

Proposed Residential Development, Land North of Blackmoorfoot Road,
Huddersfield

EMPIRE KNIGHT GROUP

Transport Assessment

July 2020





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1 INTRODUCTION

1.1 Introduction

- 1.1.1 Croft Transport Solutions have been instructed by Empire Knight Group to produce a Transport Assessment to assist the Local Planning Authority's determination of an outline planning application with all matters reserved save for details for up to 770 residential dwellings on land to the north of Blackmoorfoot Road and east of Felks Stile Road in Huddersfield.
- 1.1.2 This report provides information on the traffic and transport planning aspects of the development proposals.
- 1.1.3 The application site is located in Huddersfield approximately 3.5 kilometres south-west of Huddersfield town centre. Its location is shown within **Plan 1**.
- 1.1.4 Following this introduction, Section 2 provides a description of the existing site. Section 3 provides details of the development proposals.
- 1.1.5 Section 4 considers relevant planning policy, whilst Section 5 provides an assessment of the existing accessibility of the site by non-car travel, before Section 6 discusses the Travel Plan Framework.
- 1.1.6 The traffic impact of the proposed development on the local highway network is considered at Section 7, whilst Section 8 presents an analysis of road safety in the vicinity of the site. Section 9 draws together the conclusions to this report.
- 1.1.7 The scope of the Transport Assessment has been discussed and agreed with the highway officers at Kirklees Council.

2 EXISTING CONDITIONS

2.1 Existing Site Information

- 2.1.1 The site is located approximately 3.5 kilometres south-west of Huddersfield town centre. The site is bounded to the north by undeveloped land and to the south by Blackmoorfoot Road. To the west the site is bound by the Felks Stile Road whilst employment and residential development bounds the site to the east.
- 2.1.2 The location of the application site is shown within **Plan 1**.
- 2.1.3 Vehicular access into the site is currently provided for via a priority controlled access junction off Blackmoorfoot Road approximately 290 metres west of the Blackmoorfoot Road/Crosland Hill Road priority controlled junction.

2.2 Local Highway Network

- 2.2.1 Blackmoorfoot Road has a carriageway width of 7 metres along the frontage of the site. It is subject to a 30mph speed limit along the eastern side of the frontage (in the vicinity of the existing site access junction), whilst a 40mph speed limit is located on the western section. A footway with a width of 1.9 metres is located on the northern side of the carriageway along the frontage of the application site.
- 2.2.2 To the north-east of the application site Blackmoorfoot Road runs in an approximate north-south alignment for approximately 1.6 kilometres until it provides an arm of the Blackmoorfoot Road/Park Road signal controlled junction. To the south of this junction Park Road provides access to the Lockwood area of Huddersfield and the B6108 Meltham Road.

- 2.2.3 From the Blackmoorfoot Road/Park Road junction the Blackmoorfoot Road continues in north-easterly direction for a further 510 metres until it forms the A62 Manchester Road/Blackmoorfoot Road/Birkhouse Lane signal controlled junction. To the west of this junction the A62 Manchester Road provides access to the surrounding areas of Milnsbridge, Slaithwaite and Marsden.
- 2.2.4 To east of the junction the A62 Manchester Road continues until it provides an arm of the A62 Manchester Road/B6432 St. Thomas Road signal controlled junction. From this junction the B6432 St. Thomas Road provides access to the A616 Folly Hall whilst the A62 Manchester Road provides access into Huddersfield town centre.
- 2.2.5 Felks Stile Road which bounds the site to the west has a carriageway width of 6 metres and is subject to the National Speed Limit along the frontage of the application site. To the south-east it provides the minor arm of the Blackmoorfoot Road/Felks Stile Road priority controlled junction whilst to the north-west it changes to Church Lane and provides a minor arm of the Cowlersley Lane/Church Lane priority controlled junction.

2.3 Baseline Transport Data

- 2.3.1 The site is partly occupied by Industrial uses i.e. Storage and Distribution and therefore generates vehicle movements during the peak periods. Further details on the existing site traffic will be provided within Section 7.

2.4 Planning History

- 2.4.1 An outline planning application for the following development was submitted to Kirklees Council in March 2018 (Planning Ref2018/60/90748/W);

"Outline application for the development of up to 630 residential dwellings (Use Class C3), up to 70 care apartments with doctors surgery of up to 350 sq m (Use Classes C2/C3/D1), 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."

- 2.4.2 Although the planning application was refused at planning committee, all highways matters were agreed with the local highway subject to agreement on the S106 contributions for off-site highway works. Therefore, the methodology used within the previously submitted Transport Assessment has again been utilised for this document.

3 PROPOSED DEVELOPMENT

3.1 Development Proposals

- 3.1.1 This document has been produced in support of an outline planning application with all matters reserved except means of access for a residential development consisting of 770 residential units (Use Class C3).
- 3.1.2 In addition to the residential element it is proposed to provide 500sqm of floorspace which will be dual use (Use Class A1/A2/A3/A4/A5/D1), these uses will be ancillary to the proposed residential development.
- 3.1.3 The proposed indicative masterplan is shown in **Plan 2**.

3.2 Vehicular Access

- 3.2.1 Vehicular access into the application site will be provided off Blackmoorfoot Road to the south and Felks Stile Road to the west.

Proposed Priority Controlled Junction off Blackmoorfoot Road

- 3.2.2 It is proposed that primary vehicular access into the site off Blackmoorfoot Road will be provided for in the form of a priority controlled junction approximately 280 metres east of the Blackmoorfoot Road/Felk Stile Road priority controlled junction.
- 3.2.3 The proposed vehicular access would be priority controlled and can accommodate a 5.5 metre wide carriageway, 2 metre footways on either side and would incorporate 10 metre corner radii.

3.2.4 To cater for the volume of traffic movements turning into the site the proposed design incorporates a right turning lane on the Blackmoorfoot Road. This has necessitated widening the Blackmoorfoot Road carriageway along the site frontage but does not require the acquisition of third party land to implement, as all additional land is within the existing limits of adopted highway. The running lanes on Blackmoorfoot Road will be 3.5 metres wide with a 3 metre wide right turning lane.

3.2.5 Blackmoorfoot Road is subject to a 30 mph speed limit in this location and visibility splays of 2.4 metre by 43 metres can be achieved from the proposed junction, the proposed layout of the junction is shown in **Plan 3**.

Proposed Priority Controlled Junction off Felks Stile Road

3.2.6 It is proposed that vehicular access into the site off Felks Stile Road will be provided for via a standard priority controlled junction off Felks Stile Road approximately 160 metres west of the Blackmoorfoot Road/Felks Stile Road priority controlled junction.

3.2.7 The proposed vehicular access would be priority controlled and can accommodate a 5.5 metre wide carriageway, 2 metre footways on either side and would incorporate 10 metre corner radii.

3.2.8 It is envisaged that this point of access will have limited usage as a large proportion of resident's trips will be along Blackmoorfoot Road. Therefore, the most logical route to and from the site will be from the proposed new junction on Blackmoorfoot Road.

3.2.9 As previously stated Felks Stile Road is subject to the National Speed Limit, however as previously stated Blackmoorfoot Road is subject to a 40mph speed limit in the vicinity of its junction with Felks Stile Road. Therefore, due to the increase in vehicular and pedestrian movements along Felks Stile Road it is felt there is scope to extend the existing 40mph on Blackmoorfoot Lane along Felks Stile. Based on this visibility splays of 2.4 metres by 59 metres have been shown at the proposed junction.

- 3.2.10 The proposed vehicular access off Felks Stile Road is displayed in **Plan 4**.

3.3 Pedestrian and Cycle Access

- 3.3.1 It is proposed that access for pedestrians and cyclists will be provided for at both of the vehicular access points, in the form of pedestrian footways, dropped kerbs and tactile paving.
- 3.3.2 The pedestrian facilities at the Blackmoorfoot Road site access junction will link with the existing pedestrian footway and infrastructure located on Blackmoorfoot Road. Whilst the proposed pedestrian provision at the Felks Stile Road site access junction will link with the existing provision located at its junction with Blackmoorfoot Road.
- 3.3.3 In addition, it is also proposed to provide a pedestrian link on the eastern boundary of the site which will provide access to the nearby village of Cowersley.

3.4 Internal Layout

- 3.4.1 The site layout has been designed with Manual for Streets (MfS) documents in mind to ensure maximum permeability as well as reduced vehicular speeds allowing for walking and cycling provision to be central to the development site.
- 3.4.2 Car parking for the proposed development will be provided in accordance with the relevant Kirklees Council car parking standards and agreed at a more advanced stage of the planning process.

4 TRANSPORT PLANNING POLICY

4.1 Introduction

- 4.1.1 The national policy presented in this document focuses on the National Planning Policy Framework (NPPF), which was published in March 2012 and sets out the Government's planning policies for achieving sustainable development.
- 4.1.2 Local transport planning policy for Huddersfield is taken from the West Yorkshire Local Transport Plan and the Kirklees Local Plan.
- 4.1.3 This section will briefly outline the pertinent policies relating to the proposed development although the majority of the planning policy consideration is contained within the Planning Statement that accompanies the planning application.

4.2 National Policy

- 4.2.1 The presumption in favour of sustainable development is a central theme running through the framework and transport planning policies are seen as a key element of delivering sustainable development as well as contributing to wider sustainability and health objectives. To achieve these objectives paragraph 30 states that when making decisions, local authorities should:

"Support a pattern of development which, where reasonable to do so, facilitate the use of sustainable modes of transport."

- 4.2.2 In addition, paragraph 35 states that to further enhance the opportunities for sustainable development any future developments should be located and designed where practical to:

- *Accommodate the efficient delivery of goods and supplies.*

- *Give priority to pedestrian and cycle movements, and have access to high quality public transport facilities.*
- *Create safe and secure layouts which minimise conflicts between traffic and cyclists or pedestrians, avoiding street clutter and where appropriate establishing home zones.*
- *Incorporate facilities for charging plug-in and other ultra-low emission vehicles; and*
- *Consider the needs of people with disabilities by all modes of transport.*

4.2.3

As will be demonstrated within this Transport Assessment, the proposed development accords with the policy test contained within paragraph 32 of the framework which states that:

'All developments that generate significant amounts of movement should be supported by a Transport Statement or Transport Assessment and that any plans or decisions should take into account the following;

- *the opportunities for sustainable transport modes have been taken up depending on the nature and location of the site, to reduce the need for major transport infrastructure;*
- *safe and suitable access to the site can be achieved for all people; and*
- *improvements can be undertaken within the transport network that cost effectively limit the significant impacts of the development. Development should only be prevented or refused on transport grounds where the residual cumulative impacts of development are severe.'*

- 4.2.4 The location of the proposed development adjacent to a number of local amenities (as described in Section 5 of this TA) is in accordance with the guidance contained within paragraph 38 which states that:

"Key facilities such as primary schools and local shops should be located within walking distance of most properties"

4.3 Planning Practice Guidance

- 4.3.1 The Government has produced the National Planning Practice Guidance to supplement the NPPF. Within the guidance, there is specific section clarifying the over-arching principles on Travel Plans, Transport Assessments and Transport Statements. There are also sections advising further on each of the three documents discussed.
- 4.3.2 The guidance on Transport Assessments and Statements reiterates the circumstances in which either document would usually be required. It is clear that a development of the size and nature of this development requires a full Transport Assessment.
- 4.3.3 It also clarifies the process for establishing a scope for the assessment, and what the document should contain. The guidance has been considered in the preparation of this TA.
- 4.3.4 The guidance on Travel Plans reinforces the requirement for a Travel Plan, the scope of the document, and need for monitoring to continue the strategy into the future. The guidance has been considered in the production of the accompanying Framework Travel Plan.

4.4 Local Policy

West Yorkshire Transport Strategy 2040

4.4.1 The West Yorkshire Transport Strategy 2040 was adopted in August 2017 and was produced by the West Yorkshire Combined Authority and the West Yorkshire district councils of Bradford, Calderdale, Kirklees, Leeds and Wakefield.

4.4.2 The Transport Strategy 2040 sets out the partners ambitions for the region and although focused on the West Yorkshire it is recognising the importance and impact of links with the wider Leeds City Region and states the following vision;

"To enhance business success and people's live by providing modern, world-class, well connected transport that makes travel around West Yorkshire easy and reliable."

4.4.3 To achieve this vision the document states that the following objectives must be achieved;

- **Economy:** Create a more reliable, less congested, better connected transport network.
- **Environment:** Have a positive impact on our built and natural environment.
- **People and place:** Put people first to create a strong sense of place.

4.4.4 With regard to the borough of Kirklees, the specific aim of the Transport Strategy is;

"To achieve a balanced and integrated transport network that makes the most efficient and effective use of the road, rail and public transport."

Emerging Local Plan

4.4.5 The emerging Local Plan was submitted to the Secretary of State in April 2017 for examination. The document will replace the existing Adopted Local which was adopted in 1999, the emerging document is currently at Examination in Public and is due to be adopted in Feb 2019.

4.4.6 The majority of the application site is allocated within the emerging Local Plan within Housing Allocation Site 'Land North of Blackmoorfoot Road' (Local Plan ID: HS23) This draft allocation seeks to bring forward a housing development which comprises 684 residential dwellings.

4.4.7 With regard to Transport Policy T30 'Sustainable Transport' states the following regarding large schemes such as this planning application;

"For larger schemes, proposals will:

- a) Be supported by travel plans which encourage the use of public transport, cycling and walking where appropriate;
- b) Address how the hierarchy of users have been taken into account during the masterplanning/design process and how links have been utilised to encourage connectivity.
- c) Provide full details of the design and levels of parking provision. They should demonstrate how the design and amount of parking proposed is the most efficient use of land within the development as part of encouraging sustainable travel.

4.5 Planning Policy Summary

4.5.1 The proposed development is in accordance with national and local policy for the following reasons:

- The proposed development will reduce the need to travel due to it being located in close proximity to a range of services and facilities, such as, schools, retail opportunities, health facilities and pedestrian and cycle routes. Further details on the accessibility of the proposed development by non-car modes are provided in Section 5 of this Transport Assessment.
- The site is located in close proximity of a range of public transport opportunities and will provide high quality infrastructure which will focus on the needs of pedestrians and cyclists facilitating non-car travel to and from the proposed development.
- The site promotes sustainable transport in accordance with the NPPF as it facilitates sustainable development and contributes to wider sustainability and health objectives.
- Additionally, Section 7 of this Transport Assessment considers the traffic impact of the proposed development on the local highway network to establish the extent of any significant highway impacts and evaluate compliance with the NPPF which states that development should only be refused on transport grounds where the residual cumulative impacts of development are severe.

5 ACCESSIBILITY BY NON CAR MODES

5.1 Introduction

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

5.1.2 The presumption in favour of sustainable development is a central theme running through the framework and transport planning policies are seen as a key element of delivering sustainable development as well as contributing to wider sustainability and health objectives. To achieve these objectives, paragraph 30 states that when making decisions, local authorities should:

'Support a pattern of development which, where reasonable to do so, facilitates the use of sustainable modes of transport.'

5.1.3 One of the core principles of the NPPF is to *'actively manage patterns of growth to make the fullest use of public transport, walking and cycling and focus significant development in locations which are or can be made sustainable.'*

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

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

- accessibility on foot;
- accessibility by cycle;
- accessibility by bus;

- accessibility by rail.

5.2 Accessibility on Foot

- 5.2.1 It is important to create a choice of direct, safe and attractive routes between where people live and where they need to travel in their day-to-day life. This philosophy clearly encourages the opportunity to walk whatever the journey purpose and also helps to create more active streets and a more vibrant neighbourhood.
- 5.2.2 The primary pedestrian desire lines will be to the east toward Huddersfield town centre. At present a pedestrian footway with a minimum width of 2 metres are located on the northern side of the carriageway. This footway runs along the entirety of the frontage of the site and links with the extensive pedestrian infrastructure provided to east of the application site which provides access to local amenities as well as Huddersfield town centre.
- 5.2.3 Pedestrian crossing facilities are provided for on Blackmoorfoot Road in the form of Zebra crossing which is located 900 east of the application site. This crossing provides safe pedestrian movement across Blackmoorfoot Road and provides pedestrian access to Dryclough CoE Infant School which is located on Dryclough Road.
- 5.2.4 As part of the development proposals it is proposed to provide pedestrian linkages to this existing pedestrian footway at the proposed site access junctions as well on the eastern boundary of the site which will provide access to the nearby village of Cowersley.
- 5.2.5 The CIHT document 'Planning for Walking' from 2015 states, in paragraph 2.1, that in 2012 that 79% of all journeys made in the UK of less than a mile (1.6 kilometres) are carried out on foot.

- 5.2.6 Within the Institution of Highways and Transportation (IHT) document, entitled "Guidelines for Providing for Journeys on Foot", Table 2.2 suggests distances for desirable, acceptable and preferred maximum walks to 'town centres', 'commuting/schools' and 'elsewhere'. The 'preferred maximum' distances are shown below in Table 5.1.

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

Table 5.1 IHT 'Providing for Journeys on Foot' Walk Distances

- 5.2.7 The Government introduced advice on walking distances in the 2001 revision to Planning Policy Guidance (PPG) 13 Transport, now withdrawn, which advised that *'Walking is the most important mode of travel at the local level and offers the greatest potential to replace short car trips, particularly those under two kilometres.'*
- 5.2.8 Manual for Streets (MfS) continues the theme of the acceptability of the 2,000 metre distance in paragraph 4.4.1. This states that *'walkable neighbourhoods are typically characterised by having a range of facilities within 10 minutes' (up to about 800m) walking distance of residential areas which residents may access comfortably on foot. However, this is not an upper limit and PPS13 states that walking offers the greatest potential to replace short car trips, particularly those under 2 km'.*
- 5.2.9 Table 5.2 below summarises this guidance in tabular form.

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

Table 5.2 - Manual for Streets Walk Distances

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

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

Table 5.3 - DfE Walk Distances to Schools

- 5.2.11 Further evidence that people will walk further than the suggested 'preferred maximum' distances in the IHT 'Providing for Journeys on Foot' is contained in a WYG Report entitled 'Accessibility – How Far Do People Walk and Cycle'. This report refers to National Travel Survey (NTS) data for the UK as a whole, excluding London, and confirms the following 85th percentile walk distances:
- All journey purposes – 1,930 metres;
 - Commuting – 2,400 metres;
 - Shopping – 1,600 metres;
 - Education – 3,200 or 4,800 metres;

- Personal business – 1,600 metres.

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

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

Table 5.4 - WYG Report/NTS Data Walk Distances

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

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

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

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

5.2.16 In light of the above review, a pedestrian catchment of 2 kilometres from the centre of the site, using all usable pedestrian routes, has been provided in **Plan 5** and provides an illustrative indication of the areas that can be reached based on a leisurely walk from the site.

- 5.2.17 In addition, to the pedestrian catchment plan, a review of the proximity of local facilities has been undertaken and the location of these is also shown in **Plan 5**.
- 5.2.18 The 2,000 metre pedestrian catchment illustrates that large areas of Linthwaite can be accessed along various amenities such as The Sounds House Public House, Broad Oak Cricket Club, Broad Oak Bowling Club, Colne Valley High School, Gulf petrol station, Crosland Hill Methodist Church, Moor End Academy, Crosland Heath Golf Club, Premier Convenience Store, Boots Pharmacy and Co-operative Convenience Store.
- 5.2.19 Table 5.5 below, shows the walking distance from the centre of the site to several of the local key amenities in the immediate vicinity of the site. The table also confirms whether or not the particular amenity is within the 'preferred maximum' walk distances using the above guideline criteria.

Local Amenity	Distance	Guidance Criteria	Meets with Guidance?
The Sands House public House	300m	1,600m	YES
Crosland Heath Golf Club	520m	1,600m	YES
Crosland Hill Methodist Church	800m	1,600m	YES
Premier Convenience store/post office	1,320m	1,600m	YES
Colne Valley High School	1,500m	4,800m	YES
Moor End Academy	1,620m	4,800m	YES
Co-operative food store	1920m	1,950m	YES
Boots Pharmacy	1940m	1,950m	YES

Table 5.5 - Distance from Site to Local Facilities

- 5.2.1 As can be seen in the above table, the site is located within close proximity to a number of local amenities including primary services as well as leisure facilities.
- 5.2.2 As shown on **Plan 5** all of the day to day amenities are well within the 'preferred maximum' walk distances described earlier in this section and indeed many, including the nearest convenience store, pharmacy and nearest primary school, are around the 800 metres 'comfortable walk' from the site as contained within MfS guidance.
- 5.2.3 Based on the above the site can therefore be considered as being accessible by foot.

5.3 Accessibility by Cycle

- 5.3.1 An alternative mode of travel to the site could be achieved by bicycle.
- 5.3.2 A distance of 5 kilometres is generally accepted as a distance where cycling has the potential to replace short car journeys. This distance equates to a journey of around 25 minutes based on a leisurely cycle speed of 12 kilometres per hour and would encompass large areas of Huddersfield including the town centre, Newsome and Crosland Hill as well the nearby areas of Milnsbridge and Slaithwaite.
- 5.3.3 Blackmoorfoot Road, Felks Stile Road and Crossland Hill Road are all designated as advisory on-carriageway routes and provide access to Huddersfield and the surrounding Kirklees area.
- 5.3.4 The site can therefore be considered as being accessible by cycle.

5.4 Accessibility by Bus

- 5.4.1 The closest bus stops to the site are located along Blackmoorfoot Road along the southern frontage of the site which are approximately 300 metres from the centre of the application site. The eastbound bus stop has a bus pole displaying service information, whilst no facilities are provided for the westbound bus stop.
- 5.4.2 Additional bus stops are located on Felks Stile Road at its junction with Blackmoorfoot Road these bus stops are located approximately 630 metres from the centre of the planning application site. The south-east bound bus stop includes a bus shelter with bus service information whilst the bus pole displaying service information is provided for on the north-west bound bus stop.
- 5.4.3 All of the bus stops located within the vicinity of the application site can be accessed via the existing and proposed pedestrian infrastructure located on Blackmoorfoot Road and Felks Stile Road. A summary of the services available from the nearest bus stops from the development site is provided in Table 5.6 below.

Service No	Route	Monday – Friday (per hour)				Sat	Sun
		AM Peak	Midday	PM Peak	Eve		
389	Meltham – Blackmoorfoot – Linthwaite – Slaithwaite	School Service at 0819 and Public Service at 1603				0	0
	Slaithwaite – Linthwaite – Blackmoorfoot – Meltham	Public Service at 1532				0	0
393	Huddersfield – Thornton Lodge – Linthwaite – Blackmoorfoot	1	1	1	0	1	0
	Blackmoorfoot – Linthwaite – Thornton Lodge – Huddersfield	1	1	1	0	1	0

Table 5.6 - Existing Bus Services Operating in the Vicinity of the Site

- 5.4.4 As can be seen the bus services located within the vicinity of the application site provide 1 service per hour during the peak periods to and from Huddersfield town centre which provides a range of employment, retail and leisure opportunities.
- 5.4.5 The first service towards Huddersfield leaves at 0816 and arrives at 0842 (26 minute bus journey) whilst the last bus services departs Huddersfield at 1650, therefore making travel by bus an alternative to travelling by car for commuting trips.

- 5.4.6 It is therefore concluded that the proposed development site is accessible by bus. However, discussions will be held with the highway authority and West Yorkshire Metro at a more advanced stage of the planning process regarding potential improvements to the existing bus service in the vicinity of the application.

5.5 Accessibility by Rail

- 5.5.1 The nearest train station to the site is Lockwood Station which is located approximately 2.5 kilometres from the centre of the application site. Although this is outside the recommended walking distance of 2 kilometres there is the potential for residents to travel to the site by sustainable transport.
- 5.5.2 Lockwood Station is located on the Penistone Line between Huddersfield and Sheffield and it provides hourly services to both destinations with journeys to Huddersfield taking 5 minutes.
- 5.5.3 These services provide access to a range of local and regional destinations providing the opportunity for commuter and leisure trips to be undertaken by rail.
- 5.5.4 The station includes 10 car parking spaces and 5 Sheffield type stands are provided at the station which provides secure storage for up to 10 cycles.
- 5.5.5 It is therefore concluded that the proposed development is accessible by rail.

5.6 Accessibility Summary

- 5.6.1 The site has been considered in terms of its accessibility by non-car modes and the following conclusions can be drawn from this section of the report:
- The site is accessible on foot and these provisions will be improved as part of the proposals.

- It has been demonstrated that cycle infrastructure in the vicinity of the site is good.
- The site is accessible to bus stops located on Blackmoorfoot Road and Felks Stile Road which provide access to and from Huddersfield town centre.
- Lockwood rail station is located outside of the 2 kilometre catchment but there is still the potential for residents and visitors to the travel by rail.

5.6.2 In light of the above, it is considered the site is accessible and will cater for needs of the development and assist in promoting a choice of travel modes other than the private car.

6 PROMOTING SMARTER CHOICES VIA TRAVEL PLANS

6.1 Introduction

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

6.2 Travel Planning Guidance

- 6.2.1 The objective of the Travel Plan is the delivery of the objectives of National Planning Policy, i.e. to encourage residents to travel by non-car modes of travel. The Travel Plan outlines physical and management measures that are designed to achieve this objective.
- 6.2.2 The effectiveness of Travel Plans in assisting the use of non-car modes for journeys is intrinsically linked to the accessibility of a given site by means other than the private car.
- 6.2.3 The proposed development has been demonstrated to benefit from good non-car accessibility and it should, therefore, be expected that the adoption of a Travel Plan would be effective.
- 6.2.4 A draft Travel Plan Framework is contained within **Appendix 1**.

7 TRAFFIC IMPACT ANALYSIS

7.1 Introduction

7.1.1 Having established that the development site is accessible by modes of transport other than the private car and that the proposals will be supported by a Travel Plan; the following section considers the traffic impact of the development proposals on the local highway network.

7.2 Survey Flows

7.2.1 In order to assess the impact of the proposed development on the local highway network traffic surveys were undertaken at the following junctions on Tuesday 6th June 2017 as agreed with the highways officers at Kirklees Council;

- Blackmoorfoot Road/Felks Stile Road priority controlled junction;
- Blackmoorfoot Road/Sands House Lane priority controlled junction.
- Blackmoorfoot Road/Park Road/Park Road West signal controlled junction.
- A62 Manchester Road/Blackmoorfoot Road/Birkhouse Lane signal controlled junction.
- A62 Manchester Road/St. Thomas Road/Waterside signal controlled junction.
A62 Manchester Road/Longroyd Lane signal controlled junction.
- A616 Lockwood Road/B6108 Meltham Road/Swan Lane/Bridge Street signal controlled junction.
- Cowersley Lane/Gillroyd Lane/Church Lane priority controlled junction.

- 7.2.2 The full traffic survey data is contained within **Appendix 2**. The AM and PM peak hours were identified as 0745 to 0845 hours and 1630 to 1730 hours. The 2017 Surveyed Flows for the AM and PM peak are shown within **Figures 1 and 2** in terms of PCU's.

7.3 Existing Site Traffic

- 7.3.1 As previously stated, the application site is partly occupied by Industrial uses and therefore generates vehicle movements during peak periods which will be included within the surveyed flows. However, for robustness these existing traffic flows have not been removed from the local highway network.

7.4 Growthed Flows

- 7.4.1 For the purposes of this Transport Assessment, future years of 2022 and 2031 has been assumed, as these represent the forecast year of opening and year of completion of the development and also provides a sufficient time in the future to assess a worst-case in traffic growth following development implementation. This assessment period also covers up to the end of the emerging Local Plan.
- 7.4.2 WebTAG unit 3.15.2 titled 'The use of TEMPRO Data' advocates the use of alternative planning assumptions where a site may have been included in the planning data used to generate the NTEM growth figures such as sites allocated for development.
- 7.4.3 The planning application site is located within the Kirklees 047 and 050 MSOA's and Tables 7.1 and 7.2 below summarise the Planning Assumptions contained within TEMPRO dataset 7.2 for the periods 2017 to 2022 and 2017 to 2031.

	2017 (Base Year)		2022 (Future Year)		Difference	
	047	050	047	050	047	050
Households	3050	3237	3153	3347	+187	+36
Jobs	1273	1548	1286	1571	+13	+23

Table 7.1 – TEMPRO Planning Assumptions (2017 to 2022, Kirklees MSOA 047 and 050)

	2017 (Base Year)		2031 (Future Year)		Difference	
	047	050	047	050	047	050
Households	3050	3237	3349	3554	+299	+317
Jobs	1273	1548	1317	1609	+44	+61

Table 7.2 – TEMPRO Planning Assumptions (2017 to 2031, Kirklees MSOA 047 and 050)

- 7.4.4 As will be discussed in the following section, there are up to 200 residential units and retail land-uses within the vicinity of the planning application site that benefit from planning consent or currently being considered by Kirklees Council, all of which have been included as committed developments for the purposes of this analysis.
- 7.4.5 Therefore, for the purposes of this analysis the number of households contained within TEMPRO has been reduced by 200 units. However, the forecast job increases contained within the calculation has been retained. This is considered to provide a robust assessment as the Planning Committee report for the St. Thomas Planning Application (Planning Ref: 2014/60/93099W) states this application is forecast to result in the provision of up to 350 jobs.

- 7.4.6 It should also be noted that the growth factors derived from TEMPRO will include background growth. This growth represents the change in trips of existing land uses due to factors including changes in car use, fuel prices and income. Windfall developments are also included within background growth as their specific locations are unknown.
- 7.4.7 The resultant NTM adjusted growth factors are shown below;
- 2017 to 2022 AM Peak = 1.061
 - 2017 to 2022 PM Peak = 1.059
 - 2017 to 2031 AM Peak = 1.169
 - 2017 to 2031 PM Peak = 1.170
- 7.4.8 The resultant growthed traffic flows are shown in **Figures 3** and **4** for the 2022 Weekday AM and PM peak periods whilst the 2031 growthed traffic flows are contained in **Figures 5** and **6**.

7.5 Committed Developments

- 7.5.1 It has been agreed with the local highway authority that a number of committed developments should be considered within this particular analysis. These are as follows;
- Outline Planning Application for 200 Dwellings, retail uses and neighbourhood uses at the former St. Luke's Hospital off Blackmoorfoot Road, Huddersfield (Planning Ref: 2014/60/93099W)
 - Full Planning Application for erection of Beaumont Primary School, formation of outdoor play areas and fenced MUGA and alterations to existing site access and parking off Dryclough Road in Huddersfield (Planning Ref: 2017/90155).

- 7.5.2 To obtain committed development information for the two schemes listed above reference has been made to the Kirklees Council planning website. Both applications were supported by a Transport Assessment (TA), the submitted TA for the St. Luke's Hospital application included proposed traffic flow data and these have been assigned to the highway network using observed turning proportions where appropriate.
- 7.5.3 It is noted that Reserved Matters applications have been submitted and approved for the provision of 226 residential units on the St Luke's Hospital site (Planning Ref: 2019/93902 and 2019/93950). However, during the determination of the Reserved Matters planning applications, the highways officers at KMBC at confirmed that the traffic generation associated with the Reserved Matters application is the similar to that considered as part of the outline application as detailed above.
- 7.5.4 The resultant St. Luke's Committed Development flows for the Weekday AM and PM are contained within **Figures 7 and 8**.
- 7.5.5 With regard to the Beaumont Primary School the TA concludes that there are multiple potential routes to and from the site and this will disperse the impact on the local highway network. Due to this no traffic flow information relating to Blackmoorfoot Road and the surrounding highway network was provided within the submitted TA. Therefore, no traffic flows for this development have been included within this traffic impact analysis.

7.6 Base Flows

- 7.6.1 To calculate the 2022 Base Flows, the total committed development flows displayed in Figures 7 to 8 have been added to the 2022 growthed Flows shown in Figures 3 and 4. The resultant 2022 Base Flows for Weekday AM and PM Peak periods are displayed in **Figures 9 and 10**.

- 7.6.2 The 2031 Base Flows are shown in **Figures 11** and **12** for the two peak periods respectively. These have been calculated by adding the 2031 growthed flows, shown in Figures 5 and 6, to the Committed Development flows in Figures 7 to 8.

7.7 Trip Distribution

- 7.7.1 In order to assign the proposed development trips to the local highway network discussions have been held with the highways officers at Kirklees Council and they have provided a distribution which has been previously used when considering the impact of Allocation MX1930 (application site) as part of the Local Plan process.
- 7.7.2 The trip distribution information provided by the highways officers at Kirklees Council is contained within **Appendix 3** and this has been applied to the agreed study area.
- 7.7.3 It should be noted that this provides a robust assessment of the local highway network as it assumes a fixed route matrix. In reality, there are numerous other routes that drivers could take from the development which would reduce the level of vehicle movements at the junctions within the study area.
- 7.7.4 The proposed trip distribution for the Weekday AM and PM peak periods is contained within **Figure 13**.

7.8 Proposed Development

Proposed Residential Development

- 7.8.1 As agreed with the local highway officers the agreed trip rates contained within the Transport Assessment for the approved St. Luke's Hospital application have been utilised (Planning Ref: 2014/60/93099W).

- 7.8.2 For the purposes of this Traffic Impact Analysis, a total a development of 770 residential units has been assessed which is the maximum number of residential units that can be provided on the site.
- 7.8.3 This provides a robust assessment of the level of development that can be provided on the site, as the planning application description provides the opportunity for the provision of elderly residential provision on the site (up to 70 units). The provision of this land-use would reduce the level of traffic generation from the site, especially in the peak periods and reduce the impact of the proposals on the local highway network.
- 7.8.4 Table 7.3 below summarises the agreed trip rates and the forecast traffic flows for the 770 residential units.

Mode	Period	Trip Rate		Trips	
		Arr	Dep	Arr	Dep
Vehicle	AM Peak Hour	0.225	0.500	173	385
	PM Peak Hour	0.475	0.307	366	236

Table 7.3 – Proposed Development Trip Rates and Trips (770 Units)

- 7.8.5 Based on the above, the provision of 770 units on the site is forecast to generate in 558 two-way trips during the weekday am peak and 602 two-way trips during the weekday pm peak period. These forecast traffic flows have been assigned to the local highway network using the agreed trip distribution.
- 7.8.6 In order to assign traffic forecast to be generated by the proposed development, the trip distribution shown in the Figure 13 has been utilised.

- 7.8.7 The resultant proposed residential development flows for the AM Peak are shown in **Figure 14** whilst the proposed residential development flows for the PM Peak are shown in **Figure 15**.

Non-Residential Development

- 7.8.8 In addition to the residential element it is proposed to provide 500sqm of floorspace which will be dual use (Use Class A1/A2/A3/A4/A5/D1).
- 7.8.9 This element will provide facilities for those living within the proposed development it has been assumed that any trips generated will be internal to site and therefore will not generate any new traffic to them during the peak hours. Due to this no further consideration has been given to this use as part of this traffic impact analysis.

7.9 With Development Flows

- 7.9.1 In order to calculate the 2022 'With Development' flows, the 2022 Base Flows contained within Figures 9 and 10 were added to the development flows contained within Figures 14 and 15. The resultant 2022 'With Development' flows are contained within **Figures 16 and 17**.
- 7.9.2 Likewise, in order to calculate the 2031 'With Development' flows, the 2031 Base flows, contained within Figures 11 and 12, were added to the development flows contained within Figures 14 and 15. The resultant 2031 'With Development' flows are contained within **Figures 18 and 19**.
- 7.9.3 The resultant traffic flows used for the junction analysis are displayed in **Figures 14 to 19**.

7.10 Capacity Assessments

7.10.1 As agreed with the highways officers at Kirklees Council, assessments have been undertaken at the following junctions to assess the impact of the proposed development;

- Blackmoorfoot Road/Site Access priority controlled junction.
- Felks Stile Road/Site Access priority controlled junction.
- Blackmoorfoot Road/Felks Stile Road priority controlled junction.
- Blackmoorfoot Road/Sands House Lane priority controlled junction.
- Blackmoorfoot Road/Park Road/Park Road West signal controlled junction.
- A62 Manchester Road/Blackmoorfoot Road/Birkhouse Lane signal controlled junction.
- A62 Manchester Road/St. Thomas Road/Waterside signal controlled junction.
- A62 Manchester Road/Longroyd Lane signal controlled junction.
- A616 Lockwood Road/B6108 Meltham Road/Swan Lane/Bridge Street signal controlled junction.
- Cowersley Lane/Gillroyd Lane/Church Lane priority controlled junction.

7.10.2 As previously stated, a planning application was submitted for the site in March 2018, during the determination of this application, all junction models used for the capacity assessments were agreed with the highways officers at Kirklees Council. For the purposes of this analysis, the agreed models have again been utilised.

Blackmoorfoot Road/Site Access Priority Controlled Junction

- 7.10.3 In order to assess the operation of the Blackmoorfoot Road/Site Access priority controlled junction, the Junctions 9 program was utilised.
- 7.10.4 Assessments were undertaken using the 2022 and 2031 'with development' flows, the results of which are summarised in Table 7.4 with the full results contained within Appendix 4.

Arm	2022 With Development Flows				2031 With Development Flows			
	AM		PM		AM		PM	
	RFC	Queue	RFC	Queue	RFC	Queue	RFC	Queue
Site Access	0.79	4	0.44	1	0.81	4	0.44	1
Blackmoorfoot Road (E)	0.32	1	0.60	2	0.32	1	0.60	2

**Table 7.4 – Summary of PICADY Output for Blackmoorfoot Road/Site Access –2022 and 2031
With Development Scenarios**

- 7.10.5 As can be seen above, the 2022 and 2031 with development results show the Blackmoorfoot Road/Site Access junction will operate within capacity in the AM peak and in the PM peak in all assessment scenarios.
- 7.10.6 It is therefore concluded that the proposed site access junction onto Blackmoorfoot Road can accommodate the traffic associated with the revised development proposals.

Felks Stile Road/Site Access Priority Controlled Junction

- 7.10.7 In order to assess the operation of the Felks Stile Road/Site Access priority controlled junction, the Junctions 9 program was utilised.
- 7.10.8 Assessments were undertaken using the 2022 and 2031 'with development' flows, the results of which are summarised in Table 7.5 with the full results contained within Appendix 5.

Arm	2022 With Development Flows				2031 With Development Flows			
	AM		PM		AM		PM	
	RFC	Queue	RFC	Queue	RFC	Queue	RFC	Queue
Site Access	0.03	0	0.01	0	0.03	0	0.01	0
Felk Stile Road	0.00	0	0.00	0	0.00	0	0.00	0

Table 7.5 – Summary of PICADY Output for Felk Stile Road Site Access –2022 and 2031 With Development Scenarios

- 7.10.9 As can be seen in the above table, the proposed site access junction off Felks Stile Road is forecast to operate well within its theoretical capacity in the AM and PM 'with development' scenarios and can therefore adequately accommodate the traffic forecast to be generated by the proposed development.

Blackmoorfoot Road/Felk Stile Road Priority Controlled Junction

- 7.10.10 In order to assess the operation of the Blackmoorfoot Road/Felks Stile Road priority controlled junction, the Junctions 9 program was utilised.
- 7.10.11 Assessments were undertaken using the 2022 and 2031 base and 'with development' flows, the results of which are summarised in Tables 7.6 and 7.7 with the full results contained within **Appendix 6**.

Arm	2022 Base Flows				2022 With Development Flows			
	AM		PM		AM		PM	
	RFC	Queue	RFC	Queue	RFC	Queue	RFC	Queue
Felk Stile Road	0.24	0	0.15	0	0.24	0	0.15	0
Blackmoorfoot Road	0.15	0	0.15	0	0.15	0	0.15	0

**Table 7.6 – Summary of PICADY Output for Blackmoorfoot Road/Felk Stile Road Junction –
2022 Base and With Development Scenarios**

Arm	2031 Base Flows				2031 With Development Flows			
	AM		PM		AM		PM	
	RFC	Queue	RFC	Queue	RFC	Queue	RFC	Queue
Felk Stile Road	0.27	0	0.16	0	0.27	0	0.16	0
Blackmoorfoot Road	0.17	0	0.16	0	0.17	0	0.16	0

**Table 7.7 – Summary of PICADY Output for Blackmoorfoot Road/Felk Stile Road Junction –
2031 Base and With Development Scenarios**

- 7.10.12 As can be seen in Tables 7.6 and 7.7 the Blackmoorfoot Road/Felks Stile Road junction is forecast to operate within its theoretical capacity in the 2022 and 2031 Base scenarios.
- 7.10.13 With the addition of the proposed development traffic the junction is forecast to continue to operate within capacity with minimal increases in the RFC and Max Queues in the 2022 and 2031 'With development' scenarios.
- 7.10.14 It is therefore concluded that the proposed development will have a minimal impact on the operation of the junction.

Blackmoorfoot Road/Sands House Lane Priority Controlled Junction

- 7.10.15 In order to assess the operation of the Blackmoorfoot Road/Sands House Lane priority controlled junction, the Junctions 9 program was utilised.
- 7.10.16 Assessments were undertaken using the 2022 and 2031 base and 'with development' flows, the results of which are summarised in Tables 7.8 and 7.9 with the full results contained within **Appendix 7**.

Arm	2022 Base Flows				2022 With Development Flows			
	AM		PM		AM		PM	
	RFC	Queue	RFC	Queue	RFC	Queue	RFC	Queue
Sands House Lane	0.11	0	0.05	0	0.11	0	0.05	0
Blackmoorfoot Road	0.02	0	0.01	0	0.02	0	0.01	0

Table 7.8 – Summary of PICADY Output for Blackmoorfoot Road/Sands House Lane Junction – 2022 Base and With Development Scenarios

Arm	2031 Base Flows				2031 With Development Flows			
	AM		PM		AM		PM	
	RFC	Queue	RFC	Queue	RFC	Queue	RFC	Queue
Sands House Lane	0.13	0	0.06	0	0.13	0	0.06	0
Blackmoorfoot Road	0.02	0	0.01	0	0.02	0	0.01	0

Table 7.9 – Summary of PICADY Output for Blackmoorfoot Road/Sands House Lane Junction – 2031 Base and With Development Scenarios

- 7.10.17 As can be seen in Tables 7.8 and 7.9 the Blackmoorfoot Road/Sands House Lane junction is forecast to operate within its theoretical capacity in the 2022 and 2031 Base scenarios.
- 7.10.18 With the addition of the proposed development traffic the junction is forecast to continue to operate within capacity with minimal increases in the RFC and Max Queues in the 2022 and 2031 'With development' scenarios.

- 7.10.19 It is therefore concluded that the proposed development will have a minimal impact on the operation of the junction.

Blackmoorfoot Road/Park Road/Park Road West Signal Controlled Junction

- 7.10.20 To assess the impact of the development proposals on the Blackmoorfoot Road/Park Road/Park Road West junction signal controlled junction. The agreed LINSIG model which includes the improvement scheme that was consented as part of the St. Luke's Hospital Planning Application (Planning Ref: 2014/60/93099W).
- 7.10.21 It should be noted that the LINSIG model does not enable the other improvements such as implementation of SCOOT to modelled accurately. The provision of SCOOT control enables controller to optimise junction performance and minimise queuing and delay.
- 7.10.22 This cannot be accurately reflected within LINSIG as traffic flows change throughout the peak periods, therefore the LINSIG model is likely to be underestimating the capacity at the junction at peak times.
- 7.10.23 During the determination of the previous application on the site, it was agreed that the operation of this junction be assessed using the following scenarios;
- Pedestrians Called Every Other Cycle – i.e. 20 times during the peak periods.
 - No Pedestrian Stages Called.
- 7.10.24 The results for the 'Without Development' and 'With Development' flow scenarios for 2022 (Peds Every Other Cycle) are summarised within Table 7.10 with the full results contained within **Appendix 8**.

Arm	2022 Base Flows				2022 With Development Flows			
	AM		PM		AM		PM	
	DOS	MMQ	DOS	MMQ	DOS	MMQ	DOS	MMQ
Blackmoorfoot Road (N)	78.2	17	78.5	15	96.9	37	95.9	32
Park Road West	77.9	12	78.2	10	97.4	20	94.4	15
Blackmoorfoot Road (S)	39.9	7	73.5	14	45.2	9	96.6	33
Park Road	52.2	6	63.9	9	74.4	8	85.1	12
Delay PCU/hr	15.90		20.74		35.20		46.49	

Table 7.10 – Summary of LINSIG Output for Blackmoorfoot Road/Park Road/Park Road West Junction – 2022 Base and With Development Scenarios (Peds Every Other Cycle)

- 7.10.25 As can be seen above, the results show the junction will operate within its actual capacity during the 2022 Base Flow scenarios. With the addition of the development traffic, the junction will operate within its actual capacity with minimal increases in the Degree of Saturation (DOS) and Mean Max Queue (MMQ). The largest increase in queue is that of 20 PCUs which occurs on the Blackmoorfoot Road north arm in the Weekday AM peak.
- 7.10.26 The results for the 'Without Development' and 'With Development' flow scenarios for 2031 (Peds Every Other Cycle) are summarised within Table 7.11 with the full results contained within **Appendix 8**.

Arm	2031 Base Flows				2031 With Development Flows			
	AM		PM		AM		PM	
	DOS	MMQ	DOS	MMQ	DOS	MMQ	DOS	MMQ
Blackmoorfoot Road (N)	85.2	20	84.6	19	104.3	66	104.5	54
Park Road West	84.3	14	84.3	12	103.1	33	101.9	27
Blackmoorfoot Road (S)	43.7	7	79.9	18	49.1	10	105.6	59
Park Road	63.8	7	81.1	12	81.7	9	104.4	33
Delay PCU/hr	19.61		26.45		72.56		124.90	

Table 7.11 – Summary of LINSIG Output for Blackmoorfoot Road/Park Road/Park Road West Junction – 2031 Base and With Development Scenarios (Peds Every Other Cycle)

- 7.10.27 As can be seen in Table 7.11 above, the results show the junction will operate within its actual capacity in the 2031 Base scenarios. With the addition of the proposed development traffic the junction is forecast to operate in excess of its actual capacity in both peak periods. However, this is based on the robust assumption that the pedestrian stage is called every other cycle.
- 7.10.28 The results for the 'Without Development' and 'With Development' flow scenarios for 2022 (No Pedestrian Stage) are summarised within Table 7.12 with the full results contained within **Appendix 8**.

Arm	2022 Base Flows				2022 With Development Flows			
	AM		PM		AM		PM	
	DOS	MMQ	DOS	MMQ	DOS	MMQ	DOS	MMQ
Blackmoorfoot Road (N)	71.3	14	68.9	13	88.6	25	86.5	21
Park Road West	71.5	11	68.3	9	89.1	15	84.7	11
Blackmoorfoot Road (S)	36.4	6	64.4	12	41.3	7	86.9	22
Park Road	49.3	5	67.3	9	73.9	7	72.1	10
Delay PCU/hr	13.31		17.40		21.96		27.37	

Table 7.12 – Summary of LINSIG Output for Blackmoorfoot Road/Park Road/Park Road West Junction – 2022 Base and With Development Scenarios (No Peds Stage)

- 7.10.29 As can be seen above, the junction is forecast to operate within its actual capacity in the 2022 Base Flow scenarios. With the addition of the proposed development traffic, the junction is forecast to operate within its actual capacity with minimal increases in the DOS and MMQ. The largest forecast increase in queuing is that of just 11 PCUS on the Blackmoorfoot Road North arm in the Weekday AM peak period.
- 7.10.30 The results for the 'Without Development' and 'With Development' flow scenarios for 2031 (No Pedestrian Stage) are summarised within Table 7.13 with the full results contained within **Appendix 8**.

Arm	2031 Base Flows				2031 With Development Flows			
	AM		PM		AM		PM	
	DOS	MMQ	DOS	MMQ	DOS	MMQ	DOS	MMQ
Blackmoorfoot Road (N)	76.8	16	75.0	15	95.1	32	92.9	26
Park Road West	78.5	13	72.9	11	94.6	19	90.0	14
Blackmoorfoot Road (S)	39.3	6	70.6	14	44.7	8	93.6	27
Park Road	62.1	6	75.9	11	81.3	8	83.3	13
Delay PCU/hr	15.89		20.70		30.98		37.69	

Table 7.13 – Summary of LINSIG Output for Blackmoorfoot Road/Park Road/Park Road West Junction – 2031 Base and With Development Scenarios (No Peds Cycle)

- 7.10.31 As can be seen above, the junction is forecast to operate within its actual capacity in the 2031 Base Flow scenarios. With the addition of the proposed development traffic, the junction is forecast to operate within its actual capacity with minimal increases in the DOS and MMQ. The largest forecast increase in queuing is that of just 11 PCUS on the Blackmoorfoot Road North arm in the Weekday AM peak period.
- 7.10.32 In conclusion, the above analysis has demonstrated that the junction will operate in excess of its actual capacity in the scenarios where the pedestrian stages are called every other stage, and within capacity when the pedestrian stage isn't called. In reality, the junction will operate somewhere between the two scenarios.

- 7.10.33 Based on the above it is concluded that the proposed development will have a minimal impact on the operation of the Blackmoorfoot Road/Park Road/Park Road West signal controlled junction. Notwithstanding this, discussions will be held with the highways officers at Kirklees Council to discuss potential mitigation in transport terms at the junction.

A62 Manchester Road/Blackmoorfoot Road/Birkhouse Lane Signal Controlled Junction

- 7.10.34 The operation of the above junction was tested using the LINSIG 3 computer programme, the junction model has been created using signal timing data supplied by Kirklees Council as well as the agreed model submitted in support of the St. Thomas's planning application (Planning Ref: 2014/60/93099W).
- 7.10.35 It should be noted that the junction operates under SCOOT control at busy times in order to optimise junction performance and minimise queuing and delay, therefore, the LINSIG model is likely to underestimate capacity at the junction.
- 7.10.36 Assessments were undertaken using the 2022 and 2031 base and 'with development' flows, the results of which are summarised in Tables 7.14 and 7.15 with the full results contained within **Appendix 9**.

Arm	2022 Base Flows				2022 With Development Flows			
	AM		PM		AM		PM	
	DOS	MMQ	DOS	MMQ	DOS	MMQ	DOS	MMQ
A62 Manchester Road (E) Left Ahead Right	73.8	10	83.5	18	93.9	15	99.0	43
Blackmoorfoot Road Right Left Ahead	74.0	15	82.9	15	95.3	31	98.7	30
A62 Manchester Road (W) Ahead Right Left	74.1	15	46.1	8	81.9	17	48.8	9
Delay PCU/hr	21.5		7.8		-5.9		-10.0	

**Table 7.14 – Summary of LINSIG Output for A62 Manchester Road/Blackmoorfoot Road Signal
Controlled Junction – 2022 Base and With Development Scenarios**

Arm	2031 Base Flows				2031 With Development Flows			
	AM		PM		AM		PM	
	DOS	MMQ	DOS	MMQ	DOS	MMQ	DOS	MMQ
A62 Manchester Road (E) Left Ahead Right	83.2	12	90.6	25	104.0	37	106.6	94
Blackmoorfoot Road Right Left Ahead	83.9	19	91.8	20	107.5	121	107.4	72
A62 Manchester Road (W) Ahead Right Left	77.8	17	49.8	9	83.5	19	52.7	10
Delay PCU/hr	7.2		-2.0		-19.5		-19.3	

**Table 7.15 – Summary of LINSIG Output for A62 Manchester Road/Blackmoorfoot Road
Signalised Junction – 2031 Base and With Development Scenarios**

- 7.10.37 As can be seen in Table 7.14 the A62 Manchester Road/Blackmoorfoot Road signal controlled junction is forecast to operate within its actual capacity in the 2022 Base scenarios. With the addition of the proposed development traffic the junction is forecast to continue to operate within capacity with minimal increases in the Degrees of Saturation and Mean Max Queues.
- 7.10.38 In 2031 the junction is forecast to operate within its actual capacity in the 2031 Base scenarios, with the addition of the proposed development the junction is forecast to operate in excess of its actual capacity in both the AM and PM peak scenarios. The largest increases in queuing occurs on the Blackmoorfoot Road arm of the junction, it should be noted that the distribution supplied by Kirklees Council assuming that all development traffic turns right onto the A62 Manchester Road.
- 7.10.39 However, the observed turning counts indicate that a large proportion of traffic (50% in the AM peak) actually travels north to Birkhouse Lane to access alternative routes into Huddersfield town centre and therefore avoiding the existing congestion at the Longroyd Bridge junction. Vehicular access to Birkhouse Lane is via a priority controlled flare whilst access to the A62 Manchester Road east is signal controlled. Therefore, assuming that all development traffic turns right onto the A62 Manchester Road is deemed to provide a robust assessment of the junction.
- 7.10.40 Based on the above it is concluded that the proposed development will have a minimal impact on the operation of the A62 Manchester Road/Blackmoorfoot Road signal controlled junction even based on the robust assumptions detailed above. Notwithstanding this, discussions will be held with Kirklees Council during the planning application to discuss potential mitigation in transport terms at the junction.

A62 Manchester Road/St. Thomas Road/Waterside and A62 Manchester Road/Longroyd Lane Signal Controlled Junction

7.10.41 It should be noted that Kirklees Council have proposals to implement an improvement scheme at the junction to increase capacity and to mitigate the impacts of the emerging Local Plan. The Highways evidence submitted as part of the examination of the Local Plan states that following improvements will be provided at the junction as part of the Local Plan and implemented by 2022;

- Increasing the capacity of Longroyd Lane
- Removing the staggered movement for vehicles looking to travel from Longroyd Lane to St Thomas' Road and vice-versa, thereby substantially increasing the capacity of the junction
- Facilitating new and emerging developments;
- Enhancing blue and green infrastructure;
- Associated junction improvements at Thornton Lodge and Blackmoorfoot Road.

7.10.42 At present further details on the proposed improvement scheme which would enable detailed modelling to be undertaken are not available. However, discussions with the highways officers at Kirklees Council will be undertaken during the planning application process to enable detailed modelling to be completed and a level of contribution towards the proposed improvement scheme agreed.

A616 Lockwood Road/B6108 Meltham Road/Bridge Street/Swan Lane Signal Controlled Junction

- 7.10.43 The operation of the above junction was tested using the agreed LINSIG model submitted in support of the previous planning application on the site. This junction model has been created using signal timing data supplied by Kirklees Council which indicated that the junction has recently upgraded to include SCOOT Control with MOVA fall back. The limitations of the LINSIG programme when a junction operates using SCOOT or MOVA have been detailed previously.
- 7.10.44 Information provided by Kirklees indicated that Stage 4 which facilities pedestrian stages and an additional Bridge Street right-turn operates every 3rd cycle in the Weekday AM peak and every 5th cycle in the Weekday PM peak. However, to provide a robust assessment of the operation of the junction it has been assumed to be called every cycle in all scenarios.
- 7.10.45 Table 7.16 below summarises the results of the 'Without Development' and 'With Development' flow scenarios for 2022 whilst the full results contained within **Appendix 10**.

Arm	2022 Base Flows				2022 With Development Flows			
	AM		PM		AM		PM	
	DOS	MMQ	DOS	MMQ	DOS	MMQ	DOS	MMQ
Bridge Street Left Ahead	103.6	19	119.8	42	109.1	25	122.3	49
Bridge Street Right	88.0	12	60.0	6	88.0	12	58.5	6
A616 Lockwood Road Left Ahead Right	82.0	25	120.2	114	84.3	26	123.2	124
Swan Lane Left Ahead Right	104.5	29	116.9	44	106.4	34	122.4	54
B6108 Meltham Road Ahead Right Left	102.1	35	56.7	8	105.1	43	58.1	8
Delay PCU/hr	91.56		186.40		111.01		213.15	

Table 7.16 – Summary of LINSIG Output for A616 Lockwood Road/B6108 Meltham Road/Bridge Street/Swan Lane Junction – 2022 Base and With Development Scenarios

- 7.10.46 As can be seen in Table 7.16, the A616 Lockwood Road/B6108 Meltham Road/Swan Lane/Bridge Street junction is forecast to operate in excess of its actual capacity in the 2022 Base scenarios. With the addition of the proposed development traffic the junction is forecast to continue to operate in excess of its actual capacity but with minimal increases in the Degrees of Saturation and Mean Max Queues.
- 7.10.47 Table 7.17 below summarises the results of the 'Without Development' and 'With Development' flow scenarios for 2022 whilst the full results contained within **Appendix 10**.

Arm	2031 Base Flows				2031 With Development Flows			
	AM		PM		AM		PM	
	DOS	MMQ	DOS	MMQ	DOS	MMQ	DOS	MMQ
Bridge Street Left Ahead	106.1	23	131.9	61	111.2	30	133.3	67
Bridge Street Right	94.4	16	66.1	7	94.4	16	64.4	7
A616 Lockwood Road Left Ahead Right	87.8	35	132.5	168	90.2	37	135.7	179
Swan Lane Left Ahead Right	125.1	70	127.2	63	126.4	76	132.7	74
B6108 Meltham Road Ahead Right Left	109.5	62	62.4	11	112.7	71	64.0	11
Delay PCU/hr	172.91		280.26		197.60		306.97	

Table 7.17 – Summary of LINSIG Output for A616 Lockwood Road/B6108 Meltham Road/Bridge Street/Swan Lane Junction – 2031 Base and With Development Scenarios

- 7.10.48 As can be seen in Table 7.17, the junction is forecast to operate in excess of its actual capacity in the Base scenarios, the junction is forecast to continue to operate in excess of its actual capacity in the 'With Development' scenarios.
- 7.10.49 However, the proposed development is forecast to result in minimal increases in the Degrees of Saturation and Mean Max Queues. The largest increase in queuing in the AM peak is that of just 9 vehicles on the Swan Lane arm, whilst in the PM peak the largest increase is just 11 vehicles on the A616 Lockwood Road. As previously stated, this is based on the robust assumption that Stage 4 is called every stage.

- 7.10.50 These minimal increases reflect the actual overall impact of the proposed development on the junction is minimal with a forecast percentage increase in traffic of between 1.5% in AM peak and 1.7% in PM peak.
- 7.10.51 It should be noted that as part of the emerging Local Plan, Kirklees Council are proposing to provide an improvement scheme at the junction, this improvement scheme proposes to implement the following;
- The creation of a new two-way link between Lockwood Road and Bridge Street using part of Albert Street between Crowther Street and Bridge Street.
 - Improvement of vehicular journey times from the Valleys into Huddersfield;
 - Better provision for pedestrians and cyclists to improve safety and encourage 'healthy' active travel.
- 7.10.52 At present no further details on the proposed improvement scheme which would enable detailed modelling to be undertaken are not available. However, discussions with the highways officers at Kirklees Council will be undertaken and detailed analysis will be undertaken if required.
- 7.10.53 However, it is important to note that during the determination of the previous planning application, the highways officers at Kirklees Council had no concerns regarding the impact of the proposals on this junction.

Cowersley Lane/Gillroyd Lane/Church Lane Priority Controlled Junction

- 7.10.54 In order to assess the operation of the Cowersley Lane/Gillroyd Lane/Church Lane priority controlled junction, the Junctions 9 program was utilised.
- 7.10.55 Assessments were undertaken using the 2022 and 2031 base and 'with development' flows, the results of which are summarised in Tables 7.18 and 7.19 with the full results contained within **Appendix 11**.

Arm	2022 Base Flows				2022 With Development Flows			
	AM		PM		AM		PM	
	RFC	Queue	RFC	Queue	RFC	Queue	RFC	Queue
Church Lane	0.17	0	0.18	0	0.19	0	0.19	0
Gillroyd Lane	0.20	0	0.12	0	0.20	0	0.12	0

Table 7.18 – Summary of PICADY Output for Cowersley Lane/Gillroyd Lane/Church Lane Junction – 2022 Base and With Development Scenarios

Arm	2031 Base Flows				2031 With Development Flows			
	AM		PM		AM		PM	
	RFC	Queue	RFC	Queue	RFC	Queue	RFC	Queue
Church Lane	0.20	0	0.20	0	0.21	0	0.21	0
Gillroyd Lane	0.22	0	0.14	0	0.22	0	0.14	0

Table 7.19 – Summary of PICADY Output for Cowersley Lane/Gillroyd Lane/Church Lane Junction – 2031 Base and With Development Scenarios

- 7.10.56 With the addition of the proposed development traffic the junction is forecast to continue to operate within capacity with minimal increases in the RFC and Max Queues in the 2022 and 2031 'With development' scenarios.
- 7.10.57 It is therefore concluded that the proposed development will have a minimal impact on the operation of the junction.

7.11 Capacity Assessment Summary

7.11.1 In summary, the capacity assessment undertaken as part of this traffic impact analysis has demonstrated the following:

- The Blackmoorfoot Road/Site Access priority controlled junction has been designed to accord with highway design standards and will have sufficient capacity to accommodate the proposed development traffic.
- The Felks Stile Road/Site Access priority controlled junction has been designed to accord with highway design standards and will have sufficient capacity to accommodate the proposed development traffic.
- The Blackmoorfoot Road/Felks Stile Road priority controlled junction arrangement will be able to accommodate the traffic likely to be generated by the proposed development.
- The proposed development will have a negligible impact at the Blackmoorfoot Road/Sands House Lane priority controlled junction.
- The proposed development will have a negligible impact at the Blackmoorfoot Road/Park Road/Park West signal controlled junction.
- The proposed development will have a negligible impact at the A62 Manchester Road/Blackmoorfoot Road/Birkhouse Lane signal controlled junction even based on the robust assumptions contained within the analysis.

- Kirklees Council are proposing improvements at the A62 Manchester Road/St. Thomas Road/Waterside and A62 Manchester Road/Longroyd Lane Signal Controlled Junction as part of the emerging Local Plan. Discussions will be held with the highways officers at Kirklees Council to discuss the status of this improvement scheme and whether any detailed modelling work is required.
- The proposed development will have a negligible impact at the A616 Lockwood Road/B6108 Meltham Road/Swan Lane/Bridge Street signal controlled junction. Notwithstanding this Kirklees Council are proposing to provide an improvement scheme at the junction as part of the Local Plan.
- The Cowersley Lane/Gillroyd Lane/Church Lane priority controlled junction arrangement will be able to accommodate the traffic likely to be generated by the proposed development.

7.11.2 It is therefore concluded that the development proposals will result in a minimal impact with improvements and can be accommodated on the local highway network.

8 ACCIDENT DATA

8.1 Introduction

8.1.1 In order to consider the potential impact of the development on road safety, a brief review of the Crashmap website (www.crashmap.co.uk) has been undertaken.

8.1.2 CrashMap uses data collected by the police in relation to road traffic crashes occurring on British roads where someone is injured. This data is approved by the National Statistics Authority and reported on by the Department for Transport each year. This site uses data obtained directly from official sources but compiled in an easy to use format showing each incident on a map. Incidents are plotted to within 10 metres of their location, and as such, can sometimes appear to be off the carriageway.

8.1.3 The junctions and the number and type of accidents that have occurred during this time period are described below whilst the full Crashmap data is contained within **Appendix 12**.

Blackmoorfoot Road/Felks Stile Road

8.1.4 There were no reported accidents at this junction during the requested 5 year study period.

Blackmoorfoot Road/Sands House Lane

8.1.5 A serious accident occurred in the vicinity of the Blackmoorfoot Road/Sands House Lane priority controlled junction. The accident which occurred at 2200 hours involved two vehicles and resulted in one of the vehicles colliding with a wall. No further details on the accident are available.

Blackmoorfoot Road/Park Road/Park Road West

- 8.1.6 There have been 2 reported accidents at the above junction during the study period. One of these accidents was classified as a slight accident and occurred when a vehicle in the act of turning right collided with a vehicle proceeding normally along the carriageway and therefore caused by driver error.
- 8.1.7 The remaining accident involved a cyclist when a vehicle moved off, failing to spot the cyclist who was proceeding normally along the carriageway, a slight injury occurred, and the data suggest this was due to driver error.

A62 Manchester Road/Blackmoorfoot Road/Birkhouse Lane

- 8.1.8 A total 4 accidents were reported in the 5 year period on this section of the local highway network, 1 of these were classified as serious whilst the remaining 3 accidents were classified as resulting in slight injury.
- 8.1.9 The serious accident occurred when a vehicle in the act of turning right failed to spot a motorcyclist proceeding normally along the carriageway, causing a collision and serious injuries being sustained. The data suggests this was due to driver error.
- 8.1.10 One of the incidents which caused slight injuries occurred when a bus came to a sudden stop, resulting in 2 passengers suffering slight injuries.
- 8.1.11 The two remaining accidents took place in 2018, one of which occurred when a taxi in the act of changing lanes failed to notice a motorcycle proceeding normally along the carriageway, causing a collision. Whilst the last accident at this junction involved 3 casualties, all of which suffering slight injuries when a vehicle in the act of turning left failed to notice a vehicle travelling normally along the carriageway, the data suggests both of these accidents took place due to driver error.

A62 Manchester Road/B6432 St. Thomas Road

- 8.1.12 In the 5 year period requested there were 3 reported accidents at this junction, all of which resulted in slight injuries.
- 8.1.13 One of the accidents was the result of a rear end shunt and therefore can be attributed to driver error, whilst another accident at this junction involved a pedestrian, who was crossing on a pedestrian crossing facility, before colliding with a vehicle in the act of turning right, sustaining slight injuries.
- 8.1.14 There are no details on the cause of the remaining slight accident.

A62 Manchester Road/Longroyd Lane

- 8.1.15 There have been 4 reported accidents at the above junction during the study period, one accident was classified as a slight accident, but the vehicle did not collide with any obstacle or other vehicle.
- 8.1.16 The remaining 3 accidents occurred due to driver error and failing to look before making a U-turn, changing lane to the left and turning right, all of which caused slight injuries being sustained.

A616 Lockwood Road/B6108 Meltham Road/Swan Lane/Bridge Street

- 8.1.17 A total 5 accidents were reported in the 5 years on this section of the local highway network, 1 of which was classified as serious whilst the remaining 4 accidents were classified as resulting in slight injury.
- 8.1.18 The serious accidents involved a pedestrian who collided with a vehicle when crossing the road, the collision occurred away from the pedestrian facilities which are provided at the junction.

- 8.1.19 Two of these accidents resulting in slight injuries were result of driver error when vehicles collided with oncoming vehicles when undertaking manoeuvres or rear end shunts.
- 8.1.20 The remaining accident involved a pedestrian, who was crossing in the carriageway on the drivers nearside, who was travelling normally along the carriageway, slight injuries were sustained, and the data suggests this was due to pedestrian error.

Cowersley Lane/Gillroyd Lane/Church Lane

- 8.1.21 There were no reported accidents at this junction during the requested 5 year study period.

8.2 Accident Summary

- 8.2.1 In view of this information it can be concluded that the local highway network in the vicinity of the site does not have an unduly poor safety record and is essentially operating safely when considering the volumes of traffic, the local highway network accommodates. There are no reasons to assume that this situation should be significantly worsened as a consequence of the development proposals.

9 CONCLUSIONS

9.1.1 This Report has considered proposals for a residential development off Blackmoorfoot Road in Huddersfield.

9.1.2 Paragraph 32 of the NPPF states that plans and decisions should take into account whether:

- *The opportunities for sustainable transport modes have been taken up depending on the nature and location of the site, to reduce the need for major transport infrastructure;*
- *safe and suitable access to the site can be achieved for all people; and*
- *Improvements can be undertaken within the transport network that cost effectively limit the significant impacts of the development. Development should only be prevented or refused on transport grounds where the residual cumulative impacts of development are severe.*

9.1.3 This document has demonstrated that the proposed development is in accordance with the above criteria for the following reasons;

- The proposed development will be accessed by a safe and efficient vehicular access arrangements.
- The proposed development complies with local, regional and national planning policy.
- The proposed development benefits from being accessible on foot with the existing and proposed pedestrian provision providing access to the surrounding areas of Huddersfield.

- The site is accessible by bus with bus services providing access to local destinations including Huddersfield.
- A Framework Travel Plan will be implemented to encourage the use of non-car modes.
- The traffic impact assessment indicated that the proposed development can be accommodated on the local highway network.
- The traffic impact of the proposed development is considered to generally have a minimal impact on the junctions in the area.

9.1.4 In conclusion, the proposals will provide a sustainable development in Transport terms and not result in a severe impact, therefore planning permission should be granted in accordance with the Framework.

FIGURES

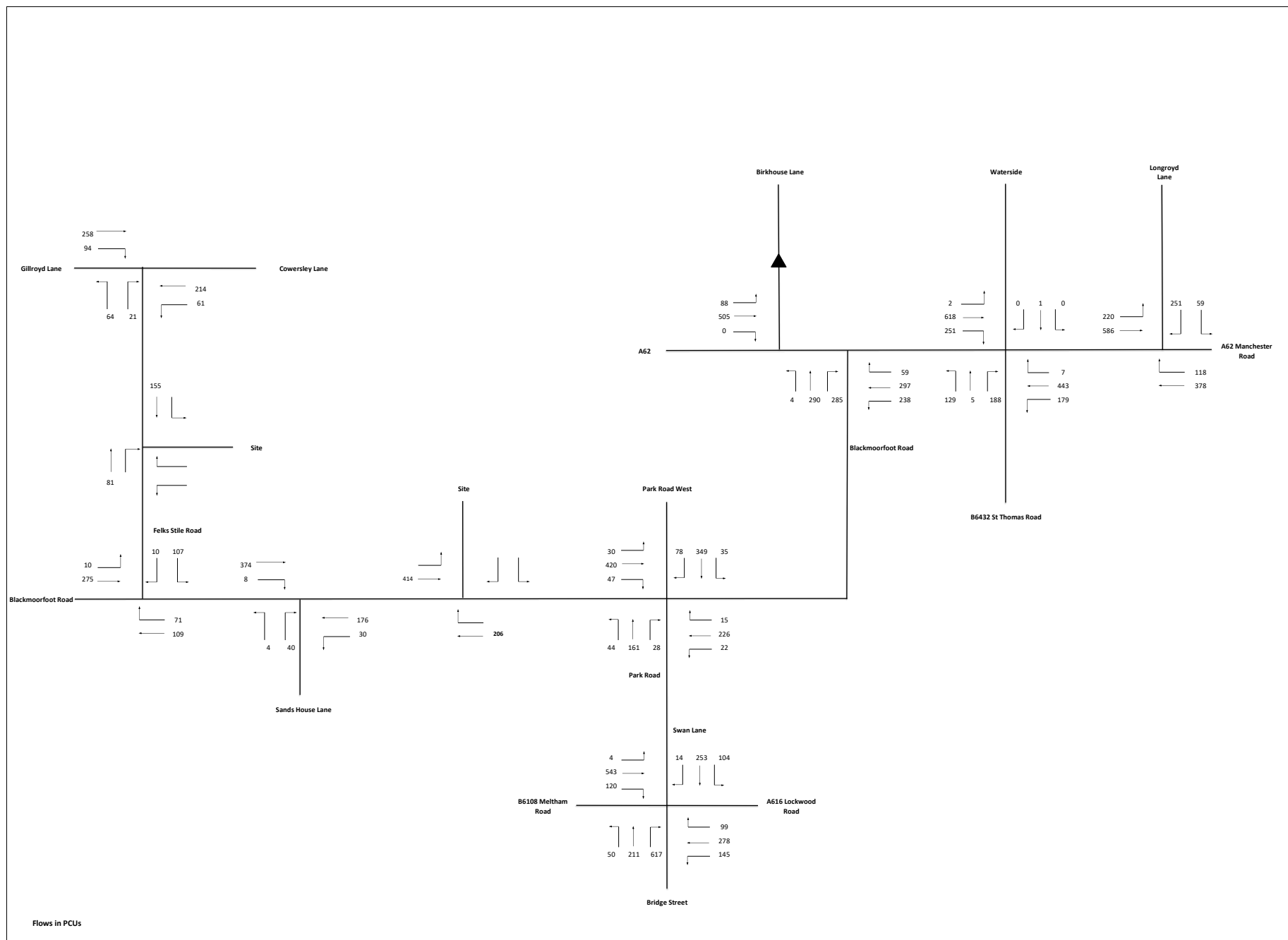
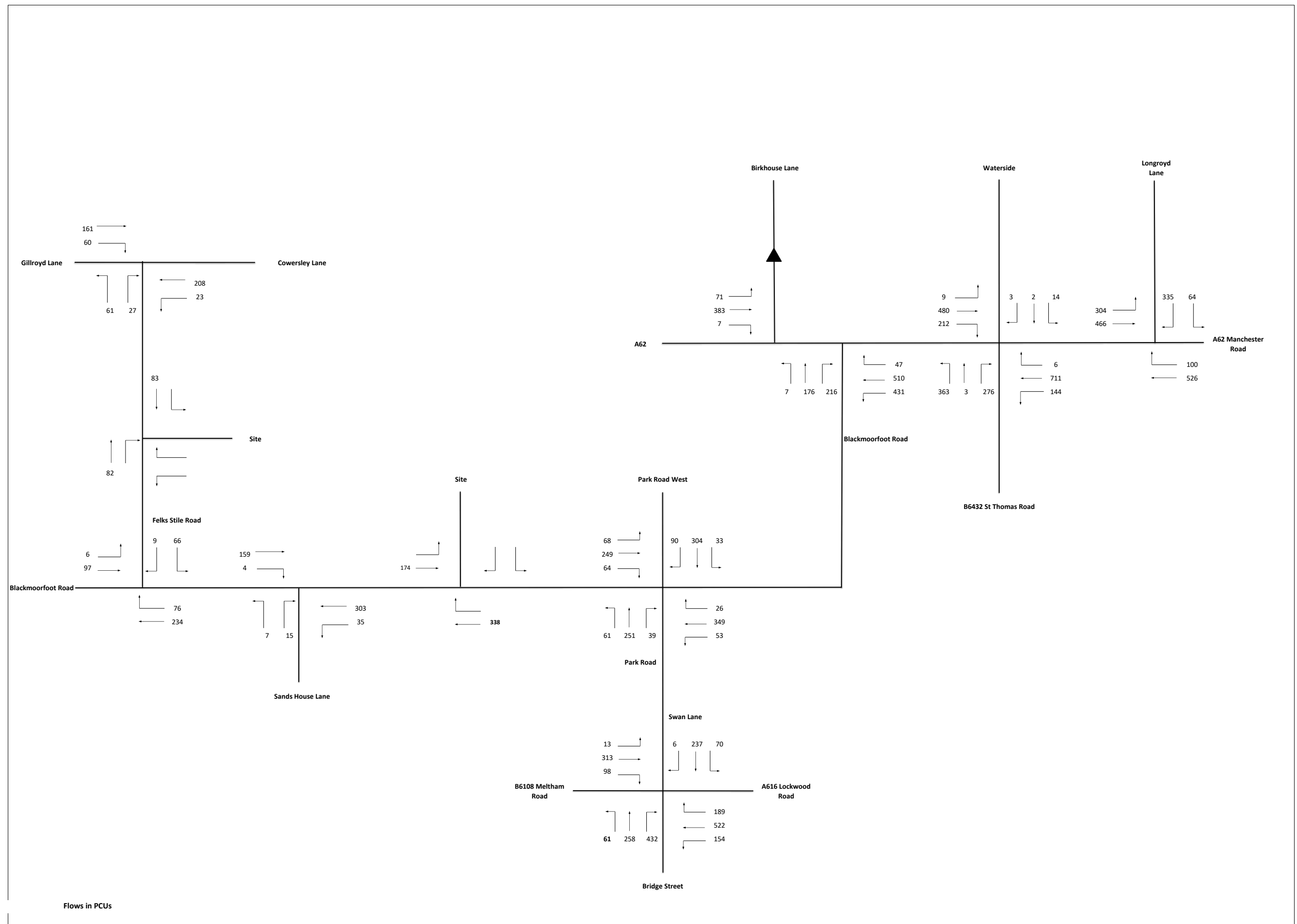


Figure 1 2017 Surveyed Flows - Weekday AM Peak (0745-0845 hours)



Flows in PCUs

Figure 2 2017 Surveyed Flows - Weekday PM Peak (1630-1730 hours)

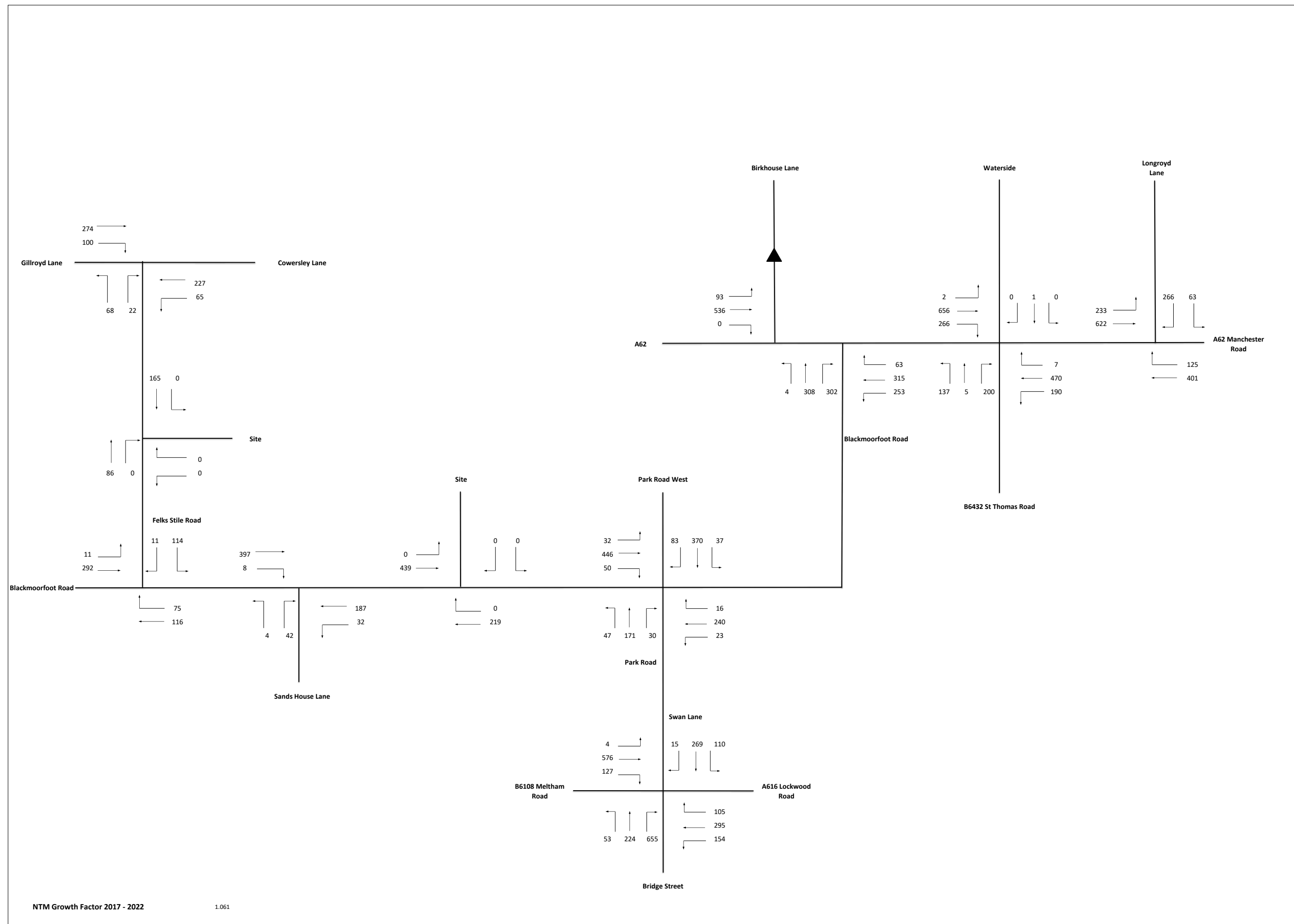


Figure 3 2022 Growthed Flows - Weekday AM Peak (0745-0845 hours)

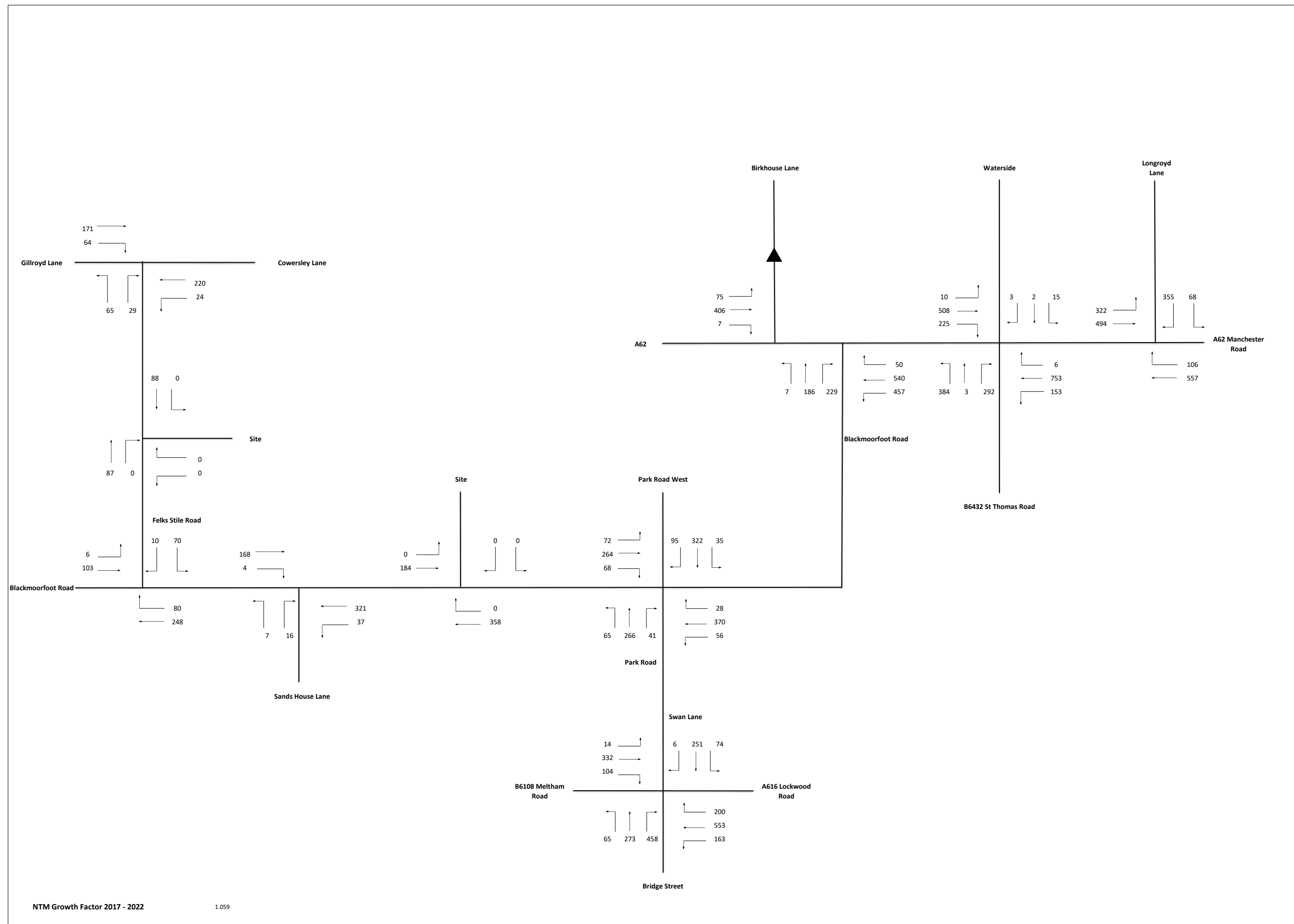


Figure 4 2022 Growthed Flows - Weekday PM Peak (1630-1730 hours)

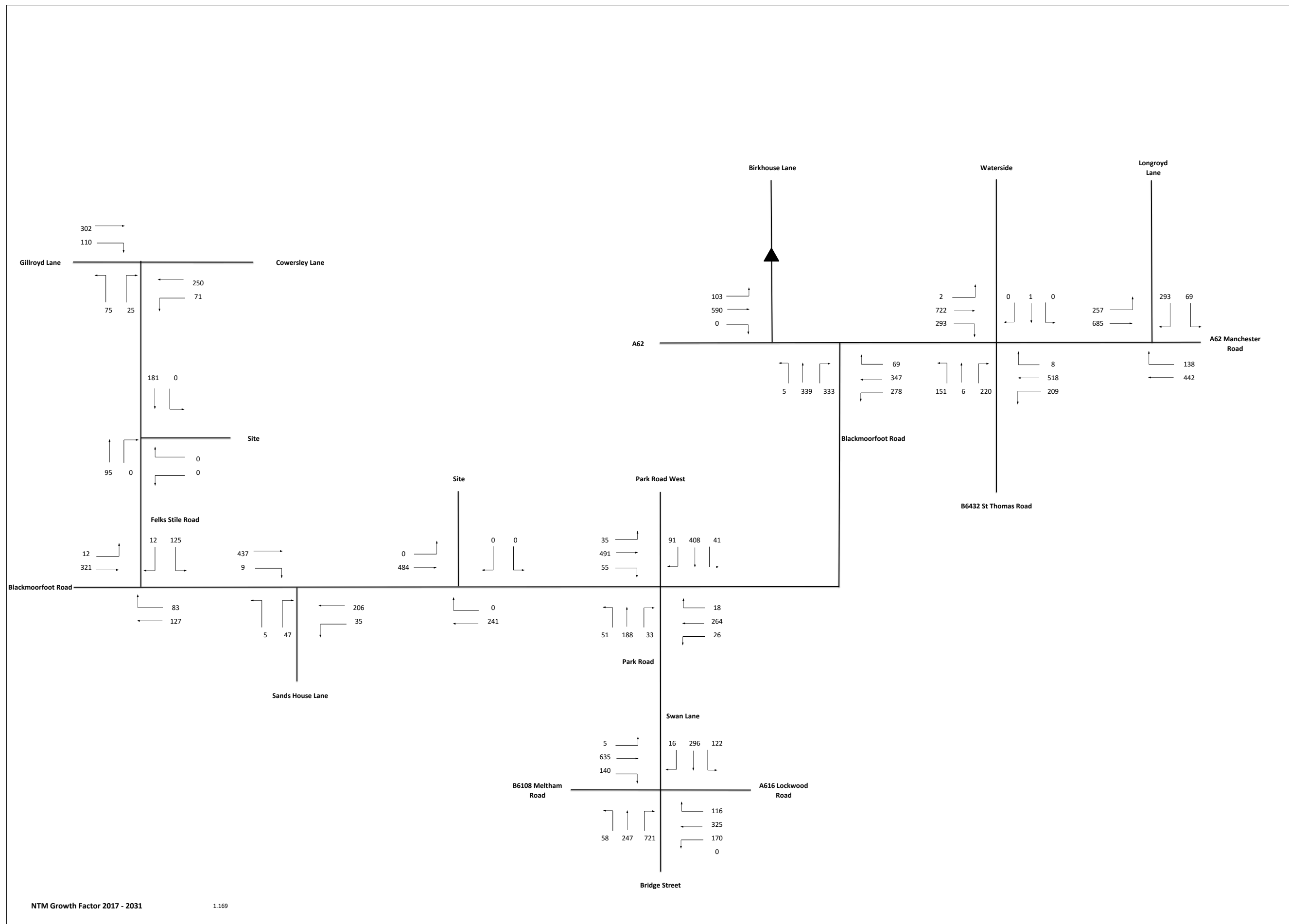


Figure 5 2031 Growthed Flows - Weekday AM Peak (0745-0845 hours)

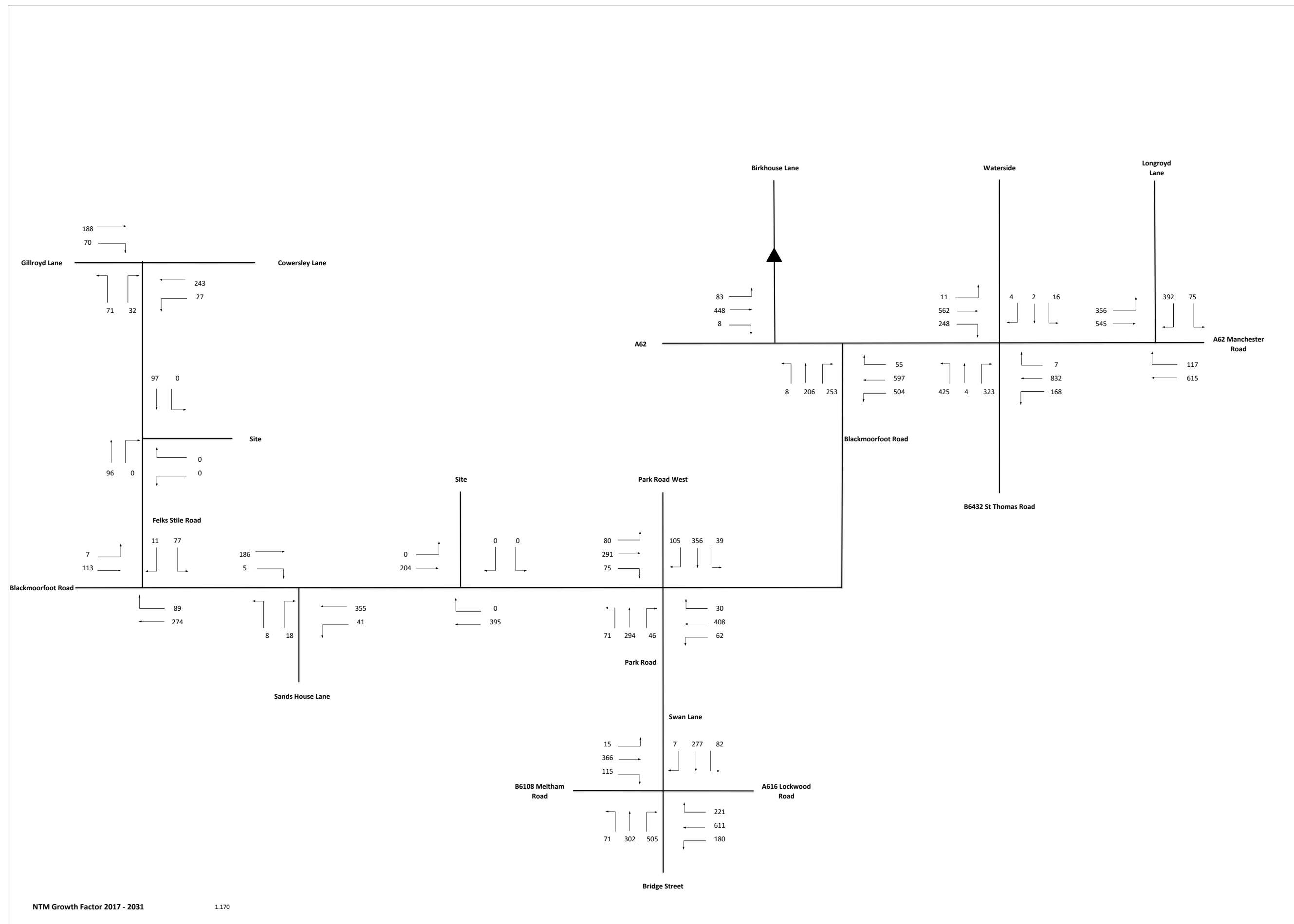


Figure 6 2031 Growthed Flows - Weekday PM Peak (1630-1730 hours)

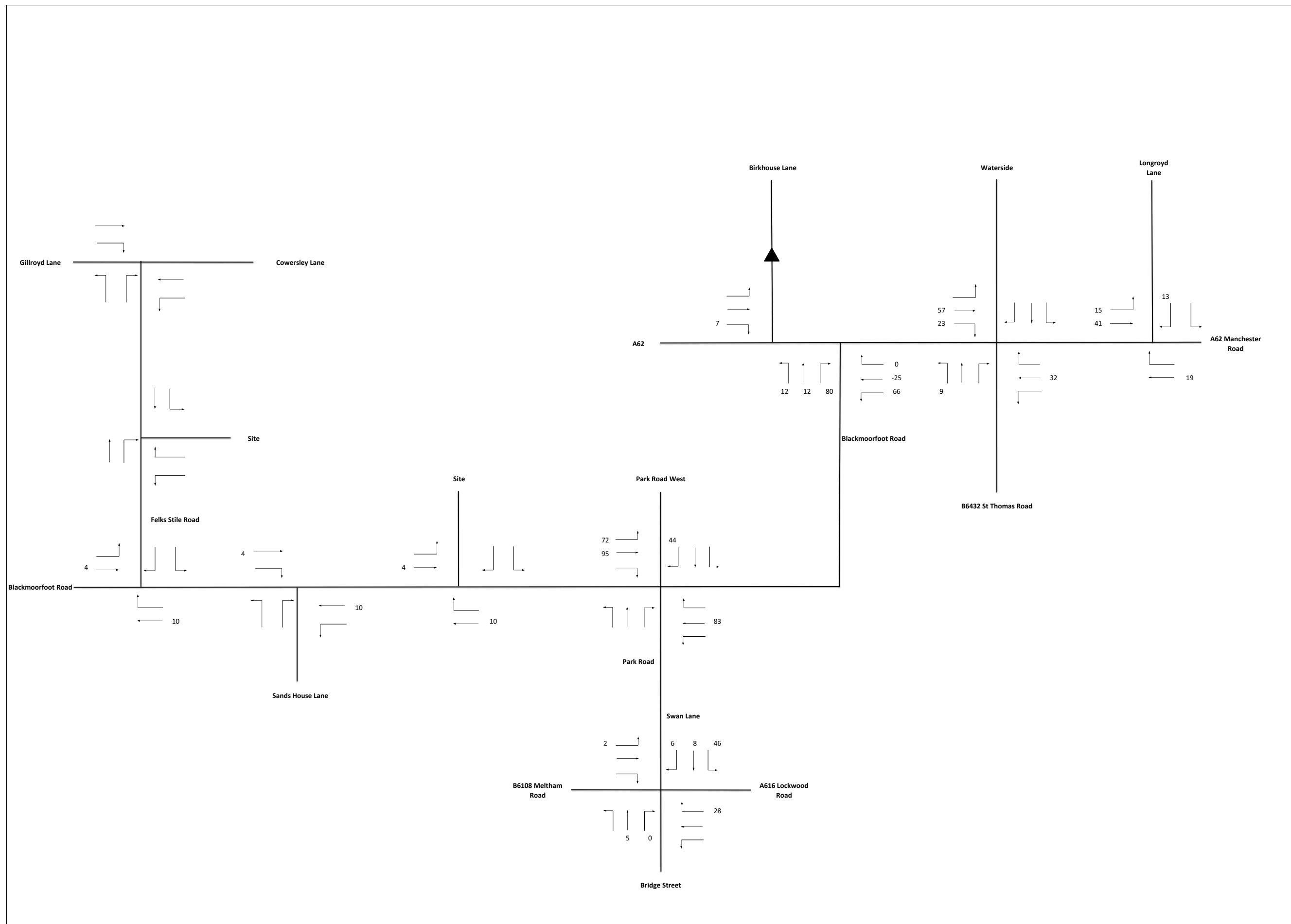


Figure 7 Total Committed Development - Weekday AM Peak (0745-0845 hours)

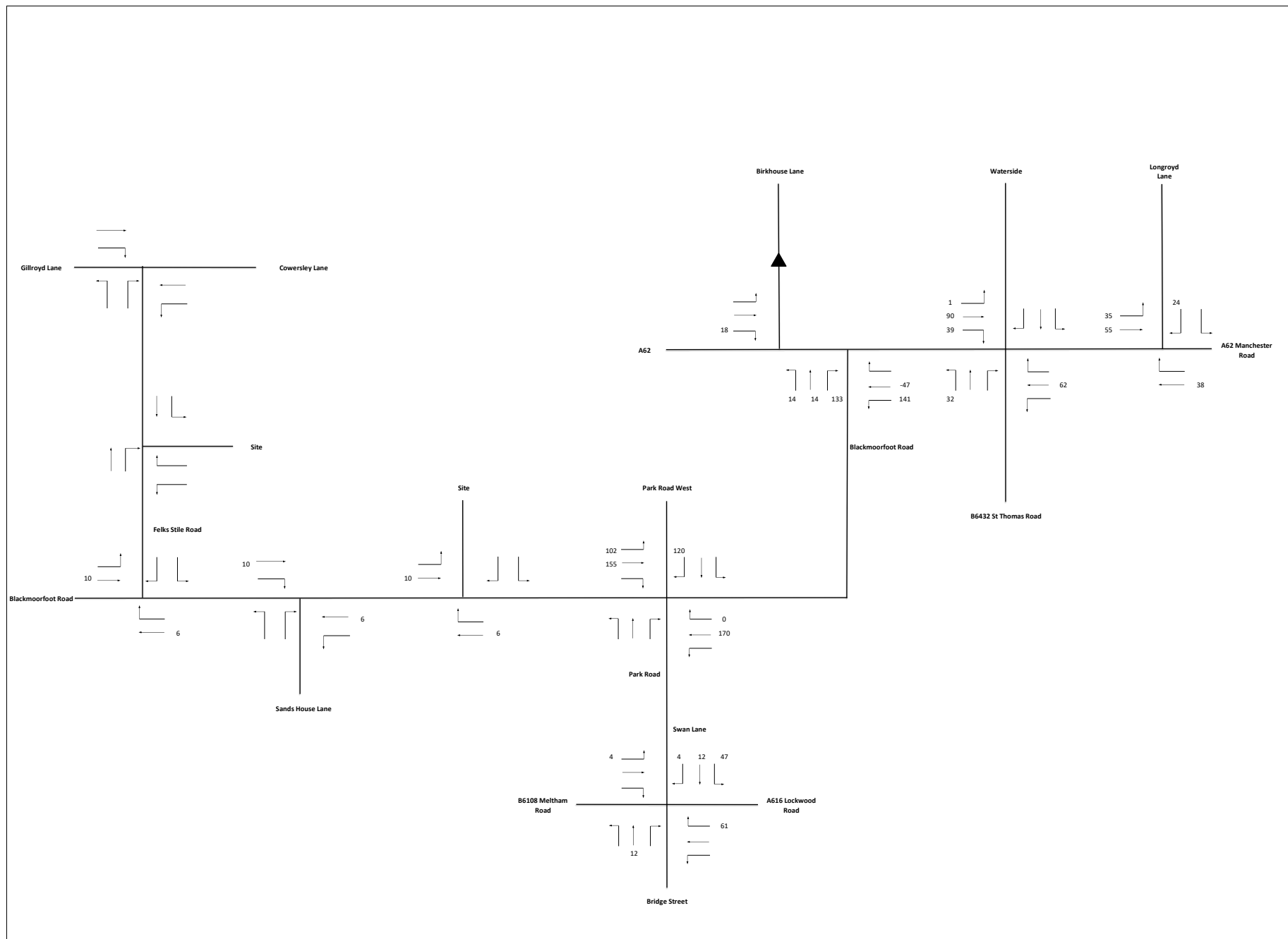


Figure 8 Total Committed Development - Weekday PM Peak (1630-1730 hours)

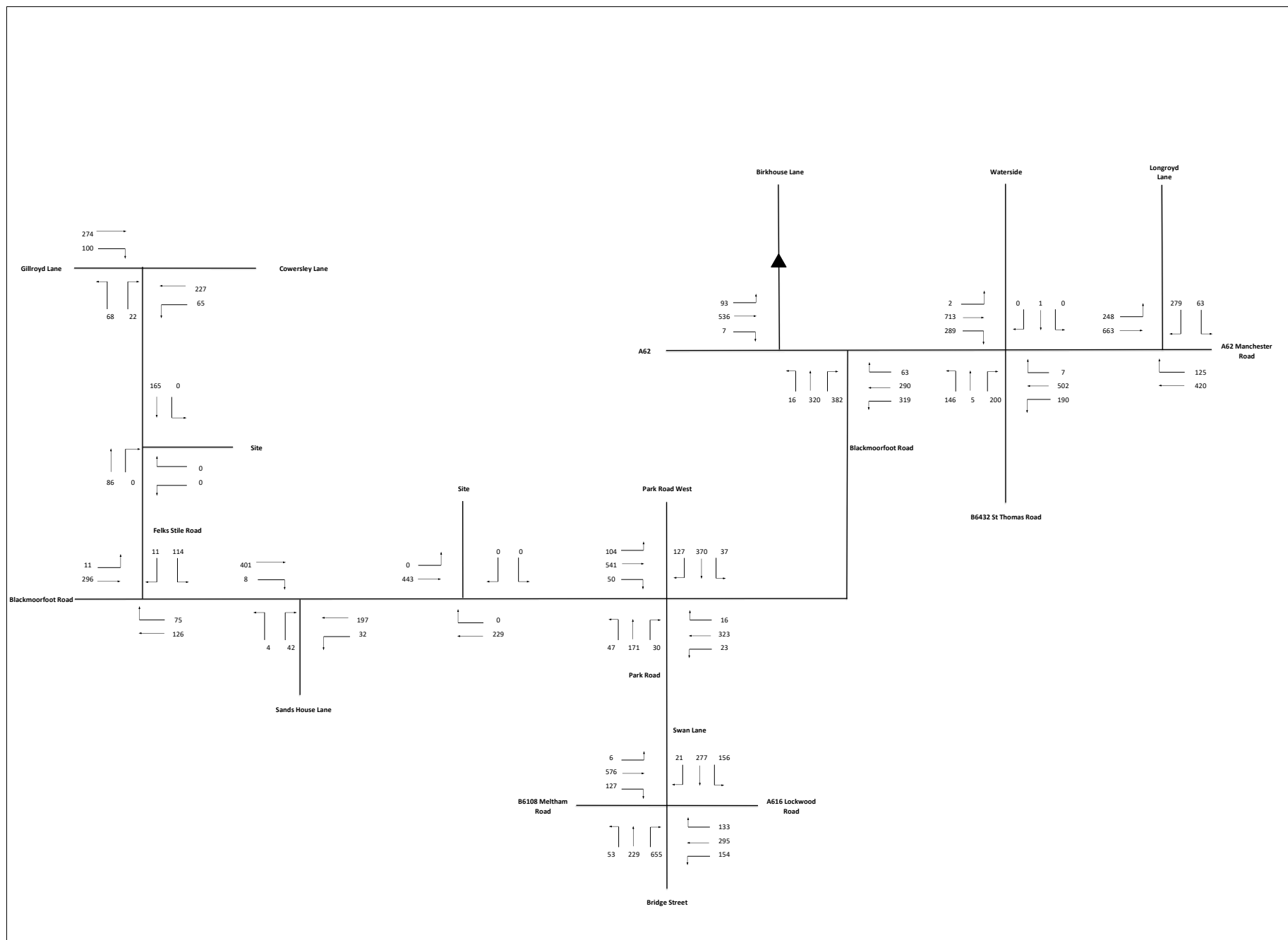


Figure 9 2022 Base Flows - Weekday AM Peak (0745-0845 hours)

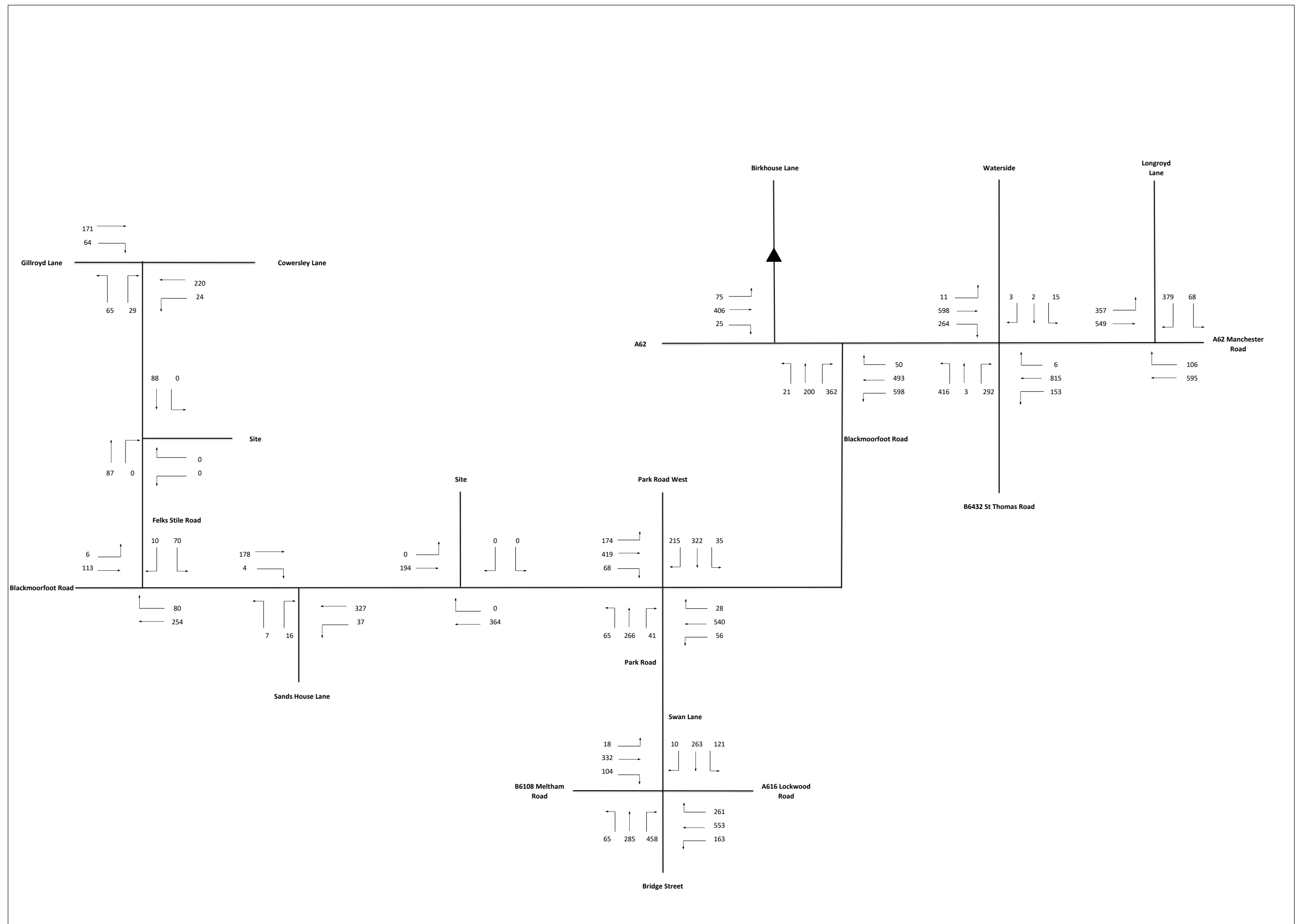


Figure 10 2022 Base Flows - Weekday PM Peak (1630-1730 hours)

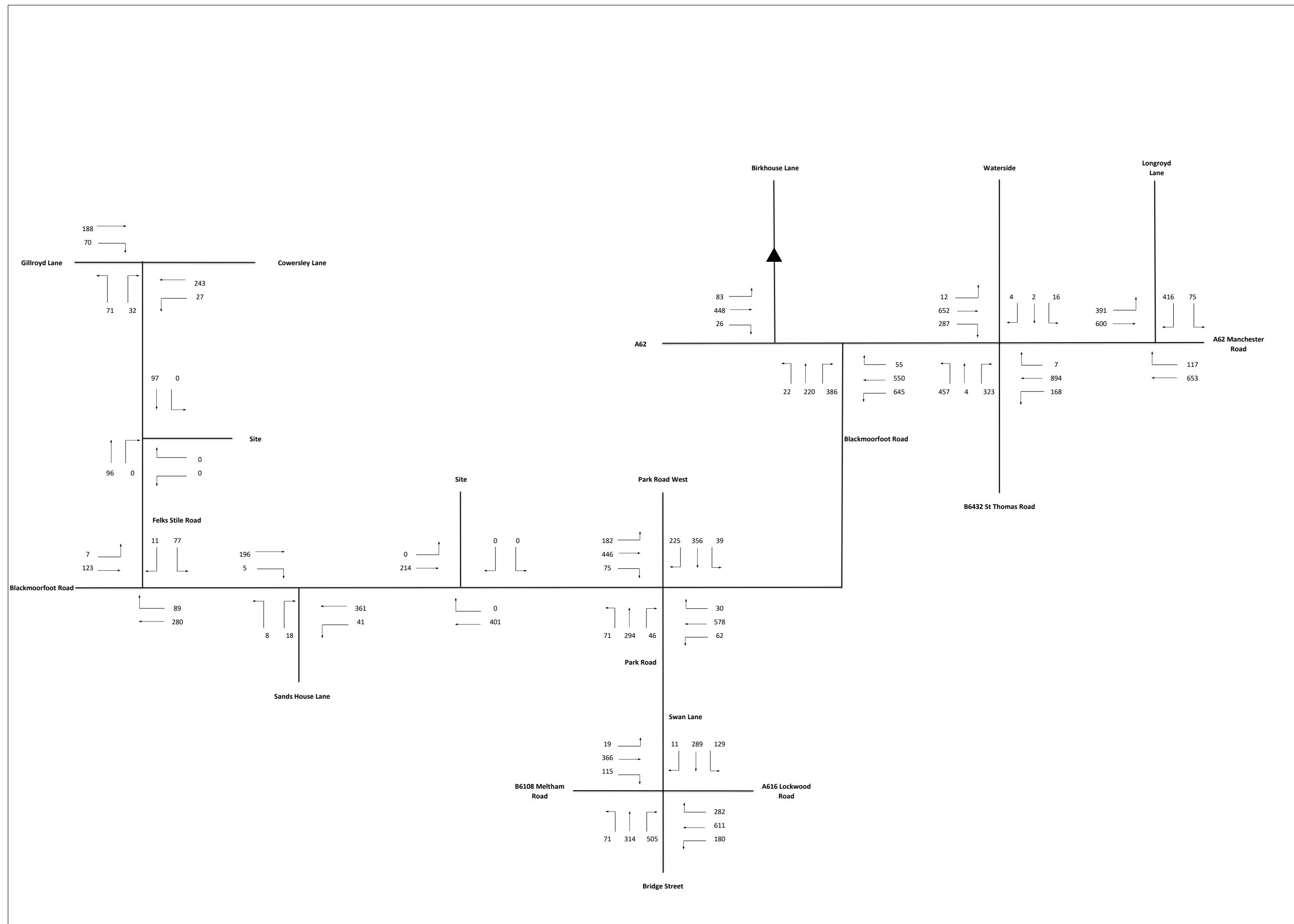


Figure 12 2031 Base Flows - Weekday PM Peak (1630-1730 hours)

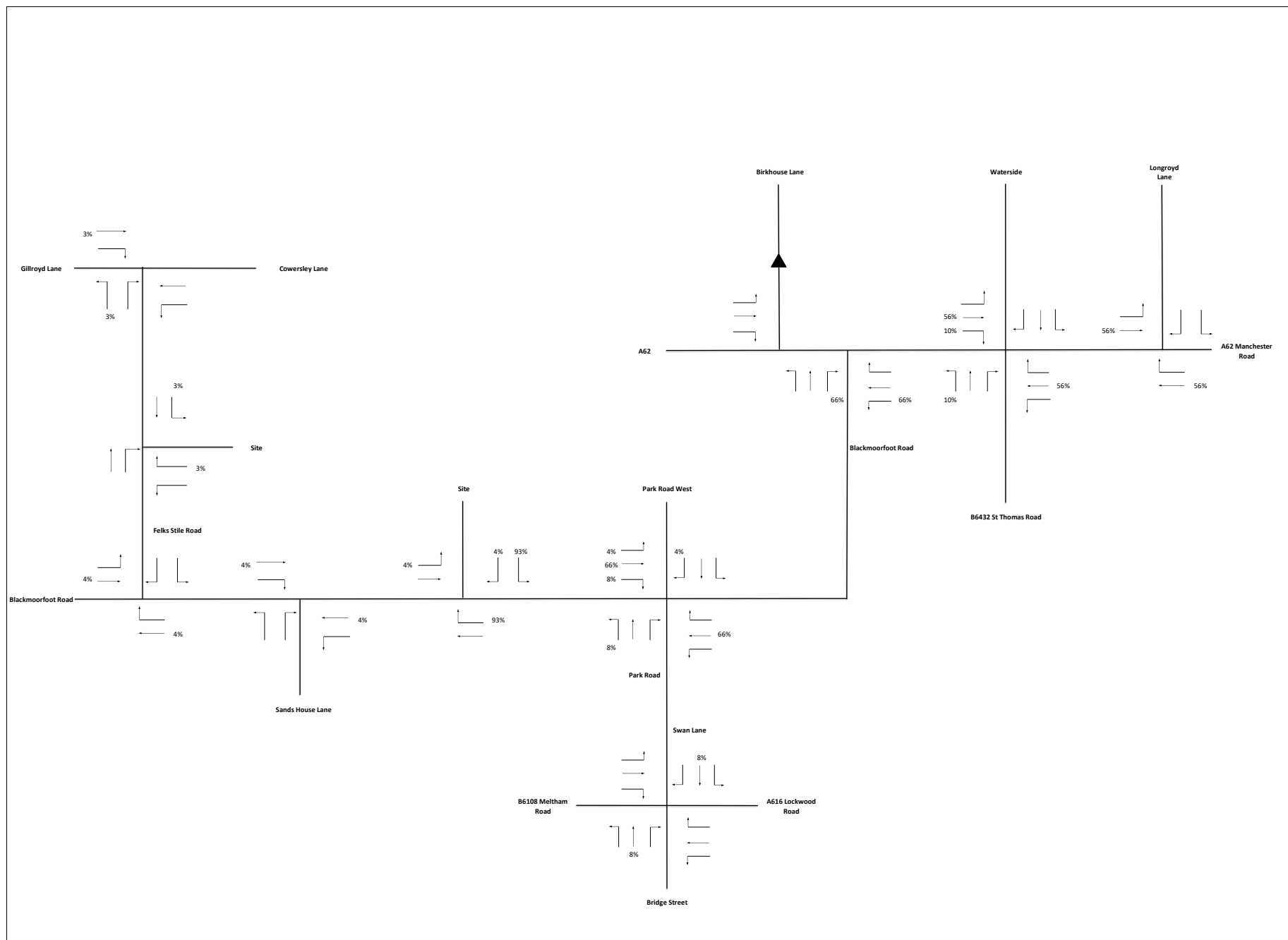


Figure 13 Proposed Trip Distribution - Weekday AM & PM

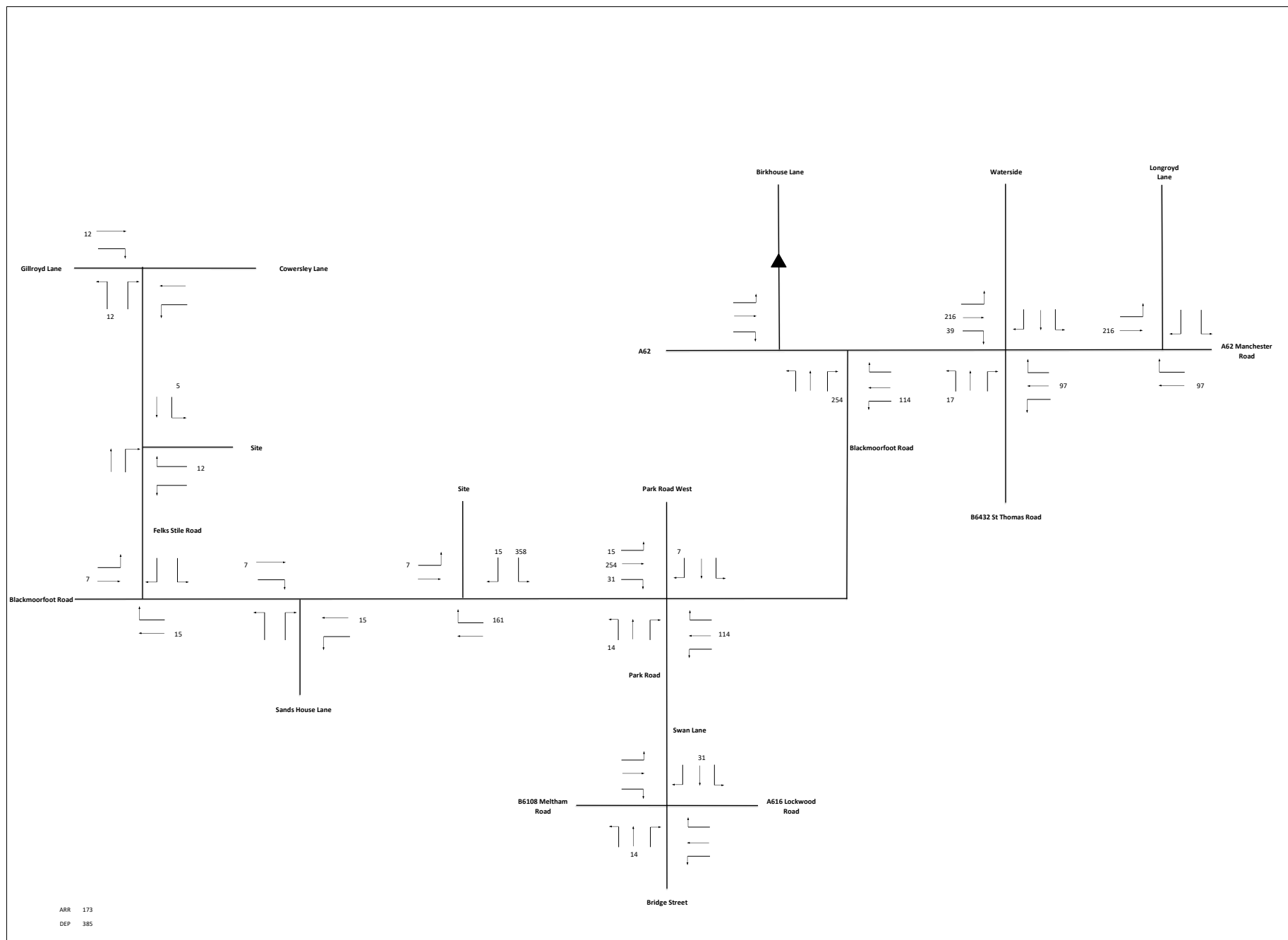


Figure 14 Proposed Residential Development Flows - Weekday AM Peak (0745-0845 hours)

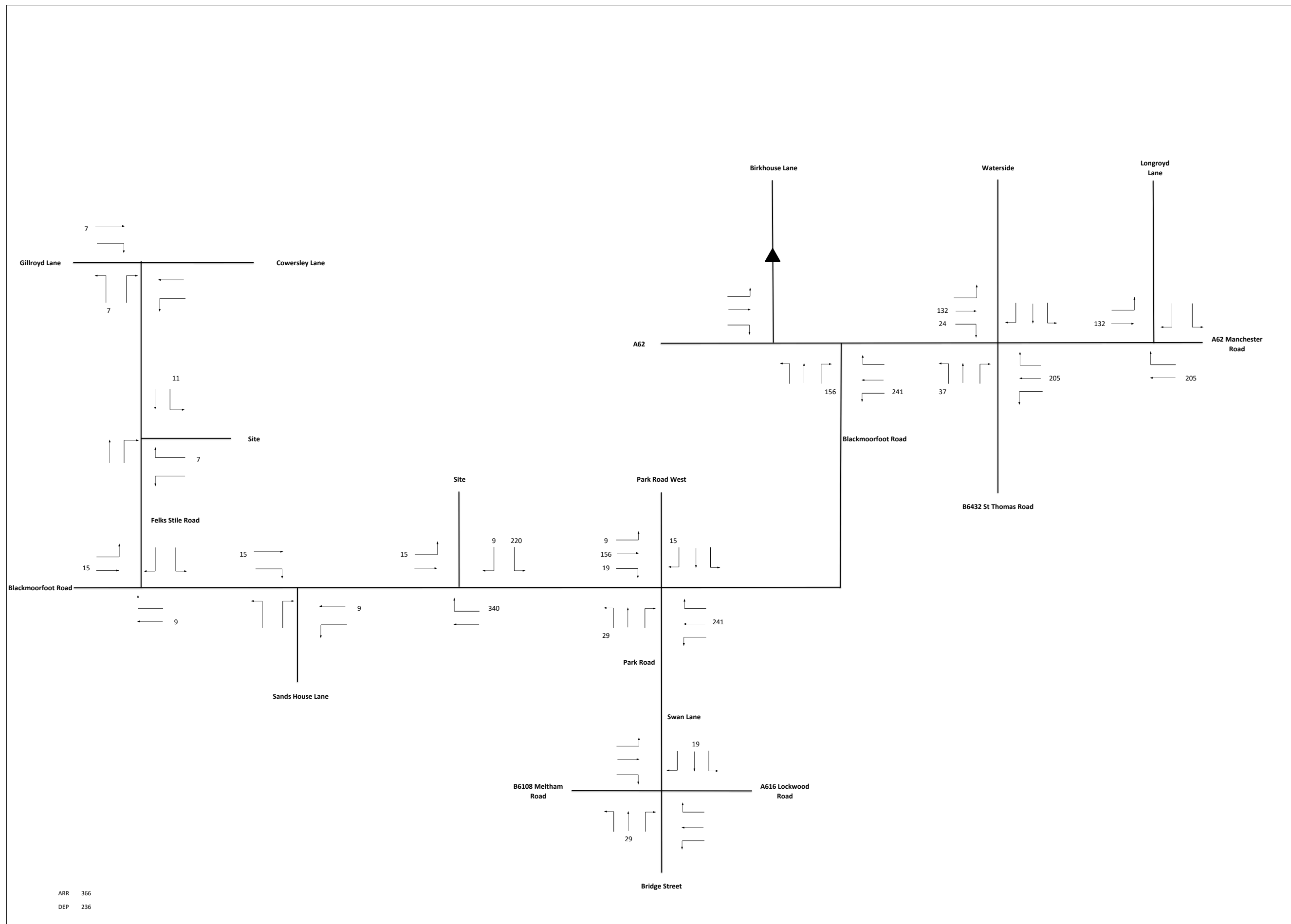


Figure 15 Proposed Residential Development Flows - Weekday PM Peak (1630-1730 hours)

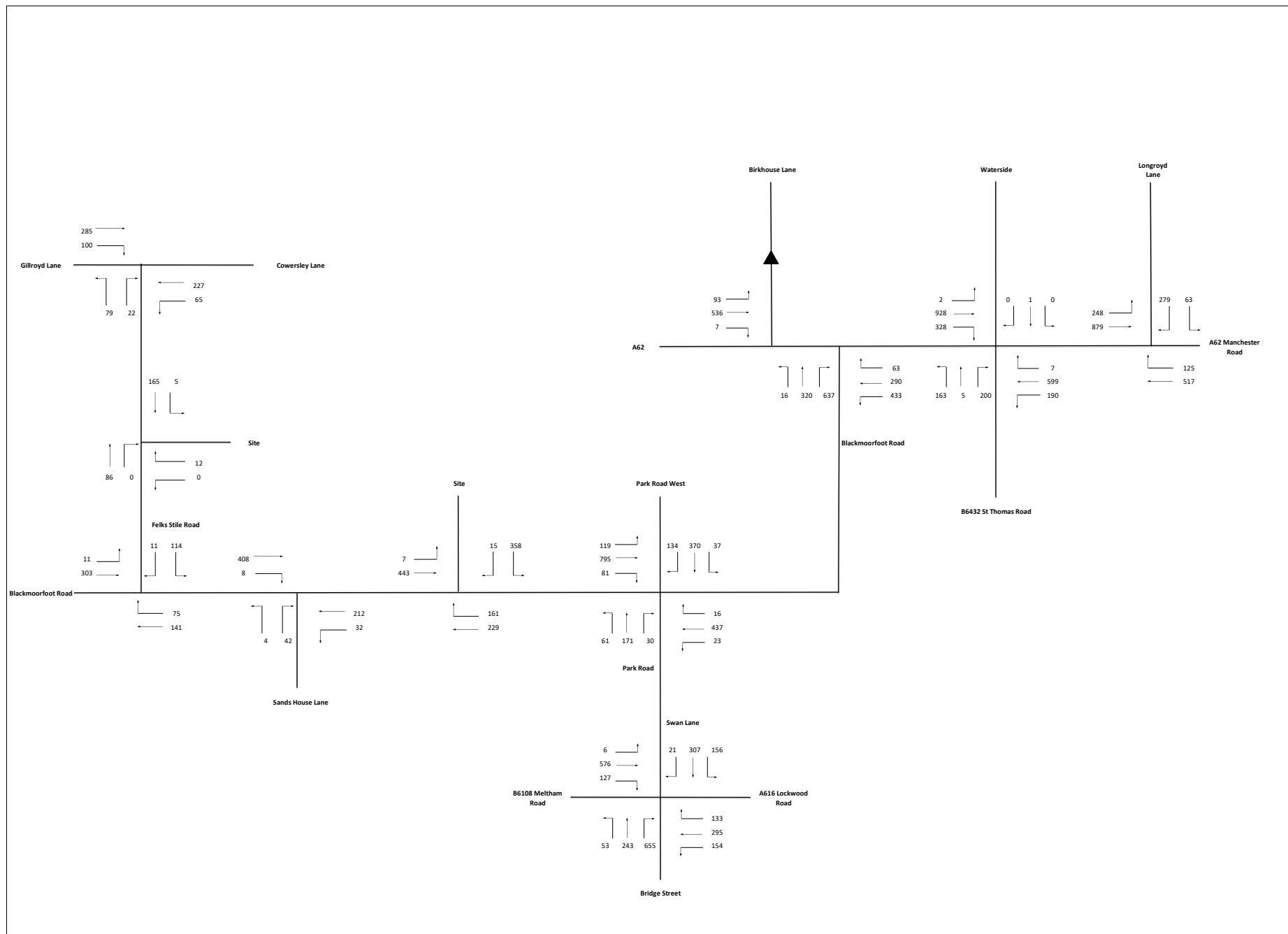


Figure 16 2022 'With Development' Flows - Weekday AM Peak (0745-0845 hours)

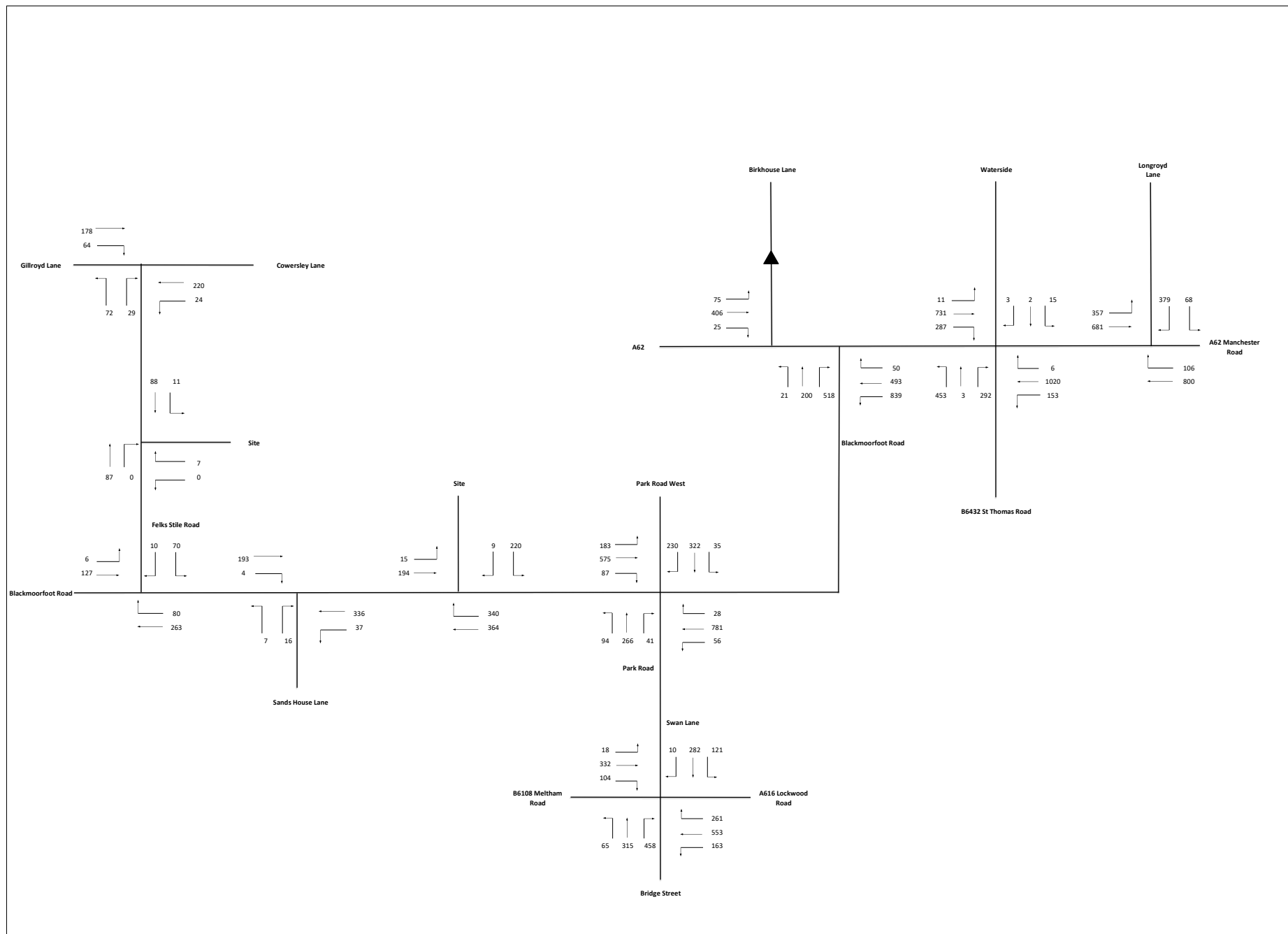


Figure 17 2022 'With Development' Flows - Weekday PM Peak (1630-1730 hours)

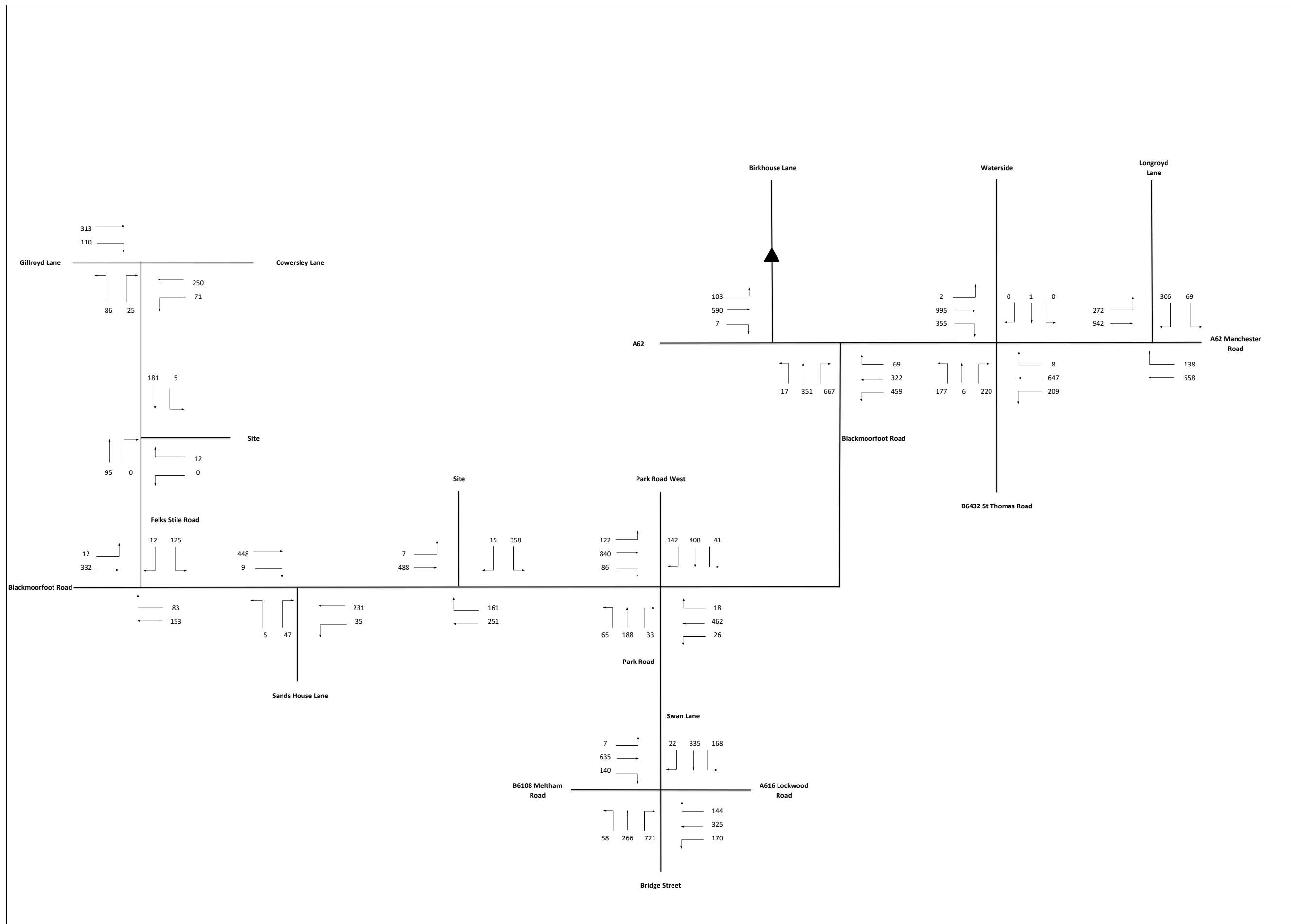


Figure 18 2031 'With Development' Flows - Weekday AM Peak (0745-0845 hours)

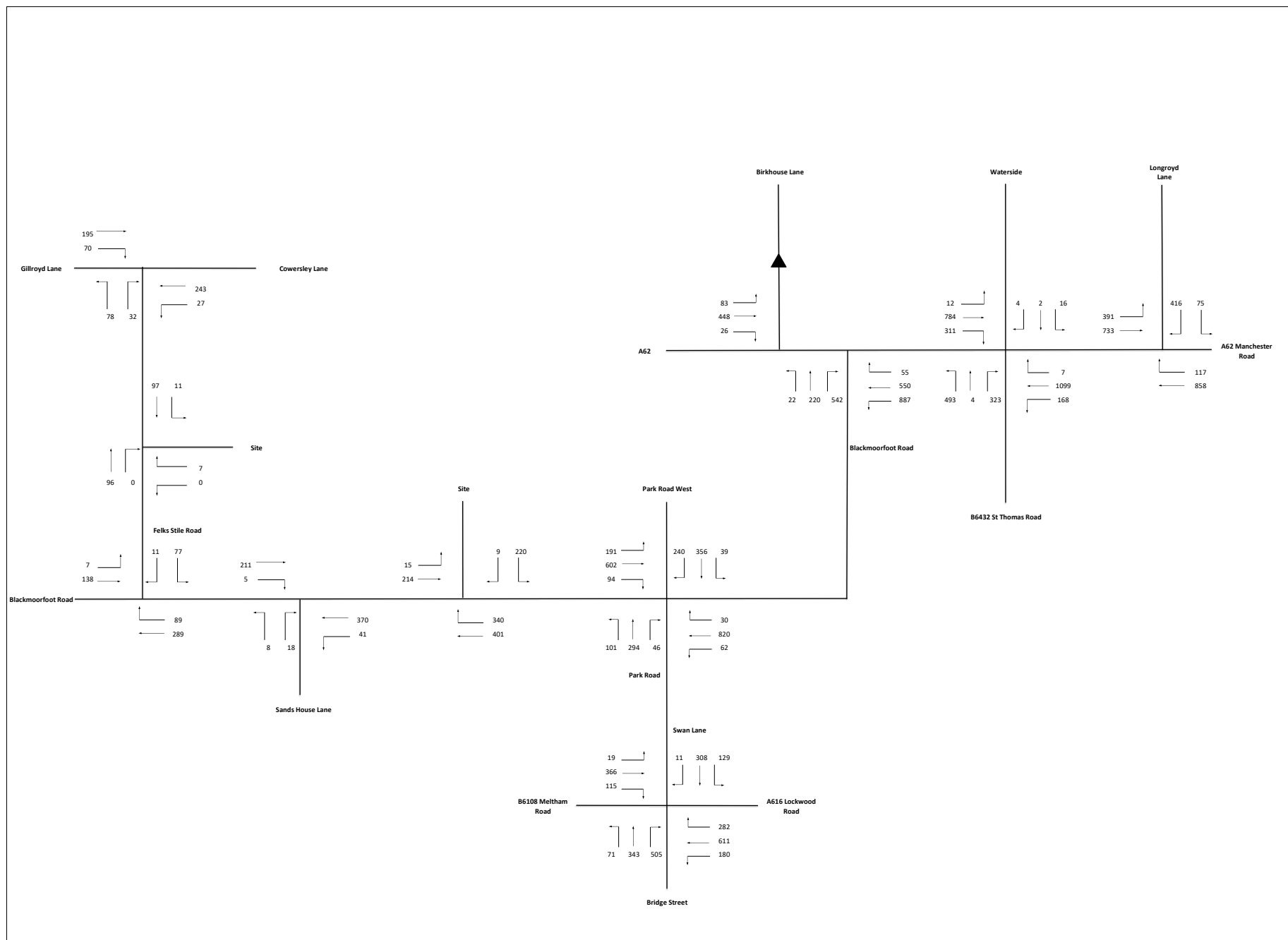
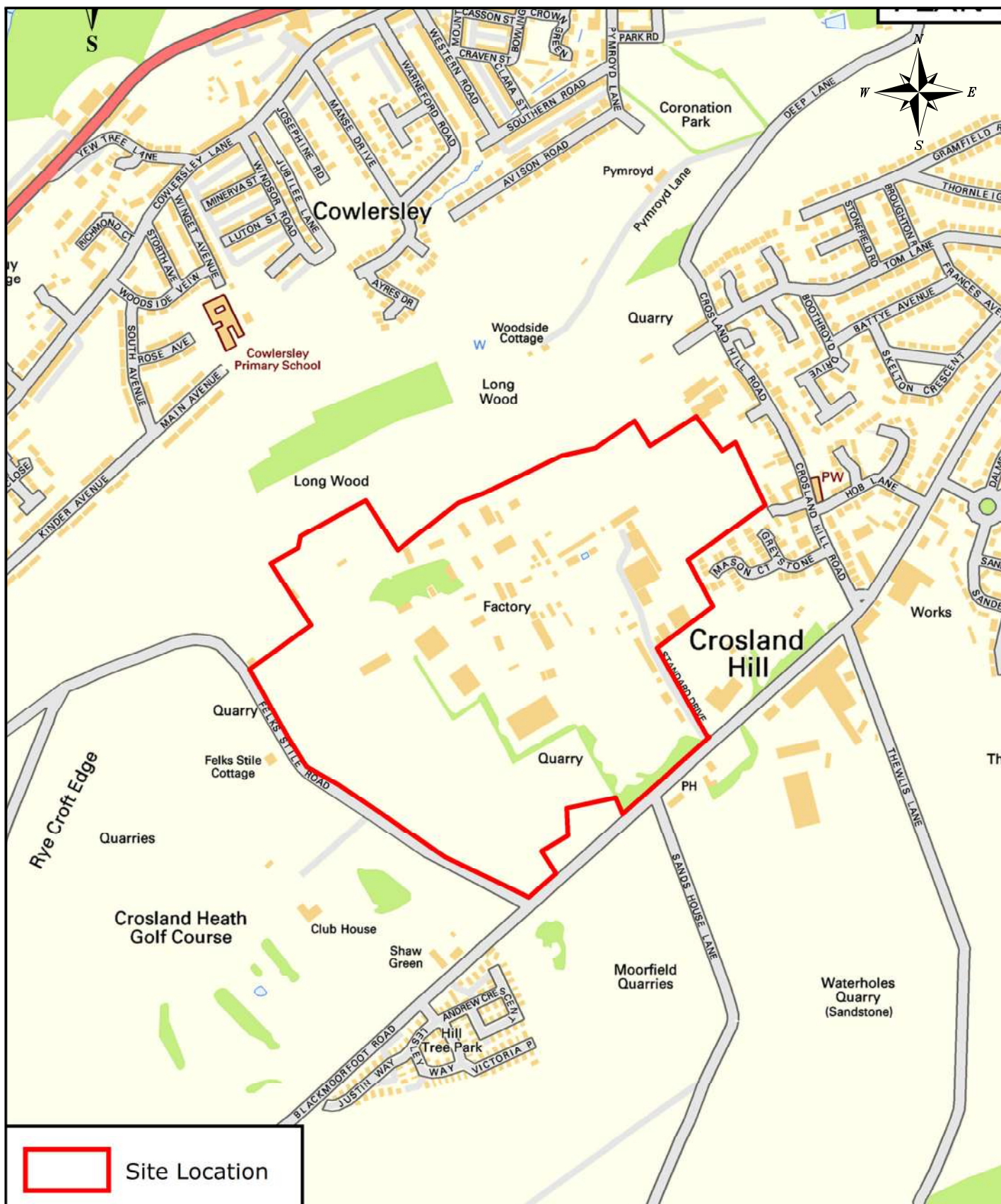


Figure 19 2031 'With Development' Flows - Weekday PM Peak (1630-1730 hours)

PLANS



Site Location

CLIENT:

EMPIRE KNIGHT GROUP

DRAWING TITLE:

**PROPOSED RESIDENTIAL DEVELOPMENT
LAND NORTH OF BLACKMOORFOOT ROAD
AND EAST OF STILE ROAD
SITE LOCATION PLAN**

Croft Transport Planning & Design
340 Deansgate
Manchester
M3 4LY

Email: info@crofts.co.uk
Tel: 0161 837 7380
Web: www.eddisons.com/services/transport-planning

DRAWING NUMBER:

1852-01

REVISION:

-

DRAWN:

GM

DATE:

23.07.20

CHECKED:

SM

DATE:

23.07.20

SCALES:

NTS @ A4

Eddisons | Incorporating
Croft

- NOTES:
1. Do not scale from this drawing.
 2. Always work to noted dimensions.
 3. All dimensions are in millimetres unless otherwise stated.
 4. All setting out, levels and dimensions to be agreed on site.
 5. The dimensions of all materials must be checked on site before being laid out.
 6. This drawing must be read with the relevant specification clauses and detail drawings.
 7. Order of construction and setting out to be agreed on site.

PLAN 2

KEY

- 1 Main vehicular entrance
- 2 Spine road
- 3 Village green
- 4 Existing pub
- 5 Retail unit
- 6 Arrival space
- 7 Community parkland area provides recreational resource and ecological mitigation
- 8 Natural play area
- 9 Linear park providing enhanced connectivity to wider landscape
- 10 Linear park providing enhanced connectivity between village green and natural play area
- 11 Pedestrian connection to surrounding area
- 12 Existing stone walls retained
- 13 Existing field retained as buffer between Crosland Hill Road and new development
- 14 Community Square
- 15 Pocket park
- 16 Extra care facility

S1: P03	24-07-20	Colour and annotation added	HB	AR
S1: P02	17-07-20	Revised 770 unit layout	HB	AR
S1: P01	16-06-20	16-06-20	HB	AR

Revision	Date	Description	Drawn	Apprvd.
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Planit I.E. Limited

E: info@planit.ie.com W: planit.ie.com
MANCHESTER
2 Brook Grafton St, Altrincham, WA14 1DY
T: 0161 928 9281

1

LONDON
Unit 6 Waterside, 44-48 Wharf Road, London, N1 7UX
T: 0207 253 5678

LIVERPOOL
Tempest 5.3, 12 Tithelbarn Street, Liverpool, L2 2DT
T: 0153 383 1230

Client Empire Knight Group Limited

Project Land off Blackmoorfoot Road and Felks Stile Road, Huddersfield

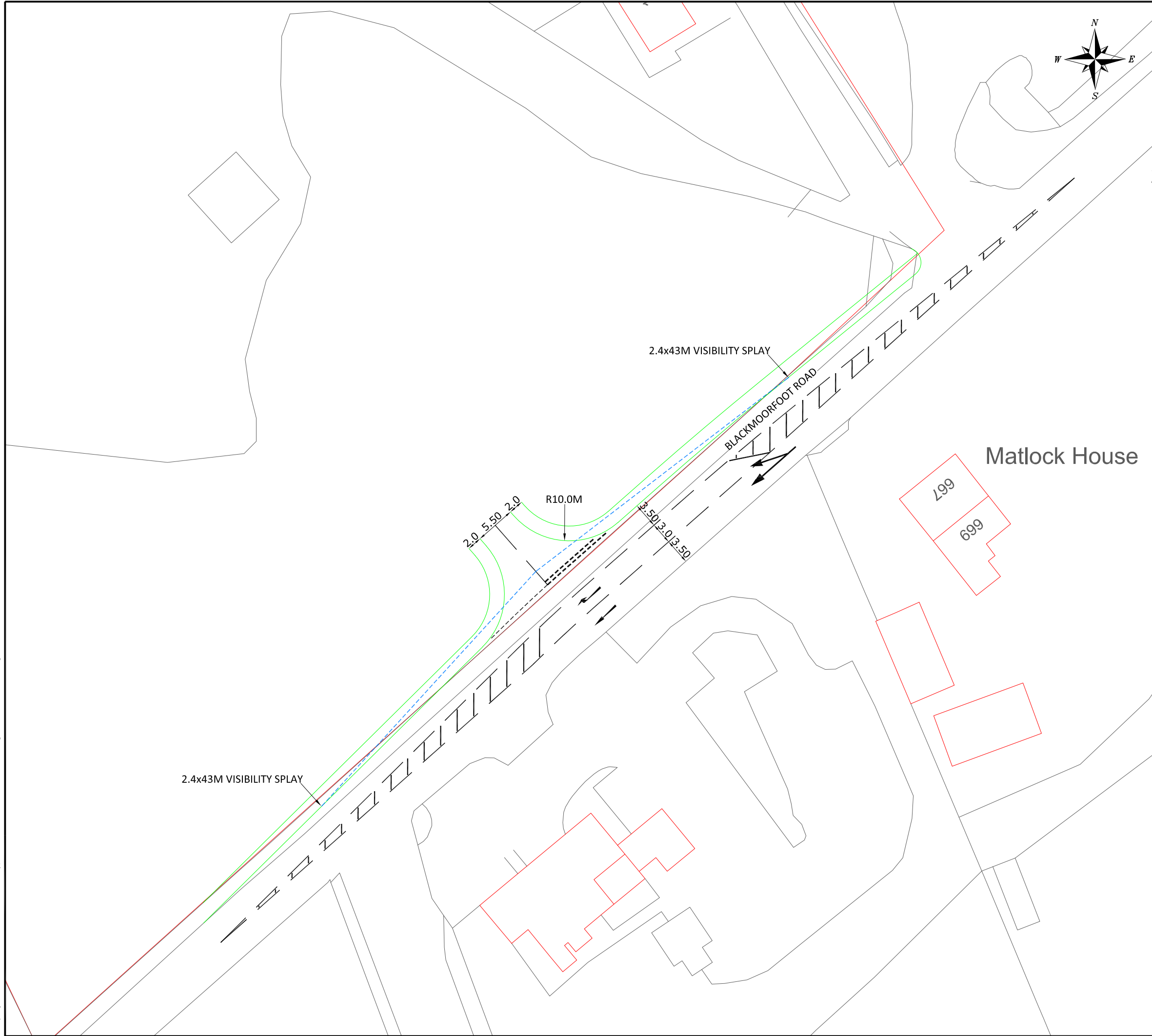
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13.11.19	HB	AR

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Org No	Suitability	Revision
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NOTES

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

— DENOTES NEW KERBS

PLAN 3

REV				
	DETAILS	DRAWN	CHECKED	DATE

CLIENT:

EMPIRE KNIGHT GROUP

PROJECT:

FORMER FIREWORKS FACTORY,
HUDDERSFIELD

DRAWING TITLE:

POTENTIAL SITE ACCESS
ARRANGEMENT WITH GHOST
ISLAND RIGHT TURN LANE ON
BLACKMOORFOOT ROAD

SCALES:

1:500 @ A3

DRAWN:	JC	CHECKED:	PJW	DATE:	MAY 17
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Croft Transport Planning & Design
340 Deansgate
Manchester
M3 4LY

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

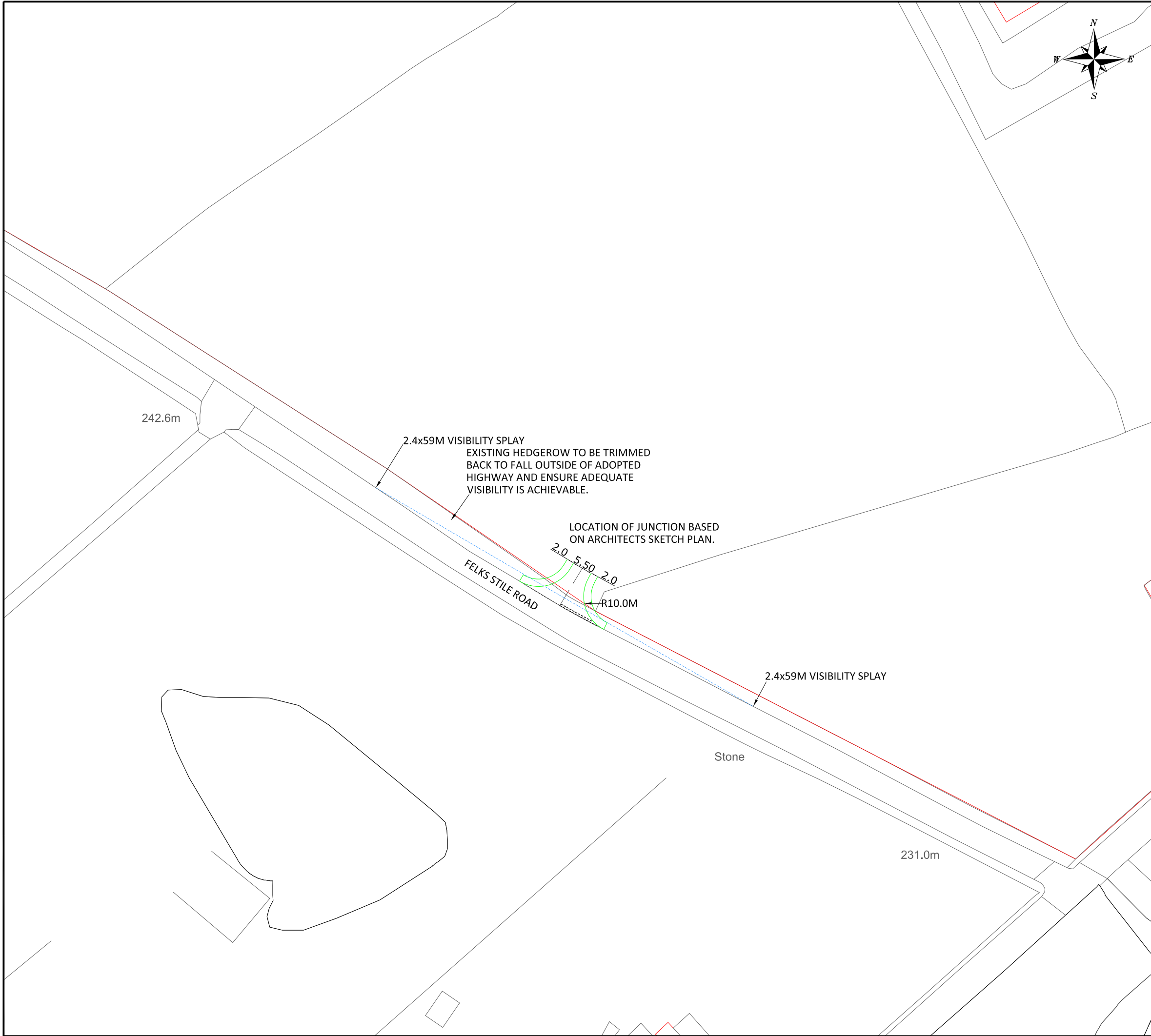
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1852-F02

REVISION:

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NOTES

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THE DRAWING WILL BE SUBJECT TO CHANGE FOLLOWING LOCAL AUTHORITY REVIEW AND CONFIRMATION OF PUBLIC HIGHWAY AND THIRD PARTY LAND BOUNDARIES.

— DENOTES NEW KERBS

PLAN 4

REV	-	-	-	-	-
DETAILS	DRAWN	CHECKED	DATE		

CLIENT:

EMPIRE KNIGHT GROUP

PROJECT:

FORMER FIREWORKS FACTORY, HUDDERSFIELD

DRAWING TITLE:

POTENTIAL SITE ACCESS ARRANGEMENT ON FELKS STILE ROAD

SCALES:

1:1000 @ A3

DRAWN:	JC	CHECKED:	PJW	DATE:	MAY 17
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Croft Transport Planning & Design
340 Deansgate
Manchester
M3 4LY

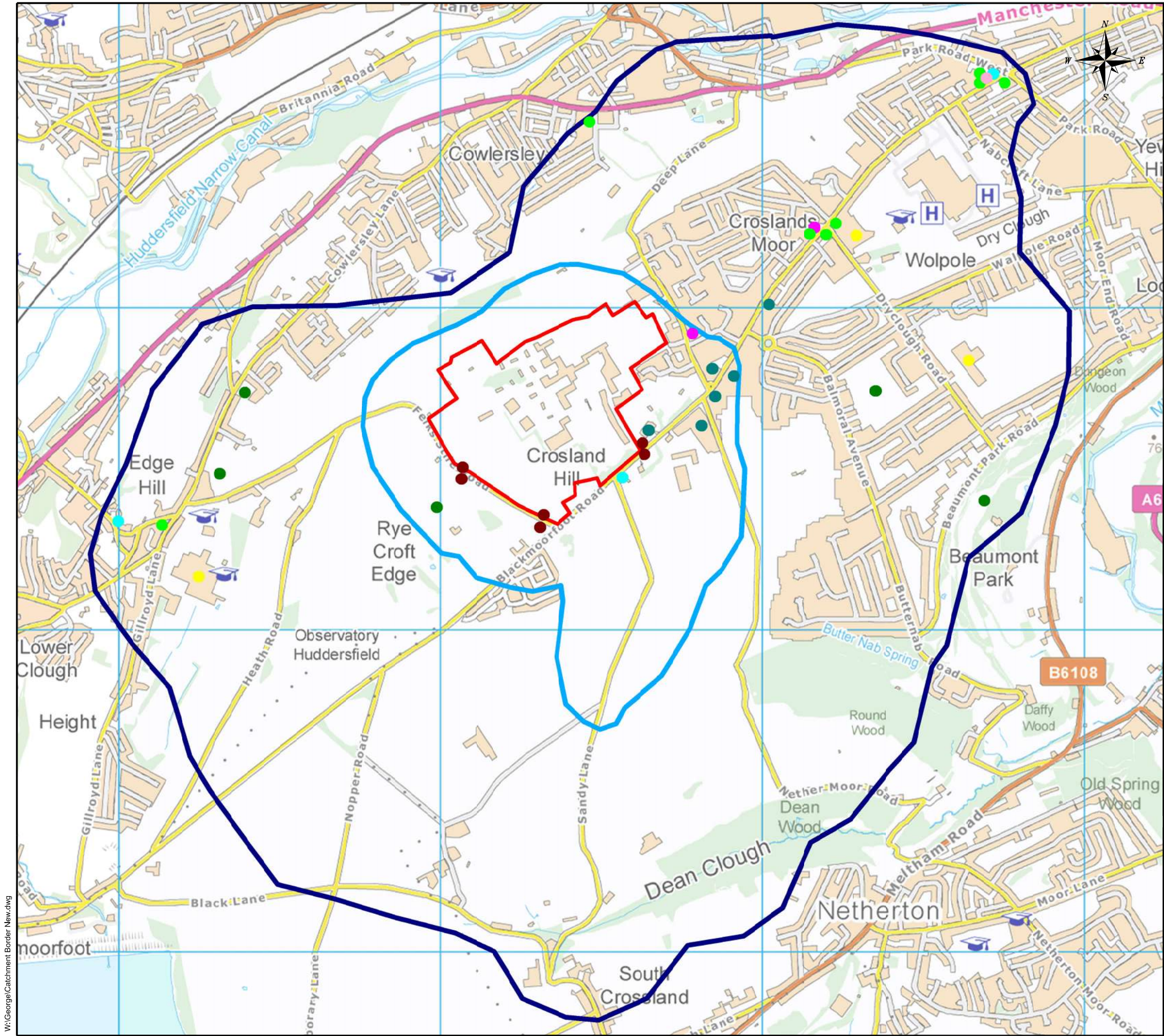
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Tel: 0161 837 7380
Web: www.crofts.co.uk

DRAWING NUMBER:

1852-F01

REVISION:

-



NOTES

PLAN 5

Site Location

800m Pedestrian Catchment

2km Pedestrian Catchment

Nearest Bus Stops

Education

Retail

Healthcare/Pharmacy

Community Facilities

Business/Industrial

Cafe/Takeaway/Public House

Leisure/Sport

REV	DETAILS	DRAWN	CHECKED	DATE
CLIENT: EMPIRE KNIGHT GROUP				
PROJECT: LAND NORTH OF BLACKMOORFOOT ROAD				
DRAWING TITLE: 800M & 2KM PEDESTRIAN CATCHMENT WITH AMENITIES				
SCALES: NTS @ A3				
DRAWN:	GM	CHECKED:	SM	DATE: JULY 20
Croft Transport Planning & Design 340 Deansgate Manchester M3 4LY Email: info@crofts.co.uk Tel: 0161 837 7380 Web: www.eddisons.com/services/transport-planning				
DRAWING NUMBER: 1852-03				REVISION: -
Eddisons Incorporating Croft				

APPENDICES

APPENDIX 1

Residential Travel Plan Framework

Proposed Residential Development
Blackmoorfoot Road, Huddersfield

EMPIRE KNIGHT GROUP

Residential Travel Plan Framework
July 2020





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PLANS

(See Transport Assessment)

1 INTRODUCTION

1.1 Introduction

1.1.1 Croft Transport Solutions have been instructed by Empire Knight Group to advise on the traffic and transportation issues relating to proposals for a residential development on land to the north of Blackmoorfoot Road and east of Felks Stile Road in Huddersfield

1.1.2 This document will set out the principal strategies that will be put in place once the development is open and residents are occupying the dwellings, to encourage sustainable travel to the development.

1.1.3 The Department for Transport has issued two separate guides on the preparation of travel plans which are of relevance to this proposed development, these documents are as follows;

- Making Residential Travel Plans Work - Published in September 2005.
- Good Practice Guidelines: Delivering Travel Plans through the Planning Process – Published in April 2009.

1.2 Development Proposals

1.2.1 This document has been produced in support of an outline planning application with all matters reserved except means of access for a residential development consisting of 770 residential units (Use Class C3).

1.2.2 Vehicular access into the application site will be provided off Blackmoorfoot Road to the south and Felks Stile Road to the west.

1.2.3 It is proposed that access for pedestrians and cyclists will be provided for at both of the vehicular access points, in the form of pedestrian footways, dropped kerbs and tactile paving.

1.2.4 The pedestrian facilities at the Blackmoorfoot Road site access junction will link with the existing pedestrian footway and infrastructure located on Blackmoorfoot Road. Whilst the proposed pedestrian provision at the Felks Stile Road site access junction will link with the existing provision located at its junction with Blackmoorfoot Road.

1.3 The Travel Plan

1.3.1 The aim of the Travel Plan is as follows:

- To encourage residents and visitors to use alternatives to the private car;
- To increase the awareness of the advantages and potential for travel by more environmentally friendly modes, and
- To introduce a package of management measures that will facilitate travel by modes of transport other than the private car.

1.3.2 This document provides a framework for the preparation of a full Travel Plan, which will be submitted to the local authorities within 6 months of the development reaching 40% occupation.

1.3.3 The Travel Plan will demonstrate the strategy that the developer is taking to assist the wider aims of sustainable transport and should include the following as a minimum:

- Contact details of a Travel Plan Co-ordinator;
- Data from a residential travel survey;

- Details of cycling/pedestrian/public transport links to and/or through the site;
- Action Plan of measures to be introduced;
- SMART targets for non-car modes of travel, and
- Details of arrangements for monitoring and review of the Travel Plan for a period of 5 years from 75% occupation.

1.3.4 A Travel Plan is effectively a combination of information, proposals and incentives designed to use most effectively the different means of travel available to residents.

1.3.5 This document will set out the principle strategies of the Travel Plan which will evolve into a formally agreed document once the development is open and the residents are occupying dwellings.

2 TRAVEL PLANNING POLICY AND GUIDANCE

2.1 Travel Planning Policy

- 2.1.1 The need to manage transport in new developments is included within national and local policy. The need to reduce car dependency, increase travel choices and encourage sustainable distribution is supported by the National Planning Policy Framework (NPPF) which states that all developments which generate significant amounts of movement should be required to provide a Travel Plan.
- 2.1.2 The NPPF further reinforces the importance of travel plans in the planning context and states *"Travel Plans should be considered in parallel to development proposals and readily integrated into the design and occupation of a new site"*.

2.2 Travel Planning Guidance

- 2.2.1 The preparation and adoption of a Travel Plan is an important element of managing the demand for travel to all modern developments.
- 2.2.2 The document, entitled *'Good Practice Guidelines: Delivering Travel Plans through the Planning Process'* sets out an overview of the process and delivery of Travel Plans and states that *"A Travel Plan is a long-term management strategy for an occupier or site that seeks to deliver sustainable transport objectives through positive action and is articulated in a document that is regularly reviewed."*

2.2.3 The DfT document entitled *"Making Residential Travel Plans Work"* states that *Travel Planning is one of a range of measures known as smarter choices which have been found to be effective on reducing traffic and improving accessibility in residential areas"* and goes on to say *"Travel Planning is one of a range of measures known as smarter choices which have been found to be effective on reducing traffic and improving accessibility in residential areas"*.

2.2.4 The DfT's *'Making Residential Travel Plans Work'* also introduces the concept of a 'Travel Plan Pyramid'. This helps demonstrate how successful plans are built on the firm foundations of a good location and site design. The pyramid is presented in **Figure 2.1** below;

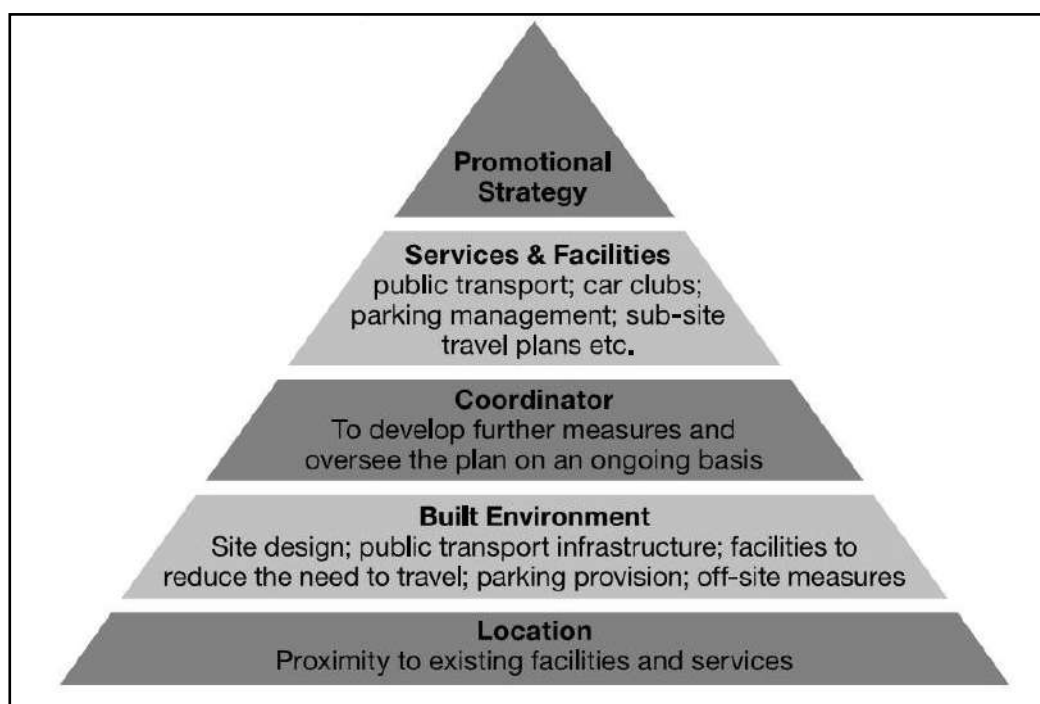


Figure 2.1 – The Travel Plan Pyramid

- 2.2.5 The hierarchy of 5 tiers of measures and criteria are well illustrated in pyramid form since the concept presented within that “good practice” is that each higher layer builds upon the more important foundations of the criteria and initiatives below it.
- 2.2.6 The most important layer of the pyramid is considered to be the base, this shows the key to making Travel Plans work is the actual location of the development and its proximity to local facilities and services essential to everyday life.
- 2.2.7 The second layer of the pyramid refers to how the layout of the site can assist in reducing the need to travel, which in this instance is again linked to the existing level of provision to facilitate sustainable travel.
- 2.2.8 As indicated in level 3 of the pyramid, the Travel Plan co-ordinator will be free to develop further measures to maximise the sustainability of the site.
- 2.2.9 The fourth layer of the pyramid looks at how parking management and public transport can influence travel choice, while the top layer of the pyramid relates to how the Travel Plan will be marketed and how the measures within are to be promoted.

3 MANAGEMENT MEASURES

3.1 Introduction

3.1.1 The following Travel Plan measures will be implemented:

- i) Appointment of Travel Plan Co-ordinator
- ii) Resident's Travel Pack
- iii) Travel Awareness and Information
- iv) Promotion of Lift Share Scheme
- v) Encouraging Walking/Cycling
- vi) Encourage Home Working and Delivery Services
- vii) Encouraging Travel by Public Transport
- viii) Marketing and Promotion

3.2 Appointment of Travel Co-ordinator

3.2.1 A Travel Plan Co-ordinator (TPC) is to be appointed prior to the site being occupied. The post of the TPC of the development will be overseen by the house builder until after which it is anticipated that the post will be overseen by a housing management company.

3.2.2 The name and contact details of the appointed Travel Plan Co-ordinator will be provided to Kirklees Council Travel Plan team at least 1 month prior to the site being occupied.

3.2.3 Their primary functions will be as follows;

- Liaison with the local planning and highways authority.
- Provision of a Resident's Travel Pack containing information for residents.
- Promotion of the sustainable transport options available to residents, including public transport, cycle, walking and car sharing schemes.
- Maintenance of all necessary systems, data and paperwork.

3.3 Resident's Travel Pack

3.3.1 It is an important and emerging principle in residential developments that where appropriate, the implementation of travel plan type measures can establish a pattern of travel behaviour favouring sustainable modes from the inception of the development.

3.3.2 The proposed development is very well placed for encouraging access on foot or by cycle to a wide range of facilities. Similarly, the existence of nearby public transport services will encourage choice of public transport as a primary means of travel for the development.

3.3.3 However, in order to build on these locational advantages, it is recommended that a Resident's Travel Pack is provided for the occupants of each new dwelling.

3.3.4 The contents of such a travel pack would include information relating to walking and cycling routes in the area and the provision of up to date bus and rail timetable information as well as identification of the location of nearby amenity facilities as part of the information supplied to prospective purchasers.

3.3.1 The contents of the packs will vary depending upon the information available on sources such as the internet or local bus stops.

3.3.2 However, the Travel Packs will include:

- Information about the local area, e.g. location, distance and directions to local shops, schools, Post Offices, Doctor Surgeries, Hospitals, Banks, Libraries, Parks, attractions and other local amenities.
- Copies of the most recently published public transport information.
- Details of web sites and other sources of information which can be accessed in the future such as:
 - Public Transport - Links to timetable information e.g. www.traveline.org.uk and www.nationalrail.co.uk
 - Car Sharing - Links to websites that co-ordinate car sharing such as www.carshare.com, www.liftshare.org.uk and www.nationalcarshare.co.uk to encourage car sharing.
 - Cycling - Link to the UK's National Cyclists Organisation website www.ctc.org.uk and Sustrans www.sustrans.org.uk
 - Local Amenities - local supermarkets offering internet shopping would reduce the need for car travel.

3.3.3 The adoption of such travel packs is recognised as being an important element in ensuring that access by non-car modes is promoted from the earliest occupation of a residential development. Within the Resident's Travel Pack, residents will be encouraged to consider ways in which to reduce their need to travel such as home delivery for shopping and working from home.

3.3.4 The first issue of the Resident's Travel Pack will be the responsibility of the TPC.

3.4 Travel Awareness and Information

3.4.1 Residents will be made aware of the existence of the Travel Plan and its aims. As mentioned previously, Resident's Travel Packs will be issued for new residents moving into the development and prospective buyers will be made aware of the Travel Plan when viewing properties.

3.5 Promotion of Lift Share Scheme

3.5.1 The Travel Plan Co-ordinator will promote the use of car sharing via registering on the Liftshare website. It allows users to register their details, where they are travelling to, if they are offering a lift or need a lift to their destination.

3.5.2 The website can be found at the following location www.liftshare.com.

3.6 Encouraging Walking/Cycling

3.6.1 Residents will be provided with information and advice concerning safe pedestrian and cycle routes to the site through the provision of the Resident's Travel Pack.

3.6.2 Local and National campaigns for walking and cycling will also be promoted by the Travel Plan Co-ordinator.

- 3.6.3 As part of these schemes the provision of walking/cycling signage will be investigated by the Travel Plan Co-ordinator, this signage could provide details on the routes and distances to and from local services and amenities in the area.

3.7 Encourage Home Working and Delivery Services

- 3.7.1 All new properties will have the ability to have broadband internet connection points, enabling the residents to obtain the internet. Therefore, encouraging home working and shopping, reducing the need to travel especially during peak times.
- 3.7.2 A number of telecommunication providers serve the area enabling residents to search for potential liftshare opportunities, as well as complete online shopping. Broadband will also enable residents to work from home thus, complying with goals highlighted within national and local policy.

3.8 Encouraging Travel by Public Transport

- 3.8.1 The TPC will liaise with the local bus operators to promote the use of public transport services and ensure that up to date timetable information is readily available to residents.
- 3.8.2 Travel by public transport will be promoted and residents will be encouraged to access the public transport information provided on relevant websites, as well as utilising the Journey Planning tools available.

3.9 Marketing and Promotion

- 3.9.1 To ensure that potential residents of the site are informed about the Travel Plan and its goals from the earliest stage, the Travel Plan will have a significant presence within the sales suite of the development which will include a display outlining the sustainable travel measures being implemented and details of access by sustainable travel modes.
- 3.9.2 The sales staff will be given training to promote the Travel Plan as an asset and selling point of the development and key concepts relating to accessibility included in marketing/sales particulars.

4 ACCESSIBILITY BY NON-CAR MODES

4.1 Introduction

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

4.1.2 The presumption in favour of sustainable development is a central theme running through the framework and transport planning policies are seen as a key element of delivering sustainable development as well as contributing to wider sustainability and health objectives. To achieve these objectives, paragraph 30 states that when making decisions, local authorities should:

'Support a pattern of development which, where reasonable to do so, facilitates the use of sustainable modes of transport.'

4.1.3 One of the core principles of the NPPF is to *'actively manage patterns of growth to make the fullest use of public transport, walking and cycling and focus significant development in locations which are or can be made sustainable.'*

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

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

- accessibility on foot;
- accessibility by cycle;

- accessibility by bus;
- accessibility by rail.

4.2 Accessibility on Foot

- 4.2.1 It is important to create a choice of direct, safe and attractive routes between where people live and where they need to travel in their day-to-day life. This philosophy clearly encourages the opportunity to walk whatever the journey purpose and also helps to create more active streets and a more vibrant neighbourhood.
- 4.2.2 The primary pedestrian desire lines will be to the east toward Huddersfield town centre. At present a pedestrian footway with a minimum width of 2 metres are located on the northern side of the carriageway. This footway runs along the entirety of the frontage of the site and links with the extensive pedestrian infrastructure provided to east of the application site which provides access to local amenities as well as Huddersfield town centre.
- 4.2.3 Pedestrian crossing facilities are provided for on Blackmoorfoot Road in the form of Zebra crossing which is located 900 east of the application site. This crossing provides safe pedestrian movement across Blackmoorfoot Road and provides pedestrian access to Dryclough CoE Infant School which is located on Dryclough Road.
- 4.2.4 As part of the development proposals it is proposed to provide pedestrian linkages to this existing pedestrian footway at the proposed site access junctions as well on the eastern boundary of the site which will provide access to the nearby village of Cowersley.
- 4.2.5 The CIHT document 'Planning for Walking' from 2015 states, in paragraph 2.1, that in 2012 that 79% of all journeys made in the UK of less than a mile (1.6 kilometres) are carried out on foot.

- 4.2.6 Within the Institution of Highways and Transportation (IHT) document, entitled “Guidelines for Providing for Journeys on Foot”, Table 2.2 suggests distances for desirable, acceptable and preferred maximum walks to ‘town centres’, ‘commuting/schools’ and ‘elsewhere’. The ‘preferred maximum’ distances are shown below in Table 4.1.

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

Table 4.1 IHT ‘Providing for Journeys on Foot’ Walk Distances

- 4.2.7 The Government introduced advice on walking distances in the 2001 revision to Planning Policy Guidance (PPG) 13 Transport, now withdrawn, which advised that *‘Walking is the most important mode of travel at the local level and offers the greatest potential to replace short car trips, particularly those under two kilometres.’*
- 4.2.8 Manual for Streets (MfS) continues the theme of the acceptability of the 2,000 metre distance in paragraph 4.4.1. This states that *‘walkable neighbourhoods are typically characterised by having a range of facilities within 10 minutes’ (up to about 800m) walking distance of residential areas which residents may access comfortably on foot. However, this is not an upper limit and PPS13 states that walking offers the greatest potential to replace short car trips, particularly those under 2 km’.*
- 4.2.9 Table 4.2 below summarises this guidance in tabular form.

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

Table 4.2 Manual for Streets Walk Distances

- 4.2.10 More specific guidance on the distances that children will walk to school is found in the July 2014 document published by the Department for Education (DfE) entitled 'Home to School Travel and Transport' statutory guidance document. This suggests that the maximum walking distance to schools is 2 miles (3.2 kilometres) for children under 8 and 3 miles (4.8 kilometres) for children over the age of 8. This is summarised below in Table 4.3.

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

Table 4.3 DfE Walk Distances to Schools

- 4.2.11 Further evidence that people will walk further than the suggested 'preferred maximum' distances in the IHT 'Providing for Journeys on Foot' is contained in a WYG Report entitled 'Accessibility – How Far Do People Walk and Cycle'. This report refers to National Travel Survey (NTS) data for the UK as a whole, excluding London, and confirms the following 85th percentile walk distances:
- All journey purposes – 1,930 metres;
 - Commuting – 2,400 metres;

- Shopping – 1,600 metres;
- Education – 3,200 or 4,800 metres;
- Personal business – 1,600 metres.

4.2.12 Overall, in Table 4.1, the document states that 1,950 square metres is the 85th percentile distance for walking as the main mode of travel. Table 4.4 below summarises the various 85th percentile walk distances suggested as guidelines in the WYG Study.

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

Table 4.4 WYG Report/NTS Data Walk Distances

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

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

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

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

- 4.2.16 In light of the above review, a pedestrian catchment of 2 kilometres from the centre of the site, using all usable pedestrian routes, has been provided in **Plan 5** and provides an illustrative indication of the areas that can be reached based on a leisurely walk from the site.
- 4.2.17 In addition, to the pedestrian catchment plan, a review of the proximity of local facilities has been undertaken and the location of these is also shown in **Plan 5**.
- 4.2.18 The 2,000 metre pedestrian catchment illustrates that large areas of Linthwaite can be accessed along various amenities such as The Sounds House Public House, Broad Oak Cricket Club, Broad Oak Bowling Club, Colne Valley High School, Gulf petrol station, Crosland Hill Methodist Church, Moor End Academy, Crosland Heath Golf Club, Premier Convenience Store, Boots Pharmacy and Co-operative Convenience Store.
- 4.2.19 Table 4.5 below, shows the walking distance from the centre of the site to several of the local key amenities in the immediate vicinity of the site. The table also confirms whether or not the particular amenity is within the 'preferred maximum' walk distances using the above guideline criteria.

Local Amenity	Distance	Guidance Criteria	Meets with Guidance?
The Sands House public House	300m	1,600m	YES
Crosland Heath Golf Club	520m	1,600m	YES
Crosland Hill Methodist Church	800m	1,600m	YES
Premier Convenience store/post office	1,320m	1,600m	YES
Colne Valley High School	1,500m	4,800m	YES
Moor End Academy	1,620m	4,800m	YES
Co-operative food store	1920m	1,950m	YES
Boots Pharmacy	1940m	1,950m	YES

Table 4.5 Distance from Site to Local Facilities

- 4.2.20 As can be seen in the above table, the site is located within close proximity to a number of local amenities including primary services as well as leisure facilities.
- 4.2.21 As shown on **Plan 5** all of the day to day amenities are well within the 'preferred maximum' walk distances described earlier in this section and indeed many, including the nearest convenience store, pharmacy and nearest primary school, are around the 800 metres 'comfortable walk' from the site as contained within MfS guidance.
- 4.2.22 Based on the above the site can therefore be considered as being accessible by foot.

4.3 Accessibility by Cycle

- 4.3.1 An alternative mode of travel to the site could be achieved by bicycle.
- 4.3.2 A distance of 5 kilometres is generally accepted as a distance where cycling has the potential to replace short car journeys. This distance equates to a journey of around 25 minutes based on a leisurely cycle speed of 12 kilometres per hour and would encompass large areas of Huddersfield including the town centre, Newsome and Crosland Hill as well the nearby areas of Milnsbridge and Slaithwaite.
- 4.3.3 Blackmoorfoot Road, Felks Stile Road and Crossland Hill Road are all designated as advisory on-carriageway routes and provide access to Huddersfield and the surrounding Kirklees area.
- 4.3.4 The site can therefore be considered as being accessible by cycle.

4.4 Accessibility by Bus

- 4.4.1 The closest bus stops to the site are located along Blackmoorfoot Road along the southern frontage of the site which are approximately 300 metres from the centre of the application site. The eastbound bus stop has a bus pole displaying service information, whilst no facilities are provided for the westbound bus stop.
- 4.4.2 Additional bus stops are located on Felks Stile Road at its junction with Blackmoorfoot Road these bus stops are located approximately 630 metres from the centre of the planning application site. The south-east bound bus stop includes a bus shelter with bus service information whilst the bus pole displaying service information is provided for on the north-west bound bus stop.

- 4.4.3 All of the bus stops located within the vicinity of the application site can be accessed via the existing and proposed pedestrian infrastructure located on Blackmoorfoot Road and Felks Stile Road. A summary of the services available from the nearest bus stops from the development site is provided in Table 4.6 below.

Service No	Route	Monday – Friday (per hour)				Sat	Sun
		AM Peak	Midday	PM Peak	Eve		
389	Meltham – Blackmoorfoot – Linthwaite – Slaithwaite	School Service at 0819 and Public Service at 1603				0	0
	Slaithwaite – Linthwaite – Blackmoorfoot – Meltham	Public Service at 1532				0	0
393	Huddersfield – Thornton Lodge – Linthwaite – Blackmoorfoot	1	1	1	0	1	0
	Blackmoorfoot – Linthwaite – Thornton Lodge – Huddersfield	1	1	1	0	1	0

Table 4.6 Existing Bus Services Operating in the Vicinity of the Site

- 4.4.4 As can be seen the bus services located within the vicinity of the application site provide 1 service per hour during the peak periods to and from Huddersfield town centre which provides a range of employment, retail and leisure opportunities.

- 4.4.5 The first service towards Huddersfield leaves at 0816 and arrives at 0842 (26 minute bus journey) whilst the last bus services departs Huddersfield at 1650, therefore making travel by bus an alternative to travelling by car for commuting trips.
- 4.4.6 It is therefore concluded that the proposed development site is accessible by bus. However, discussions will be held with the highway authority and West Yorkshire Metro at a more advanced stage of the planning process regarding potential improvements to the existing bus service in the vicinity of the application.

4.5 Accessibility by Rail

- 4.5.1 The nearest train station to the site is Lockwood Station which is located approximately 2.5 kilometres from the centre of the application site. Although this is outside the recommended walking distance of 2 kilometres there is the potential for residents to travel to the site by sustainable transport.
- 4.5.2 Lockwood Station is located on the Penistone Line between Huddersfield and Sheffield and it provides hourly services to both destinations with journeys to Huddersfield taking 5 minutes.
- 4.5.3 These services provide access to a range of local and regional destinations providing the opportunity for commuter and leisure trips to be undertaken by rail.
- 4.5.4 The station includes 10 car parking spaces and 5 Sheffield type stands are provided at the station which provides secure storage for up to 10 cycles.
- 4.5.5 It is therefore concluded that the proposed development is accessible by rail.

4.6 Accessibility Summary

4.6.1 The site has been considered in terms of its accessibility by non-car modes and the following conclusions can be drawn from this section of the report:

- The site is accessible on foot and these provisions will be improved as part of the proposals.
- It has been demonstrated that cycle infrastructure in the vicinity of the site is good.
- The site is accessible to bus stops located on Blackmoorfoot Road and Felks Stile Road which provide access to and from Huddersfield town centre.
- Lockwood rail station is located outside of the 2 kilometre catchment but there is still the potential for residents and visitors to the travel by rail.

4.6.2 In light of the above, it is considered the site is accessible and will cater for needs of the development and assist in promoting a choice of travel modes other than the private car.

5 TRAVEL PLAN TARGETS

5.1 Introduction

- 5.1.1 This section of the Travel Plan will provide details of the targets against which the success of the Plan in achieving its objectives will be measured.
- 5.1.2 The targets are designed to be quantifiable, be relevant to both measures and objectives identified in the Plan and to include timescale.
- 5.1.3 Suitable targets for reducing the need to travel by private car will be set and agreed with Kirklees Council and included in the final Travel Plan for the development.

5.2 Potential Targets

- 5.2.1 The targets are designed to be quantifiable, be relevant to both measures and objectives identified in the Plan and to include timescale.
- 5.2.2 Targets which according to the DfT may potentially be included in the Travel Plan include the following:

- Car trips per household - targets set on the basis of predicted trip rates for the development.
- Uptake of alternatives - targets for bus patronage, registration and participation in the Liftshare car share scheme, cycle counts and pedestrian counts.
- Car ownership and mode of travel - trip based targets may be supplemented by targets related to car ownership, travel to work by mode and travel to school by mode.
- Travel Plan awareness targets - for example, a target can be established to ensure a significant percentage of residents are aware of the Travel Plan and its purpose.

5.2.3 Action plan tables must be amended if target indicators or actions/measures change when evaluated during the monitoring process.

Action	Target Date	Indicator/Measured by	Responsibility
Appointment of TPC	TPC appointed at least 1 month prior to first occupation of site	Appointment of TPC by target date	Developer
Production of Welcome Pack	Upon Occupation	Resident travel survey	TPC
Undertake initial travel surveys	Within 3 months of reaching 40% occupation of development	Receipt of survey results	TPC
Agree Travel Plan Targets	Within 6 months of reaching 40% occupation of development	Receipt of written agreements of target	TPC
Achieve target car driver travel to work mode split	5 years after initial travel survey	Resident travel surveys conducted in years 1, 3 and 5	TPC

Table 5.1 – Travel Plan Action Plan and Timescales

- 5.2.4 The table above sets out the key tasks that will need to be undertaken by the Travel Plan Co-ordinator as part of the Travel Plan including guidance as to timescales for the tasks to be undertaken. The action plan is to be agreed with Kirklees Council prior to the submission of the final Travel Plan.

6 PLAN MONITORING AND ASSESSMENT

6.1.1 DfT best practice guidelines state that monitoring of the Travel Plan should normally take place on the following basis:

- Early on in the occupation period of the site - for example, triggered by 25% occupancy to provide the information base for the review of the plan.
- Annually or at least every two years thereafter to provide on-going information on the impact of the plan.
- Monitoring should take place over a wide range of time periods to reflect the different pattern of journeys that can be generated by residential development.

6.1.2 The monitoring could include items such as:

- Full residential surveys to be completed in year 1, year 3 and year 5 and snap shot surveys to be completed every 6 to 12 months.
- Feedback from bus operators to establish demand for local bus services.

6.1.3 Consideration will then be given on how best to monitor and measure the success of the Travel Plan measures when preparing the final Travel Plan for the development. Appropriate monitoring arrangements will be discussed and agreed with Kirklees Council.

6.1.4 The monitoring and assessment of the Travel Plan will include the submission of annual progress reports detailing the results of the travel surveys with regards to targets, budgets, general effectiveness and current initiatives.



- 6.1.5 An annual report is to be submitted to the local authority no later than one month following the anniversary of the approval of the Travel Plan.
- 6.1.6 This will allow effective measures to be promoted and increased while ineffective measures can be revised and rectified. New initiatives for the coming year will also be contained within the report and submitted to officers at the Council.

7 CONCLUSIONS

- 7.1.1 This Travel Plan has detailed the proposals associated with the development site to promote sustainable modes of travel and reduce the dependency of the private car.
- 7.1.2 Additionally, the Travel Plan has presented a series of measures to be implemented to reduce the number of single car occupancy trips.
- 7.1.3 The information contained within the Travel Plan and details of sustainable modes of transport will be accessible to residents and visitors to the development.
- 7.1.4 The aim of the Travel Plan is:
- to encourage residents to use sustainable modes of transport to access the site;
 - reduce the reliance on single car occupancy journeys; and
 - generally reduce traffic related pollution and noise.
- 7.1.5 A wide range of measures and actions will be used to encourage car sharing, public transport use, cycling and walking.
- 7.1.6 The Travel Plan Co-ordinator will ensure the Travel Plan is implemented and is operating effectively.
- 7.1.7 A detailed resident Travel Survey will be undertaken to establish travel modes of residents and following this, specific targets will be set and agreed with the Travel Plan team at Kirklees Council.
- 7.1.8 The Travel Plan Co-ordinator will be responsible for monitoring the success of the plan.

APPENDIX 2

Traffic Count Data

SURVEY CONTROL

Client: Croft Transport Solutions

Client Contact: Phil Wooliscroft

Survey Location: Huddersfield

Date(s) of Survey: Tuesday 6 June 2017

Notes:

On Site Supervisor: David Cheng

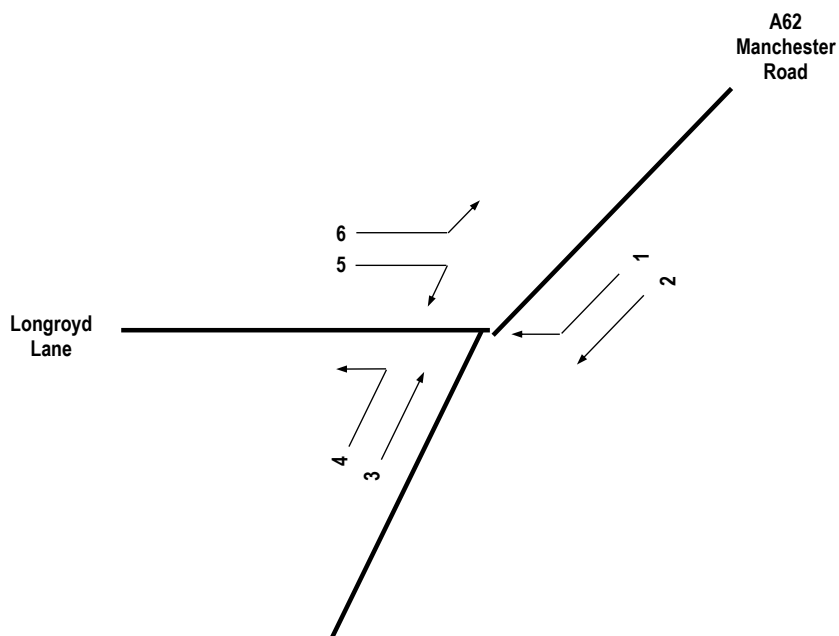
Data Checking: David Cheng

Survey Reference: 2017.094 Fireworks Factory, Huddersfield

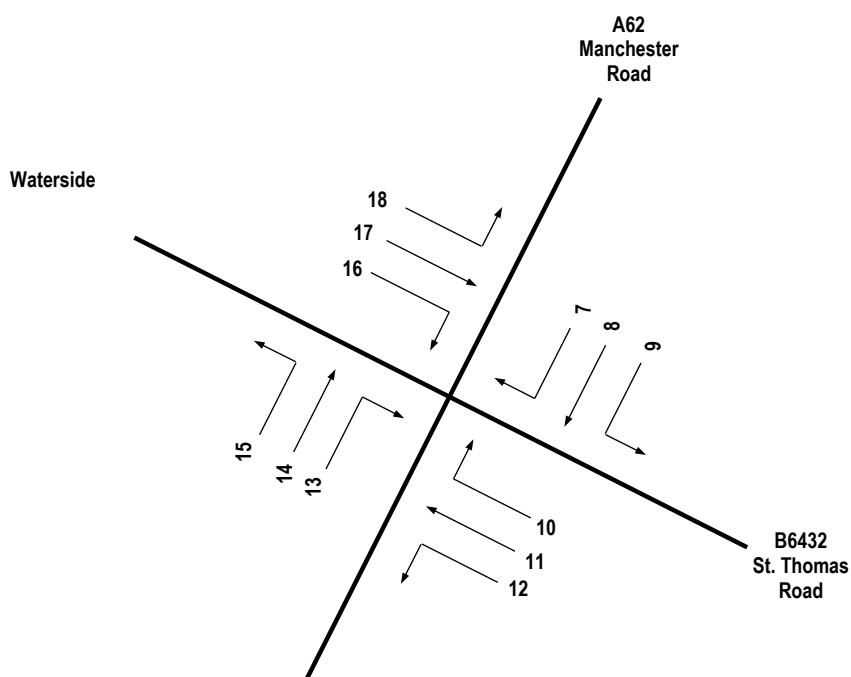
Status: Final

Date of Issue: 12 June 2017

JUNCTION 1



JUNCTION 2



DRAWING TITLE

TRAFFIC MOVEMENT REFERENCE

JOB TITLE

2017.094 FIREWORKS FACTORY, HUDDERSFIELD

DRAWN BY

DC

DATE

JUN 2017

SCALE

NTS

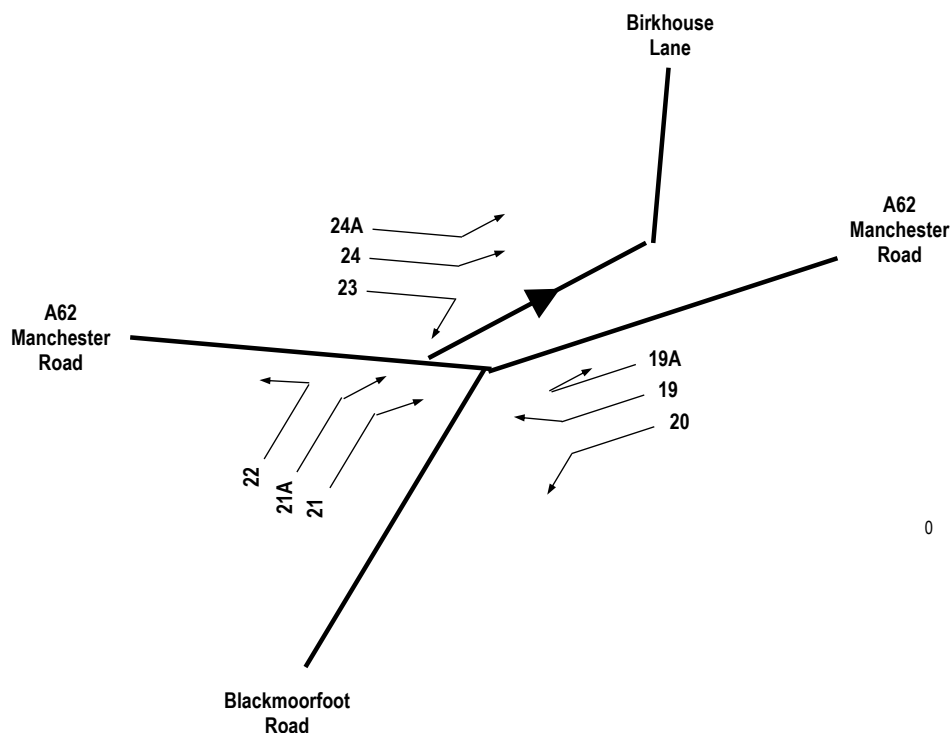
REF

FIGURE 1

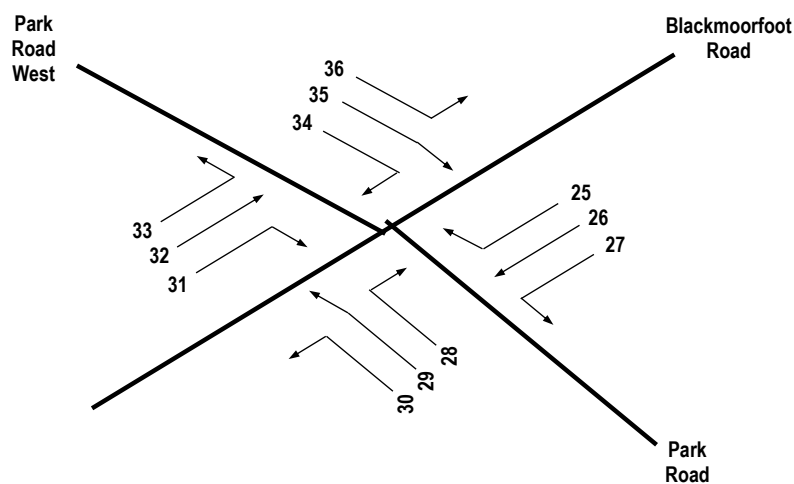
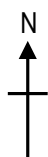
signal surveys

Traffic Counts and Car Park Surveys
Parkway House, Palatine Road, Northenden, Manchester,
M22 4DB
Tel 0161 998 4226 Fax 0161 998 1189

JUNCTION 3



JUNCTION 4



DRAWING TITLE

TRAFFIC MOVEMENT REFERENCE

JOB TITLE

2017.094 FIREWORKS FACTORY, HUDDERSFIELD

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DATE

JUN 2017

SCALE

NTS

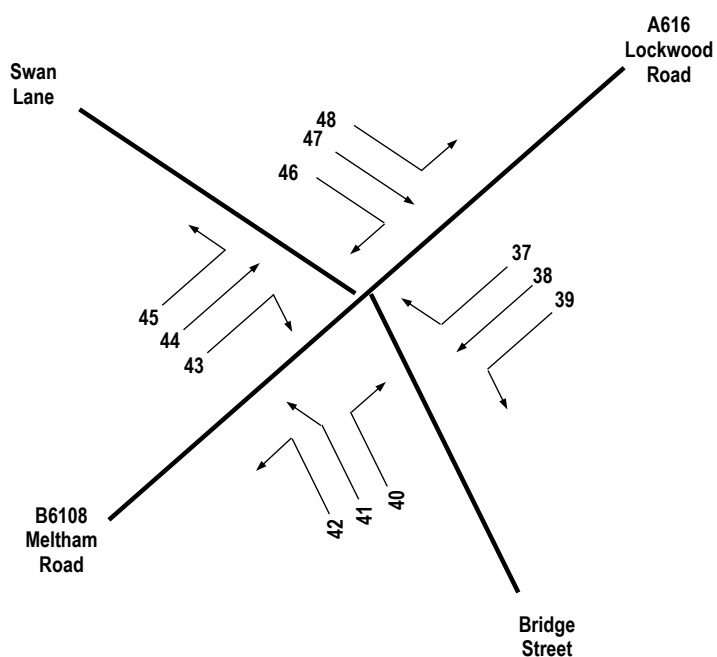
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FIGURE 2

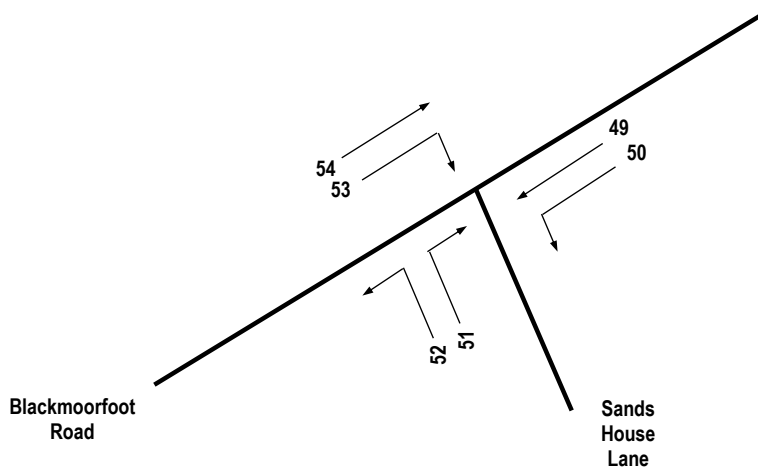
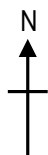
signal surveys

Traffic Counts and Car Park Surveys
Parkway House, Palatine Road, Northenden, Manchester,
M22 4DB
Tel 0161 998 4226 Fax 0161 998 1189

JUNCTION 5



JUNCTION 6



DRAWING TITLE

TRAFFIC MOVEMENT REFERENCE

JOB TITLE

2017.094 FIREWORKS FACTORY, HUDDERSFIELD

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DC

DATE

JUN 2017

SCALE

NTS

REF

FIGURE 3

signal surveys

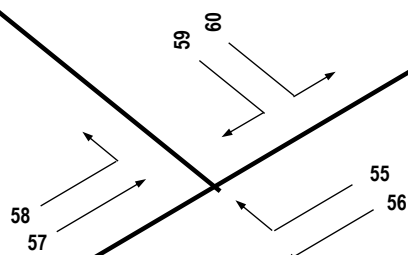
Traffic Counts and Car Park Surveys
Parkway House, Palatine Road, Northenden, Manchester,
M22 4DB
Tel 0161 998 4226 Fax 0161 998 1189

JUNCTION 7

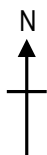


Felks
Stile
Road

Blackmoorfoot
Road

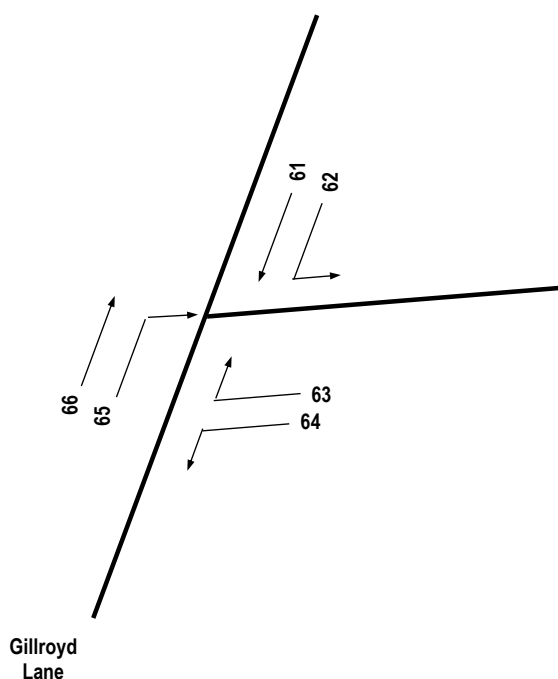


JUNCTION 8



Cowlersley
Lane

Church
Lane



DRAWING TITLE

TRAFFIC MOVEMENT REFERENCE

JOB TITLE

2017.094 FIREWORKS FACTORY, HUDDERSFIELD

DRAWN BY

DC

DATE

JUN 2017

SCALE

NTS

REF

FIGURE 4

signal surveys

Traffic Counts and Car Park Surveys
Parkway House, Palatine Road, Northenden, Manchester,
M22 4DB
Tel 0161 998 4226 Fax 0161 998 1189

signal surveys

Time Beginning	A62 Manchester Road/Longroyd Lane - Tuesday 6 June 2017											
	1		2		3		4		5		6	
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
0730	12	0	56	12	140	7	46	0	47	3	15	1
0745	33	2	67	14	123	6	47	1	67	0	5	2
0800	21	1	67	6	129	8	65	0	66	1	13	1
0815	28	2	80	10	150	9	46	0	63	0	14	1
0830	24	1	80	12	120	9	60	0	53	0	19	0
0845	29	2	85	11	117	7	44	0	52	3	15	2
0900	16	0	81	9	127	4	35	1	68	0	14	2
0915	17	3	110	15	128	8	48	2	61	0	6	1
Time Beginning	A62 Manchester Road/Longroyd Lane - Tuesday 6 June 2017											
	1		2		3		4		5		6	
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
1630	27	0	113	8	109	9	71	0	83	0	16	1
1645	19	1	115	8	109	5	76	0	83	0	19	0
1700	26	0	122	7	108	4	97	0	69	0	11	0
1715	24	1	120	5	88	8	60	0	100	0	14	1
1730	22	0	153	5	78	4	59	1	79	0	7	0
1745	19	1	105	3	92	7	80	1	67	0	10	1
1800	21	0	113	5	93	4	67	0	77	0	21	0
1815	16	0	114	4	109	6	44	0	71	0	17	1

signal surveys

Time Beginning	A62 Manchester Road/Waterside/B6432 St Thomas' Road - Tuesday 6 June 2017																							
	7		8		9		10		11		12		13		14		15		16		17		18	
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
0730	0	0	79	14	24	1	41	0	1	0	24	1	57	1	145	7	0	0	0	0	0	0	0	0
0745	3	0	92	14	39	0	42	0	2	0	29	1	73	2	128	7	0	0	0	0	0	0	0	0
0800	0	0	86	4	47	3	55	0	0	0	35	0	48	3	139	8	0	0	0	0	0	0	0	0
0815	1	0	96	9	46	1	41	0	1	0	34	0	63	3	155	9	1	0	0	0	0	0	0	0
0830	3	0	95	10	35	2	50	0	2	0	21	4	49	1	130	9	1	0	0	0	1	0	0	0
0845	0	0	98	9	39	5	36	0	1	0	40	4	43	1	124	7	2	0	0	0	0	0	1	0
0900	0	0	100	6	49	3	36	0	1	0	40	5	47	1	126	5	0	0	0	0	0	0	0	0
0915	3	0	124	12	44	3	46	2	0	0	41	4	50	3	130	8	0	0	0	0	0	0	0	0

Time Beginning	A62 Manchester Road/Waterside/B6432 St Thomas' Road - Tuesday 6 June 2017																							
	7		8		9		10		11		12		13		14		15		16		17		18	
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
1630	2	0	162	7	32	1	64	0	0	0	78	0	68	0	110	9	3	0	1	0	2	0	6	0
1645	0	0	171	7	27	1	70	0	1	0	95	0	46	0	111	5	2	0	2	0	0	0	4	0
1700	1	0	160	6	30	1	86	0	0	0	90	0	52	1	116	4	0	0	0	0	0	0	3	0
1715	3	0	168	5	49	0	56	0	2	0	98	1	44	0	91	8	4	0	0	0	0	0	1	0
1730	3	0	186	5	43	0	45	0	0	0	85	0	45	0	91	5	2	0	1	0	0	0	1	0
1745	1	0	141	3	30	0	71	0	0	0	83	0	48	0	100	8	2	0	0	0	0	0	1	0
1800	0	0	146	5	44	0	61	0	0	0	74	0	41	0	99	4	1	0	0	0	1	0	0	0
1815	1	0	154	4	30	0	36	0	0	0	60	0	35	0	116	6	4	0	2	0	0	0	1	0

Time Beginning	A62 Manchester Road/Blackmoorfoot Road - Tuesday 6 June 2017																	
	19		19A		20		21		21A		22		23		24		24A	
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
0730	49	11	9	0	47	4	58	2	57	0	0	0	0	0	131	6	15	0
0745	67	9	8	0	50	6	66	3	51	0	0	0	0	0	125	6	27	0
0800	61	1	19	0	52	2	63	2	80	0	0	0	0	0	115	11	26	0
0815	56	4	16	0	51	3	74	4	86	0	4	0	0	0	117	6	21	0
0830	63	11	16	0	59	2	58	3	73	0	0	0	0	0	88	7	14	0
0845	54	9	9	0	53	2	46	5	47	0	0	0	0	0	78	2	7	0
0900	66	6	4	0	49	2	59	2	46	0	3	0	3	0	103	6	12	0
0915	75	8	9	0	75	5	54	1	31	0	1	0	0	0	104	5	10	0

Time Beginning	A62 Manchester Road/Blackmoorfoot Road - Tuesday 6 June 2017																	
	19		19A		20		21		21A		22		23		24		24A	
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
1630	114	4	9	0	112	3	49	5	36	0	4	0	0	0	94	5	20	0
1645	115	3	9	0	99	3	50	2	36	0	1	0	2	0	80	1	16	1
1700	122	4	18	0	99	1	56	3	57	0	2	0	3	0	101	2	23	0
1715	129	4	11	0	103	2	37	2	47	0	0	0	2	0	84	4	10	0
1730	117	3	10	0	110	2	48	2	39	0	3	0	2	0	89	2	18	0
1745	112	2	11	0	86	2	34	3	29	0	1	0	2	0	87	4	23	0
1800	114	2	7	0	68	3	53	2	31	0	2	0	0	0	75	2	19	0
1815	80	2	10	0	86	1	46	3	14	0	0	0	1	0	80	3	11	0

signal surveys

Time Beginning	Blackmoorfoot Road/Park Road West/Park Road - Tuesday 6 June 2017																							
	25		26		27		28		29		30		31		32		33		34		35		36	
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
0730	0	0	33	4	6	1	6	0	41	1	8	0	10	0	89	5	2	1	14	0	78	4	4	0
0745	5	0	32	8	5	0	7	0	30	0	9	1	10	0	94	3	5	1	19	0	99	3	4	0
0800	5	0	46	3	5	0	8	0	43	1	8	0	5	0	107	2	8	1	15	0	85	4	7	0
0815	3	0	46	5	5	0	5	0	37	2	8	1	7	0	116	5	4	0	24	1	85	1	16	0
0830	2	0	66	2	5	1	6	1	43	1	13	1	21	2	79	2	7	1	18	0	58	3	8	0
0845	6	0	32	4	5	0	10	0	47	5	7	3	14	1	62	5	10	0	18	0	72	2	10	2
0900	4	0	32	3	5	2	8	1	47	1	8	0	25	1	85	3	23	0	18	1	69	2	11	0
0915	3	0	50	6	5	1	9	0	36	3	4	0	4	2	47	3	9	1	9	0	50	0	9	2

Time Beginning	Blackmoorfoot Road/Park Road West/Park Road - Tuesday 6 June 2017																							
	25		26		27		28		29		30		31		32		33		34		35		36	
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
1630	3	1	88	2	14	2	8	0	64	0	16	1	15	0	59	4	15	0	22	0	76	2	10	0
1645	8	0	73	4	10	0	10	1	64	1	19	0	21	0	49	1	12	0	25	0	59	1	9	0
1700	5	0	78	2	8	1	6	1	46	0	13	1	13	0	73	2	15	0	24	0	95	1	9	0
1715	8	0	90	2	15	0	9	1	71	2	9	0	13	1	52	1	26	0	19	0	66	0	5	0
1730	10	0	86	1	7	1	7	0	60	0	13	0	15	0	42	2	5	0	25	0	99	1	7	0
1745	10	0	65	1	10	0	10	1	60	0	10	0	11	0	44	2	9	0	24	0	72	0	3	0
1800	6	0	49	4	14	1	7	0	57	0	18	0	13	0	48	4	12	0	27	0	71	1	11	0
1815	4	0	51	1	10	0	13	1	52	0	15	0	9	0	28	1	10	0	15	0	58	2	5	0

signal surveys

Time Beginning	A616 Lockwood Road/Bridge Street/B6108 Meltham Road/Swan Lane - Tuesday 6 June 2017																							
	37		38		39		40		41		42		43		44		45		46		47		48	
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
0730	31	0	61	5	15	3	169	5	61	1	6	0	6	0	131	3	0	0	3	0	59	4	24	0
0745	25	0	70	7	21	2	156	7	46	1	13	1	25	0	141	5	0	0	2	0	60	3	27	0
0800	15	0	54	7	29	6	156	11	62	0	8	1	37	1	149	5	2	0	1	1	57	4	25	0
0815	31	0	65	4	23	6	113	4	46	1	12	0	26	1	109	5	2	0	3	1	57	3	27	0
0830	28	0	45	4	32	6	132	8	49	2	11	1	26	1	104	5	0	0	4	0	57	1	25	0
0845	30	1	45	3	28	6	144	7	60	6	13	1	22	0	93	7	1	0	3	1	49	2	14	1
0900	20	0	49	8	26	7	145	9	68	2	9	1	16	0	89	4	3	0	2	1	53	5	25	0
0915	25	1	49	9	27	7	142	7	38	2	9	0	8	1	88	6	4	0	0	0	55	2	31	0

Time Beginning	A616 Lockwood Road/Bridge Street/B6108 Meltham Road/Swan Lane - Tuesday 6 June 2017																							
	37		38		39		40		41		42		43		44		45		46		47		48	
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
1630	48	1	135	3	45	2	103	7	58	0	18	0	24	0	84	8	2	0	2	0	54	0	21	0
1645	44	0	104	2	25	1	108	1	62	2	11	0	24	1	55	3	2	0	2	0	55	0	17	0
1700	52	0	128	5	34	3	93	3	62	0	16	0	24	0	67	3	4	0	1	0	60	2	14	0
1715	43	0	131	2	34	2	100	3	70	1	16	0	24	0	71	4	5	0	1	0	62	1	18	0
1730	31	0	122	2	39	3	95	1	81	0	15	0	26	0	59	5	0	0	3	0	64	1	20	0
1745	44	0	107	2	29	1	115	3	67	0	15	0	19	0	56	2	3	0	2	0	56	0	33	0
1800	45	0	111	2	28	3	70	1	56	0	13	0	15	0	79	5	2	0	2	0	51	1	24	0
1815	60	0	74	3	24	2	86	3	66	0	10	1	10	0	61	3	2	0	2	0	63	3	27	0

signal surveys

Time Beginning	Blackmoorfoot Road/Sands House Lane - Tuesday 6 June 2017											
	49		50		51		52		53		54	
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
0730	27	0	3	0	8	0	1	0	1	1	80	0
0745	29	1	5	0	6	0	2	0	2	0	93	0
0800	33	2	11	0	19	1	0	0	2	0	107	0
0815	43	1	7	0	6	0	1	0	2	0	93	2
0830	61	1	7	0	5	1	1	0	2	0	71	3
0845	43	0	2	0	6	0	1	0	1	0	69	0
0900	38	1	3	0	6	0	1	0	1	0	60	0
0915	27	0	2	0	1	0	1	0	2	0	33	1
Time Beginning	Blackmoorfoot Road/Sands House Lane - Tuesday 6 June 2017											
	49		50		51		52		53		54	
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
1630	76	0	4	0	5	0	1	0	0	0	44	0
1645	54	1	5	0	5	0	1	0	0	0	45	0
1700	90	1	14	0	2	0	3	0	2	0	37	0
1715	79	0	12	0	3	0	2	0	2	0	31	1
1730	77	0	11	0	2	0	3	0	4	0	39	0
1745	58	1	5	0	5	0	3	0	1	0	30	0
1800	46	0	4	0	2	0	2	0	6	0	41	1
1815	45	0	1	0	4	0	2	0	1	0	33	0

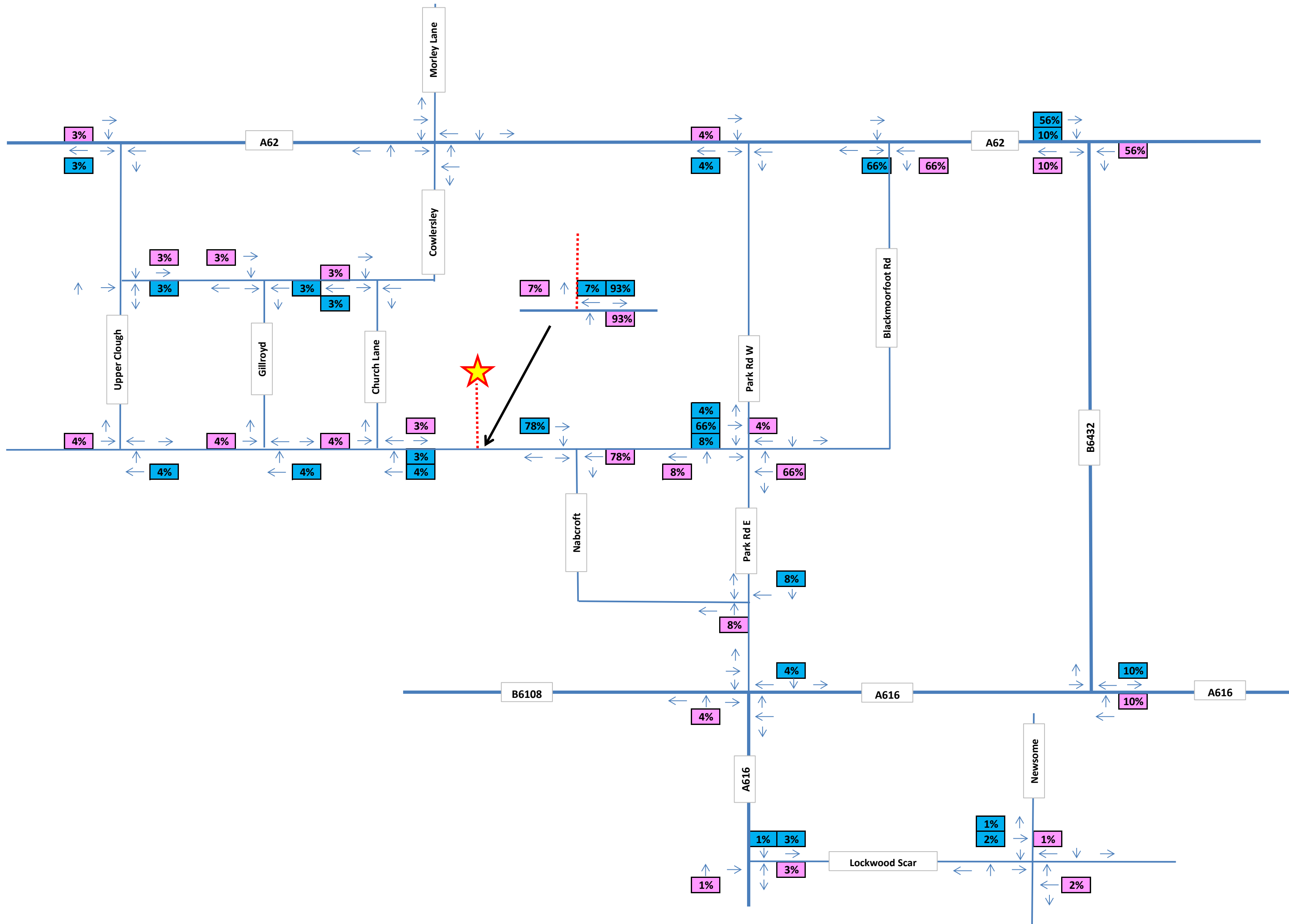
Time Beginning	Blackmoorfoot Road/Felks Stile Road - Tuesday 6 June 2017											
	55		56		57		58		59		60	
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
0730	12	0	16	0	66	0	0	0	0	0	15	1
0745	8	0	23	1	80	0	3	0	4	0	15	0
0800	15	1	18	1	78	0	3	1	3	0	31	0
0815	23	1	21	0	66	1	1	0	1	0	29	1
0830	21	0	41	1	47	1	1	0	2	0	26	2
0845	10	0	34	0	53	0	2	0	0	0	17	0
0900	15	1	24	0	50	0	1	0	3	0	11	0
0915	8	0	20	0	26	0	1	0	1	0	9	1
Time Beginning	Blackmoorfoot Road/Felks Stile Road - Tuesday 6 June 2017											
	55		56		57		58		59		60	
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
1630	19	0	58	0	27	0	3	0	3	0	17	0
1645	9	0	46	1	28	0	2	0	0	0	17	0
1700	27	1	66	0	24	0	1	0	1	0	15	0
1715	19	0	62	0	18	0	0	0	5	0	15	1
1730	21	0	59	0	28	0	2	0	2	0	15	0
1745	19	0	42	1	19	0	5	0	2	0	12	0
1800	20	0	28	0	29	1	3	0	3	0	18	0
1815	16	0	31	0	21	0	1	0	1	0	13	0

signal surveys

Time Beginning	Cowlersley Lane/Church Lane/Gillroyd Lane - Tuesday 6 June 2017											
	61		62		63		64		65		66	
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
0730	42	4	3	0	5	0	13	0	14	1	52	2
0745	41	2	16	0	3	0	6	0	15	0	52	1
0800	42	1	14	1	6	0	14	2	22	1	60	3
0815	52	2	17	1	7	0	16	0	20	4	62	3
0830	65	2	8	1	5	0	22	1	23	2	60	5
0845	55	0	9	1	10	0	14	0	14	0	52	1
0900	27	2	4	0	4	0	12	2	9	0	45	2
0915	26	0	5	0	5	0	8	0	7	1	29	1
Time Beginning	Cowlersley Lane/Church Lane/Gillroyd Lane - Tuesday 6 June 2017											
	61		62		63		64		65		66	
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
1630	44	1	5	0	10	0	17	0	15	0	41	0
1645	57	1	5	0	9	0	5	0	13	0	34	2
1700	49	0	5	1	7	0	19	1	16	0	26	0
1715	52	1	6	0	1	0	18	0	14	1	50	3
1730	54	1	13	0	9	0	14	0	11	0	44	1
1745	45	0	4	0	12	0	17	0	10	0	38	1
1800	53	1	5	0	7	0	17	0	7	0	53	0
1815	42	1	4	0	9	0	15	0	9	0	36	1

APPENDIX 3

Trip Distribution Supplied By KMBC



APPENDIX 4

Junctions 9 Output – Blackmoorfoot Road/Site Access Junction

Junctions 9							
PICADY 9 - Priority Intersection Module							
Version: 9.5.0.6896 © Copyright TRL Limited, 2018							
For sales and distribution information, program advice and maintenance, contact TRL: +44 (0)1344 379777 software@trl.co.uk www.trlsoftware.co.uk							
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Filename: Blackmoorfoot Road - Site Access.j9

Path: Z:\projects\1852 Former Fireworks Factory, Huddersfield\Picady\September Technical Note

Report generation date: 20/09/2019 11:31:50

»2022 With Development Flows, AM

»2022 With Development Flows, PM

»2031 With Development Flows, AM

»2031 With Development Flows, PM

Summary of junction performance

	AM				PM			
	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS
2022 With Development Flows								
Stream B-AC	3.5	32.56	0.79	D	0.8	11.18	0.44	B
Stream C-AB	0.5	9.38	0.32	A	1.5	13.93	0.60	B
2031 With Development Flows								
Stream B-AC	3.9	36.43	0.81	E	0.8	11.41	0.44	B
Stream C-AB	0.5	9.70	0.32	A	1.5	14.20	0.60	B

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	Blackmoorfoot Road - Site Access
Location	Huddersfield
Site number	
Date	22/01/2018
Version	
Status	
Identifier	
Client	Empire Knight Group
Jobnumber	1852
Enumerator	Croft Transport Solutions
Description	

Units

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

Analysis Options

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

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D3	2022 With Development Flows	AM	ONE HOUR	07:45	09:15	15
D4	2022 With Development Flows	PM	ONE HOUR	16:30	18:00	15
D5	2031 With Development Flows	AM	ONE HOUR	07:45	09:15	15
D6	2031 With Development Flows	PM	ONE HOUR	16:30	18:00	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

2022 With Development Flows, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		11.26	B

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	Blackmoorfoor Road (W)		Major
B	Site Access		Minor
C	Blackmoorfoor Road (E)		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Width for right turn (m)	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C	7.00		✓	3.00	100.0	✓	7.00

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	2.75	70	70

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	522	0.091	0.230	0.145	0.328
1	B-C	651	0.095	0.241	-	-
1	C-B	687	0.255	0.255	-	-

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)
D3	2022 With Development Flows	AM	ONE HOUR	07:45	09:15	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		✓	450	100.000
B		✓	373	100.000
C		✓	390	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A	B	C
	A	0	7	443
	B	15	0	358
	C	229	161	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	0.79	32.56	3.5	D
C-AB	0.32	9.38	0.5	A
C-A				
A-B				
A-C				

2022 With Development Flows, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		6.42	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D4	2022 With Development Flows	PM	ONE HOUR	16:30	18:00	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		✓	209	100.000
B		✓	229	100.000
C		✓	704	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A	B	C
From	A	0	15	194
	B	9	0	220
	C	364	340	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	0.44	11.18	0.8	B
C-AB	0.60	13.93	1.5	B
C-A				
A-B				
A-C				

2031 With Development Flows, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		11.84	B

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D5	2031 With Development Flows	AM	ONE HOUR	07:45	09:15	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		✓	495	100.000
B		✓	373	100.000
C		✓	412	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
	A	B	C	
From	A	0	7	488
	B	15	0	358
	C	251	161	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	0.81	36.43	3.9	E
C-AB	0.32	9.70	0.5	A
C-A				
A-B				
A-C				

2031 With Development Flows, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		6.24	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D6	2031 With Development Flows	PM	ONE HOUR	16:30	18:00	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		✓	229	100.000
B		✓	229	100.000
C		✓	741	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
	A	B	C	
From	A	0	15	214
	B	9	0	220
	C	401	340	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	0.44	11.41	0.8	B
C-AB	0.60	14.20	1.5	B
C-A				
A-B				
A-C				

APPENDIX 5

Junctions 9 Output – Felks Stile Road/Site Access Junction

Junctions 9							
PICADY 9 - Priority Intersection Module							
Version: 9.0.0.4211 [] © Copyright TRL Limited, 2018							
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Filename: Felks Stile Road - Site Access.j9

Path: Z:\projects\1852 Former Fireworks Factory, Huddersfield\Picady

Report generation date: 31/01/2018 11:27:49

»2022 with Development Flows, AM

»2022 with Development Flows, PM

»2031 with Development Flows, AM

»2031 with Development Flows, PM

Summary of junction performance

	AM				PM			
	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS
2022 with Development Flows								
Stream B-AC	0.0	8.19	0.03	A	0.0	7.77	0.01	A
Stream C-AB	0.0	0.00	0.00	A	0.0	0.00	0.00	A
Stream C-A								
Stream A-B								
Stream A-C								
2031 with Development Flows								
Stream B-AC	0.0	8.29	0.03	A	0.0	7.83	0.01	A
Stream C-AB	0.0	0.00	0.00	A	0.0	0.00	0.00	A
Stream C-A								
Stream A-B								
Stream A-C								

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	Felks Stile Road - Site Access
Location	Huddersfield
Site number	
Date	19/01/2018
Version	
Status	
Identifier	
Client	Empire Knight Group
Jobnumber	1852
Enumerator	Croft Transport Solutions
Description	

Units

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

Analysis Options

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

Demand Set Summary

Scenario name	Time Period name	Traffic profile type	Model start time (HH:mm)	Model finish time (HH:mm)	Time segment length (min)
2022 with Development Flows	AM	ONE HOUR	07:45	09:15	15
2022 with Development Flows	PM	ONE HOUR	16:30	18:00	15
2031 with Development Flows	AM	ONE HOUR	07:45	09:15	15
2031 with Development Flows	PM	ONE HOUR	16:30	18:00	15

2022 with Development Flows, AM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	0.34	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	Felks Stile Road (N)		Major
B	Site Access		Minor
C	Felks Stile Road (S)		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C	7.20			100.0	✓	1.00

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	2.75	50	50

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	505.529	0.087	0.221	0.139	0.315
1	B-C	639.009	0.093	0.235	-	-
1	C-B	631.874	0.232	0.232	-	-

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	Model start time (HH:mm)	Model finish time (HH:mm)	Time segment length (min)
D3	2022 with Development Flows	AM	ONE HOUR	07:45	09:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	170.00	100.000
B		✓	11.00	100.000
C		✓	86.00	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
From		A	B	C
	A	0.000	5.000	165.000
	B	11.000	0.000	0.000
	C	86.000	0.000	0.000

Vehicle Mix

Heavy Vehicle proportion

From	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-A-C	0.03	8.19	0.0	A
C-A-B	0.00	0.00	0.0	A
C-A				
A-B				
A-C				

2022 with Development Flows, PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	0.24	A

Junction Network Options

[same as above]

Arms

Arms

[same as above]

Major Arm Geometry

[same as above]

Minor Arm Geometry

[same as above]

Slope / Intercept / Capacity

[same as above]

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Model start time (HH:mm)	Model finish time (HH:mm)	Time segment length (min)
D4	2022 with Development Flows	PM	ONE HOUR	16:30	18:00	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	98.00	100.000
B		✓	6.00	100.000
C		✓	87.00	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A	B	C
From	A	0.000	10.000	88.000
	B	6.000	0.000	0.000
	C	87.000	0.000	0.000

Vehicle Mix

Heavy Vehicle proportion

	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-A-C	0.01	7.77	0.0	A
C-AB	0.00	0.00	0.0	A
C-A				
A-B				
A-C				

2031 with Development Flows, AM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	0.31	A

Junction Network Options

[same as above]

Arms

Arms

[same as above]

Major Arm Geometry

[same as above]

Minor Arm Geometry

[same as above]

Slope / Intercept / Capacity

[same as above]

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Model start time (HH:mm)	Model finish time (HH:mm)	Time segment length (min)
D5	2031 with Development Flows	AM	ONE HOUR	07:45	09:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	186.00	100.000
B		✓	11.00	100.000
C		✓	95.00	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A	B	C
From	A	0.000	5.000	181.000
	B	11.000	0.000	0.000
	C	95.000	0.000	0.000

Vehicle Mix

Heavy Vehicle proportion

	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-A-C	0.03	8.29	0.0	A
C-A-B	0.00	0.00	0.0	A
C-A				
A-B				
A-C				

2031 with Development Flows, PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	0.22	A

Junction Network Options

[same as above]

Arms

Arms

[same as above]

Major Arm Geometry

[same as above]

Minor Arm Geometry

[same as above]

Slope / Intercept / Capacity

[same as above]

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Model start time (HH:mm)	Model finish time (HH:mm)	Time segment length (min)
D6	2031 with Development Flows	PM	ONE HOUR	16:30	18:00	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	107.00	100.000
B		✓	6.00	100.000
C		✓	96.00	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A	B	C
From	A	0.000	10.000	97.000
	B	6.000	0.000	0.000
	C	96.000	0.000	0.000

Vehicle Mix

Heavy Vehicle proportion

	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-A-C	0.01	7.83	0.0	A
C-A-B	0.00	0.00	0.0	A
C-A				
A-B				
A-C				

APPENDIX 6

Junctions 9 Output – Blackmoorfoot Road/Felks Stile Road Junction

Junctions 9							
PICADY 9 - Priority Intersection Module							
Version: 9.0.0.4211 [] © Copyright TRL Limited, 2018							
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The users of this computer program for the solution of an engineering problem are in no way relieved of their responsibility for the correctness of the solution							

Filename: Blackmoorfoor Road - Felks Stile Road.j9
Path: Z:\projects\1852 Former Fireworks Factory, Huddersfield\Picady
Report generation date: 31/01/2018 11:25:28

»2022 Base Flows, AM
 »2022 Base Flows, PM
 »2031 Base Flows, AM
 »2031 Base Flows, PM
 »2022 with Development Flows, AM
 »2022 with Development Flows, PM
 »2031 with Development Flows, AM
 »2031 with Development Flows, PM

Summary of junction performance

	AM				PM			
	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS
2022 Base Flows								
Stream B-AC	0.3	8.40	0.24	A	0.2	7.03	0.15	A
Stream C-AB	0.2	7.32	0.15	A	0.2	6.55	0.15	A
Stream C-A								
Stream A-B								
Stream A-C								
2031 Base Flows								
Stream B-AC	0.4	8.85	0.27	A	0.2	7.22	0.16	A
Stream C-AB	0.2	7.51	0.17	A	0.2	6.62	0.16	A
Stream C-A								
Stream A-B								
Stream A-C								
2022 with Development Flows								
Stream B-AC	0.3	8.44	0.24	A	0.2	7.09	0.15	A
Stream C-AB	0.2	7.31	0.15	A	0.2	6.57	0.15	A
Stream C-A								
Stream A-B								
Stream A-C								
2031 with Development Flows								
Stream B-AC	0.4	8.90	0.27	A	0.2	7.28	0.16	A
Stream C-AB	0.2	7.51	0.17	A	0.2	6.64	0.16	A
Stream C-A								
Stream A-B								
Stream A-C								

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	Blackmoorfoot Road - Felks Stile Road
Location	Huddersfield
Site number	
Date	19/01/2018
Version	
Status	
Identifier	
Client	Empire Knight Group
Jobnumber	1852
Enumerator	Croft Transport Solutions
Description	

Units

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

Analysis Options

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

Demand Set Summary

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

2022 Base Flows, AM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	2.55	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	Blackmoorfoor Road (W)		Major
B	Felks Stile Road		Minor
C	Blackmoorfoor Road (E)		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	8.20			100.0	✓	1.00

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	3.25	40	40

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	523.020	0.086	0.218	0.137	0.311
1	B-C	665.365	0.092	0.233	-	-
1	C-B	631.874	0.221	0.221	-	-

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	Model start time (HH:mm)	Model finish time (HH:mm)	Time segment length (min)
D1	2022 Base Flows	AM	ONE HOUR	08:00	09:30	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	307.00	100.000
B		✓	125.00	100.000
C		✓	201.00	100.000

Origin-Destination Data

Demand (PCU/hr)

	To		
	A	B	C
From	A	0.000	11.000
	B	11.000	0.000
	C	126.000	75.000

Vehicle Mix

Heavy Vehicle proportion

From	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-A	0.24	8.40	0.3	A
C-A	0.15	7.32	0.2	A
C-B				
A-B				
A-C				

2022 Base Flows, PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	2.09	A

Junction Network Options

[same as above]

Arms

Arms

[same as above]

Major Arm Geometry

[same as above]

Minor Arm Geometry

[same as above]

Slope / Intercept / Capacity

[same as above]

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Model start time (HH:mm)	Model finish time (HH:mm)	Time segment length (min)
D2	2022 Base Flows	PM	ONE HOUR	17:00	18:30	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	119.00	100.000
B		✓	80.00	100.000
C		✓	334.00	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A	B	C
From	A	0.000	6.000	113.000
	B	10.000	0.000	70.000
	C	254.000	80.000	0.000

Vehicle Mix

Heavy Vehicle proportion

	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-A-C	0.15	7.03	0.2	A
C-A-B	0.15	6.55	0.2	A
C-A				
A-B				
A-C				

2031 Base Flows, AM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	2.67	A

Junction Network Options

[same as above]

Arms

Arms

[same as above]

Major Arm Geometry

[same as above]

Minor Arm Geometry

[same as above]

Slope / Intercept / Capacity

[same as above]

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Model start time (HH:mm)	Model finish time (HH:mm)	Time segment length (min)
D3	2031 Base Flows	AM	ONE HOUR	08:00	09:30	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	337.00	100.000
B		✓	137.00	100.000
C		✓	220.00	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A	B	C
From	A	0.000	12.000	325.000
	B	12.000	0.000	125.000
	C	137.000	83.000	0.000

Vehicle Mix

Heavy Vehicle proportion

	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-A-C	0.27	8.85	0.4	A
C-AB	0.17	7.51	0.2	A
C-A				
A-B				
A-C				

2031 Base Flows, PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	2.15	A

Junction Network Options

[same as above]

Arms

Arms

[same as above]

Major Arm Geometry

[same as above]

Minor Arm Geometry

[same as above]

Slope / Intercept / Capacity

[same as above]

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Model start time (HH:mm)	Model finish time (HH:mm)	Time segment length (min)
D4	2031 Base Flows	PM	ONE HOUR	17:00	18:30	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	130.00	100.000
B		✓	88.00	100.000
C		✓	369.00	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A	B	C
From	A	0.000	7.000	123.000
	B	11.000	0.000	77.000
	C	280.000	89.000	0.000

Vehicle Mix

Heavy Vehicle proportion

	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-A-C	0.16	7.22	0.2	A
C-A-B	0.16	6.62	0.2	A
C-A				
A-B				
A-C				

2022 with Development Flows, AM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	2.48	A

Junction Network Options

[same as above]

Arms

Arms

[same as above]

Major Arm Geometry

[same as above]

Minor Arm Geometry

[same as above]

Slope / Intercept / Capacity

[same as above]

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Model start time (HH:mm)	Model finish time (HH:mm)	Time segment length (min)
D5	2022 with Development Flows	AM	ONE HOUR	08:00	09:30	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	313.00	100.000
B		✓	125.00	100.000
C		✓	215.00	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A	B	C
From	A	0.000	11.000	302.000
	B	11.000	0.000	114.000
	C	140.000	75.000	0.000

Vehicle Mix

Heavy Vehicle proportion

	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-A-C	0.24	8.44	0.3	A
C-A-B	0.15	7.31	0.2	A
C-A				
A-B				
A-C				

2022 with Development Flows, PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	2.02	A

Junction Network Options

[same as above]

Arms

Arms

[same as above]

Major Arm Geometry

[same as above]

Minor Arm Geometry

[same as above]

Slope / Intercept / Capacity

[same as above]

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Model start time (HH:mm)	Model finish time (HH:mm)	Time segment length (min)
D6	2022 with Development Flows	PM	ONE HOUR	17:00	18:30	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	132.00	100.000
B		✓	80.00	100.000
C		✓	342.00	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A	B	C
From	A	0.000	6.000	126.000
	B	10.000	0.000	70.000
	C	262.000	80.000	0.000

Vehicle Mix

Heavy Vehicle proportion

	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-A-C	0.15	7.09	0.2	A
C-A-B	0.15	6.57	0.2	A
C-A				
A-B				
A-C				

2031 with Development Flows, AM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	2.61	A

Junction Network Options

[same as above]

Arms

Arms

[same as above]

Major Arm Geometry

[same as above]

Minor Arm Geometry

[same as above]

Slope / Intercept / Capacity

[same as above]

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Model start time (HH:mm)	Model finish time (HH:mm)	Time segment length (min)
D7	2031 with Development Flows	AM	ONE HOUR	08:00	09:30	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	344.00	100.000
B		✓	137.00	100.000
C		✓	234.00	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A	B	C
From	A	0.000	12.000	332.000
	B	12.000	0.000	125.000
	C	151.000	83.000	0.000

Vehicle Mix

Heavy Vehicle proportion

	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-A-C	0.27	8.90	0.4	A
C-A-B	0.17	7.51	0.2	A
C-A				
A-B				
A-C				

2031 with Development Flows, PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	2.08	A

Junction Network Options

[same as above]

Arms

Arms

[same as above]

Major Arm Geometry

[same as above]

Minor Arm Geometry

[same as above]

Slope / Intercept / Capacity

[same as above]

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Model start time (HH:mm)	Model finish time (HH:mm)	Time segment length (min)
D8	2031 with Development Flows	PM	ONE HOUR	17:00	18:30	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	144.00	100.000
B		✓	88.00	100.000
C		✓	377.00	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A	B	C
From	A	0.000	7.000	137.000
	B	11.000	0.000	77.000
	C	288.000	89.000	0.000

Vehicle Mix

Heavy Vehicle proportion

	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-A-C	0.16	7.28	0.2	A
C-AB	0.16	6.64	0.2	A
C-A				
A-B				
A-C				

APPENDIX 7

Junctions 9 Output – Blackmoorfoot Road/Sands House Lane Junction

Junctions 9							
PICADY 9 - Priority Intersection Module							
Version: 9.0.0.4211 [] © Copyright TRL Limited, 2018							
For sales and distribution information, program advice and maintenance, contact TRL: Tel: +44 (0)1344 770758 email: software@trl.co.uk Web: http://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: Blackmoorfoor Road - Sands House Lane.j9
Path: Z:\projects\1852 Former Fireworks Factory, Huddersfield\Picady
Report generation date: 31/01/2018 11:12:16

»2022 Base Flows, AM
 »2022 Base Flows, PM
 »2031 Base Flows, AM
 »2031 Base Flows, PM
 »2022 with Development Flows, AM
 »2022 with Development Flows, PM
 »2031 with Development Flows, AM
 »2031 with Development Flows, PM

Summary of junction performance

	AM				PM			
	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS
2022 Base Flows								
Stream B-AC	0.1	8.97	0.11	A	0.1	7.80	0.05	A
Stream C-AB	0.0	6.31	0.02	A	0.0	6.72	0.01	A
Stream C-A								
Stream A-B								
Stream A-C								
2031 Base Flows								
Stream B-AC	0.1	9.39	0.13	A	0.1	8.08	0.06	A
Stream C-AB	0.0	6.37	0.02	A	0.0	6.86	0.01	A
Stream C-A								
Stream A-B								
Stream A-C								
2022 with Development Flows								
Stream B-AC	0.1	9.08	0.11	A	0.1	7.88	0.05	A
Stream C-AB	0.0	6.35	0.02	A	0.0	6.75	0.01	A
Stream C-A								
Stream A-B								
Stream A-C								
2031 with Development Flows								
Stream B-AC	0.2	9.51	0.13	A	0.1	8.16	0.06	A
Stream C-AB	0.0	6.41	0.02	A	0.0	6.88	0.01	A
Stream C-A								
Stream A-B								
Stream A-C								

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	Blackmoorfoot Road - Sands House Lane
Location	Huddersfield
Site number	
Date	19/01/2018
Version	
Status	
Identifier	
Client	Empire Knight Group
Jobnumber	1852
Enumerator	Croft Transport Solutions
Description	

Units

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

Analysis Options

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

Demand Set Summary

Scenario name	Time Period name	Traffic profile type	Model start time (HH:mm)	Model finish time (HH:mm)	Time segment length (min)
2022 Base Flows	AM	ONE HOUR	07:45	09:15	15
2022 Base Flows	PM	ONE HOUR	16:30	18:00	15
2031 Base Flows	AM	ONE HOUR	07:45	09:15	15
2031 Base Flows	PM	ONE HOUR	16:30	18:00	15
2022 with Development Flows	AM	ONE HOUR	07:45	09:15	15
2022 with Development Flows	PM	ONE HOUR	16:30	18:00	15
2031 with Development Flows	AM	ONE HOUR	07:45	09:15	15
2031 with Development Flows	PM	ONE HOUR	16:30	18:00	15

2022 Base Flows, AM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	0.68	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	Blackmoorfoor Road (E)		Major
B	Sands House Lane		Minor
C	Blackmoorfoor Road (W)		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C	7.00			100.0	✓	1.00

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	4.50	16	24

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	568.861	0.099	0.250	0.158	0.358
1	B-C	735.015	0.108	0.272	-	-
1	C-B	631.874	0.234	0.234	-	-

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	Model start time (HH:mm)	Model finish time (HH:mm)	Time segment length (min)
D1	2022 Base Flows	AM	ONE HOUR	07:45	09:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	229.00	100.000
B		✓	46.00	100.000
C		✓	409.00	100.000

Origin-Destination Data

Demand (PCU/hr)

	To		
	A	B	C
From	A	0.000	32.000
	B	42.000	0.000
	C	401.000	8.000

Vehicle Mix

Heavy Vehicle proportion

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

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
B-A	0.11	8.97	0.1	A
C-AB	0.02	6.31	0.0	A
C-A				
A-B				
A-C				

2022 Base Flows, PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	0.36	A

Junction Network Options

[same as above]

Arms

Arms

[same as above]

Major Arm Geometry

[same as above]

Minor Arm Geometry

[same as above]

Slope / Intercept / Capacity

[same as above]

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Model start time (HH:mm)	Model finish time (HH:mm)	Time segment length (min)
D2	2022 Base Flows	PM	ONE HOUR	16:30	18:00	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	364.00	100.000
B		✓	23.00	100.000
C		✓	182.00	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A	B	C
From	A	0.000	37.000	327.000
	B	16.000	0.000	7.000
	C	178.000	4.000	0.000

Vehicle Mix

Heavy Vehicle proportion

	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-A-C	0.05	7.80	0.1	A
C-AB	0.01	6.72	0.0	A
C-A				
A-B				
A-C				

2031 Base Flows, AM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	0.73	A

Junction Network Options

[same as above]

Arms

Arms

[same as above]

Major Arm Geometry

[same as above]

Minor Arm Geometry

[same as above]

Slope / Intercept / Capacity

[same as above]

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Model start time (HH:mm)	Model finish time (HH:mm)	Time segment length (min)
D3	2031 Base Flows	AM	ONE HOUR	07:45	09:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	251.00	100.000
B		✓	52.00	100.000
C		✓	450.00	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A	B	C
From	A	0.000	35.000	216.000
	B	47.000	0.000	5.000
	C	441.000	9.000	0.000

Vehicle Mix

Heavy Vehicle proportion

	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-A-C	0.13	9.39	0.1	A
C-AB	0.02	6.37	0.0	A
C-A				
A-B				
A-C				

2031 Base Flows, PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	0.39	A

Junction Network Options

[same as above]

Arms

Arms

[same as above]

Major Arm Geometry

[same as above]

Minor Arm Geometry

[same as above]

Slope / Intercept / Capacity

[same as above]

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Model start time (HH:mm)	Model finish time (HH:mm)	Time segment length (min)
D4	2031 Base Flows	PM	ONE HOUR	16:30	18:00	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	402.00	100.000
B		✓	26.00	100.000
C		✓	201.00	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A	B	C
From	A	0.000	41.000	361.000
	B	18.000	0.000	8.000
	C	196.000	5.000	0.000

Vehicle Mix

Heavy Vehicle proportion

	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-A-C	0.06	8.08	0.1	A
C-AB	0.01	6.86	0.0	A
C-A				
A-B				
A-C				

2022 with Development Flows, AM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	0.67	A

Junction Network Options

[same as above]

Arms

Arms

[same as above]

Major Arm Geometry

[same as above]

Minor Arm Geometry

[same as above]

Slope / Intercept / Capacity

[same as above]

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Model start time (HH:mm)	Model finish time (HH:mm)	Time segment length (min)
D5	2022 with Development Flows	AM	ONE HOUR	07:45	09:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	243.00	100.000
B		✓	46.00	100.000
C		✓	415.00	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A	B	C
From	A	0.000	32.000	211.000
	B	42.000	0.000	4.000
	C	407.000	8.000	0.000

Vehicle Mix

Heavy Vehicle proportion

	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-A-C	0.11	9.08	0.1	A
C-A-B	0.02	6.35	0.0	A
C-A				
A-B				
A-C				

2022 with Development Flows, PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	0.35	A

Junction Network Options

[same as above]

Arms

Arms

[same as above]

Major Arm Geometry

[same as above]

Minor Arm Geometry

[same as above]

Slope / Intercept / Capacity

[same as above]

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Model start time (HH:mm)	Model finish time (HH:mm)	Time segment length (min)
D6	2022 with Development Flows	PM	ONE HOUR	16:30	18:00	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	373.00	100.000
B		✓	23.00	100.000
C		✓	196.00	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A	B	C
From	A	0.000	37.000	336.000
	B	16.000	0.000	7.000
	C	192.000	4.000	0.000

Vehicle Mix

Heavy Vehicle proportion

	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-A-C	0.05	7.88	0.1	A
C-AB	0.01	6.75	0.0	A
C-A				
A-B				
A-C				

2031 with Development Flows, AM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	0.71	A

Junction Network Options

[same as above]

Arms

Arms

[same as above]

Major Arm Geometry

[same as above]

Minor Arm Geometry

[same as above]

Slope / Intercept / Capacity

[same as above]

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Model start time (HH:mm)	Model finish time (HH:mm)	Time segment length (min)
D7	2031 with Development Flows	AM	ONE HOUR	07:45	09:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	265.00	100.000
B		✓	52.00	100.000
C		✓	457.00	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A	B	C
From	A	0.000	35.000	230.000
	B	47.000	0.000	5.000
	C	448.000	9.000	0.000

Vehicle Mix

Heavy Vehicle proportion

	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-A-C	0.13	9.51	0.2	A
C-A-B	0.02	6.41	0.0	A
C-A				
A-B				
A-C				

2031 with Development Flows, PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	0.38	A

Junction Network Options

[same as above]

Arms

Arms

[same as above]

Major Arm Geometry

[same as above]

Minor Arm Geometry

[same as above]

Slope / Intercept / Capacity

[same as above]

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Model start time (HH:mm)	Model finish time (HH:mm)	Time segment length (min)
D8	2031 with Development Flows	PM	ONE HOUR	16:30	18:00	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	410.00	100.000
B		✓	26.00	100.000
C		✓	214.00	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A	B	C
From	A	0.000	41.000	369.000
	B	18.000	0.000	8.000
	C	209.000	5.000	0.000

Vehicle Mix

Heavy Vehicle proportion

	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-A-C	0.06	8.16	0.1	A
C-AB	0.01	6.88	0.0	A
C-A				
A-B				
A-C				

APPENDIX 8

LINSIG Output – Blackmoorfoot Road/Park Road/Park Road West Junction

APPENDIX 2

LINSIG Output – Blackmoorfoot Road/Park Road/Park Road West

User and Project Details

Project:	
Title:	
Location:	
Additional detail:	
File name:	Blackmoorfoot Road-Park Road (Consented Improvement Layout) Revised Development Flows - Sept 2019.lsg3x
Author:	
Company:	
Address:	

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	D	7	7
E	Ind. Arrow		4	4
F	Pedestrian		6	6
G	Dummy		2	2
H	Dummy		6	6
I	Dummy		2	2
J	Dummy		4	4
K	Dummy		2	2
L	Dummy		2	2
M	Dummy		2	2
N	Dummy		2	2

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		-	-	8	6	8	-	3	6	6	-	5
		D	6	6	-		-	8	6	8	-	3	6	6	5	-
		E	6	6	-	-		-	-	-	-	-	-	-	-	-
		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	-	-	-	

Phase Delays

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

Prohibited Stage Change

Forbidden 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	×	3	8	8	8	8	×
	3	6	8		0	3	6	6	5	5	0
	4	6	8	2		3	6	6	5	0	0
	5	2	2	2	×		2	2	2	2	×
	6	5	8	8	8	3		5	8	8	8
	7	5	8	8	8	3	5		8	8	8
	8	6	8	5	×	3	6	6		5	×
	9	6	8	5	0	3	6	6	5		0
	10	6	8	2	0	3	6	6	5	0	

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

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 West)	5/1 (Right)	1439	0	4/1	1.09	To 5/1 (Left) To 6/1 (Ahead)	2.00	-	0.50	2	2.00
4/1 (Park Road)	7/1 (Right)	1439	0	2/1	1.09	To 7/1 (Left) To 8/1 (Ahead)	1.00	1.00	0.50	1	1.00

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 Road (n))	U	B	2	3	2.0	Geom	-	4.00	0.00	Y	Arm 6 Left	15.00
1/2 (Blackmoorfoot Road (n))	U	B	2	3	60.0	Geom	-	3.50	0.00	Y	Arm 7 Ahead	Inf
											Arm 8 Right	20.00
2/1 (Park Road West)	U	D	2	3	60.0	Geom	-	2.50	0.00	Y	Arm 7 Left	15.00
											Arm 8 Ahead	Inf
2/2 (Park Road West)	O	D E	2	3	6.0	Geom	-	2.50	0.00	N	Arm 5 Right	20.00
3/1 (Blackmoorfoot Road (s))	U	A	2	3	1.0	Geom	-	4.00	0.00	Y	Arm 8 Left	12.00
3/2 (Blackmoorfoot Road (s))	U	A	2	3	60.0	Geom	-	4.00	0.00	Y	Arm 5 Ahead	Inf
											Arm 6 Right	20.00
4/1 (Park Road)	O	C	2	3	60.0	Geom	-	3.50	0.00	Y	Arm 5 Left	10.00
											Arm 6 Ahead	Inf
											Arm 7 Right	15.00
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	-	-	-	-	-	-

Lane Saturation Flows

Scenario 1: '2017 Surveyed Flows - Weekday AM Peak' (FG1: '2017 Surveyed Flows - AM Peak ', Plan 1: 'Network Control Plan 1')

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 Road (n))	4.00	0.00	Y	Arm 6 Left	15.00	100.0 %	1832	1832
1/2 (Blackmoorfoot Road (n))	3.50	0.00	Y	Arm 7 Ahead	Inf	89.9 %	1950	1950
				Arm 8 Right	20.00	10.1 %		
2/1 (Park Road West)	2.50	0.00	Y	Arm 7 Left	15.00	9.1 %	1848	1848
				Arm 8 Ahead	Inf	90.9 %		
2/2 (Park Road West)	2.50	0.00	N	Arm 5 Right	20.00	100.0 %	1865	1865
3/1 (Blackmoorfoot Road (s))	4.00	0.00	Y	Arm 8 Left	12.00	100.0 %	1791	1791
3/2 (Blackmoorfoot Road (s))	4.00	0.00	Y	Arm 5 Ahead	Inf	93.8 %	2006	2006
				Arm 6 Right	20.00	6.2 %		
4/1 (Park Road)	3.50	0.00	Y	Arm 5 Left	10.00	18.9 %	1889	1889
				Arm 6 Ahead	Inf	69.1 %		
				Arm 7 Right	15.00	12.0 %		
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: '2017 Surveyed Flows - Weekday PM Peak' (FG2: '2017 Surveyed Flows - PM Peak ', Plan 1: 'Network Control Plan 1')

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 Road (n))	4.00	0.00	Y	Arm 6 Left	15.00	100.0 %	1832	1832
1/2 (Blackmoorfoot Road (n))	3.50	0.00	Y	Arm 7 Ahead Arm 8 Right	Inf 20.00	79.6 % 20.4 %	1935	1935
2/1 (Park Road West)	2.50	0.00	Y	Arm 7 Left Arm 8 Ahead	15.00 Inf	9.8 % 90.2 %	1847	1847
2/2 (Park Road West)	2.50	0.00	N	Arm 5 Right	20.00	100.0 %	1865	1865
3/1 (Blackmoorfoot Road (s))	4.00	0.00	Y	Arm 8 Left	12.00	100.0 %	1791	1791
3/2 (Blackmoorfoot Road (s))	4.00	0.00	Y	Arm 5 Ahead Arm 6 Right	Inf 20.00	93.1 % 6.9 %	2005	2005
4/1 (Park Road)	3.50	0.00	Y	Arm 5 Left Arm 6 Ahead Arm 7 Right	10.00 Inf 15.00	17.4 % 71.5 % 11.1 %	1895	1895
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 3: '2022 Base Flows - Weekday AM Peak (Peds Every Other Cycle)' (FG9: '2022 Base Flows - AM Peak ', Plan 1: 'Network Control Plan 1')

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 Road (n))	4.00	0.00	Y	Arm 6 Left	15.00	100.0 %	1832	1832
1/2 (Blackmoorfoot Road (n))	3.50	0.00	Y	Arm 7 Ahead Arm 8 Right	Inf 20.00	91.5 % 8.5 %	1953	1953
2/1 (Park Road West)	2.50	0.00	Y	Arm 7 Left Arm 8 Ahead	15.00 Inf	9.1 % 90.9 %	1848	1848
2/2 (Park Road West)	2.50	0.00	N	Arm 5 Right	20.00	100.0 %	1865	1865
3/1 (Blackmoorfoot Road (s))	4.00	0.00	Y	Arm 8 Left	12.00	100.0 %	1791	1791
3/2 (Blackmoorfoot Road (s))	4.00	0.00	Y	Arm 5 Ahead Arm 6 Right	Inf 20.00	95.3 % 4.7 %	2008	2008
4/1 (Park Road)	3.50	0.00	Y	Arm 5 Left Arm 6 Ahead Arm 7 Right	10.00 Inf 15.00	19.0 % 69.0 % 12.1 %	1888	1888
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: '2022 Base Flows - Weekday PM Peak (Peds Every Other Cycle)' (FG10: '2022 Base Flows - PM Peak', Plan 1: 'Network Control Plan 1')

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 Road (n))	4.00	0.00	Y	Arm 6 Left	15.00	100.0 %	1832	1832
1/2 (Blackmoorfoot Road (n))	3.50	0.00	Y	Arm 7 Ahead Arm 8 Right	Inf 20.00	86.0 % 14.0 %	1945	1945
2/1 (Park Road West)	2.50	0.00	Y	Arm 7 Left Arm 8 Ahead	15.00 Inf	9.8 % 90.2 %	1847	1847
2/2 (Park Road West)	2.50	0.00	N	Arm 5 Right	20.00	100.0 %	1865	1865
3/1 (Blackmoorfoot Road (s))	4.00	0.00	Y	Arm 8 Left	12.00	100.0 %	1791	1791
3/2 (Blackmoorfoot Road (s))	4.00	0.00	Y	Arm 5 Ahead Arm 6 Right	Inf 20.00	95.1 % 4.9 %	2008	2008
4/1 (Park Road)	3.50	0.00	Y	Arm 5 Left Arm 6 Ahead Arm 7 Right	10.00 Inf 15.00	17.5 % 71.5 % 11.0 %	1894	1894
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 5: '2031 Base Flows - Weekday AM Peak (Peds Every Other Cycle)' (FG11: '2031 Base Flows - AM Peak ', Plan 1: 'Network Control Plan 1')

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 Road (n))	4.00	0.00	Y	Arm 6 Left	15.00	100.0 %	1832	1832
1/2 (Blackmoorfoot Road (n))	3.50	0.00	Y	Arm 7 Ahead Arm 8 Right	Inf 20.00	91.4 % 8.6 %	1952	1952
2/1 (Park Road West)	2.50	0.00	Y	Arm 7 Left Arm 8 Ahead	15.00 Inf	9.1 % 90.9 %	1848	1848
2/2 (Park Road West)	2.50	0.00	N	Arm 5 Right	20.00	100.0 %	1865	1865
3/1 (Blackmoorfoot Road (s))	4.00	0.00	Y	Arm 8 Left	12.00	100.0 %	1791	1791
3/2 (Blackmoorfoot Road (s))	4.00	0.00	Y	Arm 5 Ahead Arm 6 Right	Inf 20.00	95.1 % 4.9 %	2008	2008
4/1 (Park Road)	3.50	0.00	Y	Arm 5 Left Arm 6 Ahead Arm 7 Right	10.00 Inf 15.00	18.8 % 69.1 % 12.1 %	1889	1889
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: '2031 Base Flows - Weekday PM Peak (Peds Every Other Cycle)' (FG12: '2031 Base Flows - PM Peak', Plan 1: 'Network Control Plan 1')

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 Road (n))	4.00	0.00	Y	Arm 6 Left	15.00	100.0 %	1832	1832
1/2 (Blackmoorfoot Road (n))	3.50	0.00	Y	Arm 7 Ahead Arm 8 Right	Inf 20.00	85.6 % 14.4 %	1944	1944
2/1 (Park Road West)	2.50	0.00	Y	Arm 7 Left Arm 8 Ahead	15.00 Inf	9.9 % 90.1 %	1847	1847
2/2 (Park Road West)	2.50	0.00	N	Arm 5 Right	20.00	100.0 %	1865	1865
3/1 (Blackmoorfoot Road (s))	4.00	0.00	Y	Arm 8 Left	12.00	100.0 %	1791	1791
3/2 (Blackmoorfoot Road (s))	4.00	0.00	Y	Arm 5 Ahead Arm 6 Right	Inf 20.00	95.1 % 4.9 %	2008	2008
4/1 (Park Road)	3.50	0.00	Y	Arm 5 Left Arm 6 Ahead Arm 7 Right	10.00 Inf 15.00	17.3 % 71.5 % 11.2 %	1895	1895
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 7: '2022 With Development Flows - Weekday AM Peak (Peds Every Other Cycle)' (FG15: '2022 With Development Flows - AM Peak ', Plan 1: 'Network Control Plan 1')

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 Road (n))	4.00	0.00	Y	Arm 6 Left	15.00	100.0 %	1832	1832
1/2 (Blackmoorfoot Road (n))	3.50	0.00	Y	Arm 7 Ahead Arm 8 Right	Inf 20.00	90.8 % 9.2 %	1951	1951
2/1 (Park Road West)	2.50	0.00	Y	Arm 7 Left Arm 8 Ahead	15.00 Inf	9.1 % 90.9 %	1848	1848
2/2 (Park Road West)	2.50	0.00	N	Arm 5 Right	20.00	100.0 %	1865	1865
3/1 (Blackmoorfoot Road (s))	4.00	0.00	Y	Arm 8 Left	12.00	100.0 %	1791	1791
3/2 (Blackmoorfoot Road (s))	4.00	0.00	Y	Arm 5 Ahead Arm 6 Right	Inf 20.00	96.5 % 3.5 %	2010	2010
4/1 (Park Road)	3.50	0.00	Y	Arm 5 Left Arm 6 Ahead Arm 7 Right	10.00 Inf 15.00	23.3 % 65.3 % 11.5 %	1878	1878
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: '2022 With Development Flows - Weekday PM Peak (Peds Every Other Cycle)' (FG16: '2022 With Development Flows - PM Peak', Plan 1: 'Network Control Plan 1')

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 Road (n))	4.00	0.00	Y	Arm 6 Left	15.00	100.0 %	1832	1832
1/2 (Blackmoorfoot Road (n))	3.50	0.00	Y	Arm 7 Ahead Arm 8 Right	Inf 20.00	86.9 % 13.1 %	1946	1946
2/1 (Park Road West)	2.50	0.00	Y	Arm 7 Left Arm 8 Ahead	15.00 Inf	9.8 % 90.2 %	1847	1847
2/2 (Park Road West)	2.50	0.00	N	Arm 5 Right	20.00	100.0 %	1865	1865
3/1 (Blackmoorfoot Road (s))	4.00	0.00	Y	Arm 8 Left	12.00	100.0 %	1791	1791
3/2 (Blackmoorfoot Road (s))	4.00	0.00	Y	Arm 5 Ahead Arm 6 Right	Inf 20.00	96.5 % 3.5 %	2010	2010
4/1 (Park Road)	3.50	0.00	Y	Arm 5 Left Arm 6 Ahead Arm 7 Right	10.00 Inf 15.00	23.4 % 66.3 % 10.2 %	1880	1880
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 9: '2031 With Development Flows - Weekday AM Peak (Peds Every Other Cycle)' (FG17: '2031 With Development Flows - AM Peak ', Plan 1: 'Network Control Plan 1')

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 Road (n))	4.00	0.00	Y	Arm 6 Left	15.00	100.0 %	1832	1832
1/2 (Blackmoorfoot Road (n))	3.50	0.00	Y	Arm 7 Ahead Arm 8 Right	Inf 20.00	90.7 % 9.3 %	1951	1951
2/1 (Park Road West)	2.50	0.00	Y	Arm 7 Left Arm 8 Ahead	15.00 Inf	9.1 % 90.9 %	1848	1848
2/2 (Park Road West)	2.50	0.00	N	Arm 5 Right	20.00	100.0 %	1865	1865
3/1 (Blackmoorfoot Road (s))	4.00	0.00	Y	Arm 8 Left	12.00	100.0 %	1791	1791
3/2 (Blackmoorfoot Road (s))	4.00	0.00	Y	Arm 5 Ahead Arm 6 Right	Inf 20.00	96.2 % 3.8 %	2009	2009
4/1 (Park Road)	3.50	0.00	Y	Arm 5 Left Arm 6 Ahead Arm 7 Right	10.00 Inf 15.00	22.7 % 65.7 % 11.5 %	1879	1879
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: '2031 With Development Flows - Weekday PM Peak (Peds Every Other Cycle)' (FG18: '2031 With Development Flows - AM Peak', Plan 1: 'Network Control Plan 1')

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 Road (n))	4.00	0.00	Y	Arm 6 Left	15.00	100.0 %	1832	1832
1/2 (Blackmoorfoot Road (n))	3.50	0.00	Y	Arm 7 Ahead Arm 8 Right	Inf 20.00	86.5 % 13.5 %	1945	1945
2/1 (Park Road West)	2.50	0.00	Y	Arm 7 Left Arm 8 Ahead	15.00 Inf	9.9 % 90.1 %	1847	1847
2/2 (Park Road West)	2.50	0.00	N	Arm 5 Right	20.00	100.0 %	1865	1865
3/1 (Blackmoorfoot Road (s))	4.00	0.00	Y	Arm 8 Left	12.00	100.0 %	1791	1791
3/2 (Blackmoorfoot Road (s))	4.00	0.00	Y	Arm 5 Ahead Arm 6 Right	Inf 20.00	96.5 % 3.5 %	2010	2010
4/1 (Park Road)	3.50	0.00	Y	Arm 5 Left Arm 6 Ahead Arm 7 Right	10.00 Inf 15.00	22.7 % 66.8 % 10.5 %	1881	1881
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 11: '2022 Base Flows - Weekday AM Peak (No Peds)' (FG9: '2022 Base Flows - AM Peak ', Plan 2: 'Network Control Plan 2')

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 Road (n))	4.00	0.00	Y	Arm 6 Left	15.00	100.0 %	1832	1832
1/2 (Blackmoorfoot Road (n))	3.50	0.00	Y	Arm 7 Ahead Arm 8 Right	Inf 20.00	91.5 % 8.5 %	1953	1953
2/1 (Park Road West)	2.50	0.00	Y	Arm 7 Left Arm 8 Ahead	15.00 Inf	9.1 % 90.9 %	1848	1848
2/2 (Park Road West)	2.50	0.00	N	Arm 5 Right	20.00	100.0 %	1865	1865
3/1 (Blackmoorfoot Road (s))	4.00	0.00	Y	Arm 8 Left	12.00	100.0 %	1791	1791
3/2 (Blackmoorfoot Road (s))	4.00	0.00	Y	Arm 5 Ahead Arm 6 Right	Inf 20.00	95.3 % 4.7 %	2008	2008
4/1 (Park Road)	3.50	0.00	Y	Arm 5 Left Arm 6 Ahead Arm 7 Right	10.00 Inf 15.00	19.0 % 69.0 % 12.1 %	1888	1888
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: '2022 Base Flows - Weekday PM Peak (No Peds)' (FG10: '2022 Base Flows - PM Peak', Plan 2: 'Network Control Plan 2')

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 Road (n))	4.00	0.00	Y	Arm 6 Left	15.00	100.0 %	1832	1832
1/2 (Blackmoorfoot Road (n))	3.50	0.00	Y	Arm 7 Ahead Arm 8 Right	Inf 20.00	86.0 % 14.0 %	1945	1945
2/1 (Park Road West)	2.50	0.00	Y	Arm 7 Left Arm 8 Ahead	15.00 Inf	9.8 % 90.2 %	1847	1847
2/2 (Park Road West)	2.50	0.00	N	Arm 5 Right	20.00	100.0 %	1865	1865
3/1 (Blackmoorfoot Road (s))	4.00	0.00	Y	Arm 8 Left	12.00	100.0 %	1791	1791
3/2 (Blackmoorfoot Road (s))	4.00	0.00	Y	Arm 5 Ahead Arm 6 Right	Inf 20.00	95.1 % 4.9 %	2008	2008
4/1 (Park Road)	3.50	0.00	Y	Arm 5 Left Arm 6 Ahead Arm 7 Right	10.00 Inf 15.00	17.5 % 71.5 % 11.0 %	1894	1894
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 13: '2031 Base Flows - Weekday AM Peak (No Peds)' (FG11: '2031 Base Flows - AM Peak ', Plan 2: 'Network Control Plan 2')

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 Road (n))	4.00	0.00	Y	Arm 6 Left	15.00	100.0 %	1832	1832
1/2 (Blackmoorfoot Road (n))	3.50	0.00	Y	Arm 7 Ahead Arm 8 Right	Inf 20.00	91.4 % 8.6 %	1952	1952
2/1 (Park Road West)	2.50	0.00	Y	Arm 7 Left Arm 8 Ahead	15.00 Inf	9.1 % 90.9 %	1848	1848
2/2 (Park Road West)	2.50	0.00	N	Arm 5 Right	20.00	100.0 %	1865	1865
3/1 (Blackmoorfoot Road (s))	4.00	0.00	Y	Arm 8 Left	12.00	100.0 %	1791	1791
3/2 (Blackmoorfoot Road (s))	4.00	0.00	Y	Arm 5 Ahead Arm 6 Right	Inf 20.00	95.1 % 4.9 %	2008	2008
4/1 (Park Road)	3.50	0.00	Y	Arm 5 Left Arm 6 Ahead Arm 7 Right	10.00 Inf 15.00	18.8 % 69.1 % 12.1 %	1889	1889
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: '2031 Base Flows - Weekday PM Peak (No Peds)' (FG12: '2031 Base Flows - PM Peak', Plan 2: 'Network Control Plan 2')

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 Road (n))	4.00	0.00	Y	Arm 6 Left	15.00	100.0 %	1832	1832
1/2 (Blackmoorfoot Road (n))	3.50	0.00	Y	Arm 7 Ahead Arm 8 Right	Inf 20.00	85.6 % 14.4 %	1944	1944
2/1 (Park Road West)	2.50	0.00	Y	Arm 7 Left Arm 8 Ahead	15.00 Inf	9.9 % 90.1 %	1847	1847
2/2 (Park Road West)	2.50	0.00	N	Arm 5 Right	20.00	100.0 %	1865	1865
3/1 (Blackmoorfoot Road (s))	4.00	0.00	Y	Arm 8 Left	12.00	100.0 %	1791	1791
3/2 (Blackmoorfoot Road (s))	4.00	0.00	Y	Arm 5 Ahead Arm 6 Right	Inf 20.00	95.1 % 4.9 %	2008	2008
4/1 (Park Road)	3.50	0.00	Y	Arm 5 Left Arm 6 Ahead Arm 7 Right	10.00 Inf 15.00	17.3 % 71.5 % 11.2 %	1895	1895
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 15: '2022 With Development Flows - Weekday AM Peak (No Peds)' (FG15: '2022 With Development Flows - AM Peak ', Plan 2: 'Network Control Plan 2')

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 Road (n))	4.00	0.00	Y	Arm 6 Left	15.00	100.0 %	1832	1832
1/2 (Blackmoorfoot Road (n))	3.50	0.00	Y	Arm 7 Ahead Arm 8 Right	Inf 20.00	90.8 % 9.2 %	1951	1951
2/1 (Park Road West)	2.50	0.00	Y	Arm 7 Left Arm 8 Ahead	15.00 Inf	9.1 % 90.9 %	1848	1848
2/2 (Park Road West)	2.50	0.00	N	Arm 5 Right	20.00	100.0 %	1865	1865
3/1 (Blackmoorfoot Road (s))	4.00	0.00	Y	Arm 8 Left	12.00	100.0 %	1791	1791
3/2 (Blackmoorfoot Road (s))	4.00	0.00	Y	Arm 5 Ahead Arm 6 Right	Inf 20.00	96.5 % 3.5 %	2010	2010
4/1 (Park Road)	3.50	0.00	Y	Arm 5 Left Arm 6 Ahead Arm 7 Right	10.00 Inf 15.00	23.3 % 65.3 % 11.5 %	1878	1878
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: '2022 With Development Flows - Weekday PM Peak (No Peds)' (FG16: '2022 With Development Flows - PM Peak', Plan 2: 'Network Control Plan 2')

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 Road (n))	4.00	0.00	Y	Arm 6 Left	15.00	100.0 %	1832	1832
1/2 (Blackmoorfoot Road (n))	3.50	0.00	Y	Arm 7 Ahead Arm 8 Right	Inf 20.00	86.9 % 13.1 %	1946	1946
2/1 (Park Road West)	2.50	0.00	Y	Arm 7 Left Arm 8 Ahead	15.00 Inf	9.8 % 90.2 %	1847	1847
2/2 (Park Road West)	2.50	0.00	N	Arm 5 Right	20.00	100.0 %	1865	1865
3/1 (Blackmoorfoot Road (s))	4.00	0.00	Y	Arm 8 Left	12.00	100.0 %	1791	1791
3/2 (Blackmoorfoot Road (s))	4.00	0.00	Y	Arm 5 Ahead Arm 6 Right	Inf 20.00	96.5 % 3.5 %	2010	2010
4/1 (Park Road)	3.50	0.00	Y	Arm 5 Left Arm 6 Ahead Arm 7 Right	10.00 Inf 15.00	23.4 % 66.3 % 10.2 %	1880	1880
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 17: '2031 With Development Flows - Weekday AM Peak (No Peds)' (FG17: '2031 With Development Flows - AM Peak ', Plan 2: 'Network Control Plan 2')

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 Road (n))	4.00	0.00	Y	Arm 6 Left	15.00	100.0 %	1832	1832
1/2 (Blackmoorfoot Road (n))	3.50	0.00	Y	Arm 7 Ahead Arm 8 Right	Inf 20.00	90.7 % 9.3 %	1951	1951
2/1 (Park Road West)	2.50	0.00	Y	Arm 7 Left Arm 8 Ahead	15.00 Inf	9.1 % 90.9 %	1848	1848
2/2 (Park Road West)	2.50	0.00	N	Arm 5 Right	20.00	100.0 %	1865	1865
3/1 (Blackmoorfoot Road (s))	4.00	0.00	Y	Arm 8 Left	12.00	100.0 %	1791	1791
3/2 (Blackmoorfoot Road (s))	4.00	0.00	Y	Arm 5 Ahead Arm 6 Right	Inf 20.00	96.2 % 3.8 %	2009	2009
4/1 (Park Road)	3.50	0.00	Y	Arm 5 Left Arm 6 Ahead Arm 7 Right	10.00 Inf 15.00	22.7 % 65.7 % 11.5 %	1879	1879
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 18: '2031 With Development Flows - Weekday PM Peak (No Peds)' (FG18: '2031 With Development Flows - AM Peak', Plan 2: 'Network Control Plan 2')

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 Road (n))	4.00	0.00	Y	Arm 6 Left	15.00	100.0 %	1832	1832
1/2 (Blackmoorfoot Road (n))	3.50	0.00	Y	Arm 7 Ahead Arm 8 Right	Inf 20.00	86.5 % 13.5 %	1945	1945
2/1 (Park Road West)	2.50	0.00	Y	Arm 7 Left Arm 8 Ahead	15.00 Inf	9.9 % 90.1 %	1847	1847
2/2 (Park Road West)	2.50	0.00	N	Arm 5 Right	20.00	100.0 %	1865	1865
3/1 (Blackmoorfoot Road (s))	4.00	0.00	Y	Arm 8 Left	12.00	100.0 %	1791	1791
3/2 (Blackmoorfoot Road (s))	4.00	0.00	Y	Arm 5 Ahead Arm 6 Right	Inf 20.00	96.5 % 3.5 %	2010	2010
4/1 (Park Road)	3.50	0.00	Y	Arm 5 Left Arm 6 Ahead Arm 7 Right	10.00 Inf 15.00	22.7 % 66.8 % 10.5 %	1881	1881
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

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: '2017 Surveyed Flows - AM Peak '	07:45	08:45	01:00	
2: '2017 Surveyed Flows - PM Peak '	16:30	17:30	01:00	
3: '2022 Growthed Flows - AM Peak'	07:45	08:45	01:00	F1*1.061
4: '2022 Growthed Flows - PM Peak '	16:30	17:30	01:00	F2*1.059
5: '2031 Growthed Flows - AM Peak '	07:45	08:45	01:00	F1*1.169
6: '2031 Growthed Flows - PM Peak '	16:30	17:30	01:00	F2*1.170
7: 'Committed Development Flows - AM Peak '	08:00	09:00	01:00	
8: 'Committed Development Flows - PM Peak '	16:30	17:30	01:00	
9: '2022 Base Flows - AM Peak '	07:45	08:45	01:00	
10: '2022 Base Flows - PM Peak'	16:30	17:30	01:00	F4+F8
11: '2031 Base Flows - AM Peak '	07:45	08:45	01:00	F5+F7
12: '2031 Base Flows - PM Peak'	16:30	17:30	01:00	F6+F8
13: 'Proposed Development Flows - AM Peak'	07:45	08:45	01:00	
14: 'Proposed Development Flows - PM Peak'	16:30	17:30	01:00	
15: '2022 With Development Flows - AM Peak '	07:45	08:45	01:00	F9+F13
16: '2022 With Development Flows - PM Peak'	16:30	17:30	01:00	F10+F14
17: '2031 With Development Flows - AM Peak '	07:45	08:45	01:00	F11+F13
18: '2031 With Development Flows - PM Peak'	16:30	17:30	01:00	F12+F14

Traffic Flows, Desired

FG1: '2017 Surveyed Flows - AM Peak '

Desired Flow :

	Destination					
		A	B	C	D	Tot.
Origin	A	0	30	420	47	497
	B	78	0	35	349	462
	C	226	15	0	22	263
	D	44	161	28	0	233
	Tot.	348	206	483	418	1455

FG2: '2017 Surveyed Flows - PM Peak '

Desired Flow :

	Destination					
		A	B	C	D	Tot.
Origin	A	0	68	249	64	381
	B	90	0	33	304	427
	C	349	26	0	53	428
	D	61	251	39	0	351
	Tot.	500	345	321	421	1587

FG3: '2022 Growthed Flows - AM Peak'

Desired Flow :

	Destination					
		A	B	C	D	Tot.
Origin	A	0	32	446	50	528
	B	83	0	37	370	490
	C	240	16	0	23	279
	D	47	171	30	0	248
	Tot.	370	219	513	443	1545

FG4: '2022 Growthed Flows - PM Peak '

Desired Flow :

	Destination					
		A	B	C	D	Tot.
Origin	A	0	72	264	68	404
	B	95	0	35	322	452
	C	370	28	0	56	454
	D	65	266	41	0	372
	Tot.	530	366	340	446	1682

FG5: '2031 Growthed Flows - AM Peak '

Desired Flow :

	Destination					
		A	B	C	D	Tot.
Origin	A	0	35	491	55	581
	B	91	0	41	408	540
	C	264	18	0	26	308
	D	51	188	33	0	272
	Tot.	406	241	565	489	1701

FG6: '2031 Growthed Flows - PM Peak '

Desired Flow :

	Destination					
		A	B	C	D	Tot.
Origin	A	0	80	291	75	446
	B	105	0	39	356	500
	C	408	30	0	62	500
	D	71	294	46	0	411
	Tot.	584	404	376	493	1857

FG7: 'Committed Development Flows - AM Peak '

Desired Flow :

	Destination					
		A	B	C	D	Tot.
Origin	A	0	72	95	0	167
	B	44	0	0	0	44
	C	83	0	0	0	83
	D	0	0	0	0	0
	Tot.	127	72	95	0	294

FG8: 'Committed Development Flows - PM Peak '

Desired Flow :

	Destination					
		A	B	C	D	Tot.
Origin	A	0	102	155	0	257
	B	120	0	0	0	120
	C	170	0	0	0	170
	D	0	0	0	0	0
	Tot.	290	102	155	0	547

FG9: '2022 Base Flows - AM Peak '

Desired Flow :

	Destination					
		A	B	C	D	Tot.
Origin	A	0	104	541	50	695
	B	127	0	37	370	534
	C	323	16	0	23	362
	D	47	171	30	0	248
	Tot.	497	291	608	443	1839

FG10: '2022 Base Flows - PM Peak'

Desired Flow :

	Destination					
		A	B	C	D	Tot.
Origin	A	0	174	419	68	661
	B	215	0	35	322	572
	C	540	28	0	56	624
	D	65	266	41	0	372
	Tot.	820	468	495	446	2229

FG11: '2031 Base Flows - AM Peak '

Desired Flow :

	Destination					
		A	B	C	D	Tot.
Origin	A	0	107	586	55	748
	B	135	0	41	408	584
	C	347	18	0	26	391
	D	51	188	33	0	272
	Tot.	533	313	660	489	1995

FG12: '2031 Base Flows - PM Peak'

Desired Flow :

	Destination					
		A	B	C	D	Tot.
Origin	A	0	182	446	75	703
	B	225	0	39	356	620
	C	578	30	0	62	670
	D	71	294	46	0	411
	Tot.	874	506	531	493	2404

FG13: 'Proposed Development Flows - AM Peak'

Desired Flow :

	Destination					
		A	B	C	D	Tot.
Origin	A	0	15	254	31	300
	B	7	0	0	0	7
	C	114	0	0	0	114
	D	14	0	0	0	14
	Tot.	135	15	254	31	435

FG14: 'Proposed Development Flows - PM Peak'

Desired Flow :

	Destination					
		A	B	C	D	Tot.
Origin	A	0	9	156	19	184
	B	15	0	0	0	15
	C	241	0	0	0	241
	D	29	0	0	0	29
	Tot.	285	9	156	19	469

FG15: '2022 With Development Flows - AM Peak '

Desired Flow :

	Destination					
		A	B	C	D	Tot.
Origin	A	0	119	795	81	995
	B	134	0	37	370	541
	C	437	16	0	23	476
	D	61	171	30	0	262
	Tot.	632	306	862	474	2274

FG16: '2022 With Development Flows - PM Peak'

Desired Flow :

	Destination					
		A	B	C	D	Tot.
Origin	A	0	183	575	87	845
	B	230	0	35	322	587
	C	781	28	0	56	865
	D	94	266	41	0	401
	Tot.	1105	477	651	465	2698

FG17: '2031 With Development Flows - AM Peak '

Desired Flow :

	Destination					
		A	B	C	D	Tot.
Origin	A	0	122	840	86	1048
	B	142	0	41	408	591
	C	461	18	0	26	505
	D	65	188	33	0	286
	Tot.	668	328	914	520	2430

FG18: '2031 With Development Flows - AM Peak'

Desired Flow :

	Destination					
Origin		A	B	C	D	Tot.
	A	0	191	602	94	887
	B	240	0	39	356	635
	C	819	30	0	62	911
	D	100	294	46	0	440
	Tot.	1159	515	687	512	2873

Stage Timings

Scenario 1: '2017 Surveyed Flows - Weekday AM Peak' (FG1: '2017 Surveyed Flows - AM Peak ', Plan 1: 'Network Control Plan 1')

Stage	1	2	3	4	1	3	4
Duration	8	6	7	4	18	7	4
Change Point	0	14	28	43	47	71	86

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	-	-		-	-	-	-	-	-	82.6%
Blackmoorfoot Road/Park Road	-	-	N/A	-	-		-	-	-	-	-	-	82.6%
1/2+1/1	Blackmoorfoot Road (n) Left Ahead Right	U	N/A	N/A	B		2	26	-	497	1950:1832	566+36	82.6 : 82.6%
2/1+2/2	Park Road West Right Left Ahead	U+O	N/A	N/A	D	E	2	22	8	462	1848:1865	480+97	80.0 : 80.0%
3/2+3/1	Blackmoorfoot Road (s) Ahead Right Left	U	N/A	N/A	A		2	26	-	263	2006:1791	565+52	42.6 : 42.6%
4/1	Park Road Left Ahead Right	O	N/A	N/A	C		2	14	-	233	1889	336	69.4%
5/1		U	N/A	N/A	-		-	-	-	348	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	206	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	483	Inf	Inf	0.0%
8/1		U	N/A	N/A	-		-	-	-	418	Inf	Inf	0.0%

LinSig V1 style report

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	-	-	94	9	3	6.1	5.7	0.2	11.9	-	-	-	-
Blackmoorfoot Road/Park Road	-	-	94	9	3	6.1	5.7	0.2	11.9	-	-	-	-
1/2+1/1	497	497	-	-	-	2.1	2.3	-	4.3	31.5	6.9	2.3	9.2
2/1+2/2	462	462	66	9	3	1.9	1.9	0.1	4.0	30.8	4.7	1.9	6.6
3/2+3/1	263	263	-	-	-	0.9	0.4	-	1.3	18.0	3.1	0.4	3.4
4/1	233	233	28	0	0	1.1	1.1	0.1	2.3	35.5	2.8	1.1	4.0
5/1	348	348	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	206	206	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	483	483	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	418	418	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
C1 PRC for Signalled Lanes (%): 9.0 PRC Over All Lanes (%): 9.0 Total Delay for Signalled Lanes (pcuHr): 11.91 Total Delay Over All Lanes(pcuHr): 11.91 Cycle Time (s): 90													

Stage Timings

Scenario 2: '2017 Surveyed Flows - Weekday PM Peak' (FG2: '2017 Surveyed Flows - PM Peak ', Plan 1: 'Network Control Plan 1')

Stage	1	2	3	4	1	3	4
Duration	7	6	8	4	15	10	4
Change Point	0	13	27	43	47	68	86

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	-	-	N/A	-	-		-	-	-	-	-	-	83.4%
Blackmoorfoot Road/Park Road	-	-	N/A	-	-		-	-	-	-	-	-	83.4%
1/2+1/1	Blackmoorfoot Road (n) Left Ahead Right	U	N/A	N/A	B		2	22	-	381	1935:1832	440+96	71.2 : 71.2%
2/1+2/2	Park Road West Right Left Ahead	U+O	N/A	N/A	D	E	2	26	8	427	1847:1865	545+146	61.8 : 61.8%
3/2+3/1	Blackmoorfoot Road (s) Ahead Right Left	U	N/A	N/A	A		2	22	-	428	2005:1791	465+66	80.7 : 80.7%
4/1	Park Road Left Ahead Right	O	N/A	N/A	C		2	18	-	351	1895	421	83.4%
5/1		U	N/A	N/A	-		-	-	-	500	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	345	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	321	Inf	Inf	0.0%
8/1		U	N/A	N/A	-		-	-	-	421	Inf	Inf	0.0%

LinSig V1 style report

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	-	-	80	43	6	6.6	6.4	0.2	13.2	-	-	-	-
Blackmoorfoot Road/Park Road	-	-	80	43	6	6.6	6.4	0.2	13.2	-	-	-	-
1/2+1/1	381	381	-	-	-	1.6	1.2	-	2.8	26.5	4.5	1.2	5.8
2/1+2/2	427	427	41	43	6	1.5	0.8	0.2	2.5	21.1	3.8	0.8	4.6
3/2+3/1	428	428	-	-	-	1.9	2.0	-	3.9	32.8	5.7	2.0	7.7
4/1	351	351	39	0	0	1.6	2.3	0.1	4.0	41.4	4.5	2.3	6.8
5/1	500	500	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	345	345	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	321	321	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	421	421	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
C1 PRC for Signalled Lanes (%): 8.0 PRC Over All Lanes (%): 8.0 Total Delay for Signalled Lanes (pcuHr): 13.24 Total Delay Over All Lanes(pcuHr): 13.24 Cycle Time (s): 90													

Stage Timings

Scenario 3: '2022 Base Flows - Weekday AM Peak (Peds Every Other Cycle)' (FG9: '2022 Base Flows - AM Peak ', Plan 1: 'Network Control Plan 1')

Stage	1	2	3	4	1	3	4
Duration	35	6	16	4	45	34	4
Change Point	0	41	55	79	83	134	176

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	-	-		-	-	-	-	-	-	78.2%
Blackmoorfoot Road/Park Road	-	-	N/A	-	-		-	-	-	-	-	-	78.2%
1/2+1/1	Blackmoorfoot Road (n) Left Ahead Right	U	N/A	N/A	B		2	80	-	695	1953:1832	756+133	78.2 : 78.2%
2/1+2/2	Park Road West Right Left Ahead	U+O	N/A	N/A	D	E	2	58	8	534	1848:1865	522+163	77.9 : 77.9%
3/2+3/1	Blackmoorfoot Road (s) Ahead Right Left	U	N/A	N/A	A		2	80	-	362	2008:1791	849+58	39.9 : 39.9%
4/1	Park Road Left Ahead Right	O	N/A	N/A	C		2	50	-	248	1888	475	52.2%
5/1		U	N/A	N/A	-		-	-	-	497	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	291	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	608	Inf	Inf	0.0%
8/1		U	N/A	N/A	-		-	-	-	443	Inf	Inf	0.0%

LinSig V1 style report

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	-	-	131	9	16	11.2	4.4	0.4	15.9	-	-	-	-
Blackmoorfoot Road/Park Road	-	-	131	9	16	11.2	4.4	0.4	15.9	-	-	-	-
1/2+1/1	695	695	-	-	-	4.0	1.8	-	5.7	29.6	14.9	1.8	16.7
2/1+2/2	534	534	112	9	5	3.8	1.7	0.2	5.7	38.7	10.3	1.7	12.0
3/2+3/1	362	362	-	-	-	1.6	0.3	-	2.0	19.7	6.2	0.3	6.5
4/1	248	248	19	0	11	1.8	0.5	0.1	2.5	35.9	5.2	0.5	5.8
5/1	497	497	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	291	291	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	608	608	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	443	443	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
C1 PRC for Signalled Lanes (%): 15.1 PRC Over All Lanes (%): 15.1 Total Delay for Signalled Lanes (pcuHr): 15.90 Total Delay Over All Lanes(pcuHr): 15.90 Cycle Time (s): 180													

Stage Timings

Scenario 4: '2022 Base Flows - Weekday PM Peak (Peds Every Other Cycle)' (FG10: '2022 Base Flows - PM Peak', Plan 1: 'Network Control Plan 1')

Stage	1	2	3	4	1	3	4
Duration	28	6	20	4	47	35	4
Change Point	0	34	48	76	80	133	176

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	-	-		-	-	-	-	-	-	78.5%
Blackmoorfoot Road/Park Road	-	-	N/A	-	-		-	-	-	-	-	-	78.5%
1/2+1/1	Blackmoorfoot Road (n) Left Ahead Right	U	N/A	N/A	B		2	75	-	661	1945:1832	621+222	78.5 : 78.5%
2/1+2/2	Park Road West Right Left Ahead	U+O	N/A	N/A	D	E	2	63	8	572	1847:1865	457+275	78.2 : 78.2%
3/2+3/1	Blackmoorfoot Road (s) Ahead Right Left	U	N/A	N/A	A		2	75	-	624	2008:1791	773+76	73.5 : 73.5%
4/1	Park Road Left Ahead Right	O	N/A	N/A	C		2	55	-	372	1894	583	63.9%
5/1		U	N/A	N/A	-		-	-	-	820	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	468	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	495	Inf	Inf	0.0%
8/1		U	N/A	N/A	-		-	-	-	446	Inf	Inf	0.0%

LinSig V1 style report

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	-	-	192	23	41	14.4	5.8	0.6	20.7	-	-	-	-
Blackmoorfoot Road/Park Road	-	-	192	23	41	14.4	5.8	0.6	20.7	-	-	-	-
1/2+1/1	661	661	-	-	-	4.0	1.8	-	5.8	31.3	13.4	1.8	15.2
2/1+2/2	572	572	151	23	41	4.0	1.8	0.5	6.2	39.1	8.6	1.8	10.4
3/2+3/1	624	624	-	-	-	3.7	1.4	-	5.1	29.4	12.9	1.4	14.3
4/1	372	372	41	0	0	2.7	0.9	0.1	3.7	35.7	8.3	0.9	9.1
5/1	820	820	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	468	468	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	495	495	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	446	446	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
C1 PRC for Signalled Lanes (%): 14.7 PRC Over All Lanes (%): 14.7 Total Delay for Signalled Lanes (pcuHr): 20.74 Total Delay Over All Lanes(pcuHr): 20.74 Cycle Time (s): 180													

Stage Timings

Scenario 5: '2031 Base Flows - Weekday AM Peak (Peds Every Other Cycle)' (FG11: '2031 Base Flows - AM Peak ', Plan 1: 'Network Control Plan 1')

Stage	1	2	3	4	1	3	4
Duration	31	6	17	4	48	34	4
Change Point	0	37	51	76	80	134	176

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	-	-		-	-	-	-	-	-	85.2%
Blackmoorfoot Road/Park Road	-	-	N/A	-	-		-	-	-	-	-	-	85.2%
1/2+1/1	Blackmoorfoot Road (n) Left Ahead Right	U	N/A	N/A	B		2	79	-	748	1952:1832	752+126	85.2 : 85.2%
2/1+2/2	Park Road West Right Left Ahead	U+O	N/A	N/A	D	E	2	59	8	584	1848:1865	533+160	84.3 : 84.3%
3/2+3/1	Blackmoorfoot Road (s) Ahead Right Left	U	N/A	N/A	A		2	79	-	391	2008:1791	835+60	43.7 : 43.7%
4/1	Park Road Left Ahead Right	O	N/A	N/A	C		2	51	-	272	1889	426	63.8%
5/1		U	N/A	N/A	-		-	-	-	533	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	313	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	660	Inf	Inf	0.0%
8/1		U	N/A	N/A	-		-	-	-	489	Inf	Inf	0.0%

LinSig V1 style report

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	-	-	139	8	21	12.6	6.6	0.4	19.6	-	-	-	-
Blackmoorfoot Road/Park Road	-	-	139	8	21	12.6	6.6	0.4	19.6	-	-	-	-
1/2+1/1	748	748	-	-	-	4.5	2.8	-	7.3	35.2	16.7	2.8	19.5
2/1+2/2	584	584	120	8	6	4.2	2.6	0.3	7.1	43.5	11.9	2.6	14.4
3/2+3/1	391	391	-	-	-	1.8	0.4	-	2.2	20.6	6.8	0.4	7.2
4/1	272	272	19	0	14	2.0	0.9	0.2	3.0	39.8	5.7	0.9	6.6
5/1	533	533	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	313	313	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	660	660	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	489	489	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
C1 PRC for Signalled Lanes (%): 5.6 PRC Over All Lanes (%): 5.6 Total Delay for Signalled Lanes (pcuHr): 19.61 Total Delay Over All Lanes(pcuHr): 19.61 Cycle Time (s): 180													

Stage Timings

Scenario 6: '2031 Base Flows - Weekday PM Peak (Peds Every Other Cycle)' (FG12: '2031 Base Flows - PM Peak', Plan 1: 'Network Control Plan 1')

Stage	1	2	3	4	1	3	4
Duration	30	6	22	7	44	27	8
Change Point	0	36	50	80	87	137	172

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	-	-		-	-	-	-	-	-	84.6%
Blackmoorfoot Road/Park Road	-	-	N/A	-	-		-	-	-	-	-	-	84.6%
1/2+1/1	Blackmoorfoot Road (n) Left Ahead Right	U	N/A	N/A	B		2	74	-	703	1944:1832	616+215	84.6 : 84.6%
2/1+2/2	Park Road West Right Left Ahead	U+O	N/A	N/A	D	E	2	64	15	620	1847:1865	468+267	84.3 : 84.3%
3/2+3/1	Blackmoorfoot Road (s) Ahead Right Left	U	N/A	N/A	A		2	74	-	670	2008:1791	761+78	79.9 : 79.9%
4/1	Park Road Left Ahead Right	O	N/A	N/A	C		2	49	-	411	1895	507	81.1%
5/1		U	N/A	N/A	-		-	-	-	874	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	506	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	531	Inf	Inf	0.0%
8/1		U	N/A	N/A	-		-	-	-	493	Inf	Inf	0.0%

LinSig V1 style report

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	-	-	119	114	38	16.5	9.2	0.7	26.4	-	-	-	-
Blackmoorfoot Road/Park Road	-	-	119	114	38	16.5	9.2	0.7	26.4	-	-	-	-
1/2+1/1	703	703	-	-	-	4.5	2.6	-	7.1	36.4	16.1	2.6	18.7
2/1+2/2	620	620	73	114	38	4.4	2.6	0.5	7.6	43.9	9.7	2.6	12.3
3/2+3/1	670	670	-	-	-	4.2	1.9	-	6.2	33.3	15.5	1.9	17.5
4/1	411	411	46	0	0	3.4	2.1	0.1	5.6	48.8	9.6	2.1	11.6
5/1	874	874	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	506	506	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	531	531	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	493	493	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
C1 PRC for Signalled Lanes (%): 6.4 PRC Over All Lanes (%): 6.4 Total Delay for Signalled Lanes (pcuHr): 26.45 Total Delay Over All Lanes(pcuHr): 26.45 Cycle Time (s): 180													

Stage Timings

Scenario 7: '2022 With Development Flows - Weekday AM Peak (Peds Every Other Cycle)' (FG15: '2022 With Development Flows - AM Peak ', Plan 1: 'Network Control Plan 1')

Stage	1	2	3	4	1	3	4
Duration	38	6	18	4	55	19	4
Change Point	0	44	58	84	88	149	176

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	-	-		-	-	-	-	-	-	97.4%
Blackmoorfoot Road/Park Road	-	-	N/A	-	-		-	-	-	-	-	-	97.4%
1/2+1/1	Blackmoorfoot Road (n) Left Ahead Right	U	N/A	N/A	B		2	93	-	995	1951:1832	904+123	96.9 : 96.9%
2/1+2/2	Park Road West Right Left Ahead	U+O	N/A	N/A	D	E	2	45	8	541	1848:1865	418+138	97.4 : 97.4%
3/2+3/1	Blackmoorfoot Road (s) Ahead Right Left	U	N/A	N/A	A		2	93	-	476	2010:1791	1001+51	45.2 : 45.2%
4/1	Park Road Left Ahead Right	O	N/A	N/A	C		2	37	-	262	1878	352	74.4%
5/1		U	N/A	N/A	-		-	-	-	632	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	306	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	862	Inf	Inf	0.0%
8/1		U	N/A	N/A	-		-	-	-	474	Inf	Inf	0.0%

LinSig V1 style report

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	-	-	115	24	25	14.7	20.1	0.5	35.2	-	-	-	-
Blackmoorfoot Road/Park Road	-	-	115	24	25	14.7	20.1	0.5	35.2	-	-	-	-
1/2+1/1	995	995	-	-	-	5.8	9.7	-	15.5	56.1	27.4	9.7	37.1
2/1+2/2	541	541	104	24	7	4.7	8.5	0.3	13.6	90.4	11.7	8.5	20.2
3/2+3/1	476	476	-	-	-	1.8	0.4	-	2.2	16.7	8.4	0.4	8.8
4/1	262	262	11	0	19	2.3	1.4	0.1	3.9	53.5	6.0	1.4	7.5
5/1	632	632	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	306	306	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	862	862	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	474	474	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
C1 PRC for Signalled Lanes (%): -8.2 PRC Over All Lanes (%): -8.2 Total Delay for Signalled Lanes (pcuHr): 35.20 Total Delay Over All Lanes(pcuHr): 35.20 Cycle Time (s): 180													

Stage Timings

Scenario 8: '2022 With Development Flows - Weekday PM Peak (Peds Every Other Cycle)' (FG16: '2022 With Development Flows - PM Peak', Plan 1: 'Network Control Plan 1')

Stage	1	2	3	4	1	3	4
Duration	34	6	21	10	45	23	5
Change Point	0	40	54	83	93	144	175

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	-	-		-	-	-	-	-	-	96.6%
Blackmoorfoot Road/Park Road	-	-	N/A	-	-		-	-	-	-	-	-	96.6%
1/2+1/1	Blackmoorfoot Road (n) Left Ahead Right	U	N/A	N/A	B		2	79	-	845	1946:1832	690+191	95.9 : 95.9%
2/1+2/2	Park Road West Right Left Ahead	U+O	N/A	N/A	D	E	2	59	15	587	1847:1865	378+244	94.4 : 94.4%
3/2+3/1	Blackmoorfoot Road (s) Ahead Right Left	U	N/A	N/A	A		2	79	-	865	2010:1791	838+58	96.6 : 96.6%
4/1	Park Road Left Ahead Right	O	N/A	N/A	C		2	44	-	401	1880	471	85.1%
5/1		U	N/A	N/A	-		-	-	-	1105	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	477	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	651	Inf	Inf	0.0%
8/1		U	N/A	N/A	-		-	-	-	465	Inf	Inf	0.0%

LinSig V1 style report

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	-	-	91	114	66	20.0	25.9	0.6	46.5	-	-	-	-
Blackmoorfoot Road/Park Road	-	-	91	114	66	20.0	25.9	0.6	46.5	-	-	-	-
1/2+1/1	845	845	-	-	-	5.7	8.1	-	13.8	58.8	23.4	8.1	31.5
2/1+2/2	587	587	50	114	66	4.8	6.2	0.5	11.5	70.8	8.9	6.2	15.1
3/2+3/1	865	865	-	-	-	6.0	8.9	-	14.9	61.8	24.4	8.9	33.3
4/1	401	401	41	0	0	3.5	2.6	0.1	6.3	56.4	9.6	2.6	12.2
5/1	1105	1105	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	477	477	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	651	651	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	465	465	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
C1 PRC for Signalled Lanes (%): -7.3 PRC Over All Lanes (%): -7.3 Total Delay for Signalled Lanes (pcuHr): 46.49 Total Delay Over All Lanes(pcuHr): 46.49 Cycle Time (s): 180													

Stage Timings

Scenario 9: '2031 With Development Flows - Weekday AM Peak (Peds Every Other Cycle)' (FG17: '2031 With Development Flows - AM Peak ', Plan 1: 'Network Control Plan 1')

Stage	1	2	3	4	1	3	4
Duration	35	6	18	4	56	21	4
Change Point	0	41	55	81	85	147	176

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	-	-		-	-	-	-	-	-	104.3%
Blackmoorfoot Road/Park Road	-	-	N/A	-	-		-	-	-	-	-	-	104.3%
1/2+1/1	Blackmoorfoot Road (n) Left Ahead Right	U	N/A	N/A	B		2	91	-	1048	1951:1832	888+117	104.3 : 104.3%
2/1+2/2	Park Road West Right Left Ahead	U+O	N/A	N/A	D	E	2	47	8	591	1848:1865	435+138	103.1 : 103.1%
3/2+3/1	Blackmoorfoot Road (s) Ahead Right Left	U	N/A	N/A	A		2	91	-	505	2009:1791	976+53	49.1 : 49.1%
4/1	Park Road Left Ahead Right	O	N/A	N/A	C		2	39	-	286	1879	350	81.7%
5/1		U	N/A	N/A	-		-	-	-	668	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	328	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	914	Inf	Inf	0.0%
8/1		U	N/A	N/A	-		-	-	-	520	Inf	Inf	0.0%

LinSig V1 style report

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	42	21.9	50.2	0.5	72.6	-	-	-	-
Blackmoorfoot Road/Park Road	-	-	101	27	42	21.9	50.2	0.5	72.6	-	-	-	-
1/2+1/1	1048	1005	-	-	-	10.5	30.2	-	40.7	139.8	35.5	30.2	65.7
2/1+2/2	591	573	101	27	10	6.8	17.4	0.3	24.6	149.7	15.1	17.4	32.5
3/2+3/1	505	505	-	-	-	2.0	0.5	-	2.5	17.8	9.1	0.5	9.5
4/1	286	286	1	0	32	2.5	2.1	0.2	4.8	60.4	6.8	2.1	8.9
5/1	664	664	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	323	323	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	878	878	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	504	504	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
C1 PRC for Signalled Lanes (%): -15.9 PRC Over All Lanes (%): -15.9 Total Delay for Signalled Lanes (pcuHr): 72.56 Total Delay Over All Lanes(pcuHr): 72.56 Cycle Time (s): 180													

Stage Timings

Scenario 10: '2031 With Development Flows - Weekday PM Peak (Peds Every Other Cycle)' (FG18: '2031 With Development Flows - AM Peak', Plan 1: 'Network Control Plan 1')

Stage	1	2	3	4	1	3	4
Duration	36	6	11	11	40	28	12
Change Point	0	42	56	75	86	132	168

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	-	-		-	-	-	-	-	-	105.6%
Blackmoorfoot Road/Park Road	-	-	N/A	-	-		-	-	-	-	-	-	105.6%
1/2+1/1	Blackmoorfoot Road (n) Left Ahead Right	U	N/A	N/A	B		2	76	-	887	1945:1832	666+183	104.5 : 104.5%
2/1+2/2	Park Road West Right Left Ahead	U+O	N/A	N/A	D	E	2	62	23	635	1847:1865	387+235	101.9 : 101.9%
3/2+3/1	Blackmoorfoot Road (s) Ahead Right Left	U	N/A	N/A	A		2	76	-	911	2010:1791	804+59	105.6 : 105.6%
4/1	Park Road Left Ahead Right	O	N/A	N/A	C		2	39	-	440	1881	422	104.4%
5/1		U	N/A	N/A	-		-	-	-	1159	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	515	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	687	Inf	Inf	0.0%
8/1		U	N/A	N/A	-		-	-	-	512	Inf	Inf	0.0%

LinSig V1 style report

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	-	-	44	194	41	33.4	90.9	0.6	124.9	-	-	-	-
Blackmoorfoot Road/Park Road	-	-	44	194	41	33.4	90.9	0.6	124.9	-	-	-	-
1/2+1/1	887	848	-	-	-	9.8	27.4	-	37.2	151.0	26.1	27.4	53.5
2/1+2/2	635	630	0	194	41	5.3	16.0	0.5	21.7	123.0	11.3	16.0	27.3
3/2+3/1	911	862	-	-	-	11.0	31.5	-	42.5	168.1	27.8	31.5	59.3
4/1	440	422	44	0	0	7.3	16.1	0.1	23.5	192.0	16.6	16.1	32.7
5/1	1107	1107	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	493	493	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	659	659	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	505	505	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
C1 PRC for Signalled Lanes (%): -17.4 PRC Over All Lanes (%): -17.4 Total Delay for Signalled Lanes (pcuHr): 124.90 Total Delay Over All Lanes(pcuHr): 124.90 Cycle Time (s): 180													

Stage Timings

Scenario 11: '2022 Base Flows - Weekday AM Peak (No Peds)' (FG9: '2022 Base Flows - AM Peak ', Plan 2: 'Network Control Plan 2')

Stage	1	3	4
Duration	44	28	4
Change Point	0	50	86

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	-	-	N/A	-	-		-	-	-	-	-	-	71.5%
Blackmoorfoot Road/Park Road	-	-	N/A	-	-		-	-	-	-	-	-	71.5%
1/2+1/1	Blackmoorfoot Road (n) Left Ahead Right	U	N/A	N/A	B		1	44	-	695	1953:1832	829+146	71.3 : 71.3%
2/1+2/2	Park Road West Right Left Ahead	U+O	N/A	N/A	D	E	1	32	4	534	1848:1865	569+178	71.5 : 71.5%
3/2+3/1	Blackmoorfoot Road (s) Ahead Right Left	U	N/A	N/A	A		1	44	-	362	2008:1791	932+63	36.4 : 36.4%
4/1	Park Road Left Ahead Right	O	N/A	N/A	C		1	28	-	248	1888	503	49.3%
5/1		U	N/A	N/A	-		-	-	-	497	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	291	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	608	Inf	Inf	0.0%
8/1		U	N/A	N/A	-		-	-	-	443	Inf	Inf	0.0%

LinSig V1 style report

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	-	-	151	3	3	9.7	3.2	0.3	13.3	-	-	-	-
Blackmoorfoot Road/Park Road	-	-	151	3	3	9.7	3.2	0.3	13.3	-	-	-	-
1/2+1/1	695	695	-	-	-	3.3	1.2	-	4.6	23.6	13.0	1.2	14.2
2/1+2/2	534	534	121	3	3	3.4	1.2	0.2	4.8	32.7	9.3	1.2	10.5
3/2+3/1	362	362	-	-	-	1.4	0.3	-	1.7	16.6	5.5	0.3	5.7
4/1	248	248	30	0	0	1.6	0.5	0.1	2.2	32.4	4.8	0.5	5.3
5/1	497	497	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	291	291	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	608	608	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	443	443	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
C1 PRC for Signalled Lanes (%): 25.9 PRC Over All Lanes (%): 25.9 Total Delay for Signalled Lanes (pcuHr): 13.31 Total Delay Over All Lanes(pcuHr): 13.31 Cycle Time (s): 90													

Stage Timings

Scenario 12: '2022 Base Flows - Weekday PM Peak (No Peds)' (FG10: '2022 Base Flows - PM Peak', Plan 2: 'Network Control Plan 2')

Stage	1	3	4
Duration	43	26	7
Change Point	0	49	83

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	-	-		-	-	-	-	-	-	68.9%
Blackmoorfoot Road/Park Road	-	-	N/A	-	-		-	-	-	-	-	-	68.9%
1/2+1/1	Blackmoorfoot Road (n) Left Ahead Right	U	N/A	N/A	B		1	43	-	661	1945:1832	707+253	68.9 : 68.9%
2/1+2/2	Park Road West Right Left Ahead	U+O	N/A	N/A	D	E	1	33	7	572	1847:1865	523+315	68.3 : 68.3%
3/2+3/1	Blackmoorfoot Road (s) Ahead Right Left	U	N/A	N/A	A		1	43	-	624	2008:1791	884+87	64.3 : 64.3%
4/1	Park Road Left Ahead Right	O	N/A	N/A	C		1	26	-	372	1894	552	67.3%
5/1		U	N/A	N/A	-		-	-	-	820	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	468	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	495	Inf	Inf	0.0%
8/1		U	N/A	N/A	-		-	-	-	446	Inf	Inf	0.0%

LinSig V1 style report

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	-	-	172	79	5	12.7	4.1	0.6	17.4	-	-	-	-
Blackmoorfoot Road/Park Road	-	-	172	79	5	12.7	4.1	0.6	17.4	-	-	-	-
1/2+1/1	661	661	-	-	-	3.1	1.1	-	4.2	23.1	11.8	1.1	12.9
2/1+2/2	572	572	131	79	5	3.8	1.1	0.5	5.3	33.6	7.7	1.1	8.7
3/2+3/1	624	624	-	-	-	3.0	0.9	-	3.9	22.3	11.5	0.9	12.4
4/1	372	372	41	0	0	2.8	1.0	0.1	4.0	38.3	8.2	1.0	9.2
5/1	820	820	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	468	468	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	495	495	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	446	446	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
C1 PRC for Signalled Lanes (%): 30.6 PRC Over All Lanes (%): 30.6 Total Delay for Signalled Lanes (pcuHr): 17.40 Total Delay Over All Lanes(pcuHr): 17.40 Cycle Time (s): 90													

Stage Timings

Scenario 13: '2031 Base Flows - Weekday AM Peak (No Peds)' (FG11: '2031 Base Flows - AM Peak ', Plan 2: 'Network Control Plan 2')

Stage	1	3	4
Duration	44	28	4
Change Point	0	50	86

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	-	-		-	-	-	-	-	-	78.5%
Blackmoorfoot Road/Park Road	-	-	N/A	-	-		-	-	-	-	-	-	78.5%
1/2+1/1	Blackmoorfoot Road (n) Left Ahead Right	U	N/A	N/A	B		1	44	-	748	1952:1832	835+139	76.8 : 76.8%
2/1+2/2	Park Road West Right Left Ahead	U+O	N/A	N/A	D	E	1	32	4	584	1848:1865	572+172	78.5 : 78.5%
3/2+3/1	Blackmoorfoot Road (s) Ahead Right Left	U	N/A	N/A	A		1	44	-	391	2008:1791	928+66	39.3 : 39.3%
4/1	Park Road Left Ahead Right	O	N/A	N/A	C		1	28	-	272	1889	438	62.1%
5/1		U	N/A	N/A	-		-	-	-	533	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	313	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	660	Inf	Inf	0.0%
8/1		U	N/A	N/A	-		-	-	-	489	Inf	Inf	0.0%

LinSig V1 style report

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	-	-	162	3	3	11.0	4.5	0.4	15.9	-	-	-	-
Blackmoorfoot Road/Park Road	-	-	162	3	3	11.0	4.5	0.4	15.9	-	-	-	-
1/2+1/1	748	748	-	-	-	3.8	1.6	-	5.4	25.9	14.6	1.6	16.3
2/1+2/2	584	584	129	3	3	3.9	1.8	0.2	5.9	36.3	10.8	1.8	12.6
3/2+3/1	391	391	-	-	-	1.5	0.3	-	1.8	17.0	6.0	0.3	6.3
4/1	272	272	33	0	0	1.8	0.8	0.1	2.8	36.8	5.4	0.8	6.2
5/1	533	533	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	313	313	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	660	660	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	489	489	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
C1 PRC for Signalled Lanes (%): 14.7 PRC Over All Lanes (%): 14.7 Total Delay for Signalled Lanes (pcuHr): 15.89 Total Delay Over All Lanes(pcuHr): 15.89 Cycle Time (s): 90													

Stage Timings

Scenario 14: '2031 Base Flows - Weekday PM Peak (No Peds)' (FG12: '2031 Base Flows - PM Peak', Plan 2: 'Network Control Plan 2')

Stage	1	3	4
Duration	42	26	8
Change Point	0	48	82

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	-	-		-	-	-	-	-	-	75.9%
Blackmoorfoot Road/Park Road	-	-	N/A	-	-		-	-	-	-	-	-	75.9%
1/2+1/1	Blackmoorfoot Road (n) Left Ahead Right	U	N/A	N/A	B		1	42	-	703	1944:1832	695+243	75.0 : 75.0%
2/1+2/2	Park Road West Right Left Ahead	U+O	N/A	N/A	D	E	1	34	8	620	1847:1865	542+300	72.9 : 75.0%
3/2+3/1	Blackmoorfoot Road (s) Ahead Right Left	U	N/A	N/A	A		1	42	-	670	2008:1791	861+88	70.6 : 70.6%
4/1	Park Road Left Ahead Right	O	N/A	N/A	C		1	26	-	411	1895	542	75.9%
5/1		U	N/A	N/A	-		-	-	-	874	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	506	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	531	Inf	Inf	0.0%
8/1		U	N/A	N/A	-		-	-	-	493	Inf	Inf	0.0%

LinSig V1 style report

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	-	-	142	124	5	14.4	5.6	0.7	20.7	-	-	-	-
Blackmoorfoot Road/Park Road	-	-	142	124	5	14.4	5.6	0.7	20.7	-	-	-	-
1/2+1/1	703	703	-	-	-	3.6	1.5	-	5.1	26.1	13.4	1.5	14.8
2/1+2/2	620	620	96	124	5	4.1	1.4	0.6	6.1	35.2	9.2	1.4	10.5
3/2+3/1	670	670	-	-	-	3.4	1.2	-	4.6	24.9	12.9	1.2	14.1
4/1	411	411	46	0	0	3.2	1.5	0.1	4.9	42.8	9.2	1.5	10.8
5/1	874	874	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	506	506	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	531	531	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	493	493	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
C1 PRC for Signalled Lanes (%): 18.6 PRC Over All Lanes (%): 18.6 Total Delay for Signalled Lanes (pcuHr): 20.70 Total Delay Over All Lanes(pcuHr): 20.70 Cycle Time (s): 90													

Stage Timings

Scenario 15: '2022 With Development Flows - Weekday AM Peak (No Peds)' (FG15: '2022 With Development Flows - AM Peak ', Plan 2: 'Network Control Plan 2')

Stage	1	3	4
Duration	51	21	4
Change Point	0	57	86

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	-	-		-	-	-	-	-	-	89.1%
Blackmoorfoot Road/Park Road	-	-	N/A	-	-		-	-	-	-	-	-	89.1%
1/2+1/1	Blackmoorfoot Road (n) Left Ahead Right	U	N/A	N/A	B		1	51	-	995	1951:1832	989+134	88.6 : 88.6%
2/1+2/2	Park Road West Right Left Ahead	U+O	N/A	N/A	D	E	1	25	4	541	1848:1865	457+150	89.1 : 89.1%
3/2+3/1	Blackmoorfoot Road (s) Ahead Right Left	U	N/A	N/A	A		1	51	-	476	2010:1791	1096+56	41.3 : 41.3%
4/1	Park Road Left Ahead Right	O	N/A	N/A	C		1	21	-	262	1878	354	73.9%
5/1		U	N/A	N/A	-		-	-	-	632	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	306	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	862	Inf	Inf	0.0%
8/1		U	N/A	N/A	-		-	-	-	474	Inf	Inf	0.0%

LinSig V1 style report

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	-	-	158	3	3	12.5	9.1	0.4	22.0	-	-	-	-
Blackmoorfoot Road/Park Road	-	-	158	3	3	12.5	9.1	0.4	22.0	-	-	-	-
1/2+1/1	995	995	-	-	-	4.5	3.7	-	8.2	29.6	21.0	3.7	24.7
2/1+2/2	541	541	128	3	3	4.4	3.7	0.3	8.4	55.6	10.8	3.7	14.5
3/2+3/1	476	476	-	-	-	1.4	0.4	-	1.8	13.2	6.6	0.4	6.9
4/1	262	262	30	0	0	2.2	1.4	0.1	3.7	50.7	5.7	1.4	7.1
5/1	632	632	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	306	306	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	862	862	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	474	474	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
C1 PRC for Signalled Lanes (%): 1.0 PRC Over All Lanes (%): 1.0 Total Delay for Signalled Lanes (pcuHr): 21.96 Total Delay Over All Lanes(pcuHr): 21.96 Cycle Time (s): 90													

Stage Timings

Scenario 16: '2022 With Development Flows - Weekday PM Peak (No Peds)' (FG16: '2022 With Development Flows - PM Peak', Plan 2: 'Network Control Plan 2')

Stage	1	3	4
Duration	44	26	6
Change Point	0	50	84

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	-	-		-	-	-	-	-	-	86.9%
Blackmoorfoot Road/Park Road	-	-	N/A	-	-		-	-	-	-	-	-	86.9%
1/2+1/1	Blackmoorfoot Road (n) Left Ahead Right	U	N/A	N/A	B		1	44	-	845	1946:1832	765+212	86.5 : 86.5%
2/1+2/2	Park Road West Right Left Ahead	U+O	N/A	N/A	D	E	1	32	6	587	1847:1865	422+272	84.7 : 84.7%
3/2+3/1	Blackmoorfoot Road (s) Ahead Right Left	U	N/A	N/A	A		1	44	-	865	2010:1791	931+64	86.9 : 86.9%
4/1	Park Road Left Ahead Right	O	N/A	N/A	C		1	26	-	401	1880	556	72.1%
5/1		U	N/A	N/A	-		-	-	-	1105	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	477	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	651	Inf	Inf	0.0%
8/1		U	N/A	N/A	-		-	-	-	465	Inf	Inf	0.0%

LinSig V1 style report

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	-	-	150	83	38	16.6	10.1	0.6	27.4	-	-	-	-
Blackmoorfoot Road/Park Road	-	-	150	83	38	16.6	10.1	0.6	27.4	-	-	-	-
1/2+1/1	845	845	-	-	-	4.6	3.1	-	7.6	32.4	17.8	3.1	20.8
2/1+2/2	587	587	109	83	38	4.1	2.6	0.6	7.3	44.9	7.9	2.6	10.5
3/2+3/1	865	865	-	-	-	4.8	3.2	-	7.9	33.1	18.9	3.2	22.1
4/1	401	401	41	0	0	3.1	1.3	0.1	4.5	40.3	8.9	1.3	10.2
5/1	1105	1105	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	477	477	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	651	651	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	465	465	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
C1 PRC for Signalled Lanes (%): 3.6 PRC Over All Lanes (%): 3.6 Total Delay for Signalled Lanes (pcuHr): 27.37 Total Delay Over All Lanes(pcuHr): 27.37 Cycle Time (s): 90													

Stage Timings

Scenario 17: '2031 With Development Flows - Weekday AM Peak (No Peds)' (FG17: '2031 With Development Flows - AM Peak ', Plan 2: 'Network Control Plan 2')

Stage	1	3	4
Duration	50	22	4
Change Point	0	56	86

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	-	-		-	-	-	-	-	-	95.1%
Blackmoorfoot Road/Park Road	-	-	N/A	-	-		-	-	-	-	-	-	95.1%
1/2+1/1	Blackmoorfoot Road (n) Left Ahead Right	U	N/A	N/A	B		1	50	-	1048	1951:1832	973+128	95.1 : 95.1%
2/1+2/2	Park Road West Right Left Ahead	U+O	N/A	N/A	D	E	1	26	4	591	1848:1865	475+150	94.6 : 94.6%
3/2+3/1	Blackmoorfoot Road (s) Ahead Right Left	U	N/A	N/A	A		1	50	-	505	2009:1791	1071+58	44.7 : 44.7%
4/1	Park Road Left Ahead Right	O	N/A	N/A	C		1	22	-	286	1879	352	81.3%
5/1		U	N/A	N/A	-		-	-	-	668	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	328	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	914	Inf	Inf	0.0%
8/1		U	N/A	N/A	-		-	-	-	520	Inf	Inf	0.0%

LinSig V1 style report

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	-	-	156	9	11	14.1	16.4	0.5	31.0	-	-	-	-
Blackmoorfoot Road/Park Road	-	-	156	9	11	14.1	16.4	0.5	31.0	-	-	-	-
1/2+1/1	1048	1048	-	-	-	5.3	7.6	-	12.9	44.3	24.2	7.6	31.8
2/1+2/2	591	591	130	9	3	4.8	6.4	0.3	11.5	70.1	12.4	6.4	18.8
3/2+3/1	505	505	-	-	-	1.6	0.4	-	2.0	14.2	7.2	0.4	7.6
4/1	286	286	25	0	8	2.3	2.0	0.2	4.6	57.5	6.3	2.0	8.3
5/1	668	668	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	328	328	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	914	914	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	520	520	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
C1 PRC for Signalled Lanes (%): -5.7 PRC Over All Lanes (%): -5.7 Total Delay for Signalled Lanes (pcuHr): 30.98 Total Delay Over All Lanes(pcuHr): 30.98 Cycle Time (s): 90													

Stage Timings

Scenario 18: '2031 With Development Flows - Weekday PM Peak (No Peds)' (FG18: '2031 With Development Flows - AM Peak', Plan 2: 'Network Control Plan 2')

Stage	1	3	4
Duration	43	25	8
Change Point	0	49	82

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	-	-		-	-	-	-	-	-	93.6%
Blackmoorfoot Road/Park Road	-	-	N/A	-	-		-	-	-	-	-	-	93.6%
1/2+1/1	Blackmoorfoot Road (n) Left Ahead Right	U	N/A	N/A	B		1	43	-	887	1945:1832	749+206	92.9 : 92.9%
2/1+2/2	Park Road West Right Left Ahead	U+O	N/A	N/A	D	E	1	33	8	635	1847:1865	439+267	90.0 : 90.0%
3/2+3/1	Blackmoorfoot Road (s) Ahead Right Left	U	N/A	N/A	A		1	43	-	911	2010:1791	907+66	93.6 : 93.6%
4/1	Park Road Left Ahead Right	O	N/A	N/A	C		1	25	-	440	1881	528	83.3%
5/1		U	N/A	N/A	-		-	-	-	1159	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	515	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	687	Inf	Inf	0.0%
8/1		U	N/A	N/A	-		-	-	-	512	Inf	Inf	0.0%

LinSig V1 style report

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	-	-	108	124	53	18.9	18.1	0.7	37.7	-	-	-	-
Blackmoorfoot Road/Park Road	-	-	108	124	53	18.9	18.1	0.7	37.7	-	-	-	-
1/2+1/1	887	887	-	-	-	5.2	5.6	-	10.8	43.8	20.1	5.6	25.7
2/1+2/2	635	635	62	124	53	4.5	4.1	0.6	9.2	51.9	9.4	4.1	13.5
3/2+3/1	911	911	-	-	-	5.5	6.1	-	11.6	45.9	21.2	6.1	27.3
4/1	440	440	46	0	0	3.6	2.4	0.1	6.1	50.1	10.3	2.4	12.6
5/1	1159	1159	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	515	515	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	687	687	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	512	512	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
C1 PRC for Signalled Lanes (%): -4.0 PRC Over All Lanes (%): -4.0 Total Delay for Signalled Lanes (pcuHr): 37.69 Total Delay Over All Lanes(pcuHr): 37.69 Cycle Time (s): 90													

APPENDIX 9

LINSIG Output – A62 Manchester Road/Blackmoorfoot Road/Birkhouse Lane Junction

User and Project Details

Project:	Proposed Residential Development, Blackmoorfoot Road, Huddersfield
Title:	A62 Manchester Road-Blackmoorfoot Road
Location:	Huddersfield
Additional detail:	Based on Agreed Model
File name:	A62 Manchester Road-Blackmoorfoot Road - Sept 19.lsg3x
Author:	
Company:	Croft
Address:	

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	Filter	B	4	0
E	Dummy		7	7
F	Dummy		7	7

Phase Intergreens Matrix

	Starting Phase						
Terminating Phase		A	B	C	D	E	F
	A		-	6	6	6	3
	B	-		6	-	-	3
	C	5	5		-	-	3
	D	0	-	-		-	3
	E	0	-	-	2		3
	F	2	2	2	2	2	

Phase Delays

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

Prohibited Stage Change

	To Stage		
	1	2	3
From Stage	1	6	6
	2	5	2
	3	5	X

Phases in Stage

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

Give-Way Lane Input Data

Junction: A62 Manchester Road-Blackmoorfoot 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)
1/2 (A62 Manchester Road (e))	7/1 (Right)	1439	0	3/1	1.09	All	1.00	1.00	0.50	1	1.00
2/1 (Blackmoorfoot Road)	6/1 (Left)	1439	0	1/2	1.09	To 6/1 (Ahead)	-	-	-	-	-
	7/1 (Ahead)	1439	0	1/2 3/1	1.09 1.09	All All					
3/1 (A62 Manchester Road (w))	5/1 (Right)	1439	0	1/1	1.09	To 5/1 (Left)	2.00	2.00	0.50	2	2.00
				1/2	1.09	To 6/1 (Ahead)					

Lane Input Data

Junction: A62 Manchester Road-Blackmoorfoot 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 (A62 Manchester Road (e))	U	B D	2	3	6.0	Geom	-	3.50	0.00	Y	Arm 5 Left	20.00
1/2 (A62 Manchester Road (e))	O	B	2	3	60.0	Geom	-	3.50	0.00	N	Arm 6 Ahead	Inf
											Arm 7 Right	Inf
2/1 (Blackmoorfoot Road)	O		2	3	2.0	Geom	-	3.80	0.00	Y	Arm 6 Left	6.00
											Arm 7 Ahead	Inf
2/2 (Blackmoorfoot Road)	U	C	2	3	60.0	Geom	-	3.50	0.00	N	Arm 4 Right	15.00
3/1 (A62 Manchester Road (w))	O	A	2	3	60.0	Geom	-	3.50	0.00	Y	Arm 4 Ahead	Inf
											Arm 5 Right	10.00
											Arm 7 Left	Inf
4/1	U		2	3	5.0	Inf	-	-	-	-	-	-
5/1	U		2	3	5.0	Inf	-	-	-	-	-	-
6/1	U		2	3	60.0	Inf	-	-	-	-	-	-
7/1 (Birkhouse Lane)	U		2	3	60.0	Inf	-	-	-	-	-	-

Lane Saturation Flows**Scenario 1: '2022 Base Flows - AM Peak '** (FG1: '2022 Base Flows - AM Peak ', Plan 1: 'Network Control Plan 1')

Junction: A62 Manchester Road-Blackmoorfoot 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 (A62 Manchester Road (e))	3.50	0.00	Y	Arm 5 Left	20.00	100.0 %	1828	1828
1/2 (A62 Manchester Road (e))	3.50	0.00	N	Arm 6 Ahead	Inf	82.2 %	2105	2105
				Arm 7 Right	Inf	17.8 %		
2/1 (Blackmoorfoot Road)	3.80	0.00	Y	Arm 6 Left	6.00	4.8 %	1972	1972
				Arm 7 Ahead	Inf	95.2 %		
2/2 (Blackmoorfoot Road)	3.50	0.00	N	Arm 4 Right	15.00	100.0 %	1914	1914
3/1 (A62 Manchester Road (w))	3.50	0.00	Y	Arm 4 Ahead	Inf	84.3 %	1962	1962
				Arm 5 Right	10.00	1.1 %		
				Arm 7 Left	Inf	14.6 %		
4/1	Infinite Saturation Flow						Inf	Inf
5/1	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf
7/1 (Birkhouse Lane Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 2: '2022 Base Flows - PM Peak ' (FG2: '2022 Base Flows - PM Peak ', Plan 1: 'Network Control Plan 1')

Junction: A62 Manchester Road-Blackmoorfoot 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 (A62 Manchester Road (e))	3.50	0.00	Y	Arm 5 Left	20.00	100.0 %	1828	1828
1/2 (A62 Manchester Road (e))	3.50	0.00	N	Arm 6 Ahead	Inf	90.8 %	2105	2105
				Arm 7 Right	Inf	9.2 %		
2/1 (Blackmoorfoot Road)	3.80	0.00	Y	Arm 6 Left	6.00	9.5 %	1949	1949
				Arm 7 Ahead	Inf	90.5 %		
2/2 (Blackmoorfoot Road)	3.50	0.00	N	Arm 4 Right	15.00	100.0 %	1914	1914
3/1 (A62 Manchester Road (w))	3.50	0.00	Y	Arm 4 Ahead	Inf	80.2 %	1951	1951
				Arm 5 Right	10.00	4.9 %		
				Arm 7 Left	Inf	14.8 %		
4/1	Infinite Saturation Flow						Inf	Inf
5/1	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf
7/1 (Birkhouse Lane Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 3: '2031 Base Flows - AM Peak ' (FG3: '2031 Base Flows - AM Peak ', Plan 1: 'Network Control Plan 1')

Junction: A62 Manchester Road-Blackmoorfoot 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 (A62 Manchester Road (e))	3.50	0.00	Y	Arm 5 Left	20.00	100.0 %	1828	1828	
1/2 (A62 Manchester Road (e))	3.50	0.00	N	Arm 6 Ahead	Inf	82.4 %	2105	2105	
				Arm 7 Right	Inf	17.6 %			
2/1 (Blackmoorfoot Road)	3.80	0.00	Y	Arm 6 Left	6.00	4.6 %	1972	1972	
				Arm 7 Ahead	Inf	95.4 %			
2/2 (Blackmoorfoot Road)	3.50	0.00	N	Arm 4 Right	15.00	100.0 %	1914	1914	
3/1 (A62 Manchester Road (w))	3.50	0.00	Y	Arm 4 Ahead	Inf	84.3 %	1962	1962	
				Arm 5 Right	10.00	1.0 %			
				Arm 7 Left	Inf	14.7 %			
4/1	Infinite Saturation Flow						Inf	Inf	
5/1	Infinite Saturation Flow						Inf	Inf	
6/1	Infinite Saturation Flow						Inf	Inf	
7/1 (Birkhouse Lane Lane 1)	Infinite Saturation Flow						Inf	Inf	

Scenario 4: '2031 Base Flows - PM Peak ' (FG4: '2031 Base Flows - PM Peak ', Plan 1: 'Network Control Plan 1')

Junction: A62 Manchester Road-Blackmoorfoot 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 (A62 Manchester Road (e))	3.50	0.00	Y	Arm 5 Left	20.00	100.0 %	1828	1828
1/2 (A62 Manchester Road (e))	3.50	0.00	N	Arm 6 Ahead Arm 7 Right	Inf Inf	90.9 % 9.1 %	2105	2105
2/1 (Blackmoorfoot Road)	3.80	0.00	Y	Arm 6 Left Arm 7 Ahead	6.00 Inf	9.1 % 90.9 %	1951	1951
2/2 (Blackmoorfoot Road)	3.50	0.00	N	Arm 4 Right	15.00	100.0 %	1914	1914
3/1 (A62 Manchester Road (w))	3.50	0.00	Y	Arm 4 Ahead	Inf	80.4 %	1951	1951
				Arm 5 Right	10.00	4.7 %		
				Arm 7 Left	Inf	14.9 %		
4/1	Infinite Saturation Flow						Inf	Inf
5/1	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf
7/1 (Birkhouse Lane Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 5: '2022 With Development Flows - AM Peak ' (FG5: '2022 With Development Flows - AM Peak ', Plan 1: 'Network Control Plan 1')

Junction: A62 Manchester Road-Blackmoorfoot 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 (A62 Manchester Road (e))	3.50	0.00	Y	Arm 5 Left	20.00	100.0 %	1828	1828
1/2 (A62 Manchester Road (e))	3.50	0.00	N	Arm 6 Ahead Arm 7 Right	Inf Inf	82.2 % 17.8 %	2105	2105
2/1 (Blackmoorfoot Road)	3.80	0.00	Y	Arm 6 Left Arm 7 Ahead	6.00 Inf	4.8 % 95.2 %	1972	1972
2/2 (Blackmoorfoot Road)	3.50	0.00	N	Arm 4 Right Arm 4 Ahead	15.00 Inf	100.0 % 84.3 %	1914	1914
3/1 (A62 Manchester Road (w))	3.50	0.00	Y	Arm 5 Right Arm 7 Left	10.00 Inf	1.1 % 14.6 %	1962	1962
4/1	Infinite Saturation Flow						Inf	Inf
5/1	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf
7/1 (Birkhouse Lane Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 6: '2022 With Development Flows - PM Peak ' (FG6: '2022 With Development Flows - PM Peak ', Plan 1: 'Network Control Plan 1')

Junction: A62 Manchester Road-Blackmoorfoot 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 (A62 Manchester Road (e))	3.50	0.00	Y	Arm 5 Left	20.00	100.0 %	1828	1828
1/2 (A62 Manchester Road (e))	3.50	0.00	N	Arm 6 Ahead Arm 7 Right	Inf Inf	90.8 % 9.2 %	2105	2105
2/1 (Blackmoorfoot Road)	3.80	0.00	Y	Arm 6 Left Arm 7 Ahead	6.00 Inf	9.5 % 90.5 %	1949	1949
2/2 (Blackmoorfoot Road)	3.50	0.00	N	Arm 4 Right Arm 4 Ahead	15.00 Inf	100.0 % 80.2 %	1914	1914
3/1 (A62 Manchester Road (w))	3.50	0.00	Y	Arm 5 Right Arm 7 Left	10.00 Inf	4.9 % 14.8 %	1951	1951
4/1	Infinite Saturation Flow						Inf	Inf
5/1	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf
7/1 (Birkhouse Lane Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 7: '2031 With Development Flows - AM Peak ' (FG7: '2031 With Development Flows - AM Peak ', Plan 1: 'Network Control Plan 1')

Junction: A62 Manchester Road-Blackmoorfoot 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 (A62 Manchester Road (e))	3.50	0.00	Y	Arm 5 Left	20.00	100.0 %	1828	1828
1/2 (A62 Manchester Road (e))	3.50	0.00	N	Arm 6 Ahead	Inf	82.4 %	2105	2105
				Arm 7 Right	Inf	17.6 %		
2/1 (Blackmoorfoot Road)	3.80	0.00	Y	Arm 6 Left	6.00	4.6 %	1972	1972
				Arm 7 Ahead	Inf	95.4 %		
2/2 (Blackmoorfoot Road)	3.50	0.00	N	Arm 4 Right	15.00	100.0 %	1914	1914
3/1 (A62 Manchester Road (w))	3.50	0.00	Y	Arm 4 Ahead	Inf	84.3 %	1962	1962
				Arm 5 Right	10.00	1.0 %		
				Arm 7 Left	Inf	14.7 %		
4/1	Infinite Saturation Flow						Inf	Inf
5/1	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf
7/1 (Birkhouse Lane Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 8: '2031 With Development Flows - PM Peak ' (FG8: '2031 With Development Flows - PM Peak ', Plan 1: 'Network Control Plan 1')

Junction: A62 Manchester Road-Blackmoorfoot 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 (A62 Manchester Road (e))	3.50	0.00	Y	Arm 5 Left	20.00	100.0 %	1828	1828
1/2 (A62 Manchester Road (e))	3.50	0.00	N	Arm 6 Ahead Arm 7 Right	Inf Inf	90.9 % 9.1 %	2105	2105
2/1 (Blackmoorfoot Road)	3.80	0.00	Y	Arm 6 Left Arm 7 Ahead	6.00 Inf	9.1 % 90.9 %	1951	1951
2/2 (Blackmoorfoot Road)	3.50	0.00	N	Arm 4 Right Arm 4 Ahead	15.00 Inf	100.0 % 80.4 %	1914	1914
3/1 (A62 Manchester Road (w))	3.50	0.00	Y	Arm 5 Right Arm 7 Left	10.00 Inf	4.7 % 14.9 %	1951	1951
4/1	Infinite Saturation Flow						Inf	Inf
5/1	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf
7/1 (Birkhouse Lane Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 9: '2022 With Development Flows - AM Peak (Revised Dist)' (FG9: '2022 With Development Flows - AM Peak (Revised Dist) ', Plan 1: 'Network Control Plan 1')

Junction: A62 Manchester Road-Blackmoorfoot 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 (A62 Manchester Road (e))	3.50	0.00	Y	Arm 5 Left	20.00	100.0 %	1828	1828
1/2 (A62 Manchester Road (e))	3.50	0.00	N	Arm 6 Ahead Arm 7 Right	Inf Inf	82.2 % 17.8 %	2105	2105
2/1 (Blackmoorfoot Road)	3.80	0.00	Y	Arm 6 Left Arm 7 Ahead	6.00 Inf	3.5 % 96.5 %	1977	1977
2/2 (Blackmoorfoot Road)	3.50	0.00	N	Arm 4 Right Arm 4 Ahead	15.00 Inf	100.0 % 84.3 %	1914	1914
3/1 (A62 Manchester Road (w))	3.50	0.00	Y	Arm 5 Right Arm 7 Left	10.00 Inf	1.1 % 14.6 %	1962	1962
4/1	Infinite Saturation Flow						Inf	Inf
5/1	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf
7/1 (Birkhouse Lane Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 10: '2022 With Development Flows - PM Peak (Revised Dist) ' (FG10: '2022 With Development Flows - PM Peak (Revised Dist) ', Plan 1: 'Network Control Plan 1')

Junction: A62 Manchester Road-Blackmoorfoot 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 (A62 Manchester Road (e))	3.50	0.00	Y	Arm 5 Left	20.00	100.0 %	1828	1828
1/2 (A62 Manchester Road (e))	3.50	0.00	N	Arm 6 Ahead	Inf	90.8 %	2105	2105
				Arm 7 Right	Inf	9.2 %		
2/1 (Blackmoorfoot Road)	3.80	0.00	Y	Arm 6 Left	6.00	7.2 %	1960	1960
				Arm 7 Ahead	Inf	92.8 %		
2/2 (Blackmoorfoot Road)	3.50	0.00	N	Arm 4 Right	15.00	100.0 %	1914	1914
3/1 (A62 Manchester Road (w))	3.50	0.00	Y	Arm 4 Ahead	Inf	80.2 %	1951	1951
				Arm 5 Right	10.00	4.9 %		
				Arm 7 Left	Inf	14.8 %		
4/1	Infinite Saturation Flow						Inf	Inf
5/1	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf
7/1 (Birkhouse Lane Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 11: '2031 With Development Flows - AM Peak (Revised Dist)' (FG11: '2031 With Development Flows - AM Peak (Revised Dist)', Plan 1: 'Network Control Plan 1')

Junction: A62 Manchester Road-Blackmoorfoot 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 (A62 Manchester Road (e))	3.50	0.00	Y	Arm 5 Left	20.00	100.0 %	1828	1828
1/2 (A62 Manchester Road (e))	3.50	0.00	N	Arm 6 Ahead Arm 7 Right	Inf Inf	82.4 % 17.6 %	2105	2105
2/1 (Blackmoorfoot Road)	3.80	0.00	Y	Arm 6 Left Arm 7 Ahead	6.00 Inf	3.5 % 96.5 %	1978	1978
2/2 (Blackmoorfoot Road)	3.50	0.00	N	Arm 4 Right Arm 4 Ahead	15.00 Inf	100.0 % 84.3 %	1914	1914
3/1 (A62 Manchester Road (w))	3.50	0.00	Y	Arm 5 Right Arm 7 Left	10.00 Inf	1.0 % 14.7 %	1962	1962
4/1	Infinite Saturation Flow						Inf	Inf
5/1	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf
7/1 (Birkhouse Lane Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 12: '2031 With Development Flows - PM Peak (Revised Dist)' (FG12: '2031 With Development Flows - PM Peak (Revised Dist)', Plan 1: 'Network Control Plan 1')

Junction: A62 Manchester Road-Blackmoorfoot 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 (A62 Manchester Road (e))	3.50	0.00	Y	Arm 5 Left	20.00	100.0 %	1828	1828
1/2 (A62 Manchester Road (e))	3.50	0.00	N	Arm 6 Ahead Arm 7 Right	Inf Inf	90.9 % 9.1 %	2105	2105
2/1 (Blackmoorfoot Road)	3.80	0.00	Y	Arm 6 Left Arm 7 Ahead	6.00 Inf	7.0 % 93.0 %	1961	1961
2/2 (Blackmoorfoot Road)	3.50	0.00	N	Arm 4 Right Arm 4 Ahead	15.00 Inf	100.0 % 80.4 %	1914	1914
3/1 (A62 Manchester Road (w))	3.50	0.00	Y	Arm 5 Right Arm 7 Left	10.00 Inf	4.7 % 14.9 %	1951	1951
4/1	Infinite Saturation Flow						Inf	Inf
5/1	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf
7/1 (Birkhouse Lane Lane 1)	Infinite Saturation Flow						Inf	Inf

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: '2022 Base Flows - AM Peak '	07:45	08:45	01:00	
2: '2022 Base Flows - PM Peak '	16:30	17:30	01:00	
3: '2031 Base Flows - AM Peak '	07:45	08:45	01:00	
4: '2031 Base Flows - PM Peak '	16:30	17:30	01:00	
5: '2022 With Development Flows - AM Peak '	07:45	08:45	01:00	
6: '2022 With Development Flows - PM Peak '	16:30	17:30	01:00	
7: '2031 With Development Flows - AM Peak '	07:45	08:45	01:00	
8: '2031 With Development Flows - PM Peak '	16:30	17:30	01:00	
9: '2022 With Development Flows - AM Peak (Revised Dist) '	07:45	08:45	01:00	
10: '2022 With Development Flows - PM Peak (Revised Dist) '	16:30	17:30	01:00	
11: '2031 With Development Flows - AM Peak (Revised Dist) '	07:45	08:45	01:00	
12: '2031 With Development Flows - PM Peak (Revised Dist) '	16:30	17:30	01:00	

Traffic Flows, Desired**FG1: '2022 Base Flows - AM Peak '****Desired Flow :**

	Destination					
Origin		A	B	C	D	Tot.
	A	0	536	7	93	636
	B	290	0	319	63	672
	C	16	382	0	320	718
	D	0	0	0	0	0
	Tot.	306	918	326	476	2026

FG2: '2022 Base Flows - PM Peak '**Desired Flow :**

	Destination					
Origin		A	B	C	D	Tot.
	A	0	406	25	75	506
	B	493	0	598	50	1141
	C	21	362	0	200	583
	D	0	0	0	0	0
	Tot.	514	768	623	325	2230

FG3: '2031 Base Flows - AM Peak '

Desired Flow :

	Destination					
		A	B	C	D	Tot.
Origin	A	0	590	7	103	700
	B	322	0	344	69	735
	C	17	413	0	351	781
	D	0	0	0	0	0
	Tot.	339	1003	351	523	2216

FG4: '2031 Base Flows - PM Peak '

Desired Flow :

	Destination					
		A	B	C	D	Tot.
Origin	A	0	448	26	83	557
	B	550	0	645	55	1250
	C	22	386	0	220	628
	D	0	0	0	0	0
	Tot.	572	834	671	358	2435

FG5: '2022 With Development Flows - AM Peak '

Desired Flow :

	Destination					
		A	B	C	D	Tot.
Origin	A	0	536	7	93	636
	B	290	0	433	63	786
	C	16	637	0	320	973
	D	0	0	0	0	0
	Tot.	306	1173	440	476	2395

FG6: '2022 With Development Flows - PM Peak '

Desired Flow :

	Destination					
		A	B	C	D	Tot.
Origin	A	0	406	25	75	506
	B	493	0	839	50	1382
	C	21	518	0	200	739
	D	0	0	0	0	0
	Tot.	514	924	864	325	2627

FG7: '2031 With Development Flows - AM Peak '

Desired Flow :

	Destination					
		A	B	C	D	Tot.
Origin	A	0	590	7	103	700
	B	322	0	459	69	850
	C	17	667	0	351	1035
	D	0	0	0	0	0
	Tot.	339	1257	466	523	2585

FG8: '2031 With Development Flows - PM Peak '

Desired Flow :

	Destination					
		A	B	C	D	Tot.
Origin	A	0	448	26	83	557
	B	550	0	887	55	1492
	C	22	542	0	220	784
	D	0	0	0	0	0
	Tot.	572	990	913	358	2833

FG9: '2022 With Development Flows - AM Peak (Revised Dist) '

Desired Flow :

	Destination					
		A	B	C	D	Tot.
Origin	A	0	536	7	93	636
	B	290	0	433	63	786
	C	16	521	0	435	972
	D	0	0	0	0	0
	Tot.	306	1057	440	591	2394

FG10: '2022 With Development Flows - PM Peak (Revised Dist) '

Desired Flow :

	Destination					
		A	B	C	D	Tot.
Origin	A	0	406	25	75	506
	B	493	0	839	50	1382
	C	21	447	0	271	739
	D	0	0	0	0	0
	Tot.	514	853	864	396	2627

FG11: '2031 With Development Flows - AM Peak (Revised Dist) '

Desired Flow :

	Destination					
	A	B	C	D	Tot.	
Origin	A	0	590	7	103	700
	B	322	0	459	69	850
	C	17	532	0	467	1016
	D	0	0	0	0	0
	Tot.	339	1122	466	639	2566

FG12: '2031 With Development Flows - PM Peak (Revised Dist) '

Desired Flow :

	Destination					
	A	B	C	D	Tot.	
Origin	A	0	448	26	83	557
	B	550	0	887	55	1492
	C	22	471	0	291	784
	D	0	0	0	0	0
	Tot.	572	919	913	429	2833

Stage Timings

Scenario 1: '2022 Base Flows - AM Peak ' (FG1: '2022 Base Flows - AM Peak ', Plan 1: 'Network Control Plan 1')

Stage	1	2	3
Duration	41	7	35
Change Point	9	55	68

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	-	-		-	-	-	-	-	-	74.1%
A62 Manchester Road-Blackmoorfoot Road	-	-	N/A	-	-		-	-	-	-	-	-	74.1%
1/2+1/1	A62 Manchester Road (e) Left Ahead Right	O+U	N/A	N/A	B	D	1	41:81	40	672	2105:1828	478+432	73.8 : 73.8%
2/2+2/1	Blackmoorfoot Road Right Left Ahead	U+O	N/A	N/A	C -		1	44	-	718	1914:1972	516+454	74.0 : 74.0%
3/1	A62 Manchester Road (w) Ahead Right Left	O	N/A	N/A	A		1	41	-	636	1962	858	74.1%
4/1		U	N/A	N/A	-		-	-	-	918	Inf	Inf	0.0%
5/1		U	N/A	N/A	-		-	-	-	326	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	306	Inf	Inf	0.0%
7/1	Birkhouse Lane	U	N/A	N/A	-		-	-	-	476	Inf	Inf	0.0%

LinSig V1 style report

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	-	-	108	298	0	9.7	4.2	0.3	14.2	-	-	-	-
A62 Manchester Road-Blackmoorfoot Road	-	-	108	298	0	9.7	4.2	0.3	14.2	-	-	-	-
1/2+1/1	672	672	63	0	0	2.3	1.4	0.3	3.9	21.1	8.5	1.4	9.9
2/2+2/1	718	718	38	298	0	3.4	1.4	-	4.8	24.2	13.6	1.4	15.0
3/1	636	636	7	0	0	4.0	1.4	0.0	5.4	30.5	14.0	1.4	15.4
4/1	918	918	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	326	326	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	306	306	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	476	476	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
C1 PRC for Signalled Lanes (%): 21.5 PRC Over All Lanes (%): 21.5 Total Delay for Signalled Lanes (pcuHr): 14.16 Total Delay Over All Lanes(pcuHr): 14.16 Cycle Time (s): 96													

Stage Timings

Scenario 2: '2022 Base Flows - PM Peak ' (FG2: '2022 Base Flows - PM Peak ', Plan 1: 'Network Control Plan 1')

Stage	1	2	3
Duration	53	7	23
Change Point	0	58	71

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	-	-	N/A	-	-		-	-	-	-	-	-	83.5%
A62 Manchester Road-Blackmoorfoot Road	-	-	N/A	-	-		-	-	-	-	-	-	83.5%
1/2+1/1	A62 Manchester Road (e) Left Ahead Right	O+U	N/A	N/A	B	D	1	53:81	28	1141	2105:1828	650+716	83.5 : 83.5%
2/2+2/1	Blackmoorfoot Road Right Left Ahead	U+O	N/A	N/A	C -		1	32	-	583	1914:1949	436+266	82.9 : 82.9%
3/1	A62 Manchester Road (w) Ahead Right Left	O	N/A	N/A	A		1	53	-	506	1951	1097	46.1%
4/1		U	N/A	N/A	-		-	-	-	768	Inf	Inf	0.0%
5/1		U	N/A	N/A	-		-	-	-	623	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	514	Inf	Inf	0.0%
7/1	Birkhouse Lane	U	N/A	N/A	-		-	-	-	325	Inf	Inf	0.0%

LinSig V1 style report

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	-	-	107	189	0	8.4	5.2	0.2	13.8	-	-	-	-
A62 Manchester Road-Blackmoorfoot Road	-	-	107	189	0	8.4	5.2	0.2	13.8	-	-	-	-
1/2+1/1	1141	1141	50	0	0	2.6	2.5	0.1	5.1	16.1	15.5	2.5	18.0
2/2+2/1	583	583	32	189	0	4.1	2.3	-	6.4	39.6	13.0	2.3	15.4
3/1	506	506	25	0	0	1.7	0.4	0.1	2.3	16.0	7.9	0.4	8.3
4/1	768	768	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	623	623	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	514	514	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	325	325	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
C1 PRC for Signalled Lanes (%): 7.8 PRC Over All Lanes (%): 7.8 Total Delay for Signalled Lanes (pcuHr): 13.77 Total Delay Over All Lanes(pcuHr): 13.77 Cycle Time (s): 96													

Stage Timings

Scenario 3: '2031 Base Flows - AM Peak ' (FG3: '2031 Base Flows - AM Peak ', Plan 1: 'Network Control Plan 1')

Stage	1	2	3
Duration	43	7	33
Change Point	19	67	80

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	-	-	N/A	-	-		-	-	-	-	-	-	83.9%
A62 Manchester Road-Blackmoorfoot Road	-	-	N/A	-	-		-	-	-	-	-	-	83.9%
1/2+1/1	A62 Manchester Road (e) Left Ahead Right	O+U	N/A	N/A	B	D	1	43:81	38	735	2105:1828	470+414	83.2 : 83.2%
2/2+2/1	Blackmoorfoot Road Right Left Ahead	U+O	N/A	N/A	C -		1	42	-	781	1914:1972	492+438	83.9 : 83.9%
3/1	A62 Manchester Road (w) Ahead Right Left	O	N/A	N/A	A		1	43	-	700	1962	899	77.8%
4/1		U	N/A	N/A	-		-	-	-	1003	Inf	Inf	0.0%
5/1		U	N/A	N/A	-		-	-	-	351	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	339	Inf	Inf	0.0%
7/1	Birkhouse Lane	U	N/A	N/A	-		-	-	-	523	Inf	Inf	0.0%

LinSig V1 style report

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	-	-	98	346	0	11.3	6.6	0.3	18.2	-	-	-	-
A62 Manchester Road-Blackmoorfoot Road	-	-	98	346	0	11.3	6.6	0.3	18.2	-	-	-	-
1/2+1/1	735	735	69	0	0	2.7	2.4	0.3	5.4	26.3	9.8	2.4	12.2
2/2+2/1	781	781	22	346	0	4.3	2.5	-	6.9	31.6	16.3	2.5	18.8
3/1	700	700	7	0	0	4.3	1.7	0.0	6.0	30.8	15.6	1.7	17.3
4/1	1003	1003	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	351	351	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	339	339	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	523	523	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
C1 PRC for Signalled Lanes (%): 7.2 PRC Over All Lanes (%): 7.2 Total Delay for Signalled Lanes (pcuHr): 18.21 Total Delay Over All Lanes(pcuHr): 18.21 Cycle Time (s): 96													

Stage Timings

Scenario 4: '2031 Base Flows - PM Peak ' (FG4: '2031 Base Flows - PM Peak ', Plan 1: 'Network Control Plan 1')

Stage	1	2	3
Duration	54	7	22
Change Point	12	71	84

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	-	-		-	-	-	-	-	-	91.8%
A62 Manchester Road-Blackmoorfoot Road	-	-	N/A	-	-		-	-	-	-	-	-	91.8%
1/2+1/1	A62 Manchester Road (e) Left Ahead Right	O+U	N/A	N/A	B	D	1	54:81	27	1250	2105:1828	668+712	90.6 : 90.6%
2/2+2/1	Blackmoorfoot Road Right Left Ahead	U+O	N/A	N/A	C -		1	31	-	628	1914:1951	421+264	91.8 : 91.8%
3/1	A62 Manchester Road (w) Ahead Right Left	O	N/A	N/A	A		1	54	-	557	1951	1118	49.8%
4/1		U	N/A	N/A	-		-	-	-	834	Inf	Inf	0.0%
5/1		U	N/A	N/A	-		-	-	-	671	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	572	Inf	Inf	0.0%
7/1	Birkhouse Lane	U	N/A	N/A	-		-	-	-	358	Inf	Inf	0.0%

LinSig V1 style report

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	-	-	98	225	0	10.0	9.8	0.2	20.0	-	-	-	-
A62 Manchester Road-Blackmoorfoot Road	-	-	98	225	0	10.0	9.8	0.2	20.0	-	-	-	-
1/2+1/1	1250	1250	55	0	0	3.2	4.5	0.1	7.8	22.5	20.9	4.5	25.4
2/2+2/1	628	628	17	225	0	4.8	4.8	-	9.6	55.1	14.7	4.8	19.5
3/1	557	557	26	0	0	1.9	0.5	0.1	2.5	16.4	8.8	0.5	9.3
4/1	834	834	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	671	671	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	572	572	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	358	358	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
C1 PRC for Signalled Lanes (%): -2.0 PRC Over All Lanes (%): -2.0 Total Delay for Signalled Lanes (pcuHr): 19.96 Total Delay Over All Lanes(pcuHr): 19.96 Cycle Time (s): 96													

Stage Timings

Scenario 5: '2022 With Development Flows - AM Peak ' (FG5: '2022 With Development Flows - AM Peak ', Plan 1: 'Network Control Plan 1')

Stage	1	2	3
Duration	37	7	39
Change Point	2	44	57

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	-	-		-	-	-	-	-	-	95.3%
A62 Manchester Road-Blackmoorfoot Road	-	-	N/A	-	-		-	-	-	-	-	-	95.3%
1/2+1/1	A62 Manchester Road (e) Left Ahead Right	O+U	N/A	N/A	B	D	1	37:81	44	786	2105:1828	376+461	93.9 : 93.9%
2/2+2/1	Blackmoorfoot Road Right Left Ahead	U+O	N/A	N/A	C -		1	48	-	973	1914:1972	668+353	95.3 : 95.3%
3/1	A62 Manchester Road (w) Ahead Right Left	O	N/A	N/A	A		1	37	-	636	1962	777	81.9%
4/1		U	N/A	N/A	-		-	-	-	1173	Inf	Inf	0.0%
5/1		U	N/A	N/A	-		-	-	-	440	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	306	Inf	Inf	0.0%
7/1	Birkhouse Lane	U	N/A	N/A	-		-	-	-	476	Inf	Inf	0.0%

LinSig V1 style report

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	-	-	86	320	0	12.9	16.1	0.3	29.3	-	-	-	-
A62 Manchester Road-Blackmoorfoot Road	-	-	86	320	0	12.9	16.1	0.3	29.3	-	-	-	-
1/2+1/1	786	786	63	0	0	2.8	6.2	0.3	9.3	42.6	9.2	6.2	15.4
2/2+2/1	973	973	16	320	0	5.5	7.7	-	13.2	48.8	23.6	7.7	31.3
3/1	636	636	7	0	0	4.6	2.2	0.0	6.8	38.4	15.0	2.2	17.2
4/1	1173	1173	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	440	440	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	306	306	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	476	476	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
C1 PRC for Signalled Lanes (%): -5.9 PRC Over All Lanes (%): -5.9 Total Delay for Signalled Lanes (pcuHr): 29.27 Total Delay Over All Lanes(pcuHr): 29.27 Cycle Time (s): 96													

Stage Timings

Scenario 6: '2022 With Development Flows - PM Peak ' (FG6: '2022 With Development Flows - PM Peak ', Plan 1: 'Network Control Plan 1')

Stage	1	2	3
Duration	50	7	26
Change Point	0	55	68

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	-	-		-	-	-	-	-	-	99.0%
A62 Manchester Road-Blackmoorfoot Road	-	-	N/A	-	-		-	-	-	-	-	-	99.0%
1/2+1/1	A62 Manchester Road (e) Left Ahead Right	O+U	N/A	N/A	B	D	1	50:81	31	1382	2105:1828	548+847	99.0 : 99.0%
2/2+2/1	Blackmoorfoot Road Right Left Ahead	U+O	N/A	N/A	C -		1	35	-	739	1914:1949	525+224	98.7 : 98.7%
3/1	A62 Manchester Road (w) Ahead Right Left	O	N/A	N/A	A		1	50	-	506	1951	1036	48.8%
4/1		U	N/A	N/A	-		-	-	-	924	Inf	Inf	0.0%
5/1		U	N/A	N/A	-		-	-	-	864	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	514	Inf	Inf	0.0%
7/1	Birkhouse Lane	U	N/A	N/A	-		-	-	-	325	Inf	Inf	0.0%

LinSig V1 style report

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	-	-	77	203	17	11.6	27.3	0.2	39.2	-	-	-	-
A62 Manchester Road-Blackmoorfoot Road	-	-	77	203	17	11.6	27.3	0.2	39.2	-	-	-	-
1/2+1/1	1382	1382	50	0	0	4.0	15.4	0.1	19.5	50.7	27.1	15.4	42.5
2/2+2/1	739	739	18	203	0	5.6	11.4	-	17.0	83.0	18.8	11.4	30.3
3/1	506	506	8	0	17	2.0	0.5	0.1	2.6	18.7	8.4	0.5	8.9
4/1	924	924	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	864	864	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	514	514	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	325	325	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
C1 PRC for Signalled Lanes (%): -10.0 PRC Over All Lanes (%): -10.0 Total Delay for Signalled Lanes (pcuHr): 39.15 Total Delay Over All Lanes(pcuHr): 39.15 Cycle Time (s): 96													

Stage Timings

Scenario 7: '2031 With Development Flows - AM Peak ' (FG7: '2031 With Development Flows - AM Peak ', Plan 1: 'Network Control Plan 1')

Stage	1	2	3
Duration	40	7	36
Change Point	10	55	68

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	-	-		-	-	-	-	-	-	107.5%
A62 Manchester Road-Blackmoorfoot Road	-	-	N/A	-	-		-	-	-	-	-	-	107.5%
1/2+1/1	A62 Manchester Road (e) Left Ahead Right	O+U	N/A	N/A	B	D	1	40:81	41	850	2105:1828	376+441	104.0 : 104.0%
2/2+2/1	Blackmoorfoot Road Right Left Ahead	U+O	N/A	N/A	C -		1	45	-	1035	1914:1972	620+342	107.5 : 107.5%
3/1	A62 Manchester Road (w) Ahead Right Left	O	N/A	N/A	A		1	40	-	700	1962	838	83.5%
4/1		U	N/A	N/A	-		-	-	-	1257	Inf	Inf	0.0%
5/1		U	N/A	N/A	-		-	-	-	466	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	339	Inf	Inf	0.0%
7/1	Birkhouse Lane	U	N/A	N/A	-		-	-	-	523	Inf	Inf	0.0%

LinSig V1 style report

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	-	-	74	341	1	19.1	69.6	0.3	89.0	-	-	-	-
A62 Manchester Road-Blackmoorfoot Road	-	-	74	341	1	19.1	69.6	0.3	89.0	-	-	-	-
1/2+1/1	850	835	66	0	0	3.9	24.8	0.3	29.0	122.8	11.7	24.8	36.5
2/2+2/1	1035	963	1	341	0	10.5	42.3	-	52.8	183.7	78.2	42.3	120.5
3/1	700	700	6	0	1	4.8	2.5	0.0	7.2	37.1	16.5	2.5	19.0
4/1	1210	1210	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	466	466	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	326	326	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	496	496	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
C1 PRC for Signalled Lanes (%): -19.5 PRC Over All Lanes (%): -19.5 Total Delay for Signalled Lanes (pcuHr): 89.01 Total Delay Over All Lanes(pcuHr): 89.01 Cycle Time (s): 96													

Stage Timings

Scenario 8: '2031 With Development Flows - PM Peak ' (FG8: '2031 With Development Flows - PM Peak ', Plan 1: 'Network Control Plan 1')

Stage	1	2	3
Duration	51	7	25
Change Point	13	69	82

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	-	-		-	-	-	-	-	-	107.4%
A62 Manchester Road-Blackmoorfoot Road	-	-	N/A	-	-		-	-	-	-	-	-	107.4%
1/2+1/1	A62 Manchester Road (e) Left Ahead Right	O+U	N/A	N/A	B	D	1	51:81	30	1492	2105:1828	568+832	106.6 : 106.6%
2/2+2/1	Blackmoorfoot Road Right Left Ahead	U+O	N/A	N/A	C -		1	34	-	784	1914:1951	505+225	107.4 : 107.4%
3/1	A62 Manchester Road (w) Ahead Right Left	O	N/A	N/A	A		1	51	-	557	1951	1057	52.7%
4/1		U	N/A	N/A	-		-	-	-	990	Inf	Inf	0.0%
5/1		U	N/A	N/A	-		-	-	-	913	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	572	Inf	Inf	0.0%
7/1	Birkhouse Lane	U	N/A	N/A	-		-	-	-	358	Inf	Inf	0.0%

LinSig V1 style report

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	-	-	60	225	18	19.5	86.6	0.3	106.4	-	-	-	-
A62 Manchester Road-Blackmoorfoot Road	-	-	60	225	18	19.5	86.6	0.3	106.4	-	-	-	-
1/2+1/1	1492	1400	52	0	0	8.5	53.2	0.1	61.7	149.0	40.9	53.2	94.1
2/2+2/1	784	730	0	225	0	8.9	32.9	-	41.7	191.6	39.0	32.9	71.9
3/1	557	557	8	0	18	2.2	0.6	0.2	2.9	18.7	9.4	0.6	10.0
4/1	953	953	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	858	858	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	536	536	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	339	339	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
C1 PRC for Signalled Lanes (%): -19.3 PRC Over All Lanes (%): -19.3 Total Delay for Signalled Lanes (pcuHr): 106.37 Total Delay Over All Lanes(pcuHr): 106.37 Cycle Time (s): 96													

Stage Timings

Scenario 9: '2022 With Development Flows - AM Peak (Revised Dist)' (FG9: '2022 With Development Flows - AM Peak (Revised Dist) ', Plan 1: 'Network Control Plan 1')

Stage	1	2	3
Duration	37	7	39
Change Point	2	44	57

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	-	-		-	-	-	-	-	-	93.9%
A62 Manchester Road-Blackmoorfoot Road	-	-	N/A	-	-		-	-	-	-	-	-	93.9%
1/2+1/1	A62 Manchester Road (e) Left Ahead Right	O+U	N/A	N/A	B	D	1	37:81	44	786	2105:1828	376+461	93.9 : 93.9%
2/2+2/1	Blackmoorfoot Road Right Left Ahead	U+O	N/A	N/A	C -		1	48	-	972	1914:1977	563+487	92.5 : 92.5%
3/1	A62 Manchester Road (w) Ahead Right Left	O	N/A	N/A	A		1	37	-	636	1962	777	81.9%
4/1		U	N/A	N/A	-		-	-	-	1057	Inf	Inf	0.0%
5/1		U	N/A	N/A	-		-	-	-	440	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	306	Inf	Inf	0.0%
7/1	Birkhouse Lane	U	N/A	N/A	-		-	-	-	591	Inf	Inf	0.0%

LinSig V1 style report

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	-	-	86	435	0	12.5	13.8	0.3	26.6	-	-	-	-
A62 Manchester Road-Blackmoorfoot Road	-	-	86	435	0	12.5	13.8	0.3	26.6	-	-	-	-
1/2+1/1	786	786	63	0	0	2.8	6.2	0.3	9.3	42.6	9.2	6.2	15.4
2/2+2/1	972	972	16	435	0	5.1	5.4	-	10.5	38.9	22.2	5.4	27.7
3/1	636	636	7	0	0	4.6	2.2	0.0	6.8	38.4	15.0	2.2	17.2
4/1	1057	1057	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	440	440	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	306	306	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	591	591	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
C1 PRC for Signalled Lanes (%): -4.3 PRC Over All Lanes (%): -4.3 Total Delay for Signalled Lanes (pcuHr): 26.59 Total Delay Over All Lanes(pcuHr): 26.59 Cycle Time (s): 96													

Stage Timings

Scenario 10: '2022 With Development Flows - PM Peak (Revised Dist) ' (FG10: '2022 With Development Flows - PM Peak (Revised Dist) ', Plan 1: 'Network Control Plan 1')

Stage	1	2	3
Duration	51	7	25
Change Point	0	56	69

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	-	-		-	-	-	-	-	-	98.8%
A62 Manchester Road-Blackmoorfoot Road	-	-	N/A	-	-		-	-	-	-	-	-	98.8%
1/2+1/1	A62 Manchester Road (e) Left Ahead Right	O+U	N/A	N/A	B	D	1	51:81	30	1382	2105:1828	556+860	97.6 : 97.6%
2/2+2/1	Blackmoorfoot Road Right Left Ahead	U+O	N/A	N/A	C -		1	34	-	739	1914:1960	452+295	98.8 : 98.8%
3/1	A62 Manchester Road (w) Ahead Right Left	O	N/A	N/A	A		1	51	-	506	1951	1057	47.9%
4/1		U	N/A	N/A	-		-	-	-	853	Inf	Inf	0.0%
5/1		U	N/A	N/A	-		-	-	-	864	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	514	Inf	Inf	0.0%
7/1	Birkhouse Lane	U	N/A	N/A	-		-	-	-	396	Inf	Inf	0.0%

LinSig V1 style report

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	-	-	89	261	17	11.1	24.0	0.2	35.3	-	-	-	-
A62 Manchester Road-Blackmoorfoot Road	-	-	89	261	17	11.1	24.0	0.2	35.3	-	-	-	-
1/2+1/1	1382	1382	50	0	0	3.7	11.9	0.1	15.7	40.9	26.0	11.9	37.9
2/2+2/1	739	739	31	261	0	5.5	11.6	-	17.1	83.3	18.4	11.6	30.0
3/1	506	506	8	0	17	1.9	0.5	0.1	2.5	17.9	8.3	0.5	8.8
4/1	853	853	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	864	864	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	514	514	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	396	396	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
C1 PRC for Signalled Lanes (%): -9.8 PRC Over All Lanes (%): -9.8 Total Delay for Signalled Lanes (pcuHr): 35.33 Total Delay Over All Lanes(pcuHr): 35.33 Cycle Time (s): 96													

Stage Timings

Scenario 11: '2031 With Development Flows - AM Peak (Revised Dist)' (FG11: '2031 With Development Flows - AM Peak (Revised Dist)', Plan 1: 'Network Control Plan 1')

Stage	1	2	3
Duration	40	7	36
Change Point	10	55	68

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	-	-		-	-	-	-	-	-	104.0%
A62 Manchester Road-Blackmoorfoot Road	-	-	N/A	-	-		-	-	-	-	-	-	104.0%
1/2+1/1	A62 Manchester Road (e) Left Ahead Right	O+U	N/A	N/A	B	D	1	40:81	41	850	2105:1828	376+441	104.0 : 104.0%
2/2+2/1	Blackmoorfoot Road Right Left Ahead	U+O	N/A	N/A	C -		1	45	-	1016	1914:1978	520+473	102.2 : 102.2%
3/1	A62 Manchester Road (w) Ahead Right Left	O	N/A	N/A	A		1	40	-	700	1962	838	83.5%
4/1		U	N/A	N/A	-		-	-	-	1122	Inf	Inf	0.0%
5/1		U	N/A	N/A	-		-	-	-	466	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	339	Inf	Inf	0.0%
7/1	Birkhouse Lane	U	N/A	N/A	-		-	-	-	639	Inf	Inf	0.0%

LinSig V1 style report

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	-	-	87	459	1	15.8	49.7	0.3	65.8	-	-	-	-
A62 Manchester Road-Blackmoorfoot Road	-	-	87	459	1	15.8	49.7	0.3	65.8	-	-	-	-
1/2+1/1	850	835	66	0	0	3.9	24.8	0.3	29.0	122.8	11.7	24.8	36.5
2/2+2/1	1016	994	14	459	0	7.2	22.5	-	29.6	105.0	27.1	22.5	49.6
3/1	700	700	6	0	1	4.8	2.5	0.0	7.2	37.1	16.5	2.5	19.0
4/1	1110	1110	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	466	466	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	326	326	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	626	626	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
C1 PRC for Signalled Lanes (%): -15.5 PRC Over All Lanes (%): -15.5 Total Delay for Signalled Lanes (pcuHr): 65.84 Total Delay Over All Lanes(pcuHr): 65.84 Cycle Time (s): 96													

Stage Timings

Scenario 12: '2031 With Development Flows - PM Peak (Revised Dist)' (FG12: '2031 With Development Flows - PM Peak (Revised Dist)', Plan 1: 'Network Control Plan 1')

Stage	1	2	3
Duration	51	7	25
Change Point	13	69	82

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	-	-		-	-	-	-	-	-	106.6%
A62 Manchester Road-Blackmoorfoot Road	-	-	N/A	-	-		-	-	-	-	-	-	106.6%
1/2+1/1	A62 Manchester Road (e) Left Ahead Right	O+U	N/A	N/A	B	D	1	51:81	30	1492	2105:1828	568+832	106.6 : 106.6%
2/2+2/1	Blackmoorfoot Road Right Left Ahead	U+O	N/A	N/A	C -		1	34	-	784	1914:1961	450+299	104.7 : 104.7%
3/1	A62 Manchester Road (w) Ahead Right Left	O	N/A	N/A	A		1	51	-	557	1951	1057	52.7%
4/1		U	N/A	N/A	-		-	-	-	919	Inf	Inf	0.0%
5/1		U	N/A	N/A	-		-	-	-	913	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	572	Inf	Inf	0.0%
7/1	Birkhouse Lane	U	N/A	N/A	-		-	-	-	429	Inf	Inf	0.0%

LinSig V1 style report

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	-	-	63	296	18	18.2	79.0	0.3	97.5	-	-	-	-
A62 Manchester Road-Blackmoorfoot Road	-	-	63	296	18	18.2	79.0	0.3	97.5	-	-	-	-
1/2+1/1	1492	1400	52	0	0	8.5	53.2	0.1	61.7	149.0	40.9	53.2	94.1
2/2+2/1	784	749	3	296	0	7.5	25.3	-	32.8	150.8	38.2	25.3	63.5
3/1	557	557	8	0	18	2.2	0.6	0.2	2.9	18.7	9.4	0.6	10.0
4/1	898	898	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	858	858	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	537	537	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	413	413	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
C1 PRC for Signalled Lanes (%): -18.4 PRC Over All Lanes (%): -18.4 Total Delay for Signalled Lanes (pcuHr): 97.48 Total Delay Over All Lanes(pcuHr): 97.48 Cycle Time (s): 96													

APPENDIX 10

**LINSIG Output – A616 Lockwood Road/B6108 Meltham
Road/Swan Lane/Bridge Street Junction**

User and Project Details

Project:	
Title:	
Location:	
Additional detail:	
File name:	A616 Lockwood Road-B6108 Meltham Road-Bridge Street-Swan Lane.lsg3x
Author:	
Company:	
Address:	

Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	Traffic		7	7
E	Traffic		7	7
F	Pedestrian		5	5
G	Pedestrian		8	8
H	Pedestrian		8	8
I	Pedestrian		5	5
J	Pedestrian		7	7

Phase Intergreens Matrix

Terminating Phase	Starting Phase										
		A	B	C	D	E	F	G	H	I	J
	A		-	5	5	-	5	-	-	-	1
	B	-		5	6	5	-	5	-	-	-
	C	8	6		5	-	-	-	7	8	8
	D	8	5	5		5	-	-	7	9	5
	E	-	5	-	6		-	-	5	9	8
	F	5	-	-	-	-		-	-	-	-
	G	-	10	-	-	-	-		-	-	-
	H	-	-	10	8	10	-	-		-	-
	I	-	-	3	3	3	-	-	-		-
	J	1	-	7	9	7	-	-	-	-	

Phase Delays

Term. Stage	Start Stage	Phase	Type	Value	Cont value
1	2	I	Losing	7	7

Prohibited Stage Change

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

Phases in Stage

Stage No.	Phases in Stage
1	A B H I
2	C E F G
3	D F G
4	B F H I J

Give-Way Lane Input Data

Junction: A616 Lockwood Road/B6108 Meltham Road/Swan Lane/Bridge Street											
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 (A616 Lockwood Road)	8/1 (Right)	1439	0	4/1	1.09	All	3.00	-	0.50	3	3.00
4/2 (B6108 Meltham Road)	6/1 (Right)	1439	0	2/1	1.09	To 6/1 (Left) To 7/1 (Ahead)	3.00	-	0.50	3	3.00

Lane Input Data

Junction: A616 Lockwood Road/B6108 Meltham Road/Swan Lane/Bridge Street												
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 (Bridge Street)	U	A	2	3	2.0	Geom	-	4.50	0.00	Y	Arm 7 Left	12.00
1/2 (Bridge Street)	U	A	2	3	60.0	Geom	-	3.25	0.00	Y	Arm 8 Ahead	Inf
1/3 (Bridge Street)	U	B	2	3	60.0	Geom	-	3.25	0.00	N	Arm 5 Right	20.00
1/4 (Bridge Street)	U	B	2	3	10.0	Geom	-	3.25	0.00	Y	Arm 5 Right	20.00
2/1 (A616 Lockwood Road)	U	C	2	3	60.0	Geom	-	3.30	0.00	Y	Arm 6 Left	17.00
2/2 (A616 Lockwood Road)	O	C	2	3	9.0	Geom	-	3.30	0.00	Y	Arm 7 Ahead	Inf
											Arm 8 Right	19.00
3/1 (Swan Lane)	U	D	2	3	60.0	Geom	-	3.50	0.00	Y	Arm 5 Left	15.00
											Arm 6 Ahead	Inf
											Arm 7 Right	25.00
4/1 (B6108 Meltham Road)	U	E	2	3	60.0	Geom	-	3.10	0.00	Y	Arm 5 Ahead	Inf
											Arm 8 Left	14.00
4/2 (B6108 Meltham Road)	O	E	2	3	10.0	Geom	-	3.10	0.00	N	Arm 6 Right	10.00
5/1	U		2	3	60.0	Inf	-	-	-	-	-	-
5/2	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	-	-	-	-	-	-

Lane Saturation Flows**Scenario 1: '2022 Base Flows - AM Peak '** (FG1: '2022 Base Flows - AM Peak ', Plan 1: 'Network Control Plan 1')

Junction: A616 Lockwood Road/B6108 Meltham Road/Swan Lane/Bridge Street								
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 (Bridge Street)	4.50	0.00	Y	Arm 7 Left	12.00	100.0 %	1836	1836
1/2 (Bridge Street)	3.25	0.00	Y	Arm 8 Ahead	Inf	100.0 %	1940	1940
1/3 (Bridge Street)	3.25	0.00	N	Arm 5 Right	20.00	100.0 %	1935	1935
1/4 (Bridge Street)	3.25	0.00	Y	Arm 5 Right	20.00	100.0 %	1805	1805
2/1 (A616 Lockwood Road)	3.30	0.00	Y	Arm 6 Left Arm 7 Ahead	17.00 Inf	34.3 % 65.7 %	1888	1888
2/2 (A616 Lockwood Road)	3.30	0.00	Y	Arm 8 Right	19.00	100.0 %	1803	1803
3/1 (Swan Lane)	3.50	0.00	Y	Arm 5 Left	15.00	34.4 %	1895	1895
				Arm 6 Ahead	Inf	61.0 %		
				Arm 7 Right	25.00	4.6 %		
4/1 (B6108 Meltham Road)	3.10	0.00	Y	Arm 5 Ahead	Inf	99.0 %	1923	1923
				Arm 8 Left	14.00	1.0 %		
4/2 (B6108 Meltham Road)	3.10	0.00	N	Arm 6 Right	10.00	100.0 %	1796	1796
5/1	Infinite Saturation Flow						Inf	Inf
5/2	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: '2022 Base Flows - PM Peak ' (FG2: '2022 Base Flows - PM Peak ', Plan 1: 'Network Control Plan 1')

Junction: A616 Lockwood Road/B6108 Meltham Road/Swan Lane/Bridge Street								
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 (Bridge Street)	4.50	0.00	Y	Arm 7 Left	12.00	100.0 %	1836	1836
1/2 (Bridge Street)	3.25	0.00	Y	Arm 8 Ahead	Inf	100.0 %	1940	1940
1/3 (Bridge Street)	3.25	0.00	N	Arm 5 Right	20.00	100.0 %	1935	1935
1/4 (Bridge Street)	3.25	0.00	Y	Arm 5 Right	20.00	100.0 %	1805	1805
2/1 (A616 Lockwood Road)	3.30	0.00	Y	Arm 6 Left	17.00	22.8 %	1907	1907
				Arm 7 Ahead	Inf	77.2 %		
2/2 (A616 Lockwood Road)	3.30	0.00	Y	Arm 8 Right	19.00	100.0 %	1803	1803
3/1 (Swan Lane)	3.50	0.00	Y	Arm 5 Left	15.00	30.7 %	1904	1904
				Arm 6 Ahead	Inf	66.8 %		
				Arm 7 Right	25.00	2.5 %		
4/1 (B6108 Meltham Road)	3.10	0.00	Y	Arm 5 Ahead	Inf	94.9 %	1914	1914
				Arm 8 Left	14.00	5.1 %		
4/2 (B6108 Meltham Road)	3.10	0.00	N	Arm 6 Right	10.00	100.0 %	1796	1796
5/1	Infinite Saturation Flow						Inf	Inf
5/2	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 3: '2031 Base Flows - AM Peak ' (FG3: '2031 Base Flows - AM Peak ', Plan 1: 'Network Control Plan 1')

Junction: A616 Lockwood Road/B6108 Meltham Road/Swan Lane/Bridge Street								
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 (Bridge Street)	4.50	0.00	Y	Arm 7 Left	12.00	100.0 %	1836	1836
1/2 (Bridge Street)	3.25	0.00	Y	Arm 8 Ahead	Inf	100.0 %	1940	1940
1/3 (Bridge Street)	3.25	0.00	N	Arm 5 Right	20.00	100.0 %	1935	1935
1/4 (Bridge Street)	3.25	0.00	Y	Arm 5 Right	20.00	100.0 %	1805	1805
2/1 (A616 Lockwood Road)	3.30	0.00	Y	Arm 6 Left	17.00	34.3 %	1888	1888
				Arm 7 Ahead	Inf	65.7 %		
2/2 (A616 Lockwood Road)	3.30	0.00	Y	Arm 8 Right	19.00	100.0 %	1803	1803
3/1 (Swan Lane)	3.50	0.00	Y	Arm 5 Left	15.00	34.0 %	1895	1895
				Arm 6 Ahead	Inf	61.5 %		
				Arm 7 Right	25.00	4.5 %		
4/1 (B6108 Meltham Road)	3.10	0.00	Y	Arm 5 Ahead	Inf	98.9 %	1923	1923
				Arm 8 Left	14.00	1.1 %		
4/2 (B6108 Meltham Road)	3.10	0.00	N	Arm 6 Right	10.00	100.0 %	1796	1796
5/1	Infinite Saturation Flow						Inf	Inf
5/2	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: '2031 Base Flows - PM Peak ' (FG4: '2031 Base Flows - PM Peak ', Plan 1: 'Network Control Plan 1')

Junction: A616 Lockwood Road/B6108 Meltham Road/Swan Lane/Bridge Street								
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 (Bridge Street)	4.50	0.00	Y	Arm 7 Left	12.00	100.0 %	1836	1836
1/2 (Bridge Street)	3.25	0.00	Y	Arm 8 Ahead	Inf	100.0 %	1940	1940
1/3 (Bridge Street)	3.25	0.00	N	Arm 5 Right	20.00	100.0 %	1935	1935
1/4 (Bridge Street)	3.25	0.00	Y	Arm 5 Right	20.00	100.0 %	1805	1805
2/1 (A616 Lockwood Road)	3.30	0.00	Y	Arm 6 Left	17.00	22.8 %	1907	1907
				Arm 7 Ahead	Inf	77.2 %		
2/2 (A616 Lockwood Road)	3.30	0.00	Y	Arm 8 Right	19.00	100.0 %	1803	1803
3/1 (Swan Lane)	3.50	0.00	Y	Arm 5 Left	15.00	30.1 %	1905	1905
				Arm 6 Ahead	Inf	67.4 %		
				Arm 7 Right	25.00	2.6 %		
4/1 (B6108 Meltham Road)	3.10	0.00	Y	Arm 5 Ahead	Inf	95.1 %	1915	1915
				Arm 8 Left	14.00	4.9 %		
4/2 (B6108 Meltham Road)	3.10	0.00	N	Arm 6 Right	10.00	100.0 %	1796	1796
5/1	Infinite Saturation Flow						Inf	Inf
5/2	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 5: '2022 With Development Flows - AM Peak ' (FG5: '2022 With Development Flows - AM Peak ', Plan 1: 'Network Control Plan 1')

Junction: A616 Lockwood Road/B6108 Meltham Road/Swan Lane/Bridge Street								
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 (Bridge Street)	4.50	0.00	Y	Arm 7 Left	12.00	100.0 %	1836	1836
1/2 (Bridge Street)	3.25	0.00	Y	Arm 8 Ahead	Inf	100.0 %	1940	1940
1/3 (Bridge Street)	3.25	0.00	N	Arm 5 Right	20.00	100.0 %	1935	1935
1/4 (Bridge Street)	3.25	0.00	Y	Arm 5 Right	20.00	100.0 %	1805	1805
2/1 (A616 Lockwood Road)	3.30	0.00	Y	Arm 6 Left	17.00	34.3 %	1888	1888
				Arm 7 Ahead	Inf	65.7 %		
2/2 (A616 Lockwood Road)	3.30	0.00	Y	Arm 8 Right	19.00	100.0 %	1803	1803
				Arm 5 Left	15.00	32.2 %	1899	1899
3/1 (Swan Lane)	3.50	0.00	Y	Arm 6 Ahead	Inf	63.4 %		
				Arm 7 Right	25.00	4.3 %		
4/1 (B6108 Meltham Road)	3.10	0.00	Y	Arm 5 Ahead	Inf	99.0 %	1923	1923
				Arm 8 Left	14.00	1.0 %		
4/2 (B6108 Meltham Road)	3.10	0.00	N	Arm 6 Right	10.00	100.0 %	1796	1796
5/1	Infinite Saturation Flow						Inf	Inf
5/2	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: '2022 With Development Flows - PM Peak ' (FG6: '2022 With Development Flows - PM Peak ', Plan 1: 'Network Control Plan 1')

Junction: A616 Lockwood Road/B6108 Meltham Road/Swan Lane/Bridge Street								
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 (Bridge Street)	4.50	0.00	Y	Arm 7 Left	12.00	100.0 %	1836	1836
1/2 (Bridge Street)	3.25	0.00	Y	Arm 8 Ahead	Inf	100.0 %	1940	1940
1/3 (Bridge Street)	3.25	0.00	N	Arm 5 Right	20.00	100.0 %	1935	1935
1/4 (Bridge Street)	3.25	0.00	Y	Arm 5 Right	20.00	100.0 %	1805	1805
2/1 (A616 Lockwood Road)	3.30	0.00	Y	Arm 6 Left	17.00	22.8 %	1907	1907
				Arm 7 Ahead	Inf	77.2 %		
2/2 (A616 Lockwood Road)	3.30	0.00	Y	Arm 8 Right	19.00	100.0 %	1803	1803
				Arm 5 Left	15.00	29.3 %	1906	1906
3/1 (Swan Lane)	3.50	0.00	Y	Arm 6 Ahead	Inf	68.3 %		
				Arm 7 Right	25.00	2.4 %	1914	1914
4/1 (B6108 Meltham Road)	3.10	0.00	Y	Arm 5 Ahead	Inf	94.9 %		
				Arm 8 Left	14.00	5.1 %		
4/2 (B6108 Meltham Road)	3.10	0.00	N	Arm 6 Right	10.00	100.0 %	1796	1796
5/1	Infinite Saturation Flow						Inf	Inf
5/2	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 7: '2031 With Development Flows - AM Peak ' (FG7: '2031 With Development Flows - AM Peak ', Plan 1: 'Network Control Plan 1')

Junction: A616 Lockwood Road/B6108 Meltham Road/Swan Lane/Bridge Street								
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 (Bridge Street)	4.50	0.00	Y	Arm 7 Left	12.00	100.0 %	1836	1836
1/2 (Bridge Street)	3.25	0.00	Y	Arm 8 Ahead	Inf	100.0 %	1940	1940
1/3 (Bridge Street)	3.25	0.00	N	Arm 5 Right	20.00	100.0 %	1935	1935
1/4 (Bridge Street)	3.25	0.00	Y	Arm 5 Right	20.00	100.0 %	1805	1805
2/1 (A616 Lockwood Road)	3.30	0.00	Y	Arm 6 Left	17.00	34.3 %	1888	1888
				Arm 7 Ahead	Inf	65.7 %		
2/2 (A616 Lockwood Road)	3.30	0.00	Y	Arm 8 Right	19.00	100.0 %	1803	1803
				Arm 5 Left	15.00	32.0 %	1899	1899
3/1 (Swan Lane)	3.50	0.00	Y	Arm 6 Ahead	Inf	63.8 %		
				Arm 7 Right	25.00	4.2 %		
4/1 (B6108 Meltham Road)	3.10	0.00	Y	Arm 5 Ahead	Inf	98.9 %	1923	1923
				Arm 8 Left	14.00	1.1 %		
4/2 (B6108 Meltham Road)	3.10	0.00	N	Arm 6 Right	10.00	100.0 %	1796	1796
5/1	Infinite Saturation Flow						Inf	Inf
5/2	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: '2031 With Development Flows - PM Peak ' (FG8: '2031 With Development Flows - PM Peak ', Plan 1: 'Network Control Plan 1')

Junction: A616 Lockwood Road/B6108 Meltham Road/Swan Lane/Bridge Street								
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 (Bridge Street)	4.50	0.00	Y	Arm 7 Left	12.00	100.0 %	1836	1836
1/2 (Bridge Street)	3.25	0.00	Y	Arm 8 Ahead	Inf	100.0 %	1940	1940
1/3 (Bridge Street)	3.25	0.00	N	Arm 5 Right	20.00	100.0 %	1935	1935
1/4 (Bridge Street)	3.25	0.00	Y	Arm 5 Right	20.00	100.0 %	1805	1805
2/1 (A616 Lockwood Road)	3.30	0.00	Y	Arm 6 Left	17.00	22.8 %	1907	1907
				Arm 7 Ahead	Inf	77.2 %		
2/2 (A616 Lockwood Road)	3.30	0.00	Y	Arm 8 Right	19.00	100.0 %	1803	1803
				Arm 5 Left	15.00	28.8 %	1907	1907
3/1 (Swan Lane)	3.50	0.00	Y	Arm 6 Ahead	Inf	68.8 %		
				Arm 7 Right	25.00	2.5 %	1915	1915
4/1 (B6108 Meltham Road)	3.10	0.00	Y	Arm 5 Ahead	Inf	95.1 %		
				Arm 8 Left	14.00	4.9 %		
4/2 (B6108 Meltham Road)	3.10	0.00	N	Arm 6 Right	10.00	100.0 %	1796	1796
5/1	Infinite Saturation Flow						Inf	Inf
5/2	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

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: '2022 Base Flows - AM Peak '	07:45	08:45	01:00	
2: '2022 Base Flows - PM Peak '	16:30	17:30	01:00	
3: '2031 Base Flows - AM Peak '	07:45	08:45	01:00	
4: '2031 Base Flows - PM Peak '	16:30	17:30	01:00	
5: '2022 With Development Flows - AM Peak '	07:45	08:45	01:00	
6: '2022 With Development Flows - PM Peak '	16:30	17:30	01:00	
7: '2031 With Development Flows - AM Peak '	07:45	08:45	01:00	
8: '2031 With Development Flows - PM Peak '	16:30	17:30	01:00	

Traffic Flows, Desired

FG1: '2022 Base Flows - AM Peak '

Desired Flow :

	Destination					
		A	B	C	D	Tot.
Origin	A	0	156	277	21	454
	B	133	0	154	295	582
	C	229	655	0	53	937
	D	6	576	127	0	709
	Tot.	368	1387	558	369	2682

FG2: '2022 Base Flows - PM Peak '

Desired Flow :

	Destination					
		A	B	C	D	Tot.
Origin	A	0	121	263	10	394
	B	261	0	163	553	977
	C	285	458	0	65	808
	D	18	332	104	0	454
	Tot.	564	911	530	628	2633

FG3: '2031 Base Flows - AM Peak '

Desired Flow :

	Destination					
		A	B	C	D	Tot.
Origin	A	0	168	304	22	494
	B	144	0	170	325	639
	C	252	721	0	58	1031
	D	7	635	140	0	782
	Tot.	403	1524	614	405	2946

FG4: '2031 Base Flows - PM Peak '

Desired Flow :

	Destination					
		A	B	C	D	Tot.
Origin	A	0	129	289	11	429
	B	282	0	180	611	1073
	C	314	505	0	71	890
	D	19	366	115	0	500
	Tot.	615	1000	584	693	2892

FG5: '2022 With Development Flows - AM Peak '

Desired Flow :

	Destination					
		A	B	C	D	Tot.
Origin	A	0	156	307	21	484
	B	133	0	154	295	582
	C	243	655	0	53	951
	D	6	576	127	0	709
	Tot.	382	1387	588	369	2726

FG6: '2022 With Development Flows - PM Peak '

Desired Flow :

	Destination					
		A	B	C	D	Tot.
Origin	A	0	121	282	10	413
	B	261	0	163	553	977
	C	315	458	0	65	838
	D	18	332	104	0	454
	Tot.	594	911	549	628	2682

FG7: '2031 With Development Flows - AM Peak '

Desired Flow :

	Destination					
		A	B	C	D	Tot.
Origin	A	0	168	335	22	525
	B	144	0	170	325	639
	C	266	721	0	58	1045
	D	7	635	140	0	782
	Tot.	417	1524	645	405	2991

FG8: '2031 With Development Flows - PM Peak '

Desired Flow :

	Destination					
Origin		A	B	C	D	Tot.
	A	0	129	308	11	448
	B	282	0	180	611	1073
	C	343	505	0	71	919
	D	19	366	115	0	500
	Tot.	644	1000	603	693	2940

Stage Timings

Scenario 1: '2022 Base Flows - AM Peak ' (FG1: '2022 Base Flows - AM Peak ', Plan 1: 'Network Control Plan 1')

Stage	1	2	3	4
Duration	12	30	21	2
Change Point	3	20	60	87

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	-	-		-	-	-	-	-	-	118.2%
A616 Lockwood Road/B6108 Meltham Road/Swan Lane/Bridge Street	-	-	N/A	-	-		-	-	-	-	-	-	118.2%
1/2+1/1	Bridge Street Left Ahead	U	N/A	N/A	A		1	12	-	282	1940:1836	221+51	103.6 : 103.6%
1/3+1/4	Bridge Street Right	U	N/A	N/A	B		1	19	-	655	1935:1805	385+359	88.0 : 88.0%
2/1+2/2	A616 Lockwood Road Left Ahead Right	U+O	N/A	N/A	C		1	30	-	582	1888:1803	548+113	82.0 : 118.2%
3/1	Swan Lane Left Ahead Right	U	N/A	N/A	D		1	21	-	454	1895	434	104.5%
4/1+4/2	B6108 Meltham Road Ahead Right Left	U+O	N/A	N/A	E		1	30	-	709	1923:1796	570+124	102.1 : 102.1%
5/1		U	N/A	N/A	-		-	-	-	1071	Inf	Inf	0.0%
5/2		U	N/A	N/A	-		-	-	-	316	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	558	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	369	Inf	Inf	0.0%
8/1		U	N/A	N/A	-		-	-	-	368	Inf	Inf	0.0%

LinSig V1 style report

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	-	-	94	0	143	27.6	62.4	1.5	91.6	-	-	-	-
A616 Lockwood Road/B6108 Meltham Road/Swan Lane/Bridge Street	-	-	94	0	143	27.6	62.4	1.5	91.6	-	-	-	-
1/2+1/1	282	272	-	-	-	3.7	11.2	-	14.9	189.7	7.4	11.2	18.6
1/3+1/4	655	655	-	-	-	6.6	3.4	-	10.1	55.2	8.7	3.4	12.1
2/1+2/2	582	561	0	0	113	5.2	13.7	0.9	19.9	122.8	11.2	13.7	24.9
3/1	454	434	-	-	-	5.3	16.7	-	22.0	174.1	12.6	16.7	29.3
4/1+4/2	709	694	94	0	31	6.7	17.5	0.6	24.8	126.1	17.5	17.5	35.0
5/1	1052	1052	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/2	316	316	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	543	543	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	366	366	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	340	340	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
C1 PRC for Signalled Lanes (%): -31.4 PRC Over All Lanes (%): -31.4 Total Delay for Signalled Lanes (pcuHr): 91.56 Total Delay Over All Lanes(pcuHr): 91.56 Cycle Time (s): 96													

Stage Timings

Scenario 2: '2022 Base Flows - PM Peak ' (FG2: '2022 Base Flows - PM Peak ', Plan 1: 'Network Control Plan 1')

Stage	1	2	3	4
Duration	13	34	16	2
Change Point	0	18	62	84

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	-	-		-	-	-	-	-	-	120.2%
A616 Lockwood Road/B6108 Meltham Road/Swan Lane/Bridge Street	-	-	N/A	-	-		-	-	-	-	-	-	120.2%
1/2+1/1	Bridge Street Left Ahead	U	N/A	N/A	A		1	13	-	350	1940:1836	238+54	119.8 : 119.8%
1/3+1/4	Bridge Street Right	U	N/A	N/A	B		1	20	-	458	1935:1805	395+368	60.0 : 60.0%
2/1+2/2	A616 Lockwood Road Left Ahead Right	U+O	N/A	N/A	C		1	34	-	977	1907:1803	596+217	120.2 : 120.2%
3/1	Swan Lane Left Ahead Right	U	N/A	N/A	D		1	16	-	394	1904	337	116.9%
4/1+4/2	B6108 Meltham Road Ahead Right Left	U+O	N/A	N/A	E		1	34	-	454	1914:1796	617+113	56.7 : 92.4%
5/1		U	N/A	N/A	-		-	-	-	690	Inf	Inf	0.0%
5/2		U	N/A	N/A	-		-	-	-	221	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	530	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	628	Inf	Inf	0.0%
8/1		U	N/A	N/A	-		-	-	-	564	Inf	Inf	0.0%

LinSig V1 style report

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	-	-	212	0	109	35.1	149.9	1.4	186.4	-	-	-	-
A616 Lockwood Road/B6108 Meltham Road/Swan Lane/Bridge Street	-	-	212	0	109	35.1	149.9	1.4	186.4	-	-	-	-
1/2+1/1	350	292	-	-	-	6.8	31.7	-	38.5	396.5	10.6	31.7	42.3
1/3+1/4	458	458	-	-	-	4.2	0.7	-	5.0	39.3	5.6	0.7	6.3
2/1+2/2	977	813	212	0	5	14.5	85.0	0.5	100.1	368.8	29.3	85.0	114.4
3/1	394	337	-	-	-	6.7	31.5	-	38.2	349.0	12.6	31.5	44.1
4/1+4/2	454	454	0	0	104	2.9	0.8	0.8	4.6	36.2	7.2	0.8	8.0
5/1	673	673	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/2	221	221	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	465	465	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	523	523	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	473	473	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
C1 PRC for Signalled Lanes (%): -33.6 PRC Over All Lanes (%): -33.6 Total Delay for Signalled Lanes (pcuHr): 186.40 Total Delay Over All Lanes(pcuHr): 186.40 Cycle Time (s): 96													

Stage Timings

Scenario 3: '2031 Base Flows - AM Peak ' (FG3: '2031 Base Flows - AM Peak ', Plan 1: 'Network Control Plan 1')

Stage	1	2	3	4
Duration	13	31	19	2
Change Point	3	21	62	87

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	-	-		-	-	-	-	-	-	128.0%
A616 Lockwood Road/B6108 Meltham Road/Swan Lane/Bridge Street	-	-	N/A	-	-		-	-	-	-	-	-	128.0%
1/2+1/1	Bridge Street Left Ahead	U	N/A	N/A	A		1	13	-	310	1940:1836	238+55	106.1 : 106.1%
1/3+1/4	Bridge Street Right	U	N/A	N/A	B		1	20	-	721	1935:1805	395+369	94.4 : 94.4%
2/1+2/2	A616 Lockwood Road Left Ahead Right	U+O	N/A	N/A	C		1	31	-	639	1888:1803	564+113	87.8 : 128.0%
3/1	Swan Lane Left Ahead Right	U	N/A	N/A	D		1	19	-	494	1895	395	125.1%
4/1+4/2	B6108 Meltham Road Ahead Right Left	U+O	N/A	N/A	E		1	31	-	782	1923:1796	586+128	109.5 : 109.5%
5/1		U	N/A	N/A	-		-	-	-	1176	Inf	Inf	0.0%
5/2		U	N/A	N/A	-		-	-	-	348	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	614	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	405	Inf	Inf	0.0%
8/1		U	N/A	N/A	-		-	-	-	403	Inf	Inf	0.0%

LinSig V1 style report

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	-	-	65	0	176	37.3	133.9	1.7	172.9	-	-	-	-
A616 Lockwood Road/B6108 Meltham Road/Swan Lane/Bridge Street	-	-	65	0	176	37.3	133.9	1.7	172.9	-	-	-	-
1/2+1/1	310	292	-	-	-	4.4	14.3	-	18.7	216.9	8.5	14.3	22.8
1/3+1/4	721	721	-	-	-	7.3	6.5	-	13.7	68.6	9.5	6.5	16.0
2/1+2/2	639	608	0	0	113	6.1	22.2	1.0	29.2	164.8	13.2	22.2	35.3
3/1	494	395	-	-	-	10.1	52.0	-	62.1	452.7	17.6	52.0	69.6
4/1+4/2	782	714	65	0	63	9.4	39.0	0.7	49.1	226.2	22.4	39.0	61.5
5/1	1087	1087	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/2	348	348	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	541	541	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	397	397	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	356	356	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
C1 PRC for Signalled Lanes (%): -42.2 PRC Over All Lanes (%): -42.2 Total Delay for Signalled Lanes (pcuHr): 172.91 Total Delay Over All Lanes(pcuHr): 172.91 Cycle Time (s): 96													

Stage Timings

Scenario 4: '2031 Base Flows - PM Peak ' (FG4: '2031 Base Flows - PM Peak ', Plan 1: 'Network Control Plan 1')

Stage	1	2	3	4
Duration	13	34	16	2
Change Point	0	18	62	84

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	-	-		-	-	-	-	-	-	132.5%
A616 Lockwood Road/B6108 Meltham Road/Swan Lane/Bridge Street	-	-	N/A	-	-		-	-	-	-	-	-	132.5%
1/2+1/1	Bridge Street Left Ahead	U	N/A	N/A	A		1	13	-	385	1940:1836	238+54	131.9 : 131.9%
1/3+1/4	Bridge Street Right	U	N/A	N/A	B		1	20	-	505	1935:1805	395+369	66.1 : 66.1%
2/1+2/2	A616 Lockwood Road Left Ahead Right	U+O	N/A	N/A	C		1	34	-	1073	1907:1803	597+213	132.5 : 132.5%
3/1	Swan Lane Left Ahead Right	U	N/A	N/A	D		1	16	-	429	1905	337	127.2%
4/1+4/2	B6108 Meltham Road Ahead Right Left	U+O	N/A	N/A	E		1	34	-	500	1915:1796	617+113	62.4 : 102.2%
5/1		U	N/A	N/A	-		-	-	-	756	Inf	Inf	0.0%
5/2		U	N/A	N/A	-		-	-	-	244	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	584	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	693	Inf	Inf	0.0%
8/1		U	N/A	N/A	-		-	-	-	615	Inf	Inf	0.0%

LinSig V1 style report

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	-	-	206	0	119	45.3	233.3	1.6	280.3	-	-	-	-
A616 Lockwood Road/B6108 Meltham Road/Swan Lane/Bridge Street	-	-	206	0	119	45.3	233.3	1.6	280.3	-	-	-	-
1/2+1/1	385	292	-	-	-	9.0	48.5	-	57.5	537.5	12.5	48.5	61.0
1/3+1/4	505	505	-	-	-	4.8	1.0	-	5.7	40.8	6.2	1.0	7.2
2/1+2/2	1073	810	206	0	7	19.3	133.5	0.6	153.4	514.7	34.8	133.5	168.3
3/1	429	337	-	-	-	9.0	48.1	-	57.0	478.7	15.3	48.1	63.3
4/1+4/2	500	498	0	0	113	3.3	2.3	1.0	6.6	47.6	8.1	2.3	10.5
5/1	728	728	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/2	244	244	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	476	476	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	524	524	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	470	470	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
C1 PRC for Signalled Lanes (%): -47.2 PRC Over All Lanes (%): -47.2 Total Delay for Signalled Lanes (pcuHr): 280.26 Total Delay Over All Lanes(pcuHr): 280.26 Cycle Time (s): 96													

Stage Timings

Scenario 5: '2022 With Development Flows - AM Peak ' (FG5: '2022 With Development Flows - AM Peak ', Plan 1: 'Network Control Plan 1')

Stage	1	2	3	4
Duration	12	29	22	2
Change Point	3	20	59	87

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	-	-		-	-	-	-	-	-	118.2%
A616 Lockwood Road/B6108 Meltham Road/Swan Lane/Bridge Street	-	-	N/A	-	-		-	-	-	-	-	-	118.2%
1/2+1/1	Bridge Street Left Ahead	U	N/A	N/A	A		1	12	-	296	1940:1836	223+49	109.1 : 109.1%
1/3+1/4	Bridge Street Right	U	N/A	N/A	B		1	19	-	655	1935:1805	385+359	88.0 : 88.0%
2/1+2/2	A616 Lockwood Road Left Ahead Right	U+O	N/A	N/A	C		1	29	-	582	1888:1803	533+113	84.3 : 118.2%
3/1	Swan Lane Left Ahead Right	U	N/A	N/A	D		1	22	-	484	1899	455	106.4%
4/1+4/2	B6108 Meltham Road Ahead Right Left	U+O	N/A	N/A	E		1	29	-	709	1923:1796	554+121	105.1 : 105.1%
5/1		U	N/A	N/A	-		-	-	-	1071	Inf	Inf	0.0%
5/2		U	N/A	N/A	-		-	-	-	316	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	588	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	369	Inf	Inf	0.0%
8/1		U	N/A	N/A	-		-	-	-	382	Inf	Inf	0.0%

LinSig V1 style report

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	-	-	79	0	154	30.1	79.4	1.5	111.0	-	-	-	-
A616 Lockwood Road/B6108 Meltham Road/Swan Lane/Bridge Street	-	-	79	0	154	30.1	79.4	1.5	111.0	-	-	-	-
1/2+1/1	296	271	-	-	-	4.6	16.7	-	21.3	259.2	8.3	16.7	25.0
1/3+1/4	655	655	-	-	-	6.6	3.4	-	10.1	55.2	8.7	3.4	12.1
2/1+2/2	582	561	0	0	113	5.4	14.3	0.9	20.6	127.6	11.4	14.3	25.7
3/1	484	455	-	-	-	5.8	20.4	-	26.3	195.3	13.7	20.4	34.1
4/1+4/2	709	674	79	0	42	7.6	24.5	0.6	32.8	166.3	18.6	24.5	43.2
5/1	1034	1034	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/2	316	316	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	563	563	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	363	363	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	341	341	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
C1 PRC for Signalled Lanes (%): -31.4 PRC Over All Lanes (%): -31.4 Total Delay for Signalled Lanes (pcuHr): 111.01 Total Delay Over All Lanes(pcuHr): 111.01 Cycle Time (s): 96													

Stage Timings

Scenario 6: '2022 With Development Flows - PM Peak ' (FG6: '2022 With Development Flows - PM Peak ', Plan 1: 'Network Control Plan 1')

Stage	1	2	3	4
Duration	14	33	16	2
Change Point	0	19	62	84

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	-	-		-	-	-	-	-	-	123.2%
A616 Lockwood Road/B6108 Meltham Road/Swan Lane/Bridge Street	-	-	N/A	-	-		-	-	-	-	-	-	123.2%
1/2+1/1	Bridge Street Left Ahead	U	N/A	N/A	A		1	14	-	380	1940:1836	257+53	122.3 : 123.3%
1/3+1/4	Bridge Street Right	U	N/A	N/A	B		1	21	-	458	1935:1805	405+378	58.5 : 58.5%
2/1+2/2	A616 Lockwood Road Left Ahead Right	U+O	N/A	N/A	C		1	33	-	977	1907:1803	581+212	123.2 : 123.2%
3/1	Swan Lane Left Ahead Right	U	N/A	N/A	D		1	16	-	413	1906	338	122.4%
4/1+4/2	B6108 Meltham Road Ahead Right Left	U+O	N/A	N/A	E		1	33	-	454	1914:1796	602+113	58.1 : 92.4%
5/1		U	N/A	N/A	-		-	-	-	690	Inf	Inf	0.0%
5/2		U	N/A	N/A	-		-	-	-	221	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	549	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	628	Inf	Inf	0.0%
8/1		U	N/A	N/A	-		-	-	-	594	Inf	Inf	0.0%

LinSig V1 style report

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	-	-	207	0	109	38.1	173.6	1.4	213.1	-	-	-	-
A616 Lockwood Road/B6108 Meltham Road/Swan Lane/Bridge Street	-	-	207	0	109	38.1	173.6	1.4	213.1	-	-	-	-
1/2+1/1	380	311	-	-	-	7.7	37.2	-	44.9	425.5	11.8	37.2	49.0
1/3+1/4	458	458	-	-	-	4.1	0.7	-	4.8	38.0	5.5	0.7	6.2
2/1+2/2	977	793	207	0	5	15.4	94.5	0.5	110.5	407.2	29.8	94.5	124.4
3/1	413	338	-	-	-	7.9	40.3	-	48.2	420.2	14.0	40.3	54.3
4/1+4/2	454	454	0	0	104	3.0	0.9	0.8	4.7	37.2	7.3	0.9	8.2
5/1	668	668	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/2	221	221	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	467	467	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	510	510	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	487	487	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
C1 PRC for Signalled Lanes (%): -36.9 PRC Over All Lanes (%): -36.9 Total Delay for Signalled Lanes (pcuHr): 213.15 Total Delay Over All Lanes(pcuHr): 213.15 Cycle Time (s): 96													

Stage Timings

Scenario 7: '2031 With Development Flows - AM Peak ' (FG7: '2031 With Development Flows - AM Peak ', Plan 1: 'Network Control Plan 1')

Stage	1	2	3	4
Duration	13	30	20	2
Change Point	3	21	61	87

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	-	-		-	-	-	-	-	-	128.0%
A616 Lockwood Road/B6108 Meltham Road/Swan Lane/Bridge Street	-	-	N/A	-	-		-	-	-	-	-	-	128.0%
1/2+1/1	Bridge Street Left Ahead	U	N/A	N/A	A		1	13	-	324	1940:1836	239+52	111.2 : 111.2%
1/3+1/4	Bridge Street Right	U	N/A	N/A	B		1	20	-	721	1935:1805	395+369	94.4 : 94.4%
2/1+2/2	A616 Lockwood Road Left Ahead Right	U+O	N/A	N/A	C		1	30	-	639	1888:1803	549+113	90.2 : 128.0%
3/1	Swan Lane Left Ahead Right	U	N/A	N/A	D		1	20	-	525	1899	415	126.4%
4/1+4/2	B6108 Meltham Road Ahead Right Left	U+O	N/A	N/A	E		1	30	-	782	1923:1796	570+124	112.7 : 112.7%
5/1		U	N/A	N/A	-		-	-	-	1176	Inf	Inf	0.0%
5/2		U	N/A	N/A	-		-	-	-	348	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	645	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	405	Inf	Inf	0.0%
8/1		U	N/A	N/A	-		-	-	-	417	Inf	Inf	0.0%

LinSig V1 style report

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	-	-	50	0	187	40.1	155.9	1.6	197.6	-	-	-	-
A616 Lockwood Road/B6108 Meltham Road/Swan Lane/Bridge Street	-	-	50	0	187	40.1	155.9	1.6	197.6	-	-	-	-
1/2+1/1	324	291	-	-	-	5.3	20.3	-	25.5	283.8	9.3	20.3	29.5
1/3+1/4	721	721	-	-	-	7.3	6.5	-	13.7	68.6	9.5	6.5	16.0
2/1+2/2	639	608	0	0	113	6.3	24.0	0.9	31.3	176.1	13.4	24.0	37.4
3/1	525	415	-	-	-	11.0	57.1	-	68.1	466.6	19.0	57.1	76.1
4/1+4/2	782	694	50	0	75	10.3	48.0	0.7	59.0	271.7	23.0	48.0	71.0
5/1	1070	1070	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/2	348	348	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	559	559	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	395	395	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	358	358	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
C1 PRC for Signalled Lanes (%): -42.2 PRC Over All Lanes (%): -42.2 Total Delay for Signalled Lanes (pcuHr): 197.60 Total Delay Over All Lanes(pcuHr): 197.60 Cycle Time (s): 96													

Stage Timings

Scenario 8: '2031 With Development Flows - PM Peak ' (FG8: '2031 With Development Flows - PM Peak ', Plan 1: 'Network Control Plan 1')

Stage	1	2	3	4
Duration	14	33	16	2
Change Point	0	19	62	84

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	-	-		-	-	-	-	-	-	135.7%
A616 Lockwood Road/B6108 Meltham Road/Swan Lane/Bridge Street	-	-	N/A	-	-		-	-	-	-	-	-	135.7%
1/2+1/1	Bridge Street Left Ahead	U	N/A	N/A	A		1	14	-	414	1940:1836	257+53	133.3 : 133.3%
1/3+1/4	Bridge Street Right	U	N/A	N/A	B		1	21	-	505	1935:1805	405+379	64.4 : 64.4%
2/1+2/2	A616 Lockwood Road Left Ahead Right	U+O	N/A	N/A	C		1	33	-	1073	1907:1803	583+208	135.7 : 135.7%
3/1	Swan Lane Left Ahead Right	U	N/A	N/A	D		1	16	-	448	1907	338	132.7%
4/1+4/2	B6108 Meltham Road Ahead Right Left	U+O	N/A	N/A	E		1	33	-	500	1915:1796	602+113	64.0 : 102.2%
5/1		U	N/A	N/A	-		-	-	-	756	Inf	Inf	0.0%
5/2		U	N/A	N/A	-		-	-	-	244	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	603	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	693	Inf	Inf	0.0%
8/1		U	N/A	N/A	-		-	-	-	644	Inf	Inf	0.0%

LinSig V1 style report

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	-	-	191	0	129	48.2	257.1	1.6	307.0	-	-	-	-
A616 Lockwood Road/B6108 Meltham Road/Swan Lane/Bridge Street	-	-	191	0	129	48.2	257.1	1.6	307.0	-	-	-	-
1/2+1/1	414	311	-	-	-	9.7	53.6	-	63.3	550.7	13.6	53.6	67.2
1/3+1/4	505	505	-	-	-	4.6	0.9	-	5.5	39.4	6.2	0.9	7.1
2/1+2/2	1073	790	191	0	16	20.2	143.1	0.7	164.0	550.2	35.3	143.1	178.5
3/1	448	338	-	-	-	10.2	57.1	-	67.3	541.1	16.7	57.1	73.8
4/1+4/2	500	498	0	0	113	3.4	2.4	0.9	6.8	48.7	8.2	2.4	10.6
5/1	724	724	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/2	244	244	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	477	477	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	512	512	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	484	484	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
C1 PRC for Signalled Lanes (%): -50.8 PRC Over All Lanes (%): -50.8 Total Delay for Signalled Lanes (pcuHr): 306.97 Total Delay Over All Lanes(pcuHr): 306.97 Cycle Time (s): 96													

APPENDIX 11

Junctions 9 Output – Cowersley Lane/Gillroyd Lane/Church Lane Junction

Junctions 9							
PICADY 9 - Priority Intersection Module							
Version: 9.0.0.4211 [] © Copyright TRL Limited, 2018							
For sales and distribution information, program advice and maintenance, contact TRL: Tel: +44 (0)1344 770758 email: software@trl.co.uk Web: http://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: Gillroyd Lane - Church Lane - Cowersley Lane.j9
Path: Z:\projects\1852 Former Fireworks Factory, Huddersfield\Picady
Report generation date: 31/01/2018 11:34:39

»2022 Base Flows, AM
 »2022 Base Flows, PM
 »2031 Base Flows, AM
 »2031 Base Flows, PM
 »2022 with Development Flows, AM
 »2022 with Development Flows, PM
 »2031 with Development Flows, AM
 »2031 with Development Flows, PM

Summary of junction performance

	AM				PM			
	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS
2022 Base Flows								
Stream B-AC	0.2	7.58	0.17	A	0.2	7.60	0.18	A
Stream C-AB	0.3	7.31	0.20	A	0.1	6.98	0.12	A
Stream C-A								
Stream A-B								
Stream A-C								
2031 Base Flows								
Stream B-AC	0.2	7.97	0.20	A	0.2	7.92	0.20	A
Stream C-AB	0.3	7.43	0.22	A	0.2	7.10	0.14	A
Stream C-A								
Stream A-B								
Stream A-C								
2022 with Development Flows								
Stream B-AC	0.2	7.66	0.19	A	0.2	7.65	0.19	A
Stream C-AB	0.3	7.29	0.20	A	0.1	6.97	0.12	A
Stream C-A								
Stream A-B								
Stream A-C								
2031 with Development Flows								
Stream B-AC	0.3	8.06	0.21	A	0.3	7.98	0.21	A
Stream C-AB	0.3	7.41	0.22	A	0.2	7.08	0.14	A
Stream C-A								
Stream A-B								
Stream A-C								

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	Gillroyd Lane - Church Lane - Cowersley Lane
Location	Huddersfield
Site number	
Date	25/01/2018
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	1852
Enumerator	Croft Transport Solutions
Description	

Units

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

Analysis Options

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

Demand Set Summary

Scenario name	Time Period name	Traffic profile type	Model start time (HH:mm)	Model finish time (HH:mm)	Time segment length (min)
2022 Base Flows	AM	ONE HOUR	07:45	09:15	15
2022 Base Flows	PM	ONE HOUR	16:30	18:00	15
2031 Base Flows	AM	ONE HOUR	07:45	09:15	15
2031 Base Flows	PM	ONE HOUR	16:30	18:00	15
2022 with Development Flows	AM	ONE HOUR	07:45	09:15	15
2022 with Development Flows	PM	ONE HOUR	16:30	18:00	15
2031 with Development Flows	AM	ONE HOUR	07:45	09:15	15
2031 with Development Flows	PM	ONE HOUR	16:30	18:00	15

2022 Base Flows, AM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	1.95	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	Cowersley Lane		Major
B	Church Lane		Minor
C	Gillroyd Lane		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	9.50			80.0	✓	1.00

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	4.35	26	10

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	557.303	0.086	0.218	0.137	0.311
1	B-C	715.413	0.093	0.235	-	-
1	C-B	620.292	0.204	0.204	-	-

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

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

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Model start time (HH:mm)	Model finish time (HH:mm)	Time segment length (min)
D1	2022 Base Flows	AM	ONE HOUR	07:45	09:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	292.00	100.000
B		✓	90.00	100.000
C		✓	374.00	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A	B	C
From	A	0.000	65.000	227.000
	B	22.000	0.000	68.000
	C	274.000	100.000	0.000

Vehicle Mix

Heavy Vehicle proportion

From	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-A	0.17	7.58	0.2	A
C-A	0.20	7.31	0.3	A
C-B				
A-B				
A-C				

2022 Base Flows, PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	2.05	A

Junction Network Options

[same as above]

Arms

Arms

[same as above]

Major Arm Geometry

[same as above]

Minor Arm Geometry

[same as above]

Slope / Intercept / Capacity

[same as above]

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Model start time (HH:mm)	Model finish time (HH:mm)	Time segment length (min)
D2	2022 Base Flows	PM	ONE HOUR	16:30	18:00	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	244.00	100.000
B		✓	94.00	100.000
C		✓	235.00	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A	B	C
From	A	0.000	24.000	220.000
	B	29.000	0.000	65.000
	C	171.000	64.000	0.000

Vehicle Mix

Heavy Vehicle proportion

	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-A-C	0.18	7.60	0.2	A
C-AB	0.12	6.98	0.1	A
C-A				
A-B				
A-C				

2031 Base Flows, AM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	2.03	A

Junction Network Options

[same as above]

Arms

Arms

[same as above]

Major Arm Geometry

[same as above]

Minor Arm Geometry

[same as above]

Slope / Intercept / Capacity

[same as above]

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Model start time (HH:mm)	Model finish time (HH:mm)	Time segment length (min)
D3	2031 Base Flows	AM	ONE HOUR	07:45	09:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	321.00	100.000
B		✓	100.00	100.000
C		✓	412.00	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A	B	C
From	A	0.000	71.000	250.000
	B	25.000	0.000	75.000
	C	302.000	110.000	0.000

Vehicle Mix

Heavy Vehicle proportion

	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-A-C	0.20	7.97	0.2	A
C-AB	0.22	7.43	0.3	A
C-A				
A-B				
A-C				

2031 Base Flows, PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	2.11	A

Junction Network Options

[same as above]

Arms

Arms

[same as above]

Major Arm Geometry

[same as above]

Minor Arm Geometry

[same as above]

Slope / Intercept / Capacity

[same as above]

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Model start time (HH:mm)	Model finish time (HH:mm)	Time segment length (min)
D4	2031 Base Flows	PM	ONE HOUR	16:30	18:00	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	270.00	100.000
B		✓	103.00	100.000
C		✓	258.00	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A	B	C
From	A	0.000	27.000	243.000
	B	32.000	0.000	71.000
	C	188.000	70.000	0.000

Vehicle Mix

Heavy Vehicle proportion

	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-A-C	0.20	7.92	0.2	A
C-A-B	0.14	7.10	0.2	A
C-A				
A-B				
A-C				

2022 with Development Flows, AM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	2.00	A

Junction Network Options

[same as above]

Arms

Arms

[same as above]

Major Arm Geometry

[same as above]

Minor Arm Geometry

[same as above]

Slope / Intercept / Capacity

[same as above]

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Model start time (HH:mm)	Model finish time (HH:mm)	Time segment length (min)
D5	2022 with Development Flows	AM	ONE HOUR	07:45	09:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	292.00	100.000
B		✓	100.00	100.000
C		✓	384.00	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A	B	C
From	A	0.000	65.000	227.000
	B	22.000	0.000	78.000
	C	284.000	100.000	0.000

Vehicle Mix

Heavy Vehicle proportion

	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-A-C	0.19	7.66	0.2	A
C-A-B	0.20	7.29	0.3	A
C-A				
A-B				
A-C				

2022 with Development Flows, PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	2.09	A

Junction Network Options

[same as above]

Arms

Arms

[same as above]

Major Arm Geometry

[same as above]

Minor Arm Geometry

[same as above]

Slope / Intercept / Capacity

[same as above]

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Model start time (HH:mm)	Model finish time (HH:mm)	Time segment length (min)
D6	2022 with Development Flows	PM	ONE HOUR	16:30	18:00	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	244.00	100.000
B		✓	100.00	100.000
C		✓	241.00	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A	B	C
From	A	0.000	24.000	220.000
	B	29.000	0.000	71.000
	C	177.000	64.000	0.000

Vehicle Mix

Heavy Vehicle proportion

	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-A-C	0.19	7.65	0.2	A
C-AB	0.12	6.97	0.1	A
C-A				
A-B				
A-C				

2031 with Development Flows, AM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	2.09	A

Junction Network Options

[same as above]

Arms

Arms

[same as above]

Major Arm Geometry

[same as above]

Minor Arm Geometry

[same as above]

Slope / Intercept / Capacity

[same as above]

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Model start time (HH:mm)	Model finish time (HH:mm)	Time segment length (min)
D7	2031 with Development Flows	AM	ONE HOUR	07:45	09:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	321.00	100.000
B		✓	110.00	100.000
C		✓	422.00	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A	B	C
From	A	0.000	71.000	250.000
	B	25.000	0.000	85.000
	C	312.000	110.000	0.000

Vehicle Mix

Heavy Vehicle proportion

	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-A-C	0.21	8.06	0.3	A
C-A-B	0.22	7.41	0.3	A
C-A				
A-B				
A-C				

2031 with Development Flows, PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	2.16	A

Junction Network Options

[same as above]

Arms

Arms

[same as above]

Major Arm Geometry

[same as above]

Minor Arm Geometry

[same as above]

Slope / Intercept / Capacity

[same as above]

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Model start time (HH:mm)	Model finish time (HH:mm)	Time segment length (min)
D8	2031 with Development Flows	PM	ONE HOUR	16:30	18:00	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	270.00	100.000
B		✓	110.00	100.000
C		✓	265.00	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A	B	C
From	A	0.000	27.000	243.000
	B	32.000	0.000	78.000
	C	195.000	70.000	0.000

Vehicle Mix

Heavy Vehicle proportion

	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-A-C	0.21	7.98	0.3	A
C-A-B	0.14	7.08	0.2	A
C-A				
A-B				
A-C				

APPENDIX 12

Accident Data



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2017 data is provisional and is subject to change

Crash Date: Friday, February 24, 2017

Time of Crash: 10:00:00 PM

Crash Reference: 2017134201873

Highest Injury Severity: Serious

Road Number: U0

Number of Casualties: 1

Highway Authority: Kirklees

Number of Vehicles: 2

Local Authority: Kirklees

OS Grid Reference: 411540 414481

Weather Description: Fine without high winds

Road Surface Description: Wet or Damp

Speed Limit: 30

Light Conditions: Darkness: street lights present and lit

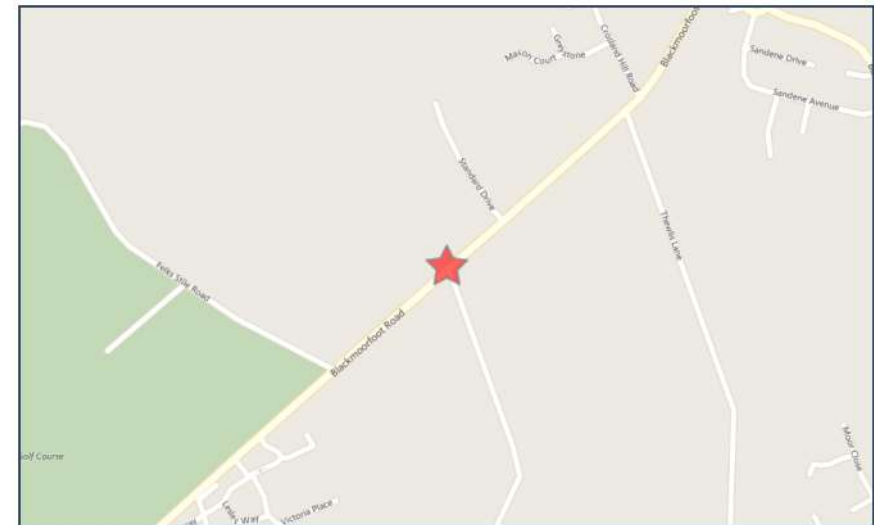
Carriageway Hazards: None

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



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



2017 data is provisional and is subject to change

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)	-1	Male	25-34	Vehicle proceeding normally along the carriageway, not on a bend	Unknown	Other	None	Wall or fence
2	Car (excluding private hire)	-1	Unknown	NK	Vehicle proceeding normally along the carriageway, not on a bend	Unknown	Other	None	None

Casualties

Vehicle Ref	Casualty Ref	Injury Severity	Casualty Class	Gender	Age Band	Pedestrian Location	Pedestrian Movement
1	1	Serious	Driver or rider	Male	25-34	Unknown or other	Unknown or other

Accident Description:

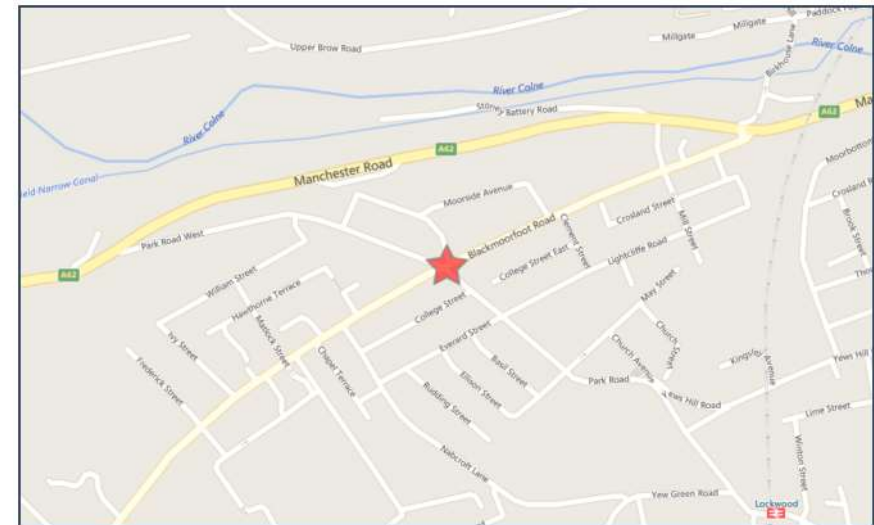
Accident description text currently unavailable for this highway authority / police force

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



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Crash Date:	Thursday, March 22, 2018	Time of Crash:	9:02:00 PM	Crash Reference:	20181353M1998
Highest Injury Severity:	Slight	Road Number:	U0	Number of Casualties:	2
Highway Authority:	Kirklees			Number of Vehicles:	2
Local Authority:	Kirklees			OS Grid Reference:	412765 415733
Weather Description:	Fine without high winds				
Road Surface Description:	Dry				
Speed Limit:	30				
Light Conditions:	Darkness: street lights present and lit				
Carriageway Hazards:	None				
Junction Detail:	Crossroads				
Junction Pedestrian Crossing:	No physical crossing facility within 50 metres				
Road Type:	Single carriageway				
Junction Control:	Auto traffic signal				



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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
2	Car (excluding private hire)		4 Female	16 - 20	Vehicle is in the act of turning right	Front	Other	None	None
1	Car (excluding private hire)		8 Male	56 - 65	Vehicle proceeding normally along the carriageway, not on a bend	Front	Other	None	None

Casualties

Vehicle Ref	Casualty Ref	Injury Severity	Casualty Class	Gender	Age Band	Pedestrian Location	Pedestrian Movement
1	1	Slight	Driver or rider	Male	56 - 65	Unknown or other	Unknown or other
2	2	Slight	Driver or rider	Female	16 - 20	Unknown or other	Unknown or other

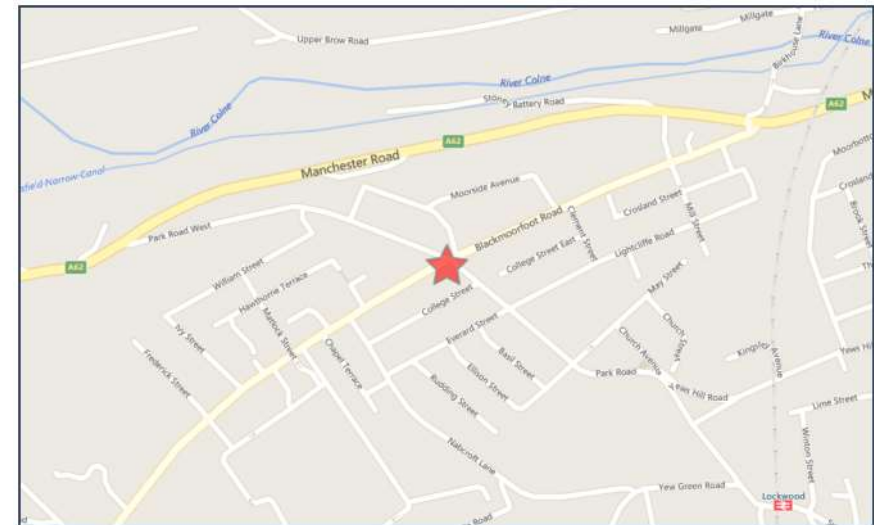
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Crash Date:	Friday, September 07, 2018	Time of Crash:	4:10:00 PM	Crash Reference:	2018135970855
Highest Injury Severity:	Slight	Road Number:	U0	Number of Casualties:	1
Highway Authority:	Kirklees			Number of Vehicles:	2
Local Authority:	Kirklees			OS Grid Reference:	412754 415728
Weather Description:	Fine without high winds				
Road Surface Description:	Dry				
Speed Limit:	30				
Light Conditions:	Darkness: street lighting unknown				
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				



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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
2	Pedal cycle	-1	Male	16 - 20	Vehicle proceeding normally along the carriageway, not on a bend	Nearside	Other	None	None
1	Car (excluding private hire)	9	Male	46 - 55	Vehicle is moving off	Front	Other	None	None

Casualties

Vehicle Ref	Casualty Ref	Injury Severity	Casualty Class	Gender	Age Band	Pedestrian Location	Pedestrian Movement
2	1	Slight	Driver or rider	Male	16 - 20	Unknown or other	Unknown or other

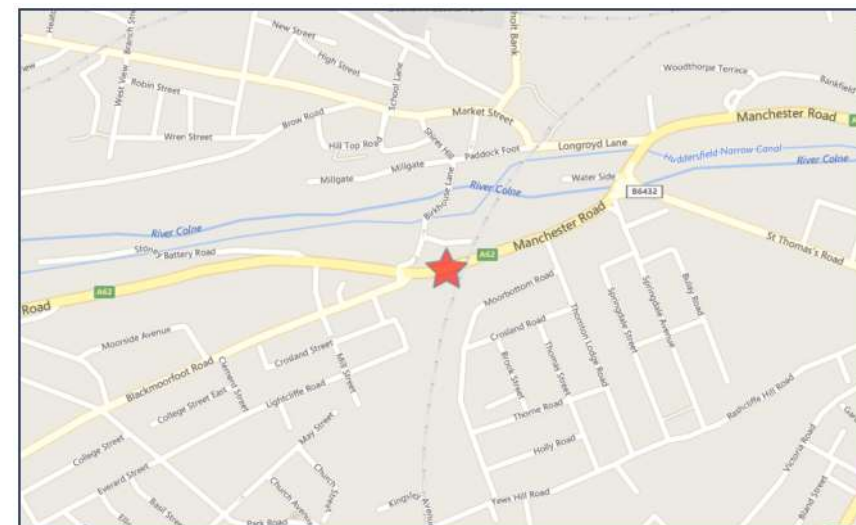
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Crash Date:	Friday, November 20, 2015	Time of Crash:	4:28:00 PM	Crash Reference:	2015132BK1099
Highest Injury Severity:	Serious	Road Number:	A62	Number of Casualties:	1
Highway Authority:	Kirklees			Number of Vehicles:	2
Local Authority:	Kirklees			OS Grid Reference:	413297 415956
Weather Description:	Fine without high winds				
Road Surface Description:	Wet or Damp				
Speed Limit:	30				
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				



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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)	-1	Male	56 - 65	Vehicle is in the act of turning right	Offside	Other	None	None
2	Motorcycle over 50cc and up to 125cc	11	Male	16 - 20	Vehicle proceeding normally along the carriageway, not on a bend	Front	Other	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	16 - 20	Unknown or other	Unknown or other

Accident Description:

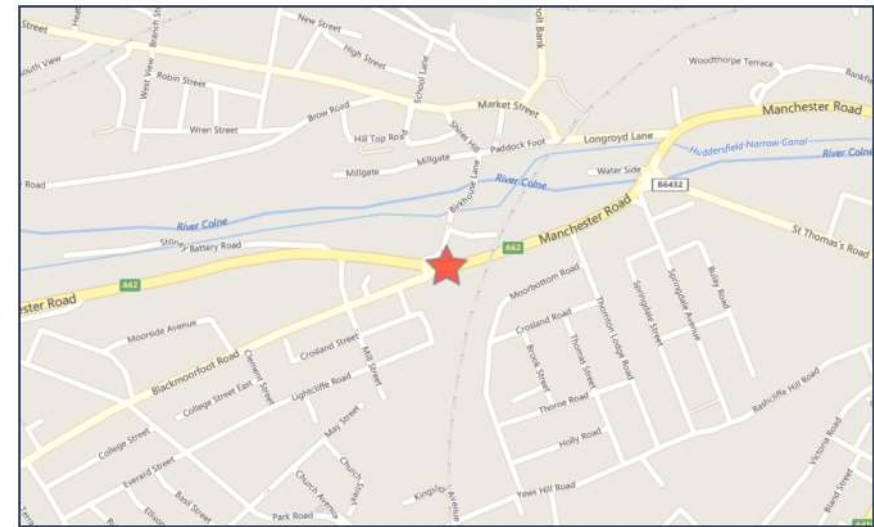
Accident description text currently unavailable for this highway authority / police force

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



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Crash Date:	Saturday, May 21, 2016	Time of Crash:	11:35:00 AM	Crash Reference:	20161335L0614
Highest Injury Severity:	Slight	Road Number:	A62	Number of Casualties:	2
Highway Authority:	Kirklees			Number of Vehicles:	1
Local Authority:	Kirklees			OS Grid Reference:	413258 415948
Weather Description:	Fine without high winds				
Road Surface Description:	Dry				
Speed Limit:	30				
Light Conditions:	Daylight: regardless of presence of streetlights				
Carriageway Hazards:	None				
Junction Detail:	Not at or within 20 metres of junction				
Junction Pedestrian Crossing:	No physical crossing facility within 50 metres				
Road Type:	Roundabout				
Junction Control:	Not Applicable				



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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	Bus or coach (17+ passenger seats)	16	Unknown	Unknown	Vehicle proceeding normally along the carriageway, not on a bend	Did not impact	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	Slight	Vehicle or pillion passenger	Female	Over 75	Unknown or other	Unknown or other
1	2	Slight	Vehicle or pillion passenger	Female	56 - 65	Unknown or other	Unknown or other

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

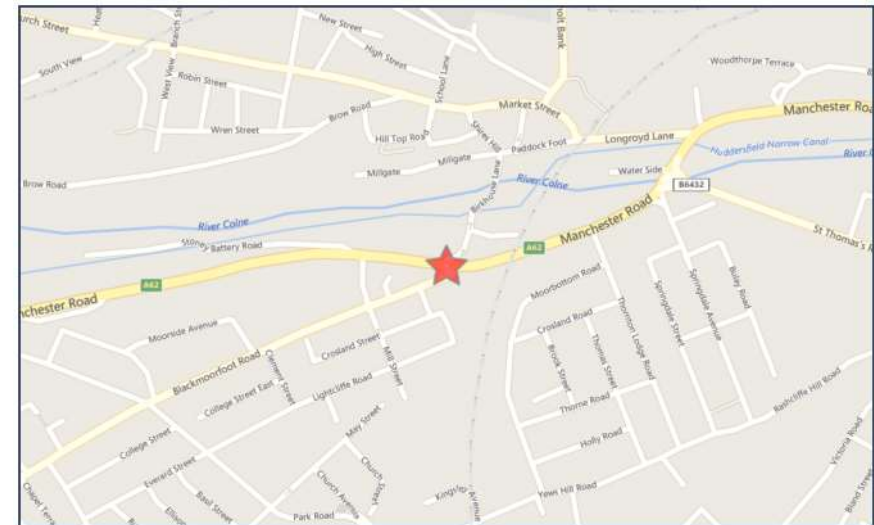
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Crash Date: Tuesday, May 29, 2018 **Time of Crash:** 6:50:00 PM **Crash Reference:** 20181355T1477

Highest Injury Severity:	Slight	Road Number:	A62	Number of Casualties:	3
Highway Authority:	Kirklees			Number of Vehicles:	2
Local Authority:	Kirklees			OS Grid Reference:	413224 415947
Weather Description:	Fine without high winds				
Road Surface Description:	Dry				
Speed Limit:	30				
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:	Give way or uncontrolled				



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Vehicles involved

Vehicle Ref	Vehicle Type	Vehicle Age	Driver Gender	Driver Age Band	Vehicle Maneouvre	First Point of Impact	Journey Purpose	Hit Object - On Carriageway	Hit Object - Off Carriageway
2	Car (excluding private hire)	10	Female	21 - 25	Vehicle proceeding normally along the carriageway, not on a bend	Front	Other	None	None
1	Car (excluding private hire)	9	Male	46 - 55	Vehicle is in the act of turning left	Nearside	Other	None	None

Casualties

Vehicle Ref	Casualty Ref	Injury Severity	Casualty Class	Gender	Age Band	Pedestrian Location	Pedestrian Movement
2	1	Slight	Driver or rider	Female	21 - 25	Unknown or other	Unknown or other
2	2	Slight	Vehicle or pillion passenger	Female	21 - 25	Unknown or other	Unknown or other
2	3	Slight	Vehicle or pillion passenger	Male	26 - 35	Unknown or other	Unknown or other

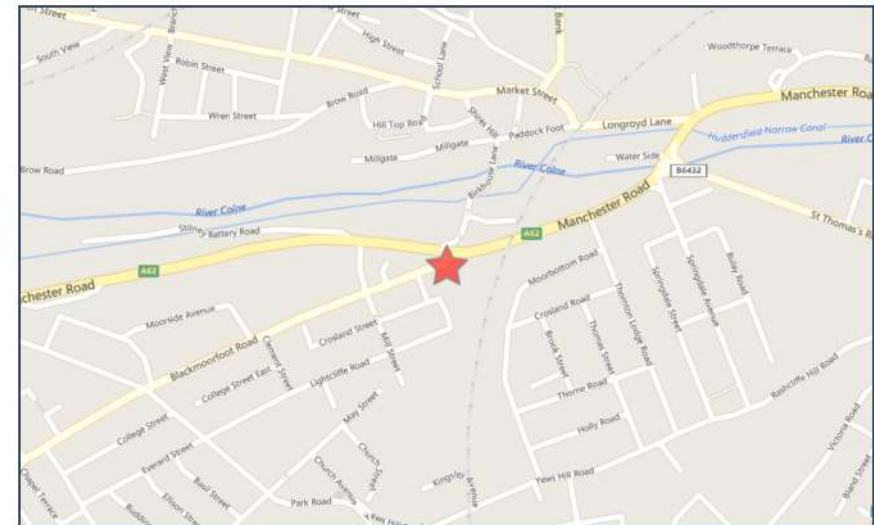
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Crash Date:	Sunday, September 02, 2018	Time of Crash:	1:10:00 PM	Crash Reference:	2018135921045
Highest Injury Severity:	Slight	Road Number:	U0	Number of Casualties:	1
Highway Authority:	Kirklees			Number of Vehicles:	2
Local Authority:	Kirklees			OS Grid Reference:	413229 415930
Weather Description:	Fine without high winds				
Road Surface Description:	Dry				
Speed Limit:	30				
Light Conditions:	Daylight: regardless of presence of streetlights				
Carriageway Hazards:	None				
Junction Detail:	Crossroads				
Junction Pedestrian Crossing:	No physical crossing facility within 50 metres				
Road Type:	Single carriageway				
Junction Control:	Auto traffic signal				



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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
2	Motorcycle over 500cc	10	Male	46 - 55	Vehicle proceeding normally along the carriageway, not on a bend	Front	Other	None	None
1	Taxi/Private hire car	3	Male	46 - 55	Vehicle is changing lane to the right (including slip road)	Offside	Journey as part of work	None	None

Casualties

Vehicle Ref	Casualty Ref	Injury Severity	Casualty Class	Gender	Age Band	Pedestrian Location	Pedestrian Movement
2	1	Slight	Driver or rider	Male	46 - 55	Unknown or other	Unknown or other

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Crash Date: Thursday, March 16, 2017

Time of Crash: 7:30:00 AM

Crash Reference: 20171343G0244

Highest Injury Severity: Slight

Highway Authority: Kirklees

Local Authority: Kirklees

Weather Description: Fine without high winds

Road Surface Description: Dry

Speed Limit: 30

Light Conditions: Daylight: regardless of presence of streetlights

Carriageway Hazards: None

Junction Detail: Not at or within 20 metres of junction

Junction Pedestrian Crossing: No physical crossing facility within 50 metres

Road Type: Single carriageway

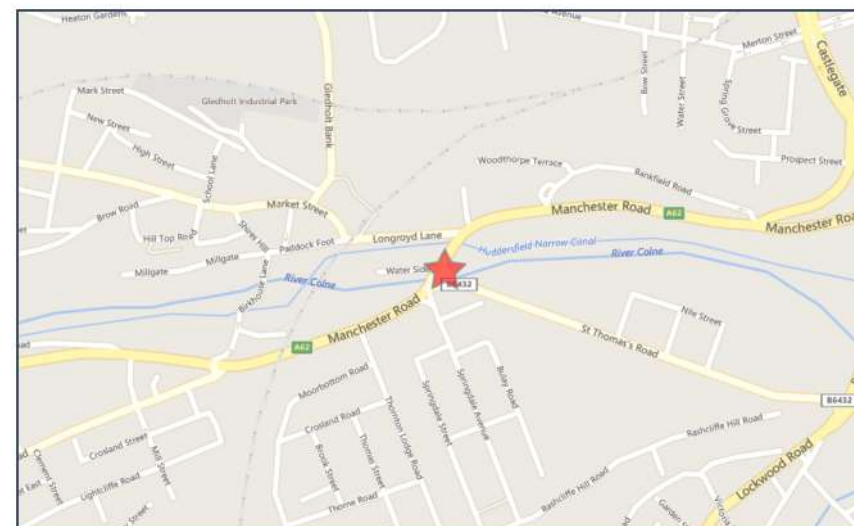
Junction Control: Unknown

Road Number: B6432

Number of Casualties: 1

Number of Vehicles: 3

OS Grid Reference: 413583 416099



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Vehicles involved

Vehicle Ref	Vehicle Type	Vehicle Age	Driver Gender	Driver Age Band	Vehicle Maneouvre	First Point of Impact	Journey Purpose	Hit Object - On Carriageway	Hit Object - Off Carriageway
1	Van or goods vehicle 3.5 tonnes mgw and under	-1	Male	45-54	Vehicle is slowing down or stopping	Unknown	Other	None	None
2	Car (excluding private hire)	-1	Male	35-44	Vehicle proceeding normally along the carriageway, not on a bend	Unknown	Other	None	None
3	Car (excluding private hire)	-1	Male	65-74	Vehicle is slowing down or stopping	Unknown	Other	None	None

Casualties

Vehicle Ref	Casualty Ref	Injury Severity	Casualty Class	Gender	Age Band	Pedestrian Location	Pedestrian Movement
2	1	Slight	Driver or rider	Male	35-44	Unknown or other	Unknown or other

Accident Description:

Accident description text currently unavailable for this highway authority / police force

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Crash Date: Monday, January 14, 2019

Time of Crash: 1:35:00 PM

Crash Reference: 20191361E0812

Highest Injury Severity: Slight

Road Number: A62

Number of Casualties: 1

Highway Authority: Kirklees

Number of Vehicles: 1

Local Authority: Kirklees

OS Grid Reference: 413572 416087

Weather Description: Fine without high winds

Road Surface Description: Dry

Speed Limit: 30

Light Conditions: Daylight: regardless of presence of streetlights

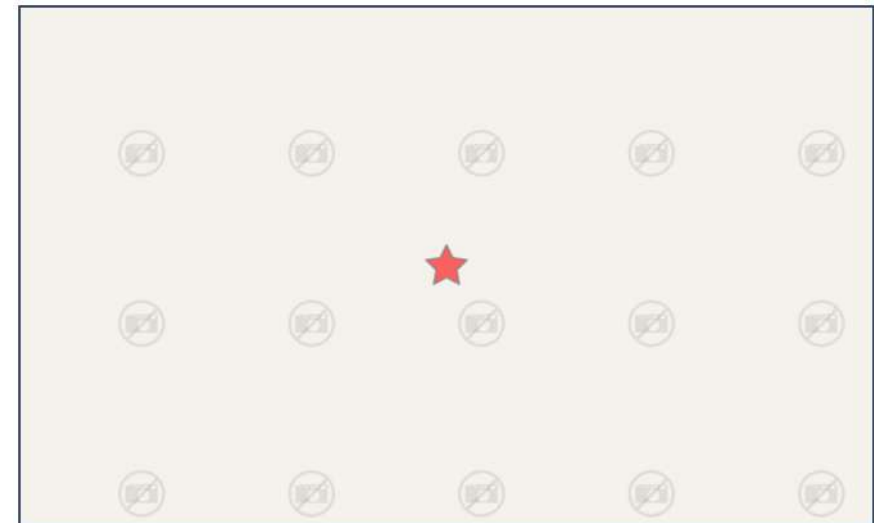
Carriageway Hazards: None

Junction Detail: T or staggered junction

Junction Pedestrian Crossing: Pedestrian phase at traffic signal junction

Road Type: Single carriageway

Junction Control: Auto traffic signal



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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)	-1	Female	35-44	Vehicle is in the act of turning right	Unknown	Other	None	None

Casualties

Vehicle Ref	Casualty Ref	Injury Severity	Casualty Class	Gender	Age Band	Pedestrian Location	Pedestrian Movement
1	1	Slight	Pedestrian	Male	75-84	In carriageway, crossing on pedestrian crossing facility	Crossing from driver's offside

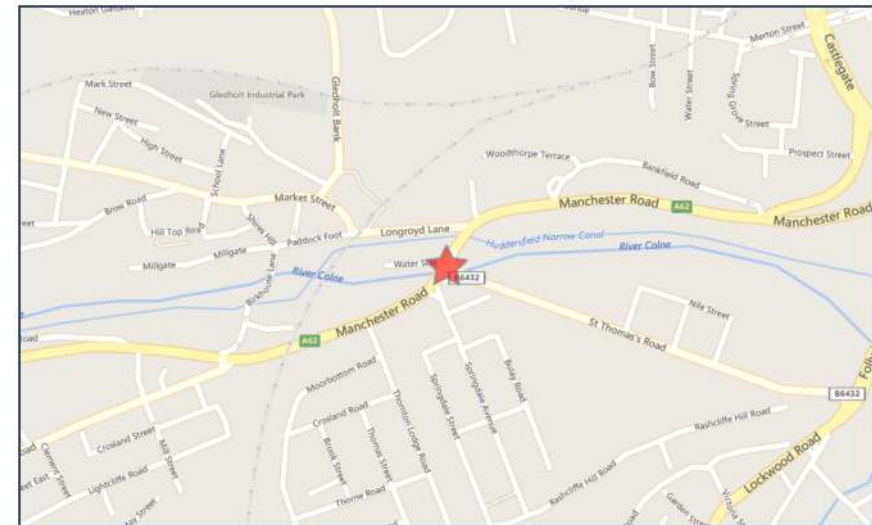
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Crash Date:	Sunday, January 04, 2015	Time of Crash:	2:45:00 PM	Crash Reference:	2015132140809
Highest Injury Severity:	Slight	Road Number:	A62	Number of Casualties:	3
Highway Authority:	Kirklees			Number of Vehicles:	3
Local Authority:	Kirklees			OS Grid Reference:	413573 416095
Weather Description:	Fine without high winds				
Road Surface Description:	Frost or Ice				
Speed Limit:	30				
Light Conditions:	Daylight: regardless of presence of streetlights				
Carriageway Hazards:	None				
Junction Detail:	T or staggered junction				
Junction Pedestrian Crossing:	Pedestrian phase at traffic signal junction				
Road Type:	Single carriageway				
Junction Control:	Auto traffic signal				



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Vehicles involved

Vehicle Ref	Vehicle Type	Vehicle Age	Driver Gender	Driver Age Band	Vehicle Maneouvre	First Point of Impact	Journey Purpose	Hit Object - On Carriageway	Hit Object - Off Carriageway
1	Car (excluding private hire)	13	Male	26 - 35	Vehicle is waiting to proceed normally but is held up	Back	Other	None	None
2	Car (excluding private hire)	6	Male	36 - 45	Vehicle is waiting to proceed normally but is held up	Back	Other	None	None
3	Car (excluding private hire)	12	Male	66 - 75	Vehicle proceeding normally along the carriageway, not on a bend	Front	Other	None	None

Casualties

Vehicle Ref	Casualty Ref	Injury Severity	Casualty Class	Gender	Age Band	Pedestrian Location	Pedestrian Movement
2	1	Slight	Driver or rider	Male	36 - 45	Unknown or other	Unknown or other
2	2	Slight	Vehicle or pillion passenger	Male	56 - 65	Unknown or other	Unknown or other
3	3	Slight	Vehicle or pillion passenger	Female	66 - 75	Unknown or other	Unknown or other

Accident Description:

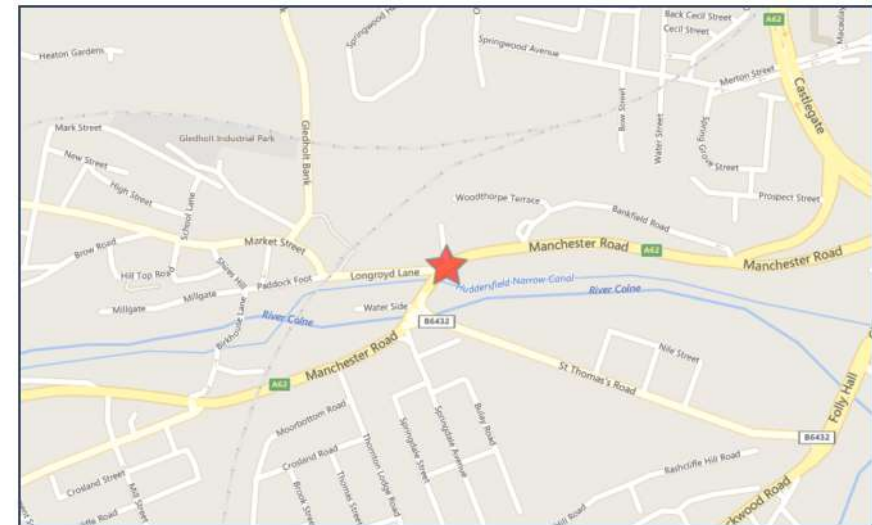
Accident description text currently unavailable for this highway authority / police force

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



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Crash Date:	Wednesday, November 07, 2018	Time of Crash:	6:55:00 PM	Crash Reference:	2018135B71458
Highest Injury Severity:	Slight	Road Number:	A62	Number of Casualties:	2
Highway Authority:	Kirklees			Number of Vehicles:	2
Local Authority:	Kirklees			OS Grid Reference:	413619 416160
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:	Not at or within 20 metres of junction				
Junction Pedestrian Crossing:	No physical crossing facility within 50 metres				
Road Type:	Single carriageway				
Junction Control:	Not Applicable				



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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
2	Car (excluding private hire)	12	Male	Unknown	Vehicle is performing a U turn	Offside	Other	None	None
1	Car (excluding private hire)	2	Male	21 - 25	Vehicle proceeding normally along the carriageway, not on a bend	Front	Other	None	None

Casualties

Vehicle Ref	Casualty Ref	Injury Severity	Casualty Class	Gender	Age Band	Pedestrian Location	Pedestrian Movement
1	1	Slight	Driver or rider	Male	21 - 25	Unknown or other	Unknown or other
1	2	Slight	Vehicle or pillion passenger	Female	21 - 25	Unknown or other	Unknown or other

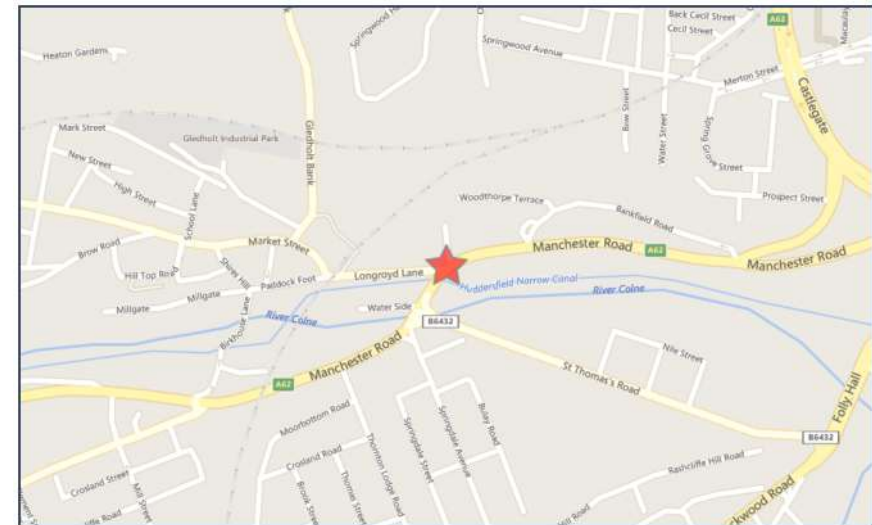
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Crash Date:	Sunday, January 21, 2018	Time of Crash:	9:43:00 PM	Crash Reference:	20181351L1557
Highest Injury Severity:	Slight	Road Number:	U0	Number of Casualties:	1
Highway Authority:	Kirklees			Number of Vehicles:	2
Local Authority:	Kirklees			OS Grid Reference:	413614 416156
Weather Description:	Raining without high winds				
Road Surface Description:	Wet or Damp				
Speed Limit:	40				
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:	Auto traffic signal				



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Vehicles involved

Vehicle Ref	Vehicle Type	Vehicle Age	Driver Gender	Driver Age Band	Vehicle Maneouvre	First Point of Impact	Journey Purpose	Hit Object - On Carriageway	Hit Object - Off Carriageway
2	Motorcycle 50cc and under		4 Male	16 - 20	Vehicle proceeding normally along the carriageway, not on a bend	Did not impact	Other	None	None
1	Car (excluding private hire)		3 Male	26 - 35	Vehicle is changing lane to the left	Did not impact	Other	None	None

Casualties

Vehicle Ref	Casualty Ref	Injury Severity	Casualty Class	Gender	Age Band	Pedestrian Location	Pedestrian Movement
2	1	Slight	Driver or rider	Male	16 - 20	Unknown or other	Unknown or other

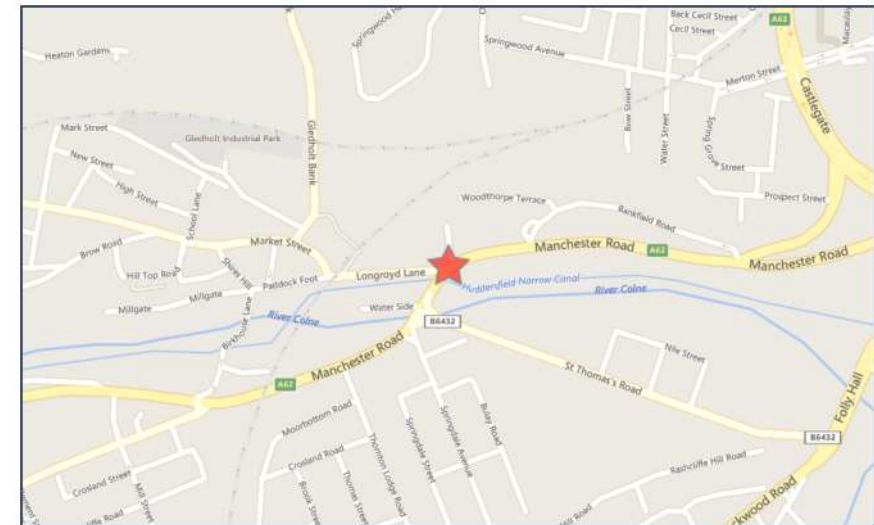
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Crash Date:	Thursday, September 20, 2018	Time of Crash:	8:17:00 AM	Crash Reference:	20181359K0372
Highest Injury Severity:	Slight	Road Number:	A62	Number of Casualties:	1
Highway Authority:	Kirklees			Number of Vehicles:	2
Local Authority:	Kirklees			OS Grid Reference:	413614 416156
Weather Description:	Fine without high winds				
Road Surface Description:	Dry				
Speed Limit:	30				
Light Conditions:	Daylight: regardless of presence of streetlights				
Carriageway Hazards:	None				
Junction Detail:	T or staggered junction				
Junction Pedestrian Crossing:	Pedestrian phase at traffic signal junction				
Road Type:	Single carriageway				
Junction Control:	Auto traffic signal				



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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
2	Car (excluding private hire)	10	Female	26 - 35	Vehicle is in the act of turning right	Offside	Commuting to/from work	None	None
1	Car (excluding private hire)	7	Male	36 - 45	Vehicle proceeding normally along the carriageway, not on a bend	Front	Other	None	None

Casualties

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

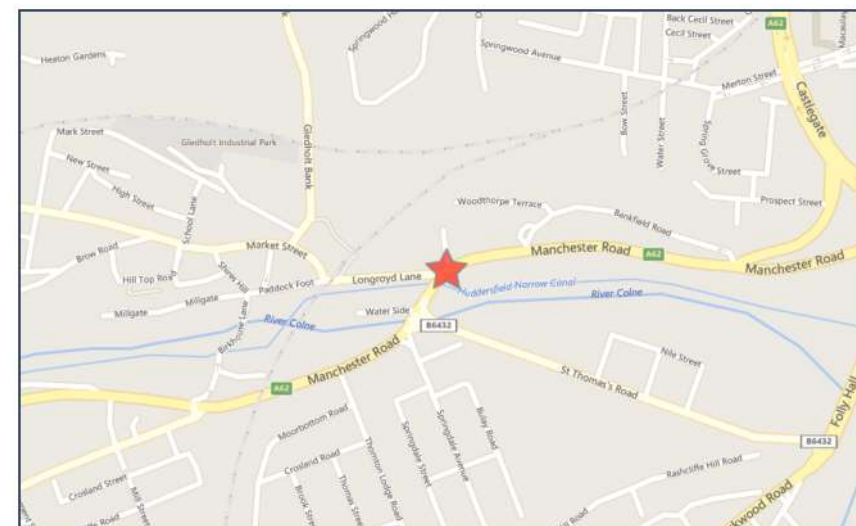
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Crash Date:	Monday, February 01, 2016	Time of Crash:	11:04:00 PM	Crash Reference:	2016133211761
Highest Injury Severity:	Slight	Road Number:	A62	Number of Casualties:	1
Highway Authority:	Kirklees			Number of Vehicles:	1
Local Authority:	Kirklees			OS Grid Reference:	413616 416162
Weather Description:	Unknown				
Road Surface Description:	Dry				
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:	Auto traffic signal				



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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)	-1	Male	26 - 35	Vehicle proceeding normally along the carriageway, not on a bend	Did not impact	Other	None	None

Casualties

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

Accident Description:

Not Available

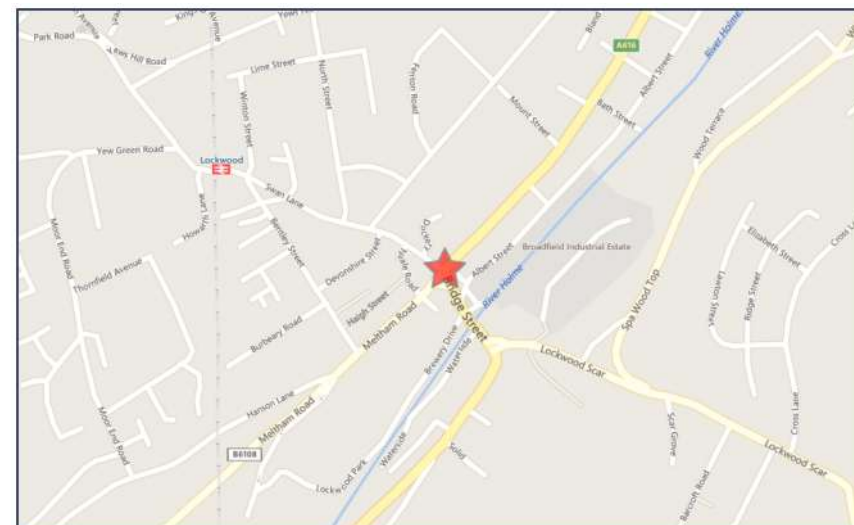
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Crash Date: Sunday, November 15, 2015 **Time of Crash:** 6:30:00 PM **Crash Reference:** 2015132BF1401

Highest Injury Severity:	Slight	Road Number:	A616	Number of Casualties:	2
Highway Authority:	Kirklees			Number of Vehicles:	2
Local Authority:	Kirklees			OS Grid Reference:	413628 415202
Weather Description:	Fine without high winds				
Road Surface Description:	Dry				
Speed Limit:	30				
Light Conditions:	Darkness: street lights present and lit				
Carriageway Hazards:	None				
Junction Detail:	Crossroads				
Junction Pedestrian Crossing:	Pelican, puffin, toucan or similar non-junction pedestrian light crossing				
Road Type:	Single carriageway				
Junction Control:	Auto traffic signal				



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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)	13	Male	46 - 55	Vehicle proceeding normally along the carriageway, not on a bend	Front	Other	None	None
2	Car (excluding private hire)	11	Female	16 - 20	Vehicle is waiting to turn right	Back	Other	None	None

Casualties

Vehicle Ref	Casualty Ref	Injury Severity	Casualty Class	Gender	Age Band	Pedestrian Location	Pedestrian Movement
2	1	Slight	Driver or rider	Female	16 - 20	Unknown or other	Unknown or other
2	2	Slight	Vehicle or pillion passenger	Male	16 - 20	Unknown or other	Unknown or other

Accident Description:

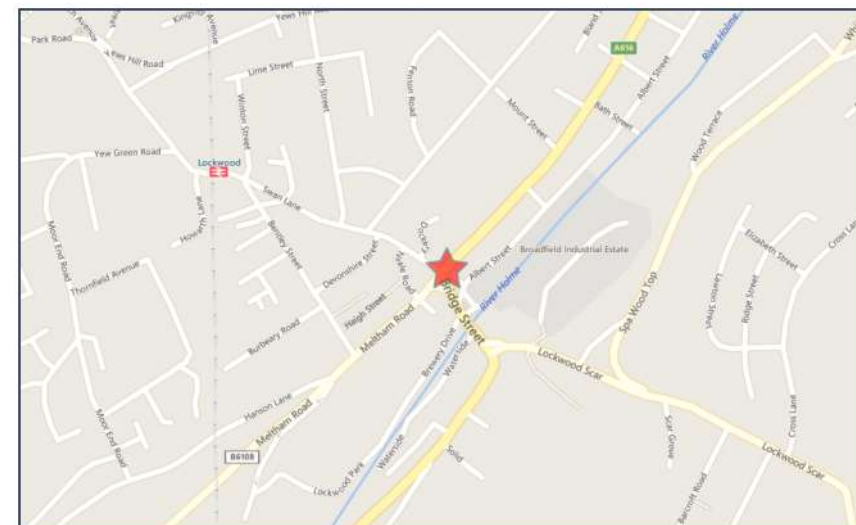
Accident description text currently unavailable for this highway authority / police force

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



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Crash Date:	Saturday, November 05, 2016	Time of Crash:	9:54:00 AM	Crash Reference:	2016133B50526
Highest Injury Severity:	Serious	Road Number:	A616	Number of Casualties:	1
Highway Authority:	Kirklees			Number of Vehicles:	1
Local Authority:	Kirklees			OS Grid Reference:	413635 415204
Weather Description:	Fine without high winds				
Road Surface Description:	Dry				
Speed Limit:	30				
Light Conditions:	Daylight: regardless of presence of streetlights				
Carriageway Hazards:	None				
Junction Detail:	Crossroads				
Junction Pedestrian Crossing:	Pedestrian phase at traffic signal junction				
Road Type:	Single carriageway				
Junction Control:	Auto traffic signal				



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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)	3	Female	36 - 45	Vehicle is in the act of turning left	Offside	Other	None	None

Casualties

Vehicle Ref	Casualty Ref	Injury Severity	Casualty Class	Gender	Age Band	Pedestrian Location	Pedestrian Movement
1	1	Serious	Pedestrian	Male	6 - 10	In carriageway, crossing elsewhere within 50 metres of pedestrian crossing	Crossing from driver's offside - masked by parked or stationary vehicle

Accident Description:

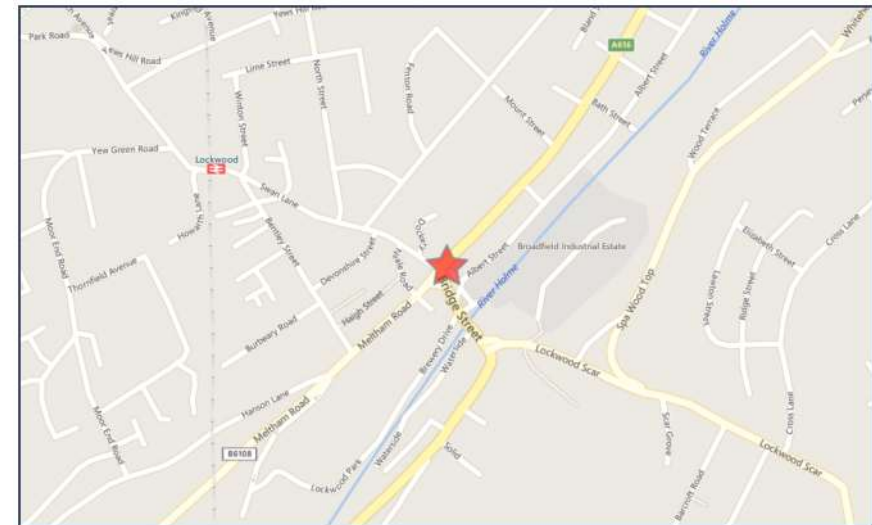
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Crash Date:	Wednesday, December 12, 2018	Time of Crash:	9:15:00 AM	Crash Reference:	2018135CC1046
Highest Injury Severity:	Slight	Road Number:	A616	Number of Casualties:	1
Highway Authority:	Kirklees			Number of Vehicles:	1
Local Authority:	Kirklees			OS Grid Reference:	413639 415209
Weather Description:	Fine without high winds				
Road Surface Description:	Dry				
Speed Limit:	30				
Light Conditions:	Daylight: regardless of presence of streetlights				
Carriageway Hazards:	None				
Junction Detail:	Not at or within 20 metres of junction				
Junction Pedestrian Crossing:	No physical crossing facility within 50 metres				
Road Type:	Single carriageway				
Junction Control:	Not Applicable				



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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)	-1	Female	Unknown	Vehicle proceeding normally along the carriageway, not on a bend	Front	Other	None	None

Casualties

Vehicle Ref	Casualty Ref	Injury Severity	Casualty Class	Gender	Age Band	Pedestrian Location	Pedestrian Movement
1	1	Slight	Pedestrian	Female	21 - 25	In carriageway, crossing elsewhere	Crossing from driver's nearside

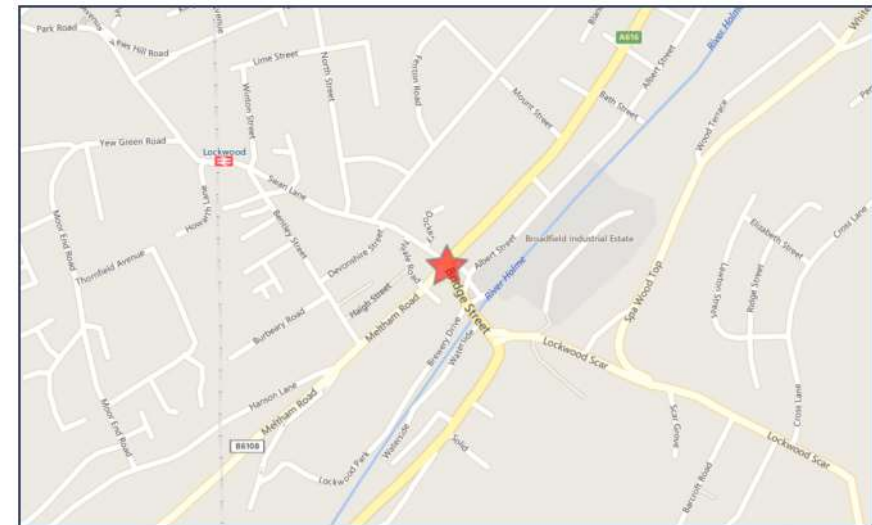
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Crash Date:	Friday, July 29, 2016	Time of Crash:	11:00:00 PM	Crash Reference:	20161337T1954
Highest Injury Severity:	Slight	Road Number:	A616	Number of Casualties:	1
Highway Authority:	Kirklees			Number of Vehicles:	2
Local Authority:	Kirklees			OS Grid Reference:	413627 415199
Weather Description:	Fine without high winds				
Road Surface Description:	Dry				
Speed Limit:	30				
Light Conditions:	Daylight: regardless of presence of streetlights				
Carriageway Hazards:	None				
Junction Detail:	Crossroads				
Junction Pedestrian Crossing:	Pelican, puffin, toucan or similar non-junction pedestrian light crossing				
Road Type:	Single carriageway				
Junction Control:	Auto traffic signal				



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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)	12	Male	Unknown	Vehicle proceeding normally along the carriageway, not on a bend	Front	Other	None	None
2	Car (excluding private hire)	7	Male	26 - 35	Vehicle proceeding normally along the carriageway, not on a bend	Offside	Other	None	Road sign/Traffic signal

Casualties

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

Accident Description:

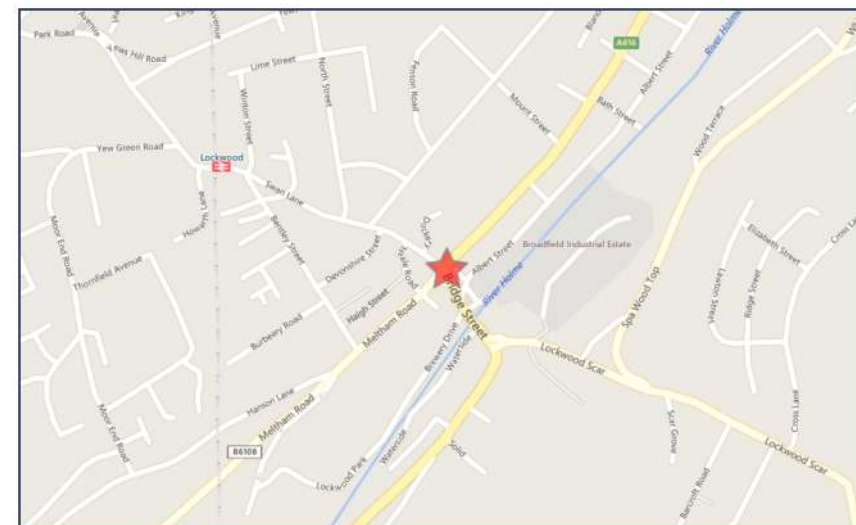
Not Available

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Crash Date:	Monday, January 14, 2013	Time of Crash:	11:20:00 AM	Crash Reference:	2013130019477
Highest Injury Severity:	Slight	Road Number:	A616	Number of Casualties:	2
Highway Authority:	Kirklees			Number of Vehicles:	2
Local Authority:	Kirklees			OS Grid Reference:	413631 415199
Weather Description:	Snowing without high winds				
Road Surface Description:	Snow				
Speed Limit:	30				
Light Conditions:	Daylight: regardless of presence of streetlights				
Carriageway Hazards:	None				
Junction Detail:	Crossroads				
Junction Pedestrian Crossing:	Pedestrian phase at traffic signal junction				
Road Type:	Single carriageway				
Junction Control:	Auto traffic signal				



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Vehicles Involved

Vehicle Ref	Vehicle Type	Vehicle Age	Driver Gender	Driver Age Band	Vehicle Maneouvre	First Point of Impact	Journey Purpose	Hit Object - On Carriageway	Hit Object - Off Carriageway
1	Car (excluding private hire)	10	Male	36 - 45	Vehicle is performing a U turn	Offside	Other	None	None
2	Goods vehicle 7.5 tonnes mgw and over	6	Male	46 - 55	Vehicle proceeding normally along the carriageway, not on a bend	Front	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	Slight	Driver or rider	Male	36 - 45	Unknown or other	Unknown or other
1	2	Slight	Vehicle or pillion passenger	Female	36 - 45	Unknown or other	Unknown or other

Accident Description:

Accident description text currently unavailable for this highway authority / police force

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Croft Transport Planning & Design

340 Deansgate

Manchester

M3 4LY

0161 837 7380

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Offices across the UK

