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TRANSPORT ASSESSMENT



Proposed Industrial Estate

Blackmoorfoot Road, Huddersfield

Sept 2024



Quality Management

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Table of Contents

1. Introduction	1
2. Transport Policy	3
2.2. NATIONAL PLANNING POLICY FRAMEWORK.....	3
2.3. LOCAL PLANNING POLICY	5
3. Existing Situation.....	8
3.1. SITE DESCRIPTION	8
3.2. EXISTING ACCESS	8
3.3. HIGHWAY NETWORK	9
3.4. INJURY COLLISION RECORDS	10
3.5. PEDESTRIANS AND CYCLISTS	11
3.6. PUBLIC TRANSPORT	14
4. The Development Proposals.....	17
4.1. PROPOSED DEVELOPMENT	17
4.2. VEHICULAR SITE ACCESS	17
4.3. PEDESTRIANS AND CYCLE ACCESS	18
4.4. PARKING PROVISION	19
4.5. SERVICING	24
5. Development Assessment	25
5.1. TRAFFIC SURVEYS.....	25
5.2. TRAFFIC GROWTH.....	25
5.3. COMMITTED DEVELOPMENT	27
5.4. TRAFFIC GENERATION	28
5.5. TRAFFIC DISTRIBUTION	29
5.6. OPERATIONAL ASSESSMENT OF HIGHWAY NETWORK.....	29
5.7. COMPLIANCE WITH NATIONAL AND LOCAL PLANNING POLICIES.....	37
6. Conclusion	38

Appendices

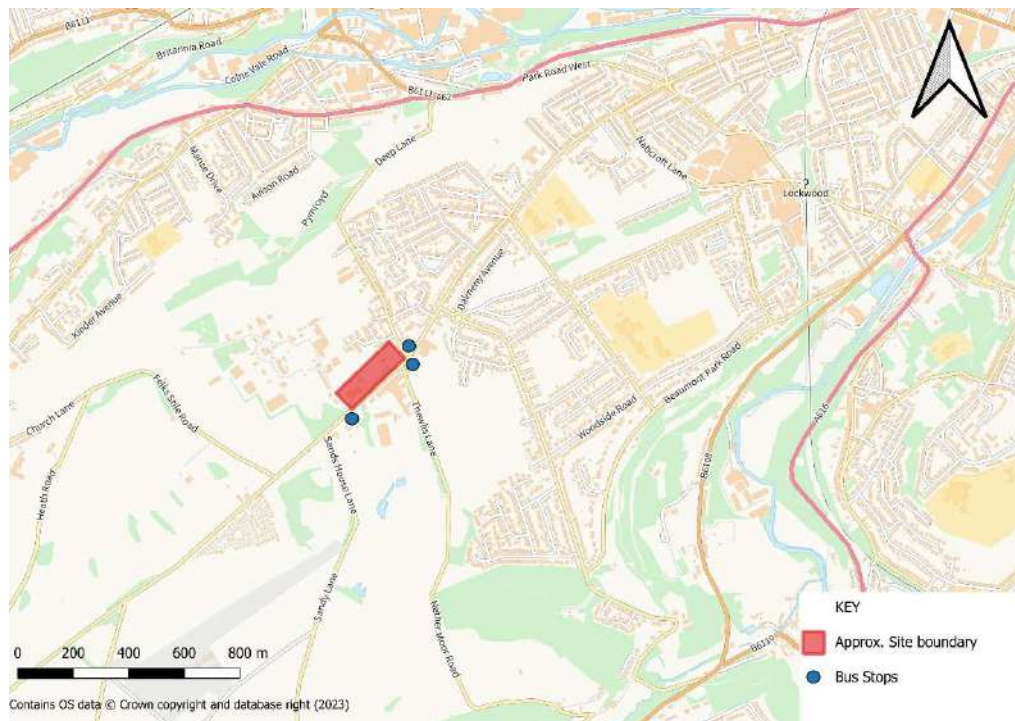
Appendix A	Committed Highway Improvement Scheme Drawing
Appendix B	Collision Data
Appendix C	BREEAM Accessibility Index
Appendix D	Proposed Development Layout
Appendix E	Access Arrangements
Appendix F	TRICS Data Output
Appendix G	Base Year Traffic Flow Diagrams
Appendix H	COVID Traffic Data (Gov.uk)
Appendix I	Traffic Distribution
Appendix J	Future Year Traffic Flow Diagrams
Appendix K	Junctions 9 Model Outputs
Appendix L	LINSIG Model Outputs

1. Introduction

1.1.1. Via Solutions has been appointed to prepare this Transport Assessment in support of a planning application for a proposed industrial development comprising 14 units, off Blackmoorfoot Road, in Blackmoorfoot Huddersfield. The planning submission is a hybrid application, detailed for Units 1 and 2 and outline for the remaining units.

1.1.2. Figure 1 below shows the site location in relation to the local highway network.

FIGURE 1: SITE LOCATION



1.1.3. The site was the subject of a previous planning application (ref 2021/93150) for 87 residential dwellings. A Transport Assessment and Travel Plan were prepared by Optima transport consultancy in support of the planning application. Whilst the planning application was subsequently withdrawn, comments had been received from the local highway authority. These comments have been considered in the preparation of this report.

- 1.1.4. This Transport Assessment considers such matters as traffic impact, access, sustainability, car parking and servicing and presents the proposals in relation to current guidance and data.
- 1.1.5. Both Local and National Transport policy have been reviewed in respect of the development. A review of road safety has been undertaken within this report. Sustainable transport accessibility has also been reviewed within the report. The development proposals have been explained and the impact on the highway network considered.
- 1.1.6. A separate Travel Plan for the development proposals has also been prepared to accompany this Transport Assessment.
- 1.1.7. The applicant is also seeking BREEAM certification, as such the considerations for Tr01 are included within this report. In preparing this document, reference has been made to the BREEAM Technical Manual for new construction (SD0578, 2018 3.0).

2. Transport Policy

- 2.1.1. When considering transport policy compliance for planning applications, the main thrust of local, regional and national policy is that new development should be conveniently accessible by a range of sustainable transport modes, including public transport, cycling and walking. Further details of the relevant policy documents are set out below.

2.2. NATIONAL PLANNING POLICY FRAMEWORK

- 2.2.1. The latest version of the National Planning Policy Framework (NPPF) was published by the Ministry of Housing, Communities and Local Government on 20 July 2021.

- 2.2.2. Paragraph 105 states that *“significant development should be focused on locations which are or can be made sustainable, through limiting the need to travel and offering a genuine choice of transport modes. This can help reduce congestion and emissions, and improve air quality and public health. However, opportunities to maximise sustainable transport solutions will vary between urban and rural areas, and this should be taken into account in both plan-making and decision making.”* 3

- 2.2.3. Paragraph 110 states that when considering planning applications, it should be ensured that:

- ✓ *Appropriate opportunities to promote sustainable transport can be - or have been - taken up, given the location and type of development;*
- ✓ *Safe and suitable access to the site can be achieved for all users; and*
- ✓ *Any significant impacts from the development on the transport network (in terms of capacity and congestion), or on highway safety, can be cost effectively mitigated to an acceptable degree.*

2.2.4. Paragraph 111 states that *“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”*.

2.2.5. Paragraph 112 states developments should:

- *Give priority first to pedestrians 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;*
- *Address the needs of people with disabilities and reduced mobility in relation to all modes of transport;*
- *Create places that are safe, secure and attractive – which minimise the scope for conflicts between pedestrians, cyclists and vehicles, avoid unnecessary street clutter, and respond to local character and design standards;*
- *Allow for the efficient delivery of goods, and access by service and emergency vehicles; and*
- *Be designed to enable charging of plug-in and other ultra-low emission vehicles in safe, accessible and convenient locations.*

4

2.2.6. Paragraph 113 of the NPPF states that 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 Assessment or Transport Statement so that the likely impacts of the proposal can be assessed”*.

2.3. LOCAL PLANNING POLICY

WEST YORKSHIRE LOCAL TRANSPORT PLAN

2.3.1. The current Local Transport Plan is the third West Yorkshire Local Transport Plan (LTP3), which covers the period 2011 to 2026. The key objectives of the LTP3 include:

- ✓ *To improve access to jobs, education and other key services for everyone.*
- ✓ *To reduce delays to the movement of people and goods.*
- ✓ *To improve safety for all highway users.*
- ✓ *To limit transport emissions of air pollutants, greenhouse gases and noise; and*
- ✓ *To improve the condition of the highway infrastructure.*

2.3.2. The LTP sets out the walking and cycling strategy for West Yorkshire to encourage more people to use these modes of travel to help reduce the dependency on private cars. With regards to cycling provision within development proposals, the WYCS seeks to '*ensure that new development proposals are located and designed to be cycle friendly and adopt guidelines for cycle parking standards*'. With regards to walking, the LTP seeks to improve the local environment to make walking more attractive by enhancing safety, security and environmental quality.

5

KIRKLEES LOCAL PLAN

2.3.3. The Kirklees Local Plan was adopted on 27th February 2019. The local plan covers the period 2013 – 2031 and sets out the policies necessary to achieve the vision and strategic objectives for the development of Kirklees.

2.3.4. Policy LP21 'Highways and Access' sets out that proposals shall demonstrate sustainable modes of transport and be accessed effectively and safely by all users, recognising the role of a Transport Assessment (TA) in reducing the impact of developments on the environment by encouraging modal shift.

2.3.5. Policy LP21 states that new development will normally be permitted where safe and suitable access to the site can be achieved for all people and where the residual cumulative impacts of development are not severe. In addition, proposals should demonstrate adequate mitigation measures as necessary to avoid a detrimental impact on the local highway network. Policy LP21 states that all proposals shall;

- *ensure the safe and efficient flow of traffic within the development and on the surrounding highway network;*
- *where needed, provide new infrastructure or improvements on or off site to ensure safe access from the highway network for pedestrians, cyclists, public transport users and private vehicles;*
- *be accompanied by a supporting Transport Assessment or Transport Statement where the development would generate significant trip generation, providing detail as to the impact on highway safety, air quality, noise and light restrictions;*
- *take into account changes in site levels and topography to ensure the development can be accessed easily and safely by all sections of the community and by different modes of transport;*
- *take into account the features of surrounding roads and footpaths and provide adequate layout and visibility to allow the development to be accessed safely;*
- *take into account access for emergency, service and refuse collection vehicles; and*
- *provide on-site safe, secure and convenient cycle parking/storage facilities to encourage sustainable travel modes.'*

6

2.3.6. Policy LP24 d(vi) states that all proposals shall incorporate 'adequate facilities to allow occupiers to separate and store waste for recycling and recovery that are well designed and visually unobtrusive and allows for the convenient collection of waste'.

KIRKLEES HIGHWAY DESIGN GUIDE SUPPLEMENTARY PLANNING DOCUMENT (SPD)

2.3.7. The Highway Design Guide (HDG) was adopted in November 2019 and specifies highway scheme design principles that reflect nationally recognised best practice. The SPD promotes a high standard of highway design that facilitates the delivery of high quality residential, employment and mixed-use development in Kirklees.

- 2.3.8. Various highway scheme design principles are included in the document including pedestrian movement, inclusive design, parking standards, emergency access, cycle infrastructure, the hierarchy and setting out of streets, how to accommodate the safe operation and manoeuvring of service vehicles and incorporating waste storage facilities in the context of highway impact.

3. Existing Situation

3.1. SITE DESCRIPTION

- 3.1.1. The site is located to the north of Blackmoorfoot Road, in the Crosland area of Huddersfield, approximately 4km south-west of Huddersfield town centre. Figure 1 in Section 1 of this report shows the location of the site.
- 3.1.2. The site is currently operated by Lowdham Leisureworld as a caravan sales and accessory centre, comprising open land with a two-storey building located in the southeast of the site.
- 3.1.3. There is an additional rectangular piece of land located to the east of the main sales area; this is at lower level than the main sales area and is separated by a hedge and set of steps.
- 3.1.4. The site is bounded to the north by residential dwellings off Greystone and Mason Court and to the south by a line of trees and Blackmoorfoot Road. To the east, the site is bound by a wall and Crosland Hill Road and to the west by Standard Drive.

8

3.2. EXISTING ACCESS

- 3.2.1. Access to the main area of the Site is off Blackmoorfoot Road, in the southwest corner of the site, currently via a controlled barrier.
- 3.2.2. The smaller parcel of land within the eastern half of the site has 2no. separate access points from Crosland Hill Road. These accesses are in the form of vehicular crossings with dropped kerbs and a gate to the back of the footway. The access points are currently not in use.

3.3. HIGHWAY NETWORK

- 3.3.1. Vehicular access is proposed to be taken from the southern boundary, from Blackmoorfoot Road, equidistant between Standard Drive and Crosland Drive, at a new priority junction. The existing second minor access from Crosland Hill Road will also be retained.
- 3.3.2. In the vicinity of the site, Blackmoorfoot Road is a 7.3m two-way single carriageway, subject to a 30mph speed limit. It has a footway provided to the northern kerbline which extends along the site boundary to the junction with Crosland Hill Road and along the eastern boundary of the site. To the southern kerbline there is a stone wall immediately adjacent to the traffic lanes.
- 3.3.3. Blackmoorfoot Lane meets Crosland Hill Road in the south-eastern corner of the site, at a simple priority T-junction. The Crosland Hill Road approach to the junction is split by a slightly raised traffic island to separate traffic onto Blackmoorfoot Road from an area in front of the adjacent bus stop. The access to the eastern part of the site is located 22 metres to the north of this junction.
- 3.3.4. Crosland Hill Road is a 5.5m wide two-way single carriageway, subject to a 30mph speed limit. It has a footway provided to either kerbline extending from the junction with Blackmoorfoot Road and with street lighting to a residential standard. The road passes through a residential area and as such Crosland Hill Road is characterised by on-street residential parking and driveways.
- 3.3.5. Blackmoorfoot Road links Marsden, (10 km to the west) to Huddersfield. As such it forms an important link into Huddersfield from the rural areas to the south-west.

COMMITTED HIGHWAY IMPROVEMENT

- 3.3.6. There is a committed improvement scheme for the Blackmoorfoot Road / Park Road signalled junction, which was agreed as part of the St Luke's Hospital Planning Application (Ref: 2014/93099)
- 3.3.7. The improvement scheme is shown on the BWB drawing LDS/1043/103-P2, attached at Appendix A. For the purposes of assessment of development impact, this improvement scheme is considered to be in place, in future years.

3.4. INJURY COLLISION RECORDS

- 3.4.1. Injury collision data has been obtained from 1 January 2018 to 31 December 2022 from the Crash Map website between the junctions of Blackmoorfoot Road with Sands House Lane and Crosland Hill Road.
- 3.4.2. There were two incidents over this period; both occurred at the junction with Crosland Hill Road. The incident reports are provided in Appendix B of this report. 10
- 3.4.3. Both incidents at Crosland Hill Road junction were classed as serious in severity. The first incident occurred in 2021 and involved a right turning vehicle crossing the path of an oncoming vehicle on Blackmoorfoot Road.
- 3.4.4. The second incident occurred in November 2021 when a vehicle was turning right into Crosland Hill Road from Blackmoorfoot Road. The vehicle struck two pedestrians crossing Crosland Hill Road. The incident report concludes the driver of the vehicle had failed to look properly.
- 3.4.5. Whilst any injury is regrettable, given the nature and low occurrence of incidents, it is therefore considered that there are no safety concerns, nor any safety trends on this section on the local highway network in the vicinity of the proposed development.

3.5. PEDESTRIANS AND CYCLISTS

WALKING

- 3.5.1. The national policy relating to transport and development is set out in the NPPF, however this does not provide guidance on desirable maximum walking distances from new developments. Reference has been made to “The Guidelines for Providing for Journeys on Foot” (Institution of Highways & Transportation, May 2000), which describe best practice in planning and providing for pedestrians within the UK policy and legislative framework. This allows an assessment of the sites compliance with policy guidance on recommended walking distances to local services for site user (as provided in Table 1 below).

TABLE 1. PREFERRED MAXIMUM WALKING DISTANCES

	Town Centre	Commuting / School / Sightseeing	Elsewhere
Desirable	200m	500m	400m
Acceptable	400m	1000m	800m
Preferred Maximum	800m	2000m	1200m

Source: Providing for Journeys on Foot (IHT, 2000)

- 3.5.2. The facilities within the preferred maximum walking distances are summarised in the Table 2 overleaf. The majority of facilities are located to the east of the site. The walking distances are measured from the main vehicular and pedestrian entrance on Blackmoorfoot Road.

11

TABLE 2. FACILITIES LOCATED WITHIN PREFERRED MAXIMUM WALKING DISTANCES

	Facilities
400m	Bus Stops, food and non-food retail, public house, residential areas
800m	Further Bus Stops, food and non-food retail, public house, residential areas, post office, beauty salon
1000m	Further Residential Areas
2000m	Train station, Further Bus Stops, Further Residential Areas, Pharmacy

BREEAM CONSIDERATIONS

3.5.3. The BREEAM Technical Manual states that the TA of a site is to include a report of the number and type of existing accessible amenities within 500m, these are summarised in Table 3 overleaf. Distances are taken from the closest access point to the facility.

TABLE 3. LOCAL AMENITIES AND THEIR DISTANCE FROM THE SITE

12

Amenities	Distance and Name of Amenity
Appropriate Food Outlet	Millies Coffee Shop (on site), The Sands House public house (100m) and Rising Sun public house (100m – from E access)
Access to Cash	None
Access to an Outdoor Public Space	None
Access to recreation/ leisure facility for fitness/sports	None
Publicly Available postal facility	None
Community Facility (defined as indoor areas for people to gather and socialise)	None
Over the counter pharmacy facilities	None
GP / medical surgery	None

- 3.5.4. Pedestrian infrastructure is summarised in section 3.2.
- 3.5.5. Residential areas are located adjacent to the site on Crosland Hill Road and also a short walk from the site with further residential development planned for the adjacent 'Blackcats' development to the west of the application site. This gives potential employees the opportunity to walk to / from the proposed development.

CYCLING

- 3.5.6. National and Local policy encourage sustainable development and a shift away from private car use, however, there is no specific recommended maximum cycle distances for access to services/leisure facilities from new developments stated within the NPPF or local planning policy.
- 3.5.7. It is noted that the distances people will be willing to travel on a bicycle will be highly variable depending on the type of development, site users and age profile as well as the perception of personal safety in the local environment. However, Local Transport Note 2/08 (published by the Department for Transport) does provide a useful reference point; it indicates that an acceptable distance for general trips by cycle is considered to be up to 5km, but it also acknowledges that this may be slightly longer (up to 8km) for those commuting to employment uses by cycle.
- 3.5.8. All local facilities and services as detailed in Table 2 above, can be accessed readily by bicycle using predominantly residential roads. Blackmoorfoot Road is subject to a 30-mph speed limit and so is appropriate for use by cyclists to the site. The residential areas identified as within walking distance of the site are of course similarly accessible by bicycle.
- 3.5.9. National Cycle Network Route 68 is accessible at a distance of approximately 3km to the west of the site at the Blackmoorfoot Reservoir. This section of the route provides a connection between Slaithwaite and Meltham.

13

- 3.5.10. The Huddersfield Narrow Canal cycle path links Huddersfield and Marsden and is accessible within a 2km cycle from the site entrance along Crosland Hill Road. The route between the site and this cycle route is on residential roads subject to a 30mph speed limit, or rural lanes.
- 3.5.11. In consideration of the above, it is considered that there are practical and convenient links available to and from the proposed development offering the potential for staff to walk or cycle to local facilities and residential areas.

3.6. PUBLIC TRANSPORT

BUSES

- 3.6.1. The access to the site is within 140m of bus stops on Blackmoorfoot Road at the existing site entrance to the west, and within 150m of bus stops at the junction of Blackmoorfoot Road and Crosland Hill Road to the east. All of these stops have flags and timetable cases and the stop on Crosland Hill Road has the benefit of a shelter. In this location there is an area where the bus can pull in, adjacent to the junction.
- 3.6.2. The above services provide connections Meltham, Slaithwaite and Huddersfield centre, from where further services can be accessed.
- 3.6.3. The table overleaf provides a summary of bus routes in the area and Figure 1 shows the location of the bus stops in relation to the site.

14

TABLE 4. SUMMARY OF BUS ROUTES

Route No	Route Summary	Frequency	
		Monday to Saturday	Late Eve & Sunday
389	Slaithwaite - Linthwaite - Blackmoorfoot - Holme - Meltham	Limited Service	-
393	Huddersfield - Thornton Lodge - Tom Lane - Linthwaite - Blackmoorfoot	60 mins	-

TRAINS

- 3.6.4. Lockwood Rail Station lies within a 2.5km cycle ride or walk to the east of the site. Lockwood station is on the Penistone Line running between Huddersfield and Sheffield. Lockwood station is the next stopping point on the line (5 minutes) for trains departing Huddersfield station. Huddersfield station is the second busiest station in the area and further local and national rail services can be accessed from here, including to Leeds, Bradford, Manchester, Sheffield, Liverpool, York and the Northeast.
- 3.6.5. The proposed development is considered to be well served by public transport, utilising stops that are well within the desirable and acceptable walking distance of 400m given in 'Providing for Journeys on Foot' and having a mainline station within reasonable cycling distance.

15

BREEAM ACCESSIBILITY INDEX

- 3.6.6. Reference has been made to the BREEAM Accessibility Index Methodology, which looks at the distance to the nodes of transport, the type and also the frequency of services within the default operating hours of the proposed building type, as documented within Table 7.2 of the BREEAM Manual.

- 3.6.7. For the purposes of the proposed development, the most appropriate building type is considered to be 'Commercial' which has operating hours of 8:00-19:00 (11 hours). The nearest Service Access Points (SAP's) are the bus stops on Blackmoorfoot Road and Balmoral Avenue. It should be noted that the bus stops on Balmoral Avenue provide additional services that are included in the BREEAM calculation, but these are greater than 400m from the site and have therefore not been covered in the Bus section above.
- 3.6.8. Based on the above and bus information from these stops the BREEAM AI has been calculated at the compliant nodes as detailed in Appendix C. In the calculations the frequency of services has been considered within the operating hours of the building.
- 3.6.9. The Accessibility for the site is calculated at as **2.9**.

4. The Development Proposals

4.1. PROPOSED DEVELOPMENT

- 4.1.1. The application is for a proposal for industrial units on the development site described above. Figure 1 in Section 1 shows the site location in relation to the local highway network.
- 4.1.2. The development proposals consist of 14 No. units amounting to 116,200 ft² (10,795m²) with a mix of B2 / B8 uses.
- 4.1.3. The proposed site layout is indicated on the drawing contained within Appendix D.

4.2. VEHICULAR SITE ACCESS

- 4.2.1. The primary vehicular access to the site will be taken from a single point off Blackmoorfoot Road, approximately at the middle of the southern boundary of the site. The proposed access is 7.3m wide with 9m corner radii. The existing boundary walls along Blackmoorfoot Road will be removed to ensure adequate visibility along Blackmoorfoot Road in both directions.
- 4.2.2. The existing site benefits from 2 no. access points (as vehicular crossings of the footway) from Crosland Hill Road as detailed in Section 3. The southern access will be closed and removed. The northern vehicular crossing point will be retained and will offer access to parking for a small number of units (No's 12 to 14) within the eastern part of the site as shown on the proposed site layout.
- 4.2.3. Drawings 2308201 and 2308202 in Appendix E indicate that visibility splays of 2.4m x 43m can be achieved in both directions from the proposed access and the existing access onto Crosland Hill Road. This is considered appropriate for the proposed development accesses.

17

4.3. PEDESTRIANS AND CYCLE ACCESS

- 4.3.1. The main pedestrian and cycle access to the development will be from the main site access junction on Blackmoorfoot Road. From the access, pedestrian footways on either side of the access road will continue into the site to all units.
- 4.3.2. Pedestrians and cyclists will also be able to access Units 12 to 14 from the existing entrance onto Crosland Hill Road.
- 4.3.3. A further pedestrian link will be provided from the south-western corner of the site close to Unit 2, to the existing bus stop on Blackmoorfoot Road adjacent to Standard Drive.
- 4.3.4. As part of the development, the existing footway along the northern kerbline of Blackmoorfoot Road will be widened. This will be achieved through removing the existing boundary walls. This will also provide appropriate visibility splays for the development access.
- 4.3.5. The footways will incorporate dropped kerbs and tactile paving where necessary, particularly to facilitate crossing of the main development access for those with visual impairments or in wheelchairs. These crossings will offer good visibility for pedestrians using them. All routes through the site will be clearly signposted and demarcated, and will be adequately lit, the detailed design of lighting will be the responsibility of the lighting engineer and will comply with building regulations. All crossing points within the site will be provided with dropped crossings and entry points to the buildings will have level access wherever possible.
- 4.3.6. Cyclists can use the vehicular entrance to access proposed cycle parking. The surrounding road network is relatively quiet and will facilitate safe and convenient cycle access to the site.

18

- 4.3.7. Given the nature of the proposed facility, there are no specific age-related requirements for pedestrians and cyclists accessing the building that need to be considered.

4.4. PARKING PROVISION

APPLICABLE STANDARDS

- 4.4.1. The Kirklees Highway Design Guide SPD does not offer parking standards for employment uses. The Kirklees Local Plan (KLP) states that car parking provision in new developments will be determined by the 'accessibility of the development, the type, mix and use of the development and the availability of public transport' among other criteria. KLP policy 22 also states that 'new developments will incorporate flexibly designed and sufficient parking provision for private cars' to provide 'safe, secure, convenient and visually unobtrusive car parking within a site' whilst also ensuring the parking meets the needs of disabled users, electric vehicle charging and also cyclists.
- 4.4.2. Therefore in this case it is considered appropriate to determine the operational parking requirement based on staff numbers, where known, and the predicted modal share for those travelling to work in this geographical area. This methodology is used in the following section.

19

PARKING REQUIREMENT - UNITS 1 & 2

- 4.4.3. At the time of writing the TA, proposed staff numbers are known for Units 1 and 2 only and are considered below. A different approach to estimating parking numbers for Units 3 to 14, as set out below.
- 4.4.4. The potential occupier of Units 1 and 2 has indicated that there will be around 100 and 24 staff members for units 1 and 2 respectively, on site at any one time.

- 4.4.5. The latest census data for Method of Travel to Work for Lower Super Output Areas (LSOA's) close to the site (E33012061, E33012062 and E33012072) have been extracted from the NOMIS website. Modal splits have been calculated using the proportion of residents who travel to a place of work; residents who mainly work from home have been excluded from the calculation. Therefore, the modal split is more representative of the employees on the site as the nature of operations means that they cannot work from home.
- 4.4.6. The modal splits have then been used to calculate the number of employees that might be expected to use a car to travel to work. A summary of the modal splits and the estimated number of staff using each model is shown in Table 4 overleaf.

TABLE 4: CENSUS MODAL SHARE DATA

Mode of Transport	2011 Census Data				Estimated number of Staff	
	LSOA Modal Share (%)			Average Modal Share (%)	Unit 1	Unit 2
	E33012061	E33012062	E33012072			
Train	0%	0%	0%	0.43%	0	0
Bus	0%	0%	1%	6.78%	7	2
Taxi	7%	9%	5%	0.27%	0	0
Motorcycle	0%	0%	1%	0.47%	0	0
Driver	0%	0%	1%	72.86%	73	17
Car Passenger	81%	69%	68%	8.97%	9	2
Bicycle	8%	10%	9%	1.36%	2	1
On foot	0%	1%	4%	8.85%	9	2
Total	100%	100%	100%	100%	100	24

21

4.4.7. Table 4 estimates that 90 car parking spaces might be required by Units 1 and 2. The parking provision on site has been indicated on the proposed layout in Appendix D. A total of 94 and 23 spaces are proposed for Units 1 and 2 respectively, where it is anticipated that the additional supply of car parking will be used by visitors or during shift changeovers, and by service vehicles.

PARKING REQUIREMENT UNIT 3 TO 14

4.4.8. The TRICS database has been examined to determine the appropriate trip generation rates per 100m² for the proposed industrial units. Trip rates for land use 02-D Employment: Industrial Estate has been identified and the TRICS database results can be found in Appendix F to this report.

4.4.9. The TRICS results have been used to assess the parking accumulation for the total floor area for Units 3-14 (4,120 sqm). The table overleaf shows the parking accumulation prepared using the TRICS data.

TABLE 5. PARKING ACCUMULATION – UNITS 3 TO 14 (4,120 SQM)

Time	Weekday		
	Arrivals	Departures	Acc.
07:00 - 07:30	4	0	4
07:30 - 08:00	8	4	8
08:00 - 08:30	25	7	27
08:30 - 09:00	16	7	35
09:00 - 09:30	7	4	38
09:30 - 10:00	6	7	37
10:00 - 10:30	11	8	40
10:30 - 11:00	20	13	47
11:00 - 11:30	16	16	47
11:30 - 12:00	11	16	42
12:00 - 12:30	21	23	41
12:30 - 13:00	18	23	37
13:00 - 13:30	11	16	33
13:30 - 14:00	20	16	37
14:00 - 14:30	18	20	35
14:30 - 15:00	17	18	34
15:00 - 15:30	11	7	38
15:30 - 16:00	7	14	31
16:00 - 16:30	8	13	27
16:30 - 17:00	7	17	17
17:00 - 17:30	10	21	6
17:30 - 18:00	1	6	1
18:00 - 18:30	0	1	0
18:30 - 19:00	0	0	0

- 4.4.10. The parking accumulation assessment has shown that parking demand for Units 3 to 14 will peak at 47 spaces.

PROPOSED PARKING

- 4.4.11. The parking provision proposed for the site has been indicated on the development layout in Appendix D with a total of 193 spaces provided across the site (73 spaces allocated to Units 3 to 14, 120 spaces to Units 1 to 2).
- 4.4.12. The additional spaces provided will facilitate staff changeovers, when parking demand is higher, and also provide for visitor parking. The availability of parking on the site will ensure that parking does not spill out to the local highway network.
- 4.4.13. All units will include at least one electric vehicle charging point (EVCP) as a minimum. 31 EVCP spaces (16%) are provided across the site; 12 of these are allocated to Unit 1, 4 are allocated to Unit 2 and the remainder across units 3 to 14.
- 4.4.14. All units will include at least one accessible space as a minimum. 22 accessible spaces (11%) are provided across the site; 6 of these are allocated to Unit 1 which is 6% of proposed parking for Unit 1, and 2 are allocated to Unit 2 which is 8% of the proposed total for Unit 2.
- 4.4.15. 10 no. car share parking spaces are provided at Unit 1, which is 11% of the total parking proposed at the unit.

23

CYCLE PARKING

- 4.4.16. In total 44 cycle stands are to be provided across the site; in general, 3 stands are provided for each unit (within the building itself), with 5 no. provided for Unit 2 in a secure external store.

- 4.4.17. Unit 1 will provide 9 cycle stands as a minimum and these will also be provided in a secure external shelter as indicated.

4.5. SERVICING

- 4.5.1. Access to the site for service vehicles, emergency vehicles and delivery vehicles (among others) will be taken from the main vehicular access onto Blackmoorfoot Road.

5. Development Assessment

5.1. TRAFFIC SURVEYS

5.1.1. Traffic surveys data was presented in the TA prepared by Optima and submitted in support of the previous residential planning application on the site (ref: 2021/93150).

This survey data is still considered suitable for use within this assessment.

5.1.2. Turning count surveys were undertaken at the following junctions:

- ✦ Junction 1 – Blackmoorfoot Road / Crosland Hill Road.
- ✦ Junction 2 – A62 Manchester Road / Whiteley Street / Deep Lane; and
- ✦ Junction 3 – Blackmoorfoot Road / Park Road.

5.1.3. The Manual Classified Count (MCC) was undertaken during May 2021 in the morning and evening periods, and the peak hours were identified as 0800 to 0900 and 1630 to 1730.

25

5.1.4. The traffic survey data in the TA has been used to assess the impact of the proposed industrial estate development on the local highway network.

5.1.5. The 2021 traffic count data for the peak hours, taken from the Optima transport assessment, is shown on the figures 2 and 3 contained in Appendix G.

5.2. TRAFFIC GROWTH

COVID GROWTH FACTOR

5.2.1. At the time of the 2021 traffic surveys, travel in the UK was still subject to some level of restriction due to COVID-19 pandemic.

- 5.2.2. The government published traffic data (on Gov.uk) taken throughout the COVID pandemic, which enables a comparison to be made of the traffic levels on a particular date and a day before the COVID pandemic in early 2019.
- 5.2.3. In order to account for the impact of COVID on traffic levels on the survey date, this data has been interrogated. It is identified that in May 2021, traffic levels were still 6.4% below the pre-pandemic levels. The data extracted from Gov.uk has been provided in Appendix H.
- 5.2.4. An adjustment factor of +6.4% has been applied to the 2021 base traffic flows to account for this. The resultant traffic flow diagrams are presented as Figures 4 and 5 in Appendix G.
- 5.2.5. It should be noted that summary data for national traffic levels for 2022 published in July 2023, indicates that traffic levels in May 2022 were still below those recorded in May 2018 by over 4%. Traffic levels in general 'had not yet reached those in 2016'. Thus, the application of the COVID adjustment detailed above will lead to a robust assessment of the 2024 base traffic flows.

26

BASE TRAFFIC GROWTH

- 5.2.6. TEMPro 8.1 was used to determine the National Traffic Model (NTM) factors between 2021 (traffic survey collection date), a planning submission date of 2024 and an assessment year of 2029. The following weekday peak hour factors are shown in the table overleaf.

TABLE 7 – TRAFFIC GROWTH FACTORS

	AM Peak (0800-0900)	PM Peak (1630-1730)
2021 to 2024	1.0411	1.0414
2024 to 2029	1.0580	1.0587

- 5.2.7. These base traffic growth factors were applied to the 2021 COVID-adjusted traffic flows to give the estimated traffic flows in 2024 and 2029. The traffic flow diagrams for the 2024 and 2029 AM and PM peak hours are provided on Figures 6 to 9 in Appendix G.

5.3. COMMITTED DEVELOPMENT

- 5.3.1. The following committed development, that has the benefit of planning permission, has been identified:

✦ **'Blackcats' residential development (Ref: 2020/92546):**

Outline application for the development of up to 770 residential dwellings including up to 70 care apartments with doctors' surgery of up to 350 sq m; up to 500 sq m of Use Class A1/A2/A3/A4/A5/D1 floorspace (dual use), vehicular and pedestrian access points off Blackmoorfoot Road and Felks Stile Road and associated works.

27

- 5.3.2. This development is located west of and adjacent to the proposed development. Access will be taken from a new priority junction onto Blackmoorfoot Road.
- 5.3.3. The traffic generation for this committed development has been taken from the TA addendum technical note, prepared by Eddisons and Croft Transport Consultants in 2021 (ref: Tech Note 5, June 2021).
- 5.3.4. The trip generation and distribution associated with the committed development for the AM and PM peak hours are shown in Figures 10 and 11 in Appendix I.

- 5.3.5. The combined 2024 and 2029 base traffic with committed development traffic flow diagrams for the AM (0800-0900) and PM (1630-1730) peak hours, are shown in Figures 12 to 15 in Appendix J.

5.4. TRAFFIC GENERATION

- 5.4.1. The TRICS database has been examined to determine the appropriate trip generation rates per 100m² for the proposed industrial units. Trip rates for land use 02-D Employment: Industrial Estate has been identified and the TRICS database results can be found in Appendix F to this report. The table below provides the AM (0800-0900) and PM peak (1630-1730) hour rates determined from these results and the associated traffic generations.

TABLE 8. TRIP RATES AND TRAFFIC IMPACT

	AM Peak Period			PM peak Period		
	Arr	Dep	Total	Arr	Dep	Total
Trip rate	0.465	0.233	0.698	0.194	0.438	0.632
Traffic Generation	50	25	75	21	47	68

28

- 5.4.2. Table 8 indicates that the proposed development might be expected to generate 75 and 68 two-way trips in the AM and PM peak periods respectively.
- 5.4.3. The trip generation of the existing site use has not been considered within the assessment of development trip generation. This therefore represents a robust assessment of the impact of the development trips on the local highway network associated with the proposed development.
- 5.4.4. The development trips presented in Table 8 have been distributed to the network as set out in Section 5.5 below.

5.5. TRAFFIC DISTRIBUTION

- 5.5.1. The 2011 Census travel to work data for the middle super output areas (MSOAs) Kirklees 047 and Kirklees 051 in which the site is located was used to determine a distribution of trips for which the site was the destination.
- 5.5.2. The traffic was assigned to each Local Authority area or MSOA (for finer grain analysis within Kirklees) centroid using Google maps for traffic leaving the site during the weekday morning peak hour. The shortest distance routing was used.
- 5.5.3. For a robust assessment, all trips generated by the development are assumed to use the main site access junction onto Blackmoorfoot Road.
- 5.5.4. The distribution calculation is included at Appendix I. The final traffic distribution diagram is shown in Figure 16 in Appendix I.
- 5.5.5. The trip generation and distribution associated with the proposed development for the AM and PM peak hours are shown in Figures 17 and 18 in Appendix J.
- 5.5.6. The combined 2024 and 2029 base plus committed plus development trip generation and distribution for the AM (0800-0900) and PM (1630-1730) peak hours, are shown in Figures 19 to 22 in Appendix J.

29

5.6. OPERATIONAL ASSESSMENT OF HIGHWAY NETWORK

- 5.6.1. It is considered that operational assessment is required of the following junctions to identify the impact of the development:
 - ✦ Site Access – Blackmoorfoot Road / Site Access Road.
 - ✦ Junction 1 – Blackmoorfoot Road / Crosland Hill Road; and
 - ✦ Junction 3 – Blackmoorfoot Road / Park Road.

- 5.6.2. Development traffic demand at junction 2 was found to be 30 and 26 two-way trips in the AM and PM peak periods respectively. This additional traffic uses the A62 mainline and would be within the daily fluctuations in traffic flows. As such, operational assessment of junction 2 was not considered necessary.
- 5.6.3. Junction 1 and the site access have been modelled using the PICADY function within the Junctions 9 software. Junction 3 (traffic signalled) has been modelled using LINSIG.

SITE ACCESS JUNCTION WITH BLACKMOORFOOT ROAD

- 5.6.4. The site access junction has been modelled by VIA using the PICADY function within the Junctions 9 software. For a robust assessment, all trips generated by the development are assumed to use the site access junction. The results of the modelling are shown in the following section and the full results are provided within Appendix K.

TABLE 9: BLACKMOORFOOT ROAD / SITE ACCESS JUNCTION ANALYSIS (BASE AND FUTURE SCENARIOS)

Approach	2029 Future Year			
	0800-0900		1630-1730	
	Max RFC	Max Queue	Max RFC	Max Queue
Base plus Committed plus Development Traffic				
Site Access	0.08	0.1	0.14	0.2
Blackmoorfoot Road	0.14	0.4	0.06	0.1

30

- 5.6.5. Within PICADY, a Ratio of Flow to Capacity (RFC) value below 0.85 indicates that a junction or arm operates within its predicted capacity. An RFC value between 0.85 and 1.00 indicates that there may be occasions during the period modelled when queues will develop, and delays will occur. An RFC value greater than 1.00 indicates that the junction or arm operates beyond its theoretical capacity.
- 5.6.6. Table 9 demonstrates that the junction operates within capacity in the robust 2029 design scenario with a maximum RFC of 0.14 and therefore can accommodate the proposed development.

JUNCTION 1: BLACKMOORFOOT ROAD / CROSLAND HILL ROAD

- 5.6.7. Junction 1 has been modelled by VIA using the PICADY function within the Junctions 9 software. The results are shown in the following section and the full results are provided within Appendix K.
- 5.6.8. Within PICADY, a Ratio of Flow to Capacity (RFC) value below 0.85 indicates that a junction or arm operates within its predicted capacity. An RFC value between 0.85 and 1.00 indicates that there may be occasions during the period modelled when queues will develop, and delays will occur. An RFC value greater than 1.00 indicates that the junction or arm operates beyond its theoretical capacity.

31

**TABLE 10: BLACKMOORFOOT ROAD / CROSLAND HILL ROAD JUNCTION ANALYSIS
(BASE AND FUTURE SCENARIOS)**

Approach	2024 Opening Year				2029 Future Year			
	0800-0900		1630-1730		0800-0900		1630-1730	
	Max RFC	Max Queue	Max RFC	Max Queue	Max RFC	Max Queue	Max RFC	Max Queue
Base Traffic								
Crosland Hill Road	0.23	0.3	0.17	0.2	0.24	0.3	0.18	0.2
Blackmoorfoot Road	0.07	0.1	0.11	0.2	0.08	0.1	0.12	0.2
Base plus Committed Development Traffic								
Crosland Hill Road	0.29	0.4	0.21	0.3	0.31	0.5	0.23	0.3
Blackmoorfoot Road	0.09	0.2	0.16	0.5	0.10	0.2	0.17	0.5
Base plus Committed plus Development Traffic								
Crosland Hill Road	-	-	-	-	0.9	0.6	0.34	0.5
Blackmoorfoot Road	-	-	-	-	0.22	0.5	0.23	0.7

32

- 5.6.9. Table 10 demonstrates that the junction operates within capacity in the robust 2029 design scenario with a maximum RFC of 0.34 and therefore can accommodate the proposed development.

JUNCTION 3: BLACKMOORFOOT ROAD / PARK ROAD

- 5.6.10. Junction 3 has been modelled by VIA using the signalled junction modelling software, LINSIG.
- 5.6.11. There is a committed improvement scheme for the Park Road signalled junction, agreed as part of the St Luke's Hospital Planning Application (Ref: 2014/93099). The improvement scheme is shown on the BWB drawing LDS/1043/103-P2, attached at Appendix A.
- 5.6.12. This improvement scheme was modelled and presented by Optima in the previous planning application for the development site. The model parameters for this were taken from Technical Note 4, prepared by Croft Transport Consultants in support of the Blackcats committed development planning application. This modelling approach has been replicated in this impact assessment.
- 5.6.13. The results of this modelling are shown in the following section and the full results are provided within Appendix L.

33

TABLE 11: BLACKMOORFOOT ROAD / PARK ROAD JUNCTION ANALYSIS (BASE AND FUTURE SCENARIOS)

Approach	2024 Opening Year				2029 Future Year			
	0800-0900		1630-1730		0800-0900		1630-1730	
	Max DoS	Mean Max Queue (PCUs)	Max DoS	Mean Max Queue (PCUs)	Max DoS	Mean Max Queue (PCUs)	Max DoS	Mean Max Queue (PCUs)
Base Traffic								
Blackmoorfoot Road (NE)	92.1	19.1	75.4	10.8	97.4	24.4	83.0	12.1
Park Road (W)	35.8	4.2	41.3	5.3	37.8	4.5	42.7	7.0
Blackmoorfoot Road (SW)	54.4	6.7	87.4	13.0	57.6	7.3	96.3	13.4
Park Road (E)	92.1	15.3	90.8	14.7	97.6	19.8	95.6	16.0
Reserve Capacity	-2.4		-0.9		-8.5		-7.0	
Base plus Committed Development Traffic								
Blackmoorfoot Road (NE)	-	-	-	-	107.6	51.9	113.5	63.3
Park Road (W)	-	-	-	-	40.8	4.6	47.5	5.9
Blackmoorfoot Road (SW)	-	-	-	-	104.3	36.7	121.2	76.2
Park Road (E)	-	-	-	-	110.2	40.0	115.4	51.1
Reserve Capacity	-		-		-22.4		-34.7	

34

TABLE 11 (CONT): BLACKMOORFOOT ROAD / PARK ROAD JUNCTION ANALYSIS (BASE AND FUTURE SCENARIOS)

Approach	2024 Opening Year				2029 Future Year			
	0800-0900		1630-1730		0800-0900		1630-1730	
	Max DoS	Mean Max Queue (PCUs)	Max DoS	Mean Max Queue (PCUs)	Max DoS	Mean Max Queue (PCUs)	Max DoS	Mean Max Queue (PCUs)
Base plus Committed plus Development Traffic								
Park Road (E)	-	-	-	-	110.4	61.3	114.8	67.4
Blackmoorfoot Road (SW)	-	-	-	-	41.0	4.6	47.6	5.9
Park Road (W)	-	-	-	-	106.0	41.0	124.6	85.6
Blackmoorfoot Road (NE)	-	-	-	-	112.5	45.4	116.2	53.0
Reserve Capacity	-		-		-25.0		-38.5	

35

- 5.6.14. A Degree of Saturation (DoS) on any link below 90% indicates that a junction or arm operates within its predicted capacity. A DoS value between 90 and 100% indicates that there may be occasions during the period modelled when queues will develop, and delays will occur. A DoS value greater than 100% indicates that the junction or arm operates beyond its theoretical capacity.
- 5.6.15. Table 11 demonstrates that Junction 3 operates over its theoretical capacity in the robust 2029 base plus committed development scenario with a maximum DoS of 110.2% and 121.2% in the AM and PM peak periods respectively. The addition of development traffic to the 2029 base plus committed development scenario increases the DoS to a maximum of 124.6%.

- 5.6.16. The pedestrian crossing stage has been assumed to run every cycle; in reality this regularity is unlikely. In practice, the junction is likely to operate with lower levels of delay and queueing and the results in Table 11 present is a robust estimation of operation.
- 5.6.17. As a junction approaches theoretical capacity (between a DoS of 90% and 100%), the junction will become unstable in operation, and small increases in traffic demand can result in significant changes in delay and queueing.
- 5.6.18. The proposed development generates 50 and 45 trips in the AM and PM peak respectively through Junction 3. The total traffic (2029 Base plus Committed) through the junction in the same periods are expected to be 2129 and 2171 pcu's respectively.
- 5.6.19. The proposed development trips therefore constitute a very small increase in the base traffic (around 2%). However, in reality this figure will be even lower given that some of this development traffic is more likely to divert onto less congested routes in the area to avoid Junction 3.
- 5.6.20. As noted in section 4.2, the addition of COVID factors and base traffic growth have created very robust baseline traffic flows to be used in the impact assessment.
- 5.6.21. Further, the traffic generation of the existing uses of the site have not been accounted for in the estimation of trips generated. Thus, the net trip generation of the proposed development is likely to be lower than number of trips predicted in Table 8.
- 5.6.22. As such, it is considered that the development will not have a significant impact on the operation of Junction 3 in comparison to base traffic growth and committed development impact.

36

5.7. COMPLIANCE WITH NATIONAL AND LOCAL PLANNING POLICIES

- 5.7.1. The proposed development is considered to be located in a sustainable location and provides access by a genuine range of transport modes which accords with paragraph 103 of the new NPPF.
- 5.7.2. This report has shown that a safe means of access to and from the site for all road users is achievable and the traffic impact of the development is considered to be negligible (paragraph 110 refers).
- 5.7.3. The proposals are considered to be safe and do not result in any severe residual cumulative highway impacts, and therefore comply with paragraph 111. Access for pedestrians and cyclists and all motor vehicles is shown to be safely achieved (paragraph 112).
- 5.7.4. Therefore, the proposals comply with the national and local policies described in Section 2 of this report.

37

6. Conclusion

- 6.1.1. This Transport Assessment assesses the characteristics of the existing infrastructure in the surrounding area of the site and predicts the development generated traffic. It concludes that the adjacent highway network can adequately accommodate the traffic impact of the proposed development in terms of safety and capacity.
- 6.1.2. This assessment has considered the existing and proposed operation of the highway in terms of highway safety, sustainability and capacity. It has shown that the predicted traffic from the proposed development will have no significant impact on any of the junctions in close proximity to the site.
- 6.1.3. The site is considered to be in a sustainable location with a range of local services and facilities that can be accessed on foot and by cycle and also gives easy access to the local residential areas. Bus services operate near the site and other public transport options lie within a short walk or cycle.
- 6.1.4. In conclusion, it has been demonstrated that the proposed development can be accommodated on the adjacent highway network without any significant negative impact and there are therefore no highway capacity or safety reasons why this development should not be granted planning approval.

38

APPENDICES

APPENDIX A: Committed Highway Improvement Scheme Drawing



crashmap.co.uk

Validated Data

Crash Date: Friday, November 27, 2020 **Time of Crash:** 4:38:00 PM **Crash Reference:** 2020137BR1186

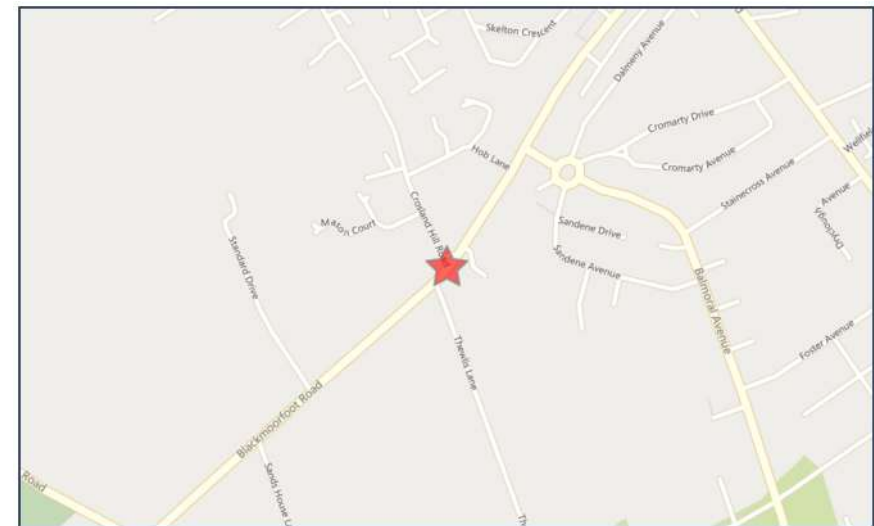
Highest Injury Severity: Serious
Highway Authority: Kirklees
Local Authority: Kirklees
Weather Description: Fine without high winds
Road Surface Description: Wet or Damp
Speed Limit: 30
Light Conditions: Darkness: street lights present and lit
Carriageway Hazards: None
Junction Detail: T or staggered junction
Junction Pedestrian Crossing: No physical crossing facility within 50 metres
Road Type: Single carriageway
Junction Control: Give way or uncontrolled

Road Number: U0

Number of Casualties: 2

Number of Vehicles: 1

OS Grid Reference: 411832 414743



For more information about the data please visit: www.crashmap.co.uk/home/Faq

To subscribe to unlimited reports using CrashMap Pro visit www.crashmap.co.uk/Home/Premium_Services

APPENDIX B: Collision Data



Validated Data

Vehicles involved

Vehicle Ref	Vehicle Type	Vehicle Age	Driver Gender	Driver Age Band	Vehicle Manoeuvre	First Point of Impact	Journey Purpose	Hit Object - On Carriageway	Hit Object - Off Carriageway
1	Car (excluding private hire)	16	Male	46 - 55	Vehicle is in the act of turning right	Offside	Journey as part of work	None	None

Casualties

Vehicle Ref	Casualty Ref	Injury Severity	Casualty Class	Gender	Age Band	Pedestrian Location	Pedestrian Movement
1	1	Serious	Pedestrian	Male	56 - 65	In carriageway, crossing elsewhere	Crossing from driver's nearside
1	2	Slight	Pedestrian	Female	66 - 75	In carriageway, crossing elsewhere	Crossing from driver's nearside

For more information about the data please visit: www.crashmap.co.uk/home/Faq

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crashmap.co.uk

Validated Data

Crash Date: Saturday, June 05, 2021 **Time of Crash:** 5:30:00 PM **Crash Reference:** 2021131052673

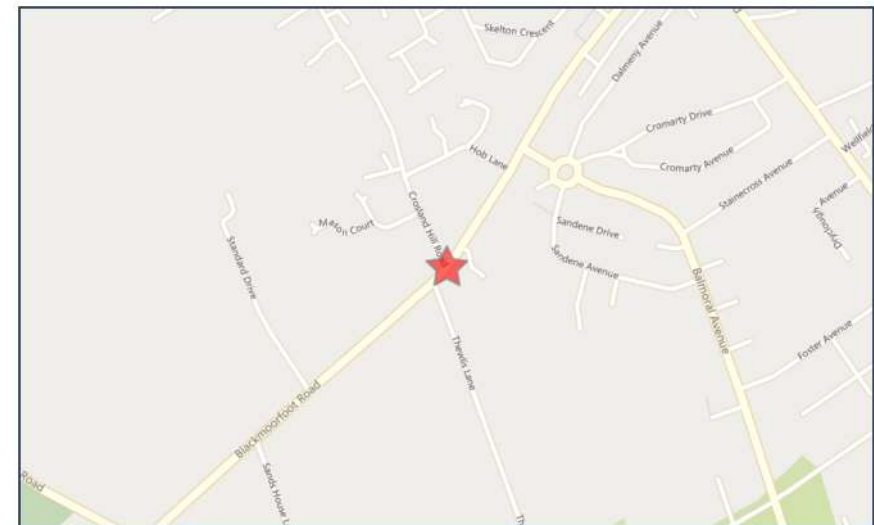
Highest Injury Severity: Serious
Highway Authority: Kirklees
Local Authority: Kirklees
Weather Description: Fine without high winds
Road Surface Description: Dry
Speed Limit: 40
Light Conditions: Daylight: regardless of presence of streetlights
Carriageway Hazards: None
Junction Detail: Other junction
Junction Pedestrian Crossing: No physical crossing facility within 50 metres
Road Type: Single carriageway
Junction Control: Stop sign

Road Number: U0

Number of Casualties: 1

Number of Vehicles: 2

OS Grid Reference: 411835 414742



For more information about the data please visit: www.crashmap.co.uk/home/Faq

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Validated Data

Vehicles involved

Vehicle Ref	Vehicle Type	Vehicle Age	Driver Gender	Driver Age Band	Vehicle Maneuvre	First Point of Impact	Journey Purpose	Hit Object - On Carriageway	Hit Object - Off Carriageway
1	Car (excluding private hire)	12	Male	46 - 55	Vehicle proceeding normally along the carriageway, not on a bend	Front	Unknown	None	None
2	Car (excluding private hire)	4	Male	26 - 35	Vehicle is in the act of turning right	Back	Unknown	None	None

Casualties

Vehicle Ref	Casualty Ref	Injury Severity	Casualty Class	Gender	Age Band	Pedestrian Location	Pedestrian Movement
2	1	Serious	Driver or rider	Male	26 - 35	Unknown or other	Unknown or other

For more information about the data please visit: www.crashmap.co.uk/home/Faq

To subscribe to unlimited reports using CrashMap Pro visit www.crashmap.co.uk/Home/Premium_Services

APPENDIX C: BREEAM ACCESSIBILITY INDEX

BREEAM ACCESSIBILITY INDEX CALCULATION -

Walking Speed (m per minute)	Distance to compliant node*	Walk time
80	320	4

Service	328					
Av. Frequency (PER HOUR) from Weekly Frequency table below	2.79					
Scheduled Wait Time (SWT)	10.75					
Average Wait Time (AWT) = SWT+2**	12.75					
Total Access Time (TAT)	16.75					
EDF Weighting	1					
Equivalent Doorstep Frequency (EDF)	1.79					
Accessibility Index (AI) =	1.79					

* Compliant Node - bus stops located within 650m walk distance of the site, train station within 1000m to the site

**Reliability factor for 2 mins for buses

Calculating Frequency

Service No.	No. hours building operating	no services per day Monday to Friday within operating period	Monday to Friday Av. frequency / hour	no. services per day Saturday (in operating period)	Saturday Av. Frequency/hour	no. services per day Sunday (in operating period)	Sunday frequency	weekly Frequency
328	11	50	4.5454545	42	3.818182	0	0	2.79

BREEAM ACCESSIBILITY INDEX CALCULATION -

Walking Speed (m per minute)	Distance to compliant node*	Walk time
80	10	0.125

Service	393	389	387	328	S14	431
Av. Frequency (PER HOUR) from Weekly Frequency table below	0.61	0.06				
Scheduled Wait Time (SWT)	49.18	500				
Average Wait Time (AWT) = SWT+2**	51.18	502				
Total Access Time (TAT)	51.31	502.125				
EDF Weighting	1	0.5				
Equivalent Doorstep Frequency (EDF)	0.58	0.03				
Accessibility Index (AI) =	0.61					

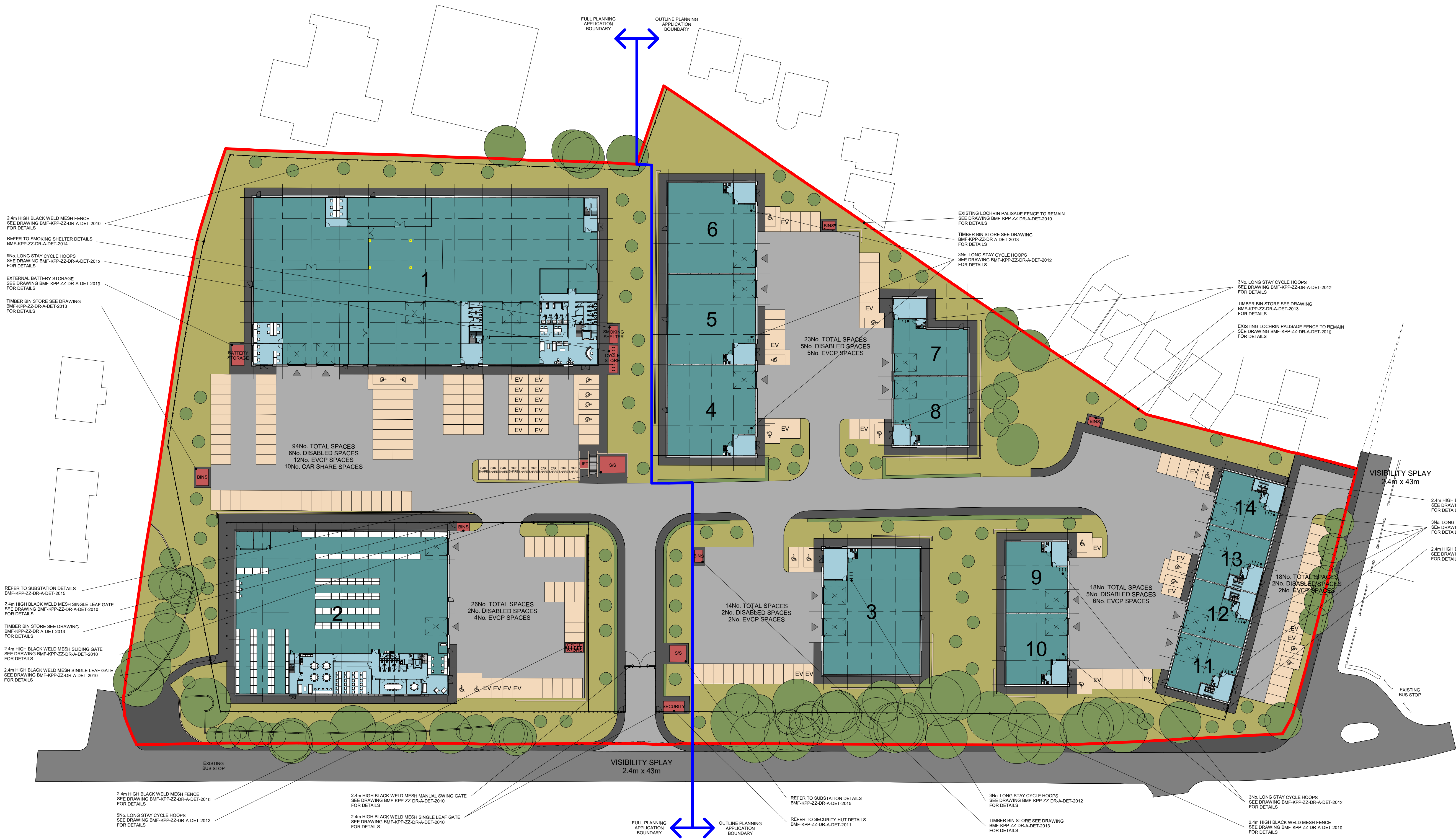
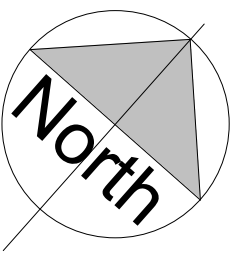
* Compliant Node - bus stops located within 650m walk distance of the site, train station within 1000m to the site

**Reliability factor for 2 mins for buses

Calculating Frequency

Service No.	No. hours building operating	no services per day Monday to Friday within operating period	Monday to Friday Av. frequency / hour	no. services per day Saturday (in operating period)	Saturday Av. Frequency/hour	no. services per day Sunday (in operating period)	Sunday frequency	weekly Frequency
393	11	10	0.9090909	10	0.909091	0	0	0.61
389	11	2	0.1818182	0	0	0	0	0.06

APPENDIX D: Proposed Development Layout



TOTAL GIAs

UNIT 1	47,500 SQFT
UNIT 2	24,350 SQFT
UNIT 3	7,200 SQFT
UNIT 4	4,750 SQFT
UNIT 5	4,750 SQFT
UNIT 6	4,750 SQFT
UNIT 7	2,500 SQFT
UNIT 8	3,000 SQFT
UNIT 9	2,500 SQFT
UNIT 10	2,500 SQFT
UNIT 11	3,100 SQFT
UNIT 12	3,100 SQFT
UNIT 13	3,100 SQFT
UNIT 14	3,100 SQFT

TOTAL 116,200 SQFT

A	UPDATED TO SUIT LATEST UNIT LAYOUTS	SD	APR'24
B	PROPOSED FOOTPATH ON BLACKMOORFOOT ROAD UPDATED AND RED LINE BOUNDARY SHOWN	SD	MAY'24
C	UPDATED TO SHOW ADDITIONAL PEDESTRIAN ACCESS	SD	MAY'24
D	UPDATED TO SHOW ADDITIONAL S/S & BATTERY STORAGE	SD	MAY'24
E	TREES UPDATED TO SUIT ARBORICULTURAL IMPACT ASSESSMENT	SD	MAY'24
F	UPDATED TO SUIT PROPOSED LANDSCAPING PLAN	SD	MAY'24
G	UPDATED TO INCLUDE AREAS SCHEDULE	SD	JUNE'24
H	UPDATED TO SUIT POTENTIAL END USER REQUIREMENTS	SD	JULY'24
J	UPDATED TO SUIT POTENTIAL END USER REQUIREMENTS	SD	AUG'24
K	UPDATED TO SUIT POTENTIAL END USER REQUIREMENTS	SD	AUG'24
L	UPDATED TO SUIT POTENTIAL END USER REQUIREMENTS	SD	AUG'24
M	UNIT 3 BUILDING FOOTPRINT UPDATED	SD	AUG'24
N	GENERAL UPDATES	SD	AUG'24

Rev	Description	By	Chkd	Date
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Client

PARK VALLEY HUDDERSFIELD

Project Title

BLACKMOORFOOT ROAD,
HUDDERSFIELD

Drawing Title

PROPOSED SITE PLAN

KPP
ARCHITECTS

Lodge House
12 Town Street
Horsforth, Leeds LS18 4RJ

T : +44 (0) 113 2390460
E : architects@kpp-leeds.co.uk
W : www.kpp-leeds.co.uk

Scale	Size	Date	Drawn	Checked
1 : 500	A1	APR'24	SD	JM

Status

PLANNING

KPP Job No.

2406

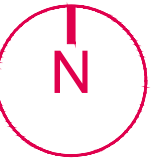
Project Originator Level Type Role Class Number

BMF-KPP-ZZ-DR-A-GA- 2007

Revision

N

APPENDIX E: Access Arrangements



REV.	AMENDMENTS	DATE
A	REVISED LAYOUT	11/06
B	REVISED LAYOUT	03/09



VIASOLUTIONS

THE OLD COACH HOUSE
1 CAMPBELL STREET
PUDSEY
LS28 6DP
tel: 0113 3453957
email: highwaymen@viasolutions.co.uk

BLACKMOORFOOT RD

HUDDERSFIELD

VISIBILITY SPLAY TO THE EAST

NOTES

1. THIS DRAWING SHOWS THE PRELIMINARY LAYOUT ONLY (NOT TO BE USED FOR CONSTRUCTION) AND IS SUBJECT TO DETAILED DESIGN, FULL CDM COMPLIANCE, STATUTORY UNDERTAKERS SEARCH/DIVERSION REQUIREMENTS, HIGHWAY DRAINAGE PROVISION, LAND OWNERSHIP AND LOCAL AUTHORITY APPROVAL.

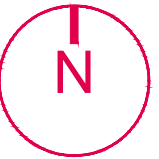
2. ORDNANCE SURVEY (C) CROWN COPYRIGHT 2023. ALL RIGHTS RESERVED. LICENCE NUMBER 1000224323

SCALE: 1:500 @A3

DATE: SEP 2024

DRAWING NO: 2308201

STATUS: - REVISION: B



NOTES

1. THIS DRAWING SHOWS THE PRELIMINARY LAYOUT ONLY (NOT TO BE USED FOR CONSTRUCTION) AND IS SUBJECT TO DETAILED DESIGN, FULL CDM COMPLIANCE, STATUTORY UNDERTAKERS SEARCH/DIVERSION REQUIREMENTS, HIGHWAY DRAINAGE PROVISION, LAND OWNERSHIP AND LOCAL AUTHORITY APPROVAL.
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REV.	AMENDMENTS	DATE
A	REVISED LAYOUT	11/06
B	REVISED LAYOUT	03/09



VIASOLUTIONS

THE OLD COACH HOUSE
1 CAMPBELL STREET
PUDSEY
LS28 6DP
tel: 0113 3453957
email: highwaymen@viasolutions.co.uk

BLACKMOORFOOT RD

HUDDERSFIELD

VISIBILITY SPLAY TO THE EAST

SCALE: 1:500 @A3

DATE: SEP 2024

DRAWING NO: 2308202

STATUS: – REVISION: B

APPENDIX F: TRICS Data Output

Calculation Reference: AUDIT-407201-231110-1103

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 02 - EMPLOYMENT
 Category : D - INDUSTRIAL ESTATE
 TOTAL VEHICLES

Selected regions and areas:

02	SOUTH EAST	
	EX ESSEX	2 days
03	SOUTH WEST	
	DV DEVON	1 days
	SD SWINDON	1 days
	SM SOMERSET	1 days
04	EAST ANGLIA	
	NF NORFOLK	1 days
	SF SUFFOLK	1 days
05	EAST MIDLANDS	
	DY DERBY	1 days
	LN LINCOLNSHIRE	1 days
06	WEST MIDLANDS	
	WO WORCESTERSHIRE	1 days
07	YORKSHIRE & NORTH LINCOLNSHIRE	
	AK WAKEFIELD	2 days
	AL CALDERDALE	1 days
	DR DONCASTER	1 days
08	NORTH WEST	
	GM GREATER MANCHESTER	1 days
	LC LANCASHIRE	3 days
09	NORTH	
	TW TYNE & WEAR	2 days
10	WALES	
	SW SWANSEA	2 days
11	SCOTLAND	
	FI FIFE	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: 3191 to 12000 (units: sqm)
 Range Selected by User: 3000 to 12000 (units: sqm)

Parking Spaces Range: All Surveys Included

Public Transport Provision:

Selection by: Include all surveys

Date Range: 01/01/15 to 14/09/22

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	3 days
Tuesday	5 days
Wednesday	6 days
Thursday	5 days
Friday	4 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 undertaken using machines.

Selected Locations:

Suburban Area (PPS6 Out of Centre)	7
Edge of Town	15
Free Standing (PPS6 Out of Town)	1

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

Selected Location Sub Categories:

Industrial Zone	11
Development Zone	1
Residential Zone	4
Out of Town	1
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	4 days - Selected
Servicing vehicles Excluded	19 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

Secondary Filtering selection (Cont.):

Population within 1 mile:

1,000 or Less	1 days
1,001 to 5,000	1 days
5,001 to 10,000	2 days
10,001 to 15,000	7 days
15,001 to 20,000	4 days
20,001 to 25,000	1 days
25,001 to 50,000	7 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
100,001 to 125,000	1 days
125,001 to 250,000	17 days
250,001 to 500,000	4 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	13 days
1.1 to 1.5	9 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:

No	23 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.

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

LIST OF SITES relevant to selection parameters

1	AK-02-D-02 PIONEER WAY CASTLEFORD	INDUSTRIAL ESTATE (PART)	WAKEFIELD
	Edge of Town Industrial Zone Total Gross floor area:	4328 sqm	
	Survey date: TUESDAY	23/05/17	Survey Type: MANUAL
2	AK-02-D-03 THUNDERHEAD RIDGE RD CASTLEFORD GLASSHOUGHTON	INDUSTRIAL ESTATE	WAKEFIELD
	Edge of Town No Sub Category Total Gross floor area:	3191 sqm	
	Survey date: MONDAY	15/05/17	Survey Type: MANUAL
3	AL-02-D-01 MILL LANE HALIFAX	INDUSTRIAL ESTATE	CALDERDALE
	Edge of Town No Sub Category Total Gross floor area:	11305 sqm	
	Survey date: WEDNESDAY	17/10/18	Survey Type: MANUAL
4	DR-02-D-03 MIDDLE BANK DONCASTER	INDUSTRIAL ESTATE	DONCASTER
	Suburban Area (PPS6 Out of Centre) Industrial Zone Total Gross floor area:	6737 sqm	
	Survey date: TUESDAY	21/09/21	Survey Type: MANUAL
5	DV-02-D-07 BITTERN ROAD EXETER SOWTON IND. ESTATE	INDUSTRIAL ESTATE	DEVON
	Edge of Town Industrial Zone Total Gross floor area:	3600 sqm	
	Survey date: MONDAY	03/07/17	Survey Type: MANUAL
6	DY-02-D-01 SHAFTESBURY STREET DERBY ROSE HILL	INDUSTRIAL ESTATE	DERBY
	Suburban Area (PPS6 Out of Centre) No Sub Category Total Gross floor area:	5686 sqm	
	Survey date: WEDNESDAY	25/09/19	Survey Type: MANUAL
7	EX-02-D-03 WYNCOLLS ROAD COLCHESTER SEVERALLS INDUSTRIAL PK	INDUSTRIAL ESTATE	ESSEX
	Edge of Town Industrial Zone Total Gross floor area:	4876 sqm	
	Survey date: FRIDAY	18/05/18	Survey Type: MANUAL

LIST OF SITES relevant to selection parameters (Cont.)

8	EX-02-D-05	INDUSTRIAL ESTATE	ESSEX
	HECKWORTH CLOSE		
	COLCHESTER		
	SEVERALLS INDUSTRIAL PK		
	Edge of Town		
	Industrial Zone		
	Total Gross floor area:	7280 sqm	
	Survey date: FRIDAY	18/05/18	Survey Type: MANUAL
9	FI-02-D-01	INDUSTRIAL ESTATE	FIFE
	DICKSON STREET		
	DUNFERMLINE		
	Edge of Town		
	Residential Zone		
	Total Gross floor area:	7850 sqm	
	Survey date: THURSDAY	21/05/15	Survey Type: MANUAL
10	GM-02-D-07	BUSINESS PARK	GREATER MANCHESTER
	VULCAN STREET		
	OLDHAM		
	Suburban Area (PPS6 Out of Centre)		
	Residential Zone		
	Total Gross floor area:	4400 sqm	
	Survey date: THURSDAY	22/10/15	Survey Type: MANUAL
11	LC-02-D-06	INDUSTRIAL ESTATE	LANCASHIRE
	SMALLSHAW LANE		
	BURNLEY		
	Suburban Area (PPS6 Out of Centre)		
	Industrial Zone		
	Total Gross floor area:	7383 sqm	
	Survey date: THURSDAY	29/09/16	Survey Type: MANUAL
12	LC-02-D-07	INDUSTRIAL ESTATE	LANCASHIRE
	CHAIN CAUL WAY		
	PRESTON		
	ASHTON-ON-RIBBLE		
	Edge of Town		
	Industrial Zone		
	Total Gross floor area:	4700 sqm	
	Survey date: FRIDAY	17/11/17	Survey Type: MANUAL
13	LC-02-D-08	INDUSTRIAL ESTATE	LANCASHIRE
	NOOK LANE		
	BAMBER BRIDGE		
	Edge of Town		
	Industrial Zone		
	Total Gross floor area:	4000 sqm	
	Survey date: TUESDAY	06/11/18	Survey Type: MANUAL
14	LN-02-D-03	INDUSTRIAL ESTATE	LINCOLNSHIRE
	DEACON ROAD		
	LINCOLN		
	Edge of Town		
	Industrial Zone		
	Total Gross floor area:	11265 sqm	
	Survey date: FRIDAY	28/06/19	Survey Type: MANUAL

LIST OF SITES relevant to selection parameters (Cont.)

15	NF-02-D-04 INDUSTRIAL ESTATE DRAYTON HIGH ROAD NORWICH	NORFOLK
	Edge of Town No Sub Category Total Gross floor area: 10673 sqm Survey date: WEDNESDAY 14/09/22	Survey Type: MANUAL
16	SD-02-D-01 INDUSTRIAL ESTATE HEADLANDS GROVE SWINDON	SWINDON
	Suburban Area (PPS6 Out of Centre) Residential Zone Total Gross floor area: 10000 sqm Survey date: TUESDAY 20/09/16	Survey Type: MANUAL
17	SF-02-D-03 INDUSTRIAL ESTATE LANDSEER ROAD IPSWICH	SUFFOLK
	Suburban Area (PPS6 Out of Centre) No Sub Category Total Gross floor area: 3550 sqm Survey date: THURSDAY 17/09/20	Survey Type: MANUAL
18	SM-02-D-01 INDUSTRIAL ESTATE A359 YEOVIL SPARKFORD Free Standing (PPS6 Out of Town) Out of Town Total Gross floor area: 12000 sqm Survey date: WEDNESDAY 03/04/19	SOMERSET
19	SW-02-D-01 INDUSTRIAL ESTATE UPPER FOREST WAY SWANSEA SWANSEA ENTERPRISE PK Edge of Town Industrial Zone Total Gross floor area: 6822 sqm Survey date: WEDNESDAY 09/10/19	SWANSEA
20	SW-02-D-02 INDUSTRIAL ESTATE CLARION COURT SWANSEA SWANSEA ENTERPRISE PK Edge of Town Industrial Zone Total Gross floor area: 5280 sqm Survey date: THURSDAY 10/10/19	SWANSEA
21	TW-02-D-08 INDUSTRIAL ESTATE NORTH HYLTON ROAD SUNDERLAND SOUTHWICK Suburban Area (PPS6 Out of Centre) Development Zone Total Gross floor area: 8310 sqm Survey date: TUESDAY 04/04/17	TYNE & WEAR
		Survey Type: MANUAL

LIST OF SITES relevant to selection parameters (Cont.)

22	TW-02-D-09	INDUSTRIAL ESTATE	TYNE & WEAR
	ELEVENTH AVENUE		
	GATESHEAD		
	TEAM VALLEY		
	Edge of Town		
	No Sub Category		
	Total Gross floor area:	6200 sqm	
	Survey date: WEDNESDAY	18/05/22	Survey Type: MANUAL
23	WO-02-D-02	INDUSTRIAL ESTATE	WORCESTERSHIRE
	WEIR LANE		
	WORCESTER		
	Edge of Town		
	Residential Zone		
	Total Gross floor area:	9500 sqm	
	Survey date: MONDAY	14/11/16	Survey Type: MANUAL

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

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

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 00:30									
00:30 - 01:00									
01:00 - 01:30									
01:30 - 02:00									
02:00 - 02:30									
02:30 - 03:00									
03:00 - 03:30									
03:30 - 04:00									
04:00 - 04:30									
04:30 - 05:00									
05:00 - 05:30	6	6900	0.056	6	6900	0.002	6	6900	0.058
05:30 - 06:00	6	6900	0.077	6	6900	0.002	6	6900	0.079
06:00 - 06:30	7	7523	0.047	7	7523	0.013	7	7523	0.060
06:30 - 07:00	7	7523	0.065	7	7523	0.015	7	7523	0.080
07:00 - 07:30	23	6910	0.133	23	6910	0.044	23	6910	0.177
07:30 - 08:00	23	6910	0.226	23	6910	0.062	23	6910	0.288
08:00 - 08:30	23	6910	0.240	23	6910	0.108	23	6910	0.348
08:30 - 09:00	23	6910	0.225	23	6910	0.125	23	6910	0.350
09:00 - 09:30	23	6910	0.243	23	6910	0.182	23	6910	0.425
09:30 - 10:00	23	6910	0.213	23	6910	0.165	23	6910	0.378
10:00 - 10:30	23	6910	0.188	23	6910	0.173	23	6910	0.361
10:30 - 11:00	23	6910	0.182	23	6910	0.161	23	6910	0.343
11:00 - 11:30	23	6910	0.190	23	6910	0.184	23	6910	0.374
11:30 - 12:00	23	6910	0.206	23	6910	0.216	23	6910	0.422
12:00 - 12:30	23	6910	0.190	23	6910	0.197	23	6910	0.387
12:30 - 13:00	23	6910	0.198	23	6910	0.213	23	6910	0.411
13:00 - 13:30	23	6910	0.194	23	6910	0.208	23	6910	0.402
13:30 - 14:00	23	6910	0.201	23	6910	0.203	23	6910	0.404
14:00 - 14:30	23	6910	0.171	23	6910	0.211	23	6910	0.382
14:30 - 15:00	23	6910	0.171	23	6910	0.193	23	6910	0.364
15:00 - 15:30	23	6910	0.145	23	6910	0.179	23	6910	0.324
15:30 - 16:00	23	6910	0.166	23	6910	0.190	23	6910	0.356
16:00 - 16:30	23	6910	0.172	23	6910	0.220	23	6910	0.392
16:30 - 17:00	23	6910	0.143	23	6910	0.257	23	6910	0.400
17:00 - 17:30	23	6910	0.098	23	6910	0.260	23	6910	0.358
17:30 - 18:00	23	6910	0.096	23	6910	0.178	23	6910	0.274
18:00 - 18:30	23	6910	0.041	23	6910	0.101	23	6910	0.142
18:30 - 19:00	23	6910	0.034	23	6910	0.073	23	6910	0.107
19:00 - 19:30	7	7523	0.009	7	7523	0.061	7	7523	0.070
19:30 - 20:00	7	7523	0.006	7	7523	0.055	7	7523	0.061
20:00 - 20:30	7	7523	0.002	7	7523	0.019	7	7523	0.021
20:30 - 21:00	7	7523	0.004	7	7523	0.011	7	7523	0.015
21:00 - 21:30									
21:30 - 22:00									
22:00 - 22:30									
22:30 - 23:00									
23:00 - 23:30									
23:30 - 24:00									
Total Rates:			4.332			4.281			8.613

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

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

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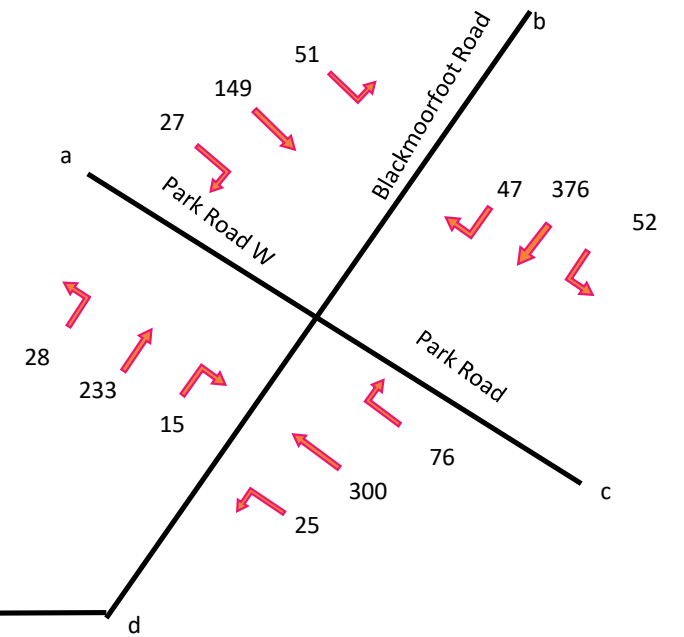
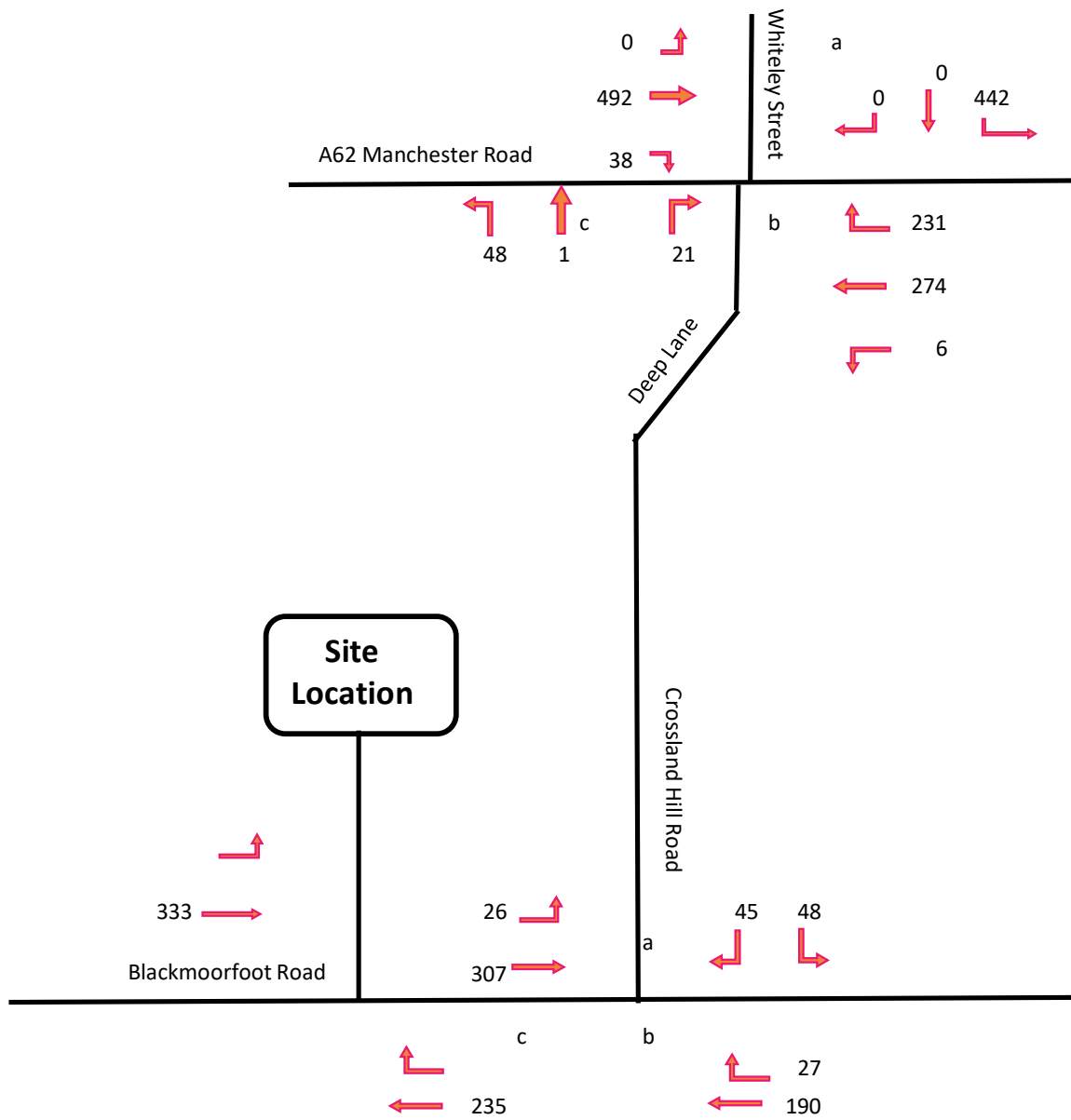
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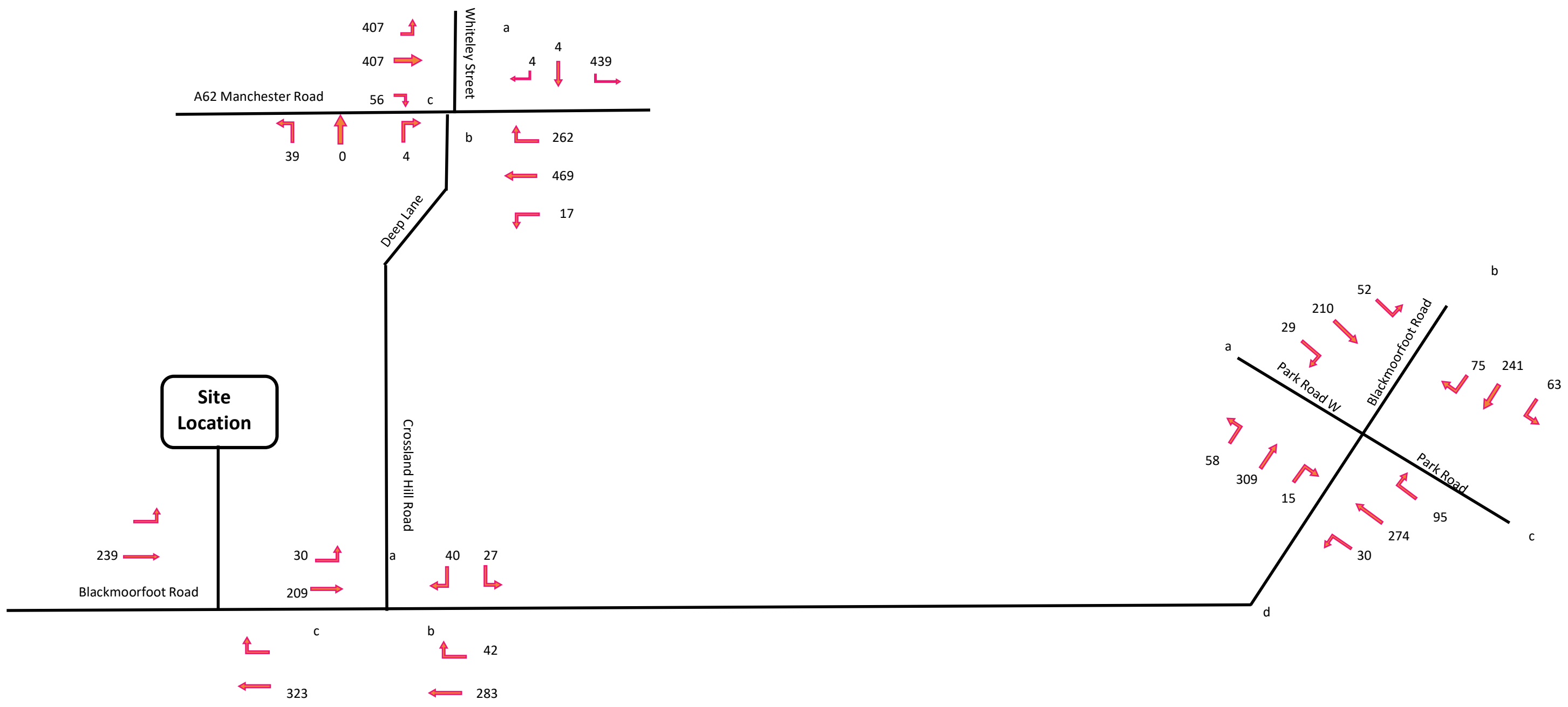
Parameter summary

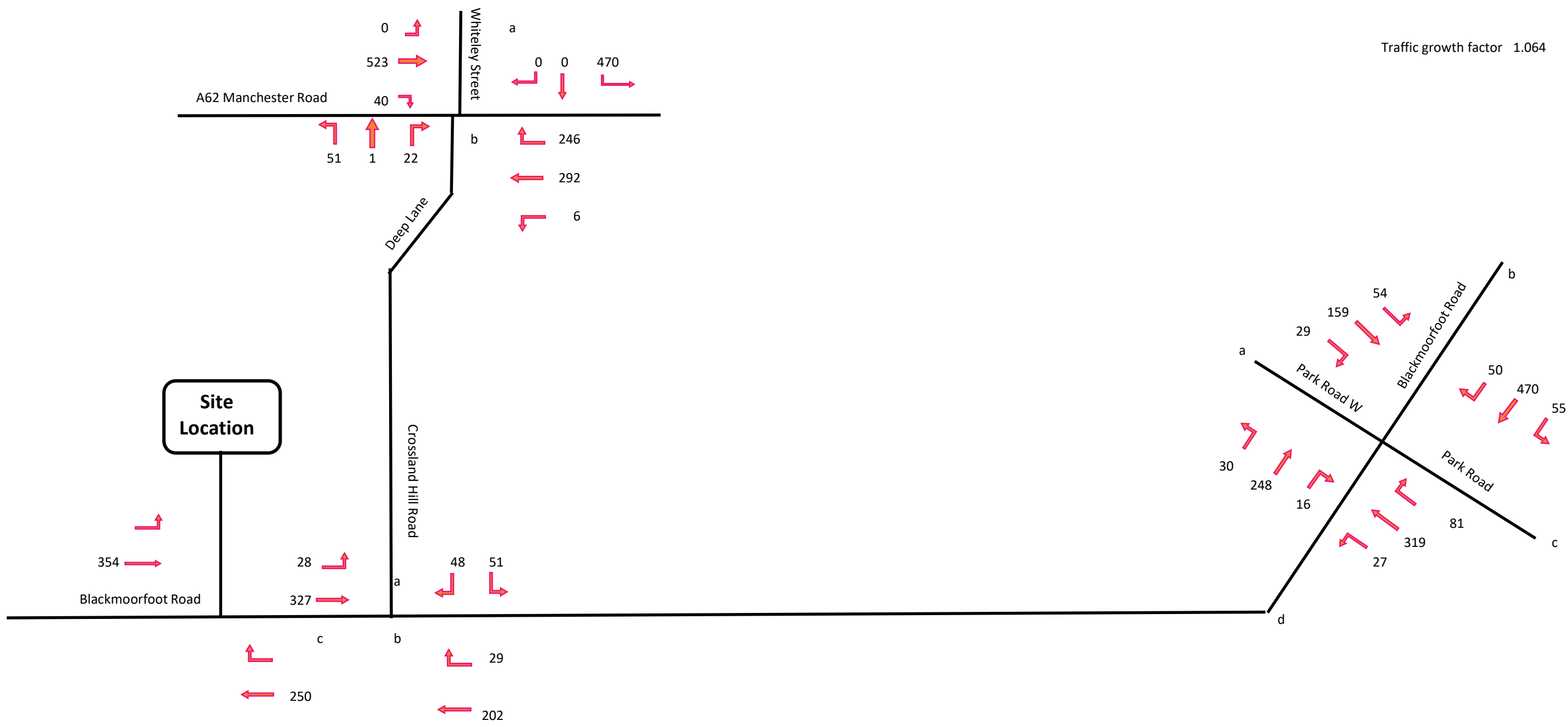
Trip rate parameter range selected:	3191 - 12000 (units: sqm)
Survey date date range:	01/01/15 - 14/09/22
Number of weekdays (Monday-Friday):	23
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	0

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

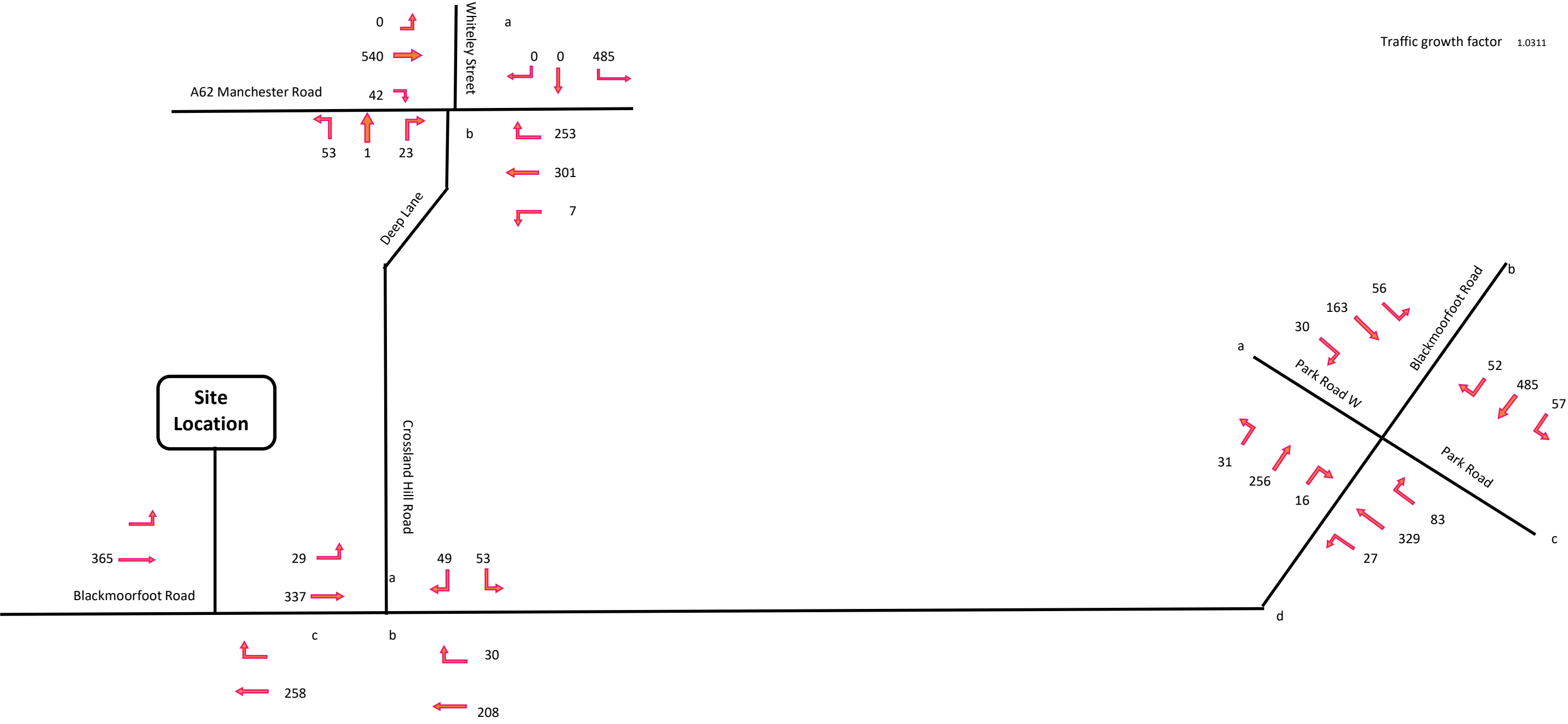
APPENDIX G: Base Year Traffic Flow Diagrams

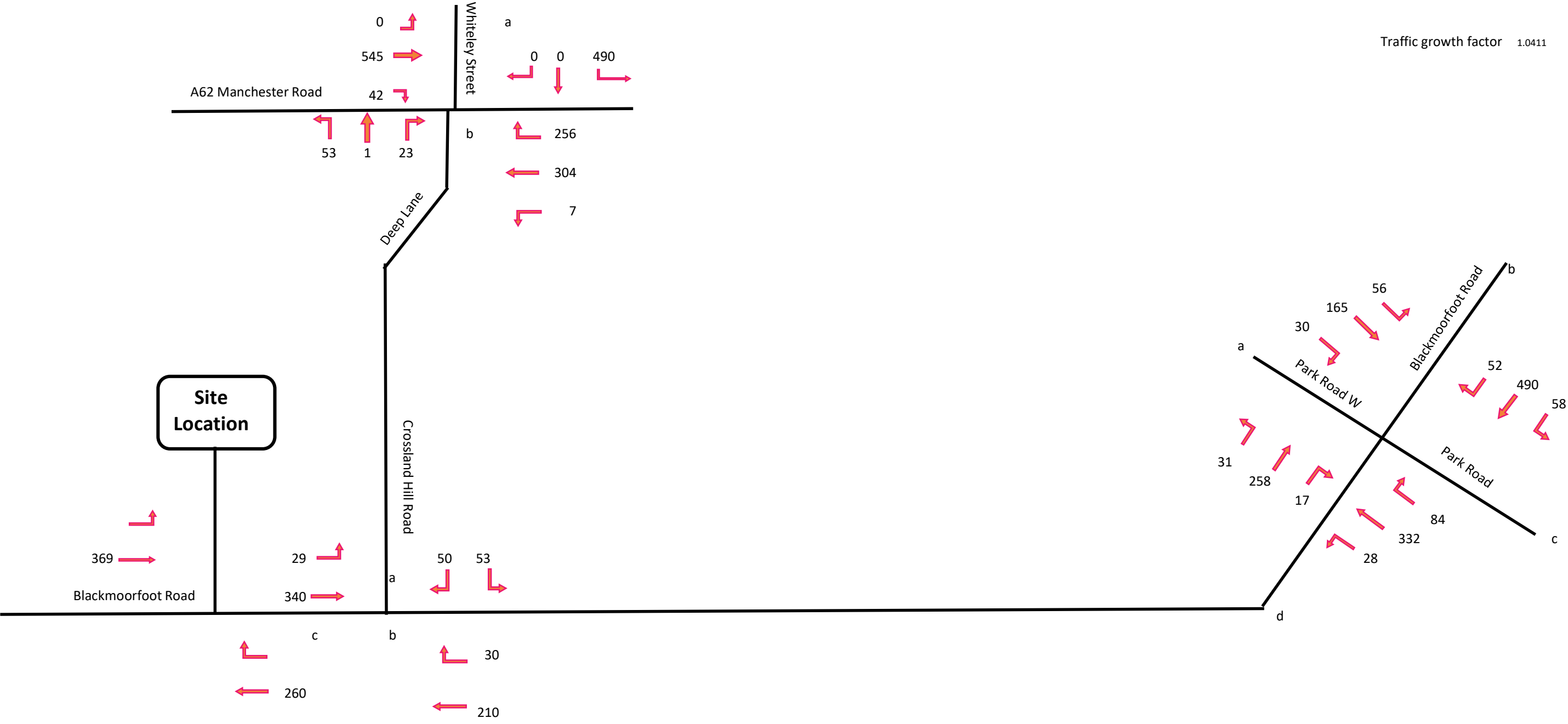


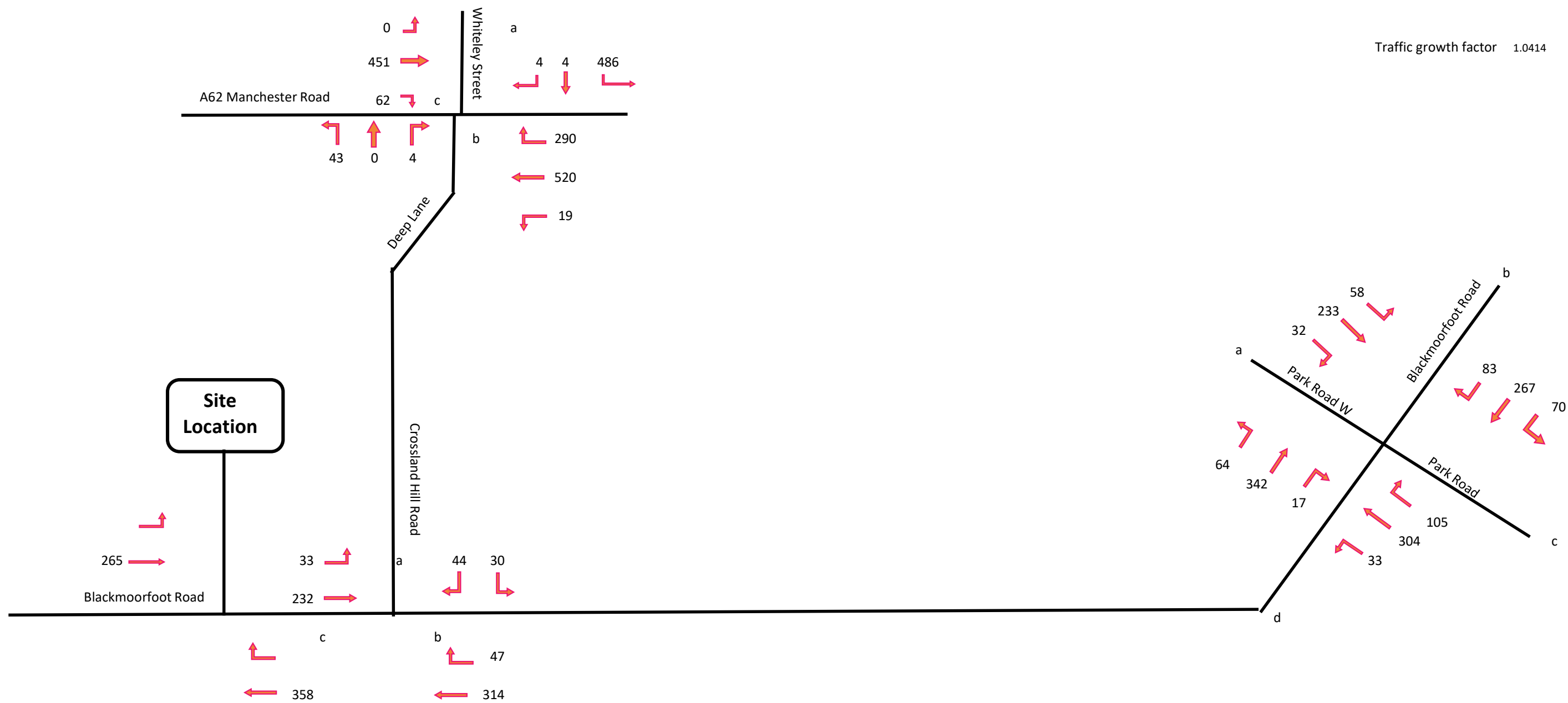


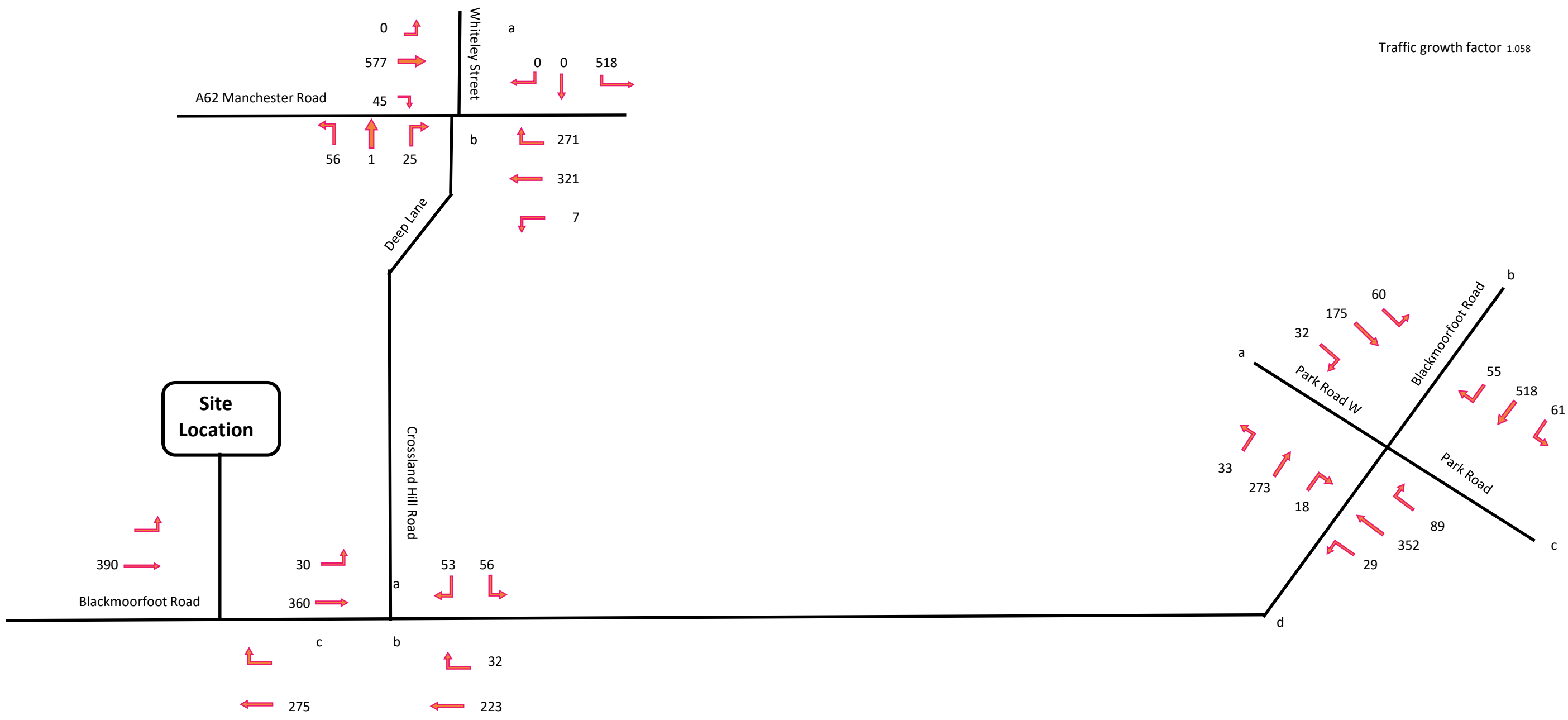




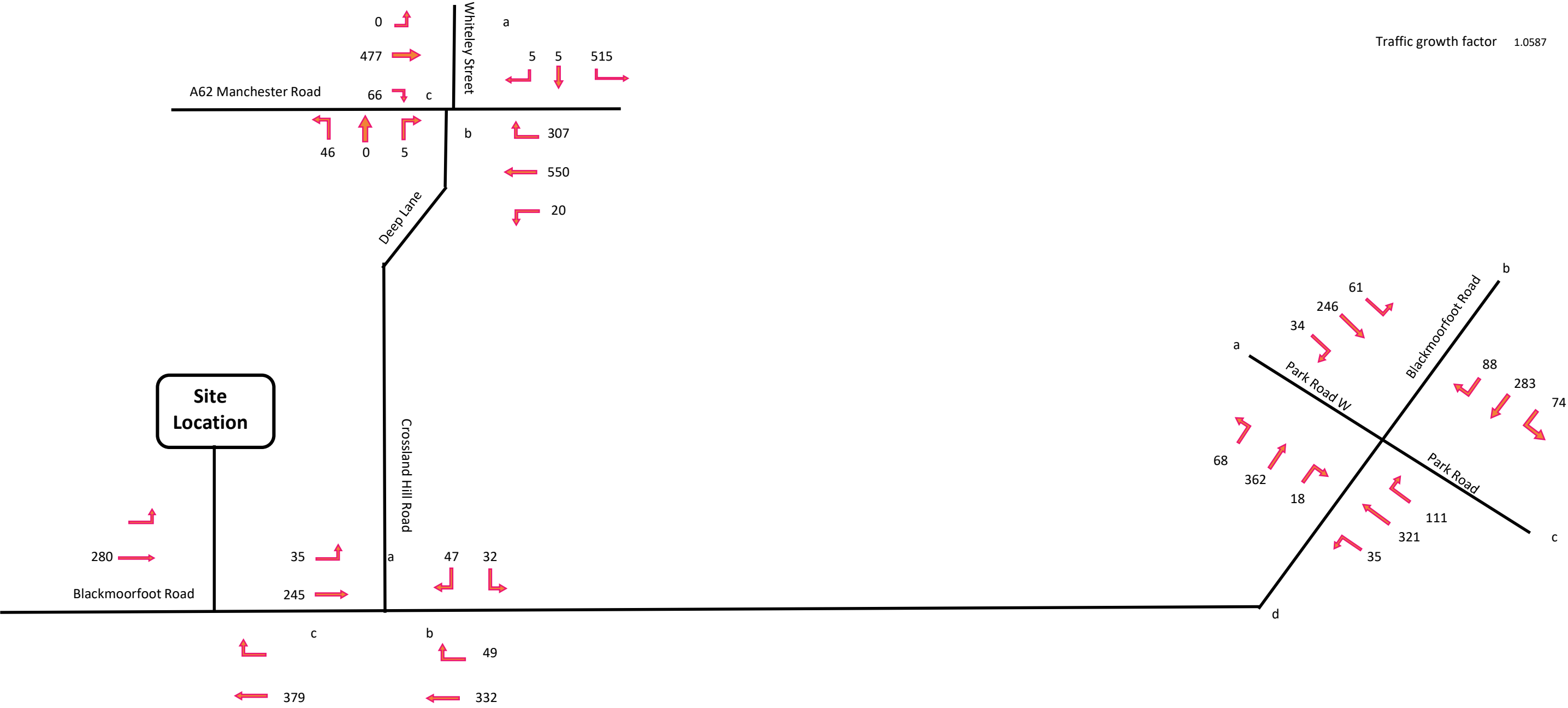


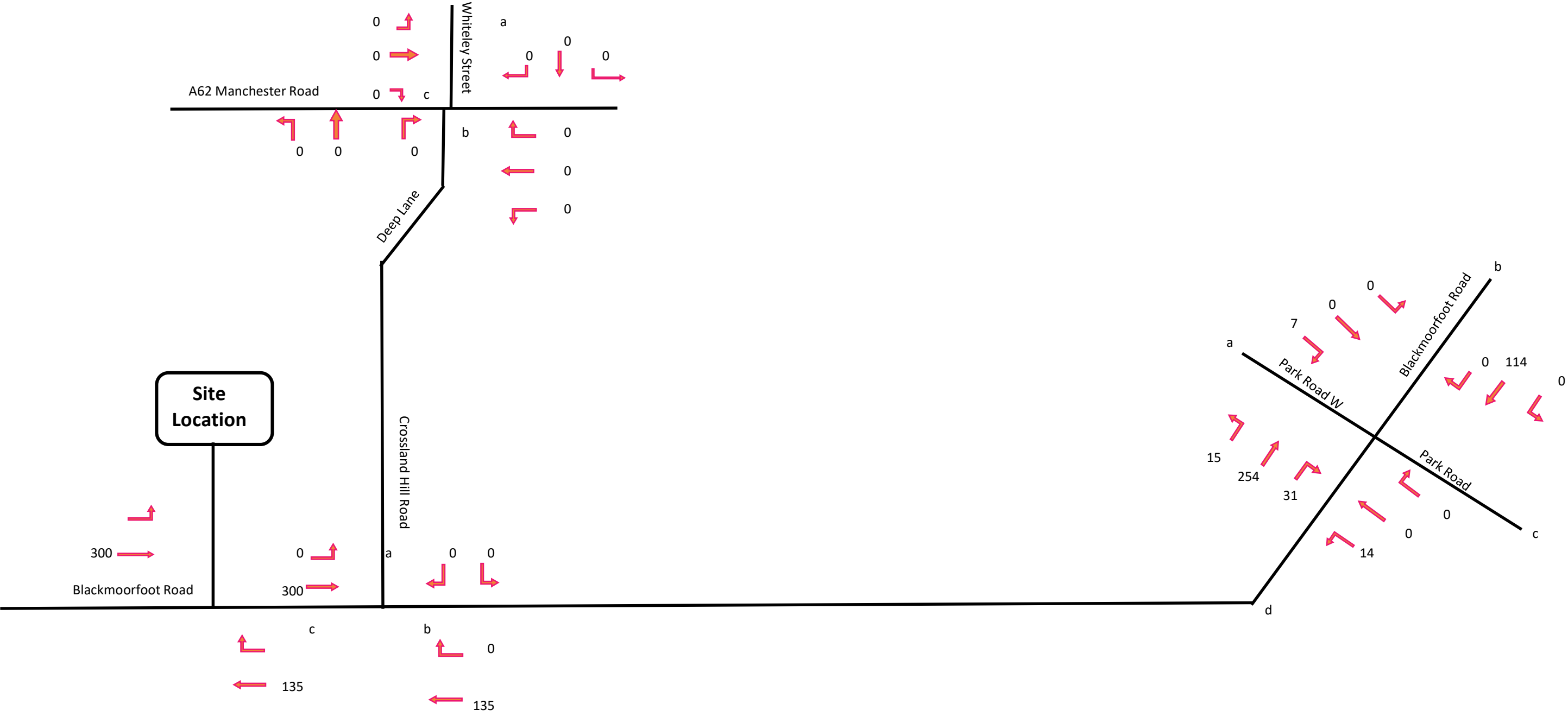




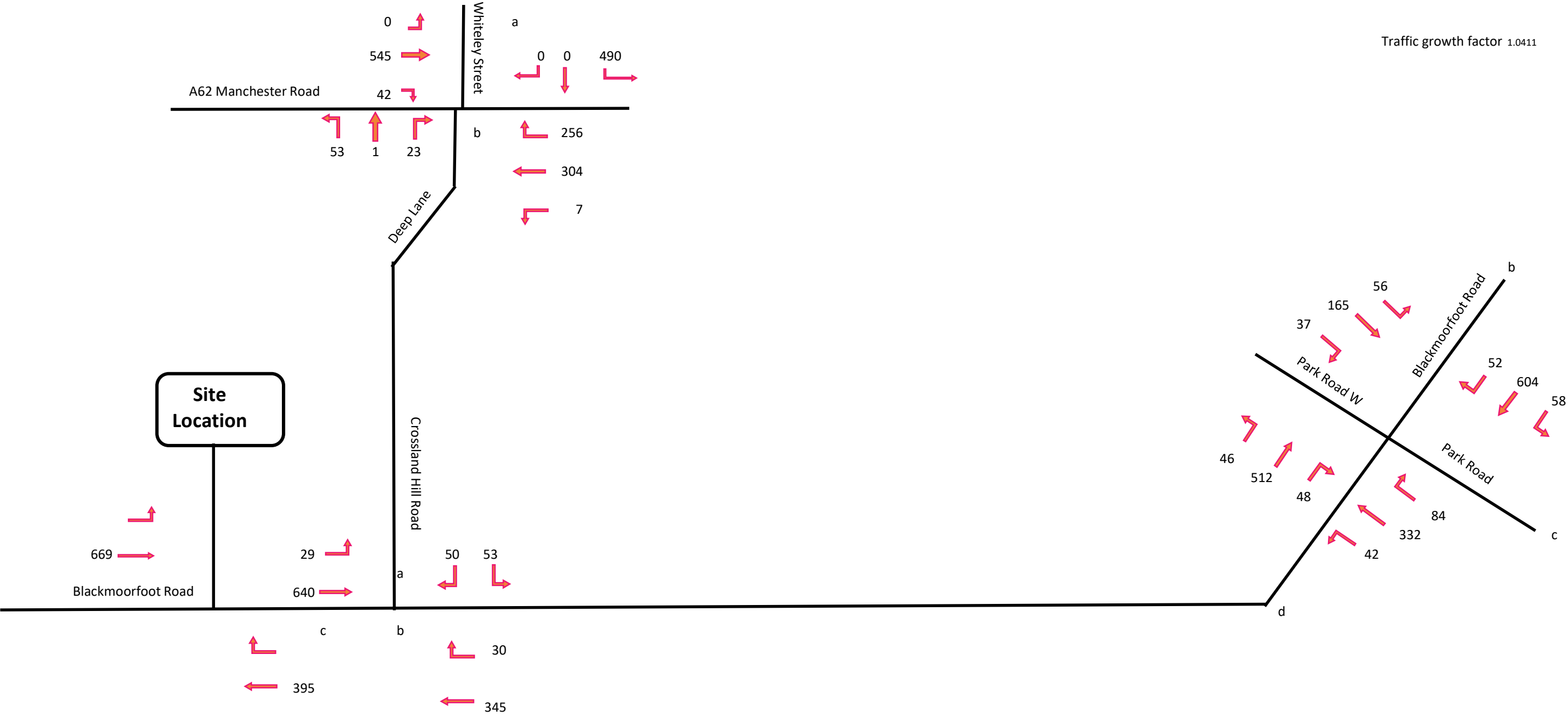


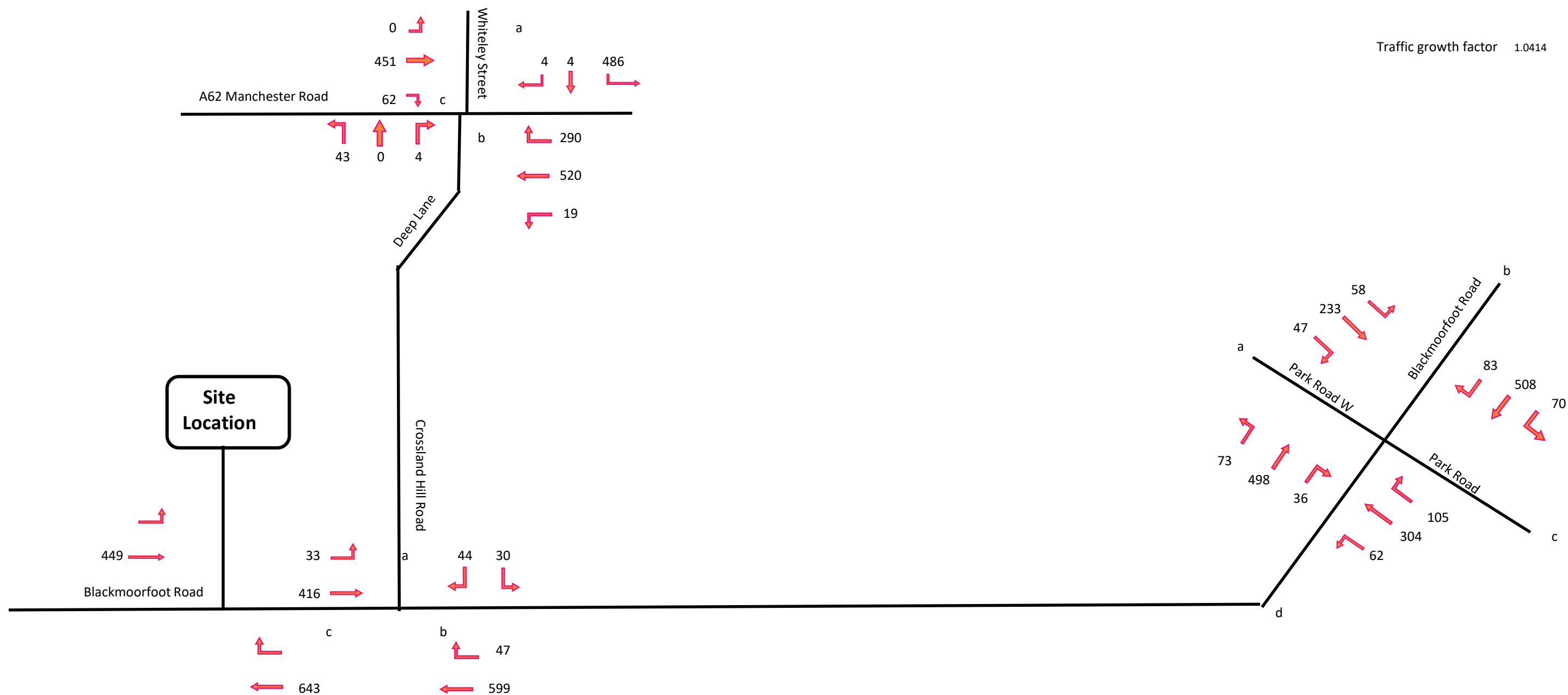
Traffic growth factor 1.0587

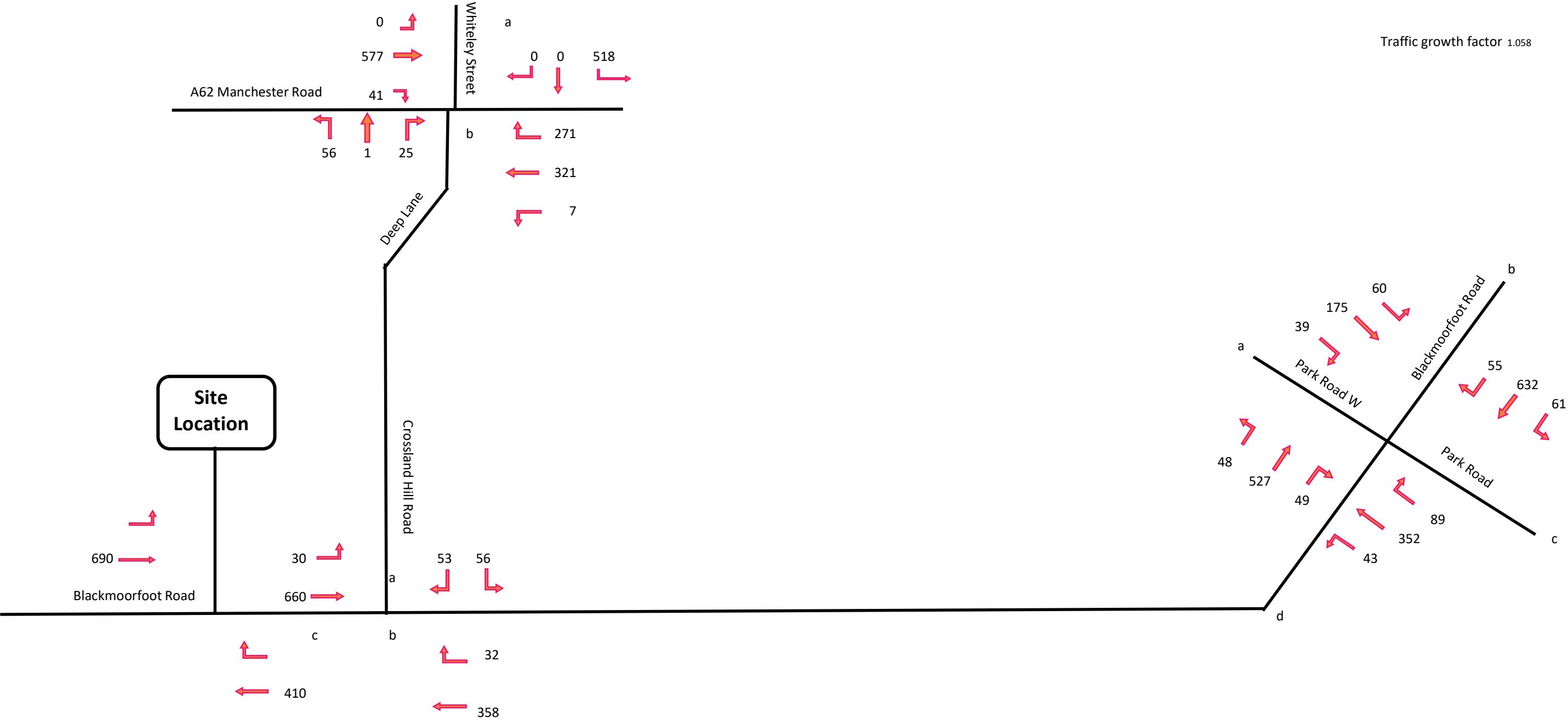


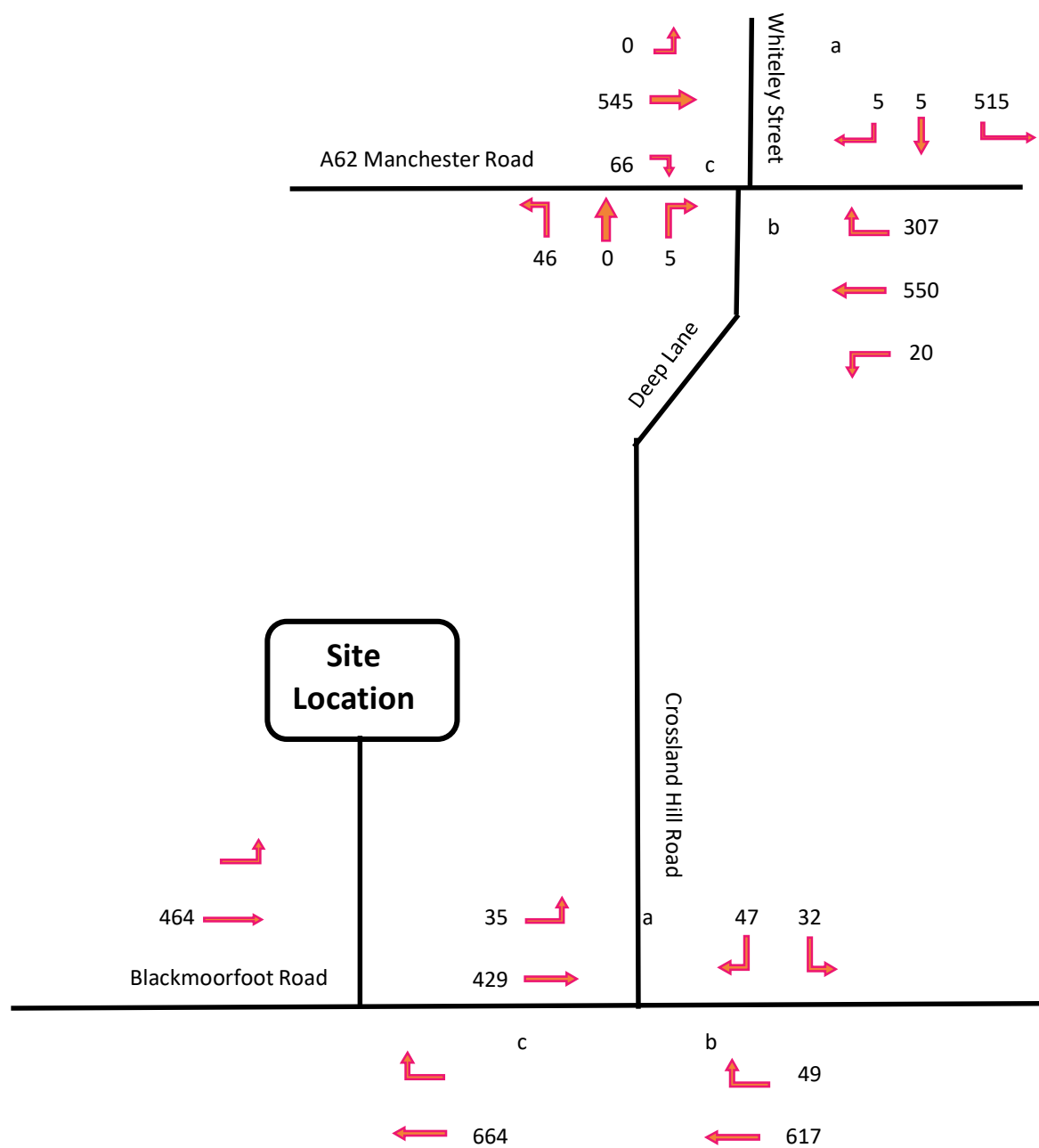




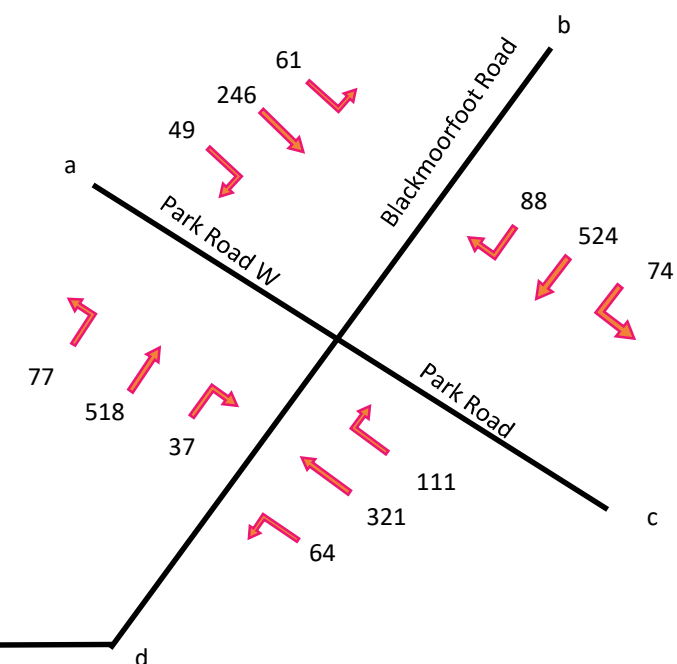








Traffic growth factor 1.0587



APPENDIX H: COVID Traffic Data (Gov.Uk)

Department for Transport statistics

<https://www.gov.uk/government/statistics/transport-use-during-the-coronavirus-covid-19-pandemic>
Use of transport modes: Great Britain, since 1 March 2020^a

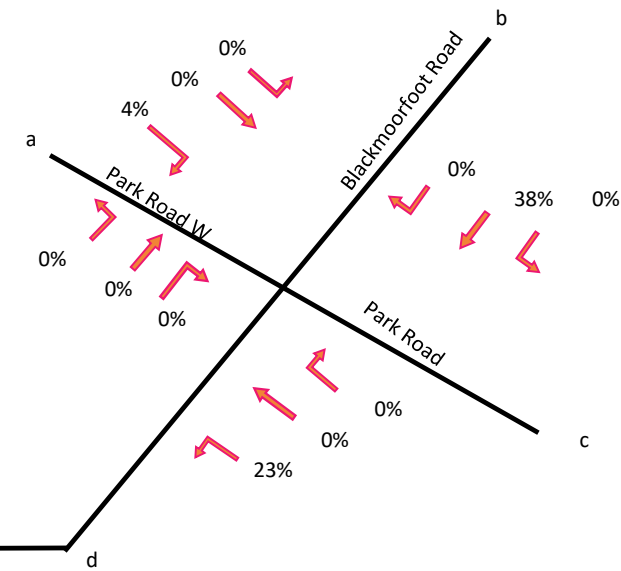
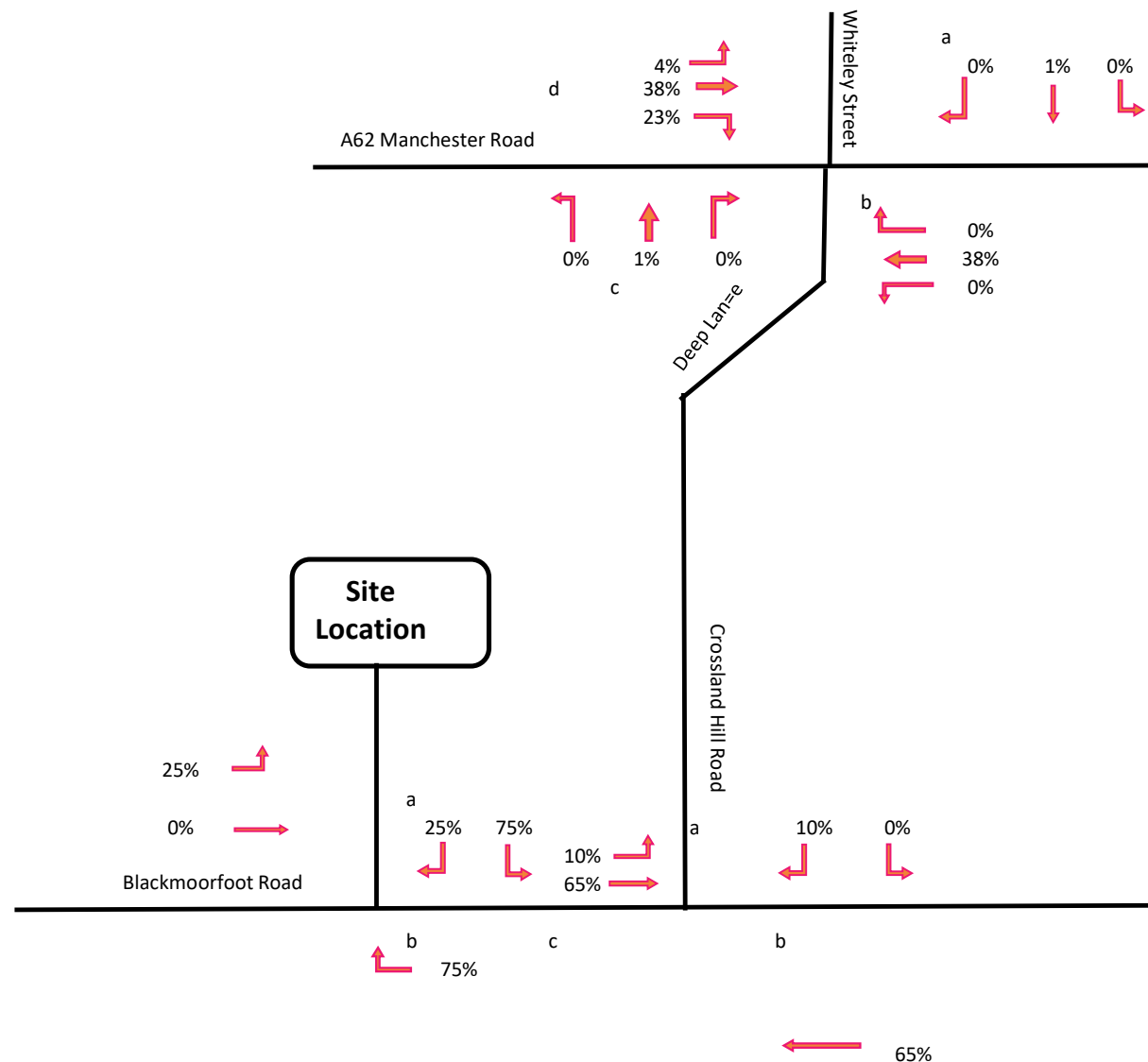
Figures are percentages of an equivalent day or week.

Date ^[note 1] (weekends and bank holidays in grey)					National Rail ^[notes 3,4,12, 14, 15]	Transport for London Tube ^[note 5]	Transport for London Bus ^[notes 5,7]	Bus (excl. London) ^[notes 6,8,9]	Cycling ^[notes 10,11]
	Cars ^[note 2]	Light Commercial Vehicles ^[note 2]	Heavy Goods Vehicles ^[note 2]	All motor vehicles ^[note 2]					
01/05/2021	96%	113%	112%	100%	37%	45%	59%	58%	132%
02/05/2021	96%	114%	103%	100%	38%	42%	55%	63%	140%
03/05/2021	72%	66%	42%	68%	39%	45%	60%	54%	49%
04/05/2021	86%	106%	104%	91%	39%	36%	58%	61%	64%
05/05/2021	87%	105%	108%	91%	40%	36%	60%	60%	104%
06/05/2021	87%	103%	108%	91%	40%	36%	59%	60%	114%
07/05/2021	91%	105%	108%	95%	40%	38%	60%	61%	106%
08/05/2021	84%	103%	112%	88%	40%	39%	54%	44%	62%
09/05/2021	92%	113%	119%	96%	40%	45%	58%	60%	146%
10/05/2021	88%	108%	110%	93%	39%	35%	60%	61%	79%
11/05/2021	87%	106%	108%	92%	41%	37%	60%	64%	83%
12/05/2021	88%	106%	108%	92%	41%	36%	60%	60%	112%
13/05/2021	86%	103%	106%	91%	42%	36%	56%	60%	92%
14/05/2021	91%	106%	106%	95%	42%	38%	60%	60%	101%
15/05/2021	93%	112%	113%	96%	43%	44%	59%	54%	94%
16/05/2021	93%	114%	120%	97%	43%	37%	58%	58%	107%
17/05/2021	91%	110%	109%	96%	44%	39%	61%	63%	80%
18/05/2021	90%	107%	107%	94%	45%	40%	61%	66%	79%
19/05/2021	91%	108%	108%	95%	46%	41%	62%	63%	96%
20/05/2021	89%	105%	106%	93%	46%	42%	62%	61%	87%
21/05/2021	93%	107%	105%	97%	46%	45%	63%	59%	60%
22/05/2021	98%	116%	116%	102%	47%	58%	64%	62%	114%
23/05/2021	99%	119%	121%	103%	48%	43%	60%	64%	96%
24/05/2021	92%	111%	109%	97%	51%	40%	61%	62%	67%
25/05/2021	89%	107%	107%	94%	49%	41%	61%	65%	71%
26/05/2021	91%	108%	108%	95%	49%	42%	63%	62%	104%
27/05/2021	94%	108%	107%	98%	49%	44%	64%	65%	128%
28/05/2021	101%	113%	107%	104%	50%	47%	65%	64%	83%
29/05/2021	106%	122%	118%	109%	51%	58%	70%	66%	133%
30/05/2021	109%	127%	110%	113%	52%	57%	69%	80%	132%
31/05/2021	91%	78%	45%	86%	55%	56%	74%	73%	110%

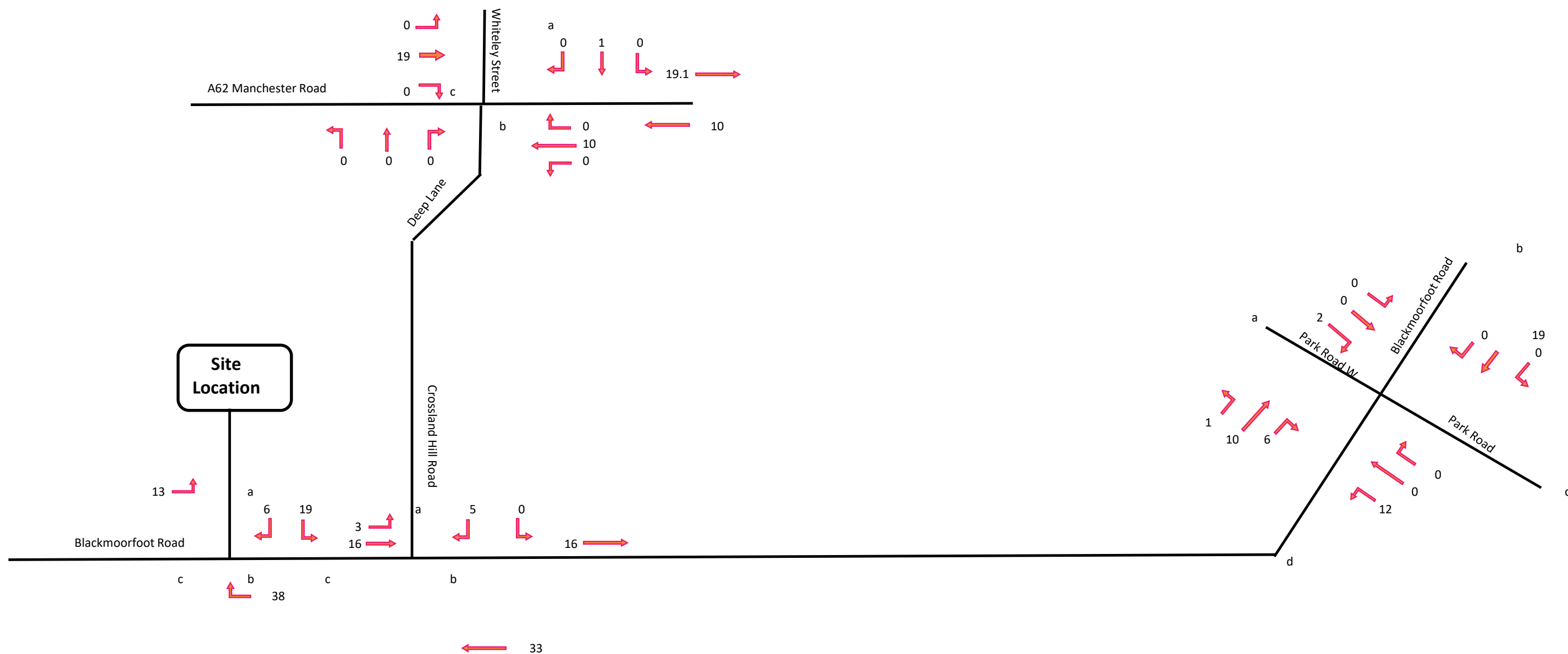
Revised/
provisional

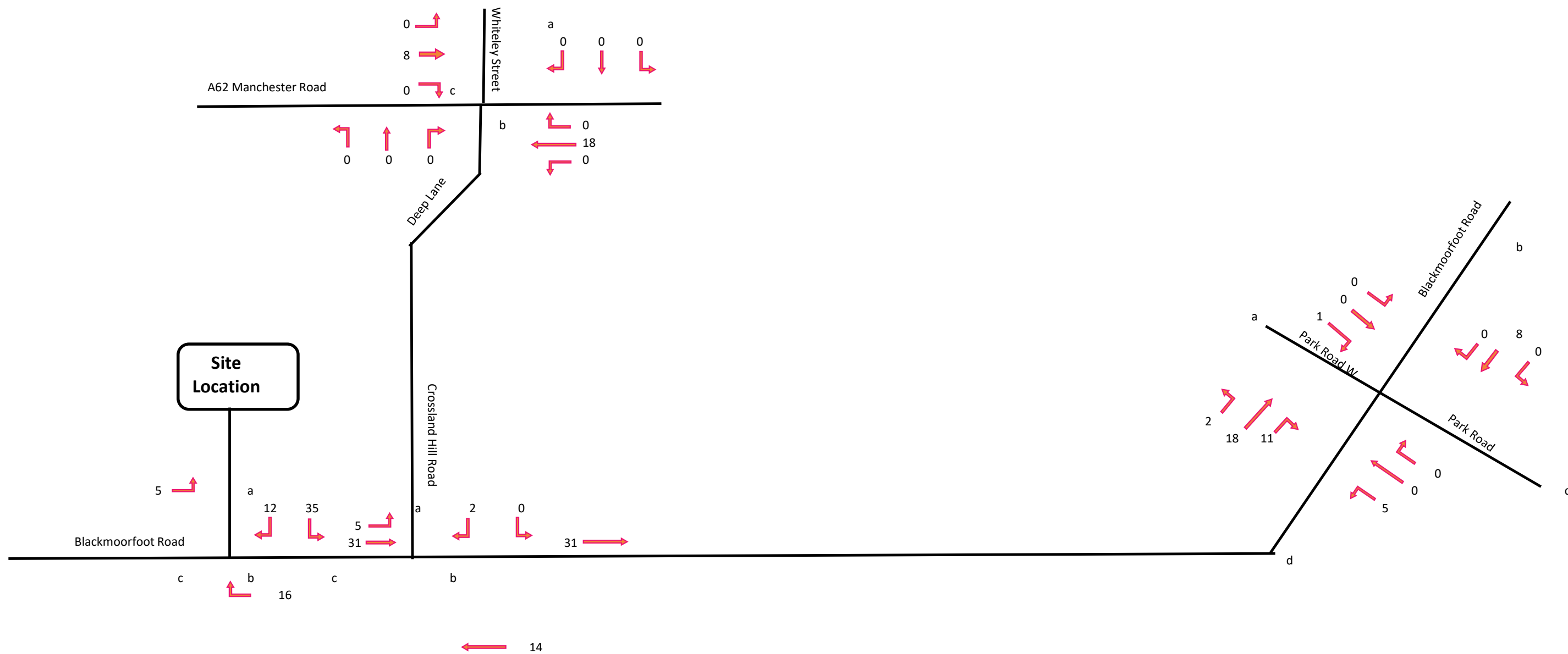
[notes 13]

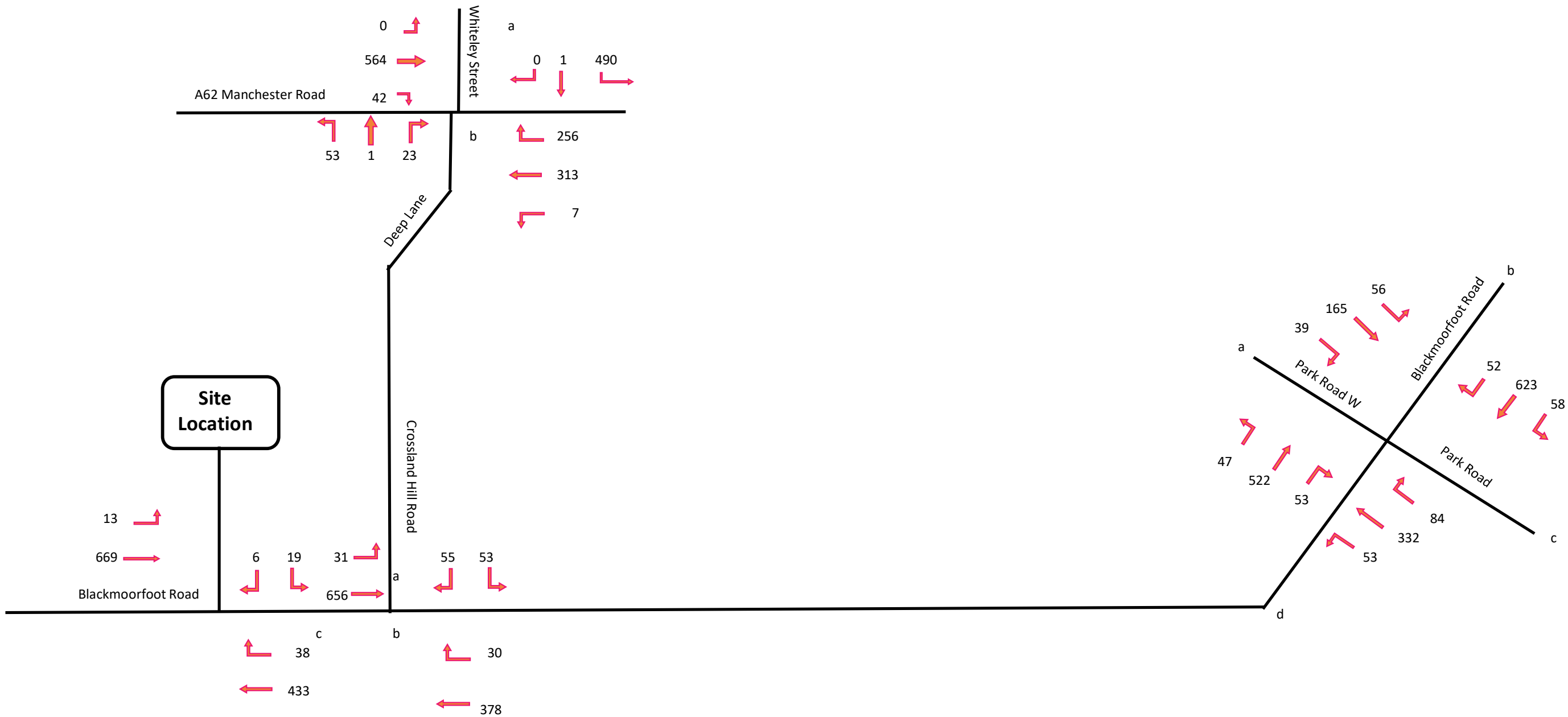
APPENDIX I: Traffic Distribution



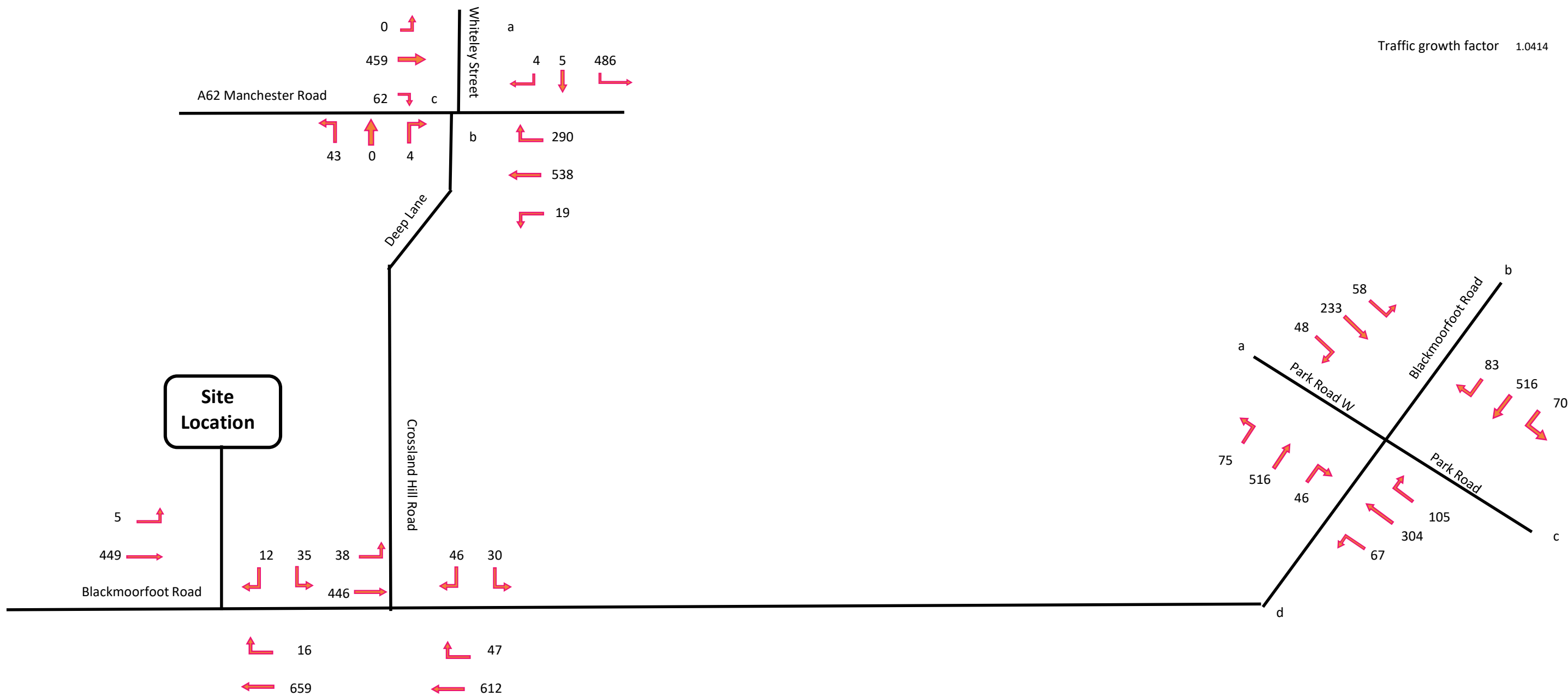
APPENDIX J: Future Year Traffic Flow Diagrams







Traffic growth factor 1.0414



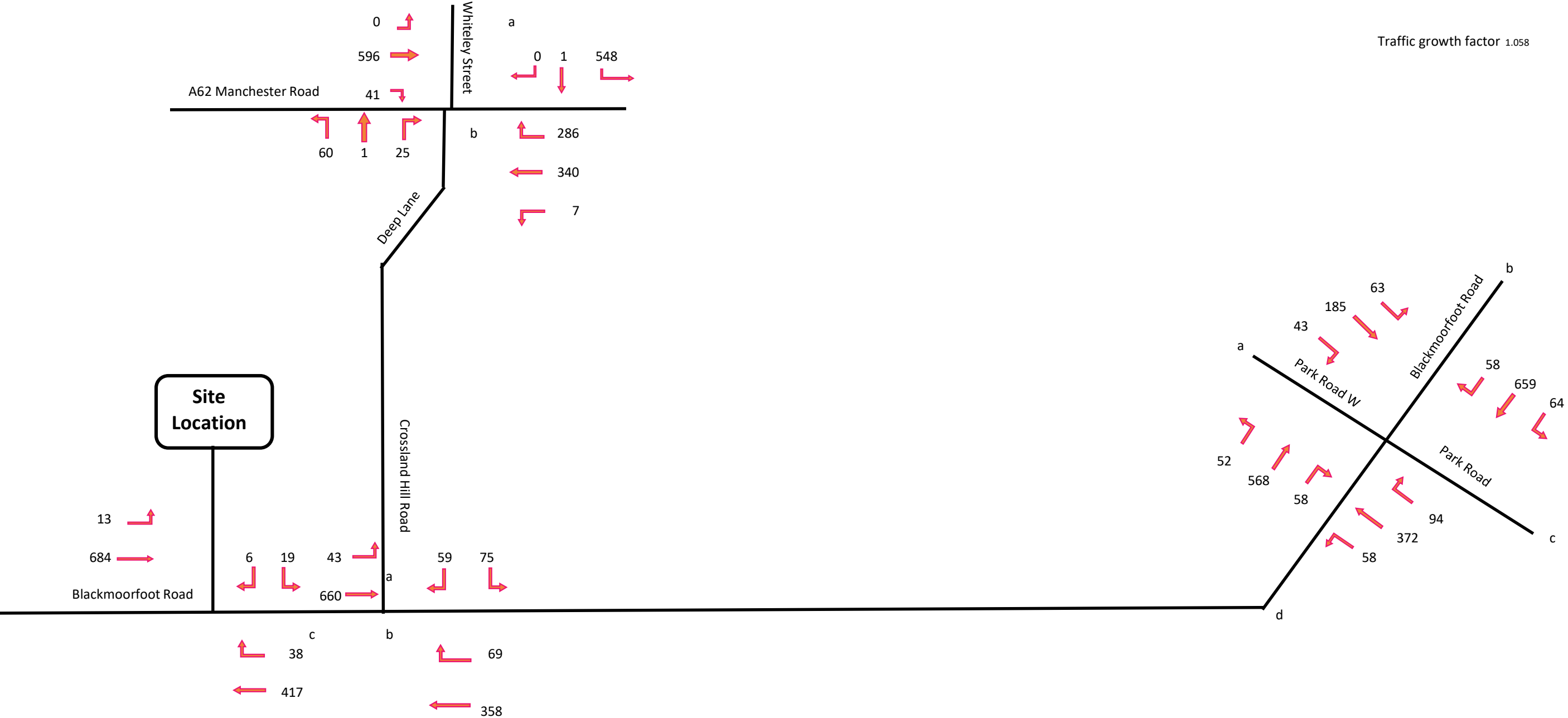
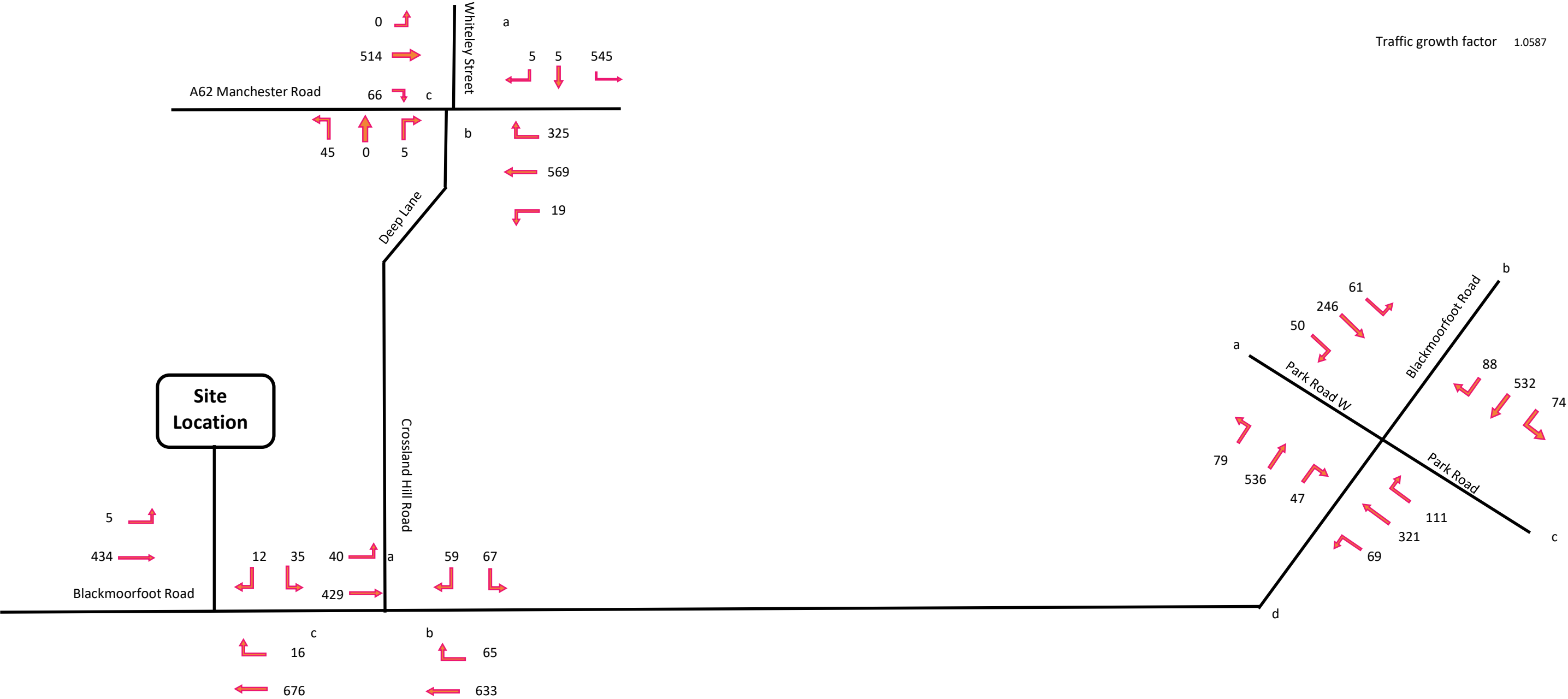


FIGURE 21
2029 BASE PLUS COMMITTED PLUS DEVELOPMENT AM FLOWS
(FLOWS IN PCUs)

Traffic growth factor 1.0587



APPENDIX K: Junctions 9 Model Output

Junctions 9											
PICADY 9 - Priority Intersection Module											
Version: 9.5.2.1013 © Copyright TRL Limited, 2019											
For sales and distribution information, program advice and maintenance, contact TRL: +44 (0)1344 379777 software@trl.co.uk www.trlsoftware.co.uk											
The users of this computer program for the solution of an engineering problem are in no way relieved of their responsibility for the correctness of the solution											

Filename: Blackmoorfoot Road-Crossland Hill.j9

Path: C:\Users\James.AzureAD\Via Solutions\CompanyShare - Documents\VIA Projects\23000s\23082 - Blackmoorfoot Rd, Huddersfield\Junctions

Report generation date: 05/09/2024 12:04:11

»2024, AM
 »2024, PM
 »2029, AM
 »2029, PM
 »2029 Base + Comm , AM
 »2029 Base + Comm, PM
 »2029 Base + Comm + Dev, AM
 »2029 Base + Comm + Dev, PM
 »2024 Base + Comm, AM
 »2024 Base + Comm , PM

Summary of junction performance

	AM						PM					
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Network Residual Capacity	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Network Residual Capacity
	2024											
Stream B-AC	D1	0.3	9.34	0.23	A	110 %	D2	0.2	8.81	0.17	A	137 %
Stream C-AB		0.1	5.54	0.07	A	[Stream B-AC]		0.2	5.16	0.11	A	[Stream B-AC]
	2029											
Stream B-AC	D3	0.3	9.72	0.24	A	98 %	D4	0.2	9.09	0.18	A	123 %
Stream C-AB		0.1	5.54	0.08	A	[Stream B-AC]		0.2	5.14	0.12	A	[Stream B-AC]
	2029 Base + Comm											
Stream B-AC	D5	0.5	13.78	0.31	B	40 %	D6	0.3	12.15	0.23	B	54 %
Stream C-AB		0.2	5.41	0.10	A	[Stream B-AC]		0.5	4.52	0.17	A	[Stream B-AC]
	2029 Base + Comm + Dev											
Stream B-AC	D7	0.6	15.66	0.39	C	29 %	D8	0.5	13.52	0.34	B	39 %
Stream C-AB		0.5	6.18	0.22	A	[Stream B-AC]		0.7	4.65	0.23	A	[Stream B-AC]
	2024 Base + Comm											
Stream B-AC	D9	0.4	13.01	0.29	B	46 %	D10	0.3	11.62	0.21	B	60 %
Stream C-AB		0.2	5.41	0.09	A	[Stream B-AC]		0.5	4.54	0.16	A	[Stream B-AC]

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

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle. 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	Blackmoorfoot Road / Crossland Hill Road
Location	
Site number	
Date	19/09/2023
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	PC2-ERIC-OFFICE\highw
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

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Calculate residual capacity	Residual capacity criteria type	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
5.75			✓	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)	Run automatically
D1	2024	AM	ONE HOUR	00:00	01:30	15	✓
D2	2024	PM	ONE HOUR	00:00	01:30	15	✓
D3	2029	AM	ONE HOUR	00:00	01:30	15	✓
D4	2029	PM	ONE HOUR	00:00	01:30	15	✓
D5	2029 Base + Comm	AM	ONE HOUR	00:00	01:30	15	✓
D6	2029 Base + Comm	PM	ONE HOUR	00:00	01:30	15	✓
D7	2029 Base + Comm + Dev	AM	ONE HOUR	00:00	01:30	15	✓
D8	2029 Base + Comm + Dev	PM	ONE HOUR	00:00	01:30	15	✓
D9	2024 Base + Comm	AM	ONE HOUR	00:00	01:30	15	✓
D10	2024 Base + Comm	PM	ONE HOUR	00:00	01:30	15	✓

Analysis Set Details

ID	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	✓	100.000	100.000

2024, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		1.68	A

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	110	Stream B-AC

Arms

Arms

Arm	Name	Description	Arm type
A	untitled		Major
B	Crossland Hill Road		Minor
C	Blackmoorfoot Road		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C	6.30			113.6	✓	0.00

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

Minor Arm Geometry

Arm	Minor arm type	Lane width (m)	Visibility to left (m)	Visibility to right (m)
B	One lane	4.24	44	24

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
B-A	566	0.102	0.257	0.162	0.367
B-C	718	0.109	0.275	-	-
C-B	640	0.245	0.245	-	-

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

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

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2024	AM	ONE HOUR	00:00	01:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	369	100.000
B		ONE HOUR	✓	103	100.000
C		ONE HOUR	✓	240	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A	B	C
	A	0	29	340
	B	50	0	53
	C	210	30	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
		A	B	C
	A	0	0	0
	B	0	0	0
	C	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-AC	0.23	9.34	0.3	A	95	142
C-AB	0.07	5.54	0.1	A	39	58
C-A					182	272
A-B					27	40
A-C					312	468

Main Results for each time segment

00:00 - 00:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	78	19	543	0.143	77	0.0	0.2	7.718	A
C-AB	29	7	680	0.043	29	0.0	0.1	5.533	A
C-A	151	38			151				
A-B	22	5			22				
A-C	256	64			256				

00:15 - 00:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	93	23	524	0.177	92	0.2	0.2	8.331	A
C-AB	37	9	689	0.054	37	0.1	0.1	5.524	A
C-A	179	45			179				
A-B	26	7			26				
A-C	306	76			306				

00:30 - 00:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	113	28	499	0.227	113	0.2	0.3	9.327	A
C-AB	49	12	702	0.070	49	0.1	0.1	5.514	A
C-A	215	54			215				
A-B	32	8			32				
A-C	374	94			374				

00:45 - 01:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	113	28	499	0.227	113	0.3	0.3	9.342	A
C-AB	49	12	702	0.070	49	0.1	0.1	5.518	A
C-A	215	54			215				
A-B	32	8			32				
A-C	374	94			374				

01:00 - 01:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	93	23	524	0.177	93	0.3	0.2	8.351	A
C-AB	37	9	689	0.054	37	0.1	0.1	5.530	A
C-A	178	45			178				
A-B	26	7			26				
A-C	306	76			306				

01:15 - 01:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	78	19	543	0.143	78	0.2	0.2	7.748	A
C-AB	30	7	680	0.043	30	0.1	0.1	5.538	A
C-A	151	38			151				
A-B	22	5			22				
A-C	256	64			256				

2024, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		1.49	A

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	137	Stream B-AC

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D2	2024	PM	ONE HOUR	00:00	01:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	265	100.000
B		ONE HOUR	✓	74	100.000
C		ONE HOUR	✓	361	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A	B	C
	A	0	33	232
	B	44	0	30
	C	314	47	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
		A	B	C
	A	0	0	0
	B	0	0	0
	C	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-AC	0.17	8.81	0.2	A	68	102
C-AB	0.11	5.16	0.2	A	70	105
C-A					261	392
A-B					30	45
A-C					213	319

Main Results for each time segment

00:00 - 00:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	56	14	532	0.105	55	0.0	0.1	7.543	A
C-AB	52	13	750	0.069	51	0.0	0.1	5.152	A
C-A	220	55			220				
A-B	25	6			25				
A-C	175	44			175				

00:15 - 00:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	67	17	515	0.129	66	0.1	0.1	8.030	A
C-AB	67	17	773	0.086	67	0.1	0.2	5.102	A
C-A	258	64			258				
A-B	30	7			30				
A-C	209	52			209				

00:30 - 00:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	81	20	490	0.166	81	0.1	0.2	8.796	A
C-AB	91	23	805	0.113	91	0.2	0.2	5.042	A
C-A	306	77			306				
A-B	36	9			36				
A-C	255	64			255				

00:45 - 01:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	81	20	490	0.166	81	0.2	0.2	8.806	A
C-AB	91	23	805	0.113	91	0.2	0.2	5.046	A
C-A	306	77			306				
A-B	36	9			36				
A-C	255	64			255				

01:00 - 01:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	67	17	515	0.129	67	0.2	0.1	8.043	A
C-AB	67	17	773	0.087	67	0.2	0.2	5.106	A
C-A	258	64			258				
A-B	30	7			30				
A-C	209	52			209				

01:15 - 01:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	56	14	532	0.105	56	0.1	0.1	7.564	A
C-AB	52	13	750	0.069	52	0.2	0.1	5.163	A
C-A	220	55			220				
A-B	25	6			25				
A-C	175	44			175				

2029, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		1.74	A

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	98	Stream B-AC

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D3	2029	AM	ONE HOUR	00:00	01:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	390	100.000
B		ONE HOUR	✓	109	100.000
C		ONE HOUR	✓	255	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A	B	C
	A	0	30	360
	B	53	0	56
	C	223	32	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
		A	B	C
	A	0	0	0
	B	0	0	0
	C	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-AC	0.24	9.72	0.3	A	100	150
C-AB	0.08	5.54	0.1	A	42	63
C-A					192	288
A-B					28	41
A-C					330	496

Main Results for each time segment

00:00 - 00:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	82	21	537	0.153	81	0.0	0.2	7.890	A
C-AB	32	8	683	0.047	32	0.0	0.1	5.528	A
C-A	160	40			160				
A-B	23	6			23				
A-C	271	68			271				

00:15 - 00:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	98	24	517	0.189	98	0.2	0.2	8.573	A
C-AB	41	10	693	0.059	40	0.1	0.1	5.519	A
C-A	189	47			189				
A-B	27	7			27				
A-C	324	81			324				

00:30 - 00:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	120	30	490	0.245	120	0.2	0.3	9.705	A
C-AB	54	14	707	0.076	54	0.1	0.1	5.513	A
C-A	227	57			227				
A-B	33	8			33				
A-C	396	99			396				

00:45 - 01:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	120	30	490	0.245	120	0.3	0.3	9.722	A
C-AB	54	14	707	0.077	54	0.1	0.1	5.513	A
C-A	227	57			227				
A-B	33	8			33				
A-C	396	99			396				

01:00 - 01:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	98	24	517	0.189	98	0.3	0.2	8.598	A
C-AB	41	10	693	0.059	41	0.1	0.1	5.523	A
C-A	189	47			189				
A-B	27	7			27				
A-C	324	81			324				

01:15 - 01:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	82	21	537	0.153	82	0.2	0.2	7.922	A
C-AB	32	8	683	0.047	32	0.1	0.1	5.535	A
C-A	160	40			160				
A-B	23	6			23				
A-C	271	68			271				

2029, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		1.54	A

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	123	Stream B-AC

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D4	2029	PM	ONE HOUR	00:00	01:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	280	100.000
B		ONE HOUR	✓	79	100.000
C		ONE HOUR	✓	381	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A	B	C
	A	0	35	245
	B	47	0	32
	C	332	49	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
		A	B	C
	A	0	0	0
	B	0	0	0
	C	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-AC	0.18	9.09	0.2	A	72	109
C-AB	0.12	5.14	0.2	A	75	112
C-A					275	412
A-B					32	48
A-C					225	337

Main Results for each time segment

00:00 - 00:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	59	15	527	0.113	59	0.0	0.1	7.682	A
C-AB	55	14	756	0.073	55	0.0	0.1	5.128	A
C-A	232	58			232				
A-B	26	7			26				
A-C	184	46			184				

00:15 - 00:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	71	18	509	0.140	71	0.1	0.2	8.221	A
C-AB	72	18	781	0.092	71	0.1	0.2	5.075	A
C-A	271	68			271				
A-B	31	8			31				
A-C	220	55			220				

00:30 - 00:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	87	22	483	0.180	87	0.2	0.2	9.085	A
C-AB	98	25	815	0.120	98	0.2	0.2	5.020	A
C-A	321	80			321				
A-B	39	10			39				
A-C	270	67			270				

00:45 - 01:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	87	22	483	0.180	87	0.2	0.2	9.094	A
C-AB	98	25	816	0.120	98	0.2	0.2	5.023	A
C-A	321	80			321				
A-B	39	10			39				
A-C	270	67			270				

01:00 - 01:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	71	18	509	0.140	71	0.2	0.2	8.237	A
C-AB	72	18	781	0.092	72	0.2	0.2	5.082	A
C-A	271	68			271				
A-B	31	8			31				
A-C	220	55			220				

01:15 - 01:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	59	15	527	0.113	60	0.2	0.1	7.704	A
C-AB	55	14	757	0.073	55	0.2	0.1	5.140	A
C-A	232	58			232				
A-B	26	7			26				
A-C	184	46			184				

2029 Base + Comm , AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		1.54	A

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	40	Stream B-AC

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D5	2029 Base + Comm	AM	ONE HOUR	00:00	01:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	690	100.000
B		ONE HOUR	✓	109	100.000
C		ONE HOUR	✓	390	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A	B	C
	A	0	30	660
	B	53	0	56
	C	358	32	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
		A	B	C
	A	0	0	0
	B	0	0	0
	C	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-AC	0.31	13.78	0.5	B	100	150
C-AB	0.10	5.41	0.2	A	55	83
C-A					303	454
A-B					28	41
A-C					606	908

Main Results for each time segment

00:00 - 00:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	82	21	464	0.177	81	0.0	0.2	9.380	A
C-AB	39	10	705	0.055	39	0.0	0.1	5.399	A
C-A	255	64			255				
A-B	23	6			23				
A-C	497	124			497				

00:15 - 00:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	98	24	430	0.228	98	0.2	0.3	10.833	B
C-AB	52	13	723	0.072	52	0.1	0.1	5.368	A
C-A	299	75			299				
A-B	27	7			27				
A-C	593	148			593				

00:30 - 00:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	120	30	381	0.315	119	0.3	0.4	13.717	B
C-AB	75	19	749	0.100	74	0.1	0.2	5.340	A
C-A	355	89			355				
A-B	33	8			33				
A-C	727	182			727				

00:45 - 01:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	120	30	381	0.315	120	0.4	0.5	13.784	B
C-AB	75	19	749	0.100	75	0.2	0.2	5.347	A
C-A	355	89			355				
A-B	33	8			33				
A-C	727	182			727				

01:00 - 01:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	98	24	430	0.228	99	0.5	0.3	10.897	B
C-AB	52	13	723	0.072	53	0.2	0.1	5.377	A
C-A	298	75			298				
A-B	27	7			27				
A-C	593	148			593				

01:15 - 01:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	82	21	464	0.177	82	0.3	0.2	9.441	A
C-AB	39	10	706	0.056	39	0.1	0.1	5.408	A
C-A	254	64			254				
A-B	23	6			23				
A-C	497	124			497				

2029 Base + Comm, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		1.28	A

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	54	Stream B-AC

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D6	2029 Base + Comm	PM	ONE HOUR	00:00	01:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	464	100.000
B		ONE HOUR	✓	79	100.000
C		ONE HOUR	✓	666	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A	B	C
	A	0	35	429
	B	47	0	32
	C	617	49	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
		A	B	C
	A	0	0	0
	B	0	0	0
	C	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-AC	0.23	12.15	0.3	B	72	109
C-AB	0.17	4.52	0.5	A	120	179
C-A					492	737
A-B					32	48
A-C					394	590

Main Results for each time segment

00:00 - 00:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	59	15	462	0.129	59	0.0	0.1	8.922	A
C-AB	79	20	876	0.090	78	0.0	0.2	4.511	A
C-A	423	106			423				
A-B	26	7			26				
A-C	323	81			323				

00:15 - 00:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	71	18	429	0.165	71	0.1	0.2	10.034	B
C-AB	110	28	927	0.119	110	0.2	0.3	4.409	A
C-A	488	122			488				
A-B	31	8			31				
A-C	386	96			386				

00:30 - 00:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	87	22	383	0.227	87	0.2	0.3	12.111	B
C-AB	169	42	1000	0.169	168	0.3	0.5	4.334	A
C-A	564	141			564				
A-B	39	10			39				
A-C	472	118			472				

00:45 - 01:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	87	22	383	0.227	87	0.3	0.3	12.149	B
C-AB	170	42	1001	0.170	170	0.5	0.5	4.343	A
C-A	563	141			563				
A-B	39	10			39				
A-C	472	118			472				

01:00 - 01:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	71	18	429	0.165	71	0.3	0.2	10.071	B
C-AB	111	28	928	0.119	112	0.5	0.3	4.422	A
C-A	488	122			488				
A-B	31	8			31				
A-C	386	96			386				

01:15 - 01:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	59	15	462	0.129	60	0.2	0.1	8.961	A
C-AB	79	20	876	0.090	80	0.3	0.2	4.524	A
C-A	422	106			422				
A-B	26	7			26				
A-C	323	81			323				

2029 Base + Comm + Dev, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		2.30	A

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	29	Stream B-AC

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D7	2029 Base + Comm + Dev	AM	ONE HOUR	00:00	01:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	703	100.000
B		ONE HOUR	✓	134	100.000
C		ONE HOUR	✓	427	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A	B	C
	A	0	43	660
	B	59	0	75
	C	358	69	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
		A	B	C
	A	0	0	0
	B	0	0	0
	C	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-AC	0.39	15.66	0.6	C	123	184
C-AB	0.22	6.18	0.5	A	120	180
C-A					272	408
A-B					39	59
A-C					606	908

Main Results for each time segment

00:00 - 00:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	101	25	465	0.217	100	0.0	0.3	9.827	A
C-AB	84	21	703	0.120	83	0.0	0.2	5.804	A
C-A	237	59			237				
A-B	32	8			32				
A-C	497	124			497				

00:15 - 00:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	120	30	429	0.281	120	0.3	0.4	11.639	B
C-AB	113	28	720	0.156	112	0.2	0.3	5.924	A
C-A	271	68			271				
A-B	39	10			39				
A-C	593	148			593				

00:30 - 00:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	148	37	377	0.391	147	0.4	0.6	15.524	C
C-AB	162	40	746	0.217	161	0.3	0.5	6.164	A
C-A	308	77			308				
A-B	47	12			47				
A-C	727	182			727				

00:45 - 01:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	148	37	377	0.391	148	0.6	0.6	15.658	C
C-AB	162	41	747	0.217	162	0.5	0.5	6.177	A
C-A	308	77			308				
A-B	47	12			47				
A-C	727	182			727				

01:00 - 01:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	120	30	429	0.281	121	0.6	0.4	11.754	B
C-AB	113	28	721	0.157	114	0.5	0.3	5.947	A
C-A	271	68			271				
A-B	39	10			39				
A-C	593	148			593				

01:15 - 01:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	101	25	465	0.217	101	0.4	0.3	9.919	A
C-AB	85	21	704	0.120	85	0.3	0.2	5.828	A
C-A	237	59			237				
A-B	32	8			32				
A-C	497	124			497				

2029 Base + Comm + Dev, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		1.96	A

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	39	Stream B-AC

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D8	2029 Base + Comm + Dev	PM	ONE HOUR	00:00	01:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	469	100.000
B		ONE HOUR	✓	126	100.000
C		ONE HOUR	✓	698	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A	B	C
	A	0	40	429
	B	59	0	67
	C	633	65	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
		A	B	C
	A	0	0	0
	B	0	0	0
	C	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-AC	0.34	13.52	0.5	B	116	173
C-AB	0.23	4.65	0.7	A	163	244
C-A					478	716
A-B					37	55
A-C					394	590

Main Results for each time segment

00:00 - 00:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	95	24	484	0.196	94	0.0	0.2	9.203	A
C-AB	106	27	883	0.120	105	0.0	0.3	4.626	A
C-A	419	105			419				
A-B	30	8			30				
A-C	323	81			323				

00:15 - 00:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	113	28	452	0.251	113	0.2	0.3	10.614	B
C-AB	150	37	936	0.160	149	0.3	0.4	4.582	A
C-A	478	119			478				
A-B	36	9			36				
A-C	386	96			386				

00:30 - 00:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	139	35	405	0.342	138	0.3	0.5	13.443	B
C-AB	232	58	1012	0.229	231	0.4	0.7	4.616	A
C-A	537	134			537				
A-B	44	11			44				
A-C	472	118			472				

00:45 - 01:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	139	35	405	0.343	139	0.5	0.5	13.517	B
C-AB	232	58	1013	0.229	232	0.7	0.7	4.630	A
C-A	536	134			536				
A-B	44	11			44				
A-C	472	118			472				

01:00 - 01:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	113	28	451	0.251	114	0.5	0.3	10.689	B
C-AB	151	38	937	0.161	152	0.7	0.4	4.599	A
C-A	477	119			477				
A-B	36	9			36				
A-C	386	96			386				

01:15 - 01:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	95	24	484	0.196	95	0.3	0.2	9.274	A
C-AB	107	27	884	0.121	108	0.4	0.3	4.647	A
C-A	418	105			418				
A-B	30	8			30				
A-C	323	81			323				

2024 Base + Comm, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		1.43	A

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	46	Stream B-AC

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D9	2024 Base + Comm	AM	ONE HOUR	00:00	01:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	669	100.000
B		ONE HOUR	✓	103	100.000
C		ONE HOUR	✓	375	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A	B	C
	A	0	29	640
	B	50	0	53
	C	345	30	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
		A	B	C
	A	0	0	0
	B	0	0	0
	C	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-AC	0.29	13.01	0.4	B	95	142
C-AB	0.09	5.41	0.2	A	51	76
C-A					294	440
A-B					27	40
A-C					587	881

Main Results for each time segment

00:00 - 00:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	78	19	470	0.165	77	0.0	0.2	9.133	A
C-AB	36	9	702	0.051	36	0.0	0.1	5.403	A
C-A	246	62			246				
A-B	22	5			22				
A-C	482	120			482				

00:15 - 00:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	93	23	437	0.212	92	0.2	0.3	10.441	B
C-AB	48	12	718	0.066	47	0.1	0.1	5.372	A
C-A	289	72			289				
A-B	26	7			26				
A-C	575	144			575				

00:30 - 00:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	113	28	390	0.291	113	0.3	0.4	12.960	B
C-AB	68	17	743	0.091	68	0.1	0.2	5.336	A
C-A	345	86			345				
A-B	32	8			32				
A-C	705	176			705				

00:45 - 01:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	113	28	390	0.291	113	0.4	0.4	13.010	B
C-AB	68	17	743	0.092	68	0.2	0.2	5.342	A
C-A	345	86			345				
A-B	32	8			32				
A-C	705	176			705				

01:00 - 01:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	93	23	437	0.212	93	0.4	0.3	10.494	B
C-AB	48	12	718	0.067	48	0.2	0.1	5.378	A
C-A	289	72			289				
A-B	26	7			26				
A-C	575	144			575				

01:15 - 01:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	78	19	470	0.165	78	0.3	0.2	9.189	A
C-AB	36	9	702	0.051	36	0.1	0.1	5.411	A
C-A	246	62			246				
A-B	22	5			22				
A-C	482	120			482				

2024 Base + Comm , PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		1.21	A

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	60	Stream B-AC

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D10	2024 Base + Comm	PM	ONE HOUR	00:00	01:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	449	100.000
B		ONE HOUR	✓	74	100.000
C		ONE HOUR	✓	646	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A	B	C
	A	0	33	416
	B	44	0	30
	C	599	47	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
		A	B	C
	A	0	0	0
	B	0	0	0
	C	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-AC	0.21	11.62	0.3	B	68	102
C-AB	0.16	4.54	0.5	A	111	167
C-A					482	722
A-B					30	45
A-C					382	573

Main Results for each time segment

00:00 - 00:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	56	14	467	0.119	55	0.0	0.1	8.730	A
C-AB	74	18	868	0.085	73	0.0	0.2	4.525	A
C-A	413	103			413				
A-B	25	6			25				
A-C	313	78			313				

00:15 - 00:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	67	17	436	0.153	66	0.1	0.2	9.743	A
C-AB	103	26	918	0.112	102	0.2	0.2	4.419	A
C-A	478	120			478				
A-B	30	7			30				
A-C	374	93			374				

00:30 - 00:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	81	20	391	0.208	81	0.2	0.3	11.591	B
C-AB	156	39	989	0.158	156	0.2	0.4	4.328	A
C-A	555	139			555				
A-B	36	9			36				
A-C	458	115			458				

00:45 - 01:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	81	20	391	0.208	81	0.3	0.3	11.619	B
C-AB	157	39	989	0.159	157	0.4	0.5	4.336	A
C-A	554	139			554				
A-B	36	9			36				
A-C	458	115			458				

01:00 - 01:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	67	17	436	0.153	67	0.3	0.2	9.772	A
C-AB	103	26	918	0.112	104	0.5	0.3	4.429	A
C-A	478	119			478				
A-B	30	7			30				
A-C	374	93			374				

01:15 - 01:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	56	14	467	0.119	56	0.2	0.1	8.764	A
C-AB	74	19	869	0.085	74	0.3	0.2	4.536	A
C-A	412	103			412				
A-B	25	6			25				
A-C	313	78			313				

Junctions 9				
PICADY 9 - Priority Intersection Module				
Version: 9.5.2.1013 © Copyright TRL Limited, 2019				
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Report generation date: 06/09/2024 09:32:41

»Base + Com + Dev 2029 , AM

»Base + Com + Dev 2029, PM

Summary of junction performance

	AM					PM				
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Set ID	Queue (PCU)	Delay (s)	RFC	LOS
Base + Com + Dev 2029										
Stream B-AC	D1	0.1	11.73	0.08	B	D2	0.2	11.04	0.14	B
Stream C-AB		0.4	5.64	0.14	A		0.1	4.29	0.06	A

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

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

File summary

File Description

Title	
Location	
Site number	
Date	06/09/2024
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	AzureAD\AlexSwanston
Description	

Units

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

Analysis Options

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

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	Base + Com + Dev 2029	AM	ONE HOUR	08:00	09:30	15
D2	Base + Com + Dev 2029	PM	ONE HOUR	17:00	18:30	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

Base + Com + Dev 2029 , AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		0.65	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	untitled		Major
B	untitled		Minor
C	untitled		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C	6.00			0.0	✓	0.00

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

Minor Arm Geometry

Arm	Minor arm type	Lane width (m)	Visibility to left (m)	Visibility to right (m)
B	One lane	2.20	0	0

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
B-A	440	0.080	0.202	0.127	0.289
B-C	574	0.088	0.222	-	-
C-B	574	0.222	0.222	-	-

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

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

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	Base + Com + Dev 2029	AM	ONE HOUR	08:00	09:30	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	697	100.000
B		✓	25	100.000
C		✓	455	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A	B	C
	A	0	13	684
	B	6	0	19
	C	417	38	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
		A	B	C
	A	0	0	0
	B	0	0	0
	C	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.08	11.73	0.1	B
C-AB	0.14	5.64	0.4	A
C-A				
A-B				
A-C				

Main Results for each time segment

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	19	401	0.047	19	0.0	9.416	A
C-AB	52	691	0.076	52	0.1	5.628	A
C-A	290			290			
A-B	10			10			
A-C	515			515			

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	22	373	0.060	22	0.1	10.256	B
C-AB	72	719	0.100	71	0.2	5.563	A
C-A	337			337			
A-B	12			12			
A-C	615			615			

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	28	334	0.082	27	0.1	11.722	B
C-AB	106	760	0.140	106	0.4	5.511	A
C-A	395			395			
A-B	14			14			
A-C	753			753			

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	28	334	0.082	28	0.1	11.731	B
C-AB	107	760	0.140	107	0.4	5.523	A
C-A	394			394			
A-B	14			14			
A-C	753			753			

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	22	373	0.060	23	0.1	10.268	B
C-AB	72	720	0.100	73	0.2	5.575	A
C-A	337			337			
A-B	12			12			
A-C	615			615			

09:15 - 09:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	19	401	0.047	19	0.0	9.430	A
C-AB	53	692	0.076	53	0.1	5.642	A
C-A	290			290			
A-B	10			10			
A-C	515			515			

Base + Com + Dev 2029, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		0.62	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D2	Base + Com + Dev 2029	PM	ONE HOUR	17:00	18:30	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	439	100.000
B		✓	47	100.000
C		✓	692	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
	A	B	C	
From	A	0	5	434
	B	12	0	35
	C	676	16	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
	A	B	C	
From	A	0	0	0
	B	0	0	0
	C	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.14	11.04	0.2	B
C-AB	0.06	4.29	0.1	A
C-A				
A-B				
A-C				

Main Results for each time segment

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	35	430	0.082	35	0.1	9.099	A
C-AB	29	868	0.034	29	0.0	4.291	A
C-A	492			492			
A-B	4			4			
A-C	327			327			

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	42	409	0.103	42	0.1	9.815	A
C-AB	42	930	0.045	42	0.1	4.052	A
C-A	580			580			
A-B	4			4			
A-C	390			390			

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	52	378	0.137	52	0.2	11.028	B
C-AB	66	1018	0.065	66	0.1	3.779	A
C-A	696			696			
A-B	6			6			
A-C	478			478			

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	52	378	0.137	52	0.2	11.039	B
C-AB	66	1018	0.065	66	0.1	3.783	A
C-A	696			696			
A-B	6			6			
A-C	478			478			

18:00 - 18:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	42	409	0.103	42	0.1	9.830	A
C-AB	42	930	0.045	42	0.1	4.056	A
C-A	580			580			
A-B	4			4			
A-C	390			390			

18:15 - 18:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	35	430	0.082	35	0.1	9.120	A
C-AB	29	868	0.034	29	0.0	4.292	A
C-A	492			492			
A-B	4			4			
A-C	327			327			

APPENDIX L: LINSIG Model Outputs

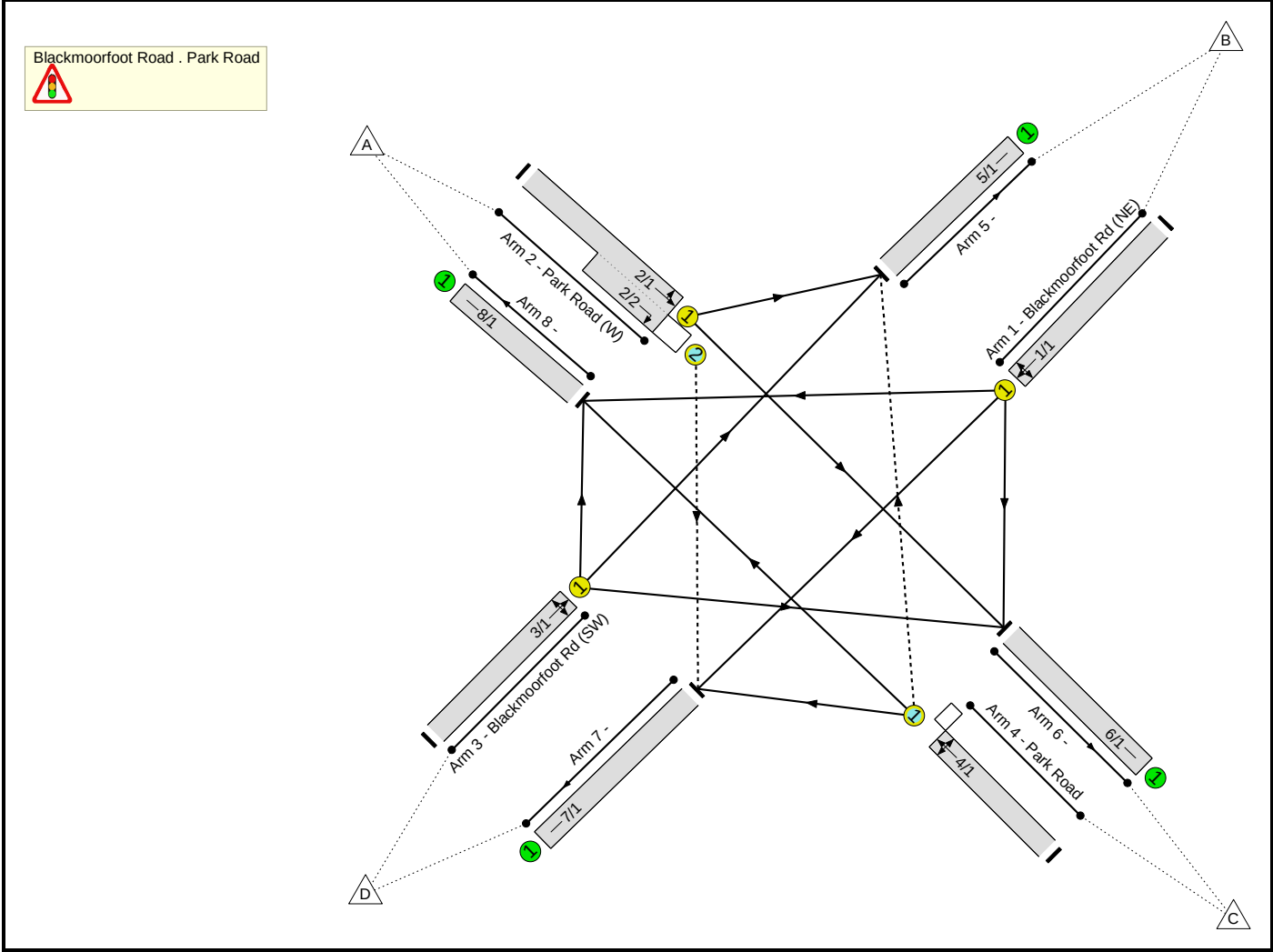
Full Input Data And Results

Full Input Data And Results

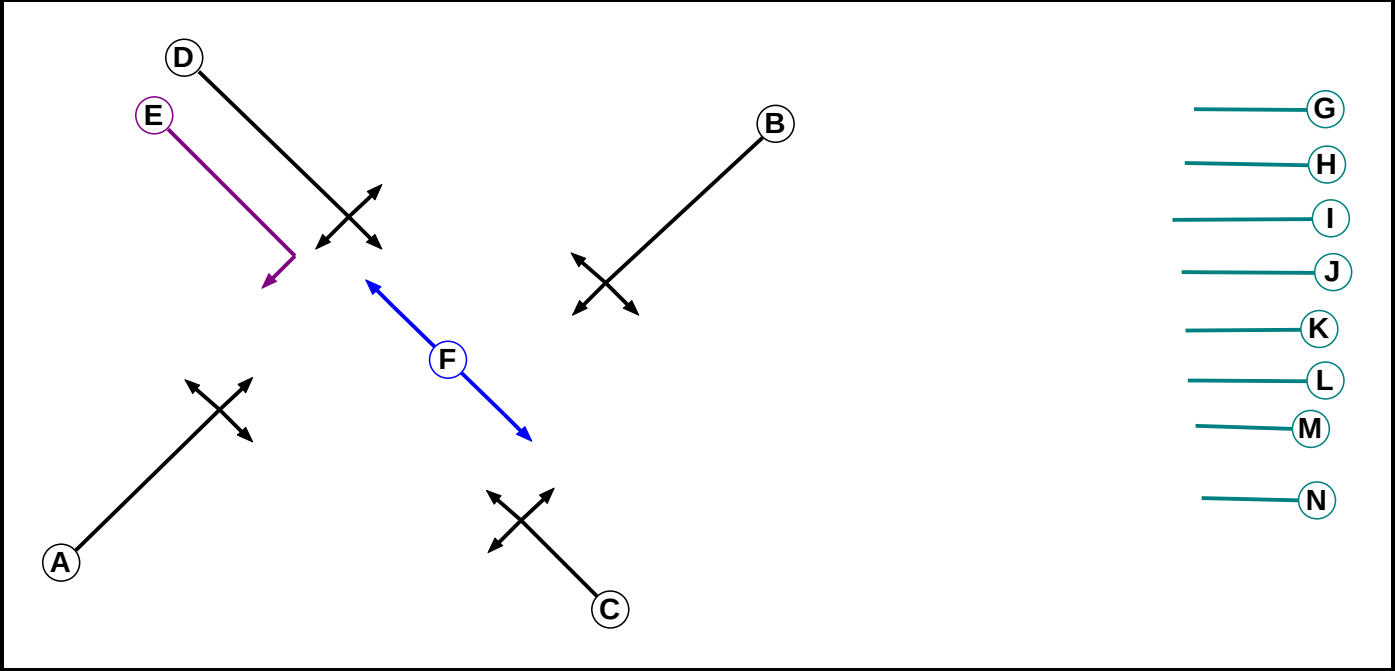
User and Project Details

Project:	
Title:	
Location:	
File name:	02 2024 Blackmoorfoot Rd_Park Rd Via.lsg3x
Author:	
Company:	
Address:	
Notes:	

Network Layout Diagram



Phase Diagram



Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	Traffic		7	7
E	Ind. Arrow	D	4	4
F	Pedestrian		7	7
G	Dummy		7	7
H	Dummy		7	7
I	Dummy		7	7
J	Dummy		7	7
K	Dummy		7	7
L	Dummy		7	7
M	Dummy		7	7
N	Dummy		7	7

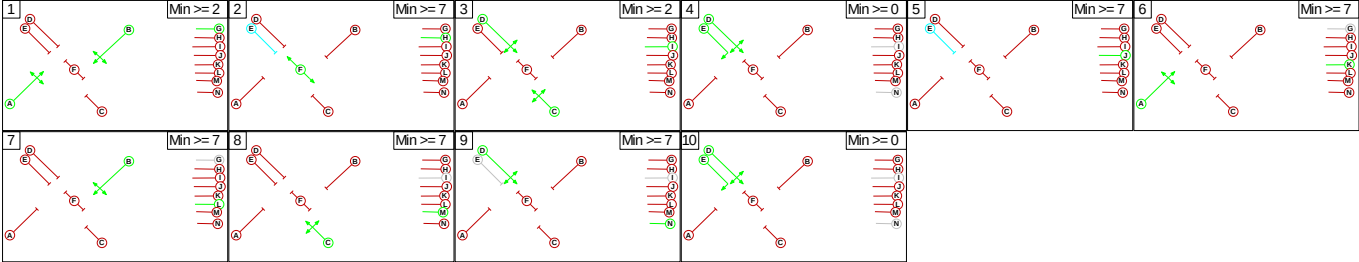
Phase Intergreens Matrix

Terminating Phase	Starting Phase														
		A	B	C	D	E	F	G	H	I	J	K	L	M	N
	A		-	8	8	8	8	-	8	8	3	-	5	8	8
	B	-		8	8	8	8	-	8	8	3	5	-	8	8
	C	6	6		-	5	8	6	8	-	3	6	6	-	5
	D	6	6	-		-	8	6	8	-	3	6	6	5	-
	E	6	6	5	-		-	-	-	-	-	-	-	-	-
	F	8	8	8	8	-		8	-	8	3	8	8	8	8
	G	-	-	8	8	-	8		8	-	3	-	-	-	-
	H	8	8	8	8	-	-	8		8	3	8	8	8	8
	I	6	6	-	-	-	8	-	8		3	-	-	-	-
	J	2	2	2	2	-	2	2	2	2		2	2	2	2
	K	-	5	8	8	-	8	-	8	-	3		-	-	-
	L	5	-	8	8	-	8	-	8	-	3	-		-	-
	M	6	6	-	5	-	8	-	8	-	3	-	-		-
	N	6	6	5	-	-	8	-	8	-	3	-	-	-	

Phases in Stage

Stage No.	Phases in Stage
1	A B G
2	F H
3	C D I
4	D E
5	J
6	A K
7	B L
8	C M
9	D N
10	D E

Stage Diagram



Phase Delays

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

Prohibited Stage Change

From Stage	To Stage										
		1	2	3	4	5	6	7	8	9	10
	1		8	8	8	3	5	5	8	8	8
	2	8		8	X	3	8	8	8	8	X
	3	6	8		5	3	6	6	5	5	5
	4	6	8	5		3	6	6	5	0	0
	5	2	2	2	X		2	2	2	2	X
	6	5	8	8	8	3		5	8	8	8
	7	5	8	8	8	3	5		8	8	8
	8	6	8	5	5	3	6	6		5	5
	9	6	8	5	0	3	6	6	5		0
	10	6	8	5	0	3	6	6	5	0	

Full Input Data And Results

Give-Way Lane Input Data

Junction: Blackmoorfoot Road . Park Road											
Lane	Movement	Max Flow when Giving Way (PCU/Hr)	Min Flow when Giving Way (PCU/Hr)	Opposing Lane	Opp. Lane Coeff.	Opp. Mvmnts.	Right Turn Storage (PCU)	Non-Blocking Storage (PCU)	RTF	Right Turn Move up (s)	Max Turns in Intergreen (PCU)
2/2 (Park Road (W))	7/1 (Right)	1439	0	4/1	1.09	To 5/1 (Right) To 8/1 (Ahead)	2.00	-	0.50	2	2.00
4/1 (Park Road)	5/1 (Right)	1439	0	2/1	1.09	All	1.00	2.00	0.50	1	1.00
				2/2	1.09	All					

Full Input Data And Results

Lane Input Data

Junction: Blackmoorfoot Road . Park Road												
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 (Blackmoorfoot Rd (NE))	U	B	2	3	60.0	Geom	-	3.50	0.00	Y	Arm 6 Left	15.00
											Arm 7 Ahead	Inf
											Arm 8 Right	20.00
2/1 (Park Road (W))	U	D	2	3	60.0	Geom	-	2.50	0.00	Y	Arm 5 Left	15.00
											Arm 6 Ahead	Inf
2/2 (Park Road (W))	O	D E	2	3	6.0	Geom	-	2.50	0.00	Y	Arm 7 Right	20.00
3/1 (Blackmoorfoot Rd (SW))	U	A	2	3	60.0	Geom	-	3.40	6.00	Y	Arm 5 Ahead	Inf
											Arm 6 Right	20.00
											Arm 8 Left	10.00
4/1 (Park Road)	O	C	2	3	60.0	Geom	-	3.50	0.00	Y	Arm 5 Right	15.00
											Arm 7 Left	10.00
											Arm 8 Ahead	Inf
5/1	U		2	3	60.0	Inf	-	-	-	-	-	-
6/1	U		2	3	60.0	Inf	-	-	-	-	-	-
7/1	U		2	3	60.0	Inf	-	-	-	-	-	-
8/1	U		2	3	60.0	Inf	-	-	-	-	-	-

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: '2024 AM'	08:00	09:00	01:00	F1 * 1.058
2: '2024 PM'	17:00	18:00	01:00	
3: '2029 AM'	08:00	09:00	01:00	
4: '2029 PM'	17:00	18:00	01:00	F2 * 1.0587
9: '2029 + Comm AM'	08:00	09:00	01:00	F3 + F7
10: '2029 + Comm PM'	17:00	18:00	01:00	F4 + F8
11: '2029 + Comm + Dev AM'	08:00	09:00	01:00	F5 + F9
12: '2029 + Comm + Dev PM'	17:00	18:00	01:00	F6 + F10

Scenario 1: '2024 AM' (FG1: '2024 AM', Plan 1: 'Pedestrians Every Cycle')
Traffic Flows, Desired
Desired Flow :

	Destination					
Origin		A	B	C	D	Tot.
	A	0	56	163	30	249
	B	52	0	57	485	594
	C	329	83	0	27	439
	D	31	256	16	0	303
	Tot.	412	395	236	542	1585

Traffic Lane Flows

Lane	Scenario 1: 2024 AM
Junction: Blackmoorfoot Road . Park Road	
1/1	594
2/1 (with short)	249(In) 219(Out)
2/2 (short)	30
3/1	303
4/1	439
5/1	395
6/1	236
7/1	542
8/1	412

Lane Saturation Flows

Junction: Blackmoorfoot Road . Park Road								
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 (Blackmoorfoot Rd (NE))	3.50	0.00	Y	Arm 6 Left	15.00	9.6 %	1934	1934
				Arm 7 Ahead	Inf	81.6 %		
				Arm 8 Right	20.00	8.8 %		
2/1 (Park Road (W))	2.50	0.00	Y	Arm 5 Left	15.00	25.6 %	1818	1818
				Arm 6 Ahead	Inf	74.4 %		
2/2 (Park Road (W))	2.50	0.00	Y	Arm 7 Right	20.00	100.0 %	1735	1735
3/1 (Blackmoorfoot Rd (SW))	3.40	6.00	Y	Arm 5 Ahead	Inf	84.5 %	1671	1671
				Arm 6 Right	20.00	5.3 %		
				Arm 8 Left	10.00	10.2 %		
4/1 (Park Road)	3.50	0.00	Y	Arm 5 Right	15.00	18.9 %	1911	1911
				Arm 7 Left	10.00	6.2 %		
				Arm 8 Ahead	Inf	74.9 %		
5/1	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf
7/1	Infinite Saturation Flow						Inf	Inf
8/1	Infinite Saturation Flow						Inf	Inf

Scenario 2: '2024 PM' (FG2: '2024 PM', Plan 1: 'Pedestrians Every Cycle')

Traffic Flows, Desired

Desired Flow :

	Destination					
Origin		A	B	C	D	Tot.
	A	0	57	230	32	319
	B	82	0	69	264	415
	C	301	104	0	33	438
	D	64	339	16	0	419
	Tot.	447	500	315	329	1591

Traffic Lane Flows

Lane	Scenario 2: 2024 PM
Junction: Blackmoorfoot Road . Park Road	
1/1	415
2/1 (with short)	319(In) 287(Out)
2/2 (short)	32
3/1	419
4/1	438
5/1	500
6/1	315
7/1	329
8/1	447

Lane Saturation Flows

Junction: Blackmoorfoot Road . Park Road								
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 (Blackmoorfoot Rd (NE))	3.50	0.00	Y	Arm 6 Left	15.00	16.6 %	1905	1905
				Arm 7 Ahead	Inf	63.6 %		
				Arm 8 Right	20.00	19.8 %		
2/1 (Park Road (W))	2.50	0.00	Y	Arm 5 Left	15.00	19.9 %	1829	1829
				Arm 6 Ahead	Inf	80.1 %		
2/2 (Park Road (W))	2.50	0.00	Y	Arm 7 Right	20.00	100.0 %	1735	1735
3/1 (Blackmoorfoot Rd (SW))	3.40	6.00	Y	Arm 5 Ahead	Inf	80.9 %	1660	1660
				Arm 6 Right	20.00	3.8 %		
				Arm 8 Left	10.00	15.3 %		
4/1 (Park Road)	3.50	0.00	Y	Arm 5 Right	15.00	23.7 %	1898	1898
				Arm 7 Left	10.00	7.5 %		
				Arm 8 Ahead	Inf	68.7 %		
5/1	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf
7/1	Infinite Saturation Flow						Inf	Inf
8/1	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Scenario 3: '2029 AM' (FG3: '2029 AM', Plan 1: 'Pedestrians Every Cycle')

Traffic Flows, Desired

Desired Flow :

	Destination					
		A	B	C	D	Tot.
Origin	A	0	59	172	32	263
	B	55	0	60	513	628
	C	348	88	0	29	465
	D	33	271	17	0	321
	Tot.	436	418	249	574	1677

Traffic Lane Flows

Lane	Scenario 3: 2029 AM
Junction: Blackmoorfoot Road . Park Road	
1/1	628
2/1 (with short)	263(In) 231(Out)
2/2 (short)	32
3/1	321
4/1	465
5/1	418
6/1	249
7/1	574
8/1	436

Lane Saturation Flows

Junction: Blackmoorfoot Road . Park Road								
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 (Blackmoorfoot Rd (NE))	3.50	0.00	Y	Arm 6 Left	15.00	9.6 %	1934	1934
				Arm 7 Ahead	Inf	81.7 %		
				Arm 8 Right	20.00	8.8 %		
2/1 (Park Road (W))	2.50	0.00	Y	Arm 5 Left	15.00	25.5 %	1819	1819
				Arm 6 Ahead	Inf	74.5 %		
2/2 (Park Road (W))	2.50	0.00	Y	Arm 7 Right	20.00	100.0 %	1735	1735
3/1 (Blackmoorfoot Rd (SW))	3.40	6.00	Y	Arm 5 Ahead	Inf	84.4 %	1671	1671
				Arm 6 Right	20.00	5.3 %		
				Arm 8 Left	10.00	10.3 %		
4/1 (Park Road)	3.50	0.00	Y	Arm 5 Right	15.00	18.9 %	1911	1911
				Arm 7 Left	10.00	6.2 %		
				Arm 8 Ahead	Inf	74.8 %		
5/1	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf
7/1	Infinite Saturation Flow						Inf	Inf
8/1	Infinite Saturation Flow						Inf	Inf

Scenario 4: '2029 PM' (FG4: '2029 PM', Plan 1: 'Pedestrians Every Cycle')

Traffic Flows, Desired

Desired Flow :

	Destination					
		A	B	C	D	Tot.
Origin	A	0	60	244	34	338
	B	87	0	73	279	439
	C	319	110	0	35	464
	D	68	359	17	0	444
	Tot.	474	529	334	348	1685

Traffic Lane Flows

Lane Saturation Flows

Junction: Blackmoorfoot Road . Park Road								
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 (Blackmoorfoot Rd (NE))	3.50	0.00	Y	Arm 6 Left	15.00	16.6 %	1905	1905
				Arm 7 Ahead	Inf	63.6 %		
				Arm 8 Right	20.00	19.8 %		
2/1 (Park Road (W))	2.50	0.00	Y	Arm 5 Left	15.00	19.7 %	1829	1829
				Arm 6 Ahead	Inf	80.3 %		
2/2 (Park Road (W))	2.50	0.00	Y	Arm 7 Right	20.00	100.0 %	1735	1735
3/1 (Blackmoorfoot Rd (SW))	3.40	6.00	Y	Arm 5 Ahead	Inf	80.9 %	1660	1660
				Arm 6 Right	20.00	3.8 %		
				Arm 8 Left	10.00	15.3 %		
4/1 (Park Road)	3.50	0.00	Y	Arm 5 Right	15.00	23.7 %	1899	1899
				Arm 7 Left	10.00	7.5 %		
				Arm 8 Ahead	Inf	68.8 %		
5/1	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf
7/1	Infinite Saturation Flow						Inf	Inf
8/1	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Scenario 5: '2029 + Comm AM' (FG9: '2029 + Comm AM', Plan 1: 'Pedestrians Every Cycle')

Traffic Flows, Desired

Desired Flow :

	Destination					
Origin		A	B	C	D	Tot.
	A	0	59	172	39	270
	B	55	0	60	627	742
	C	348	88	0	43	479
	D	48	525	48	0	621
	Tot.	451	672	280	709	2112

Traffic Lane Flows

Lane	Scenario 5: 2029 + Comm AM
Junction: Blackmoorfoot Road . Park Road	
1/1	742
2/1 (with short)	270(In) 231(Out)
2/2 (short)	39
3/1	621
4/1	479
5/1	672
6/1	280
7/1	709
8/1	451

Lane Saturation Flows

Junction: Blackmoorfoot Road . Park Road								
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 (Blackmoorfoot Rd (NE))	3.50	0.00	Y	Arm 6 Left	15.00	8.1 %	1939	1939
				Arm 7 Ahead	Inf	84.5 %		
				Arm 8 Right	20.00	7.4 %		
2/1 (Park Road (W))	2.50	0.00	Y	Arm 5 Left	15.00	25.5 %	1819	1819
				Arm 6 Ahead	Inf	74.5 %		
2/2 (Park Road (W))	2.50	0.00	Y	Arm 7 Right	20.00	100.0 %	1735	1735
3/1 (Blackmoorfoot Rd (SW))	3.40	6.00	Y	Arm 5 Ahead	Inf	84.5 %	1674	1674
				Arm 6 Right	20.00	7.7 %		
				Arm 8 Left	10.00	7.7 %		
4/1 (Park Road)	3.50	0.00	Y	Arm 5 Right	15.00	18.4 %	1904	1904
				Arm 7 Left	10.00	9.0 %		
				Arm 8 Ahead	Inf	72.7 %		
5/1	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf
7/1	Infinite Saturation Flow						Inf	Inf
8/1	Infinite Saturation Flow						Inf	Inf

Scenario 6: '2029 + Comm PM' (FG10: '2029 + Comm PM', Plan 1: 'Pedestrians Every Cycle')**Traffic Flows, Desired****Desired Flow :**

	Destination					
		A	B	C	D	Tot.
Origin	A	0	60	244	49	353
	B	87	0	73	520	680
	C	319	110	0	64	493
	D	77	515	36	0	628
	Tot.	483	685	353	633	2154

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 6: 2029 + Comm PM
Junction: Blackmoorfoot Road . Park Road	
1/1	680
2/1 (with short)	353(In) 304(Out)
2/2 (short)	49
3/1	628
4/1	493
5/1	685
6/1	353
7/1	633
8/1	483

Lane Saturation Flows

Junction: Blackmoorfoot Road . Park Road								
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 (Blackmoorfoot Rd (NE))	3.50	0.00	Y	Arm 6 Left	15.00	10.7 %	1926	1926
				Arm 7 Ahead	Inf	76.5 %		
				Arm 8 Right	20.00	12.8 %		
2/1 (Park Road (W))	2.50	0.00	Y	Arm 5 Left	15.00	19.7 %	1829	1829
				Arm 6 Ahead	Inf	80.3 %		
2/2 (Park Road (W))	2.50	0.00	Y	Arm 7 Right	20.00	100.0 %	1735	1735
3/1 (Blackmoorfoot Rd (SW))	3.40	6.00	Y	Arm 5 Ahead	Inf	82.0 %	1665	1665
				Arm 6 Right	20.00	5.7 %		
				Arm 8 Left	10.00	12.3 %		
4/1 (Park Road)	3.50	0.00	Y	Arm 5 Right	15.00	22.3 %	1886	1886
				Arm 7 Left	10.00	13.0 %		
				Arm 8 Ahead	Inf	64.7 %		
5/1	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf
7/1	Infinite Saturation Flow						Inf	Inf
8/1	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Scenario 7: '2029 + Comm + Dev AM' (FG11: '2029 + Comm + Dev AM', Plan 1: 'Pedestrians Every Cycle')

Traffic Flows, Desired

Desired Flow :

	Destination					
Origin		A	B	C	D	Tot.
	A	0	59	172	41	272
	B	55	0	60	646	761
	C	348	88	0	55	491
	D	48	535	48	0	631
	Tot.	451	682	280	742	2155

Traffic Lane Flows

Lane	Scenario 7: 2029 + Comm + Dev AM
Junction: Blackmoorfoot Road . Park Road	
1/1	761
2/1 (with short)	272(In) 231(Out)
2/2 (short)	41
3/1	631
4/1	491
5/1	682
6/1	280
7/1	742
8/1	451

Lane Saturation Flows

Junction: Blackmoorfoot Road . Park Road								
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 (Blackmoorfoot Rd (NE))	3.50	0.00	Y	Arm 6 Left	15.00	7.9 %	1939	1939
				Arm 7 Ahead	Inf	84.9 %		
				Arm 8 Right	20.00	7.2 %		
2/1 (Park Road (W))	2.50	0.00	Y	Arm 5 Left	15.00	25.5 %	1819	1819
				Arm 6 Ahead	Inf	74.5 %		
2/2 (Park Road (W))	2.50	0.00	Y	Arm 7 Right	20.00	100.0 %	1735	1735
3/1 (Blackmoorfoot Rd (SW))	3.40	6.00	Y	Arm 5 Ahead	Inf	84.8 %	1674	1674
				Arm 6 Right	20.00	7.6 %		
				Arm 8 Left	10.00	7.6 %		
4/1 (Park Road)	3.50	0.00	Y	Arm 5 Right	15.00	17.9 %	1899	1899
				Arm 7 Left	10.00	11.2 %		
				Arm 8 Ahead	Inf	70.9 %		
5/1	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf
7/1	Infinite Saturation Flow						Inf	Inf
8/1	Infinite Saturation Flow						Inf	Inf

Scenario 8: '2029 + Comm + Dev PM' (FG12: '2029 + Comm + Dev PM', Plan 1: 'Pedestrians Every Cycle')

Traffic Flows, Desired

Desired Flow :

	Destination					
		A	B	C	D	Tot.
Origin	A	0	60	244	50	354
	B	87	0	73	528	688
	C	319	110	0	69	498
	D	77	533	36	0	646
	Tot.	483	703	353	647	2186

Traffic Lane Flows

Lane	Scenario 8: 2029 + Comm + Dev PM
Junction: Blackmoorfoot Road . Park Road	
1/1	688
2/1 (with short)	354(In) 304(Out)
2/2 (short)	50
3/1	646
4/1	498
5/1	703
6/1	353
7/1	647
8/1	483

Lane Saturation Flows

Junction: Blackmoorfoot Road . Park Road								
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 (Blackmoorfoot Rd (NE))	3.50	0.00	Y	Arm 6 Left	15.00	10.6 %	1926	1926
				Arm 7 Ahead	Inf	76.7 %		
				Arm 8 Right	20.00	12.6 %		
2/1 (Park Road (W))	2.50	0.00	Y	Arm 5 Left	15.00	19.7 %	1829	1829
				Arm 6 Ahead	Inf	80.3 %		
2/2 (Park Road (W))	2.50	0.00	Y	Arm 7 Right	20.00	100.0 %	1735	1735
3/1 (Blackmoorfoot Rd (SW))	3.40	6.00	Y	Arm 5 Ahead	Inf	82.5 %	1666	1666
				Arm 6 Right	20.00	5.6 %		
				Arm 8 Left	10.00	11.9 %		
4/1 (Park Road)	3.50	0.00	Y	Arm 5 Right	15.00	22.1 %	1884	1884
				Arm 7 Left	10.00	13.9 %		
				Arm 8 Ahead	Inf	64.1 %		
5/1	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf
7/1	Infinite Saturation Flow						Inf	Inf
8/1	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Scenario 9: '2024 AM' (FG1: '2024 AM', Plan 2: 'Pedestrians Every Other Cycle')

Traffic Flows, Desired

Desired Flow :

	Destination					
Origin		A	B	C	D	Tot.
	A	0	56	163	30	249
	B	52	0	57	485	594
	C	329	83	0	27	439
	D	31	256	16	0	303
	Tot.	412	395	236	542	1585

Traffic Lane Flows

Lane	Scenario 9: 2024 AM
Junction: Blackmoorfoot Road . Park Road	
1/1	594
2/1 (with short)	249(In) 219(Out)
2/2 (short)	30
3/1	303
4/1	439
5/1	395
6/1	236
7/1	542
8/1	412

Lane Saturation Flows

Junction: Blackmoorfoot Road . Park Road								
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 (Blackmoorfoot Rd (NE))	3.50	0.00	Y	Arm 6 Left	15.00	9.6 %	1934	1934
				Arm 7 Ahead	Inf	81.6 %		
				Arm 8 Right	20.00	8.8 %		
2/1 (Park Road (W))	2.50	0.00	Y	Arm 5 Left	15.00	25.6 %	1818	1818
				Arm 6 Ahead	Inf	74.4 %		
2/2 (Park Road (W))	2.50	0.00	Y	Arm 7 Right	20.00	100.0 %	1735	1735
3/1 (Blackmoorfoot Rd (SW))	3.40	6.00	Y	Arm 5 Ahead	Inf	84.5 %	1671	1671
				Arm 6 Right	20.00	5.3 %		
				Arm 8 Left	10.00	10.2 %		
4/1 (Park Road)	3.50	0.00	Y	Arm 5 Right	15.00	18.9 %	1911	1911
				Arm 7 Left	10.00	6.2 %		
				Arm 8 Ahead	Inf	74.9 %		
5/1	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf
7/1	Infinite Saturation Flow						Inf	Inf
8/1	Infinite Saturation Flow						Inf	Inf

Scenario 10: '2024 PM' (FG2: '2024 PM', Plan 2: 'Pedestrians Every Other Cycle')

Traffic Flows, Desired

Desired Flow :

	Destination					
		A	B	C	D	Tot.
Origin	A	0	57	230	32	319
	B	82	0	69	264	415
	C	301	104	0	33	438
	D	64	339	16	0	419
	Tot.	447	500	315	329	1591

Traffic Lane Flows

Lane	Scenario 10: 2024 PM
Junction: Blackmoorfoot Road . Park Road	
1/1	415
2/1 (with short)	319(In) 287(Out)
2/2 (short)	32
3/1	419
4/1	438
5/1	500
6/1	315
7/1	329
8/1	447

Lane Saturation Flows

Junction: Blackmoorfoot Road . Park Road										
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 (Blackmoorfoot Rd (NE))	3.50	0.00	Y	Arm 6 Left	15.00	16.6 %	1905	1905		
				Arm 7 Ahead	Inf	63.6 %				
				Arm 8 Right	20.00	19.8 %				
2/1 (Park Road (W))	2.50	0.00	Y	Arm 5 Left	15.00	19.9 %	1829	1829		
				Arm 6 Ahead	Inf	80.1 %				
2/2 (Park Road (W))	2.50	0.00	Y	Arm 7 Right	20.00	100.0 %	1735	1735		
3/1 (Blackmoorfoot Rd (SW))	3.40	6.00	Y	Arm 5 Ahead	Inf	80.9 %	1660	1660		
				Arm 6 Right	20.00	3.8 %				
				Arm 8 Left	10.00	15.3 %				
4/1 (Park Road)	3.50	0.00	Y	Arm 5 Right	15.00	23.7 %	1898	1898		
				Arm 7 Left	10.00	7.5 %				
				Arm 8 Ahead	Inf	68.7 %				
5/1	Infinite Saturation Flow						Inf	Inf		
6/1	Infinite Saturation Flow						Inf	Inf		
7/1	Infinite Saturation Flow						Inf	Inf		
8/1	Infinite Saturation Flow						Inf	Inf		

Full Input Data And Results

Scenario 11: '2029 AM' (FG3: '2029 AM', Plan 2: 'Pedestrians Every Other Cycle')

Traffic Flows, Desired

Desired Flow :

	Destination					
Origin		A	B	C	D	Tot.
	A	0	59	172	32	263
	B	55	0	60	513	628
	C	348	88	0	29	465
	D	33	271	17	0	321
	Tot.	436	418	249	574	1677

Traffic Lane Flows

Lane	Scenario 11: 2029 AM
Junction: Blackmoorfoot Road . Park Road	
1/1	628
2/1 (with short)	263(In) 231(Out)
2/2 (short)	32
3/1	321
4/1	465
5/1	418
6/1	249
7/1	574
8/1	436

Lane Saturation Flows

Junction: Blackmoorfoot Road . Park Road								
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 (Blackmoorfoot Rd (NE))	3.50	0.00	Y	Arm 6 Left	15.00	9.6 %	1934	1934
				Arm 7 Ahead	Inf	81.7 %		
				Arm 8 Right	20.00	8.8 %		
2/1 (Park Road (W))	2.50	0.00	Y	Arm 5 Left	15.00	25.5 %	1819	1819
				Arm 6 Ahead	Inf	74.5 %		
2/2 (Park Road (W))	2.50	0.00	Y	Arm 7 Right	20.00	100.0 %	1735	1735
3/1 (Blackmoorfoot Rd (SW))	3.40	6.00	Y	Arm 5 Ahead	Inf	84.4 %	1671	1671
				Arm 6 Right	20.00	5.3 %		
				Arm 8 Left	10.00	10.3 %		
4/1 (Park Road)	3.50	0.00	Y	Arm 5 Right	15.00	18.9 %	1911	1911
				Arm 7 Left	10.00	6.2 %		
				Arm 8 Ahead	Inf	74.8 %		
5/1	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf
7/1	Infinite Saturation Flow						Inf	Inf
8/1	Infinite Saturation Flow						Inf	Inf

Scenario 12: '2029 PM' (FG4: '2029 PM', Plan 2: 'Pedestrians Every Other Cycle')

Traffic Flows, Desired

Desired Flow :

	Destination					
		A	B	C	D	Tot.
Origin	A	0	60	244	34	338
	B	87	0	73	279	439
	C	319	110	0	35	464
	D	68	359	17	0	444
	Tot.	474	529	334	348	1685

Traffic Lane Flows

Traffic Lane Flows

Junction: Blackmoorfoot Road . Park Road

Junction: Blackmoorfoot Road . Park Road								
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 (Blackmoorfoot Rd (NE))	3.50	0.00	Y	Arm 6 Left	15.00	16.6 %	1905	1905
				Arm 7 Ahead	Inf	63.6 %		
				Arm 8 Right	20.00	19.8 %		
2/1 (Park Road (W))	2.50	0.00	Y	Arm 5 Left	15.00	19.7 %	1829	1829
				Arm 6 Ahead	Inf	80.3 %		
2/2 (Park Road (W))	2.50	0.00	Y	Arm 7 Right	20.00	100.0 %	1735	1735
3/1 (Blackmoorfoot Rd (SW))	3.40	6.00	Y	Arm 5 Ahead	Inf	80.9 %	1660	1660
				Arm 6 Right	20.00	3.8 %		
				Arm 8 Left	10.00	15.3 %		
4/1 (Park Road)	3.50	0.00	Y	Arm 5 Right	15.00	23.7 %	1899	1899
				Arm 7 Left	10.00	7.5 %		
				Arm 8 Ahead	Inf	68.8 %		
5/1	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf
7/1	Infinite Saturation Flow						Inf	Inf
8/1	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Scenario 13: '2029 + Comm AM' (FG9: '2029 + Comm AM', Plan 2: 'Pedestrians Every Other Cycle')

Traffic Flows, Desired

Desired Flow :

	Destination					
Origin		A	B	C	D	Tot.
	A	0	59	172	39	270
	B	55	0	60	627	742
	C	348	88	0	43	479
	D	48	525	48	0	621
	Tot.	451	672	280	709	2112

Traffic Lane Flows

Lane	Scenario 13: 2029 + Comm AM
Junction: Blackmoorfoot Road . Park Road	
1/1	742
2/1 (with short)	270(In) 231(Out)
2/2 (short)	39
3/1	621
4/1	479
5/1	672
6/1	280
7/1	709
8/1	451

Lane Saturation Flows

Junction: Blackmoorfoot Road . Park Road								
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 (Blackmoorfoot Rd (NE))	3.50	0.00	Y	Arm 6 Left	15.00	8.1 %	1939	1939
				Arm 7 Ahead	Inf	84.5 %		
				Arm 8 Right	20.00	7.4 %		
2/1 (Park Road (W))	2.50	0.00	Y	Arm 5 Left	15.00	25.5 %	1819	1819
				Arm 6 Ahead	Inf	74.5 %		
2/2 (Park Road (W))	2.50	0.00	Y	Arm 7 Right	20.00	100.0 %	1735	1735
3/1 (Blackmoorfoot Rd (SW))	3.40	6.00	Y	Arm 5 Ahead	Inf	84.5 %	1674	1674
				Arm 6 Right	20.00	7.7 %		
				Arm 8 Left	10.00	7.7 %		
4/1 (Park Road)	3.50	0.00	Y	Arm 5 Right	15.00	18.4 %	1904	1904
				Arm 7 Left	10.00	9.0 %		
				Arm 8 Ahead	Inf	72.7 %		
5/1	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf
7/1	Infinite Saturation Flow						Inf	Inf
8/1	Infinite Saturation Flow						Inf	Inf

Scenario 14: '2029 + Comm PM' (FG10: '2029 + Comm PM', Plan 2: 'Pedestrians Every Other Cycle')

Traffic Flows, Desired

Desired Flow :

	Destination					
		A	B	C	D	Tot.
Origin	A	0	60	244	49	353
	B	87	0	73	520	680
	C	319	110	0	64	493
	D	77	515	36	0	628
	Tot.	483	685	353	633	2154

Traffic Lane Flows

Lane	Scenario 14: 2029 + Comm PM
Junction: Blackmoorfoot Road . Park Road	
1/1	680
2/1 (with short)	353(In) 304(Out)
2/2 (short)	49
3/1	628
4/1	493
5/1	685
6/1	353
7/1	633
8/1	483

Lane Saturation Flows

Junction: Blackmoorfoot Road . Park Road										
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 (Blackmoorfoot Rd (NE))	3.50	0.00	Y	Arm 6 Left	15.00	10.7 %	1926	1926		
				Arm 7 Ahead	Inf	76.5 %				
				Arm 8 Right	20.00	12.8 %				
2/1 (Park Road (W))	2.50	0.00	Y	Arm 5 Left	15.00	19.7 %	1829	1829		
				Arm 6 Ahead	Inf	80.3 %				
2/2 (Park Road (W))	2.50	0.00	Y	Arm 7 Right	20.00	100.0 %	1735	1735		
3/1 (Blackmoorfoot Rd (SW))	3.40	6.00	Y	Arm 5 Ahead	Inf	82.0 %	1665	1665		
				Arm 6 Right	20.00	5.7 %				
				Arm 8 Left	10.00	12.3 %				
4/1 (Park Road)	3.50	0.00	Y	Arm 5 Right	15.00	22.3 %	1886	1886		
				Arm 7 Left	10.00	13.0 %				
				Arm 8 Ahead	Inf	64.7 %				
5/1	Infinite Saturation Flow						Inf	Inf		
6/1	Infinite Saturation Flow						Inf	Inf		
7/1	Infinite Saturation Flow						Inf	Inf		
8/1	Infinite Saturation Flow						Inf	Inf		

Full Input Data And Results

Scenario 15: '2029 + Comm + Dev AM' (FG11: '2029 + Comm + Dev AM', Plan 2: 'Pedestrians Every Other Cycle')

Traffic Flows, Desired

Desired Flow :

	Destination					
Origin		A	B	C	D	Tot.
	A	0	59	172	41	272
	B	55	0	60	646	761
	C	348	88	0	55	491
	D	48	535	48	0	631
	Tot.	451	682	280	742	2155

Traffic Lane Flows

Lane	Scenario 15: 2029 + Comm + Dev AM
Junction: Blackmoorfoot Road . Park Road	
1/1	761
2/1 (with short)	272(In) 231(Out)
2/2 (short)	41
3/1	631
4/1	491
5/1	682
6/1	280
7/1	742
8/1	451

Lane Saturation Flows

Junction: Blackmoorfoot Road . Park Road								
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 (Blackmoorfoot Rd (NE))	3.50	0.00	Y	Arm 6 Left	15.00	7.9 %	1939	1939
				Arm 7 Ahead	Inf	84.9 %		
				Arm 8 Right	20.00	7.2 %		
2/1 (Park Road (W))	2.50	0.00	Y	Arm 5 Left	15.00	25.5 %	1819	1819
				Arm 6 Ahead	Inf	74.5 %		
2/2 (Park Road (W))	2.50	0.00	Y	Arm 7 Right	20.00	100.0 %	1735	1735
3/1 (Blackmoorfoot Rd (SW))	3.40	6.00	Y	Arm 5 Ahead	Inf	84.8 %	1674	1674
				Arm 6 Right	20.00	7.6 %		
				Arm 8 Left	10.00	7.6 %		
4/1 (Park Road)	3.50	0.00	Y	Arm 5 Right	15.00	17.9 %	1899	1899
				Arm 7 Left	10.00	11.2 %		
				Arm 8 Ahead	Inf	70.9 %		
5/1	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf
7/1	Infinite Saturation Flow						Inf	Inf
8/1	Infinite Saturation Flow						Inf	Inf

Scenario 16: '2029 + Comm + Dev PM' (FG12: '2029 + Comm + Dev PM', Plan 2: 'Pedestrians Every Other Cycle')

Traffic Flows, Desired**Desired Flow :**

	Destination					
		A	B	C	D	Tot.
Origin	A	0	60	244	50	354
	B	87	0	73	528	688
	C	319	110	0	69	498
	D	77	533	36	0	646
	Tot.	483	703	353	647	2186

Traffic Lane Flows

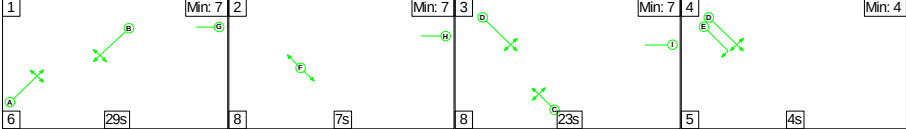
Lane	Scenario 16: 2029 + Comm + Dev PM
Junction: Blackmoorfoot Road . Park Road	
1/1	688
2/1 (with short)	354(In) 304(Out)
2/2 (short)	50
3/1	646
4/1	498
5/1	703
6/1	353
7/1	647
8/1	483

Lane Saturation Flows

Junction: Blackmoorfoot Road . Park Road								
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 (Blackmoorfoot Rd (NE))	3.50	0.00	Y	Arm 6 Left	15.00	10.6 %	1926	1926
				Arm 7 Ahead	Inf	76.7 %		
				Arm 8 Right	20.00	12.6 %		
2/1 (Park Road (W))	2.50	0.00	Y	Arm 5 Left	15.00	19.7 %	1829	1829
				Arm 6 Ahead	Inf	80.3 %		
2/2 (Park Road (W))	2.50	0.00	Y	Arm 7 Right	20.00	100.0 %	1735	1735
3/1 (Blackmoorfoot Rd (SW))	3.40	6.00	Y	Arm 5 Ahead	Inf	82.5 %	1666	1666
				Arm 6 Right	20.00	5.6 %		
				Arm 8 Left	10.00	11.9 %		
4/1 (Park Road)	3.50	0.00	Y	Arm 5 Right	15.00	22.1 %	1884	1884
				Arm 7 Left	10.00	13.9 %		
				Arm 8 Ahead	Inf	64.1 %		
5/1	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf
7/1	Infinite Saturation Flow						Inf	Inf
8/1	Infinite Saturation Flow						Inf	Inf

Scenario 1: '2024 AM' (FG1: '2024 AM', Plan 1: 'Pedestrians Every Cycle')

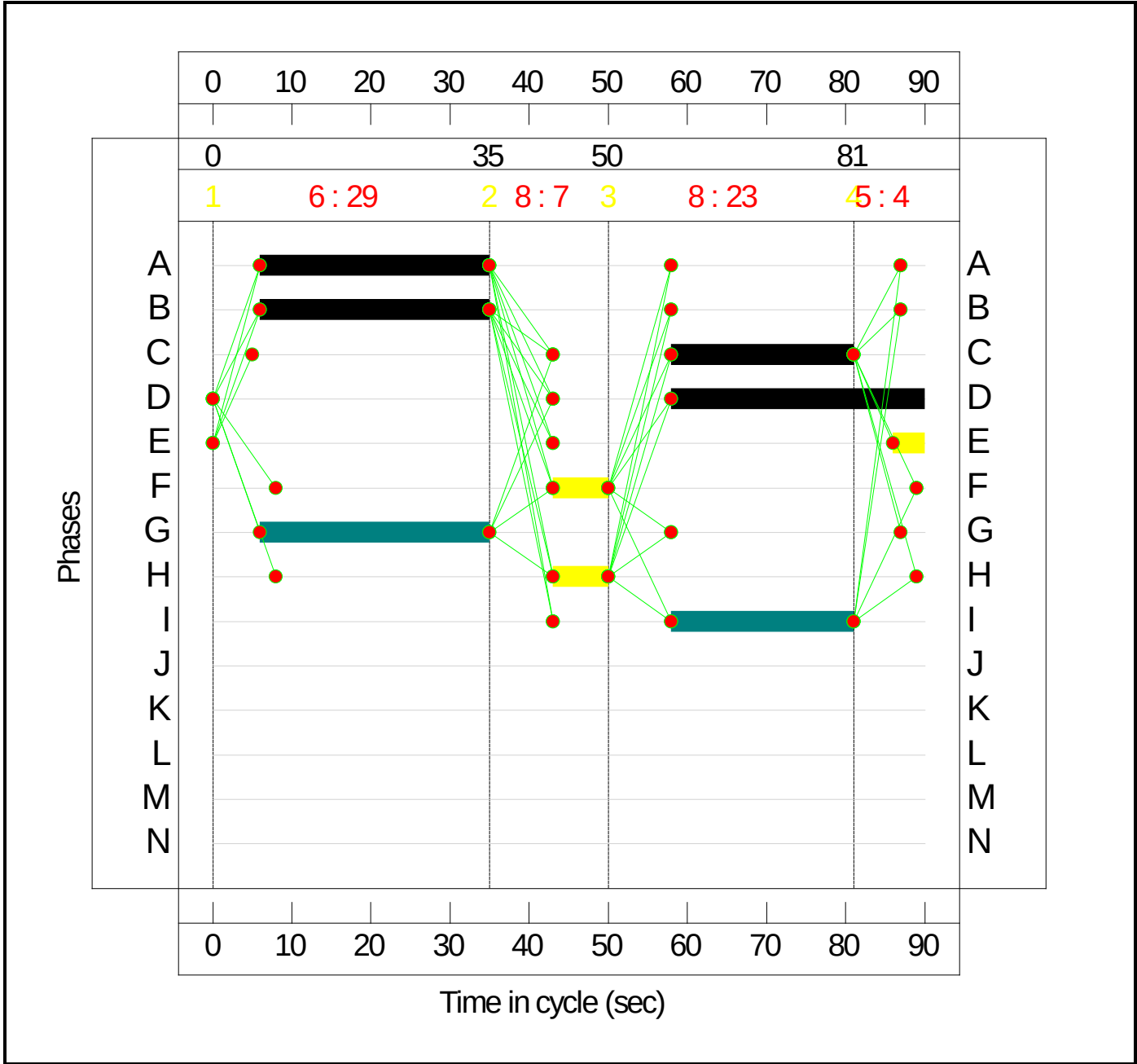
Stage Sequence Diagram



Stage Timings

Stage	1	2	3	4
Duration	29	7	23	4
Change Point	0	35	50	81

Signal Timings Diagram



Full Input Data And Results

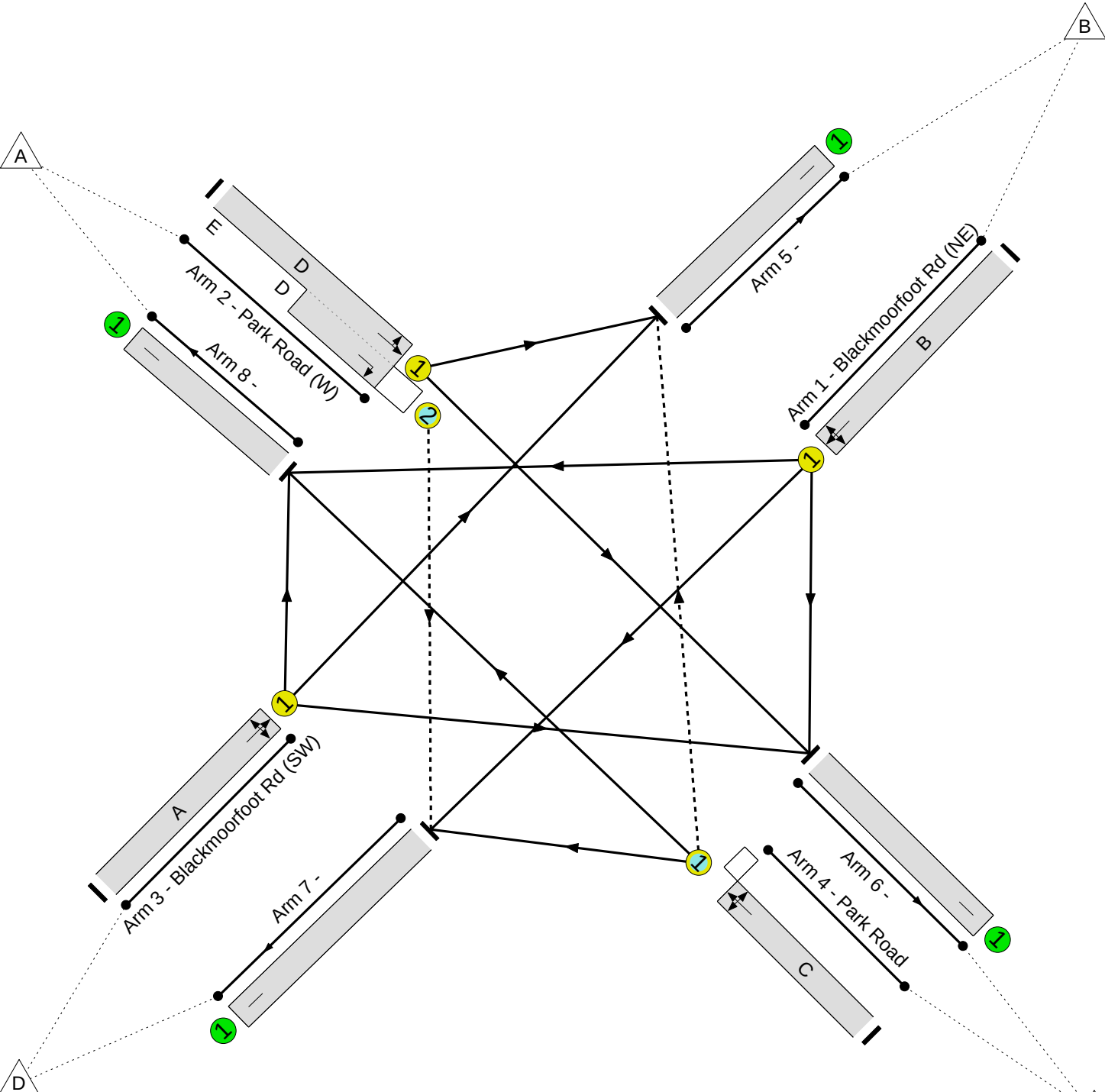
Network Layout Diagram



Blackmoorfoot Road . Park Road

PRC: -2.4 %

Total Traffic Delay: 22.8 pcuHr



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	-	-	N/A	-	-		-	-	-	-	-	-	92.1%
Blackmoorfoot Road . Park Road	-	-	N/A	-	-		-	-	-	-	-	-	92.1%
1/1	Blackmoorfoot Rd (NE) Left Ahead Right	U	N/A	N/A	B		1	29	-	594	1934	645	92.1%
2/1+2/2	Park Road (W) Left Ahead Right	U+O	N/A	N/A	D	E	1	32	4	249	1818:1735	611+84	35.8 : 35.8%
3/1	Blackmoorfoot Rd (SW) Ahead Right Left	U	N/A	N/A	A		1	29	-	303	1671	557	54.4%
4/1	Park Road Right Left Ahead	O	N/A	N/A	C		1	23	-	439	1911	477	92.1%
5/1		U	N/A	N/A	-		-	-	-	395	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	236	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	542	Inf	Inf	0.0%
8/1		U	N/A	N/A	-		-	-	-	412	Inf	Inf	0.0%

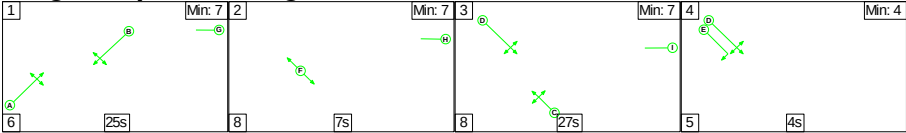
Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	-	-	110	2	1	12.1	10.5	0.2	22.8	-	-	-	-
Blackmoorfoot Road . Park Road	-	-	110	2	1	12.1	10.5	0.2	22.8	-	-	-	-
1/1	594	594	-	-	-	4.8	4.9	-	9.7	58.6	14.2	4.9	19.1
2/1+2/2	249	249	27	2	1	1.4	0.3	0.1	1.8	25.9	3.9	0.3	4.2
3/1	303	303	-	-	-	2.1	0.6	-	2.7	31.5	6.1	0.6	6.7
4/1	439	439	83	0	0	3.9	4.7	0.1	8.7	71.0	10.6	4.7	15.3
5/1	395	395	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	236	236	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	542	542	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	412	412	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
C1 PRC for Signalled Lanes (%): -2.4 Total Delay for Signalled Lanes (pcuHr): 22.78 Cycle Time (s): 90 PRC Over All Lanes (%): -2.4 Total Delay Over All Lanes(pcuHr): 22.78													

Full Input Data And Results

Scenario 2: '2024 PM' (FG2: '2024 PM', Plan 1: 'Pedestrians Every Cycle')

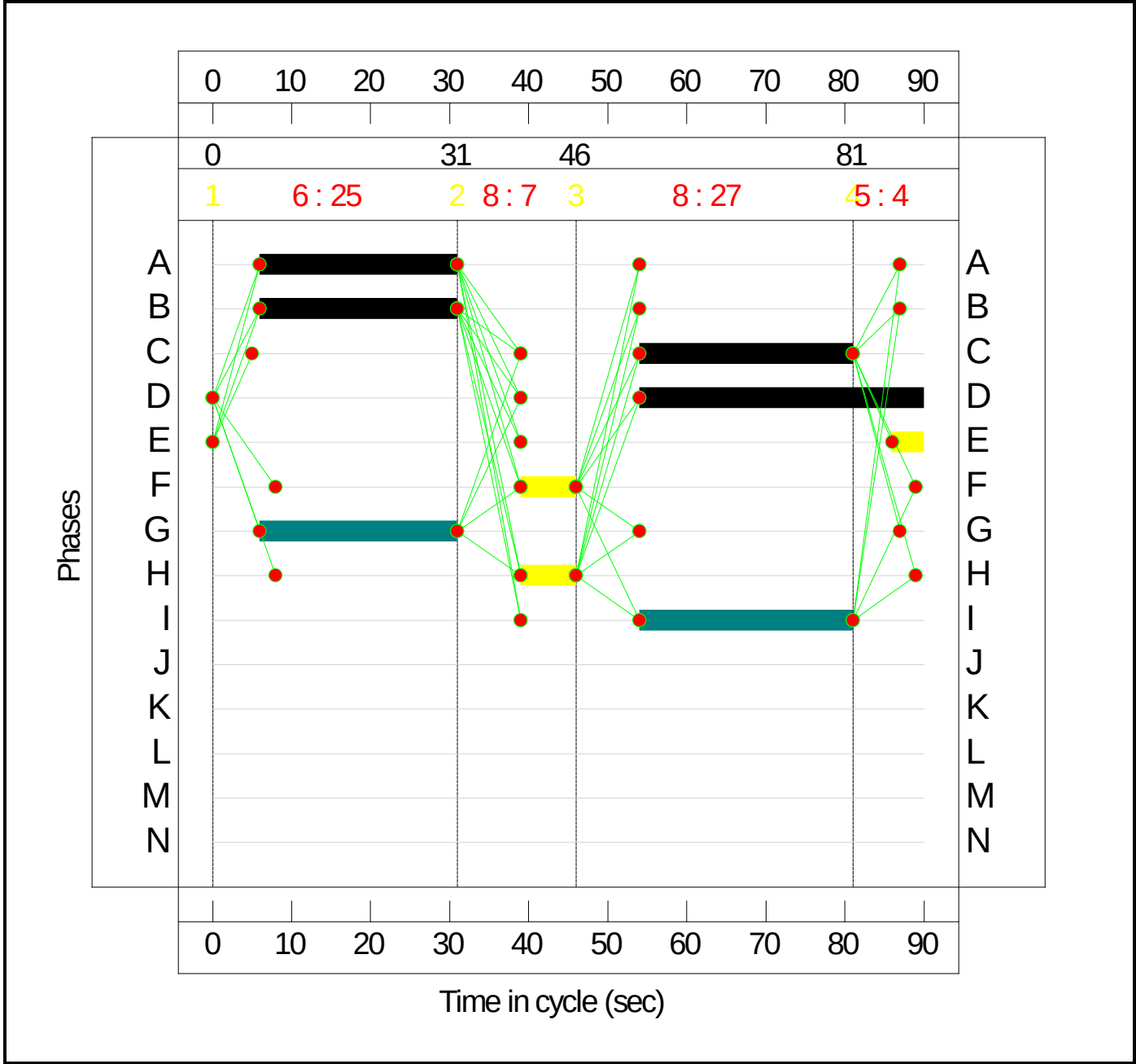
Stage Sequence Diagram



Stage Timings

Stage	1	2	3	4
Duration	25	7	27	4
Change Point	0	31	46	81

Signal Timings Diagram



Full Input Data And Results

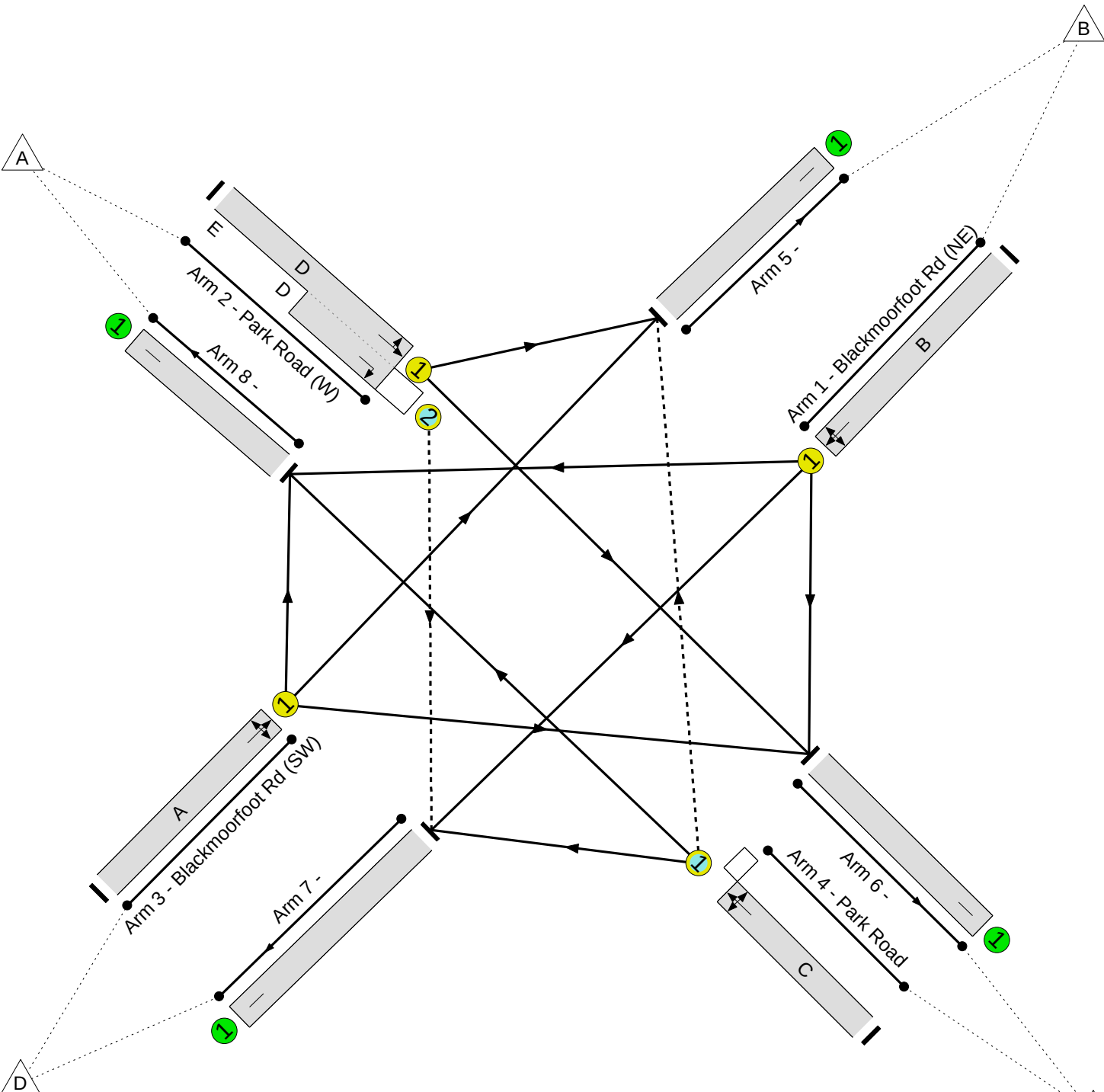
Network Layout Diagram



Blackmoorfoot Road . Park Road

PRC: -0.9 %

Total Traffic Delay: 21.5 pcuHr



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	-	-	N/A	-	-		-	-	-	-	-	-	90.8%
Blackmoorfoot Road . Park Road	-	-	N/A	-	-		-	-	-	-	-	-	90.8%
1/1	Blackmoorfoot Rd (NE) Left Ahead Right	U	N/A	N/A	B		1	25	-	415	1905	550	75.4%
2/1+2/2	Park Road (W) Left Ahead Right	U+O	N/A	N/A	D	E	1	36	4	319	1829:1735	695+77	41.3 : 41.3%
3/1	Blackmoorfoot Rd (SW) Ahead Right Left	U	N/A	N/A	A		1	25	-	419	1660	480	87.4%
4/1	Park Road Right Left Ahead	O	N/A	N/A	C		1	27	-	438	1898	482	90.8%
5/1		U	N/A	N/A	-		-	-	-	500	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	315	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	329	Inf	Inf	0.0%
8/1		U	N/A	N/A	-		-	-	-	447	Inf	Inf	0.0%

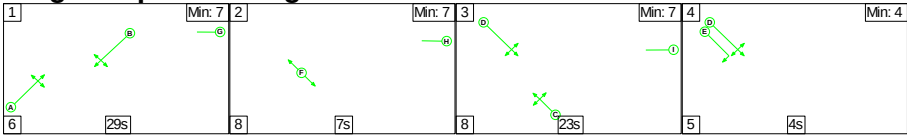
Full Input Data And Results

[illegible]

Full Input Data And Results

Scenario 3: '2029 AM' (FG3: '2029 AM', Plan 1: 'Pedestrians Every Cycle')

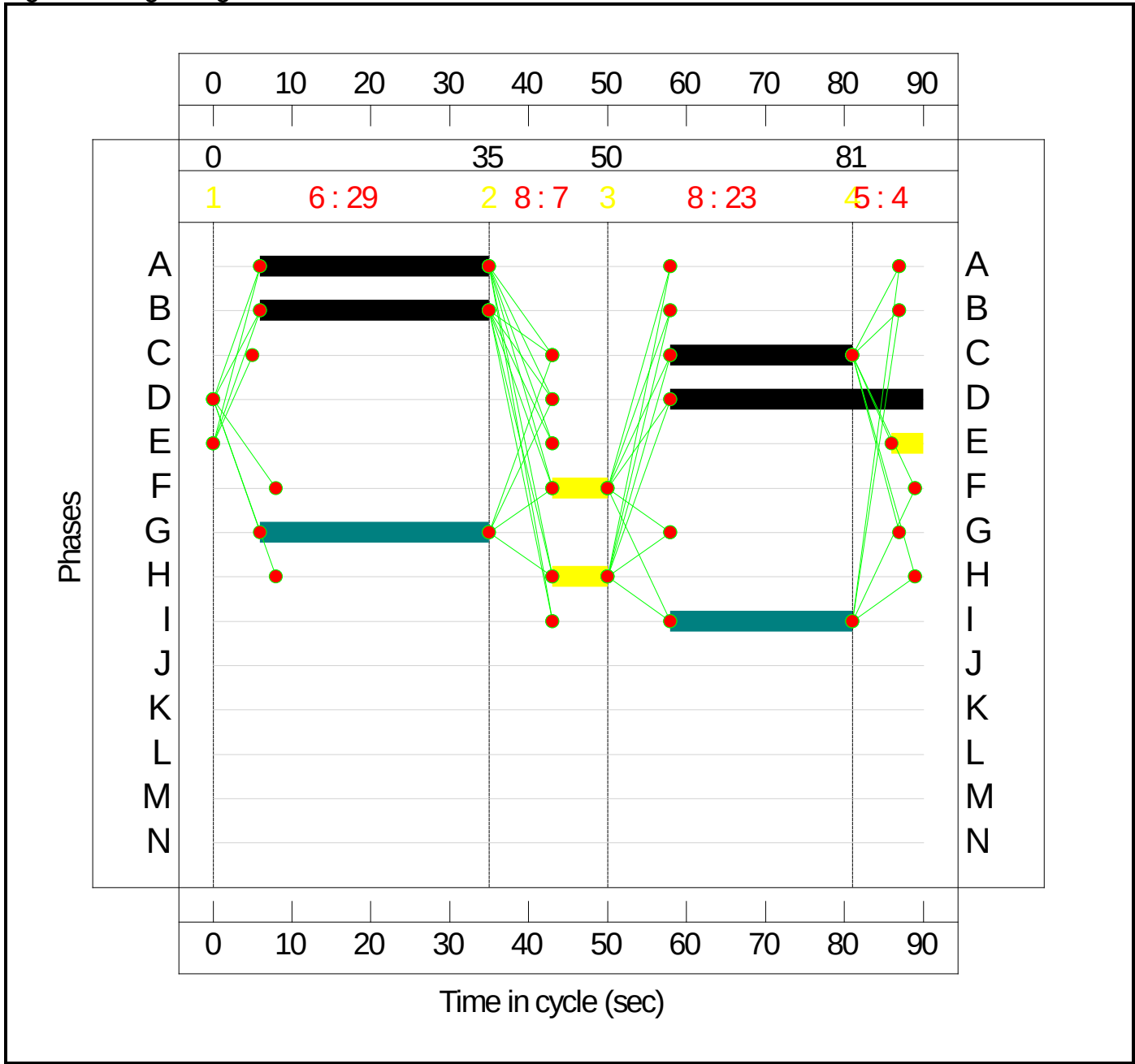
Stage Sequence Diagram



Stage Timings

Stage	1	2	3	4
Duration	29	7	23	4
Change Point	0	35	50	81

Signal Timings Diagram



Full Input Data And Results

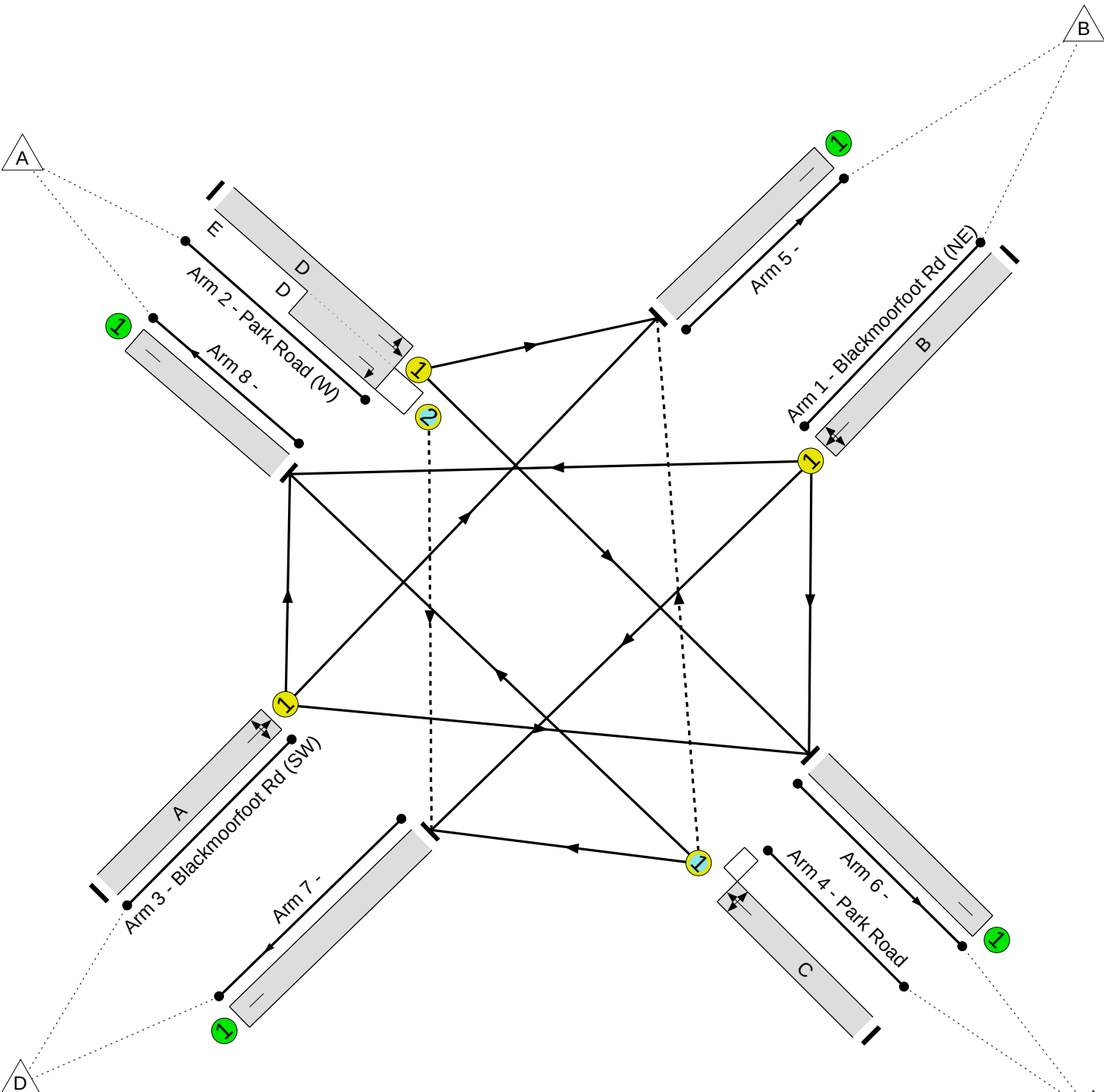
Network Layout Diagram



Blackmoorfoot Road . Park Road

PRC: -8.5 %

Total Traffic Delay: 31.6 pcuHr



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	-	-	N/A	-	-		-	-	-	-	-	-	97.6%
Blackmoorfoot Road . Park Road	-	-	N/A	-	-		-	-	-	-	-	-	97.6%
1/1	Blackmoorfoot Rd (NE) Left Ahead Right	U	N/A	N/A	B		1	29	-	628	1934	645	97.4%
2/1+2/2	Park Road (W) Left Ahead Right	U+O	N/A	N/A	D	E	1	32	4	263	1819:1735	611+85	37.8 : 37.8%
3/1	Blackmoorfoot Rd (SW) Ahead Right Left	U	N/A	N/A	A		1	29	-	321	1671	557	57.6%
4/1	Park Road Right Left Ahead	O	N/A	N/A	C		1	23	-	465	1911	476	97.6%
5/1		U	N/A	N/A	-		-	-	-	418	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	249	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	574	Inf	Inf	0.0%
8/1		U	N/A	N/A	-		-	-	-	436	Inf	Inf	0.0%

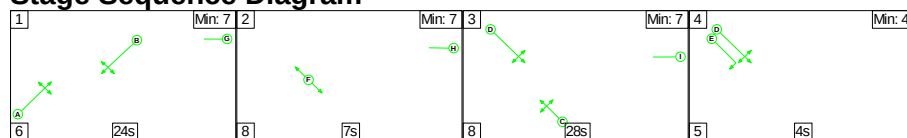
Full Input Data And Results

[illegible]

Full Input Data And Results

Scenario 4: '2029 PM' (FG4: '2029 PM', Plan 1: 'Pedestrians Every Cycle')

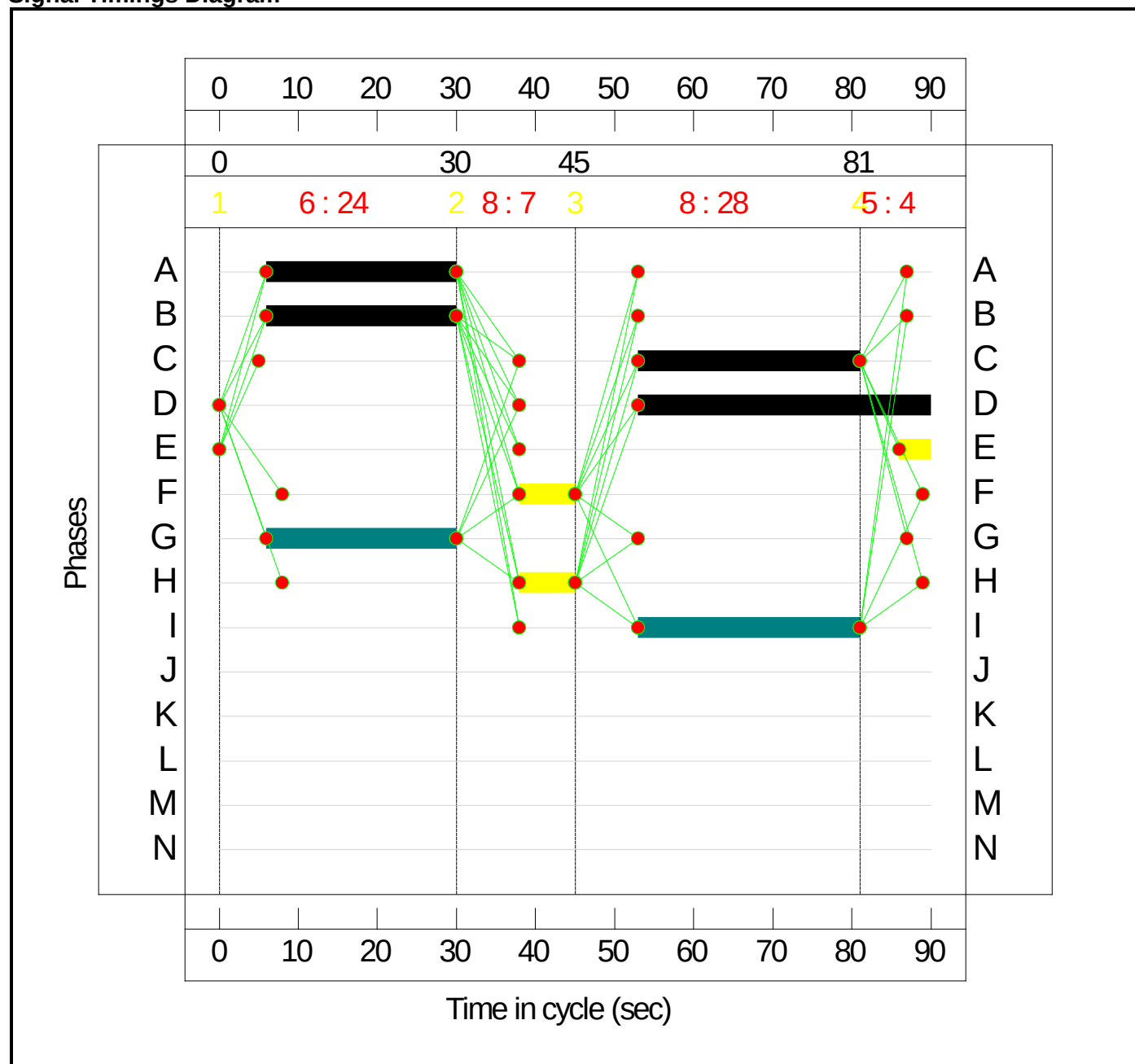
Stage Sequence Diagram



Stage Timings

Stage	1	2	3	4
Duration	24	7	28	4
Change Point	0	30	45	81

Signal Timings Diagram

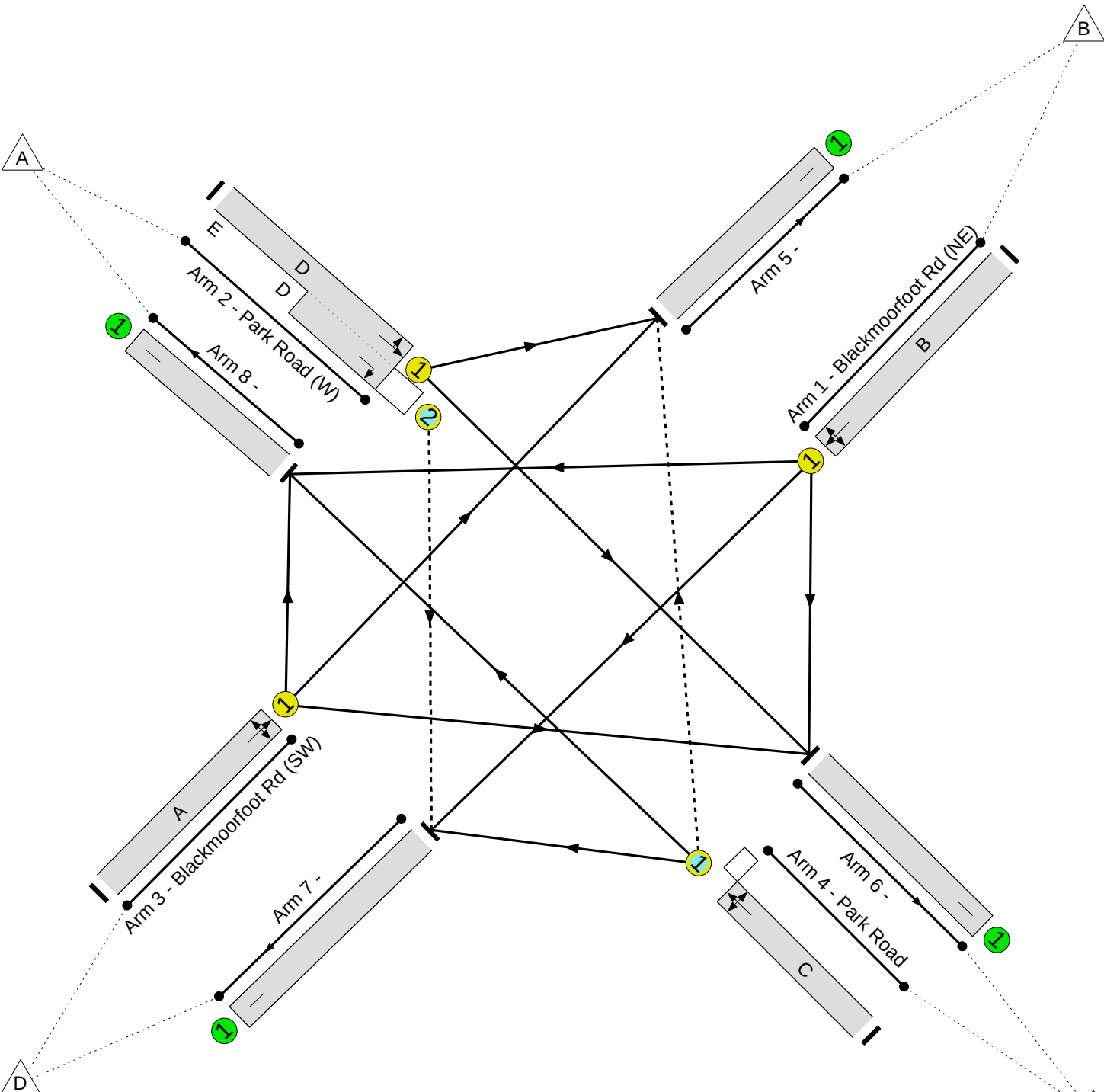


Full Input Data And Results

Network Layout Diagram



Blackmoorfoot Road . Park Road
PRC: -7.0 %
Total Traffic Delay: 30.0 pcuHr



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	-	-	N/A	-	-		-	-	-	-	-	-	96.3%
Blackmoorfoot Road . Park Road	-	-	N/A	-	-		-	-	-	-	-	-	96.3%
1/1	Blackmoorfoot Rd (NE) Left Ahead Right	U	N/A	N/A	B		1	24	-	439	1905	529	83.0%
2/1+2/2	Park Road (W) Left Ahead Right	U+O	N/A	N/A	D	E	1	37	4	338	1829:1735	713+80	42.7 : 42.7%
3/1	Blackmoorfoot Rd (SW) Ahead Right Left	U	N/A	N/A	A		1	24	-	444	1660	461	96.3%
4/1	Park Road Right Left Ahead	O	N/A	N/A	C		1	28	-	464	1899	485	95.6%
5/1		U	N/A	N/A	-		-	-	-	529	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	334	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	348	Inf	Inf	0.0%
8/1		U	N/A	N/A	-		-	-	-	474	Inf	Inf	0.0%

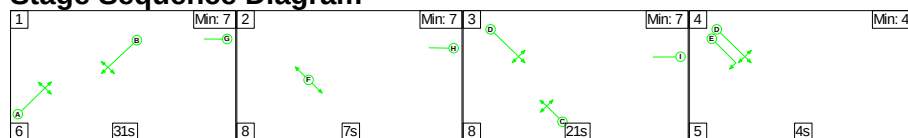
Full Input Data And Results

[illegible]

Full Input Data And Results

Scenario 5: '2029 + Comm AM' (FG9: '2029 + Comm AM', Plan 1: 'Pedestrians Every Cycle')

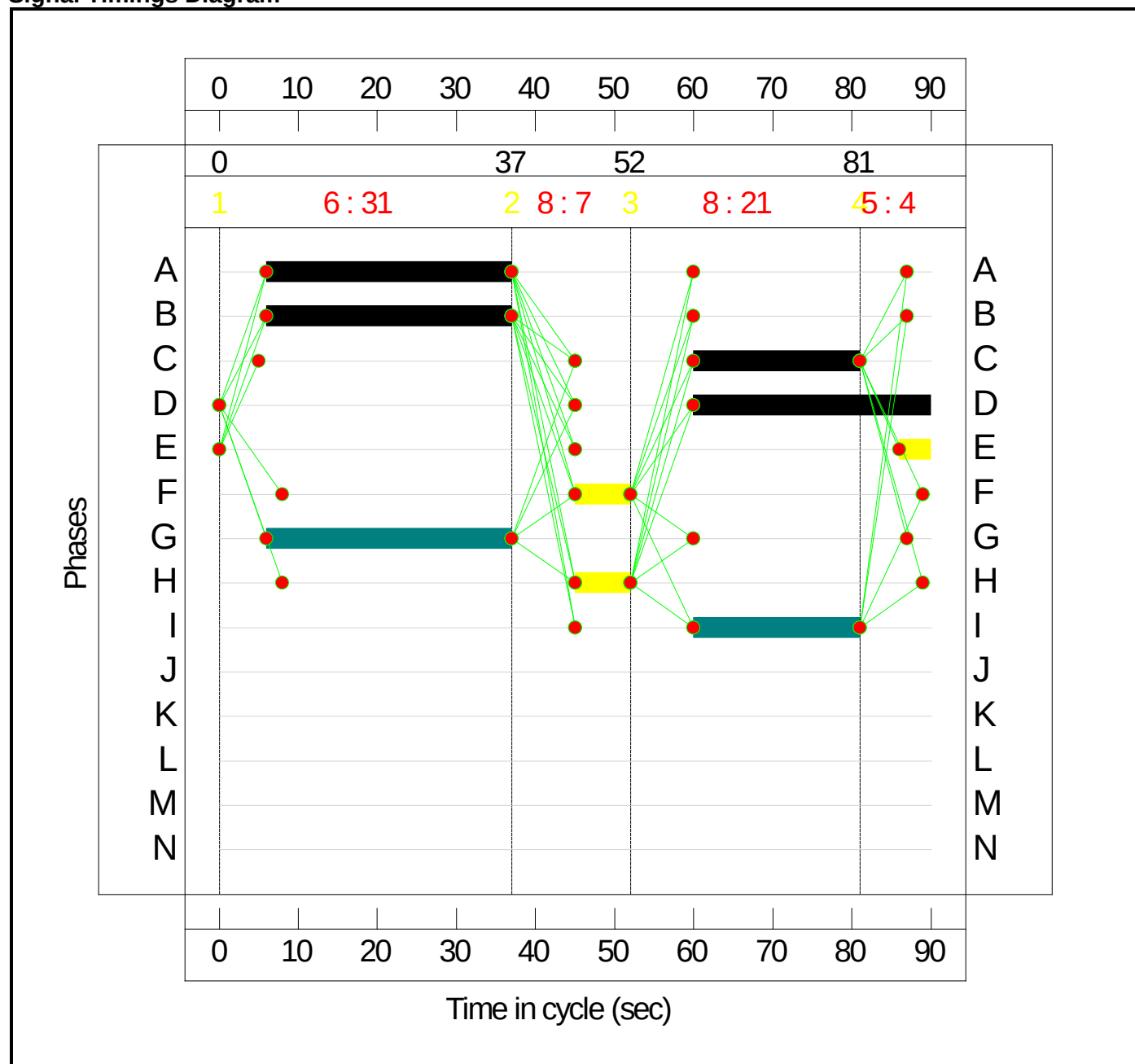
Stage Sequence Diagram



Stage Timings

Stage	1	2	3	4
Duration	31	7	21	4
Change Point	0	37	52	81

Signal Timings Diagram



Full Input Data And Results

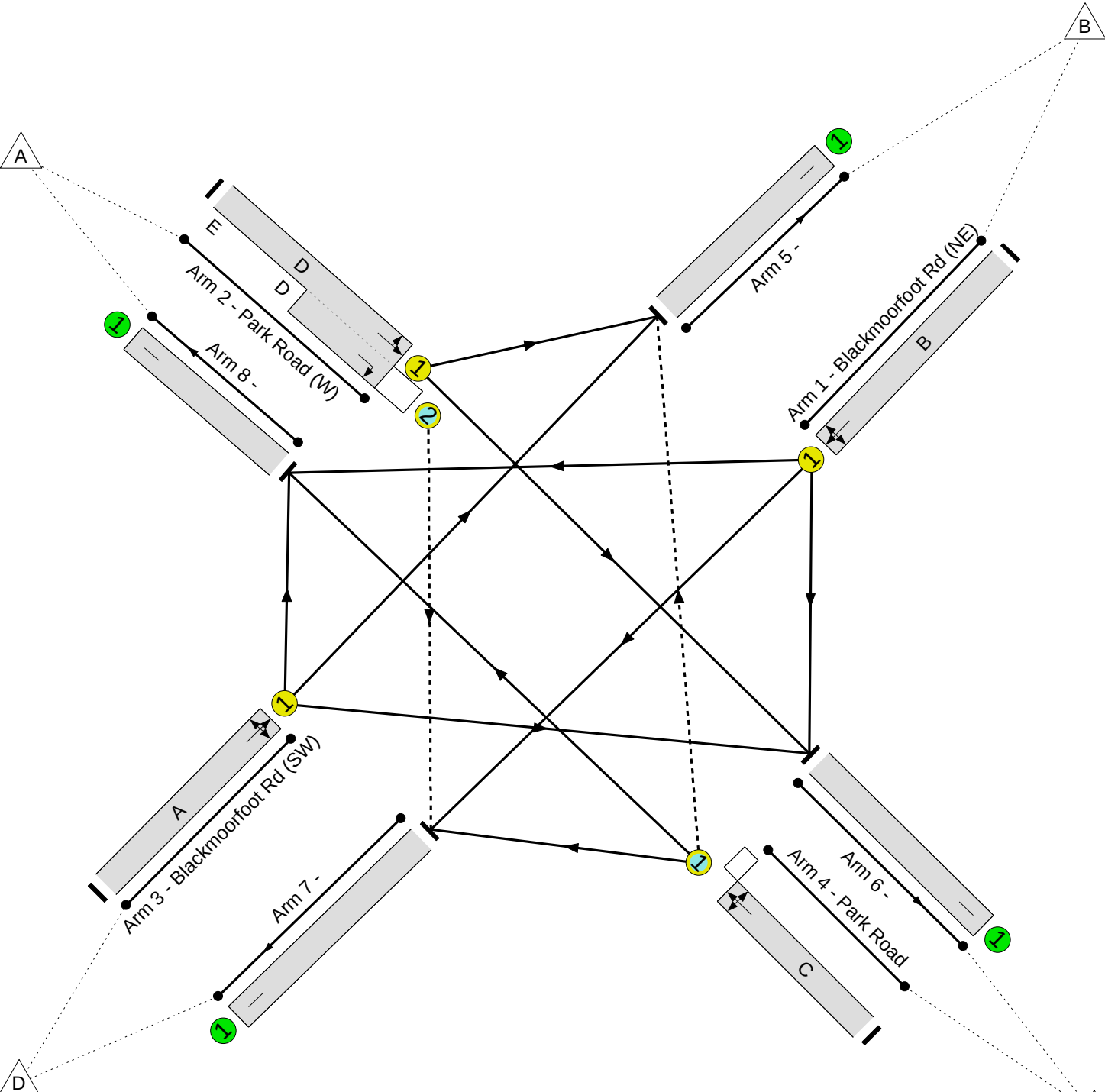
Network Layout Diagram



Blackmoorfoot Road . Park Road

PRC: -22.4 %

Total Traffic Delay: 101.9 pcuHr



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	-	-	N/A	-	-		-	-	-	-	-	-	110.2%
Blackmoorfoot Road . Park Road	-	-	N/A	-	-		-	-	-	-	-	-	110.2%
1/1	Blackmoorfoot Rd (NE) Left Ahead Right	U	N/A	N/A	B		1	31	-	742	1939	689	107.6%
2/1+2/2	Park Road (W) Left Ahead Right	U+O	N/A	N/A	D	E	1	30	4	270	1819:1735	566+96	40.8 : 40.8%
3/1	Blackmoorfoot Rd (SW) Ahead Right Left	U	N/A	N/A	A		1	31	-	621	1674	595	104.3%
4/1	Park Road Right Left Ahead	O	N/A	N/A	C		1	21	-	479	1904	435	110.2%
5/1		U	N/A	N/A	-		-	-	-	672	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	280	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	709	Inf	Inf	0.0%
8/1		U	N/A	N/A	-		-	-	-	451	Inf	Inf	0.0%

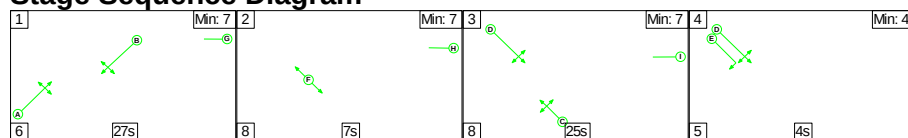
Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	-	-	97	21	1	22.2	79.6	0.2	101.9	-	-	-	-
Blackmoorfoot Road . Park Road	-	-	97	21	1	22.2	79.6	0.2	101.9	-	-	-	-
1/1	742	689	-	-	-	8.3	32.1	-	40.3	195.7	19.9	32.1	51.9
2/1+2/2	270	270	17	21	1	1.6	0.3	0.1	2.1	28.1	4.3	0.3	4.6
3/1	621	595	-	-	-	6.1	20.5	-	26.6	154.2	16.2	20.5	36.7
4/1	479	435	80	0	0	6.1	26.7	0.1	32.9	247.0	13.4	26.7	40.0
5/1	642	642	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	274	274	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	661	661	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	413	413	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
C1 PRC for Signalled Lanes (%): -22.4 Total Delay for Signalled Lanes (pcuHr): 101.91 Cycle Time (s): 90 PRC Over All Lanes (%): -22.4 Total Delay Over All Lanes(pcuHr): 101.91													

Full Input Data And Results

Scenario 6: '2029 + Comm PM' (FG10: '2029 + Comm PM', Plan 1: 'Pedestrians Every Cycle')

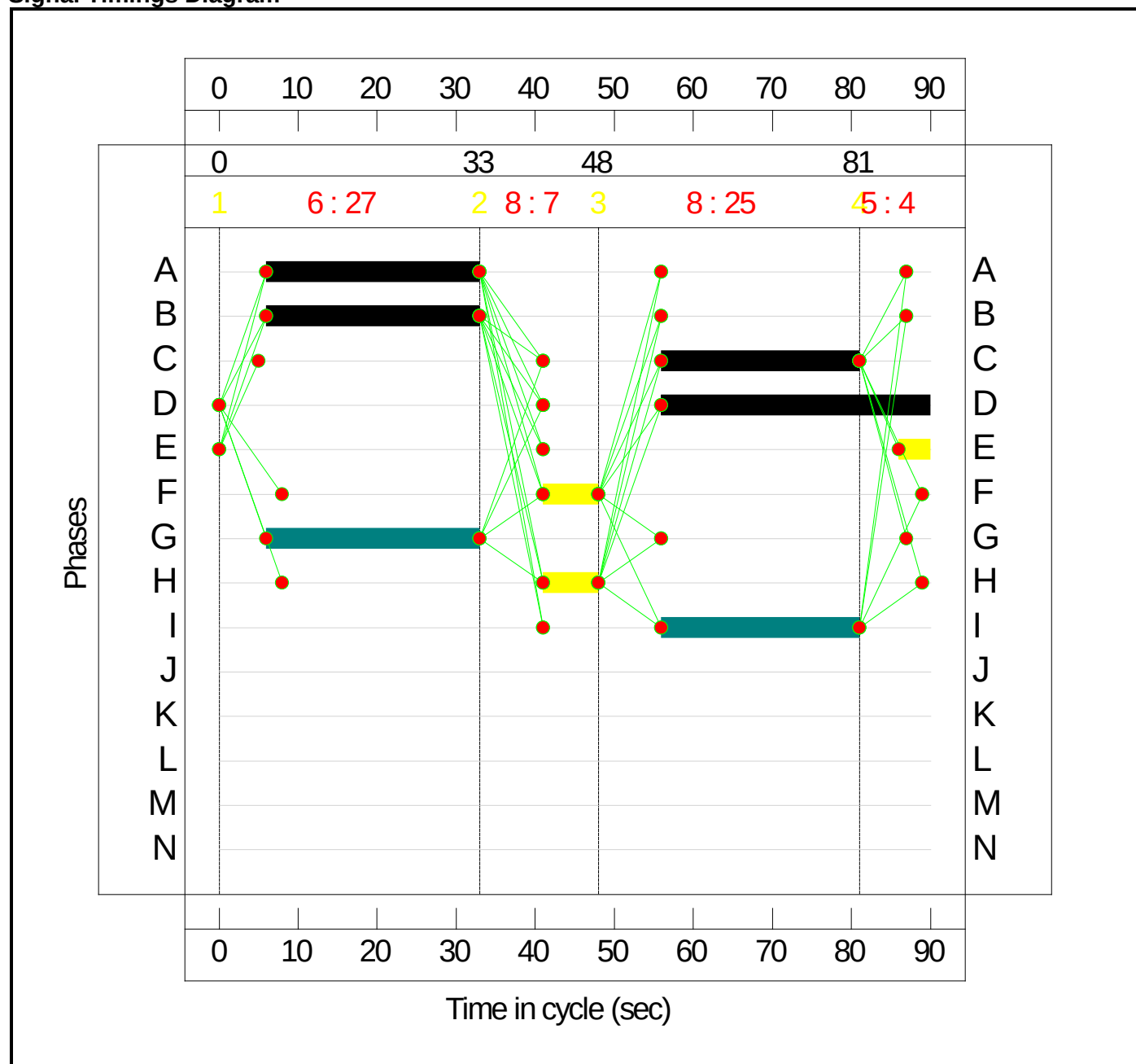
Stage Sequence Diagram



Stage Timings

Stage	1	2	3	4
Duration	27	7	25	4
Change Point	0	33	48	81

Signal Timings Diagram



Full Input Data And Results

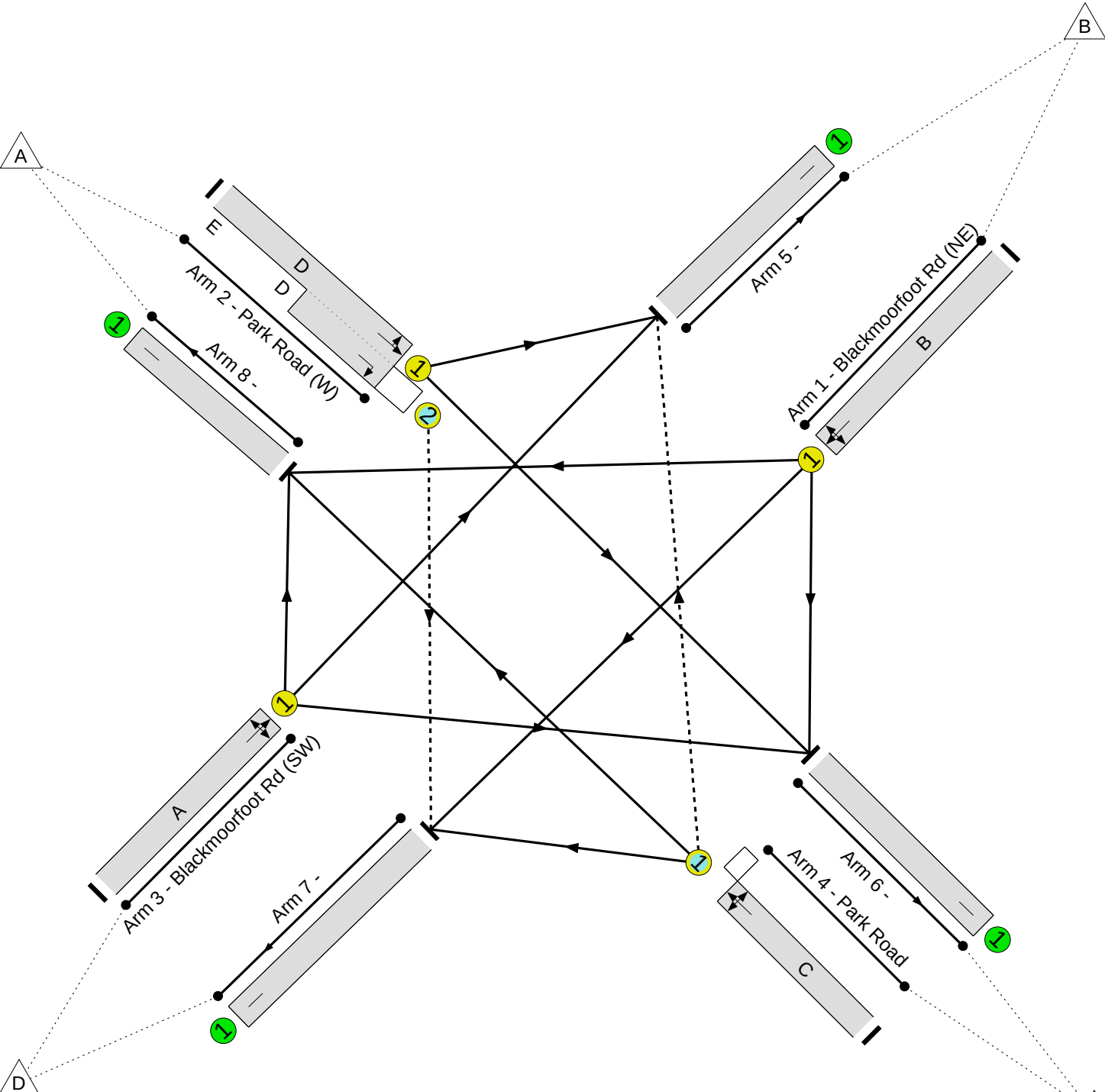
Network Layout Diagram



Blackmoorfoot Road . Park Road

PRC: -34.7 %

Total Traffic Delay: 167.8 pcuHr



Full Input Data And Results

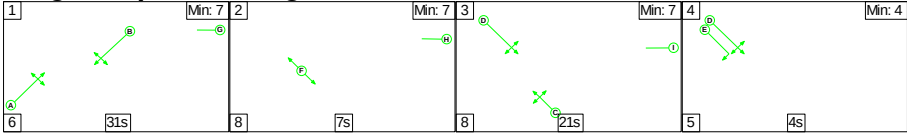
Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	-	-	N/A	-	-		-	-	-	-	-	-	121.2%
Blackmoorfoot Road . Park Road	-	-	N/A	-	-		-	-	-	-	-	-	121.2%
1/1	Blackmoorfoot Rd (NE) Left Ahead Right	U	N/A	N/A	B		1	27	-	680	1926	599	113.5%
2/1+2/2	Park Road (W) Left Ahead Right	U+O	N/A	N/A	D	E	1	34	4	353	1829:1735	640+103	47.5 : 47.5%
3/1	Blackmoorfoot Rd (SW) Ahead Right Left	U	N/A	N/A	A		1	27	-	628	1665	518	121.2%
4/1	Park Road Right Left Ahead	O	N/A	N/A	C		1	25	-	493	1886	427	115.4%
5/1		U	N/A	N/A	-		-	-	-	685	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	353	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	633	Inf	Inf	0.0%
8/1		U	N/A	N/A	-		-	-	-	483	Inf	Inf	0.0%

Full Input Data And Results

[illegible]

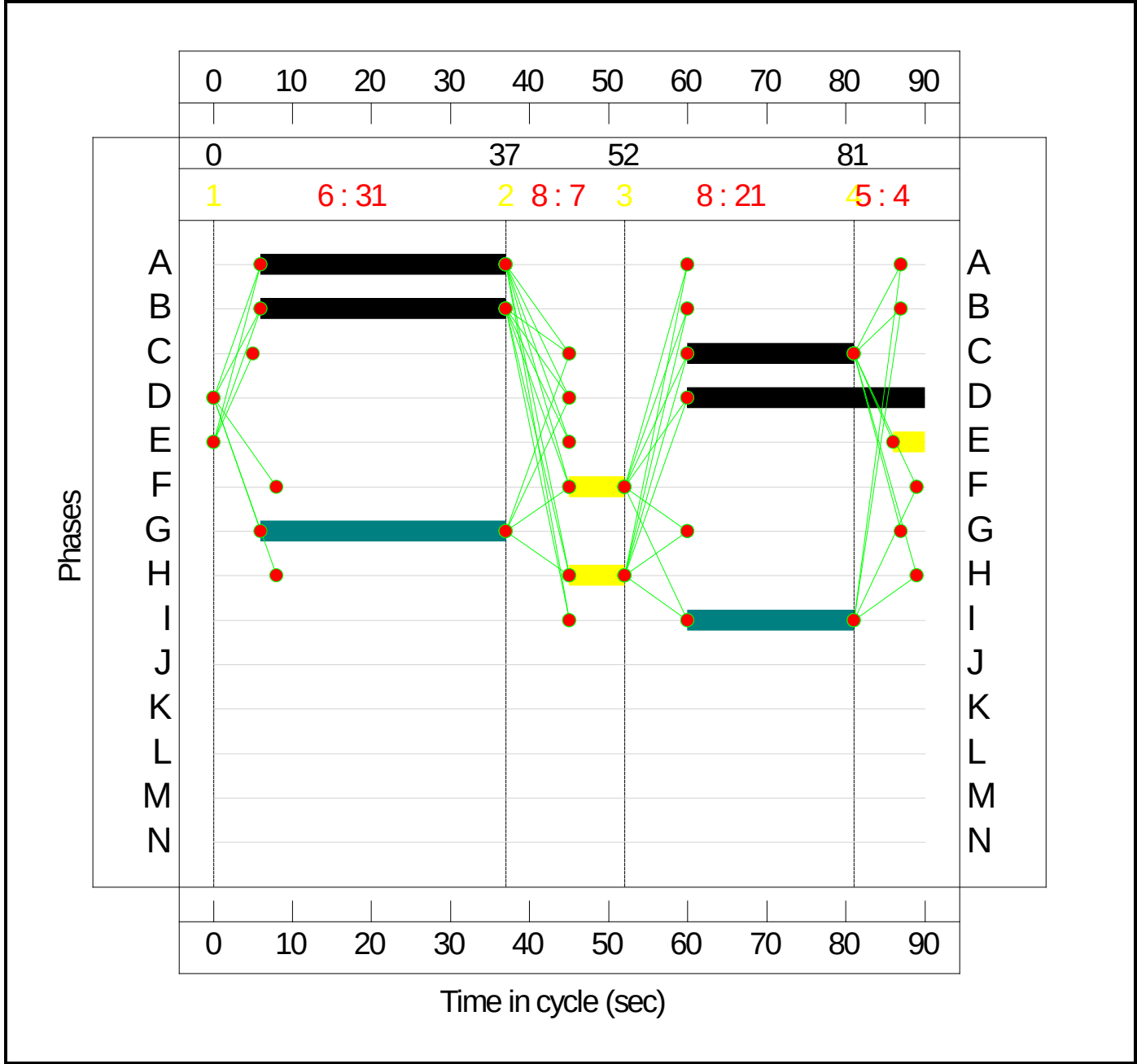
Stage Sequence Diagram



Stage Timings

Stage	1	2	3	4
Duration	31	7	21	4
Change Point	0	37	52	81

Signal Timings Diagram



Full Input Data And Results

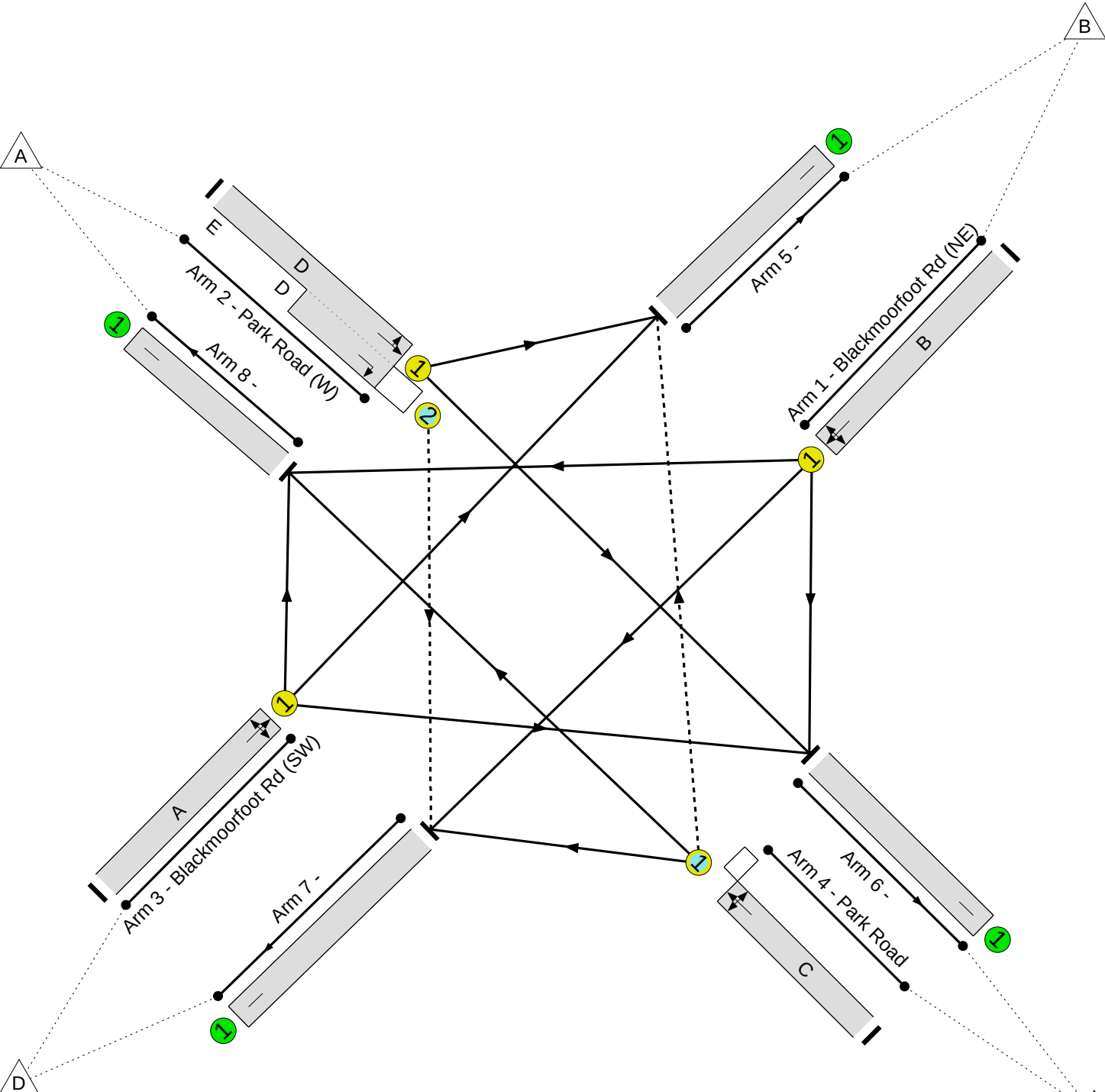
Network Layout Diagram



Blackmoorfoot Road . Park Road

PRC: -25.0 %

Total Traffic Delay: 120.9 pcuHr



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	-	-	N/A	-	-		-	-	-	-	-	-	112.5%
Blackmoorfoot Road . Park Road	-	-	N/A	-	-		-	-	-	-	-	-	112.5%
1/1	Blackmoorfoot Rd (NE) Left Ahead Right	U	N/A	N/A	B		1	31	-	761	1939	689	110.4%
2/1+2/2	Park Road (W) Left Ahead Right	U+O	N/A	N/A	D	E	1	30	4	272	1819:1735	564+100	41.0 : 41.0%
3/1	Blackmoorfoot Rd (SW) Ahead Right Left	U	N/A	N/A	A		1	31	-	631	1674	595	106.0%
4/1	Park Road Right Left Ahead	O	N/A	N/A	C		1	21	-	491	1899	436	112.5%
5/1		U	N/A	N/A	-		-	-	-	682	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	280	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	742	Inf	Inf	0.0%
8/1		U	N/A	N/A	-		-	-	-	451	Inf	Inf	0.0%

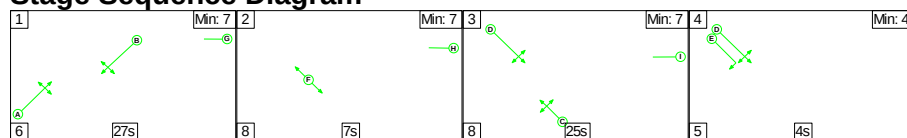
Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	-	-	95	23	1	24.3	96.4	0.2	120.9	-	-	-	-
Blackmoorfoot Road . Park Road	-	-	95	23	1	24.3	96.4	0.2	120.9	-	-	-	-
1/1	761	689	-	-	-	9.2	40.5	-	49.7	235.3	20.8	40.5	61.3
2/1+2/2	272	272	17	23	1	1.6	0.3	0.1	2.1	28.2	4.3	0.3	4.6
3/1	631	595	-	-	-	6.6	24.4	-	31.0	176.9	16.7	24.4	41.0
4/1	491	437	78	0	0	6.8	31.2	0.1	38.1	279.1	14.1	31.2	45.4
5/1	642	642	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	272	272	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	675	675	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	405	405	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
C1 PRC for Signalled Lanes (%): -25.0 Total Delay for Signalled Lanes (pcuHr): 120.94 Cycle Time (s): 90 PRC Over All Lanes (%): -25.0 Total Delay Over All Lanes(pcuHr): 120.94													

Full Input Data And Results

Scenario 8: '2029 + Comm + Dev PM' (FG12: '2029 + Comm + Dev PM', Plan 1: 'Pedestrians Every Cycle')

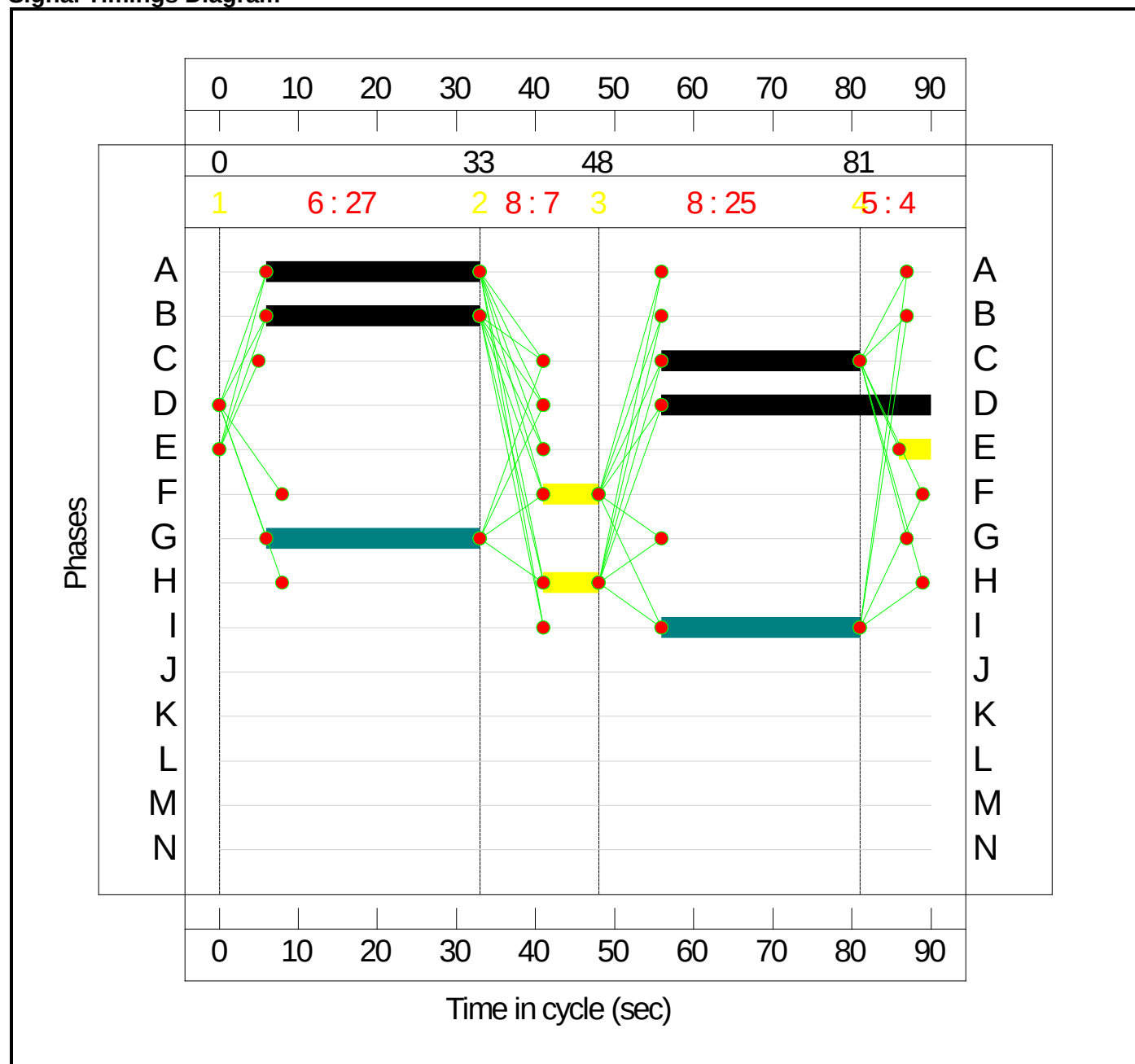
Stage Sequence Diagram



Stage Timings

Stage	1	2	3	4
Duration	27	7	25	4
Change Point	0	33	48	81

Signal Timings Diagram



Full Input Data And Results

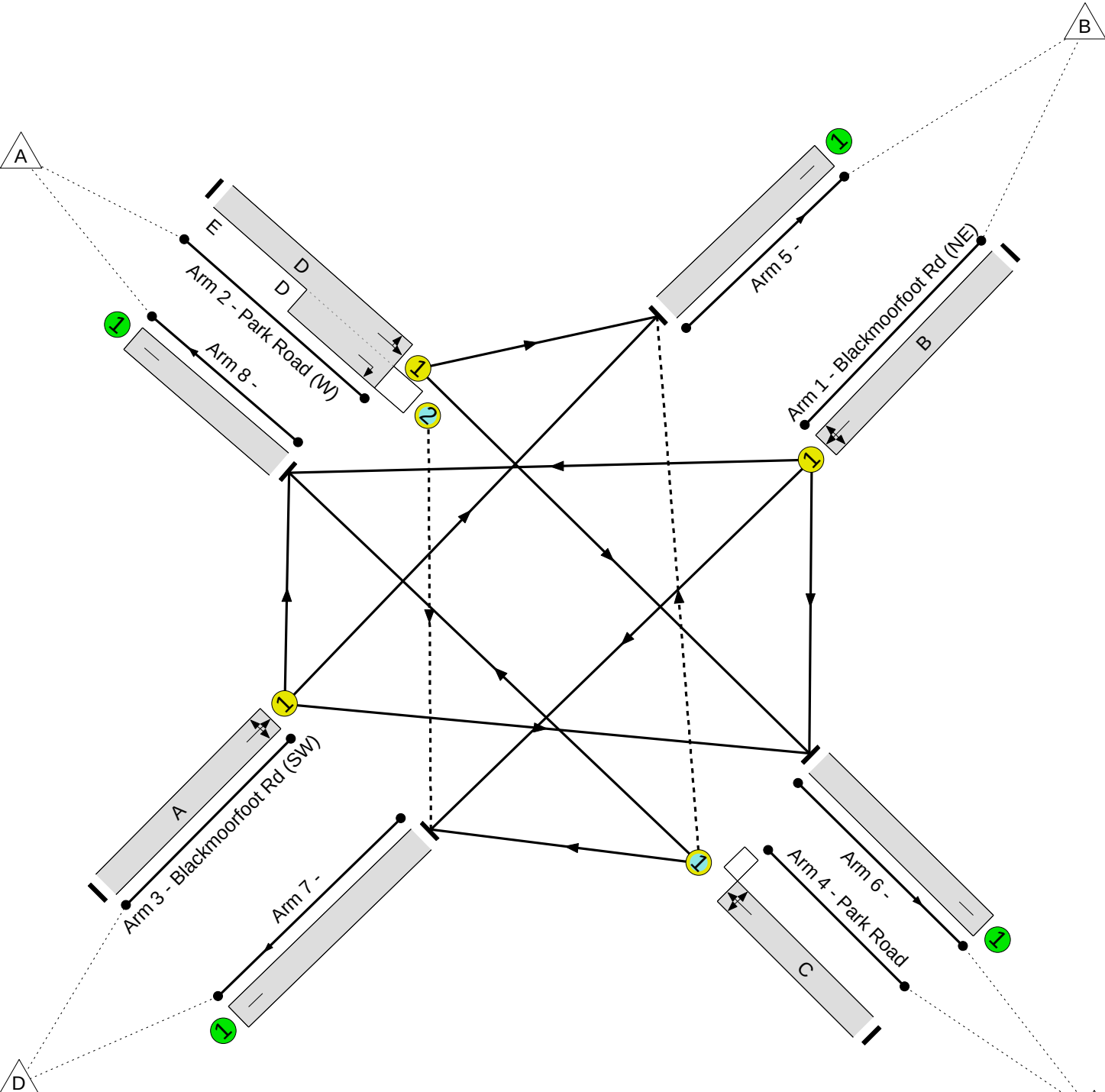
Network Layout Diagram



Blackmoorfoot Road . Park Road

PRC: -38.5 %

Total Traffic Delay: 183.3 pcuHr



Full Input Data And Results

Network Results

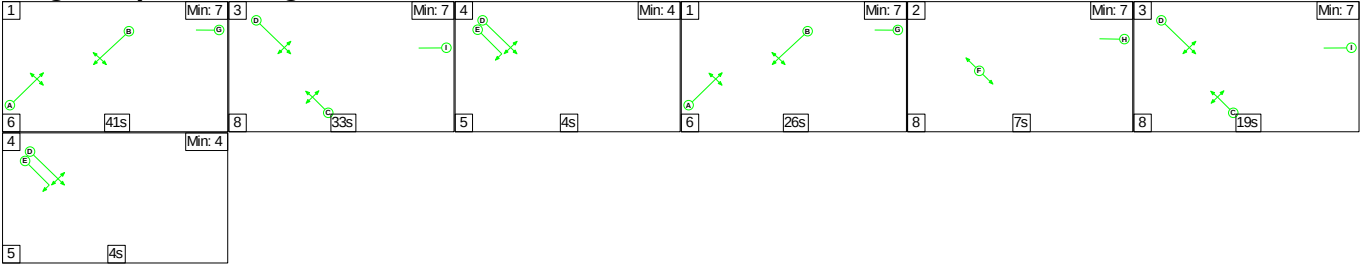
Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	-	-	N/A	-	-		-	-	-	-	-	-	124.6%
Blackmoorfoot Road . Park Road	-	-	N/A	-	-		-	-	-	-	-	-	124.6%
1/1	Blackmoorfoot Rd (NE) Left Ahead Right	U	N/A	N/A	B		1	27	-	688	1926	599	114.8%
2/1+2/2	Park Road (W) Left Ahead Right	U+O	N/A	N/A	D	E	1	34	4	354	1829:1735	638+105	47.6 : 47.6%
3/1	Blackmoorfoot Rd (SW) Ahead Right Left	U	N/A	N/A	A		1	27	-	646	1666	518	124.6%
4/1	Park Road Right Left Ahead	O	N/A	N/A	C		1	25	-	498	1884	429	116.2%
5/1		U	N/A	N/A	-		-	-	-	703	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	353	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	647	Inf	Inf	0.0%
8/1		U	N/A	N/A	-		-	-	-	483	Inf	Inf	0.0%

Full Input Data And Results

[illegible]

Full Input Data And Results
Scenario 9: '2024 AM' (FG1: '2024 AM', Plan 2: 'Pedestrians Every Other Cycle')

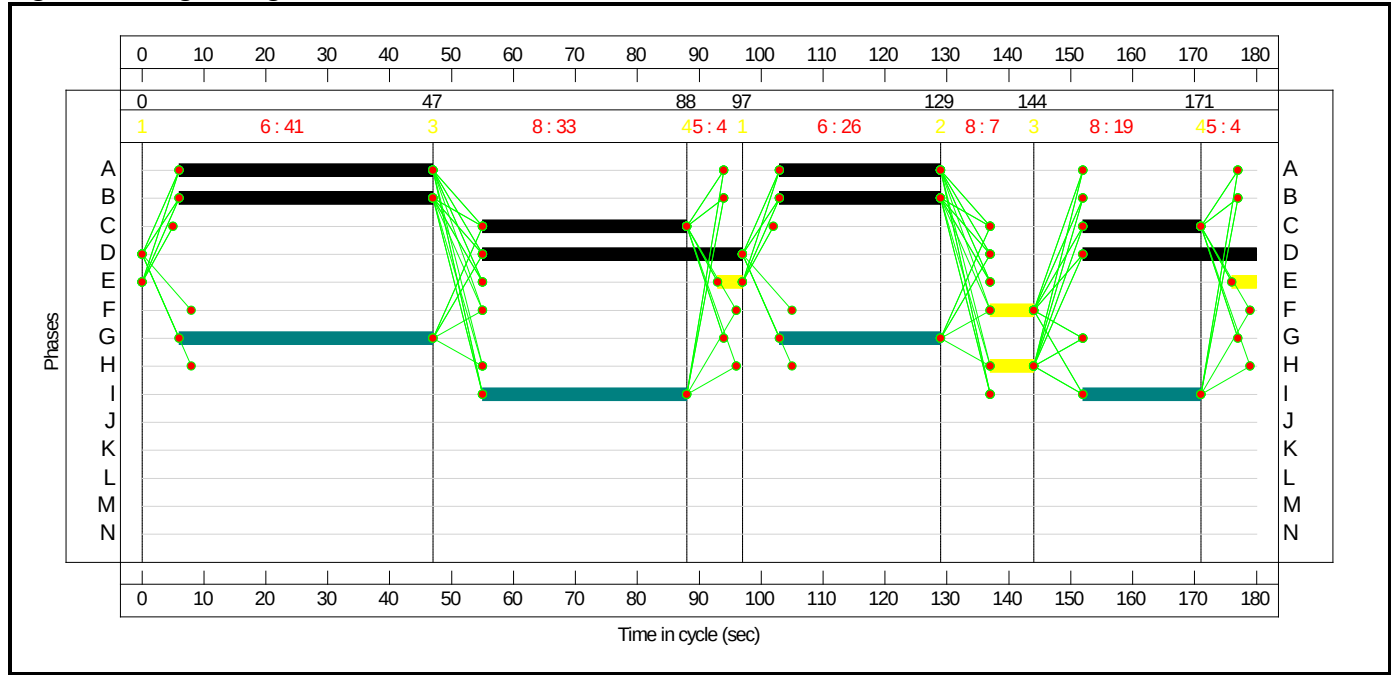
Stage Sequence Diagram



Stage Timings

Stage	1	3	4	1	2	3	4
Duration	41	33	4	26	7	19	4
Change Point	0	47	88	97	129	144	171

Signal Timings Diagram



Full Input Data And Results

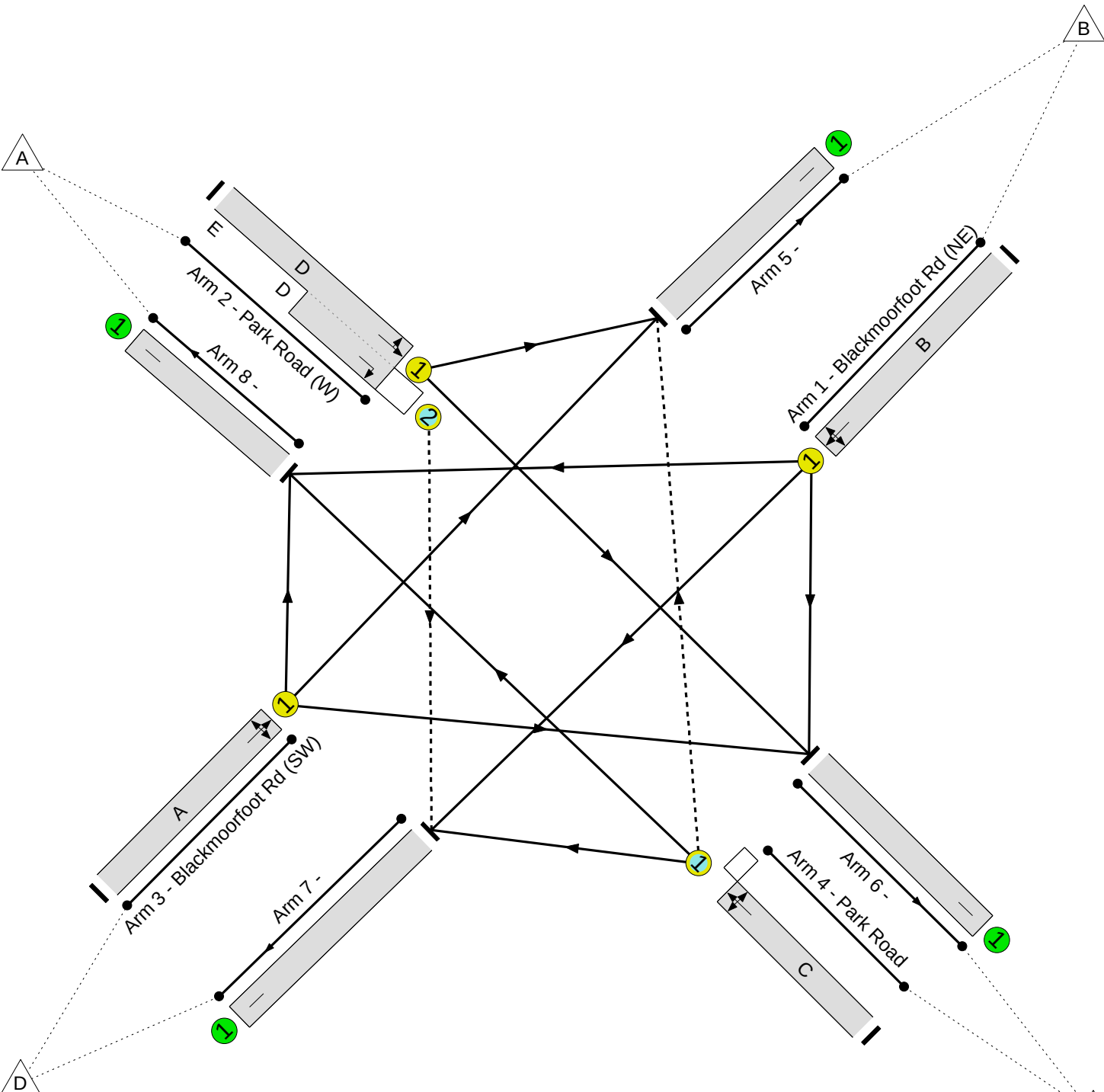
Network Layout Diagram



Blackmoorfoot Road . Park Road

PRC: 12.3 %

Total Traffic Delay: 15.4 pcuHr



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	-	-	N/A	-	-		-	-	-	-	-	-	80.1%
Blackmoorfoot Road . Park Road	-	-	N/A	-	-		-	-	-	-	-	-	80.1%
1/1	Blackmoorfoot Rd (NE) Left Ahead Right	U	N/A	N/A	B		2	67	-	594	1934	741	80.1%
2/1+2/2	Park Road (W) Left Ahead Right	U+O	N/A	N/A	D	E	2	70	8	249	1818:1735	664+91	33.0 : 33.0%
3/1	Blackmoorfoot Rd (SW) Ahead Right Left	U	N/A	N/A	A		2	67	-	303	1671	641	47.3%
4/1	Park Road Right Left Ahead	O	N/A	N/A	C		2	52	-	439	1911	551	79.6%
5/1		U	N/A	N/A	-		-	-	-	395	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	236	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	542	Inf	Inf	0.0%
8/1		U	N/A	N/A	-		-	-	-	412	Inf	Inf	0.0%

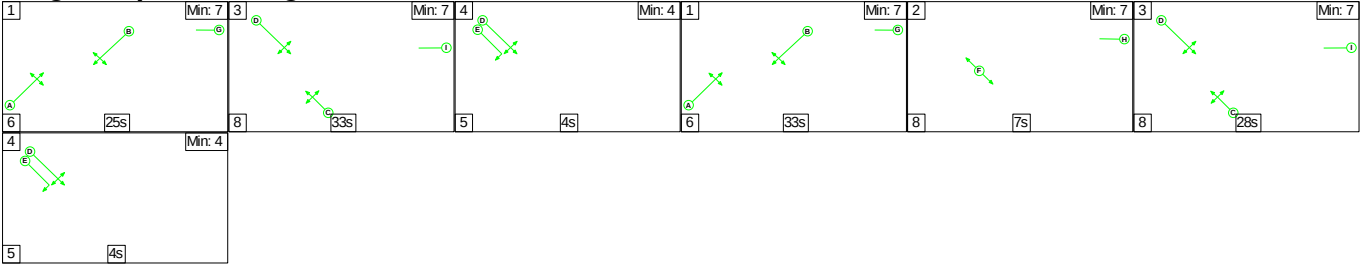
Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	-	-	100	13	1	10.6	4.5	0.2	15.4	-	-	-	-
Blackmoorfoot Road . Park Road	-	-	100	13	1	10.6	4.5	0.2	15.4	-	-	-	-
1/1	594	594	-	-	-	4.1	2.0	-	6.0	36.6	13.2	2.0	15.2
2/1+2/2	249	249	17	13	1	1.3	0.2	0.1	1.6	23.3	3.7	0.2	4.0
3/1	303	303	-	-	-	1.8	0.4	-	2.2	26.2	5.7	0.4	6.2
4/1	439	439	83	0	0	3.5	1.9	0.1	5.5	45.0	10.0	1.9	11.9
5/1	395	395	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	236	236	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	542	542	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	412	412	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
C1 PRC for Signalled Lanes (%): 12.3 Total Delay for Signalled Lanes (pcuHr): 15.35 Cycle Time (s): 180 PRC Over All Lanes (%): 12.3 Total Delay Over All Lanes(pcuHr): 15.35													

Full Input Data And Results

Scenario 10: '2024 PM' (FG2: '2024 PM', Plan 2: 'Pedestrians Every Other Cycle')

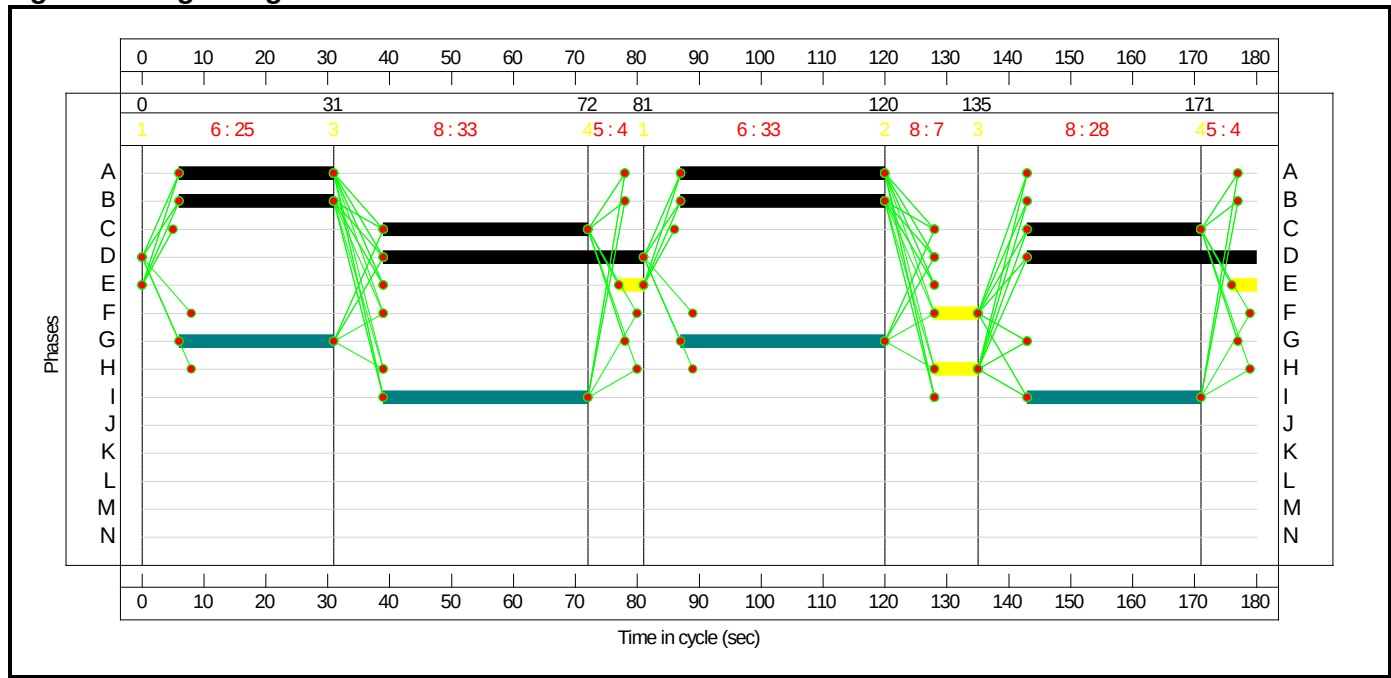
Stage Sequence Diagram



Stage Timings

Stage	1	3	4	1	2	3	4
Duration	25	33	4	33	7	28	4
Change Point	0	31	72	81	120	135	171

Signal Timings Diagram



Full Input Data And Results

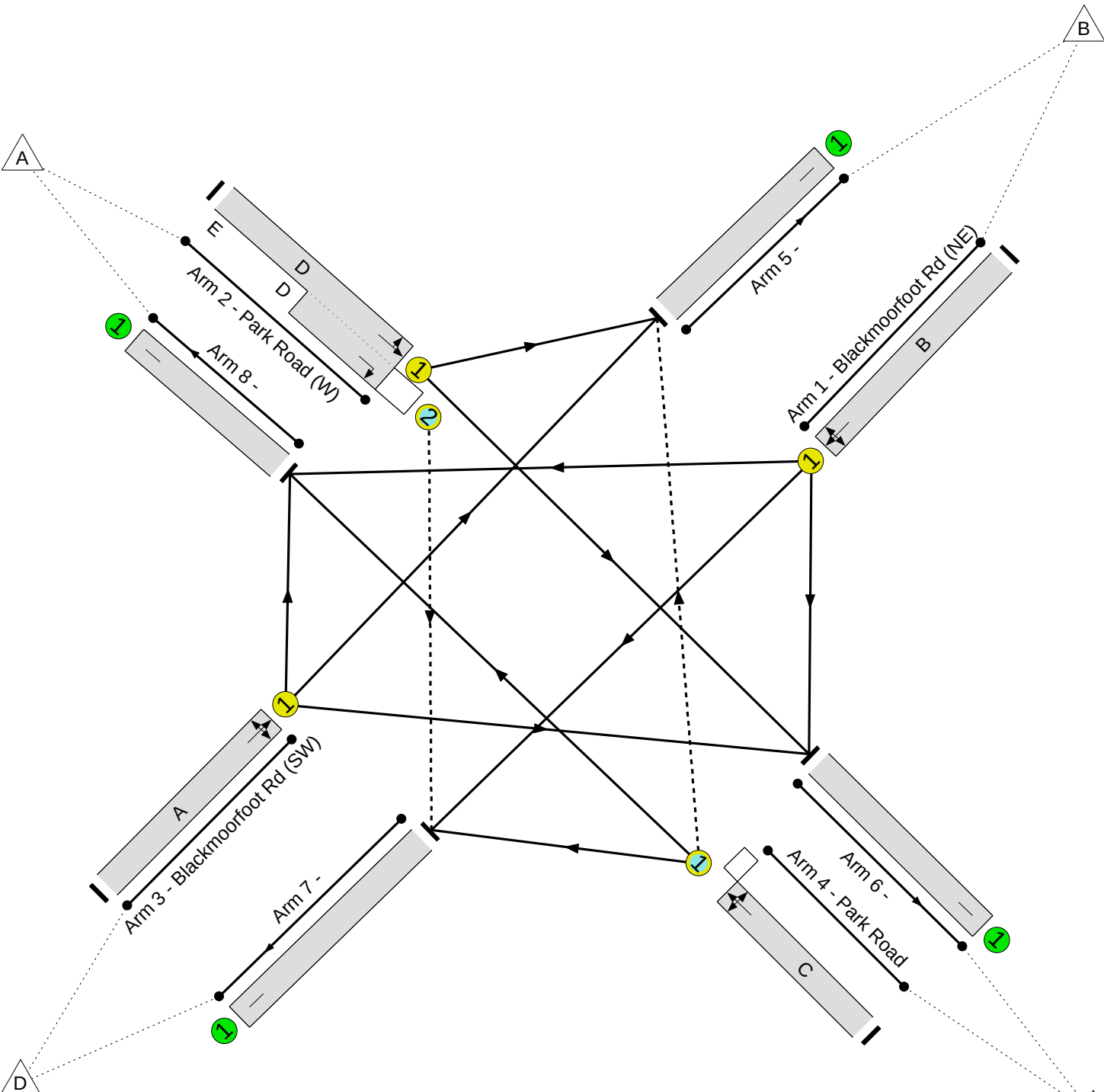
Network Layout Diagram



Blackmoorfoot Road . Park Road

PRC: 18.5 %

Total Traffic Delay: 15.5 pcuHr



Full Input Data And Results

Network Results

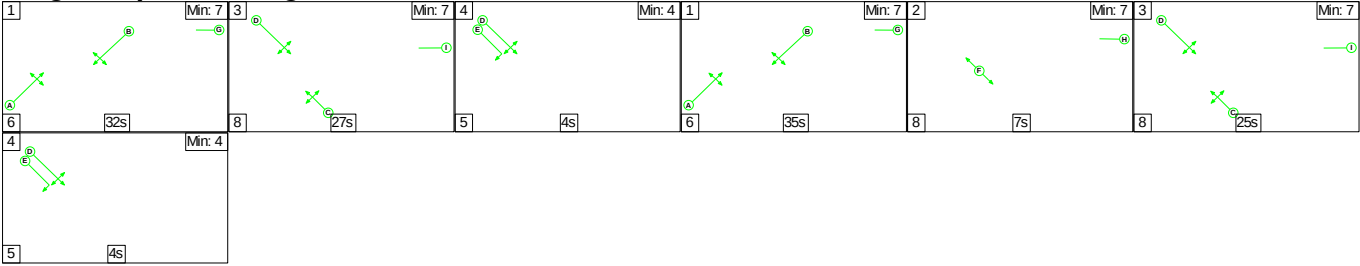
Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	-	-	N/A	-	-		-	-	-	-	-	-	76.0%
Blackmoorfoot Road . Park Road	-	-	N/A	-	-		-	-	-	-	-	-	76.0%
1/1	Blackmoorfoot Rd (NE) Left Ahead Right	U	N/A	N/A	B		2	58	-	415	1905	635	65.4%
2/1+2/2	Park Road (W) Left Ahead Right	U+O	N/A	N/A	D	E	2	79	8	319	1829:1735	758+85	37.8 : 37.8%
3/1	Blackmoorfoot Rd (SW) Ahead Right Left	U	N/A	N/A	A		2	58	-	419	1660	553	75.7%
4/1	Park Road Right Left Ahead	O	N/A	N/A	C		2	61	-	438	1898	577	76.0%
5/1		U	N/A	N/A	-		-	-	-	500	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	315	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	329	Inf	Inf	0.0%
8/1		U	N/A	N/A	-		-	-	-	447	Inf	Inf	0.0%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	-	-	130	5	1	11.0	4.3	0.1	15.5	-	-	-	-
Blackmoorfoot Road . Park Road	-	-	130	5	1	11.0	4.3	0.1	15.5	-	-	-	-
1/1	415	415	-	-	-	3.0	0.9	-	3.9	33.9	9.6	0.9	10.5
2/1+2/2	319	319	26	5	1	1.5	0.3	0.0	1.8	20.7	5.7	0.3	6.0
3/1	419	419	-	-	-	3.1	1.5	-	4.7	40.0	10.0	1.5	11.5
4/1	438	438	104	0	0	3.4	1.5	0.1	5.1	41.6	11.9	1.5	13.5
5/1	500	500	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	315	315	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	329	329	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	447	447	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
C1 PRC for Signalled Lanes (%): 18.5 Total Delay for Signalled Lanes (pcuHr): 15.46 Cycle Time (s): 180 PRC Over All Lanes (%): 18.5 Total Delay Over All Lanes(pcuHr): 15.46													

Full Input Data And Results
Scenario 11: '2029 AM' (FG3: '2029 AM', Plan 2: 'Pedestrians Every Other Cycle')

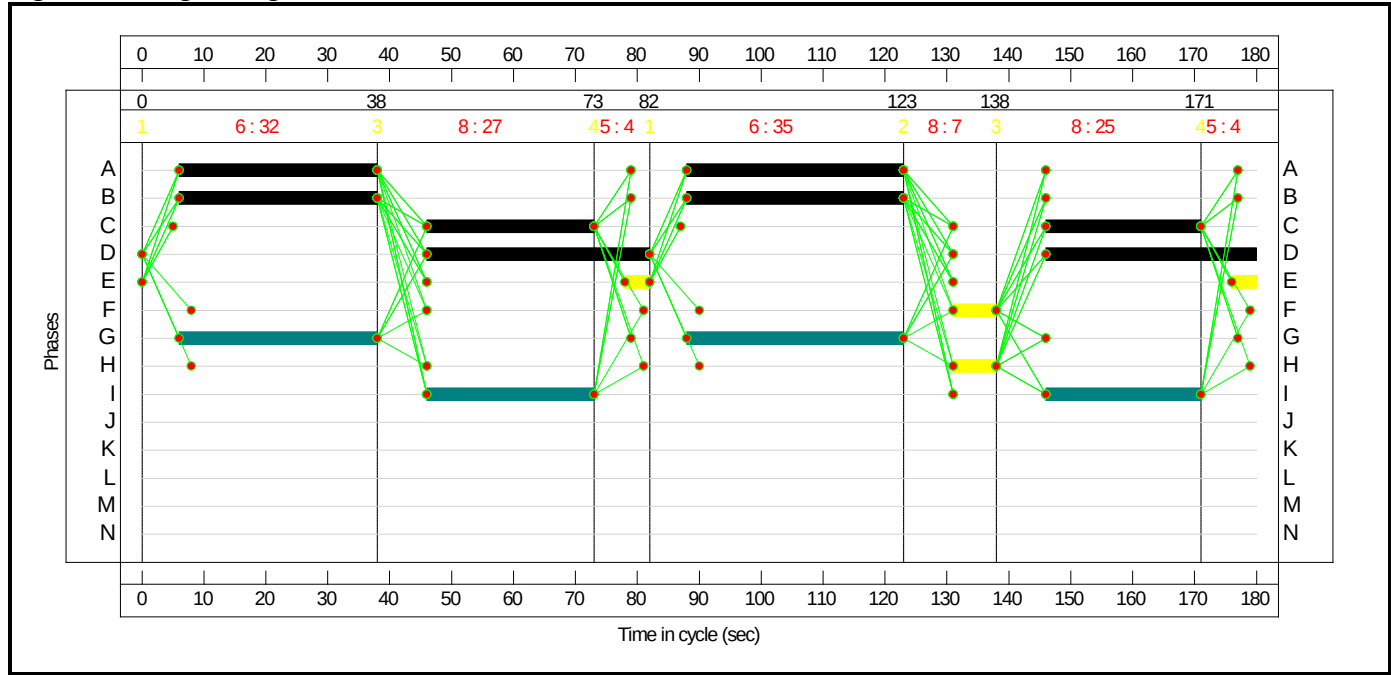
Stage Sequence Diagram



Stage Timings

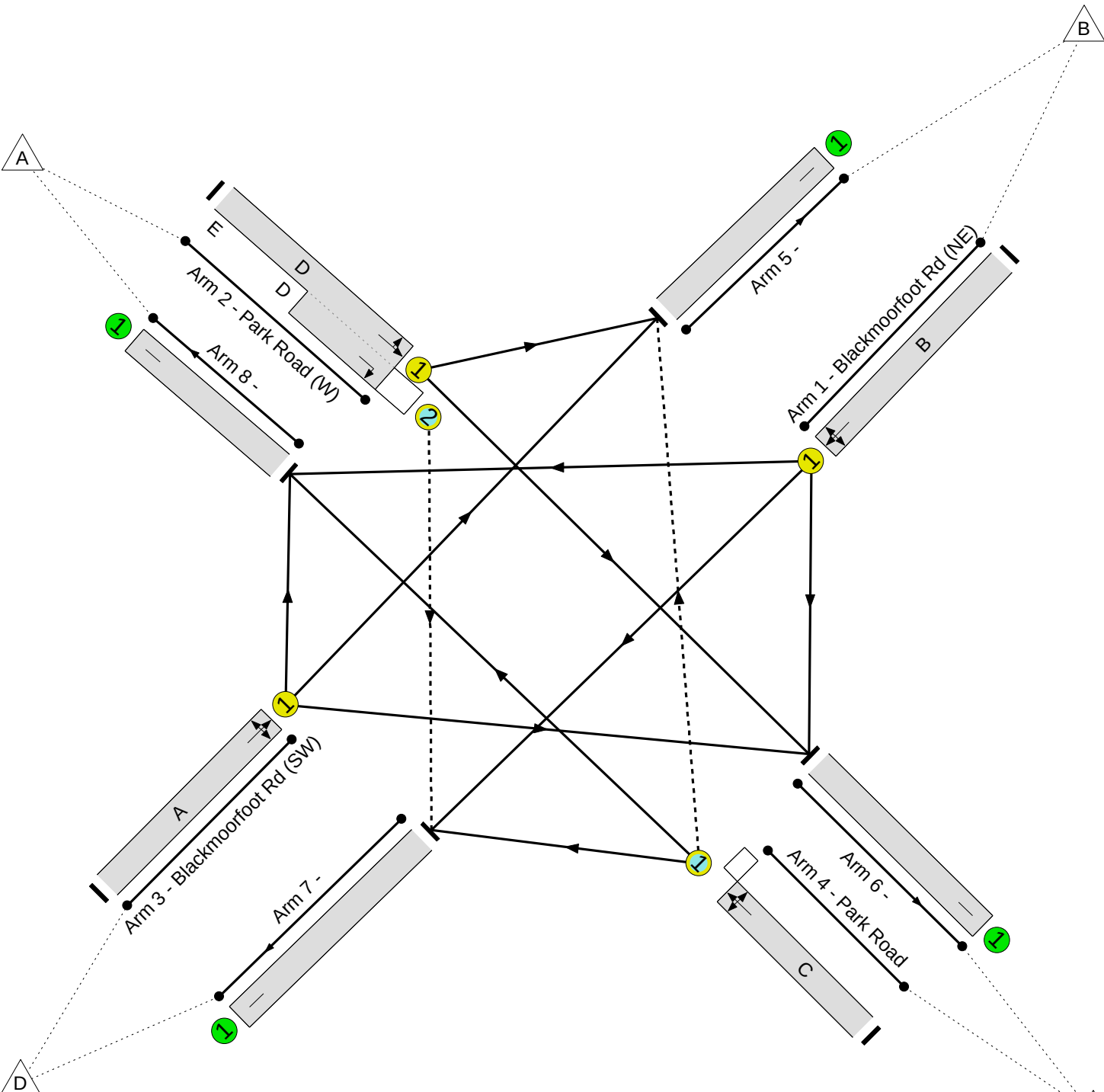
Stage	1	3	4	1	2	3	4
Duration	32	27	4	35	7	25	4
Change Point	0	38	73	82	123	138	171

Signal Timings Diagram





Blackmoorfoot Road . Park Road
PRC: 5.1 %
Total Traffic Delay: 18.1 pcuHr



Full Input Data And Results

Network Results

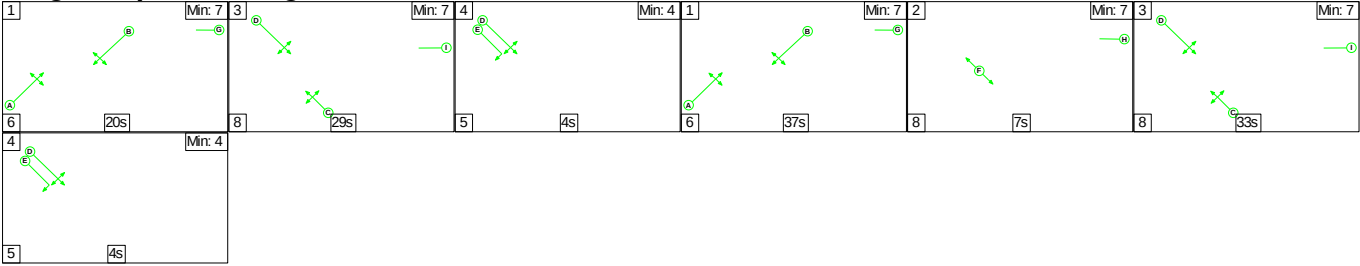
Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	-	-	N/A	-	-		-	-	-	-	-	-	85.6%
Blackmoorfoot Road . Park Road	-	-	N/A	-	-		-	-	-	-	-	-	85.6%
1/1	Blackmoorfoot Rd (NE) Left Ahead Right	U	N/A	N/A	B		2	67	-	628	1934	741	84.7%
2/1+2/2	Park Road (W) Left Ahead Right	U+O	N/A	N/A	D	E	2	70	8	263	1819:1735	664+92	34.8 : 34.8%
3/1	Blackmoorfoot Rd (SW) Ahead Right Left	U	N/A	N/A	A		2	67	-	321	1671	641	50.1%
4/1	Park Road Right Left Ahead	O	N/A	N/A	C		2	52	-	465	1911	543	85.6%
5/1		U	N/A	N/A	-		-	-	-	418	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	249	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	574	Inf	Inf	0.0%
8/1		U	N/A	N/A	-		-	-	-	436	Inf	Inf	0.0%

Full Input Data And Results

[illegible]

Full Input Data And Results
Scenario 12: '2029 PM' (FG4: '2029 PM', Plan 2: 'Pedestrians Every Other Cycle')

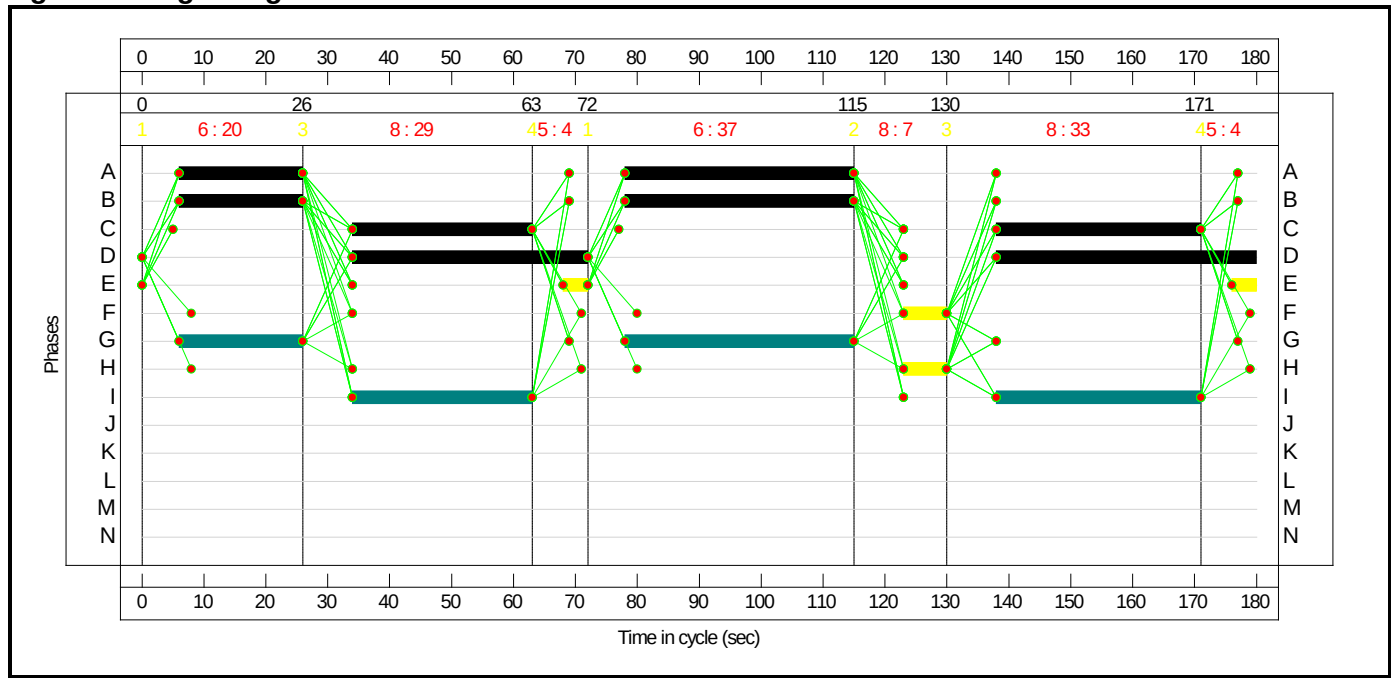
Stage Sequence Diagram



Stage Timings

Stage	1	3	4	1	2	3	4
Duration	20	29	4	37	7	33	4
Change Point	0	26	63	72	115	130	171

Signal Timings Diagram



Full Input Data And Results

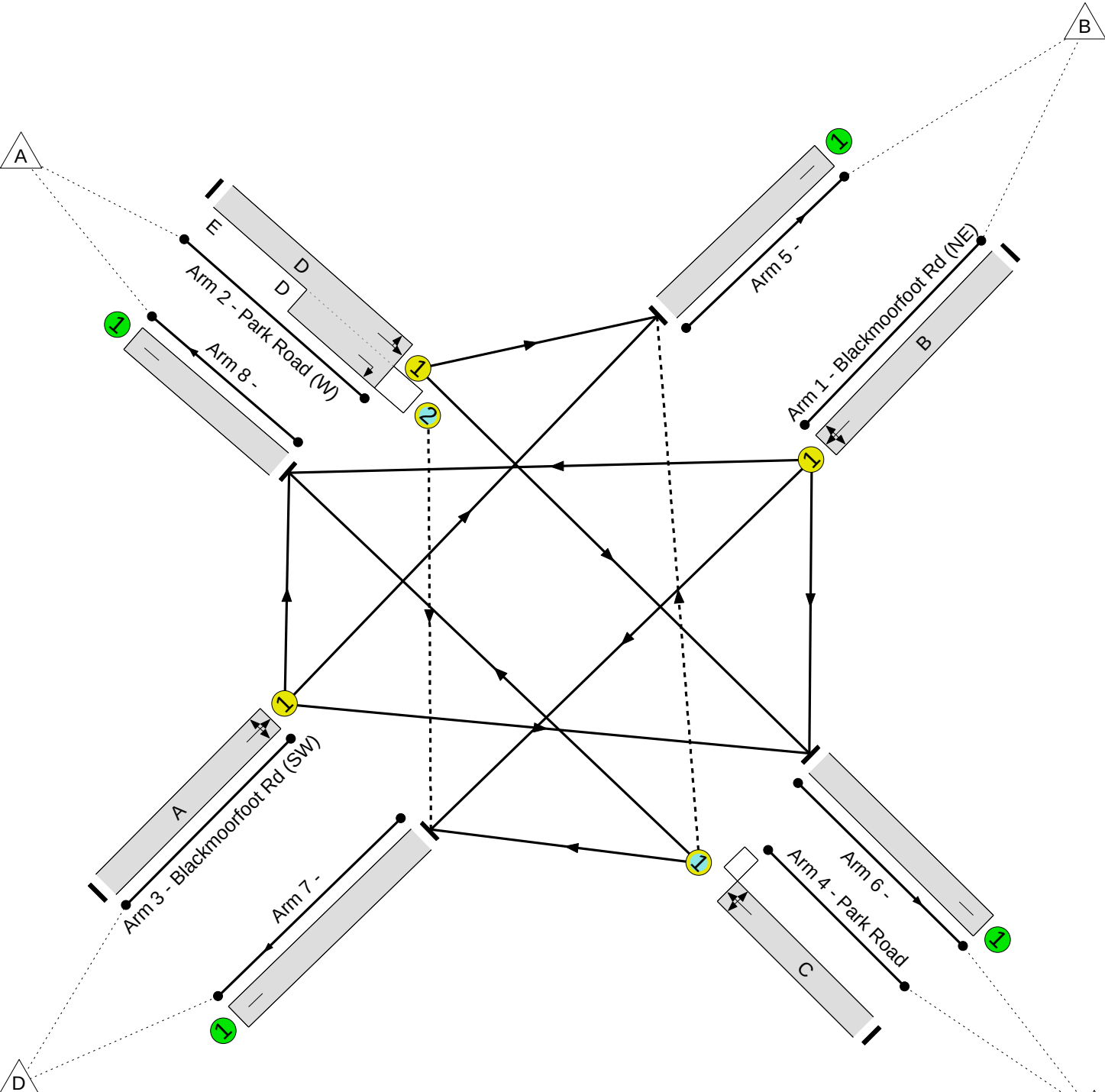
Network Layout Diagram



Blackmoorfoot Road . Park Road

PRC: 10.3 %

Total Traffic Delay: 18.8 pcuHr



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	-	-	N/A	-	-		-	-	-	-	-	-	81.6%
Blackmoorfoot Road . Park Road	-	-	N/A	-	-		-	-	-	-	-	-	81.6%
1/1	Blackmoorfoot Rd (NE) Left Ahead Right	U	N/A	N/A	B		2	57	-	439	1905	624	70.3%
2/1+2/2	Park Road (W) Left Ahead Right	U+O	N/A	N/A	D	E	2	80	8	338	1829:1735	767+86	39.6 : 39.6%
3/1	Blackmoorfoot Rd (SW) Ahead Right Left	U	N/A	N/A	A		2	57	-	444	1660	544	81.6%
4/1	Park Road Right Left Ahead	O	N/A	N/A	C		2	62	-	464	1899	573	81.0%
5/1		U	N/A	N/A	-		-	-	-	529	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	334	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	348	Inf	Inf	0.0%
8/1		U	N/A	N/A	-		-	-	-	474	Inf	Inf	0.0%

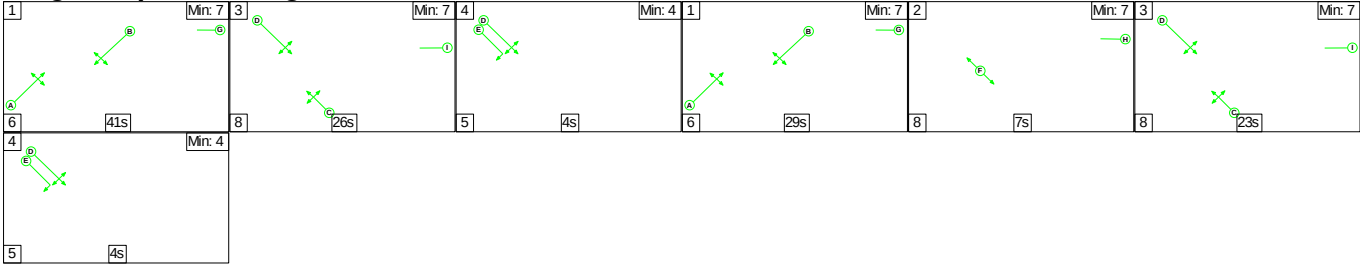
Full Input Data And Results

[illegible]

Full Input Data And Results

Scenario 13: '2029 + Comm AM' (FG9: '2029 + Comm AM', Plan 2: 'Pedestrians Every Other Cycle')

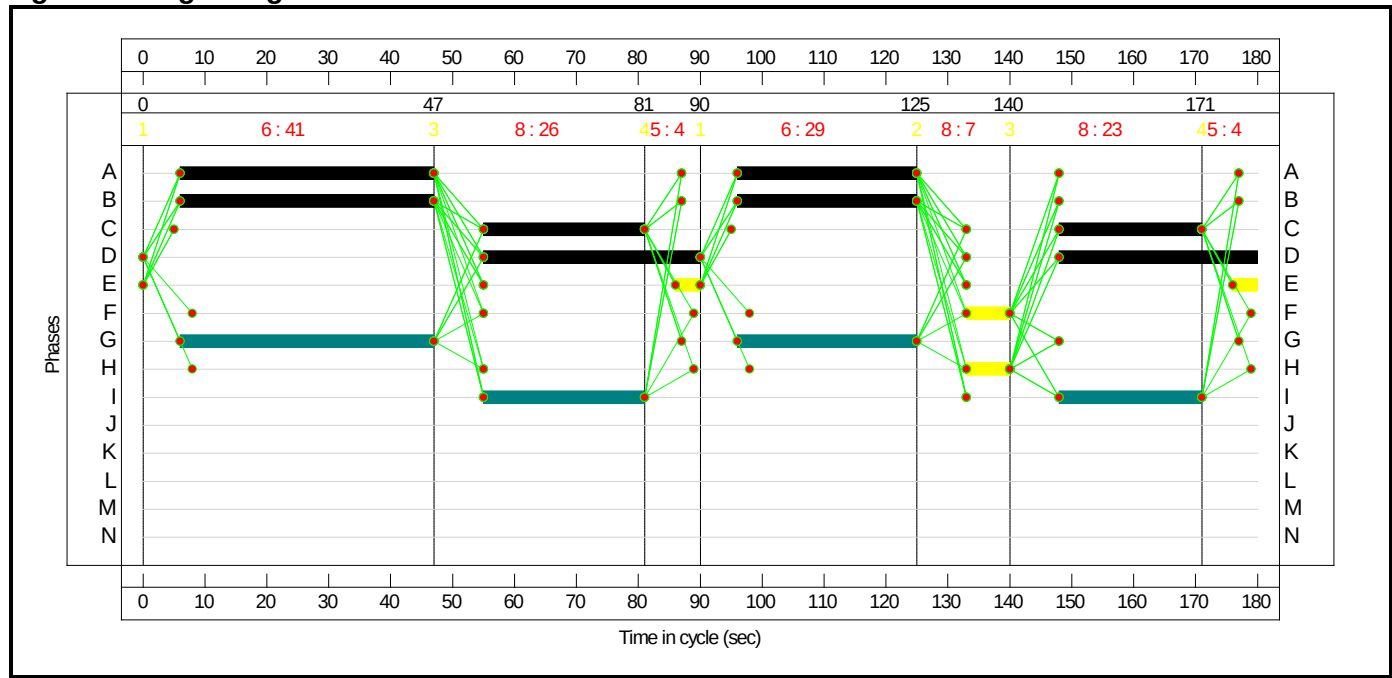
Stage Sequence Diagram



Stage Timings

Stage	1	3	4	1	2	3	4
Duration	41	26	4	29	7	23	4
Change Point	0	47	81	90	125	140	171

Signal Timings Diagram



Full Input Data And Results

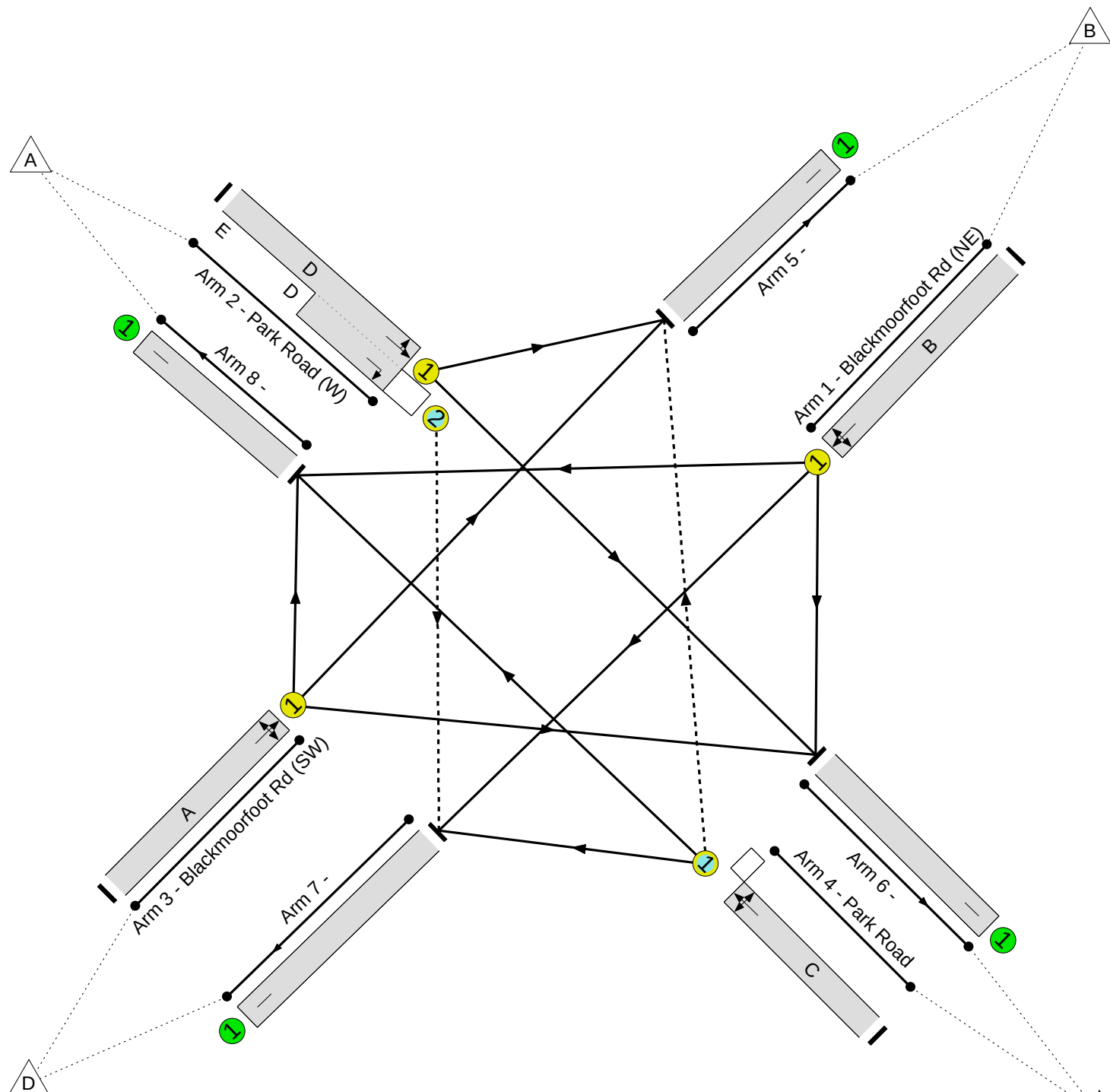
Network Layout Diagram



Blackmoorfoot Road . Park Road

PRC: -6.3 %

Total Traffic Delay: 34.6 pcuHr



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	-	-	N/A	-	-		-	-	-	-	-	-	95.7%
Blackmoorfoot Road . Park Road	-	-	N/A	-	-		-	-	-	-	-	-	95.7%
1/1	Blackmoorfoot Rd (NE) Left Ahead Right	U	N/A	N/A	B		2	70	-	742	1939	776	95.7%
2/1+2/2	Park Road (W) Left Ahead Right	U+O	N/A	N/A	D	E	2	67	8	270	1819:1735	626+106	36.9 : 36.9%
3/1	Blackmoorfoot Rd (SW) Ahead Right Left	U	N/A	N/A	A		2	70	-	621	1674	670	92.7%
4/1	Park Road Right Left Ahead	O	N/A	N/A	C		2	49	-	479	1904	510	93.9%
5/1		U	N/A	N/A	-		-	-	-	672	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	280	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	709	Inf	Inf	0.0%
8/1		U	N/A	N/A	-		-	-	-	451	Inf	Inf	0.0%

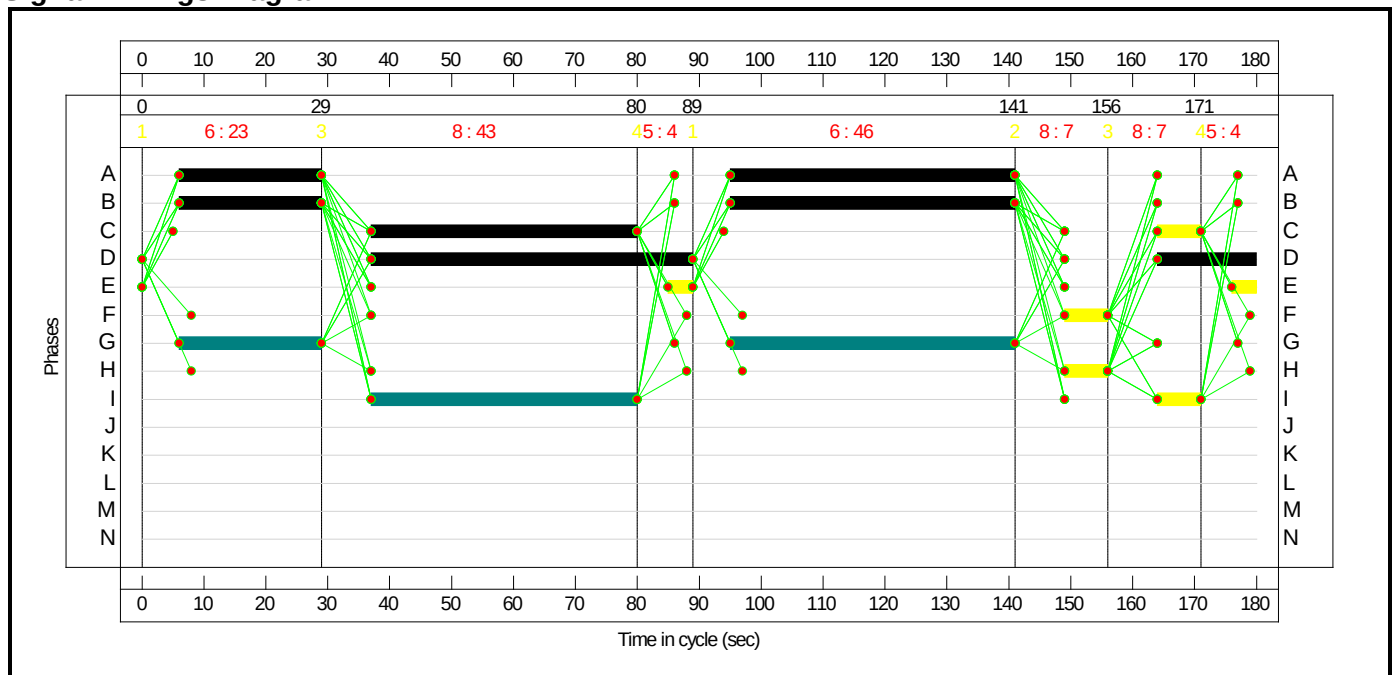
Full Input Data And Results

[illegible]

Stage Sequence Diagram



Signal Timings Diagram



Full Input Data And Results

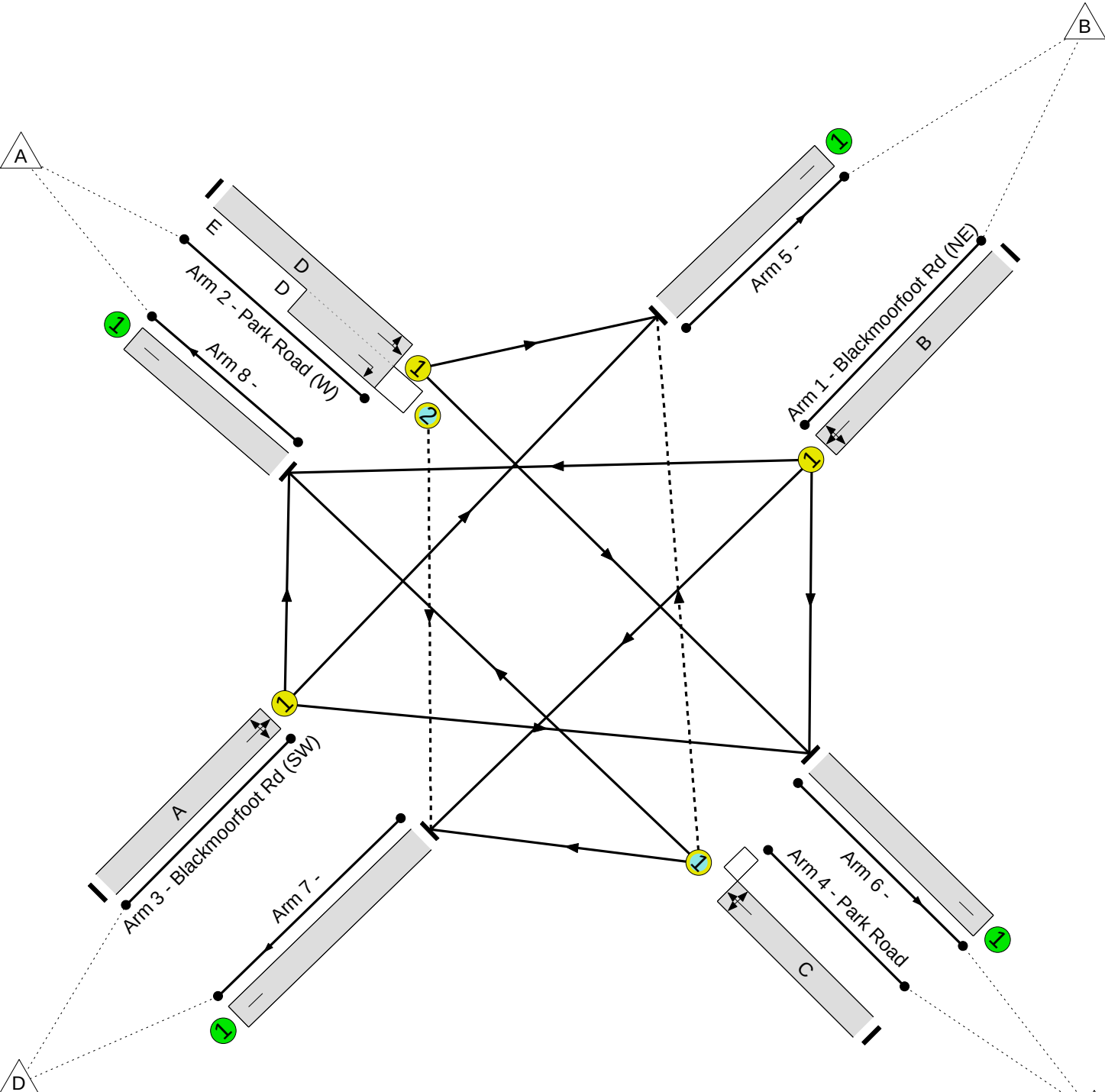
Network Layout Diagram



Blackmoorfoot Road . Park Road

PRC: -6.2 %

Total Traffic Delay: 38.0 pcuHr



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	-	-	N/A	-	-		-	-	-	-	-	-	95.6%
Blackmoorfoot Road . Park Road	-	-	N/A	-	-		-	-	-	-	-	-	95.6%
1/1	Blackmoorfoot Rd (NE) Left Ahead Right	U	N/A	N/A	B		2	69	-	680	1926	760	89.5%
2/1+2/2	Park Road (W) Left Ahead Right	U+O	N/A	N/A	D	E	2	68	8	353	1829:1735	640+103	47.5 : 47.5%
3/1	Blackmoorfoot Rd (SW) Ahead Right Left	U	N/A	N/A	A		2	69	-	628	1665	657	95.6%
4/1	Park Road Right Left Ahead	O	N/A	N/A	C		2	50	-	493	1886	521	94.7%
5/1		U	N/A	N/A	-		-	-	-	685	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	353	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	633	Inf	Inf	0.0%
8/1		U	N/A	N/A	-		-	-	-	483	Inf	Inf	0.0%

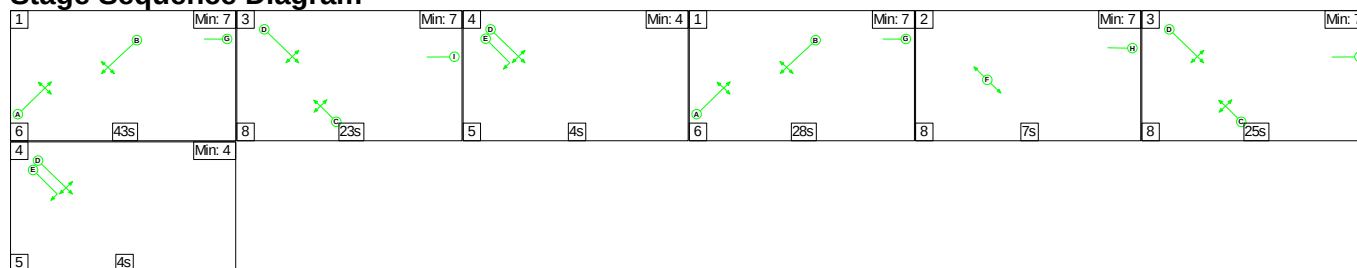
Full Input Data And Results

[illegible]

Full Input Data And Results

Scenario 15: '2029 + Comm + Dev AM' (FG11: '2029 + Comm + Dev AM', Plan 2: 'Pedestrians Every Other Cycle')

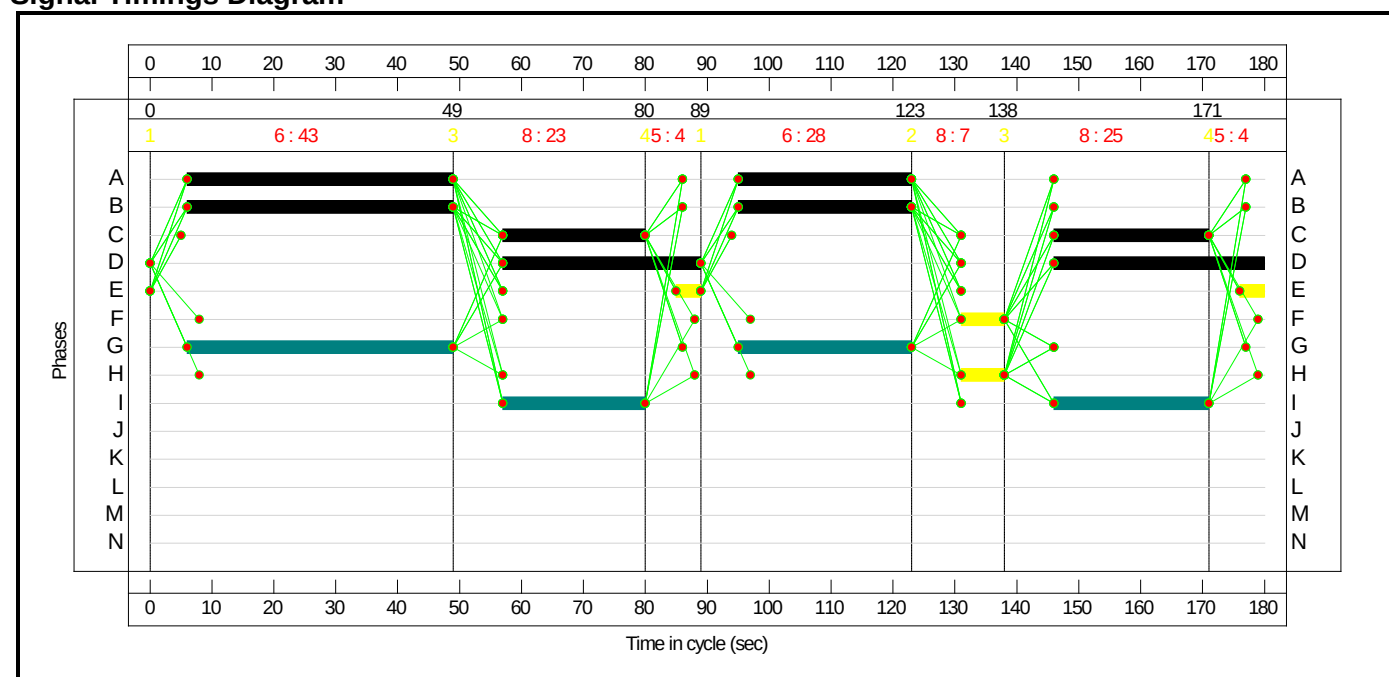
Stage Sequence Diagram



Stage Timings

Stage	1	3	4	1	2	3	4
Duration	43	23	4	28	7	25	4
Change Point	0	49	80	89	123	138	171

Signal Timings Diagram

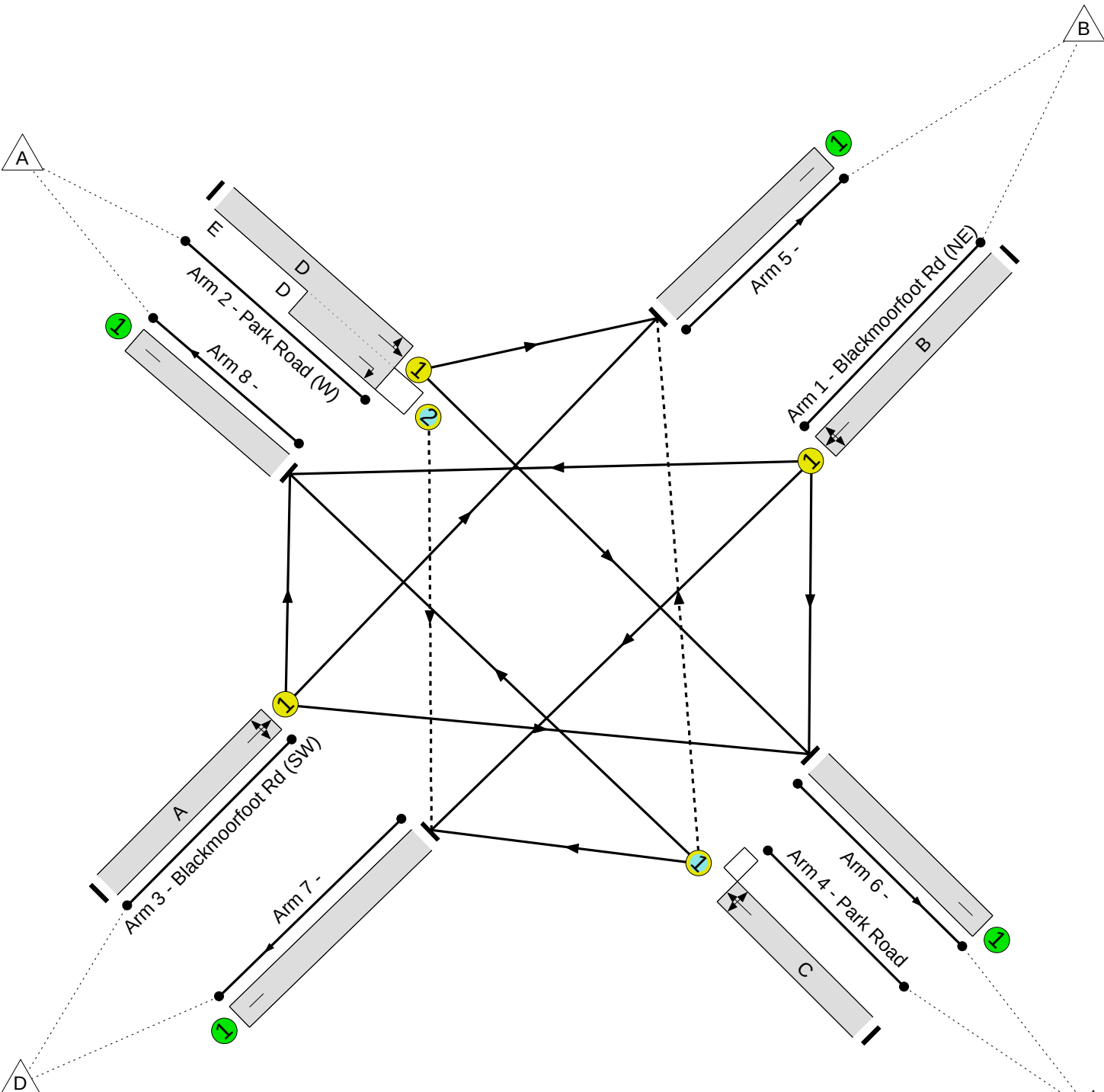


Full Input Data And Results

Network Layout Diagram



Blackmoorfoot Road . Park Road
PRC: -8.9 %
Total Traffic Delay: 39.8 pcuHr



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	-	-	N/A	-	-		-	-	-	-	-	-	98.0%
Blackmoorfoot Road . Park Road	-	-	N/A	-	-		-	-	-	-	-	-	98.0%
1/1	Blackmoorfoot Rd (NE) Left Ahead Right	U	N/A	N/A	B		2	71	-	761	1939	786	96.8%
2/1+2/2	Park Road (W) Left Ahead Right	U+O	N/A	N/A	D	E	2	66	8	272	1819:1735	615+109	37.6 : 37.6%
3/1	Blackmoorfoot Rd (SW) Ahead Right Left	U	N/A	N/A	A		2	71	-	631	1674	679	92.9%
4/1	Park Road Right Left Ahead	O	N/A	N/A	C		2	48	-	491	1899	501	98.0%
5/1		U	N/A	N/A	-		-	-	-	682	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	280	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	742	Inf	Inf	0.0%
8/1		U	N/A	N/A	-		-	-	-	451	Inf	Inf	0.0%

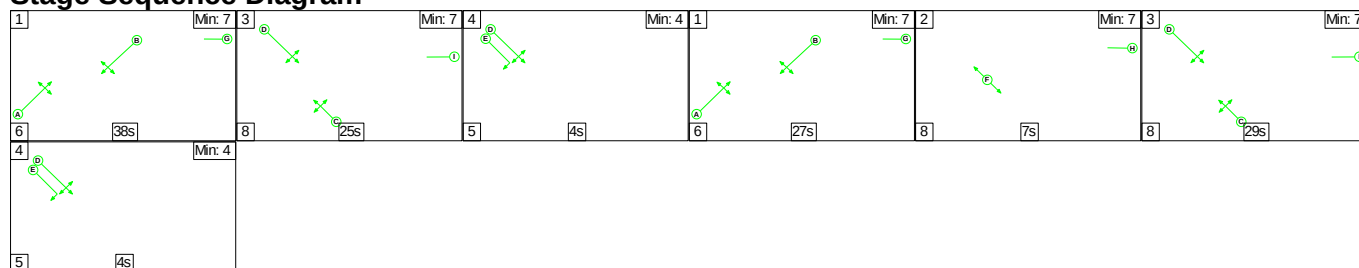
Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	-	-	101	27	1	16.2	23.3	0.2	39.8	-	-	-	-
Blackmoorfoot Road . Park Road	-	-	101	27	1	16.2	23.3	0.2	39.8	-	-	-	-
1/1	761	761	-	-	-	5.7	8.8	-	14.5	68.7	21.6	8.8	30.4
2/1+2/2	272	272	13	27	1	1.5	0.3	0.2	2.0	26.0	4.1	0.3	4.4
3/1	631	631	-	-	-	4.6	5.4	-	10.0	56.9	17.4	5.4	22.7
4/1	491	491	88	0	0	4.5	8.8	0.1	13.4	97.9	12.2	8.8	21.1
5/1	682	682	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	280	280	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	742	742	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	451	451	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
C1 PRC for Signalled Lanes (%): -8.9 Total Delay for Signalled Lanes (pcuHr): 39.81 Cycle Time (s): 180 PRC Over All Lanes (%): -8.9 Total Delay Over All Lanes(pcuHr): 39.81													

Full Input Data And Results

Scenario 16: '2029 + Comm + Dev PM' (FG12: '2029 + Comm + Dev PM', Plan 2: 'Pedestrians Every Other Cycle')

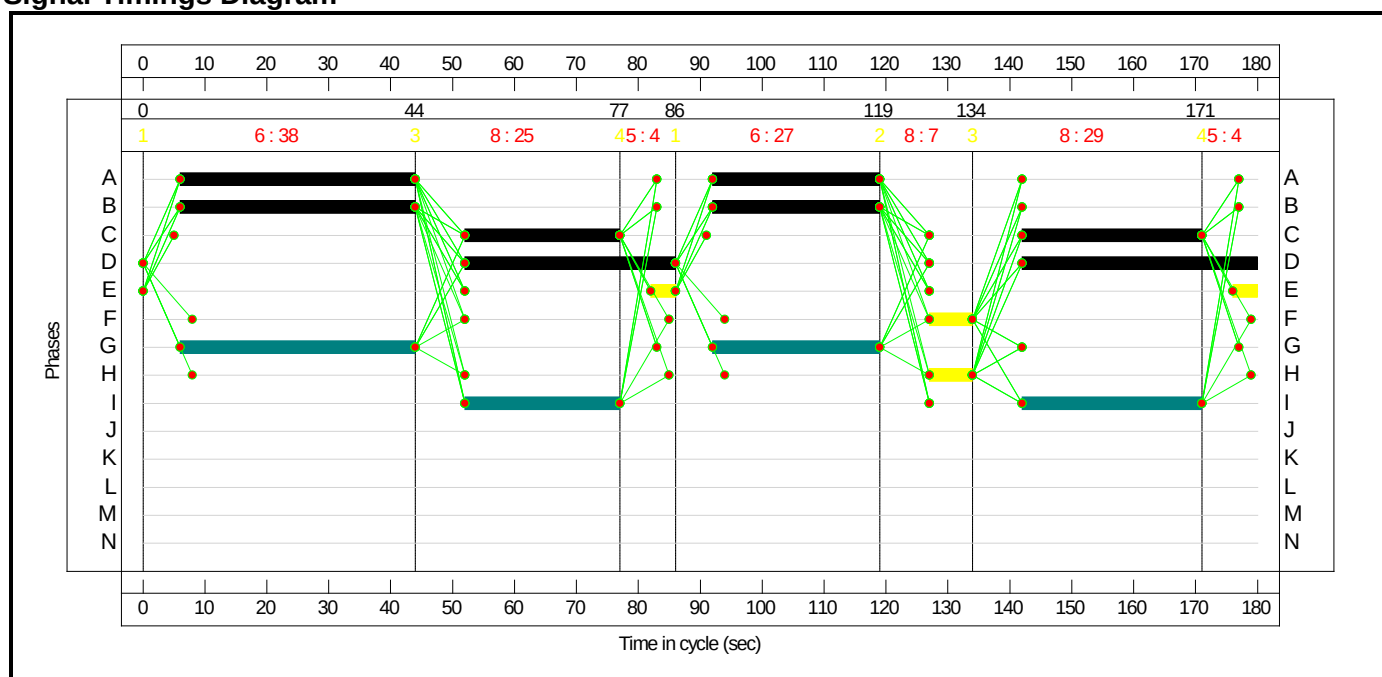
Stage Sequence Diagram



Stage Timings

Stage	1	3	4	1	2	3	4
Duration	38	25	4	27	7	29	4
Change Point	0	44	77	86	119	134	171

Signal Timings Diagram

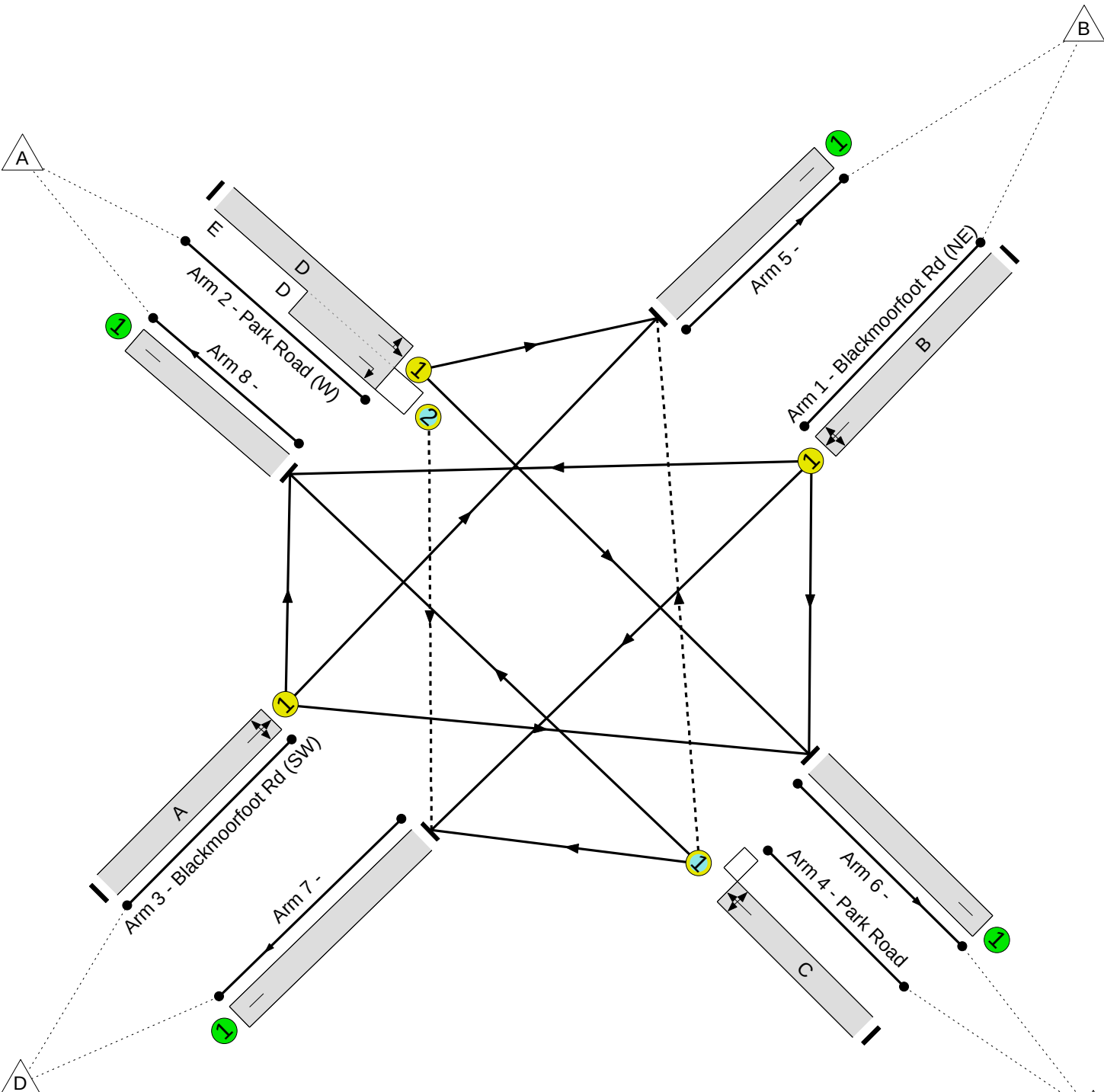


Full Input Data And Results

Network Layout Diagram



Blackmoorfoot Road . Park Road
PRC: -16.3 %
Total Traffic Delay: 68.5 pcuHr



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	-	-	N/A	-	-		-	-	-	-	-	-	104.6%
Blackmoorfoot Road . Park Road	-	-	N/A	-	-		-	-	-	-	-	-	104.6%
1/1	Blackmoorfoot Rd (NE) Left Ahead Right	U	N/A	N/A	B		2	65	-	688	1926	717	96.0%
2/1+2/2	Park Road (W) Left Ahead Right	U+O	N/A	N/A	D	E	2	72	8	354	1829:1735	673+111	45.2 : 45.2%
3/1	Blackmoorfoot Rd (SW) Ahead Right Left	U	N/A	N/A	A		2	65	-	646	1666	620	104.2%
4/1	Park Road Right Left Ahead	O	N/A	N/A	C		2	54	-	498	1884	476	104.6%
5/1		U	N/A	N/A	-		-	-	-	703	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	353	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	647	Inf	Inf	0.0%
8/1		U	N/A	N/A	-		-	-	-	483	Inf	Inf	0.0%

Full Input Data And Results

[illegible]

