4	0	0	0	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	10	10	10	10
	2	10	10	10	10
	3	10	10	10	10
	4	10	10	10	10

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.35	2.24	0.6	A
2	0.00	0.00	0.0	A
3	0.50	3.06	1.1	A
4	0.00	0.00	0.0	A

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	665	0	2740	0.243	663	0.4	1.907	A
2	0	663	654	0.000	0	0.0	0.000	A
3	877	24	2582	0.340	875	0.6	2.316	A
4	0	767	2027	0.000	0	0.0	0.000	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	794	0	2740	0.290	793	0.4	2.034	A
2	0	793	606	0.000	0	0.0	0.000	A
3	1047	29	2579	0.406	1047	0.7	2.582	A
4	0	918	1928	0.000	0	0.0	0.000	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	972	0	2740	0.355	972	0.6	2.239	A
2	0	972	540	0.000	0	0.0	0.000	A
3	1283	35	2575	0.498	1281	1.1	3.059	A
4	0	1124	1792	0.000	0	0.0	0.000	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	972	0	2740	0.355	972	0.6	2.239	A
2	0	972	540	0.000	0	0.0	0.000	A
3	1283	35	2575	0.498	1283	1.1	3.063	A
4	0	1125	1791	0.000	0	0.0	0.000	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	794	0	2740	0.290	794	0.5	2.035	A
2	0	794	606	0.000	0	0.0	0.000	A
3	1047	29	2579	0.406	1049	0.8	2.589	A
4	0	920	1926	0.000	0	0.0	0.000	A

18:15 - 18:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	665	0	2740	0.243	665	0.4	1.907	A
2	0	665	653	0.000	0	0.0	0.000	A
3	877	24	2582	0.340	878	0.6	2.323	A
4	0	770	2025	0.000	0	0.0	0.000	A

2030 Base, 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	Weighbridge Road / Shotwick Road	Standard Roundabout		1, 2, 3, 4	3.40	A

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	56	Arm 3

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D5	2030 Base	AM	ONE HOUR	08:00	09:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	1072	100.000
2		✓	0	100.000
3		✓	1398	100.000
4		✓	208	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	0	970	102
	2	0	0	0	0
	3	924	0	0	474
	4	35	0	173	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	10	10	10	10
	2	10	10	10	10
	3	10	10	10	10
	4	10	10	10	10

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.45	2.77	0.9	A
2	0.00	0.00	0.0	A
3	0.61	4.02	1.7	A
4	0.12	2.42	0.2	A

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	807	130	2652	0.304	805	0.5	2.142	A
2	0	935	554	0.000	0	0.0	0.000	A
3	1052	77	2547	0.413	1049	0.8	2.638	A
4	157	694	2076	0.075	156	0.1	2.063	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	964	155	2635	0.366	963	0.6	2.369	A
2	0	1119	486	0.000	0	0.0	0.000	A
3	1257	92	2537	0.495	1256	1.1	3.086	A
4	187	830	1986	0.094	187	0.1	2.201	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1180	190	2611	0.452	1179	0.9	2.764	A
2	0	1370	394	0.000	0	0.0	0.000	A
3	1539	112	2524	0.610	1537	1.7	4.001	A
4	229	1016	1863	0.123	229	0.2	2.422	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1180	190	2611	0.452	1180	0.9	2.766	A
2	0	1371	393	0.000	0	0.0	0.000	A
3	1539	112	2524	0.610	1539	1.7	4.022	A
4	229	1017	1862	0.123	229	0.2	2.424	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	964	156	2635	0.366	965	0.6	2.374	A
2	0	1120	485	0.000	0	0.0	0.000	A
3	1257	92	2537	0.495	1259	1.1	3.103	A
4	187	832	1984	0.094	187	0.1	2.205	A

09:15 - 09:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	807	130	2652	0.304	808	0.5	2.147	A
2	0	938	553	0.000	0	0.0	0.000	A
3	1052	77	2547	0.413	1054	0.8	2.653	A
4	157	696	2074	0.076	157	0.1	2.067	A

2030 Base, PM

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	Weighbridge Road / Shotwick Road	Standard Roundabout		1, 2, 3, 4	3.18	A

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	67	Arm 4

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D6	2030 Base	PM	ONE HOUR	17:00	18:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	905	100.000
2		✓	0	100.000
3		✓	1192	100.000
4		✓	632	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	0	875	30
	2	0	0	0	0
	3	1052	0	0	140
	4	140	0	492	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	10	10	10	10
	2	10	10	10	10
	3	10	10	10	10
	4	10	10	10	10

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.42	2.87	0.8	A
2	0.00	0.00	0.0	A
3	0.51	3.13	1.1	A
4	0.39	3.69	0.7	A

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	681	369	2490	0.274	680	0.4	2.185	A
2	0	1049	512	0.000	0	0.0	0.000	A
3	897	23	2583	0.347	895	0.6	2.342	A
4	476	790	2012	0.236	474	0.3	2.573	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	814	442	2441	0.333	813	0.5	2.432	A
2	0	1255	436	0.000	0	0.0	0.000	A
3	1072	27	2580	0.415	1071	0.8	2.622	A
4	568	945	1910	0.297	568	0.5	2.950	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	996	541	2374	0.420	995	0.8	2.871	A
2	0	1536	332	0.000	0	0.0	0.000	A
3	1312	33	2576	0.509	1311	1.1	3.127	A
4	696	1157	1770	0.393	695	0.7	3.679	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	996	542	2374	0.420	996	0.8	2.874	A
2	0	1538	331	0.000	0	0.0	0.000	A
3	1312	33	2576	0.509	1312	1.1	3.132	A
4	696	1158	1769	0.393	696	0.7	3.688	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	814	443	2440	0.333	815	0.6	2.438	A
2	0	1258	435	0.000	0	0.0	0.000	A
3	1072	27	2580	0.415	1073	0.8	2.631	A
4	568	947	1909	0.298	569	0.5	2.957	A

18:15 - 18:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	681	371	2489	0.274	682	0.4	2.191	A
2	0	1053	510	0.000	0	0.0	0.000	A
3	897	23	2583	0.347	898	0.6	2.350	A
4	476	793	2010	0.237	476	0.3	2.581	A

2030 Base + 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	Weighbridge Road / Shotwick Road	Standard Roundabout		1, 2, 3, 4	3.51	A

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	52	Arm 3

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D7	2030 Base + Dev	AM	ONE HOUR	08:00	09:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	1087	100.000
2		✓	0	100.000
3		✓	1428	100.000
4		✓	226	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	0	970	117
	2	0	0	0	0
	3	924	0	0	504
	4	41	0	185	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	10	10	10	10
	2	10	10	10	10
	3	10	10	10	10
	4	10	10	10	10

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.46	2.82	0.9	A
2	0.00	0.00	0.0	A
3	0.63	4.21	1.8	A
4	0.13	2.45	0.2	A

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	818	139	2646	0.309	816	0.5	2.162	A
2	0	955	546	0.000	0	0.0	0.000	A
3	1075	88	2540	0.423	1072	0.8	2.692	A
4	170	694	2076	0.082	170	0.1	2.077	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	977	166	2628	0.372	977	0.6	2.398	A
2	0	1143	477	0.000	0	0.0	0.000	A
3	1284	105	2528	0.508	1282	1.1	3.175	A
4	203	830	1986	0.102	203	0.1	2.221	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1197	204	2602	0.460	1196	0.9	2.812	A
2	0	1399	383	0.000	0	0.0	0.000	A
3	1572	129	2513	0.626	1569	1.8	4.185	A
4	249	1016	1863	0.134	249	0.2	2.452	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1197	204	2602	0.460	1197	0.9	2.817	A
2	0	1400	382	0.000	0	0.0	0.000	A
3	1572	129	2513	0.626	1572	1.8	4.210	A
4	249	1017	1862	0.134	249	0.2	2.453	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	977	166	2627	0.372	978	0.7	2.402	A
2	0	1145	476	0.000	0	0.0	0.000	A
3	1284	105	2528	0.508	1286	1.1	3.197	A
4	203	832	1984	0.102	203	0.1	2.225	A

09:15 - 09:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	818	139	2646	0.309	819	0.5	2.168	A
2	0	958	545	0.000	0	0.0	0.000	A
3	1075	88	2540	0.423	1076	0.8	2.708	A
4	170	696	2074	0.082	170	0.1	2.080	A

2030 Base + Dev, PM

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	Weighbridge Road / Shotwick Road	Standard Roundabout		1, 2, 3, 4	3.24	A

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	62	Arm 4

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D8	2030 Base + Dev	PM	ONE HOUR	17:00	18:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	908	100.000
2		✓	0	100.000
3		✓	1199	100.000
4		✓	668	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	0	875	33
	2	0	0	0	0
	3	1052	0	0	147
	4	153	0	515	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	10	10	10	10
	2	10	10	10	10
	3	10	10	10	10
	4	10	10	10	10

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.42	2.92	0.8	A
2	0.00	0.00	0.0	A
3	0.51	3.16	1.2	A
4	0.42	3.83	0.8	A

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	684	387	2479	0.276	682	0.4	2.202	A
2	0	1069	505	0.000	0	0.0	0.000	A
3	903	25	2582	0.350	900	0.6	2.352	A
4	503	790	2012	0.250	501	0.4	2.619	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	816	463	2427	0.336	816	0.6	2.457	A
2	0	1278	427	0.000	0	0.0	0.000	A
3	1078	30	2579	0.418	1077	0.8	2.636	A
4	601	945	1910	0.314	600	0.5	3.021	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1000	566	2357	0.424	999	0.8	2.914	A
2	0	1565	322	0.000	0	0.0	0.000	A
3	1320	36	2574	0.513	1319	1.1	3.152	A
4	735	1157	1770	0.415	734	0.8	3.820	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1000	567	2357	0.424	1000	0.8	2.917	A
2	0	1567	321	0.000	0	0.0	0.000	A
3	1320	36	2574	0.513	1320	1.2	3.157	A
4	735	1158	1769	0.416	735	0.8	3.829	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	816	464	2426	0.336	817	0.6	2.462	A
2	0	1281	426	0.000	0	0.0	0.000	A
3	1078	30	2579	0.418	1079	0.8	2.645	A
4	601	947	1909	0.315	602	0.5	3.034	A

18:15 - 18:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	684	388	2478	0.276	684	0.4	2.210	A
2	0	1072	503	0.000	0	0.0	0.000	A
3	903	25	2582	0.350	903	0.6	2.360	A
4	503	793	2010	0.250	503	0.4	2.628	A

Appendix H

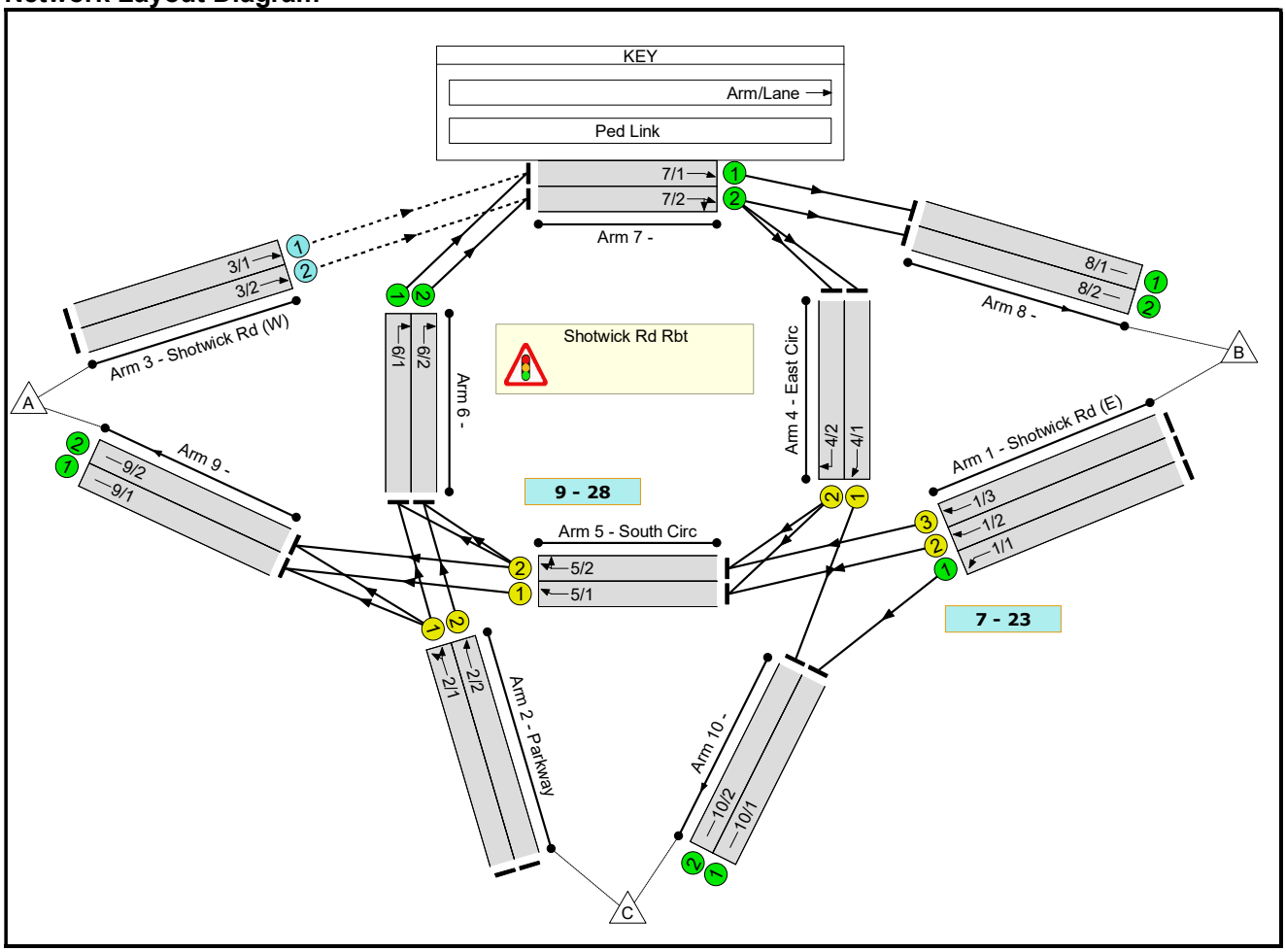
Junction Capacity Analysis – LinSig3

Shotwick Rd Rbt LinSig Data

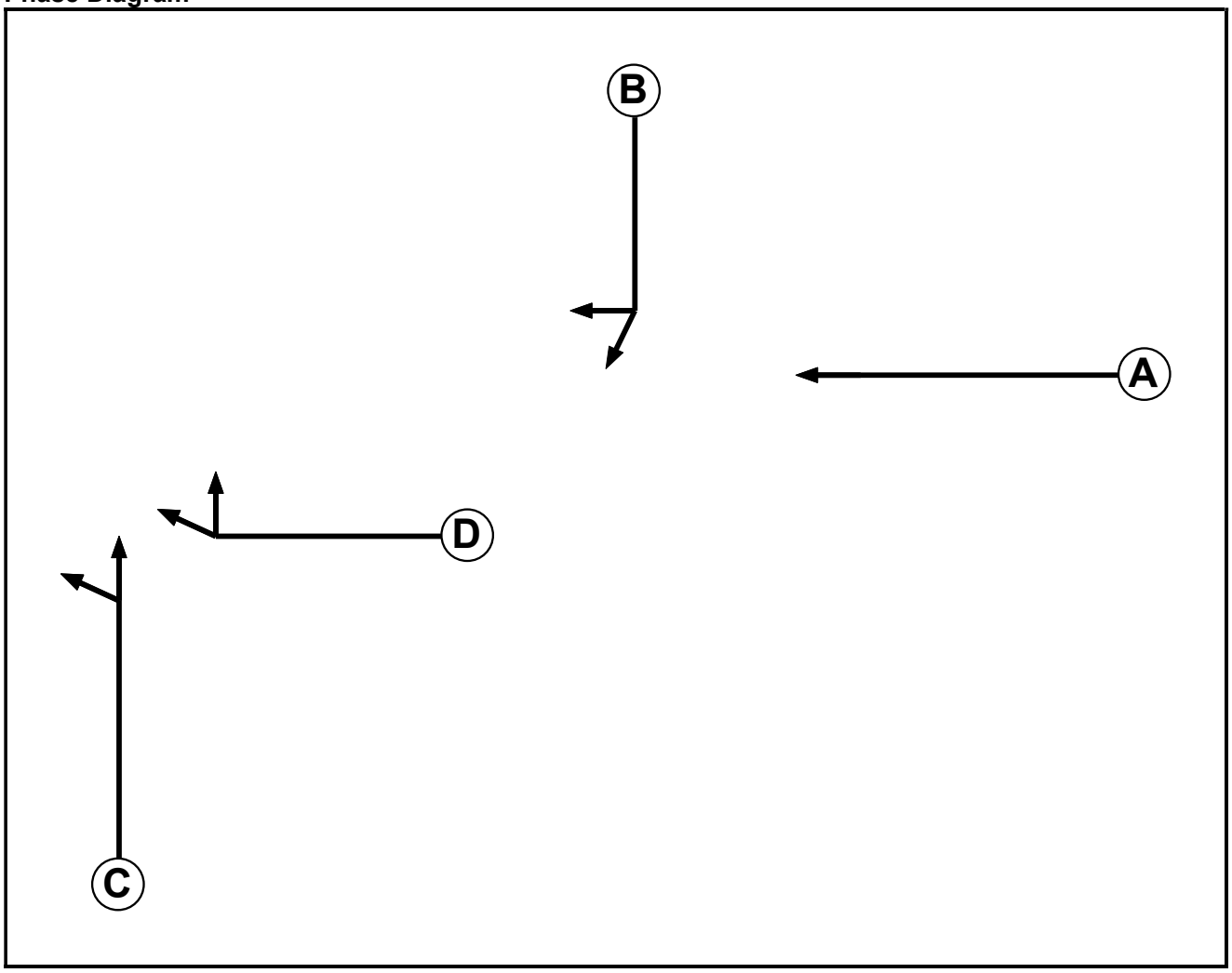
User and Project Details

Project:	**23043 Shotwick Rd Rbt**
Title:	**Existing Layout**
Location:	Shotwick, Chester
Client:	BSP Consulting
Design Layout Ref:	Google Earth
Date Started:	03/10/23
Date Completed:	03/10/23
Checked By:	Simon Swanston
Checked By Date:	03/10/23
Additional detail:	
File name:	Shotwick Rd Rbt.lsg3x
Author:	Stuart Hanson
Company:	JCT Consultancy
Address:	LinSig House, Deepdale Enterprise Park, Nettleham, LN2 2LL

Network Layout Diagram



Phase Diagram



Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		-9999	7
B	Traffic		-9999	7
C	Traffic		-9999	7
D	Traffic		-9999	7

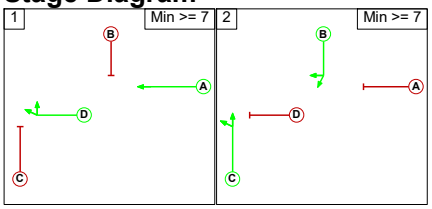
Phase Intergreens Matrix

		Starting Phase			
		A	B	C	D
Terminating Phase	A		7	-	-
	B	7		-	-
	C	-	-		7
	D	-	-	7	

Phases in Stage

Stage No.	Phases in Stage
1	A D
2	B C

Stage Diagram



Phase Delays

Term. Stage	Start Stage	Phase	Type	Value	Cont value
1	2	D	Losing	5	5
2	1	D	Gaining absolute	9	2

Prohibited Stage Change

		To Stage	
		1	2
From Stage	1		12
	2	9	

Give-Way Lane Input Data

Junction: Shotwick Rd Rbt											
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 (Shotwick Rd (W))	7/1 (Ahead)	1400	0	6/1	1.00	All	-	-	-	-	-
				6/2	1.00	All					
3/2 (Shotwick Rd (W))	7/2 (Ahead)	1400	0	6/1	1.00	All	-	-	-	-	-
				6/2	1.00	All					

Lane Input Data

Junction: Shotwick Rd Rbt												
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 (Shotwick Rd (E))	U		2	3	60.0	Inf	-	-	-	-	-	-
1/2 (Shotwick Rd (E))	U	A	2	3	60.0	User	1900	-	-	-	-	-
1/3 (Shotwick Rd (E))	U	A	2	3	60.0	User	1900	-	-	-	-	-
2/1 (Parkway)	U	C	2	3	60.0	User	1900	-	-	-	-	-
2/2 (Parkway)	U	C	2	3	60.0	User	1900	-	-	-	-	-
3/1 (Shotwick Rd (W))	O		2	3	60.0	Inf	-	-	-	-	-	-
3/2 (Shotwick Rd (W))	O		2	3	60.0	Inf	-	-	-	-	-	-
4/1 (East Circ)	U	B	2	3	8.3	User	1900	-	-	-	-	-
4/2 (East Circ)	U	B	2	3	8.3	User	1900	-	-	-	-	-
5/1 (South Circ)	U	D	2	3	8.3	User	1900	-	-	-	-	-
5/2 (South Circ)	U	D	2	3	8.3	User	1900	-	-	-	-	-
6/1	U		2	3	10.3	Inf	-	-	-	-	-	-
6/2	U		2	3	10.3	Inf	-	-	-	-	-	-
7/1	U		2	3	10.4	Inf	-	-	-	-	-	-
7/2	U		2	3	10.4	Inf	-	-	-	-	-	-
8/1	U		2	3	60.0	Inf	-	-	-	-	-	-
8/2	U		2	3	60.0	Inf	-	-	-	-	-	-
9/1	U		2	3	60.0	Inf	-	-	-	-	-	-
9/2	U		2	3	60.0	Inf	-	-	-	-	-	-
10/1	U		2	3	60.0	Inf	-	-	-	-	-	-
10/2	U		2	3	60.0	Inf	-	-	-	-	-	-

Lane Connector Input Data

Junction: Shotwick Rd Rbt				
Org Lane	Dest Lane	Junction	Mean Cruise Time	Platoon Dispersion
1/1	10/1	Internal	31	N/A
1/2	5/1	Internal	4	N/A
1/3	5/2	Internal	4	N/A

2/1	6/1	Internal	5	N/A
2/1	9/1	Internal	31	N/A
2/1	9/2	Internal	31	N/A
2/2	6/2	Internal	5	N/A
3/1	7/1	Internal	5	N/A
3/2	7/2	Internal	5	N/A
4/1	10/2	Internal	31	N/A
4/2	5/1	Internal	4	N/A
4/2	5/2	Internal	4	N/A
5/1	9/1	Internal	31	N/A
5/2	6/1	Internal	5	N/A
5/2	6/2	Internal	5	N/A
5/2	9/2	Internal	31	N/A
6/1	7/1	Internal	5	N/A
6/2	7/2	Internal	5	N/A
7/1	8/1	Internal	31	N/A
7/2	4/1	Internal	4	N/A
7/2	4/2	Internal	4	N/A
7/2	8/2	Internal	31	N/A

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: 'AM 2025'	08:00	09:00	01:00	
2: 'AM 2025 + Development'	08:00	09:00	01:00	
3: 'AM 2030'	08:00	09:00	01:00	
4: 'AM 2030 + Development'	08:00	09:00	01:00	
5: 'PM 2025'	17:00	18:00	01:00	
6: 'PM 2025 + Development'	17:00	18:00	01:00	
7: 'PM 2030'	17:00	18:00	01:00	
8: 'PM 2030 + Development'	17:00	18:00	01:00	

Scenario 1: 'AM25' (FG1: 'AM 2025', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	867	244	1111
	B	1215	0	1201	2416
	C	145	396	0	541
	Tot.	1360	1263	1445	4068

Traffic Lane Flows

Lane	Scenario 1: AM25
Junction: Shotwick Rd Rbt	
1/1	1201
1/2	607
1/3	608
2/1	270
2/2	271
3/1	556
3/2	555
4/1	244
4/2	0
5/1	607
5/2	608
6/1	125
6/2	271
7/1	681
7/2	826
8/1	681
8/2	582
9/1	680
9/2	680
10/1	1201
10/2	244

Lane Saturation Flows

Junction: Shotwick Rd Rbt								
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 (Shotwick Rd (E) Lane 1)	Infinite Saturation Flow						Inf	Inf
1/2 (Shotwick Rd (E) Lane 2)	This lane uses a directly entered Saturation Flow						1900	1900
1/3 (Shotwick Rd (E) Lane 3)	This lane uses a directly entered Saturation Flow						1900	1900
2/1 (Parkway Lane 1)	This lane uses a directly entered Saturation Flow						1900	1900
2/2 (Parkway Lane 2)	This lane uses a directly entered Saturation Flow						1900	1900
3/1 (Shotwick Rd (W) Lane 1)	Infinite Saturation Flow						Inf	Inf
3/2 (Shotwick Rd (W) Lane 2)	Infinite Saturation Flow						Inf	Inf
4/1 (East Circ Lane 1)	This lane uses a directly entered Saturation Flow						1900	1900

4/2 (East Circ Lane 2)	This lane uses a directly entered Saturation Flow	1900	1900
5/1 (South Circ Lane 1)	This lane uses a directly entered Saturation Flow	1900	1900
5/2 (South Circ Lane 2)	This lane uses a directly entered Saturation Flow	1900	1900
6/1	Infinite Saturation Flow	Inf	Inf
6/2	Infinite Saturation Flow	Inf	Inf
7/1	Infinite Saturation Flow	Inf	Inf
7/2	Infinite Saturation Flow	Inf	Inf
8/1	Infinite Saturation Flow	Inf	Inf
8/2	Infinite Saturation Flow	Inf	Inf
9/1	Infinite Saturation Flow	Inf	Inf
9/2	Infinite Saturation Flow	Inf	Inf
10/1	Infinite Saturation Flow	Inf	Inf
10/2	Infinite Saturation Flow	Inf	Inf

Scenario 2: 'AM25+D' (FG2: 'AM 2025 + Development', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	879	244	1123
	B	1245	0	1201	2446
	C	145	396	0	541
	Tot.	1390	1275	1445	4110

Traffic Lane Flows

Lane	Scenario 2: AM25+D
Junction: Shotwick Rd Rbt	
1/1	1201
1/2	622
1/3	623
2/1	270
2/2	271
3/1	562
3/2	561
4/1	244
4/2	0
5/1	622
5/2	623
6/1	125
6/2	271
7/1	687
7/2	832
8/1	687
8/2	588
9/1	695
9/2	695
10/1	1201
10/2	244

Lane Saturation Flows

Junction: Shotwick Rd Rbt								
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 (Shotwick Rd (E) Lane 1)	Infinite Saturation Flow						Inf	Inf
1/2 (Shotwick Rd (E) Lane 2)	This lane uses a directly entered Saturation Flow						1900	1900
1/3 (Shotwick Rd (E) Lane 3)	This lane uses a directly entered Saturation Flow						1900	1900
2/1 (Parkway Lane 1)	This lane uses a directly entered Saturation Flow						1900	1900
2/2 (Parkway Lane 2)	This lane uses a directly entered Saturation Flow						1900	1900
3/1 (Shotwick Rd (W) Lane 1)	Infinite Saturation Flow						Inf	Inf
3/2 (Shotwick Rd (W) Lane 2)	Infinite Saturation Flow						Inf	Inf
4/1 (East Circ Lane 1)	This lane uses a directly entered Saturation Flow						1900	1900

4/2 (East Circ Lane 2)	This lane uses a directly entered Saturation Flow	1900	1900
5/1 (South Circ Lane 1)	This lane uses a directly entered Saturation Flow	1900	1900
5/2 (South Circ Lane 2)	This lane uses a directly entered Saturation Flow	1900	1900
6/1	Infinite Saturation Flow	Inf	Inf
6/2	Infinite Saturation Flow	Inf	Inf
7/1	Infinite Saturation Flow	Inf	Inf
7/2	Infinite Saturation Flow	Inf	Inf
8/1	Infinite Saturation Flow	Inf	Inf
8/2	Infinite Saturation Flow	Inf	Inf
9/1	Infinite Saturation Flow	Inf	Inf
9/2	Infinite Saturation Flow	Inf	Inf
10/1	Infinite Saturation Flow	Inf	Inf
10/2	Infinite Saturation Flow	Inf	Inf

Scenario 3: 'AM30' (FG3: 'AM 2030', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	893	251	1144
	B	1252	0	1237	2489
	C	149	408	0	557
	Tot.	1401	1301	1488	4190

Traffic Lane Flows

Lane	Scenario 3: AM30
Junction: Shotwick Rd Rbt	
1/1	1237
1/2	626
1/3	626
2/1	278
2/2	279
3/1	572
3/2	572
4/1	251
4/2	0
5/1	626
5/2	626
6/1	129
6/2	279
7/1	701
7/2	851
8/1	701
8/2	600
9/1	701
9/2	700
10/1	1237
10/2	251

Lane Saturation Flows

Junction: Shotwick Rd Rbt								
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 (Shotwick Rd (E) Lane 1)	Infinite Saturation Flow						Inf	Inf
1/2 (Shotwick Rd (E) Lane 2)	This lane uses a directly entered Saturation Flow						1900	1900
1/3 (Shotwick Rd (E) Lane 3)	This lane uses a directly entered Saturation Flow						1900	1900
2/1 (Parkway Lane 1)	This lane uses a directly entered Saturation Flow						1900	1900
2/2 (Parkway Lane 2)	This lane uses a directly entered Saturation Flow						1900	1900
3/1 (Shotwick Rd (W) Lane 1)	Infinite Saturation Flow						Inf	Inf
3/2 (Shotwick Rd (W) Lane 2)	Infinite Saturation Flow						Inf	Inf
4/1 (East Circ Lane 1)	This lane uses a directly entered Saturation Flow						1900	1900

4/2 (East Circ Lane 2)	This lane uses a directly entered Saturation Flow	1900	1900
5/1 (South Circ Lane 1)	This lane uses a directly entered Saturation Flow	1900	1900
5/2 (South Circ Lane 2)	This lane uses a directly entered Saturation Flow	1900	1900
6/1	Infinite Saturation Flow	Inf	Inf
6/2	Infinite Saturation Flow	Inf	Inf
7/1	Infinite Saturation Flow	Inf	Inf
7/2	Infinite Saturation Flow	Inf	Inf
8/1	Infinite Saturation Flow	Inf	Inf
8/2	Infinite Saturation Flow	Inf	Inf
9/1	Infinite Saturation Flow	Inf	Inf
9/2	Infinite Saturation Flow	Inf	Inf
10/1	Infinite Saturation Flow	Inf	Inf
10/2	Infinite Saturation Flow	Inf	Inf

Scenario 4: 'AM30+D' (FG4: 'AM 2030 + Development', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	905	251	1156
	B	1281	0	1237	2518
	C	149	408	0	557
	Tot.	1430	1313	1488	4231

Traffic Lane Flows

Lane	Scenario 4: AM30+D
Junction: Shotwick Rd Rbt	
1/1	1237
1/2	640
1/3	641
2/1	278
2/2	279
3/1	578
3/2	578
4/1	251
4/2	0
5/1	640
5/2	641
6/1	129
6/2	279
7/1	707
7/2	857
8/1	707
8/2	606
9/1	715
9/2	715
10/1	1237
10/2	251

Lane Saturation Flows

Junction: Shotwick Rd Rbt								
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 (Shotwick Rd (E) Lane 1)	Infinite Saturation Flow						Inf	Inf
1/2 (Shotwick Rd (E) Lane 2)	This lane uses a directly entered Saturation Flow						1900	1900
1/3 (Shotwick Rd (E) Lane 3)	This lane uses a directly entered Saturation Flow						1900	1900
2/1 (Parkway Lane 1)	This lane uses a directly entered Saturation Flow						1900	1900
2/2 (Parkway Lane 2)	This lane uses a directly entered Saturation Flow						1900	1900
3/1 (Shotwick Rd (W) Lane 1)	Infinite Saturation Flow						Inf	Inf
3/2 (Shotwick Rd (W) Lane 2)	Infinite Saturation Flow						Inf	Inf
4/1 (East Circ Lane 1)	This lane uses a directly entered Saturation Flow						1900	1900

4/2 (East Circ Lane 2)	This lane uses a directly entered Saturation Flow	1900	1900
5/1 (South Circ Lane 1)	This lane uses a directly entered Saturation Flow	1900	1900
5/2 (South Circ Lane 2)	This lane uses a directly entered Saturation Flow	1900	1900
6/1	Infinite Saturation Flow	Inf	Inf
6/2	Infinite Saturation Flow	Inf	Inf
7/1	Infinite Saturation Flow	Inf	Inf
7/2	Infinite Saturation Flow	Inf	Inf
8/1	Infinite Saturation Flow	Inf	Inf
8/2	Infinite Saturation Flow	Inf	Inf
9/1	Infinite Saturation Flow	Inf	Inf
9/2	Infinite Saturation Flow	Inf	Inf
10/1	Infinite Saturation Flow	Inf	Inf
10/2	Infinite Saturation Flow	Inf	Inf

Scenario 5: 'PM25' (FG5: 'PM 2025', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	1232	97	1329
	B	901	0	305	1206
	C	258	1115	0	1373
	Tot.	1159	2347	402	3908

Traffic Lane Flows

Lane	Scenario 5: PM25
Junction: Shotwick Rd Rbt	
1/1	305
1/2	450
1/3	451
2/1	686
2/2	687
3/1	664
3/2	665
4/1	97
4/2	0
5/1	450
5/2	451
6/1	428
6/2	687
7/1	1092
7/2	1352
8/1	1092
8/2	1255
9/1	579
9/2	580
10/1	305
10/2	97

Lane Saturation Flows

Junction: Shotwick Rd Rbt								
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 (Shotwick Rd (E) Lane 1)	Infinite Saturation Flow						Inf	Inf
1/2 (Shotwick Rd (E) Lane 2)	This lane uses a directly entered Saturation Flow						1900	1900
1/3 (Shotwick Rd (E) Lane 3)	This lane uses a directly entered Saturation Flow						1900	1900
2/1 (Parkway Lane 1)	This lane uses a directly entered Saturation Flow						1900	1900
2/2 (Parkway Lane 2)	This lane uses a directly entered Saturation Flow						1900	1900
3/1 (Shotwick Rd (W) Lane 1)	Infinite Saturation Flow						Inf	Inf
3/2 (Shotwick Rd (W) Lane 2)	Infinite Saturation Flow						Inf	Inf
4/1 (East Circ Lane 1)	This lane uses a directly entered Saturation Flow						1900	1900

4/2 (East Circ Lane 2)	This lane uses a directly entered Saturation Flow	1900	1900
5/1 (South Circ Lane 1)	This lane uses a directly entered Saturation Flow	1900	1900
5/2 (South Circ Lane 2)	This lane uses a directly entered Saturation Flow	1900	1900
6/1	Infinite Saturation Flow	Inf	Inf
6/2	Infinite Saturation Flow	Inf	Inf
7/1	Infinite Saturation Flow	Inf	Inf
7/2	Infinite Saturation Flow	Inf	Inf
8/1	Infinite Saturation Flow	Inf	Inf
8/2	Infinite Saturation Flow	Inf	Inf
9/1	Infinite Saturation Flow	Inf	Inf
9/2	Infinite Saturation Flow	Inf	Inf
10/1	Infinite Saturation Flow	Inf	Inf
10/2	Infinite Saturation Flow	Inf	Inf

Scenario 6: 'PM25+D' (FG6: 'PM 2025 + Development', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	1256	97	1353
	B	908	0	305	1213
	C	258	1115	0	1373
	Tot.	1166	2371	402	3939

Traffic Lane Flows

Lane	Scenario 6: PM25+D
Junction: Shotwick Rd Rbt	
1/1	305
1/2	454
1/3	454
2/1	686
2/2	687
3/1	676
3/2	677
4/1	97
4/2	0
5/1	454
5/2	454
6/1	428
6/2	687
7/1	1104
7/2	1364
8/1	1104
8/2	1267
9/1	583
9/2	583
10/1	305
10/2	97

Lane Saturation Flows

Junction: Shotwick Rd Rbt								
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 (Shotwick Rd (E) Lane 1)	Infinite Saturation Flow						Inf	Inf
1/2 (Shotwick Rd (E) Lane 2)	This lane uses a directly entered Saturation Flow						1900	1900
1/3 (Shotwick Rd (E) Lane 3)	This lane uses a directly entered Saturation Flow						1900	1900
2/1 (Parkway Lane 1)	This lane uses a directly entered Saturation Flow						1900	1900
2/2 (Parkway Lane 2)	This lane uses a directly entered Saturation Flow						1900	1900
3/1 (Shotwick Rd (W) Lane 1)	Infinite Saturation Flow						Inf	Inf
3/2 (Shotwick Rd (W) Lane 2)	Infinite Saturation Flow						Inf	Inf
4/1 (East Circ Lane 1)	This lane uses a directly entered Saturation Flow						1900	1900

4/2 (East Circ Lane 2)	This lane uses a directly entered Saturation Flow	1900	1900
5/1 (South Circ Lane 1)	This lane uses a directly entered Saturation Flow	1900	1900
5/2 (South Circ Lane 2)	This lane uses a directly entered Saturation Flow	1900	1900
6/1	Infinite Saturation Flow	Inf	Inf
6/2	Infinite Saturation Flow	Inf	Inf
7/1	Infinite Saturation Flow	Inf	Inf
7/2	Infinite Saturation Flow	Inf	Inf
8/1	Infinite Saturation Flow	Inf	Inf
8/2	Infinite Saturation Flow	Inf	Inf
9/1	Infinite Saturation Flow	Inf	Inf
9/2	Infinite Saturation Flow	Inf	Inf
10/1	Infinite Saturation Flow	Inf	Inf
10/2	Infinite Saturation Flow	Inf	Inf

Scenario 7: 'PM30' (FG7: 'PM 2030', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	1268	99	1367
	B	928	0	314	1242
	C	266	1147	0	1413
	Tot.	1194	2415	413	4022

Traffic Lane Flows

Lane	Scenario 7: PM30
Junction: Shotwick Rd Rbt	
1/1	314
1/2	464
1/3	464
2/1	706
2/2	707
3/1	683
3/2	684
4/1	99
4/2	0
5/1	464
5/2	464
6/1	440
6/2	707
7/1	1123
7/2	1391
8/1	1123
8/2	1292
9/1	597
9/2	597
10/1	314
10/2	99

Lane Saturation Flows

Junction: Shotwick Rd Rbt								
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 (Shotwick Rd (E) Lane 1)	Infinite Saturation Flow						Inf	Inf
1/2 (Shotwick Rd (E) Lane 2)	This lane uses a directly entered Saturation Flow						1900	1900
1/3 (Shotwick Rd (E) Lane 3)	This lane uses a directly entered Saturation Flow						1900	1900
2/1 (Parkway Lane 1)	This lane uses a directly entered Saturation Flow						1900	1900
2/2 (Parkway Lane 2)	This lane uses a directly entered Saturation Flow						1900	1900
3/1 (Shotwick Rd (W) Lane 1)	Infinite Saturation Flow						Inf	Inf
3/2 (Shotwick Rd (W) Lane 2)	Infinite Saturation Flow						Inf	Inf
4/1 (East Circ Lane 1)	This lane uses a directly entered Saturation Flow						1900	1900

4/2 (East Circ Lane 2)	This lane uses a directly entered Saturation Flow	1900	1900
5/1 (South Circ Lane 1)	This lane uses a directly entered Saturation Flow	1900	1900
5/2 (South Circ Lane 2)	This lane uses a directly entered Saturation Flow	1900	1900
6/1	Infinite Saturation Flow	Inf	Inf
6/2	Infinite Saturation Flow	Inf	Inf
7/1	Infinite Saturation Flow	Inf	Inf
7/2	Infinite Saturation Flow	Inf	Inf
8/1	Infinite Saturation Flow	Inf	Inf
8/2	Infinite Saturation Flow	Inf	Inf
9/1	Infinite Saturation Flow	Inf	Inf
9/2	Infinite Saturation Flow	Inf	Inf
10/1	Infinite Saturation Flow	Inf	Inf
10/2	Infinite Saturation Flow	Inf	Inf

Scenario 8: 'PM30+D' (FG8: 'PM 2030 + Development', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	1292	99	1391
	B	934	0	314	1248
	C	266	1147	0	1413
	Tot.	1200	2439	413	4052

Traffic Lane Flows

Lane	Scenario 8: PM30+D
Junction: Shotwick Rd Rbt	
1/1	314
1/2	467
1/3	467
2/1	706
2/2	707
3/1	695
3/2	696
4/1	99
4/2	0
5/1	467
5/2	467
6/1	440
6/2	707
7/1	1135
7/2	1403
8/1	1135
8/2	1304
9/1	600
9/2	600
10/1	314
10/2	99

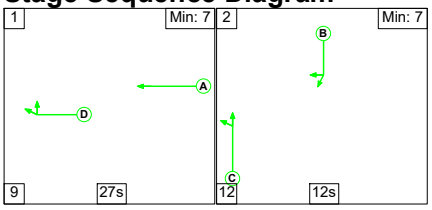
Lane Saturation Flows

Junction: Shotwick Rd Rbt								
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 (Shotwick Rd (E) Lane 1)	Infinite Saturation Flow						Inf	Inf
1/2 (Shotwick Rd (E) Lane 2)	This lane uses a directly entered Saturation Flow						1900	1900
1/3 (Shotwick Rd (E) Lane 3)	This lane uses a directly entered Saturation Flow						1900	1900
2/1 (Parkway Lane 1)	This lane uses a directly entered Saturation Flow						1900	1900
2/2 (Parkway Lane 2)	This lane uses a directly entered Saturation Flow						1900	1900
3/1 (Shotwick Rd (W) Lane 1)	Infinite Saturation Flow						Inf	Inf
3/2 (Shotwick Rd (W) Lane 2)	Infinite Saturation Flow						Inf	Inf
4/1 (East Circ Lane 1)	This lane uses a directly entered Saturation Flow						1900	1900

4/2 (East Circ Lane 2)	This lane uses a directly entered Saturation Flow	1900	1900
5/1 (South Circ Lane 1)	This lane uses a directly entered Saturation Flow	1900	1900
5/2 (South Circ Lane 2)	This lane uses a directly entered Saturation Flow	1900	1900
6/1	Infinite Saturation Flow	Inf	Inf
6/2	Infinite Saturation Flow	Inf	Inf
7/1	Infinite Saturation Flow	Inf	Inf
7/2	Infinite Saturation Flow	Inf	Inf
8/1	Infinite Saturation Flow	Inf	Inf
8/2	Infinite Saturation Flow	Inf	Inf
9/1	Infinite Saturation Flow	Inf	Inf
9/2	Infinite Saturation Flow	Inf	Inf
10/1	Infinite Saturation Flow	Inf	Inf
10/2	Infinite Saturation Flow	Inf	Inf

Scenario 1: 'AM25' (FG1: 'AM 2025', Plan 1: 'Network Control Plan 1')

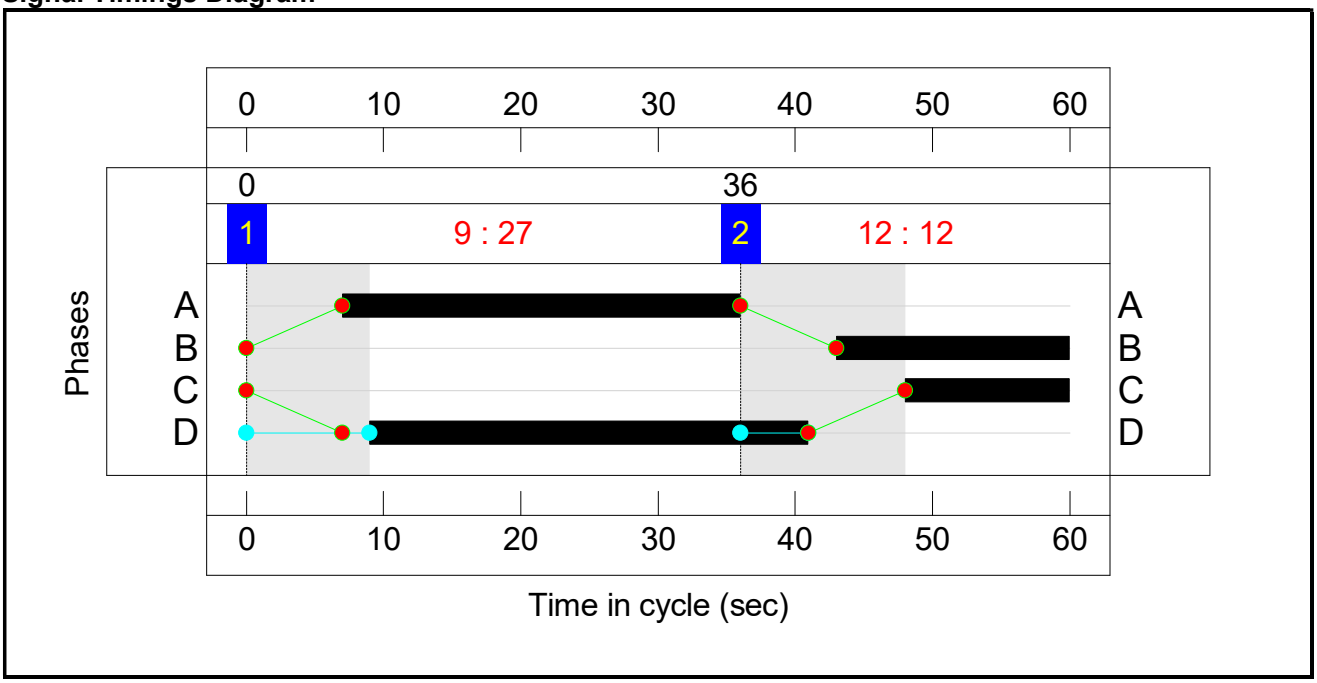
Stage Sequence Diagram



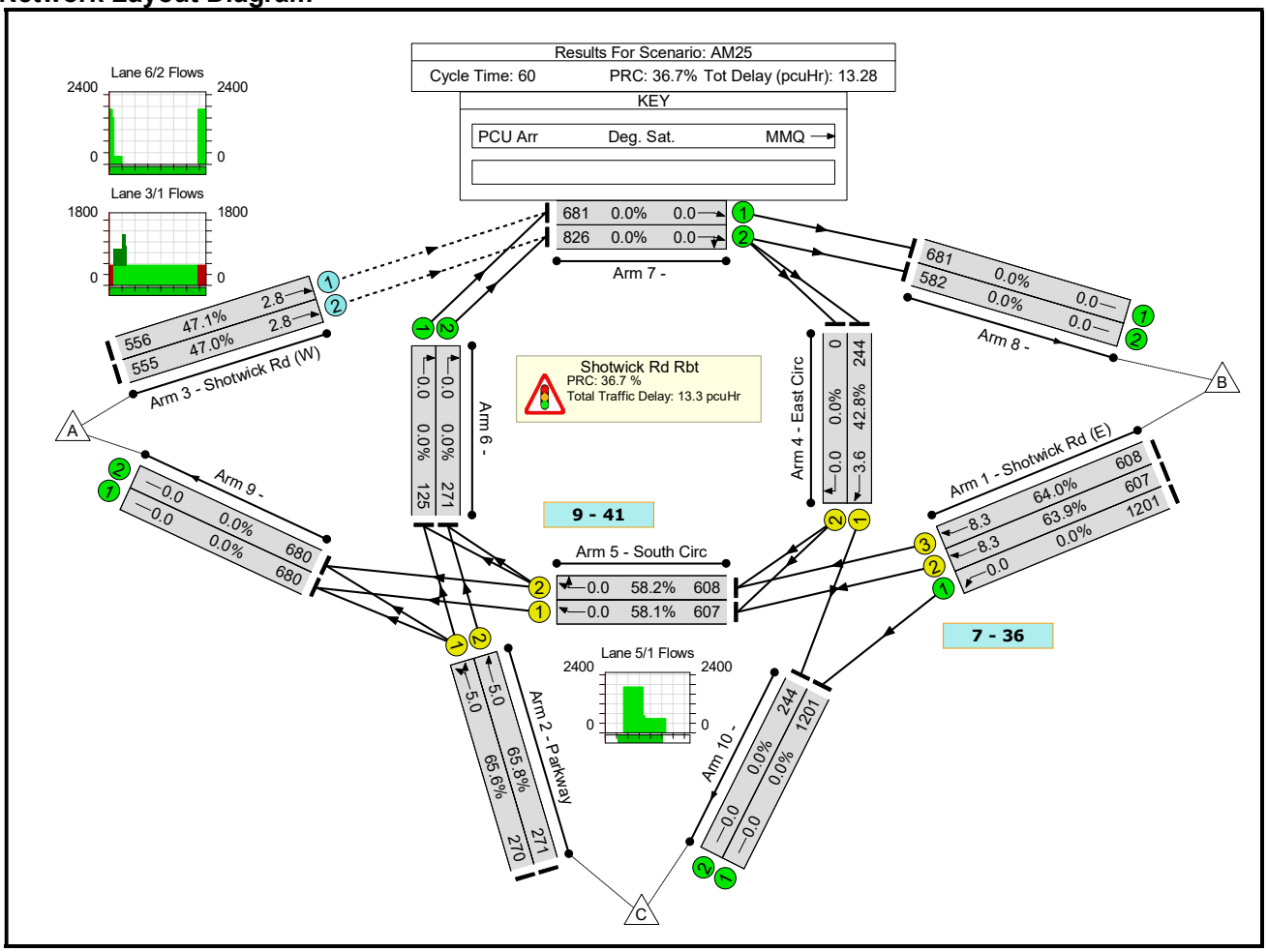
Stage Timings

Stage	1	2
Duration	27	12
Change Point	0	36

Signal Timings Diagram



Network Layout Diagram



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: Existing Layout	-	-	**N/A**	-	-		-	-	-	-	-	-	**65.8%**
Shotwick Rd Rbt	-	-	**N/A**	-	-		-	-	-	-	-	-	**65.8%**
1/1	Shotwick Rd (E) Ahead	U	N/A	N/A	-		-	-	-	1201	Inf	Inf	0.0%
1/2	Shotwick Rd (E) Ahead	U	N/A	N/A	A		1	29	-	607	1900	950	63.9%
1/3	Shotwick Rd (E) Ahead	U	N/A	N/A	A		1	29	-	608	1900	950	64.0%
2/1	Parkway Ahead Left	U	N/A	N/A	C		1	12	-	270	1900	412	65.6%
2/2	Parkway Ahead	U	N/A	N/A	C		1	12	-	271	1900	412	65.8%
3/1	Shotwick Rd (W) Ahead	O	N/A	N/A	-		-	-	-	556	Inf	1180	47.1%
3/2	Shotwick Rd (W) Ahead	O	N/A	N/A	-		-	-	-	555	Inf	1180	47.0%
4/1	East Circ Ahead	U	N/A	N/A	B		1	17	-	244	1900	570	42.8%
4/2	East Circ Right	U	N/A	N/A	B		1	17	-	0	1900	570	0.0%
5/1	South Circ Ahead	U	N/A	N/A	D		1	32	-	607	1900	1045	58.1%
5/2	South Circ Right Ahead	U	N/A	N/A	D		1	32	-	608	1900	1045	58.2%
6/1	Right	U	N/A	N/A	-		-	-	-	125	Inf	Inf	0.0%
6/2	Right	U	N/A	N/A	-		-	-	-	271	Inf	Inf	0.0%
7/1	Ahead	U	N/A	N/A	-		-	-	-	681	Inf	Inf	0.0%
7/2	Right Ahead	U	N/A	N/A	-		-	-	-	826	Inf	Inf	0.0%
8/1		U	N/A	N/A	-		-	-	-	681	Inf	Inf	0.0%
8/2		U	N/A	N/A	-		-	-	-	582	Inf	Inf	0.0%
9/1		U	N/A	N/A	-		-	-	-	680	Inf	Inf	0.0%

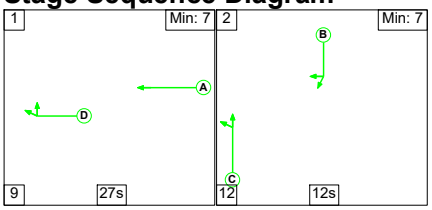
9/2		U	N/A	N/A	-		-	-	-	680	Inf	Inf	0.0%
10/1		U	N/A	N/A	-		-	-	-	1201	Inf	Inf	0.0%
10/2		U	N/A	N/A	-		-	-	-	244	Inf	Inf	0.0%

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: Existing Layout	**-**	**-**	**1111**	**0**	**0**	**8.4**	**4.9**	**0.0**	**13.3**	**-**	**-**	**-**	**-**
Shotwick Rd Rbt	**-**	**-**	**1111**	**0**	**0**	**8.4**	**4.9**	**0.0**	**13.3**	**-**	**-**	**-**	**-**
1/1	1201	1201	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
1/2	607	607	-	-	-	1.9	0.9	-	2.7	16.2	7.4	0.9	8.3
1/3	608	608	-	-	-	1.9	0.9	-	2.7	16.3	7.4	0.9	8.3
2/1	270	270	-	-	-	1.6	0.9	-	2.6	34.0	4.0	0.9	5.0
2/2	271	271	-	-	-	1.6	1.0	-	2.6	34.1	4.1	1.0	5.0
3/1	556	556	556	0	0	0.2	0.4	-	0.6	4.0	2.3	0.4	2.8
3/2	555	555	555	0	0	0.2	0.4	-	0.6	4.0	2.3	0.4	2.8
4/1	244	244	-	-	-	1.1	0.4	-	1.4	21.3	3.3	0.4	3.6
4/2	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	607	607	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/2	608	608	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	125	125	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/2	271	271	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	681	681	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/2	826	826	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	681	681	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/2	582	582	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
9/1	680	680	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
9/2	680	680	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
10/1	1201	1201	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
10/2	244	244	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1 PRC for Signalled Lanes (%): 36.7 Total Delay for Signalled Lanes (pcuHr): 12.04 Cycle Time (s): 60
PRC Over All Lanes (%): 36.7 Total Delay Over All Lanes(pcuHr): 13.28

Scenario 2: 'AM25+D' (FG2: 'AM 2025 + Development', Plan 1: 'Network Control Plan 1')

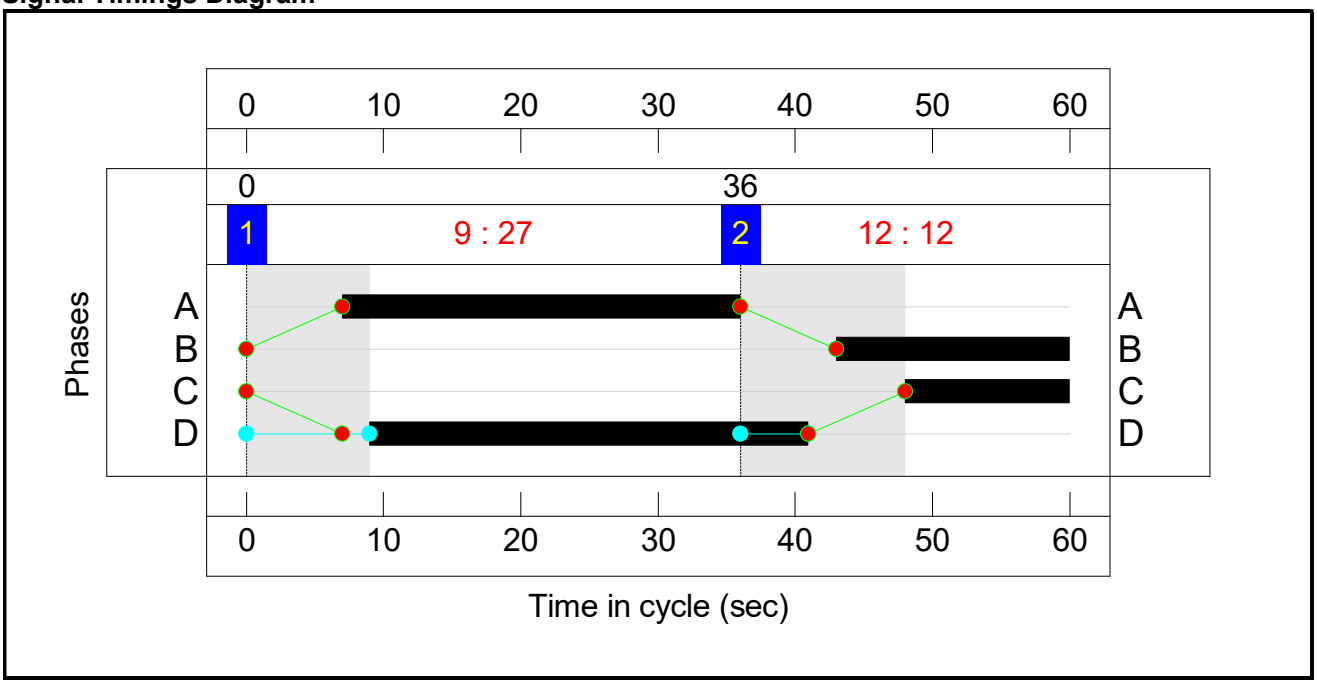
Stage Sequence Diagram



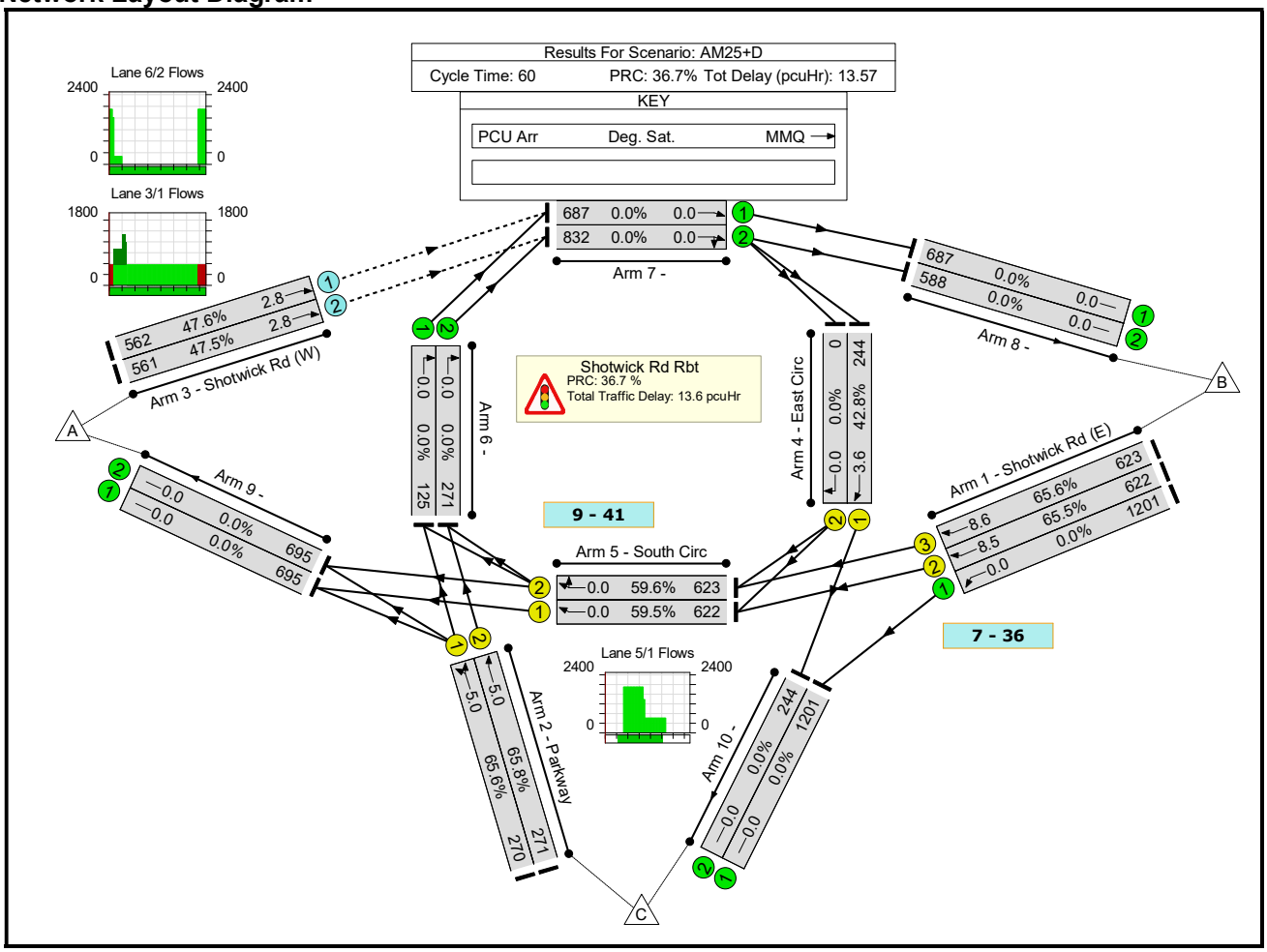
Stage Timings

Stage	1	2
Duration	27	12
Change Point	0	36

Signal Timings Diagram



Network Layout Diagram



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: Existing Layout	-	-	**N/A**	-	-		-	-	-	-	-	-	**65.8%**
Shotwick Rd Rbt	-	-	**N/A**	-	-		-	-	-	-	-	-	**65.8%**
1/1	Shotwick Rd (E) Ahead	U	N/A	N/A	-		-	-	-	1201	Inf	Inf	0.0%
1/2	Shotwick Rd (E) Ahead	U	N/A	N/A	A		1	29	-	622	1900	950	65.5%
1/3	Shotwick Rd (E) Ahead	U	N/A	N/A	A		1	29	-	623	1900	950	65.6%
2/1	Parkway Ahead Left	U	N/A	N/A	C		1	12	-	270	1900	412	65.6%
2/2	Parkway Ahead	U	N/A	N/A	C		1	12	-	271	1900	412	65.8%
3/1	Shotwick Rd (W) Ahead	O	N/A	N/A	-		-	-	-	562	Inf	1180	47.6%
3/2	Shotwick Rd (W) Ahead	O	N/A	N/A	-		-	-	-	561	Inf	1180	47.5%
4/1	East Circ Ahead	U	N/A	N/A	B		1	17	-	244	1900	570	42.8%
4/2	East Circ Right	U	N/A	N/A	B		1	17	-	0	1900	570	0.0%
5/1	South Circ Ahead	U	N/A	N/A	D		1	32	-	622	1900	1045	59.5%
5/2	South Circ Right Ahead	U	N/A	N/A	D		1	32	-	623	1900	1045	59.6%
6/1	Right	U	N/A	N/A	-		-	-	-	125	Inf	Inf	0.0%
6/2	Right	U	N/A	N/A	-		-	-	-	271	Inf	Inf	0.0%
7/1	Ahead	U	N/A	N/A	-		-	-	-	687	Inf	Inf	0.0%
7/2	Right Ahead	U	N/A	N/A	-		-	-	-	832	Inf	Inf	0.0%
8/1		U	N/A	N/A	-		-	-	-	687	Inf	Inf	0.0%
8/2		U	N/A	N/A	-		-	-	-	588	Inf	Inf	0.0%
9/1		U	N/A	N/A	-		-	-	-	695	Inf	Inf	0.0%

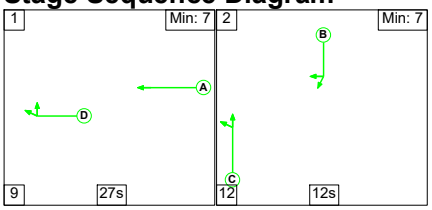
9/2		U	N/A	N/A	-		-	-	-	695	Inf	Inf	0.0%
10/1		U	N/A	N/A	-		-	-	-	1201	Inf	Inf	0.0%
10/2		U	N/A	N/A	-		-	-	-	244	Inf	Inf	0.0%

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: Existing Layout	**-**	**-**	**1123**	**0**	**0**	**8.5**	**5.1**	**0.0**	**13.6**	**-**	**-**	**-**	**-**
Shotwick Rd Rbt	**-**	**-**	**1123**	**0**	**0**	**8.5**	**5.1**	**0.0**	**13.6**	**-**	**-**	**-**	**-**
1/1	1201	1201	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
1/2	622	622	-	-	-	1.9	0.9	-	2.9	16.6	7.6	0.9	8.5
1/3	623	623	-	-	-	1.9	0.9	-	2.9	16.6	7.6	0.9	8.6
2/1	270	270	-	-	-	1.6	0.9	-	2.6	34.0	4.0	0.9	5.0
2/2	271	271	-	-	-	1.6	1.0	-	2.6	34.1	4.1	1.0	5.0
3/1	562	562	562	0	0	0.2	0.5	-	0.6	4.0	2.3	0.5	2.8
3/2	561	561	561	0	0	0.2	0.5	-	0.6	4.0	2.3	0.5	2.8
4/1	244	244	-	-	-	1.1	0.4	-	1.4	21.3	3.3	0.4	3.6
4/2	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	622	622	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/2	623	623	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	125	125	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/2	271	271	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	687	687	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/2	832	832	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	687	687	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/2	588	588	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
9/1	695	695	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
9/2	695	695	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
10/1	1201	1201	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
10/2	244	244	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1 PRC for Signalled Lanes (%): 36.7 Total Delay for Signalled Lanes (pcuHr): 12.31 Cycle Time (s): 60
PRC Over All Lanes (%): 36.7 Total Delay Over All Lanes(pcuHr): 13.57

Scenario 3: 'AM30' (FG3: 'AM 2030', Plan 1: 'Network Control Plan 1')

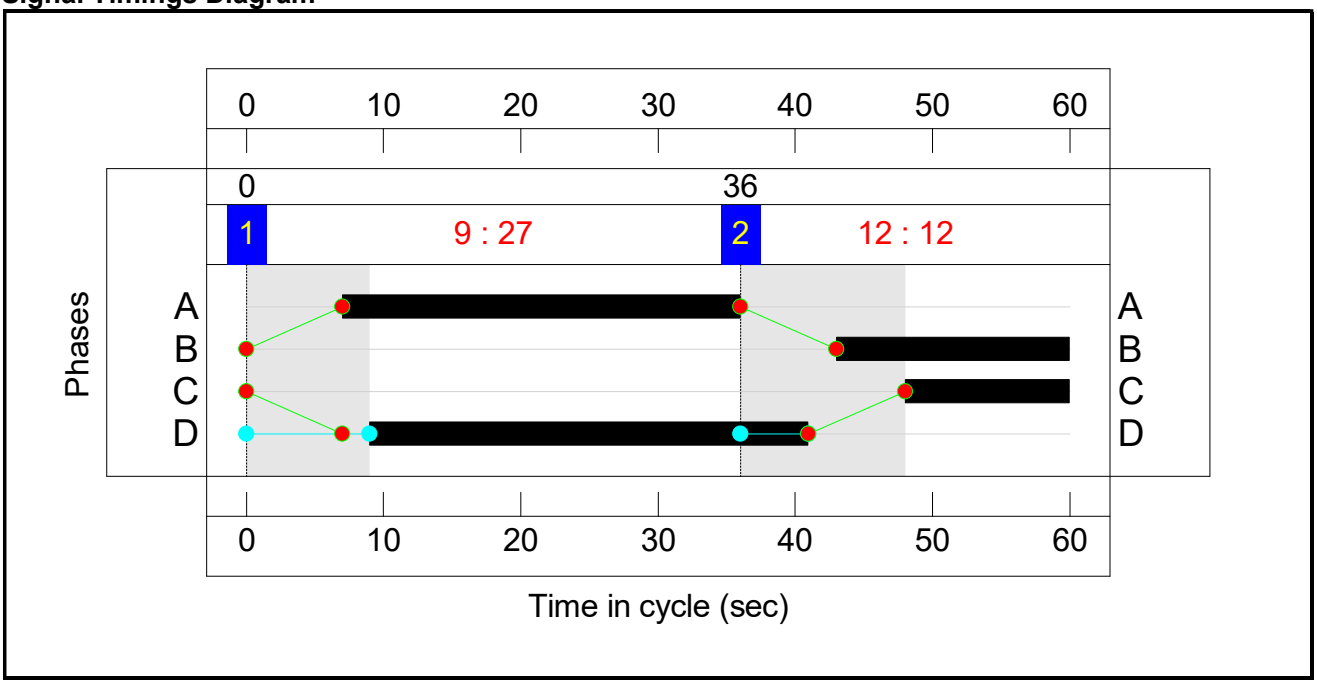
Stage Sequence Diagram



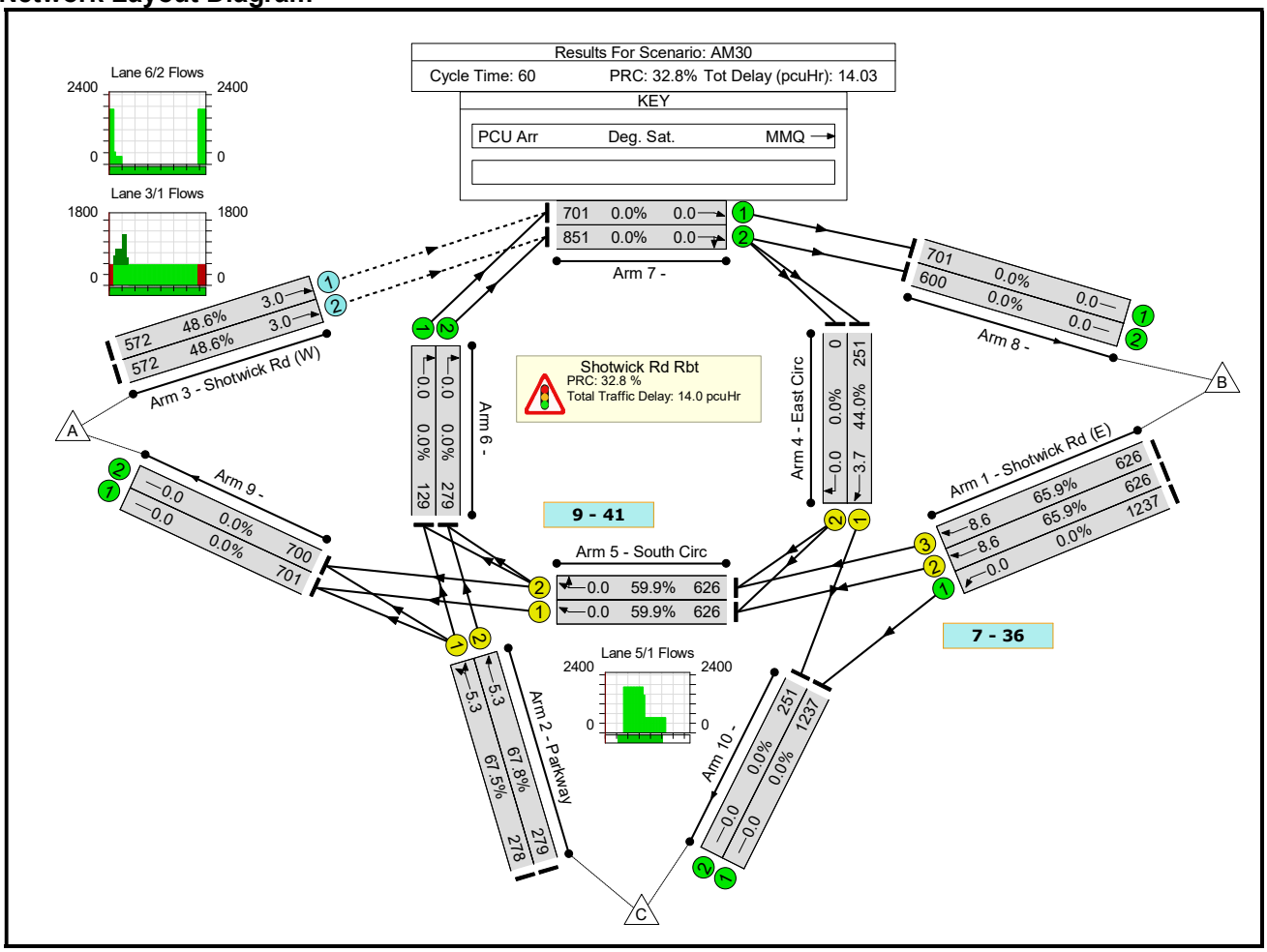
Stage Timings

Stage	1	2
Duration	27	12
Change Point	0	36

Signal Timings Diagram



Network Layout Diagram



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: Existing Layout	-	-	**N/A**	-	-		-	-	-	-	-	-	**67.8%**
Shotwick Rd Rbt	-	-	**N/A**	-	-		-	-	-	-	-	-	**67.8%**
1/1	Shotwick Rd (E) Ahead	U	N/A	N/A	-		-	-	-	1237	Inf	Inf	0.0%
1/2	Shotwick Rd (E) Ahead	U	N/A	N/A	A		1	29	-	626	1900	950	65.9%
1/3	Shotwick Rd (E) Ahead	U	N/A	N/A	A		1	29	-	626	1900	950	65.9%
2/1	Parkway Ahead Left	U	N/A	N/A	C		1	12	-	278	1900	412	67.5%
2/2	Parkway Ahead	U	N/A	N/A	C		1	12	-	279	1900	412	67.8%
3/1	Shotwick Rd (W) Ahead	O	N/A	N/A	-		-	-	-	572	Inf	1176	48.6%
3/2	Shotwick Rd (W) Ahead	O	N/A	N/A	-		-	-	-	572	Inf	1176	48.6%
4/1	East Circ Ahead	U	N/A	N/A	B		1	17	-	251	1900	570	44.0%
4/2	East Circ Right	U	N/A	N/A	B		1	17	-	0	1900	570	0.0%
5/1	South Circ Ahead	U	N/A	N/A	D		1	32	-	626	1900	1045	59.9%
5/2	South Circ Right Ahead	U	N/A	N/A	D		1	32	-	626	1900	1045	59.9%
6/1	Right	U	N/A	N/A	-		-	-	-	129	Inf	Inf	0.0%
6/2	Right	U	N/A	N/A	-		-	-	-	279	Inf	Inf	0.0%
7/1	Ahead	U	N/A	N/A	-		-	-	-	701	Inf	Inf	0.0%
7/2	Right Ahead	U	N/A	N/A	-		-	-	-	851	Inf	Inf	0.0%
8/1		U	N/A	N/A	-		-	-	-	701	Inf	Inf	0.0%
8/2		U	N/A	N/A	-		-	-	-	600	Inf	Inf	0.0%
9/1		U	N/A	N/A	-		-	-	-	701	Inf	Inf	0.0%

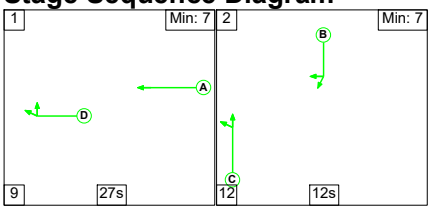
9/2		U	N/A	N/A	-		-	-	-	700	Inf	Inf	0.0%
10/1		U	N/A	N/A	-		-	-	-	1237	Inf	Inf	0.0%
10/2		U	N/A	N/A	-		-	-	-	251	Inf	Inf	0.0%

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: Existing Layout	**-**	**-**	**1144**	**0**	**0**	**8.7**	**5.3**	**0.0**	**14.0**	**-**	**-**	**-**	**-**
Shotwick Rd Rbt	**-**	**-**	**1144**	**0**	**0**	**8.7**	**5.3**	**0.0**	**14.0**	**-**	**-**	**-**	**-**
1/1	1237	1237	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
1/2	626	626	-	-	-	1.9	1.0	-	2.9	16.7	7.7	1.0	8.6
1/3	626	626	-	-	-	1.9	1.0	-	2.9	16.7	7.7	1.0	8.6
2/1	278	278	-	-	-	1.7	1.0	-	2.7	34.8	4.2	1.0	5.3
2/2	279	279	-	-	-	1.7	1.0	-	2.7	34.9	4.3	1.0	5.3
3/1	572	572	572	0	0	0.2	0.5	-	0.7	4.2	2.5	0.5	3.0
3/2	572	572	572	0	0	0.2	0.5	-	0.7	4.2	2.5	0.5	3.0
4/1	251	251	-	-	-	1.1	0.4	-	1.5	21.4	3.3	0.4	3.7
4/2	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	626	626	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/2	626	626	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	129	129	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/2	279	279	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	701	701	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/2	851	851	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	701	701	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/2	600	600	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
9/1	701	701	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
9/2	700	700	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
10/1	1237	1237	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
10/2	251	251	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1 PRC for Signalled Lanes (%): 32.8 Total Delay for Signalled Lanes (pcuHr): 12.70 Cycle Time (s): 60
PRC Over All Lanes (%): 32.8 Total Delay Over All Lanes(pcuHr): 14.03

Scenario 4: 'AM30+D' (FG4: 'AM 2030 + Development', Plan 1: 'Network Control Plan 1')

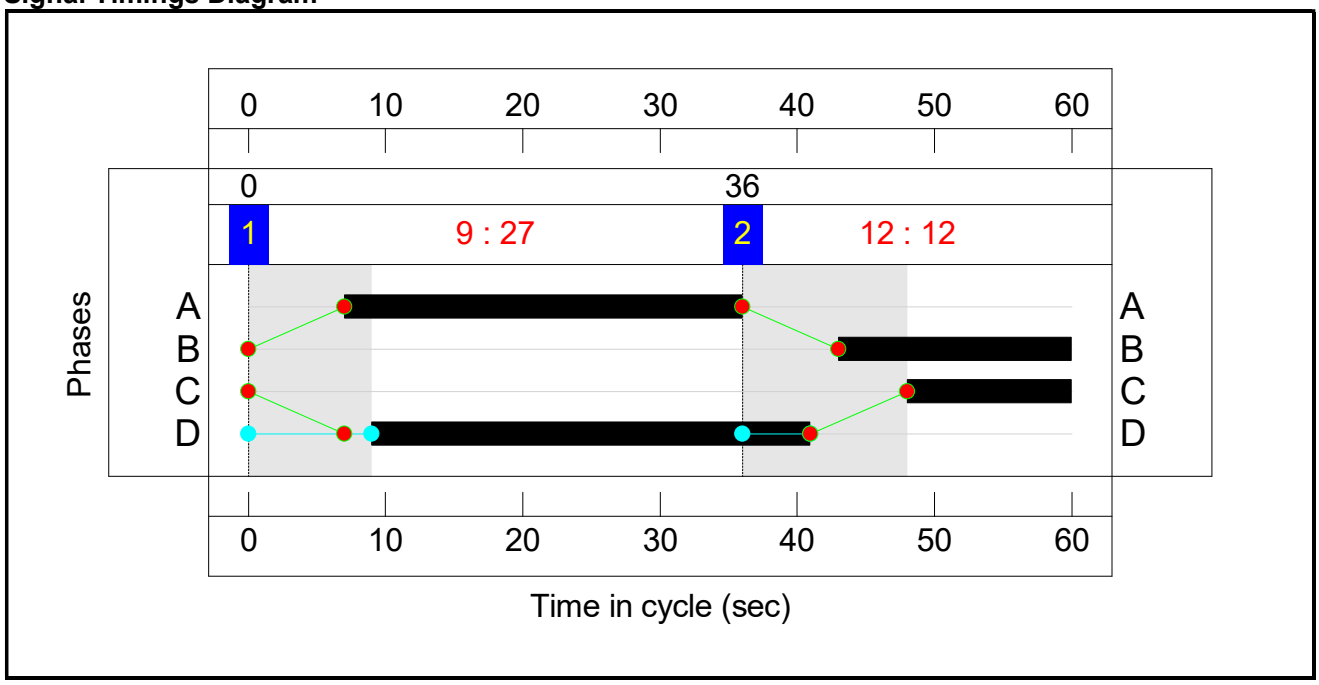
Stage Sequence Diagram



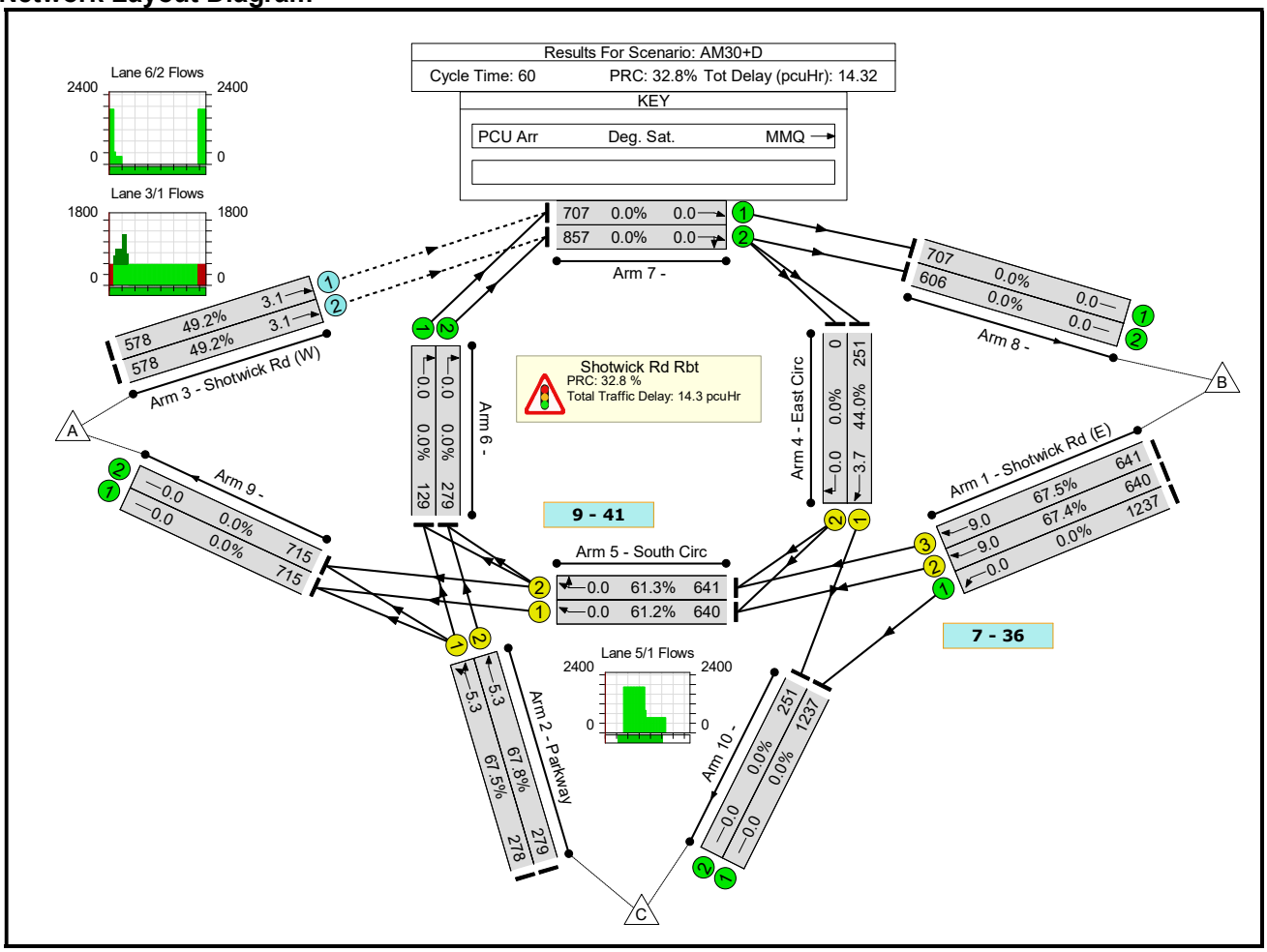
Stage Timings

Stage	1	2
Duration	27	12
Change Point	0	36

Signal Timings Diagram



Network Layout Diagram



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: Existing Layout	-	-	**N/A**	-	-		-	-	-	-	-	-	**67.8%**
Shotwick Rd Rbt	-	-	**N/A**	-	-		-	-	-	-	-	-	**67.8%**
1/1	Shotwick Rd (E) Ahead	U	N/A	N/A	-		-	-	-	1237	Inf	Inf	0.0%
1/2	Shotwick Rd (E) Ahead	U	N/A	N/A	A		1	29	-	640	1900	950	67.4%
1/3	Shotwick Rd (E) Ahead	U	N/A	N/A	A		1	29	-	641	1900	950	67.5%
2/1	Parkway Ahead Left	U	N/A	N/A	C		1	12	-	278	1900	412	67.5%
2/2	Parkway Ahead	U	N/A	N/A	C		1	12	-	279	1900	412	67.8%
3/1	Shotwick Rd (W) Ahead	O	N/A	N/A	-		-	-	-	578	Inf	1176	49.2%
3/2	Shotwick Rd (W) Ahead	O	N/A	N/A	-		-	-	-	578	Inf	1176	49.2%
4/1	East Circ Ahead	U	N/A	N/A	B		1	17	-	251	1900	570	44.0%
4/2	East Circ Right	U	N/A	N/A	B		1	17	-	0	1900	570	0.0%
5/1	South Circ Ahead	U	N/A	N/A	D		1	32	-	640	1900	1045	61.2%
5/2	South Circ Right Ahead	U	N/A	N/A	D		1	32	-	641	1900	1045	61.3%
6/1	Right	U	N/A	N/A	-		-	-	-	129	Inf	Inf	0.0%
6/2	Right	U	N/A	N/A	-		-	-	-	279	Inf	Inf	0.0%
7/1	Ahead	U	N/A	N/A	-		-	-	-	707	Inf	Inf	0.0%
7/2	Right Ahead	U	N/A	N/A	-		-	-	-	857	Inf	Inf	0.0%
8/1		U	N/A	N/A	-		-	-	-	707	Inf	Inf	0.0%
8/2		U	N/A	N/A	-		-	-	-	606	Inf	Inf	0.0%
9/1		U	N/A	N/A	-		-	-	-	715	Inf	Inf	0.0%

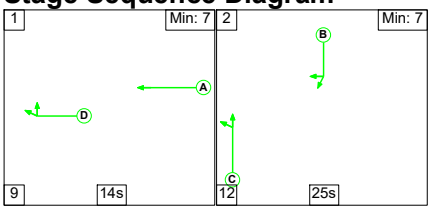
9/2		U	N/A	N/A	-		-	-	-	715	Inf	Inf	0.0%
10/1		U	N/A	N/A	-		-	-	-	1237	Inf	Inf	0.0%
10/2		U	N/A	N/A	-		-	-	-	251	Inf	Inf	0.0%

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: Existing Layout	**-**	**-**	**1156**	**0**	**0**	**8.9**	**5.5**	**0.0**	**14.3**	**-**	**-**	**-**	**-**
Shotwick Rd Rbt	**-**	**-**	**1156**	**0**	**0**	**8.9**	**5.5**	**0.0**	**14.3**	**-**	**-**	**-**	**-**
1/1	1237	1237	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
1/2	640	640	-	-	-	2.0	1.0	-	3.0	17.1	8.0	1.0	9.0
1/3	641	641	-	-	-	2.0	1.0	-	3.0	17.1	8.0	1.0	9.0
2/1	278	278	-	-	-	1.7	1.0	-	2.7	34.8	4.2	1.0	5.3
2/2	279	279	-	-	-	1.7	1.0	-	2.7	34.9	4.3	1.0	5.3
3/1	578	578	578	0	0	0.2	0.5	-	0.7	4.2	2.6	0.5	3.1
3/2	578	578	578	0	0	0.2	0.5	-	0.7	4.2	2.6	0.5	3.1
4/1	251	251	-	-	-	1.1	0.4	-	1.5	21.4	3.3	0.4	3.7
4/2	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	640	640	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/2	641	641	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	129	129	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/2	279	279	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	707	707	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/2	857	857	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	707	707	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/2	606	606	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
9/1	715	715	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
9/2	715	715	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
10/1	1237	1237	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
10/2	251	251	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1 PRC for Signalled Lanes (%): 32.8 Total Delay for Signalled Lanes (pcuHr): 12.97 Cycle Time (s): 60
PRC Over All Lanes (%): 32.8 Total Delay Over All Lanes(pcuHr): 14.32

Scenario 5: 'PM25' (FG5: 'PM 2025', Plan 1: 'Network Control Plan 1')

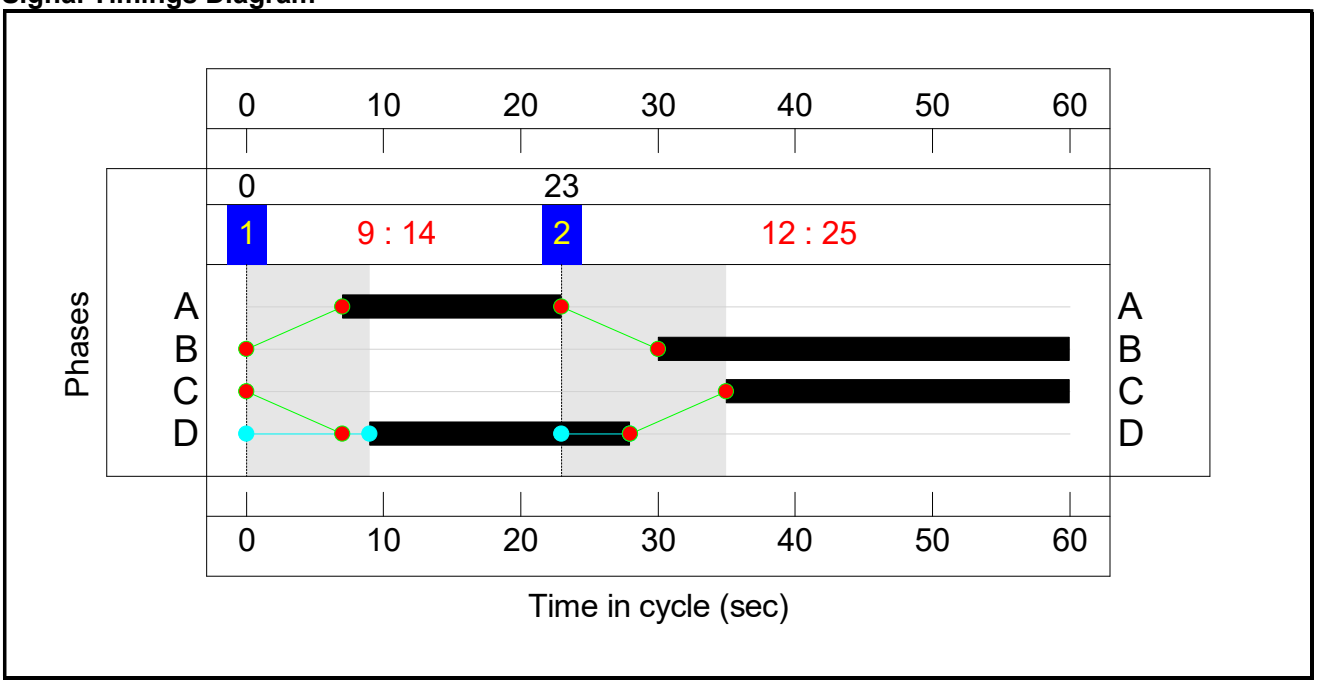
Stage Sequence Diagram



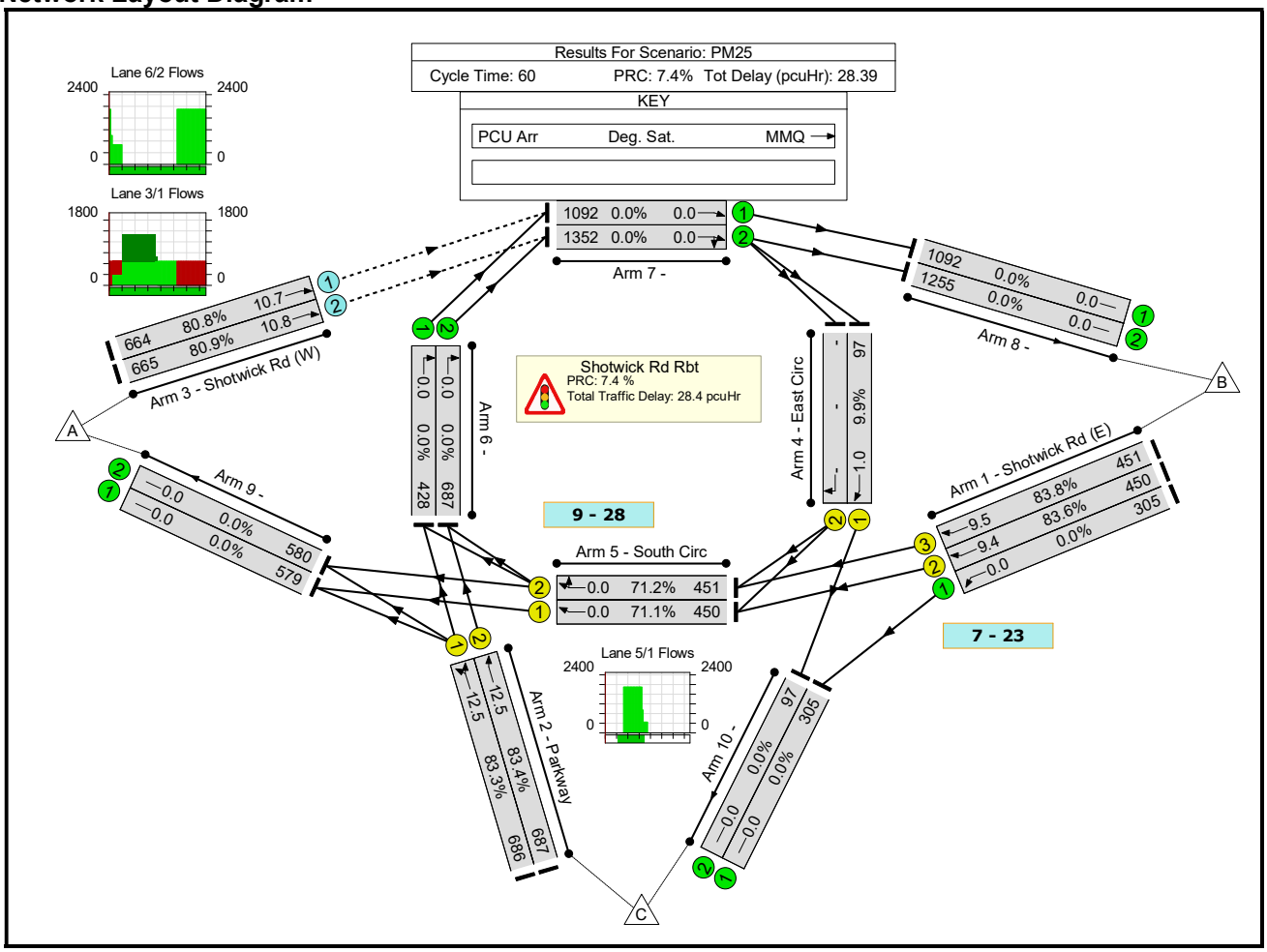
Stage Timings

Stage	1	2
Duration	14	25
Change Point	0	23

Signal Timings Diagram



Network Layout Diagram



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: Existing Layout	-	-	**N/A**	-	-		-	-	-	-	-	-	**83.8%**
Shotwick Rd Rbt	-	-	**N/A**	-	-		-	-	-	-	-	-	**83.8%**
1/1	Shotwick Rd (E) Ahead	U	N/A	N/A	-		-	-	-	305	Inf	Inf	0.0%
1/2	Shotwick Rd (E) Ahead	U	N/A	N/A	A		1	16	-	450	1900	538	83.6%
1/3	Shotwick Rd (E) Ahead	U	N/A	N/A	A		1	16	-	451	1900	538	83.8%
2/1	Parkway Ahead Left	U	N/A	N/A	C		1	25	-	686	1900	823	83.3%
2/2	Parkway Ahead	U	N/A	N/A	C		1	25	-	687	1900	823	83.4%
3/1	Shotwick Rd (W) Ahead	O	N/A	N/A	-		-	-	-	664	Inf	822	80.8%
3/2	Shotwick Rd (W) Ahead	O	N/A	N/A	-		-	-	-	665	Inf	822	80.9%
4/1	East Circ Ahead	U	N/A	N/A	B		1	30	-	97	1900	982	9.9%
4/2	East Circ Right	U	N/A	N/A	B		1	30	-	0	1900	-	-
5/1	South Circ Ahead	U	N/A	N/A	D		1	19	-	450	1900	633	71.1%
5/2	South Circ Right Ahead	U	N/A	N/A	D		1	19	-	451	1900	633	71.2%
6/1	Right	U	N/A	N/A	-		-	-	-	428	Inf	Inf	0.0%
6/2	Right	U	N/A	N/A	-		-	-	-	687	Inf	Inf	0.0%
7/1	Ahead	U	N/A	N/A	-		-	-	-	1092	Inf	Inf	0.0%
7/2	Right Ahead	U	N/A	N/A	-		-	-	-	1352	Inf	Inf	0.0%
8/1		U	N/A	N/A	-		-	-	-	1092	Inf	Inf	0.0%
8/2		U	N/A	N/A	-		-	-	-	1255	Inf	Inf	0.0%
9/1		U	N/A	N/A	-		-	-	-	579	Inf	Inf	0.0%

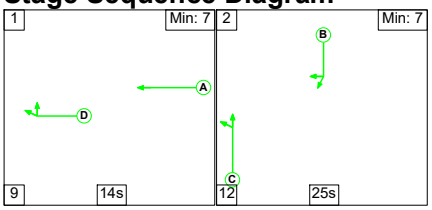
9/2		U	N/A	N/A	-		-	-	-	580	Inf	Inf	0.0%
10/1		U	N/A	N/A	-		-	-	-	305	Inf	Inf	0.0%
10/2		U	N/A	N/A	-		-	-	-	97	Inf	Inf	0.0%

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: Existing Layout	**-**	**-**	**1329**	**0**	**0**	**14.5**	**13.9**	**0.0**	**28.4**	**-**	**-**	**-**	**-**
Shotwick Rd Rbt	**-**	**-**	**1329**	**0**	**0**	**14.5**	**13.9**	**0.0**	**28.4**	**-**	**-**	**-**	**-**
1/1	305	305	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
1/2	450	450	-	-	-	2.5	2.4	-	4.9	39.5	7.0	2.4	9.4
1/3	451	451	-	-	-	2.5	2.4	-	5.0	39.7	7.0	2.4	9.5
2/1	686	686	-	-	-	2.9	2.4	-	5.3	27.7	10.1	2.4	12.5
2/2	687	687	-	-	-	2.9	2.4	-	5.3	27.8	10.1	2.4	12.5
3/1	664	664	664	0	0	1.8	2.1	-	3.8	20.8	8.7	2.1	10.7
3/2	665	665	665	0	0	1.8	2.1	-	3.9	20.8	8.7	2.1	10.8
4/1	97	97	-	-	-	0.1	0.1	-	0.2	7.3	1.0	0.1	1.0
4/2	-	-	-	-	-	-	-	-	-	-	-	-	-
5/1	450	450	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/2	451	451	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	428	428	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/2	687	687	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	1092	1092	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/2	1352	1352	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	1092	1092	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/2	1255	1255	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
9/1	579	579	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
9/2	580	580	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
10/1	305	305	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
10/2	97	97	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1 PRC for Signalled Lanes (%): 7.4 Total Delay for Signalled Lanes (pcuHr): 20.71 Cycle Time (s): 60
PRC Over All Lanes (%): 7.4 Total Delay Over All Lanes(pcuHr): 28.39

Scenario 6: 'PM25+D' (FG6: 'PM 2025 + Development', Plan 1: 'Network Control Plan 1')

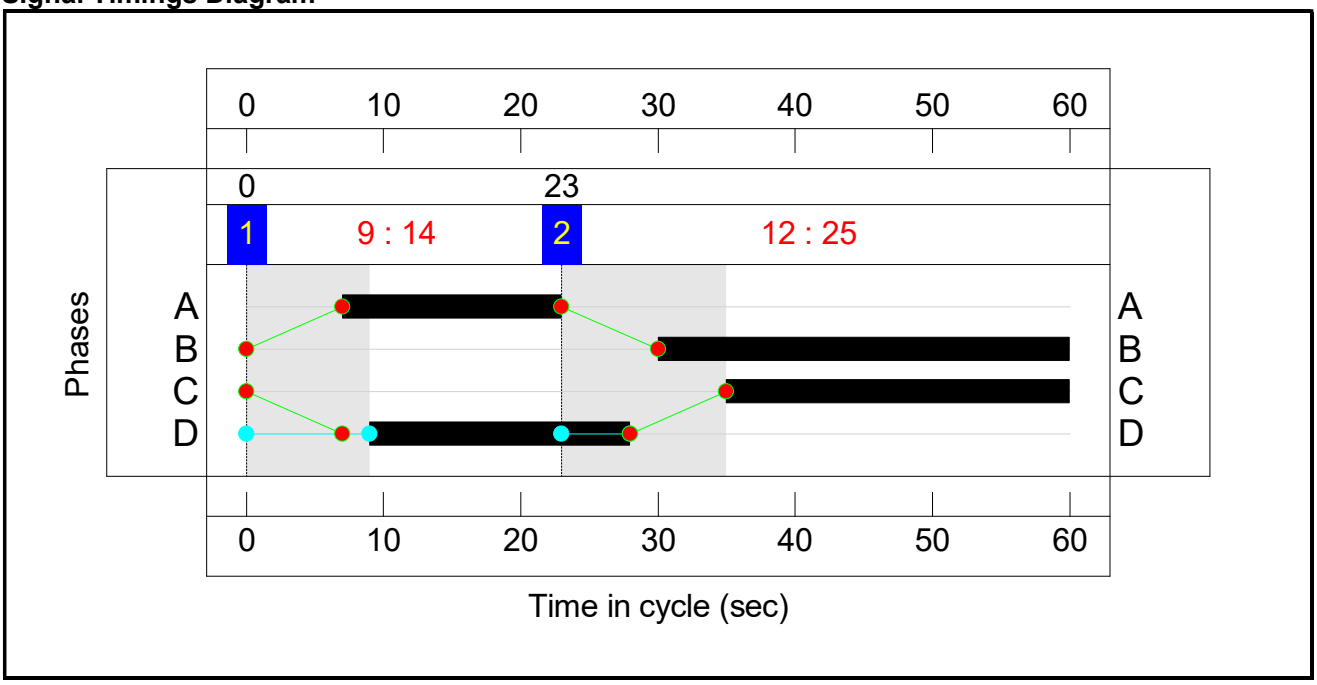
Stage Sequence Diagram



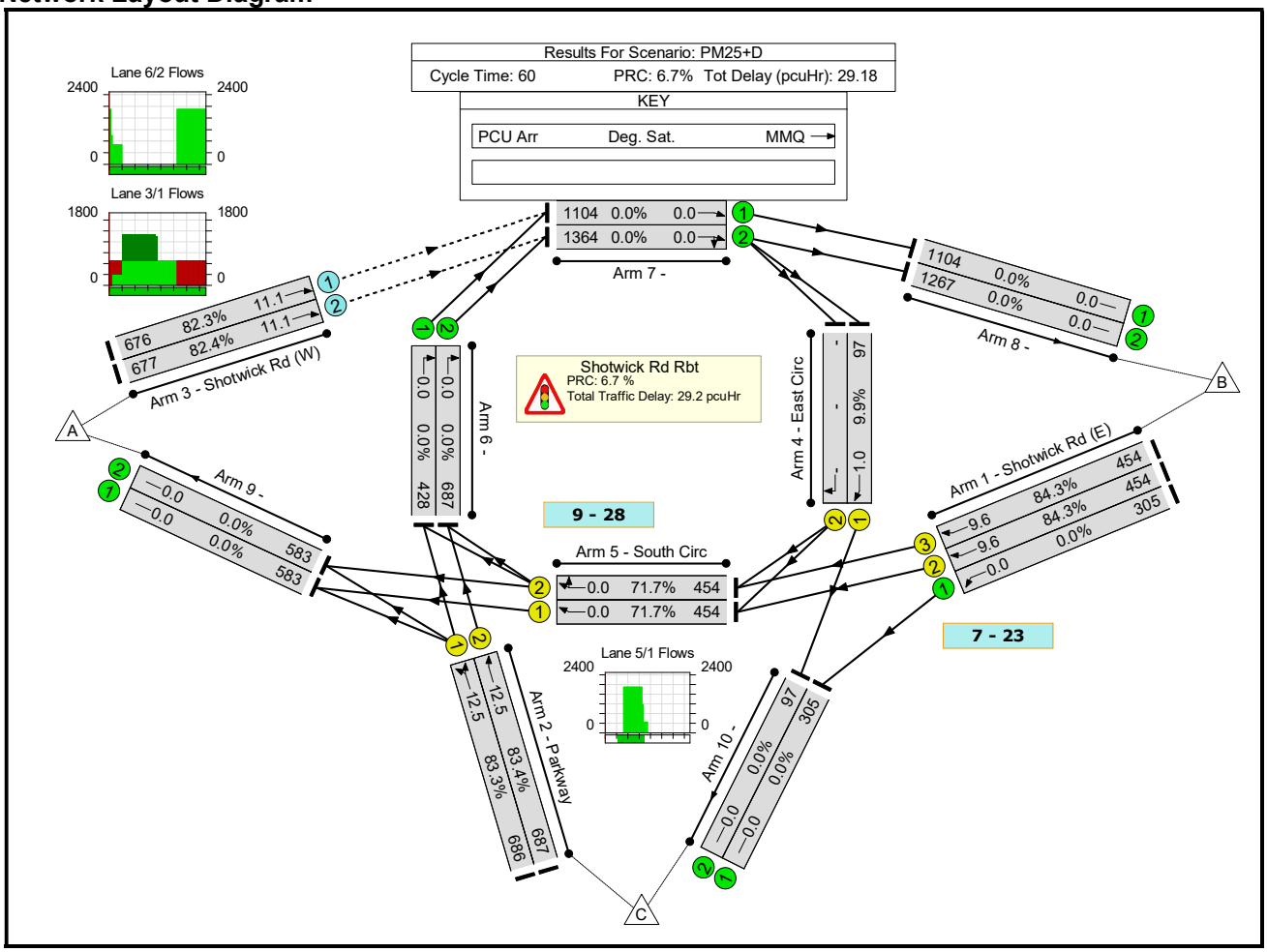
Stage Timings

Stage	1	2
Duration	14	25
Change Point	0	23

Signal Timings Diagram



Network Layout Diagram



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: Existing Layout	-	-	**N/A**	-	-		-	-	-	-	-	-	**84.3%**
Shotwick Rd Rbt	-	-	**N/A**	-	-		-	-	-	-	-	-	**84.3%**
1/1	Shotwick Rd (E) Ahead	U	N/A	N/A	-		-	-	-	305	Inf	Inf	0.0%
1/2	Shotwick Rd (E) Ahead	U	N/A	N/A	A		1	16	-	454	1900	538	84.3%
1/3	Shotwick Rd (E) Ahead	U	N/A	N/A	A		1	16	-	454	1900	538	84.3%
2/1	Parkway Ahead Left	U	N/A	N/A	C		1	25	-	686	1900	823	83.3%
2/2	Parkway Ahead	U	N/A	N/A	C		1	25	-	687	1900	823	83.4%
3/1	Shotwick Rd (W) Ahead	O	N/A	N/A	-		-	-	-	676	Inf	822	82.3%
3/2	Shotwick Rd (W) Ahead	O	N/A	N/A	-		-	-	-	677	Inf	822	82.4%
4/1	East Circ Ahead	U	N/A	N/A	B		1	30	-	97	1900	982	9.9%
4/2	East Circ Right	U	N/A	N/A	B		1	30	-	0	1900	-	-
5/1	South Circ Ahead	U	N/A	N/A	D		1	19	-	454	1900	633	71.7%
5/2	South Circ Right Ahead	U	N/A	N/A	D		1	19	-	454	1900	633	71.7%
6/1	Right	U	N/A	N/A	-		-	-	-	428	Inf	Inf	0.0%
6/2	Right	U	N/A	N/A	-		-	-	-	687	Inf	Inf	0.0%
7/1	Ahead	U	N/A	N/A	-		-	-	-	1104	Inf	Inf	0.0%
7/2	Right Ahead	U	N/A	N/A	-		-	-	-	1364	Inf	Inf	0.0%
8/1		U	N/A	N/A	-		-	-	-	1104	Inf	Inf	0.0%
8/2		U	N/A	N/A	-		-	-	-	1267	Inf	Inf	0.0%
9/1		U	N/A	N/A	-		-	-	-	583	Inf	Inf	0.0%

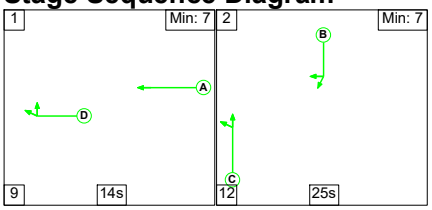
9/2		U	N/A	N/A	-		-	-	-	583	Inf	Inf	0.0%
10/1		U	N/A	N/A	-		-	-	-	305	Inf	Inf	0.0%
10/2		U	N/A	N/A	-		-	-	-	97	Inf	Inf	0.0%

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: Existing Layout	**-**	**-**	**1353**	**0**	**0**	**14.7**	**14.5**	**0.0**	**29.2**	**-**	**-**	**-**	**-**
Shotwick Rd Rbt	**-**	**-**	**1353**	**0**	**0**	**14.7**	**14.5**	**0.0**	**29.2**	**-**	**-**	**-**	**-**
1/1	305	305	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
1/2	454	454	-	-	-	2.6	2.5	-	5.1	40.4	7.1	2.5	9.6
1/3	454	454	-	-	-	2.6	2.5	-	5.1	40.4	7.1	2.5	9.6
2/1	686	686	-	-	-	2.9	2.4	-	5.3	27.7	10.1	2.4	12.5
2/2	687	687	-	-	-	2.9	2.4	-	5.3	27.8	10.1	2.4	12.5
3/1	676	676	676	0	0	1.8	2.3	-	4.1	21.8	8.8	2.3	11.1
3/2	677	677	677	0	0	1.8	2.3	-	4.1	21.9	8.8	2.3	11.1
4/1	97	97	-	-	-	0.1	0.1	-	0.2	7.2	1.0	0.1	1.0
4/2	-	-	-	-	-	-	-	-	-	-	-	-	-
5/1	454	454	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/2	454	454	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	428	428	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/2	687	687	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	1104	1104	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/2	1364	1364	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	1104	1104	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/2	1267	1267	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
9/1	583	583	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
9/2	583	583	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
10/1	305	305	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
10/2	97	97	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1 PRC for Signalled Lanes (%): 6.7 Total Delay for Signalled Lanes (pcuHr): 20.98 Cycle Time (s): 60
PRC Over All Lanes (%): 6.7 Total Delay Over All Lanes(pcuHr): 29.18

Scenario 7: 'PM30' (FG7: 'PM 2030', Plan 1: 'Network Control Plan 1')

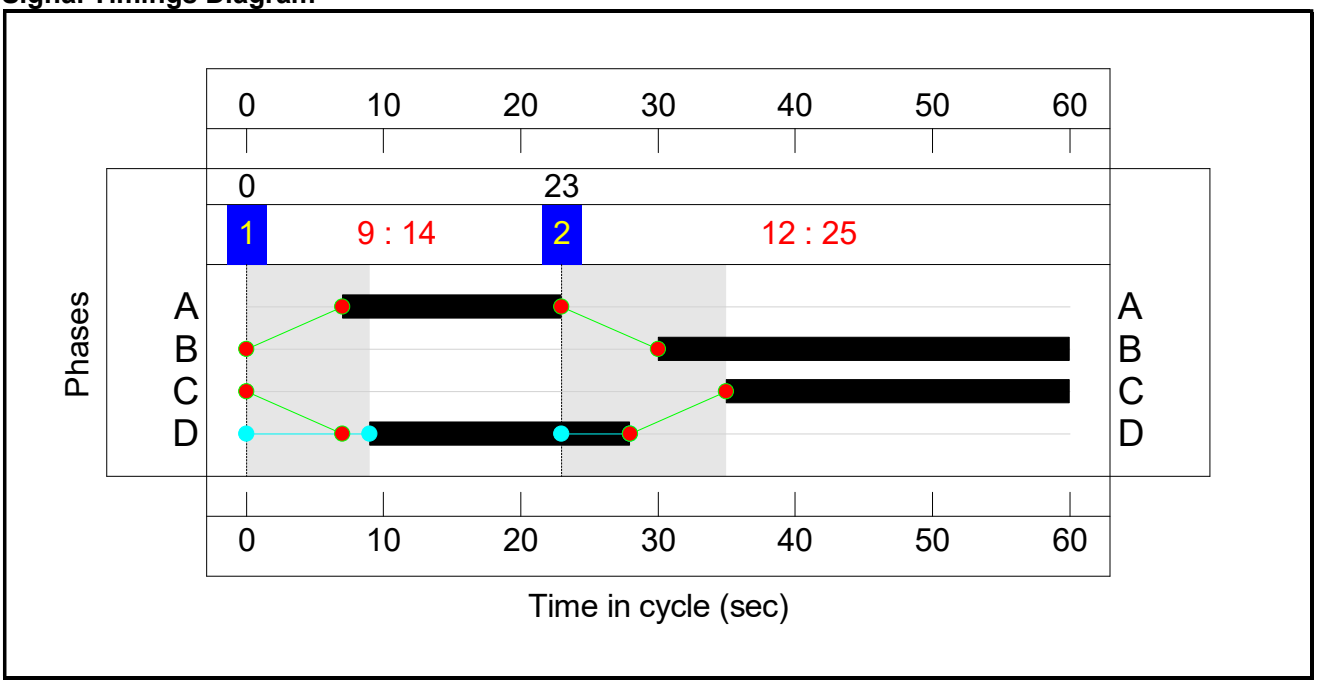
Stage Sequence Diagram



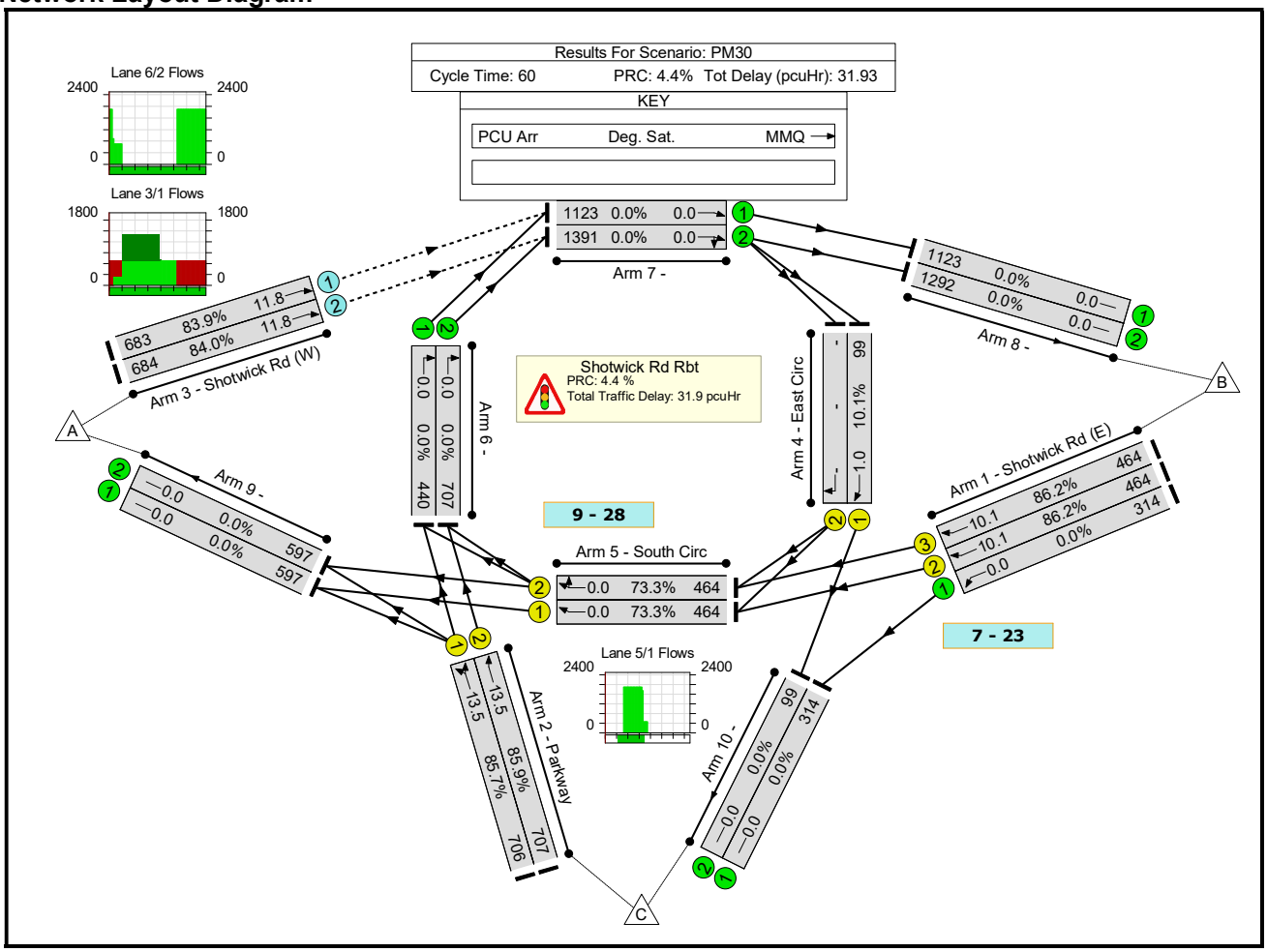
Stage Timings

Stage	1	2
Duration	14	25
Change Point	0	23

Signal Timings Diagram



Network Layout Diagram



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: Existing Layout	-	-	**N/A**	-	-		-	-	-	-	-	-	**86.2%**
Shotwick Rd Rbt	-	-	**N/A**	-	-		-	-	-	-	-	-	**86.2%**
1/1	Shotwick Rd (E) Ahead	U	N/A	N/A	-		-	-	-	314	Inf	Inf	0.0%
1/2	Shotwick Rd (E) Ahead	U	N/A	N/A	A		1	16	-	464	1900	538	86.2%
1/3	Shotwick Rd (E) Ahead	U	N/A	N/A	A		1	16	-	464	1900	538	86.2%
2/1	Parkway Ahead Left	U	N/A	N/A	C		1	25	-	706	1900	823	85.7%
2/2	Parkway Ahead	U	N/A	N/A	C		1	25	-	707	1900	823	85.9%
3/1	Shotwick Rd (W) Ahead	O	N/A	N/A	-		-	-	-	683	Inf	814	83.9%
3/2	Shotwick Rd (W) Ahead	O	N/A	N/A	-		-	-	-	684	Inf	814	84.0%
4/1	East Circ Ahead	U	N/A	N/A	B		1	30	-	99	1900	982	10.1%
4/2	East Circ Right	U	N/A	N/A	B		1	30	-	0	1900	-	-
5/1	South Circ Ahead	U	N/A	N/A	D		1	19	-	464	1900	633	73.3%
5/2	South Circ Right Ahead	U	N/A	N/A	D		1	19	-	464	1900	633	73.3%
6/1	Right	U	N/A	N/A	-		-	-	-	440	Inf	Inf	0.0%
6/2	Right	U	N/A	N/A	-		-	-	-	707	Inf	Inf	0.0%
7/1	Ahead	U	N/A	N/A	-		-	-	-	1123	Inf	Inf	0.0%
7/2	Right Ahead	U	N/A	N/A	-		-	-	-	1391	Inf	Inf	0.0%
8/1		U	N/A	N/A	-		-	-	-	1123	Inf	Inf	0.0%
8/2		U	N/A	N/A	-		-	-	-	1292	Inf	Inf	0.0%
9/1		U	N/A	N/A	-		-	-	-	597	Inf	Inf	0.0%

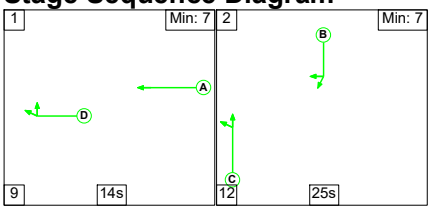
9/2		U	N/A	N/A	-		-	-	-	597	Inf	Inf	0.0%
10/1		U	N/A	N/A	-		-	-	-	314	Inf	Inf	0.0%
10/2		U	N/A	N/A	-		-	-	-	99	Inf	Inf	0.0%

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: Existing Layout	**-**	**-**	**1367**	**0**	**0**	**15.3**	**16.6**	**0.0**	**31.9**	**-**	**-**	**-**	**-**
Shotwick Rd Rbt	**-**	**-**	**1367**	**0**	**0**	**15.3**	**16.6**	**0.0**	**31.9**	**-**	**-**	**-**	**-**
1/1	314	314	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
1/2	464	464	-	-	-	2.6	2.9	-	5.5	42.9	7.2	2.9	10.1
1/3	464	464	-	-	-	2.6	2.9	-	5.5	42.9	7.2	2.9	10.1
2/1	706	706	-	-	-	3.0	2.9	-	5.9	30.0	10.6	2.9	13.5
2/2	707	707	-	-	-	3.0	2.9	-	5.9	30.1	10.6	2.9	13.5
3/1	683	683	683	0	0	1.9	2.5	-	4.4	23.4	9.3	2.5	11.8
3/2	684	684	684	0	0	1.9	2.5	-	4.5	23.5	9.3	2.5	11.8
4/1	99	99	-	-	-	0.1	0.1	-	0.2	6.9	1.0	0.1	1.0
4/2	-	-	-	-	-	-	-	-	-	-	-	-	-
5/1	464	464	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/2	464	464	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	440	440	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/2	707	707	-	-	-	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	1391	1391	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	1123	1123	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/2	1292	1292	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
9/1	597	597	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
9/2	597	597	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
10/1	314	314	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
10/2	99	99	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1 PRC for Signalled Lanes (%): 4.4 Total Delay for Signalled Lanes (pcuHr): 23.02 Cycle Time (s): 60
PRC Over All Lanes (%): 4.4 Total Delay Over All Lanes(pcuHr): 31.93

Scenario 8: 'PM30+D' (FG8: 'PM 2030 + Development', Plan 1: 'Network Control Plan 1')

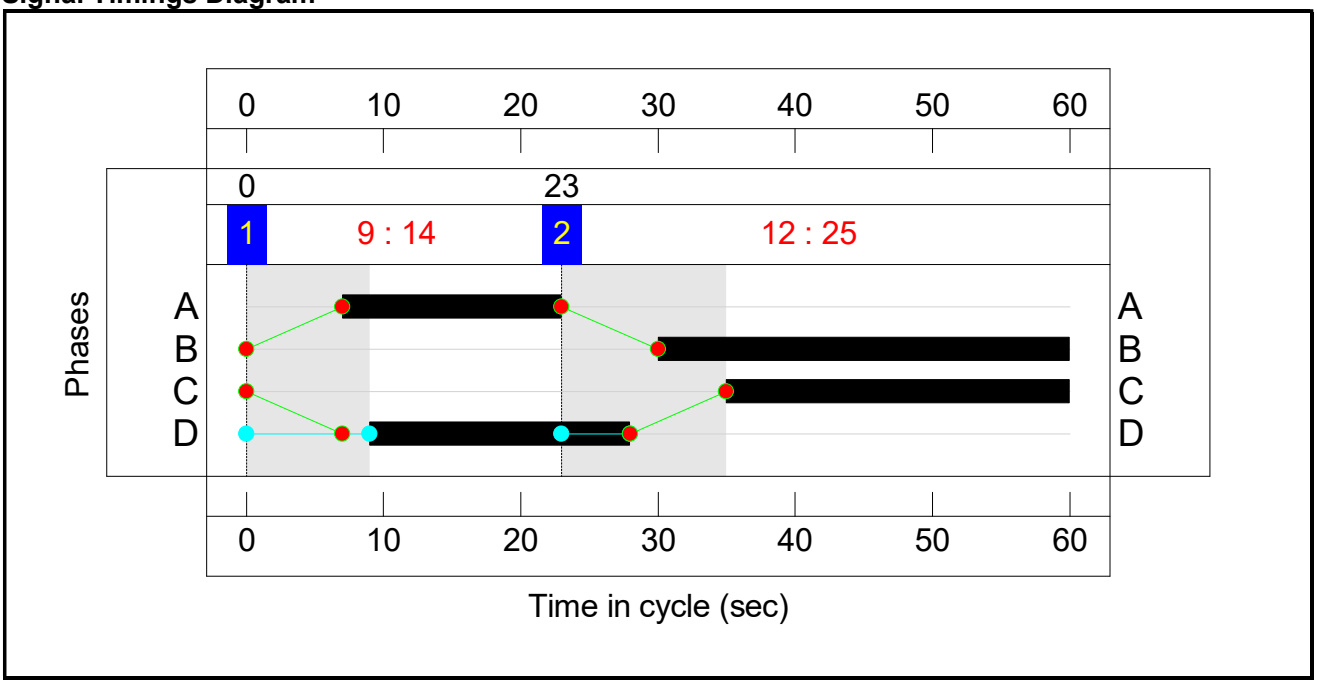
Stage Sequence Diagram



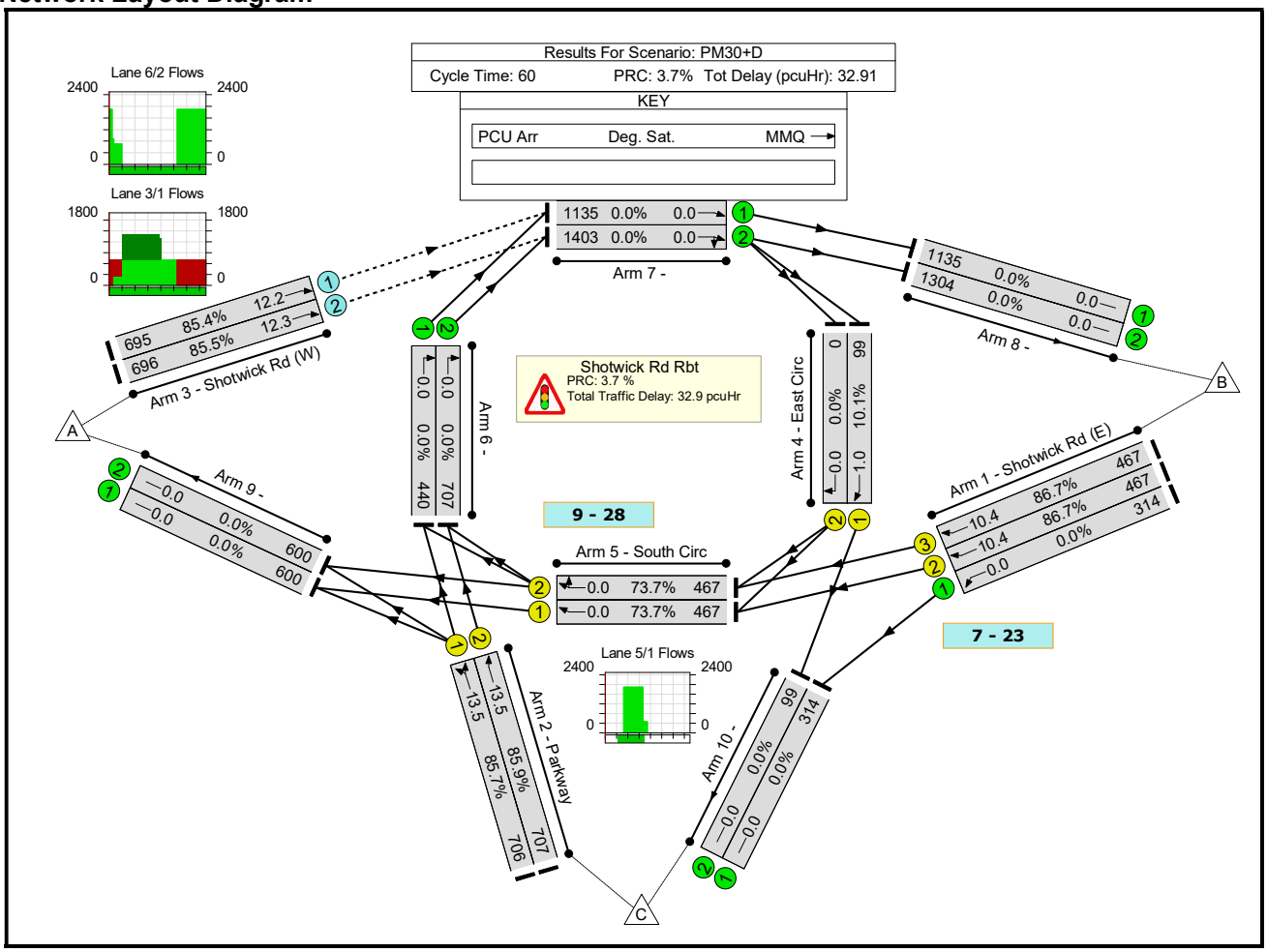
Stage Timings

Stage	1	2
Duration	14	25
Change Point	0	23

Signal Timings Diagram



Network Layout Diagram



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: Existing Layout	-	-	**N/A**	-	-		-	-	-	-	-	-	**86.7%**
Shotwick Rd Rbt	-	-	**N/A**	-	-		-	-	-	-	-	-	**86.7%**
1/1	Shotwick Rd (E) Ahead	U	N/A	N/A	-		-	-	-	314	Inf	Inf	0.0%
1/2	Shotwick Rd (E) Ahead	U	N/A	N/A	A		1	16	-	467	1900	538	86.7%
1/3	Shotwick Rd (E) Ahead	U	N/A	N/A	A		1	16	-	467	1900	538	86.7%
2/1	Parkway Ahead Left	U	N/A	N/A	C		1	25	-	706	1900	823	85.7%
2/2	Parkway Ahead	U	N/A	N/A	C		1	25	-	707	1900	823	85.9%
3/1	Shotwick Rd (W) Ahead	O	N/A	N/A	-		-	-	-	695	Inf	814	85.4%
3/2	Shotwick Rd (W) Ahead	O	N/A	N/A	-		-	-	-	696	Inf	814	85.5%
4/1	East Circ Ahead	U	N/A	N/A	B		1	30	-	99	1900	982	10.1%
4/2	East Circ Right	U	N/A	N/A	B		1	30	-	0	1900	982	0.0%
5/1	South Circ Ahead	U	N/A	N/A	D		1	19	-	467	1900	633	73.7%
5/2	South Circ Right Ahead	U	N/A	N/A	D		1	19	-	467	1900	633	73.7%
6/1	Right	U	N/A	N/A	-		-	-	-	440	Inf	Inf	0.0%
6/2	Right	U	N/A	N/A	-		-	-	-	707	Inf	Inf	0.0%
7/1	Ahead	U	N/A	N/A	-		-	-	-	1135	Inf	Inf	0.0%
7/2	Right Ahead	U	N/A	N/A	-		-	-	-	1403	Inf	Inf	0.0%
8/1		U	N/A	N/A	-		-	-	-	1135	Inf	Inf	0.0%
8/2		U	N/A	N/A	-		-	-	-	1304	Inf	Inf	0.0%
9/1		U	N/A	N/A	-		-	-	-	600	Inf	Inf	0.0%

9/2		U	N/A	N/A	-		-	-	-	600	Inf	Inf	0.0%
10/1		U	N/A	N/A	-		-	-	-	314	Inf	Inf	0.0%
10/2		U	N/A	N/A	-		-	-	-	99	Inf	Inf	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: Existing Layout	**-**	**-**	**1391**	**0**	**0**	**15.5**	**17.5**	**0.0**	**32.9**	**-**	**-**	**-**	**-**
Shotwick Rd Rbt	**-**	**-**	**1391**	**0**	**0**	**15.5**	**17.5**	**0.0**	**32.9**	**-**	**-**	**-**	**-**
1/1	314	314	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
1/2	467	467	-	-	-	2.7	3.0	-	5.7	43.7	7.4	3.0	10.4
1/3	467	467	-	-	-	2.7	3.0	-	5.7	43.7	7.4	3.0	10.4
2/1	706	706	-	-	-	3.0	2.9	-	5.9	30.0	10.6	2.9	13.5
2/2	707	707	-	-	-	3.0	2.9	-	5.9	30.1	10.6	2.9	13.5
3/1	695	695	695	0	0	2.0	2.8	-	4.8	24.8	9.5	2.8	12.2
3/2	696	696	696	0	0	2.0	2.8	-	4.8	24.9	9.5	2.8	12.3
4/1	99	99	-	-	-	0.1	0.1	-	0.2	6.9	0.9	0.1	1.0
4/2	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	467	467	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/2	467	467	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	440	440	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/2	707	707	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	1135	1135	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/2	1403	1403	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	1135	1135	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/2	1304	1304	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
9/1	600	600	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
9/2	600	600	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
10/1	314	314	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
10/2	99	99	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1 PRC for Signalled Lanes (%): 3.7 Total Delay for Signalled Lanes (pcuHr): 23.31 Cycle Time (s): 60
PRC Over All Lanes (%): 3.7 Total Delay Over All Lanes(pcuHr): 32.91

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