

PROPOSED INDUSTRIAL UNIT
UNIT B, BIRCH BUSINESS PARK,
MOSS HALL ROAD, HEYWOOD, ROCHDALE

Transport Assessment 03

Prepared on behalf of:

Yeargate Ltd.



AXIS
Camellia House
76 Water Lane
Wilmslow
SK9 5BB

Tel: 0844 8700 007

www.axisped.co.uk

CONTENTS

1.0	INTRODUCTION	3
1.1	Purpose of This Report	3
1.2	Background	3
1.3	Report Structure	4
2.0	EXISTING CONDITIONS.....	5
2.1	General.....	5
2.2	Site Location.....	5
2.3	Highway Safety	7
2.4	Accessibility.....	8
2.5	Traffic Surveys	11
3.0	PROPOSED DEVELOPMENT.....	13
3.1	General.....	13
3.2	Access Arrangements	13
3.3	Parking Provision	13
3.4	Servicing Arrangements.....	14
4.0	TRAFFIC GENERATION.....	16
4.1	Introduction.....	16
4.2	Trip Rates.....	16
4.3	Previous Use Traffic Generation	16
4.4	Proposed Traffic Generation	17
4.5	Net Traffic Generation	17
4.6	Trip Distribution	18
4.7	Development Trip Assignment	18
4.8	Background Traffic Growth	18
4.9	Committed Developments.....	19
4.10	Assessment Scenarios.....	20
5.0	TRAFFIC IMPACT ASSESSMENT.....	21
5.1	Overview	21
5.2	Capacity Assessment.....	21
6.0	SUMMARY & CONCLUSIONS.....	23

PLANS

Plan 2.1 – Site Location – Local Highway Network	6
Plan 2.2 – PIA Study Area.....	7
Plan 2.3 – 5km Cycle Catchment	10
Plan 2.4 – TfGM Cycle Map.....	11
Plan 2.5 – Traffic Count Locations	12

TABLES

Table 3.1 – Parking Standards	14
Table 4.1 – Approved TRICS Trip Rates – Per 100sqm GIA.....	16
Table 4.2 – Existing Use Traffic Generation	16
Table 4.3 – Proposed Use Traffic Generation	17
Table 4.4 – Net Traffic Generation	17
Table 4.5 – TEMPro Growth Factors	18
Table 5.1 – Moss Hall Road / Birch Business Park Junctions 10 Results	22

APPENDICES

APPENDIX 1 - PROPOSED SITE LAYOUT PLAN	
APPENDIX 2 – PERSONAL INJURY ACCIDENT DATA	
APPENDIX 3 – SEPTEMBER 2021 TRAFFIC SURVEY DATA	
APPENDIX 4 – DRAWING NO. 3080-01-ATR01: SWEPT PATH ANALYSIS	
APPENDIX 5 – TRICS OUTPUT REPORT	
APPENDIX 6 - TRAFFIC FLOW DIAGRAMS	
APPENDIX 7 - MOSS HALL ROAD / BIRCH BUSINESS PARK JUNCTIONS 10 REPORT	

1.0 INTRODUCTION

1.1 Purpose of This Report

- 1.1.1 AXIS has been appointed by Yeargate Ltd to prepare a Transport Assessment (TA) to support a planning application for the redevelopment of an industrial unit at Birch Business Park, Moss Hall Road, Heywood.
- 1.1.2 The proposed development comprises the demolition of existing industrial units B & G (circa 3,791 sq. m) to make way for a single new industrial unit (circa 8,153.3 sq. m GIA). The land use will remain B2 / B8, with ancillary offices.
- 1.1.3 The proposed site layout plan is included in **Appendix 1**.

1.2 Background

- 1.2.1 In March 2017, an outline planning application (reference **16/01455/OUT**) was approved for the redevelopment of Units, D (6,808 sq. m), L2a (1,279 sq. m) and L2b (1,279 sq. m) at Birch Business Park.
- 1.2.2 A subsequent TA was produced in July 2020 (in support of application 20/00955/FUL) to support the redevelopment of Unit D.
- 1.2.3 Units D, L2a and L2b have now been constructed. The Unit B application did not progress at the time due to the urgent timeframe to gain consent for Unit D.
- 1.2.4 This TA has therefore been prepared to present the transport planning aspects of the Unit B proposal at Birch Business Park. Many of the parameters adopted in the previously provided TA's for the other approved units have been adopted within this TA (e.g. trip rates, traffic generation and distribution methodology).
- 1.2.5 This TA has been prepared to inform the Local Planning Authority (LPA) and Local Highway Authority (LHA) of the highways and transport related implications of the proposed development. The LPA and LHA in this context is Rochdale Borough Council (RBC).

1.3 Report Structure

1.3.1 The structure of this TA is as follows:

- **Chapter 2** provides a review of the existing highway conditions around the site including a review of Personal Injury Accident data, sustainable accessibility, and baseline traffic surveys;
- **Chapter 3** provides a description of the development proposals, access arrangements, parking provision and servicing arrangements;
- **Chapter 4** details the trip rates, proposed traffic generation and distribution, considers any committed developments relevant to the site ;
- **Chapter 5** presents the highway impact assessment of the proposed development; and
- **Chapter 6** provides the summary and conclusions.

2.0 EXISTING CONDITIONS

2.1 General

- 2.1.1 The Unit B site is currently occupied by two smaller units currently known as Units B and G. The existing Unit B is a larger industrial type structure, providing approximately 3,791m² (40,803 sq. ft) gross internal floor area (GIA) and is clad in green profiled metal cladding. The existing Unit G is a small unit located close to the southern boundary opposite Unit B, providing approximately 372m² (4,000 sq. ft) GIA and this is also clad in green profiled metal cladding. Canopies and portacabins (approx. 335m² 3,819 sq. ft) have been added to the plot by the tenant for operational purposes.
- 2.1.2 The wider Business Park currently houses a number of light industrial businesses including Falcon Tower Crane Services, Synergy Bathrooms, Archbold and Ital Logistics.

2.2 Site Location

- 2.2.1 The application site is located in the southern portion of the Birch Business Park off Moss Hall Road in Rochdale and is accessed via the existing business park access (a simple priority-controlled junction off Moss Hall Road) and via the internal business park road layout. The business park itself is approximately 7km south-west of Rochdale Town Centre and 4.4km south-east of Bury Town Centre.
- 2.2.2 The location of the site in relation to the local highway network is shown on **Plan 2.1**.

Plan 2.1 – Site Location – Local Highway Network



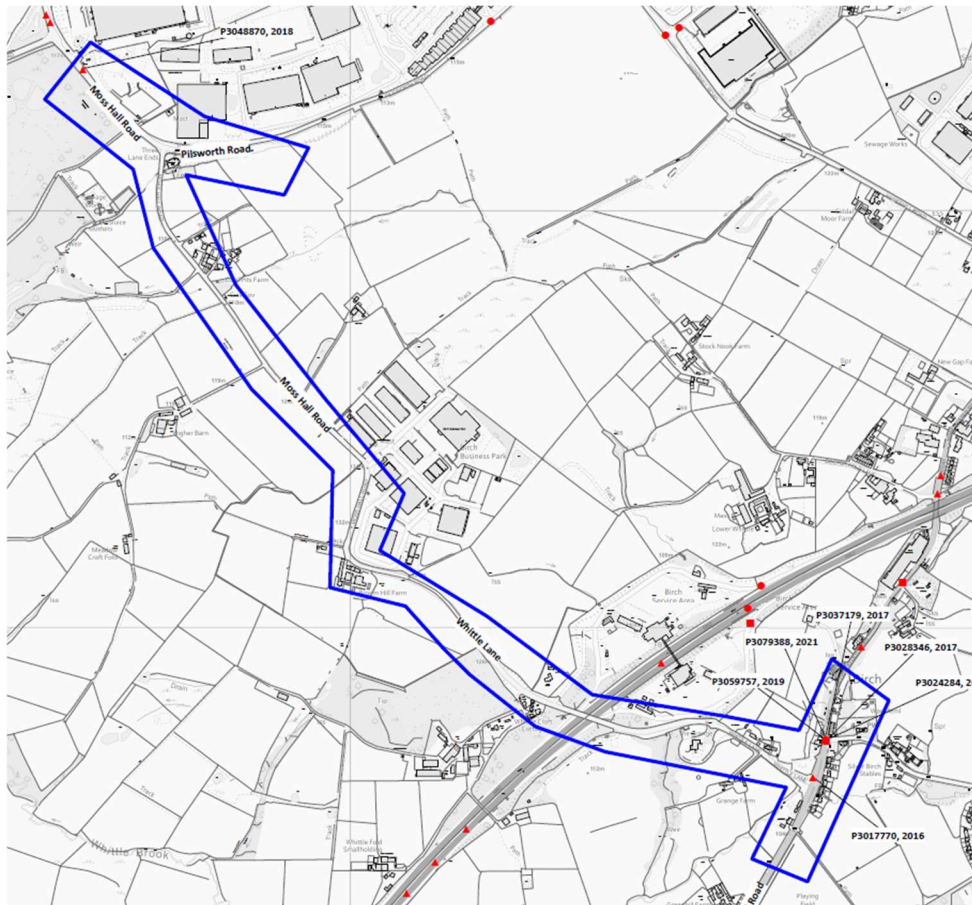
Moss Hall Road / Whittle Lane

- 2.2.3 Moss Hall Road / Whittle Lane is a single carriageway road and is subject to a 40mph speed limit along the southern and western boundary of the site. The road runs in a roughly north-east / south-west alignment, beginning at the Moss Hall Road / Pilsworth Road priority-controlled junction to the north of the site then travelling circa 2.5km south-eastwards to the Whittle Lane / Heywood Old Road priority junction.
- 2.2.4 Moss Hall Road / Whittle Lane have a variable carriageway width of between 5.5m and 7.3m. To the north-west of the Birch Business Park access within the vicinity of the site there are circa 1.5m wide footways on both sides of the road.
- 2.2.5 The section of Moss Hall Road from the site access to the emergency access of the M62 service station further south (where it becomes Whittle Lane) is the subject of an 18T weight restriction. Therefore, HGVs of 18T relating to the operation of the business park are compelled to route via Pilsworth Road to the north and via the M66 Junction 3.

2.3 Highway Safety

- 2.3.1 AXIS have obtained Personal Accident Data (PIA) from Transport for Greater Manchester (TfGM) for the study area outlined in **Plan 2.2**. The data includes PIAs that occurred between February 2016 and January 2021 (inclusive), which is the most recent available data. The full PIA report is included in **Appendix 2** for reference.

Plan 2.2 – PIA Study Area



- 2.3.2 The data indicates that a total of 7 PIAs have been recorded within the study area, 5 of which resulted in 'slight' injury and 2 which resulted in 'serious' injury. When considered volumetrically, this equates to under 2 accidents per year on average within the study area.
- 2.3.3 The contributory factor information provided by TfGM indicates that most PIAs occurred due to driver error, with the most common causation factors being a 'failure to look properly' (a contributing factor in 3 PIAs) and 'disobeyed give way or stop sign or markings' (2 PIAs).

- 2.3.4 One of the PIAs reported the road layout as a possible contributing factor, when a driver turning right from Langley Lane onto Heywood Old Road failed to see oncoming traffic, and collided with a vehicle travelling south on Heywood Old Road.
- 2.3.5 As this is the only PIA where the road layout has been recorded as a possible contributory factor, it is not considered that an intervention is required to improve the junction. The majority of the proposed development trips would not utilise Langley Lane to get to/from the site (see **Chapter 4**), and due to the HGV restriction on Whittle Lane, development related HGV trips will not route via Langley Lane. The proposed development would therefore not exacerbate any existing road safety issues on Langley Lane.
- 2.3.6 On the basis of the above, it is considered that the existing accident record does not present a material concern in the context of the proposed development.

2.4 Accessibility

- 2.4.1 The site's accessibility to sustainable forms of transport has been considered in the context of the following policies of the NPPF:

Paragraph 85 states that; *"Planning policies and decisions should recognise that sites to meet local business and community needs in rural areas may have to be found adjacent to or beyond existing settlements, and in locations that are not well served by public transport"*

Paragraph 105 states that; *"opportunities to maximise sustainable transport solutions will vary between urban and rural areas, and this should be taken into account in both plan-making and decision-making."*

- 2.4.2 Birch Business Park is in a predominantly rural location which should be taken account of when assessing the accessibility of sustainable travel modes. Sites in built up areas will, by virtue of their location, enable a greater degree of sustainable transport. However, this does not mean that rurally located developments such as the one proposed should be viewed as inherently unsustainable.

2.4.3 Rurally located developments should be viewed within their rural context and to this effect, the accessibility of the proposed development is considered for the following modes of travel:

- Accessibility on Foot; and,
- Accessibility by Cycle;

Accessibility by Foot

2.4.1 To the north of the Birch Business Park access junction, footways are provided on both sides of Moss Hall Road. The western footway provides a continuous, unobstructed link from the site access to the Moss Hall Road / Pilsworth Road priority junction.

2.4.2 A shared footway/cycleway is provided on the southern side of Pilsworth Road, towards the M66 Junction 3. A footway is also provided on the northern side of Pilsworth Road, towards Hareshill Road and Heywood further north-east.

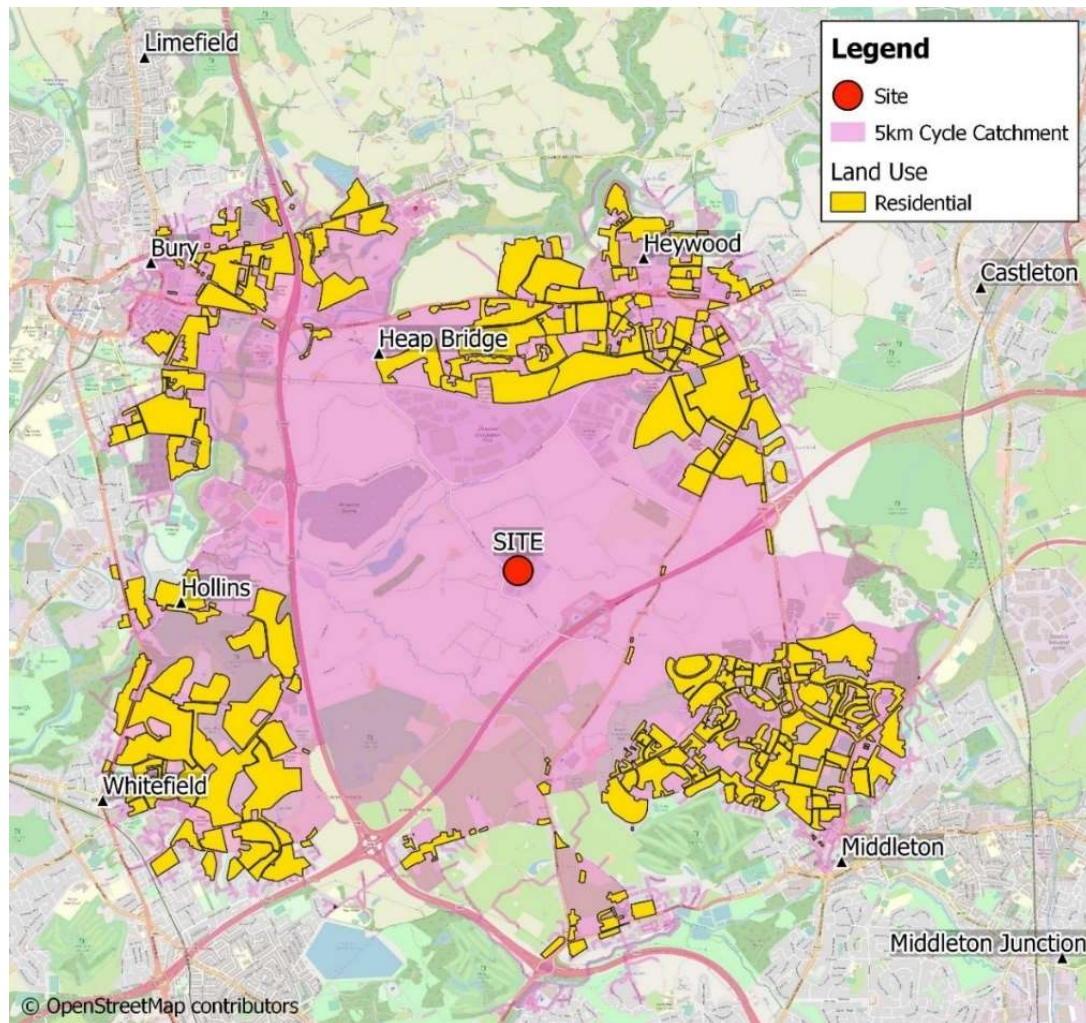
2.4.3 It is recognised that the potential for walking as a suitable mode of travel for a daily commute journey to work is perhaps limited due to the rural nature of the area. As such, it is considered that cycling perhaps presents a more realistic opportunity for travel to the site.

Cycle Accessibility

2.4.4 Previous transport guidance identifies that cycling represents a realistic alternative to the private car when making journeys up to 5km as a whole journey or as part of a longer journey by public transport.

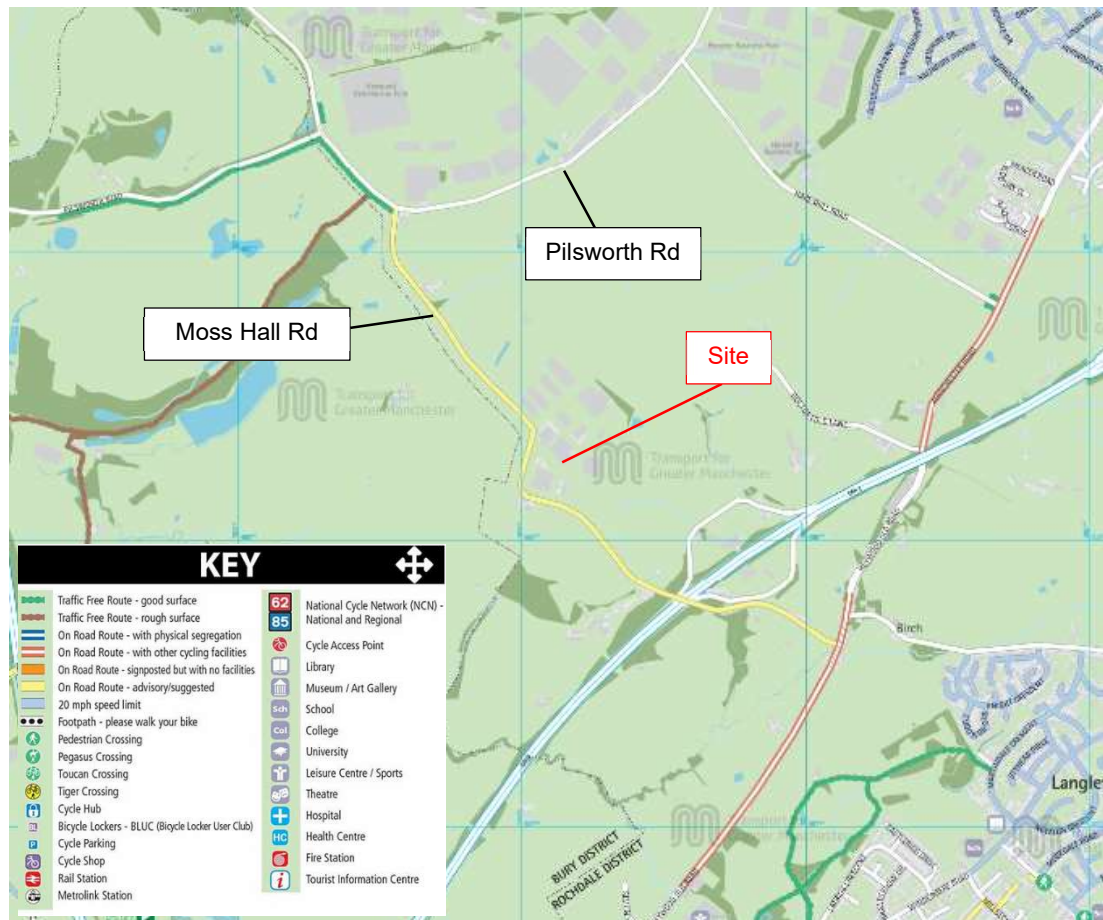
2.4.5 The cycling accessibility has been assessed to determine reachable areas for a 5km journey from the site, as shown on **Plan 2.3**.

Plan 2.3 – 5km Cycle Catchment



- 2.4.6 **Plan 2.3** shows that Bury, Heywood, Whitefield and others are all within a 5km cycle distance from the site. These locations offer large residential areas from which a local workforce could potentially commute from by cycle.
- 2.4.7 In terms of existing cycling infrastructure, an off-road shared foot / cycleway is provided along Pilsworth Road, between Moss Hall Road and the M66 Junction 3. On-road cycle lanes are also provided on both sides of Heywood Old Road to the south of the site.
- 2.4.8 Moss Hall Road is registered as an advisory cycling route of TfGM's cycle network as illustrated on **Plan 2.4**. TfGM's plan also identifies a 'traffic free route (rough surface)' which provides a connection between Moss Hall Road and Castle Road to the south-west of the site. Castle Road itself provides a connection to the residential area of Unsworth over a bridge across the M66 Motorway.

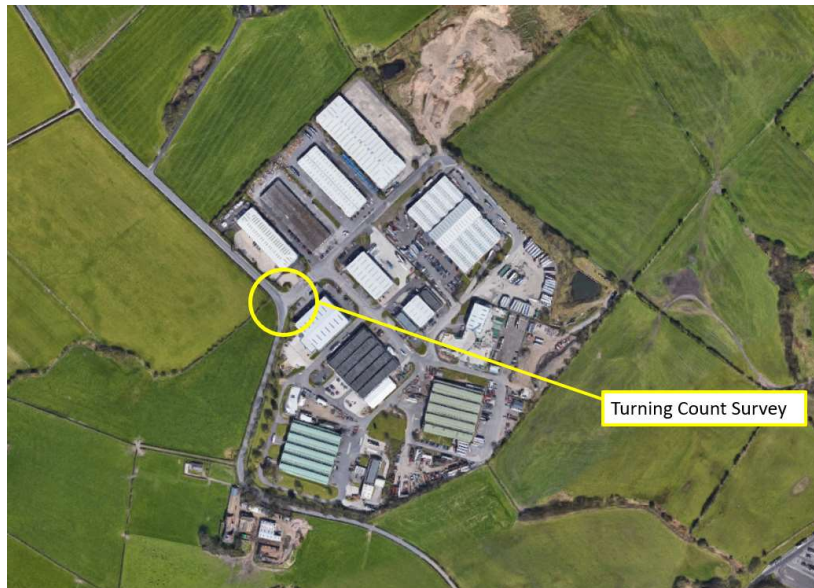
Plan 2.4 – TfGM Cycle Map



2.5 Traffic Surveys

- 2.5.1 Traffic surveys were obtained in support of the previous application (**16/01455/OUT**). This included a turning count survey at the Moss Hall Road / Birch Business Park access junction which was undertaken on Thursday 13th October 2016 between 07:00 and 19:00.
- 2.5.2 Given the age of the previous traffic survey, and that traffic conditions have almost returned to normal following the COVID-19 lockdowns, a new Manual Classified Count (MCC) turning count was commissioned. This was undertaken on Thursday 9th September 2021 at the Moss Hall Road / Birch Business Park junction, between 07:00 – 09:30am and 15:30-18:30pm.
- 2.5.3 The location of the survey is shown on **Plans 2.5**.

Plan 2.5 – Traffic Count Locations



- 2.5.4 The results of these surveys are contained within **Appendix 3** at the end of this report.

3.0 PROPOSED DEVELOPMENT

3.1 General

- 3.1.1 The proposals include the redevelopment of the existing units B and G into a single new larger B2/B8 warehouse.
- 3.1.2 More specifically, the proposals comprise the following:
- Creation of a new warehouse unit and ancillary office space with a total GIA of 8,153.3 sq. m (warehouse 7,575.3 sq. m and office 578 sq. m),
 - Provision of 89 car parking spaces including 5 disabled bays,
 - 12 cycle parking spaces under shelter, and
 - 7 HGV trailer parking spaces.
- 3.1.3 A copy of the proposed site layout plan is included in **Appendix 1** at the end of this report.

3.2 Access Arrangements

- 3.2.1 Vehicular access to the new unit will continue to be taken from the Moss Hall Road / Birch Business Park priority junction.
- 3.2.2 The proposed car parking area will be accessed off the existing internal road and there will be a separate access to the service yard. Footways will also be provided within the car park, leading to the main entrance of the 3-storey office.

3.3 Parking Provision

- 3.3.1 Parking will be provided as per the proposed site layout plan within **Appendix 1** at the end of this report. A total of 89 car parking spaces, including 5 accessible bays will be provided.
- 3.3.2 The loading and service yard area will be accessed separately to the north of the unit building. A total of 7 HGV trailer parking spaces will be provided within the service yard, along with loading areas and dock levellers. This will include a total of 3 loading doors and 6 level access doors.
- 3.3.3 Six cycle stands (12 spaces) will be provided under shelter close to both the entrance of the unit's car parking area and the site offices.

- 3.3.4 Rochdale Borough Council's (RBC) parking standards are set out within Appendix 5 (Schedule of Parking Standards) of the adopted Core Strategy (October 2016). The parking standards are summarised in **Table 3.1**.

Table 3.1 – Parking Standards

Development Type	Car Parking (Maximum)	Cycle Space Provision (Minimum)	Disabled Parking (Minimum)
Class E(c) (Former B1) (578 sq. m)	1 space per 35m ²	1 space per 400m ² (min 2 spaces)	12 to 200 spaces - 3 bays or 6% of total capacity (whichever is the greater).
Applied to the proposed development	16	2	
B8 Storage / Distribution (7,575.3 sq. m)	1 space per 100m ²	1 space per 850m ² (min 2 spaces)	
Applied to the proposed development	76	9	5
Total	92	11	

- 3.3.5 **Table 3.1** identifies that RBC's parking standards advocate a maximum total of 92 car parking bays (including 5 disabled parking bays) and a minimum of 11 secure cycle parking spaces.
- 3.3.6 As shown on the proposed site layout plan in **Appendix 1** and noted previously, the proposed development will feature 89 car parking bays (including 5 disabled parking bays) and 12 secure cycle parking bays. The proposed development therefore complies with the parking standards set out in the Core Strategy.

3.4 Servicing Arrangements

- 3.4.1 HGVs will access the site via the internal industrial estate access road and into the proposed servicing area.

3.4.2 **Drawing No. 3080-01-ATR01** in **Appendix 4** shows that it will be possible for a 16.5m long articulated HGV to access the site via the industrial estate access road, turn within the proposed servicing area, and exit the site in a forward gear. The drawing also shows that it will be possible for a 16.5m long HGV to manoeuvre within the service area in order to access the proposed loading doors and dock levellers.

4.0 TRAFFIC GENERATION

4.1 Introduction

4.1.1 This chapter of the TA forecasts the traffic-generating potential of the proposed development, as compared to the existing use of the site, in order to provide the anticipated net traffic changes that will arise from the proposals.

4.2 Trip Rates

4.2.1 The TRICS trip rates adopted in the TA prepared for the previously approved application (**16/01455/OUT**) have been used again to estimate the trip generation associated with the existing and proposed use. Within the TRICS analysis for the forecast development trip generation the worst-case peak period has been derived as 07:30-08:00 and 17:00 to 18:00.

4.2.2 The total vehicle and Other Goods Vehicle (OGV) trip rates (per 100sqm GIA) are shown in **Table 4.1** below. The TRICS report is included in **Appendix 5** for reference.

Table 4.1 – Approved TRICS Trip Rates – Per 100sqm GIA

Approved TRICS Trip Rates	Morning Peak (07:30-08:30)			Evening Peak (17:00-18:00)		
	Arr.	Dep.	2-way	Arr.	Dep.	2-way
Total Vehicles	0.460	0.167	0.627	0.182	0.394	0.576
OGVs	0.035	0.025	0.060	0.025	0.035	0.060
Total	0.495	0.192	0.687	0.207	0.429	0.636

4.3 Previous Use Traffic Generation

4.3.1 Using the above trip rates, **Table 4.2** below shows the likely number of trips currently generated by Units B & G.

Table 4.2 – Existing Use Traffic Generation

Previous Trip Generation	Morning Peak (07:30-08:30)			Evening Peak (17:00-18:00)		
	Arr.	Dep.	2-way	Arr.	Dep.	2-way
Total Vehicles	21	8	28	8	18	26
OGVs	2	1	3	1	2	3
Total	22	9	31	9	19	29

- 4.3.2 As shown above, it is estimated that around 31 and 29 two-way vehicle trips are generated by Units B & G during the AM and PM peak hours, respectively.

4.4 Proposed Traffic Generation

- 4.4.1 **Table 4.3** below shows the trip generation associated with the proposed Unit B development (8,153.3 sq. m) utilising the same trip rates set out in **Table 4.1**.

Table 4.3 – Proposed Use Traffic Generation

Proposed Trip Generation	Morning Peak (07:30-08:30)			Evening Peak (17:00-18:00)		
	Arr.	Dep.	2-way	Arr.	Dep.	2-way
All Vehicles	38	14	51	15	32	47
OGVs	3	2	5	2	3	5
Total	40	16	56	17	35	52

- 4.4.2 **Table 4.3** shows that the proposed use is forecast to generate 56 and 52 two-way vehicle movements during the AM and PM peak hours respectively.

4.5 Net Traffic Generation

- 4.5.1 The level of traffic generation of the proposed use has been compared against the traffic generation of the existing use of the site. The net changes are shown in **Table 4.4**.

Table 4.4 – Net Traffic Generation

Net Trip Generation	Morning Peak (07:30-08:30)			Evening Peak (17:00-18:00)		
	Arr.	Dep.	2-way	Arr.	Dep.	2-way
All Vehicles	17	6	23	7	14	21
OGVs	1	1	2	1	1	2
Total	18	7	25	8	16	23

- 4.5.2 **Table 4.4** shows that, compared against the existing use, the proposed development is expected to result in a net increase of 25 two-way vehicle movements in the AM peak hour and 23 two-way vehicle movements in the PM peak hour.
- 4.5.3 The impact of these additional trips on the capacity of the Moss Hall Road / Birch Business Park access junction has been assessed and the results of this analysis are presented in greater detail in **Chapter 5**.

4.6 Trip Distribution

4.6.1 The distribution of the proposed development trips is assumed to be the same as the existing trips entering and exiting Birch Business Park. This has been calculated using the turning proportions identified from the Moss Hall Road / Birch Business Park junction turning count surveys mentioned earlier (see **section 2.5**). This methodology was also adopted as part of the TA's provided with previous approved planning applications on the industrial estate as prepared by AXIS.

4.6.2 The resultant trip distribution for the weekday AM and PM peak hours are shown on **Figure 1** in the traffic flow diagrams included in **Appendix 6**.

4.7 Development Trip Assignment

4.7.1 The proposed development net trip generation has been assigned to the highway network using the calculated trip distribution. The resultant trip assignment are shown on **Figure 2** within **Appendix 6**.

4.8 Background Traffic Growth

4.8.1 Estimates of future year traffic growth have been calculated using TEMPro v7.2 software, which provides local growth forecasts between given input years.

4.8.2 The September 2021 survey data for the Moss Hall Road / Birch Business Park access junction requires the application of growth factors to estimate the future 2022 (application year) and 2027 (5-years post submission) baseline traffic flows. **Table 4.5** below shows the resultant growth factors.

Table 4.5 – TEMPro Growth Factors

Year	Weekday AM peak period (0700 - 0959)	Weekday PM peak period (1600 - 1859)
2021 - 2022	1.008372726	1.008021201
2021 - 2027	1.046032421	1.044247121

4.8.3 The above growth factors have been applied to the 2021 traffic survey data in order to provide the future baseline flows. The 2022 base flows are presented within **Figure 3** and the 2027 future traffic flows are presented in **Figure 4** within **Appendix 6**.

- 4.8.4 The growth factors are based on the geographical area 'Rochdale 020', which includes the Birch Business Park. No alternative assumptions have been applied to the NTM traffic growth, hence the committed developments are considered 'in addition' to the background traffic growth, which therefore results in some double counting in the calculations. This therefore provides a highly robust assessment.

4.9 Committed Developments

- 4.9.1 In addition to the application of TEMPro derived growth forecasts, the highways analysis also includes for a committed development identified following review of Rochdale and Bury Council's planning portals. This is as follows:

- South Heywood (**16/01399/HYBR**) – A mixed use development of circa 1.5 million sq. ft B2/B8 units, 1,000 residential units, ancillary retail, primary school, public open space, and an associated link road between the M62 J19 and Pilsworth Road. As the delivery timescales and development phasing of South Heywood are unclear at this stage, the following assumptions have been made:
 - The traffic flows associated with this development have been derived from the Saturn modelling results included in the TA report, Appendix TA10. The 2038 development flows have been reduced accordingly depending on the development delivery by 2027 (the assessment year for this TA).
 - Based on the phasing strategy outline in the supporting planning statement for South Heywood, the development would be delivered over a 16-year period with the construction of the new link road taking place between 2018 and 2020, delivery of the residential element between 2018 and 2036 and the employment element between 2020 and 2026.
 - The link road has not been constructed at the time of writing, with changes to the layout and alignment of sections of the link road only approved in July 2020 under planning application **20/00464/ANM**. Therefore, for the purposes of this TA, it is assumed that the link road will not be completed until 2022.

- Phase 1 of the scheme (comprising 164 residential dwellings) is currently the subject of a reserved matters application (**ref: 21/00909/REM**) which has yet to be decided (as of the time of writing). On the basis of these delays to the proposed development schedule it is anticipated that the residential element will be delivered between 2022 and 2040, and the employment element between 2024 and 2030.
- Therefore, over an 18-year period (2022-2040), it is estimated that 28% of the residential element would be completed by 2027. For the employment element, over the 6 years delivery period (2021-2029), it is estimated that 50% would be completed by 2027. The overall estimated completion rate of this committed development by 2027 is therefore approximately 39%.
- The 2038 trip assignment of South Heywood via Moss Hall Road/Whittle Lane has therefore been reduced to 39% of the full anticipated committed development traffic forecasts, as shown in the traffic flow diagrams. See **Figure 5** within **Appendix 6**.

4.10 Assessment Scenarios

- 4.10.1 Based on the above review of key assessment parameters, the following scenarios have been identified to assess the impact of the proposed development during the peak hours at the Moss Hall Road / Birch Business Park access junction:
- 2022 Baseline Scenario (year of application),
 - 2027 + Committed Development “Without Development” Scenario (year of application plus 5), and
 - 2027 + Committed + Proposed Development “With Development” Scenario (year of application plus 5).
- 4.10.2 For robustness within this analysis, the peak hour base traffic flows (08:00 to 09:00 and 17:00 to 18:00) have been combined with the peak hour forecast development traffic flows (07:30 to 08:30 and 17:00 to 18:00) to provide a combined worst case.
- 4.10.3 Within **Appendix 6**, **Figure 6** shows the 2027 base flows + committed development flows, and **Figure 7** shows the 2027 base flows + committed + proposed development flows.

5.0 TRAFFIC IMPACT ASSESSMENT

5.1 Overview

- 5.1.1 The capacity of the Moss Hall Road / Birch Business Park access junction has been assessed using Transport Research Laboratory's (TRL) modelling software Junctions 10.
- 5.1.2 Junctions 10 provides an indication of junction capacity performance by reporting on the ratio of flow to capacity (RFC) values and forecast traffic queuing in each 15-minute time segment, measured in the number of Passenger Car Units (PCUs).
- 5.1.3 RFC values between 0.00 and 0.85 indicate satisfactory operating conditions, values of between 0.85 and 1.00 represent variable operation (i.e. queues building at the junction resulting in increased vehicle delay moving through the junction). RFC values in excess of 1.00 represent overloaded conditions.

5.2 Capacity Assessment

- 5.2.1 **Table 5.1** shows the capacity assessment results of the Moss Hall Road / Birch Business Park access junction in the 2022 base year, in 2027 with committed development traffic added and in 2027 with committed and proposed development trips added.
- 5.2.2 The full junctions 10 report is included in **Appendix 7** for reference.

Table 5.1 – Moss Hall Road / Birch Business Park Junctions 10 Results

Movement	AM Peak Hour			PM Peak Hour		
	Queue (PCU)	Delay (s)	RFC	Queue (PCU)	Delay (s)	RFC
2022 Base						
Business Park left to Moss Hall Road (S)	0.0	6.02	0.01	0.1	6.00	0.07
Business Park right to Moss Hall Road (N)	0.1	9.92	0.06	0.1	9.63	0.09
Moss Hall Road (S) right to Business Park and ahead to Moss Hall Road (N)	0.1	5.38	0.07	0.0	5.40	0.01
2027 Base + Committed Developments						
Business Park left to Moss Hall Road (S)	0.0	6.05	0.01	0.1	6.09	0.07
Business Park right to Moss Hall Road (N)	0.1	10.06	0.06	0.1	9.88	0.09
Moss Hall Road (S) right to Business Park and ahead to Moss Hall Road (N)	0.1	5.37	0.08	0.0	5.38	0.01
2027 Base + Committed + Proposed Development						
Business Park left to Moss Hall Road (S)	0.0	6.07	0.01	0.1	6.22	0.08
Business Park right to Moss Hall Road (N)	0.1	10.18	0.07	0.1	10.12	0.11
Moss Hall Road (S) right to Business Park and ahead to Moss Hall Road (N)	0.2	5.45	0.10	0.0	5.41	0.02

- 5.2.3 The assessment summarised above shows that the Moss Hall Road / Birch Business Park access junction is forecast to operate within the practical 0.85 flow-to-capacity threshold during the peak hours in the 2027 base + committed developments scenario.
- 5.2.4 With the proposed development trips included, the junction is forecast to continue operating within capacity during the peak hours, with the highest RFC value of 0.11 on the 'Birch Business Park right to Moss Hall Road (N)' movement during the evening peak hour. **Table 5.1** also shows that the proposed development will result in an insignificant impact on expected queues, with a smaller than 1 PCU queue on all movements in all scenarios. The impact of the proposed development would therefore not be severe in the context of paragraph 111 of the National Planning Policy Framework (NPPF).

6.0 SUMMARY & CONCLUSIONS

- 6.1.1 AXIS has been appointed by Yeargate Ltd to prepare a TA to support a planning application for the development of an industrial unit at Birch Business Park, Moss Hall Road, Heywood.
- 6.1.2 The proposed development comprises the demolition of existing industrial units B & G (circa 3,791 sq. m) to make way for a single new industrial unit (circa 8,153.3 sq. m GIA). The land use will remain B2 / B8, with ancillary offices.
- 6.1.3 The site's accessibility to sustainable forms of transport has been considered, taking into account the general desirability to isolate industrial land uses from residential areas and the fact that the site is in a predominantly rural area. The opportunities for travel by the modes such as walking and public transport are somewhat limited. Nonetheless, there are good opportunities for staff journeys to be undertaken by cycle utilising the existing cycling infrastructure, including the off-road shared foot / cycleway along Pilsworth Road (Between Moss Hall Road and the M66 Junction 3). The cycle parking proposed to accompany the development would further encourage such trips to be made by staff.
- 6.1.4 Swept path analysis of the proposed site layout shows that it will be possible for a 16.5m long articulated HGV to access the site via the industrial estate access road, turn within the proposed servicing area, and exit the site in a forward gear. It will also be possible for a 16.5m long HGV to manoeuvre within the service area in order to access the proposed loading doors and dock levellers.
- 6.1.5 The proposed traffic generation of Unit B has been calculated using the same TRICS trip rates approved under the previous planning application. The forecast proposed development traffic generation has been compared to the traffic generation of the existing use in order to provide the net impact of the proposed development. The exercise demonstrates that the development would result in a net increase of 25 and 23 two-way trips during the morning and evening peak hours, respectively.
- 6.1.6 The impact of these additional trips on the capacity of the Moss Hall Road / Birch Business Park access junction has been assessed using Junctions 10 modelling software. The modelling results show that the access is anticipated to operate within capacity in the 2027 base + committed development traffic scenario, and also with the addition of the proposed development trips during the AM and PM peak hours.

6.1.7 Paragraph 111 of the National Planning Policy Framework states that:

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

6.1.8 Based on the evidence presented in this TA, no unacceptable impact would be created by the development and it is commended for approval.

APPENDIX 1 - PROPOSED SITE LAYOUT PLAN



General Notes

All site dimensions shall be verified by the Contractor on site prior to commencing any works.

Do not scale from this drawing.

Only work to written dimensions.

This drawing is the property of Fletcher-Rae (UK) Limited (t/a Fletcher-Rae) and copyright is reserved by them. The drawing is not to be copied or disclosed by or to any unauthorised persons without the prior written consent of Fletcher-Rae (UK) Limited.

Planning Boundary
Site Area 6.11 Acres (24,726 sqm)

Business Park Boundary

DRAFT

Revision	P01	Issued for Planning	01.09.21	JB
Scale	1:500@A2			
Status	PLANNING			
Drawn by	JB			
Date	27.08.21			
Client	Yeargate Ltd			

Project
Birch Business Park - Unit B

Drawing Description
Proposed Site Plan

Drawing No. 21033_PL03 Rev. P01

fletcher|rae
Architects | Master Planners | Designers

Hill Quays, 5 Jordan Street, Manchester, M15 4PY

t ■ +44 (0)161 242 1140
f ■ +44 (0)161 242 1141
w ■ www.fletcher-rae.com
e ■ info@fletcher-rae.com

APPENDIX 2 – PERSONAL INJURY ACCIDENT DATA

TRANSPORT FOR GREATER MANCHESTER

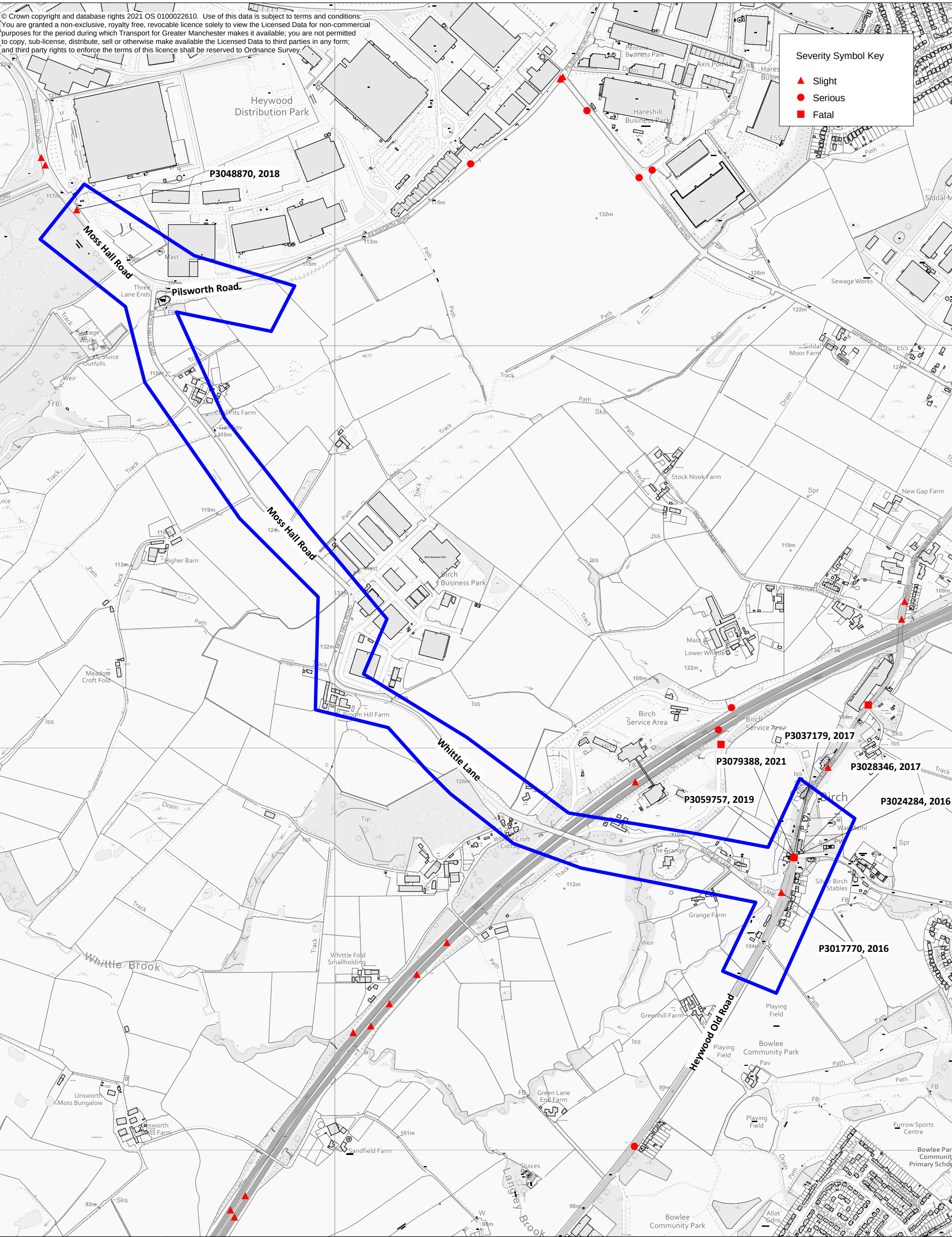


Traffic Accident Data for

Axisped

**Reported Road Injury Accidents in Specified Area of along Moss Hall
Road and Whittle Lane, Rochdale.
01/02/2016 to 31/01/2021**

© Crown copyright and database rights 2021 OS 0100022610. Use of this data is subject to terms and conditions:
You are granted a non-exclusive, royalty free, revocable licence solely to view the Licensed Data for non-commercial purposes for the period during which Transport for Greater Manchester makes it available; you are not permitted to copy, sub-license, distribute, sell or otherwise make available the Licensed Data to third parties in any form; and third party rights to enforce the terms of this licence shall be reserved to Ordnance Survey.



TRANSPORT FOR GREATER MANCHESTER



Reported Road Injury Accidents in Specified Area of along Moss Hall Road and Whittle Lane, Rochdale.
01/02/2016 to 31/01/2021

Injury Accidents	Feb – Dec 2016	2017	2018	2019	2020	Jan 2021	Total
Fatal	0	0	0	0	0	0	0
Serious	0	1	0	0	0	1	2
Slight	2	1	1	1	0	0	5
Total	2	2	1	1	0	1	7

Standard Totals Report : Reported Road Injury Accidents in Specified Area of along Moss Hall Road and Whittle Lane, Rochdale, 01/02/2016 to 31/01/2021

Accidents

Serious	2
Slight	5
Total Accidents	7

Casualties Broken Down By Type

Car (Driver)	0-15	16+	Total
Slight	0	5	5
Total	0	5	5
Car (Passenger)	0-15	16+	Total
Slight	1	4	5
Total	1	4	5
Cyclist (Rider)	0-15	16+	Total
Serious	1	0	1
Slight	0	2	2
Total	1	2	3
Other (Driver)	0-15	16+	Total
Serious	0	1	1
Total	0	1	1
Total	2	12	14

Casualties By Age and Sex

Severity	0 - 15	16 - 59	60 - 69	70 +	Total
Serious					
Male	1	1	0	0	2
Total	1	1	0	0	2
Slight					
Male	0	5	0	0	5
Female	1	6	0	0	7
Total	1	11	0	0	12
Total Casualties	2	12	0	0	14

Casualties By Age and Class

Severity	0 - 15	16 - 59	60 - 69	70 +	Total
Serious					
Driver or rider	1	1	0	0	2
Total	1	1	0	0	2
Slight					
Driver or rider	0	7	0	0	7
Veh or pillion pas	1	4	0	0	5
Total	1	11	0	0	12
Total Casualties	2	12	0	0	14

Cyclist (Rider and Pillion) and Pedestrian Casualties By Age

Severity	0 - 15	16 - 59	60 - 69	70 +	Total
Serious	1	0	0	0	1
Slight	0	2	0	0	2
Total Casualties	1	2	0	0	3

Standard Report - Reported Road Injury Accidents in Specified Area of along Moss Hall Road and Whittle Lane, Rochdale, 01/02/2016 to 31/01/2021

This printout has been generated from the Transport for Greater Manchester's database of road traffic accident records using the query system, GMAXI.

The road traffic accident database contains STATS19 data supplied by Greater Manchester Police and further validated by the Highways Forecasting and Analytical Services (HFAS) section of Transport for Greater Manchester. It is maintained by HFAS on behalf of the ten District Councils in Greater Manchester.

This information is provided for the sole use of the recipient. It may not be sold, lent, hired out, or in any other way disclosed to a third party nor may it be reproduced in any form which may be obtained by a third party.

Accident Reference Number: P3017770				Day: Wednesday		Contributory Factors			Date: 29/06/2016				Time: 18:25						
Place Reported: Scene				District: Rochdale		Factor Conf Ref			Vehicle Details				Casualty Details						
Location: Heywood Old Road at junction with Whittle Lane							DFLoo VLike V1			Type	Move	From	To	Skid	Type	Sex	Age	Sev	Pupil
Description: V1 Trav Se Whittle La Pulls Out Of Jct Turning Left Onto Heywood Old Rd And Collides With V2 (Pedal Cycle) Trav Ne Heywood Old Rd In Cycle Lane										Car p/c	TurnL Ahead	NW SW	NE NE		1 Rid	M	49	Slight	
Locational Details				Conditions		Accident Details													
Road:	A6045/C		Junction Details:	Tjun		Road Surface:	Dry		Severity:	Slight									
OSGR:	385111	407641	Junction Control:	GW		Light Conditions:	Light		No. of Vehicles:	2									
Speed Limit:	30		Ped Crossing:			Weather Conditions:	Fine		No. of Casualties:	1									

Accident Reference Number: P3059757				Day: Saturday		Contributory Factors			Date: 13/07/2019				Time: 18:16						
Place Reported: Else				District: Rochdale		Factor Conf Ref			Vehicle Details				Casualty Details						
Location: Heywood Old Road at junction with Langley Lane							DFLoo VLike V1			Type	Move	From	To	Skid	Type	Sex	Age	Sev	Pupil
Description: V2 (Taxi) Trav S Heywood Old Rd, V1 Trav W Langley La Turns Left Onto Heywood Old Rd. V1 O/s Collides With Front Of V2							DJudge VLike V1			Car	TurnL	E	S		1 Drv	F	54	Slight	
										Taxi	Ahead	N	S		2 Drv	M	39	Slight	
Locational Details				Conditions		Accident Details													
Road:	A6045/C		Junction Details:	Tjun		Road Surface:	Dry		Severity:	Slight									
OSGR:	385144	407728	Junction Control:	STO		Light Conditions:	Light		No. of Vehicles:	2									
Speed Limit:	30		Ped Crossing:			Weather Conditions:	Fine		No. of Casualties:	6									

Accident Reference Number: P3028346					Day: Monday		Contributory Factors			Date: 03/04/2017					Time: 11:45									
Place Reported: Scene					District: Rochdale																			
Location: Heywood Old Road at junction with Langley Lane																								
Description: V2 (HGV) Trav S Heywood Old Rd. V1 (Pedal Cycle) Trav W Langley La, Fails To Give Way At Junction. V1 Moves Into Path Of V2, Collision Occurs																								
Locational Details					Conditions		Accident Details			Factor Conf Ref DGWor VLike V1 DCPav Poss V1 DFLoo VLike V1 DBuild VLike V1					Type Move From To Skid p/c Ahead E W Skid HGV Ahead N S Skid					Type Sex Age Sev Pupil 1 Rid M 13 Serious				
Road: A6045/C		Junction Details: Tjun		Road Surface: Dry		Severity: Serious																		
OSGR: 385143 407729		Junction Control: GW		Light Conditions: Light		No. of Vehicles: 2																		
Speed Limit: 30		Ped Crossing:		Weather Conditions: Fine		No. of Casualties: 1																		
Accident Reference Number: P3024284					Day: Wednesday		Contributory Factors			Date: 30/11/2016					Time: 08:44									
Place Reported: Scene					District: Rochdale																			
Location: Heywood Old Road at junction with Langley Lane																								
Description: V1 Trav W Langley La Turning Right Onto Heywood Old Rd. V1 Didnt See Oncoming Traffic & Col With V2 Trav S Heywood Old Rd																								
Locational Details					Conditions		Accident Details			Factor Conf Ref RdLay Poss V1					Type Move From To Skid othr TurnR E N Taxi Ahead N S					Type Sex Age Sev Pupil 1 Drv F 34 Slight 2 Pas F 3 Slight				
Road: A6045/C		Junction Details: Tjun		Road Surface: Dry		Severity: Slight																		
OSGR: 385142 407730		Junction Control: STO		Light Conditions: Light		No. of Vehicles: 2																		
Speed Limit: 30		Ped Crossing:		Weather Conditions: Fine		No. of Casualties: 2																		
Accident Reference Number: P3079388					Day: Thursday		Contributory Factors			Date: 07/01/2021					Time: 17:40									
Place Reported: Scene					District: Rochdale																			
Location: Heywood Old Road at junction with Langley Lane																								
Description: V1 (LGV & Stolen Veh) Trav W Langley La, Fails To Stop At Give Way. V1 (Drunken Driver) Then Collides With Building. Driver Sustains Broken Knee																								
Locational Details					Conditions		Accident Details			Factor Conf Ref StoVeh VLike V1 DAlcoh VLike V1 DGWor VLike V1 DIIIIns Poss V1					Type Move From To Skid LGV Ahead E W 1 Drv M 35 Serious					Type Sex Age Sev Pupil				
Road: A6045/C		Junction Details: Tjun		Road Surface: Wet		Severity: Serious																		
OSGR: 385143 407730		Junction Control: STO		Light Conditions: Dark		No. of Vehicles: 1																		
Speed Limit: 30		Ped Crossing:		Weather Conditions: Fine		No. of Casualties: 1																		
Accident Reference Number: P3037179					Day: Thursday		Contributory Factors			Date: 02/11/2017					Time: 18:20									
Place Reported: Scene					District: Rochdale																			
Location: Heywood Old Road at junction with Langley Lane																								
Description: V1 Trav W Langley La Turns Right Onto Heywood Old Rd Across Path Of V2 Trav Ne Heywood Old Rd. V2 Collides With V1																								
Locational Details					Conditions		Accident Details			Factor Conf Ref DTurn VLike V1					Type Move From To Skid Car TurnR E N Car Lbend SW N					Type Sex Age Sev Pupil 1 Drv M 52 Slight 2 Drv F 20 Slight				
Road: A6045/C		Junction Details: Tjun		Road Surface: Dry		Severity: Slight																		
OSGR: 385139 407731		Junction Control: STO		Light Conditions: Dark		No. of Vehicles: 2																		
Speed Limit: 30		Ped Crossing:		Weather Conditions: Othr		No. of Casualties: 2																		

Accident Reference Number: P3048870

Day: Thursday

**Contributory
Factors**

Date: 27/09/2018

Time: 14:10

Place Reported: Scene

District: Rochdale

Location: Moss Hall Road 100 metres SE Of Pilsworth Road

Description: Both Vehs Trav Se Moss Hall Rd, V2 (HGV) Overtaking V1 (Pedal Cycle) On Offside Forcing V1 Into Kerb
Then C1 Falls Off Bike

Factor Conf Ref

Vehicle Details

Type	Move	From	To	Skid
p/c	Ahead	NW	SE	
HGV	O/Tkg	NW	SE	

Casualty Details

Type	Sex	Age	Sev	Pupil
1 Rid	F	57	Slight	

Locational Details

Conditions

Accident Details

Road:	C	Junction Details:	Road Surface:	Dry	Severity:	Slight
OSGR:	383360 409338	Junction Control:	Light Conditions:	Light	No. of Vehicles:	2
Speed Limit:	40	Ped Crossing:	Weather Conditions:	Fine	No. of Casualties:	1

Abbreviations used in GMAXI Reports for New Contributory Factors - 2005/06

WARNING: Please note that -

Codes 101 to 999 only relate to accidents from 1 April 2005. - New National Factors introduced by DfT

Codes 1001 to 1154 relate to accidents from 1 April 1999 to 31 March 2005 only. - Local Factors introduced

Accidents before 1 April 1999 do not have contributory factors attached.

Code	ContribFactor1Name	ContribFactor1Abb
0	None	
101	Poor or defective road surface	Surf
102	Deposit on road (eg oil, mud, chippings)	Dposit
103	Slippery road (due to weather)	Slip
104	Inadequate/masked signs or road markings	Mark
105	Defective traffic signals	DefATS
106	Traffic calming (eg speed cushions, road humps, chicanes)	TCalm
107	Temporary road layout (eg contraflow)	TmpRd
108	Road layout (eg bend, hill, narrow carriageway)	RdLay
109	Animal or object in carriageway	ObjInC
201	Tyres illegal, defective or under inflated	VTyres
202	Defective lights or indicators	VLight
203	Defective brakes	VBrake
204	Defective steering or suspension	VSteer
205	Defective or missing mirrors	VMirr
206	Overloaded or poorly loaded vehicle or trailer	VLoad
301	Disobeyed automatic traffic signal	DATS
302	Disobeyed Give Way or Stop sign or markings	DGWorS
303	Disobeyed double white line	DWhite
304	Disobeyed pedestrian crossing facility	DPedX
305	Illegal turn or direction of travel	DITurn
306	Exceeding speed limit	DSpeed
307	Travelling too fast for conditions	DFast
308	Following too close	DTgate
309	Vehicle travelling along pavement	DPave
310	Cyclist entering road from pavement	DCPave
401	Junction overshoot	DJnOvr
402	Junction restart	DJnRst
403	Poor turn or manoeuvre	DTurn
404	Failed to signal/misleading signal	DSign
405	Failed to look properly	DFLook
406	Failed to judge other person's path or speed	DJudge
407	Passing too close to cyclist, horse rider or pedestrian	DClose
408	Sudden braking	DBrake
409	Swerved	DSwerv
410	Loss of control	DLossC
501	Impaired by alcohol	DAlcoh
502	Impaired by drugs (illicit or medicinal)	DDrugs
503	Fatigue	DTired
504	Uncorrected, defective eyesight	DEye
505	Illness or disability, mental or physical	DIllns
506	Not displaying lights at night or in poor visibility	DNoLit
507	Cyclist wearing dark clothing at night	DCDark
508	Driver using mobile phone	DMobPh
509	Distraction in vehicle	DDisIn
510	Distraction outside vehicle	DDisOu
601	Aggressive driving	DAggre
602	Careless/reckless/in a hurry	DCare

603	Nervous/uncertain/panic	DPanic
604	Driving too slow or conditions or slow vehicle (eg tractor)	DSlow
605	Learner or inexperienced driver/rider	DLearn
606	Inexperience of driving on the left	DInDrL
607	Inexperience with type of vehicle	DInVeh
701	Stationary or parked vehicle(s)	DStat
702	Vegetation	DVeg
703	Road layout (eg bend, winding road, hill crest)	DRdLay
704	Buildings, road signs, street furniture	DBuild
705	Dazzling headlights	DHLigt
706	Dazzling sun	DSun
707	Rain, sleet, snow, or fog	DRain
708	Spray from other vehicles	DFog
709	Visor or windscreen dirty or scratched	DSpray
710	Vehicle blind spot	DWscrn
801	Crossed road masked by stationary or parked vehicle	PXMask
802	Failed to look properly	PFLook
803	Failed to judge vehicle's path or speed	PJudge
804	Wrong use of pedestrian crossing facility	PPedX
805	Dangerous action in carriageway (eg playing)	PDange
806	Impaired by alcohol	PAlcoh
807	Impaired by drugs (illicit or medicinal)	PDrugs
808	Careless/reckless/in a hurry	PCare
809	Pedestrian wearing dark clothing at night	PCloth
810	Disability or illness, mental or physical	Pllns
901	Stolen vehicle	StoVeh
902	Vehicle in course of crime	VCrime
903	Emergency vehicle on call	EmVeh
904	Vehicle door opened or closed negligently	VDoor
999	Other	Other
1001	Failed to stop (mandatory sign)	Fstop
1002	Failed to give way	Fgive
1003	Failed to avoid pedestrian (pedestrian not to blame)	FAPed
1004	Failed to avoid vehicle or object in carriageway	FAObj
1005	Failure to signal/misleading signal	Fsig
1006	Loss of control of vehicle	Loss
1007	Pedestrian entered carriageway without due care	Ped
1008	Passenger fell in or near PSV	Pfell
1009	Swerved to avoid object in carriageway	Swerv
1010	Sudden braking	Brake
1011	Poor turn/manoeuvre	Turn
1012	Poor overtaking	Over
1013	Drove wrong way (e.g. 1-way street)	1Way
1014	Opening door carelessly	Door
1015	Other	Other
1101	Impairment alcohol	Alcoh
1102	Impairment drugs	Drugs
1103	Impairment fatigue	Tired
1104	Impairment illness	Ill
1105	Distraction stress/emotional state of mind	Stress
1106	Distraction physical in/on vehicle	DPhIn
1107	Distraction physical outside vehicle	DPhOut
1108	Behaviour panic	Panic
1109	Behaviour careless/thoughtless/reckless	Care
1110	Behaviour nervous/uncertain	Nerve
1111	Behaviour in a hurry	Hurry

1112	Failure to judge other person's path or speed	Fjudg
1113	Disability	Disab
1114	Failed to look	F2look
1115	Looked but did not see	Nsee
1116	Inattention	Inatt
1117	Person hit wore dark or inconspicuous clothing	Cloth
1118	Other (Personal details)	Pother
1119	Crossed from behind parked vehicle etc	Cross
1120	Ignored lights at crossing	Xlight
1121	Excessive Speed	Speed
1122	Following too close	Tgate
1123	Inexperience of driving	InDri
1124	Inexperience of vehicle	InVeh
1125	Interaction or competition with other road users	Users
1126	Aggressive driving	Aggr
1127	Lack of judgement of own path	Judge
1128	Tyres wrong pressure	Press
1129	Tyres deflation before impact	Deflat
1130	Tyres worn/insufficient tread	Tread
1131	Defective lights or signals	Signal
1132	Defective brakes	Brakes
1133	Other (Vehicle defects)	Vother
1134	Site details poor road surface	Surf
1135	Site details poor/no street lighting	Lightg
1136	Site details inadequate signing	Sign
1137	Site details steep hill	Hill
1138	Site details narrow road	Narr
1139	Site details bend/winding road	Rbend
1140	Site details roadworks	Works
1141	Slippery road	Slip
1142	High winds	Winds
1143	Earlier accident	Earli
1144	Other (Local conditions)	Lother
1145	View windows obscured	Obs
1146	View glare from sun	Glare
1147	View glare from headlights	Head
1148	Surroundings bend/winding road	Bend
1149	Surroundings stationary parked vehicle	Stat
1150	Surroundings moving vehicle	Move
1151	Surroundings buildings, fences, vegetation etc	Fence
1152	Weather (e.g. mist or sleet)	Weath
1153	Failed to see pedestrian or vehicle in blindspot	Blind
1154	Animal out of control	Animal
9999	GMP Out of Range	OoR

APPENDIX 3 – SEPTEMBER 2021 TRAFFIC SURVEY DATA

Rochdale, Greater Manchester
Classified Junction Count

Site 1 of 1

Birch Business Park Access
Moss Hall Road (South)
Moss Hall Road (North)

Lat/Long

lat 53.571852° lon -2.242425°

Date

Thursday 09 September 2021

Weather

Sunny Intervals
Temp: 14°C

0700 - 0930 (Weekday AM Peak)

Movement 1.1: Left from Birch Business Park Access to Moss Hall Road (South)									Original Data	
TIME	P/CYCLE	M/CYCLE	CAR	TAXI	LGV	OGV1	OGV2	BUS/COACH	TOTAL	PCU TOTAL
0700 - 0715	0	0	2	0	1	0	0	0	3	3.00
0715 - 0730	0	0	0	1	2	0	0	0	3	3.00
0730 - 0745	0	0	0	0	2	0	0	0	2	2.00
0745 - 0800	0	0	2	0	2	0	0	0	4	4.00
Hourly Total	0	0	4	1	7	0	0	0	12	12.00
Hourly Average	0.00	0.00	1.00	0.25	1.75	0.00	0.00	0.00	3.00	3.00
0800 - 0815	0	0	0	0	2	0	0	0	2	2.00
0815 - 0830	0	0	0	0	1	0	0	0	1	1.00
0830 - 0845	0	0	0	0	1	0	0	0	1	1.00
0845 - 0900	0	0	0	0	0	0	0	0	0	0.00
Hourly Total	0	0	0	0	4	0	0	0	4	4.00
Hourly Average	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	1.00
0900 - 0915	0	0	1	0	0	1	0	0	2	2.50
0915 - 0930	0	0	0	0	1	0	0	0	1	1.00
1/2 Hourly Total	0	0	1	0	1	1	0	0	3	3.50
1/2 Hourly Average	0.00	0.00	0.50	0.00	0.50	0.50	0.00	0.00	1.50	1.75
Session Total	0	0	5	1	12	1	0	0	19	19.50
Session Average	0.00	0.00	0.50	0.10	1.20	0.10	0.00	0.00	1.90	1.95

Date

Thursday 09 September 2021

Weather

Sunny Intervals
Temp: 12°C

1530 - 1830 (Weekday PM Peak)

Movement 1.1: Left from Birch Business Park Access to Moss Hall Road (South)									Original Data	
TIME	P/CYCLE	M/CYCLE	CAR	TAXI	LGV	OGV1	OGV2	BUS/COACH	TOTAL	PCU TOTAL
1530 - 1545	0	0	6	0	2	1	0	0	9	9.50
1545 - 1600	0	0	0	0	1	0	0	0	1	1.00
1600 - 1615	0	0	15	0	0	0	0	0	15	15.00
1615 - 1630	0	0	3	0	3	0	0	0	6	6.00
Hourly Total	0	0	24	0	6	1	0	0	31	31.50
Hourly Average	0.00	0.00	6.00	0.00	1.50	0.25	0.00	0.00	7.75	7.88
1630 - 1645	0	0	10	1	0	0	0	0	11	11.00
1645 - 1700	0	0	2	0	1	0	0	0	3	3.00
1700 - 1715	0	1	14	0	1	0	0	0	16	15.40
1715 - 1730	0	0	3	0	0	0	0	0	3	3.00
Hourly Total	0	1	29	1	2	0	0	0	33	32.40
Hourly Average	0.00	0.25	7.25	0.25	0.50	0.00	0.00	0.00	8.25	8.10
1730 - 1745	0	0	13	0	0	0	0	0	13	13.00
1745 - 1800	0	0	7	0	0	0	0	0	7	7.00
1800 - 1815	0	0	5	0	0	0	0	0	5	5.00
1815 - 1830	0	0	2	0	0	0	0	0	2	2.00
Hourly Total	0	0	27	0	0	0	0	0	27	27.00
Hourly Average	0.00	0.00	6.75	0.00	0.00	0.00	0.00	0.00	6.75	6.75
Session Total	0	1	80	1	8	1	0	0	91	90.90
Session Average	0.00	0.08	6.67	0.08	0.67	0.08	0.00	0.00	7.58	7.58

Rochdale, Greater Manchester
Classified Junction Count

Site 1 of 1

Birch Business Park Access
Moss Hall Road (South)
Moss Hall Road (North)

Lat/Long

lat 53.571852° lon -2.242425°

Date

Thursday 09 September 2021

Weather

Sunny Intervals
Temp: 14°C

0700 - 0930 (Weekday AM Peak)

Movement 1.2: Right from Birch Business Park Access to Moss Hall Road (North)									Original Data	
TIME	P/CYCLE	M/CYCLE	CAR	TAXI	LGV	OGV1	OGV2	BUS/COACH	TOTAL	PCU TOTAL
0700 - 0715	0	0	2	0	1	0	1	0	4	5.30
0715 - 0730	0	0	1	0	1	0	1	0	3	4.30
0730 - 0745	0	0	0	0	0	0	0	0	0	0.00
0745 - 0800	0	0	1	0	0	3	1	0	5	7.80
Hourly Total	0	0	4	0	2	3	3	0	12	17.40
Hourly Average	0.00	0.00	1.00	0.00	0.50	0.75	0.75	0.00	3.00	4.35
0800 - 0815	0	0	1	0	1	1	1	0	4	5.80
0815 - 0830	0	0	3	0	1	1	1	0	6	7.80
0830 - 0845	0	0	0	0	1	0	0	0	1	1.00
0845 - 0900	0	0	2	0	2	2	1	0	7	9.30
Hourly Total	0	0	6	0	5	4	3	0	18	23.90
Hourly Average	0.00	0.00	1.50	0.00	1.25	1.00	0.75	0.00	4.50	5.98
0900 - 0915	0	0	3	0	0	0	3	0	6	9.90
0915 - 0930	0	0	1	0	0	1	4	0	6	11.70
1/2 Hourly Total	0	0	4	0	0	1	7	0	12	21.60
1/2 Hourly Average	0.00	0.00	2.00	0.00	0.00	0.50	3.50	0.00	6.00	10.80
Session Total	0	0	14	0	7	8	13	0	42	62.90
Session Average	0.00	0.00	1.40	0.00	0.70	0.80	1.30	0.00	4.20	6.29

Date

Thursday 09 September 2021

Weather

Sunny Intervals
Temp: 12°C

1530 - 1830 (Weekday PM Peak)

Movement 1.2: Right from Birch Business Park Access to Moss Hall Road (North)									Original Data	
TIME	P/CYCLE	M/CYCLE	CAR	TAXI	LGV	OGV1	OGV2	BUS/COACH	TOTAL	PCU TOTAL
1530 - 1545	0	0	3	0	0	1	0	0	4	4.50
1545 - 1600	0	0	3	0	0	0	5	0	8	14.50
1600 - 1615	1	0	7	0	3	0	1	0	12	12.50
1615 - 1630	0	0	2	0	3	3	1	0	9	11.80
Hourly Total	1	0	15	0	6	4	7	0	33	43.30
Hourly Average	0.25	0.00	3.75	0.00	1.50	1.00	1.75	0.00	8.25	10.83
1630 - 1645	0	1	15	0	2	0	1	0	19	19.70
1645 - 1700	0	0	6	0	1	1	3	0	11	15.40
1700 - 1715	0	1	14	0	0	0	1	0	16	16.70
1715 - 1730	0	0	6	0	0	1	1	0	8	9.80
Hourly Total	0	2	41	0	3	2	6	0	54	61.60
Hourly Average	0.00	0.50	10.25	0.00	0.75	0.50	1.50	0.00	13.50	15.40
1730 - 1745	0	0	2	0	0	0	1	0	3	4.30
1745 - 1800	0	0	4	0	1	1	0	0	6	6.50
1800 - 1815	0	1	1	0	1	1	1	0	5	6.20
1815 - 1830	0	0	1	0	0	0	2	0	3	5.60
Hourly Total	0	1	8	0	2	2	4	0	17	22.60
Hourly Average	0.00	0.25	2.00	0.00	0.50	0.50	1.00	0.00	4.25	5.65
Session Total	1	3	64	0	11	8	17	0	104	127.50
Session Average	0.08	0.25	5.33	0.00	0.92	0.67	1.42	0.00	8.67	10.63

Rochdale, Greater Manchester
Classified Junction Count

Site 1 of 1

Birch Business Park Access
Moss Hall Road (South)
Moss Hall Road (North)

Lat/Long

lat 53.571852° lon -2.242425°

Date

Thursday 09 September 2021

Weather

Sunny Intervals
Temp: 14°C

0700 - 0930 (Weekday AM Peak)

TIME	Movement 1.3: Left from Moss Hall Road (South) to Moss Hall Road (North)								Original Data	
	P/CYCLE	M/CYCLE	CAR	TAXI	LGV	OGV1	OGV2	BUS/COACH	TOTAL	PCU TOTAL
0700 - 0715	1	0	24	0	7	2	0	0	34	34.20
0715 - 0730	1	0	32	1	8	0	0	0	42	41.20
0730 - 0745	1	0	42	1	6	0	0	0	50	49.20
0745 - 0800	1	0	57	2	8	1	0	0	69	68.70
Hourly Total	4	0	155	4	29	3	0	0	195	193.30
Hourly Average	1.00	0.00	38.75	1.00	7.25	0.75	0.00	0.00	48.75	48.33
0800 - 0815	0	0	55	1	9	1	0	0	66	66.50
0815 - 0830	0	0	70	0	5	0	0	0	75	75.00
0830 - 0845	0	1	56	0	1	0	0	0	58	57.40
0845 - 0900	1	0	67	0	5	0	0	0	73	72.20
Hourly Total	1	1	248	1	20	1	0	0	272	271.10
Hourly Average	0.25	0.25	62.00	0.25	5.00	0.25	0.00	0.00	68.00	67.78
0900 - 0915	0	0	46	0	3	0	0	0	49	49.00
0915 - 0930	0	0	23	2	7	2	0	0	34	35.00
1/2 Hourly Total	0	0	69	2	10	2	0	0	83	84.00
1/2 Hourly Average	0.00	0.00	34.50	1.00	5.00	1.00	0.00	0.00	41.50	42.00
Session Total	5	1	472	7	59	6	0	0	550	548.40
Session Average	0.50	0.10	47.20	0.70	5.90	0.60	0.00	0.00	55.00	54.84

Date

Thursday 09 September 2021

Weather

Sunny Intervals
Temp: 12°C

1530 - 1830 (Weekday PM Peak)

TIME	Movement 1.3: Left from Moss Hall Road (South) to Moss Hall Road (North)								Original Data	
	P/CYCLE	M/CYCLE	CAR	TAXI	LGV	OGV1	OGV2	BUS/COACH	TOTAL	PCU TOTAL
1530 - 1545	0	1	46	0	8	0	0	0	55	54.40
1545 - 1600	0	0	47	0	9	0	1	0	57	58.30
1600 - 1615	1	0	51	0	10	1	0	0	63	62.70
1615 - 1630	0	0	42	0	9	1	0	0	52	52.50
Hourly Total	1	1	186	0	36	2	1	0	227	227.90
Hourly Average	0.25	0.25	46.50	0.00	9.00	0.50	0.25	0.00	56.75	56.98
1630 - 1645	0	2	55	0	11	0	0	0	68	66.80
1645 - 1700	0	0	42	0	16	1	0	0	59	59.50
1700 - 1715	0	1	44	2	6	0	0	0	53	52.40
1715 - 1730	0	1	47	0	6	0	0	0	54	53.40
Hourly Total	0	4	188	2	39	1	0	0	234	232.10
Hourly Average	0.00	1.00	47.00	0.50	9.75	0.25	0.00	0.00	58.50	58.03
1730 - 1745	0	1	52	0	3	1	1	0	58	59.20
1745 - 1800	0	1	44	0	5	0	0	0	50	49.40
1800 - 1815	0	0	35	1	6	0	1	0	43	44.30
1815 - 1830	0	1	33	0	4	0	0	0	38	37.40
Hourly Total	0	3	164	1	18	1	2	0	189	190.30
Hourly Average	0.00	0.75	41.00	0.25	4.50	0.25	0.50	0.00	47.25	47.58
Session Total	1	8	538	3	93	4	3	0	650	650.30
Session Average	0.08	0.67	44.83	0.25	7.75	0.33	0.25	0.00	54.17	54.19

Rochdale, Greater Manchester
Classified Junction Count

Site 1 of 1

Birch Business Park Access
Moss Hall Road (South)
Moss Hall Road (North)

Lat/Long

lat 53.571852° lon -2.242425°

Date

Thursday 09 September 2021

Weather

Sunny Intervals
Temp: 14°C

0700 - 0930 (Weekday AM Peak)

Movement 1.4: Right from Moss Hall Road (South) to Birch Business Park Access									Original Data	
TIME	P/CYCLE	M/CYCLE	CAR	TAXI	LGV	OGV1	OGV2	BUS/COACH	TOTAL	PCU TOTAL
0700 - 0715	0	1	8	0	2	0	0	0	11	10.40
0715 - 0730	0	1	4	0	1	0	0	0	6	5.40
0730 - 0745	0	0	5	0	0	0	0	0	5	5.00
0745 - 0800	0	0	10	0	1	0	0	0	11	11.00
Hourly Total	0	2	27	0	4	0	0	0	33	31.80
Hourly Average	0.00	0.50	6.75	0.00	1.00	0.00	0.00	0.00	8.25	7.95
0800 - 0815	0	0	5	0	0	0	0	0	5	5.00
0815 - 0830	0	0	6	0	5	0	0	0	11	11.00
0830 - 0845	0	0	6	0	1	0	0	0	7	7.00
0845 - 0900	0	0	5	0	0	1	0	0	6	6.50
Hourly Total	0	0	22	0	6	1	0	0	29	29.50
Hourly Average	0.00	0.00	5.50	0.00	1.50	0.25	0.00	0.00	7.25	7.38
0900 - 0915	0	0	2	0	0	0	0	0	2	2.00
0915 - 0930	0	0	0	0	0	0	0	0	0	0.00
1/2 Hourly Total	0	0	2	0	0	0	0	0	2	2.00
1/2 Hourly Average	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00
Session Total	0	2	51	0	10	1	0	0	64	63.30
Session Average	0.00	0.20	5.10	0.00	1.00	0.10	0.00	0.00	6.40	6.33

Date

Thursday 09 September 2021

Weather

Sunny Intervals
Temp: 12°C

1530 - 1830 (Weekday PM Peak)

Movement 1.4: Right from Moss Hall Road (South) to Birch Business Park Access									Original Data	
TIME	P/CYCLE	M/CYCLE	CAR	TAXI	LGV	OGV1	OGV2	BUS/COACH	TOTAL	PCU TOTAL
1530 - 1545	0	0	1	0	1	0	0	0	2	2.00
1545 - 1600	0	0	2	0	2	0	0	0	4	4.00
1600 - 1615	0	0	1	0	1	1	0	0	3	3.50
1615 - 1630	0	0	0	0	0	1	0	0	1	1.50
Hourly Total	0	0	4	0	4	2	0	0	10	11.00
Hourly Average	0.00	0.00	1.00	0.00	1.00	0.50	0.00	0.00	2.50	2.75
1630 - 1645	0	0	0	0	0	1	0	0	1	1.50
1645 - 1700	0	0	1	0	0	0	0	0	1	1.00
1700 - 1715	0	0	1	0	0	0	0	0	1	1.00
1715 - 1730	0	0	0	0	0	0	0	0	0	0.00
Hourly Total	0	0	2	0	0	1	0	0	3	3.50
Hourly Average	0.00	0.00	0.50	0.00	0.00	0.25	0.00	0.00	0.75	0.88
1730 - 1745	0	0	1	0	0	0	0	0	1	1.00
1745 - 1800	0	0	3	0	0	0	0	0	3	3.00
1800 - 1815	0	0	0	0	0	0	0	0	0	0.00
1815 - 1830	0	0	0	0	1	0	0	0	1	1.00
Hourly Total	0	0	4	0	1	0	0	0	5	5.00
Hourly Average	0.00	0.00	1.00	0.00	0.25	0.00	0.00	0.00	1.25	1.25
Session Total	0	0	10	0	5	3	0	0	18	19.50
Session Average	0.00	0.00	0.83	0.00	0.42	0.25	0.00	0.00	1.50	1.63

Rochdale, Greater Manchester
Classified Junction Count

Site 1 of 1

Birch Business Park Access
Moss Hall Road (South)
Moss Hall Road (North)

Lat/Long

lat 53.571852° lon -2.242425°

Date

Thursday 09 September 2021

Weather

Sunny Intervals
Temp: 14°C

0700 - 0930 (Weekday AM Peak)

Movement 1.5: Left from Moss Hall Road (North) to Birch Business Park Access									Original Data	
TIME	P/CYCLE	M/CYCLE	CAR	TAXI	LGV	OGV1	OGV2	BUS/COACH	TOTAL	PCU TOTAL
0700 - 0715	0	0	6	0	2	0	1	0	9	10.30
0715 - 0730	0	0	6	0	0	1	2	0	9	12.10
0730 - 0745	0	0	5	0	1	0	0	0	6	6.00
0745 - 0800	2	0	10	0	0	0	0	0	12	10.40
Hourly Total	2	0	27	0	3	1	3	0	36	38.80
Hourly Average	0.50	0.00	6.75	0.00	0.75	0.25	0.75	0.00	9.00	9.70
0800 - 0815	1	0	5	0	2	0	0	0	8	7.20
0815 - 0830	0	0	8	0	0	1	0	0	9	9.50
0830 - 0845	0	0	6	0	3	2	3	0	14	18.90
0845 - 0900	0	0	2	0	0	1	0	0	3	3.50
Hourly Total	1	0	21	0	5	4	3	0	34	39.10
Hourly Average	0.25	0.00	5.25	0.00	1.25	1.00	0.75	0.00	8.50	9.78
0900 - 0915	0	0	5	0	1	3	1	0	10	12.80
0915 - 0930	0	0	3	0	1	1	2	0	7	10.10
1/2 Hourly Total	0	0	8	0	2	4	3	0	17	22.90
1/2 Hourly Average	0.00	0.00	4.00	0.00	1.00	2.00	1.50	0.00	8.50	11.45
Session Total	3	0	56	0	10	9	9	0	87	100.80
Session Average	0.30	0.00	5.60	0.00	1.00	0.90	0.90	0.00	8.70	10.08

Date

Thursday 09 September 2021

Weather

Sunny Intervals
Temp: 12°C

1530 - 1830 (Weekday PM Peak)

Movement 1.5: Left from Moss Hall Road (North) to Birch Business Park Access									Original Data	
TIME	P/CYCLE	M/CYCLE	CAR	TAXI	LGV	OGV1	OGV2	BUS/COACH	TOTAL	PCU TOTAL
1530 - 1545	0	0	0	0	1	2	5	0	8	15.50
1545 - 1600	0	0	1	0	0	0	0	0	1	1.00
1600 - 1615	0	0	0	0	2	0	1	0	3	4.30
1615 - 1630	0	0	0	0	0	1	0	0	1	1.50
Hourly Total	0	0	1	0	3	3	6	0	13	22.30
Hourly Average	0.00	0.00	0.25	0.00	0.75	0.75	1.50	0.00	3.25	5.58
1630 - 1645	0	0	1	0	0	0	2	0	3	5.60
1645 - 1700	0	1	2	0	0	0	2	0	5	7.00
1700 - 1715	0	0	0	0	2	0	1	0	3	4.30
1715 - 1730	0	0	1	0	0	0	2	0	3	5.60
Hourly Total	0	1	4	0	2	0	7	0	14	22.50
Hourly Average	0.00	0.25	1.00	0.00	0.50	0.00	1.75	0.00	3.50	5.63
1730 - 1745	0	0	1	0	0	1	3	0	5	9.40
1745 - 1800	0	0	0	0	0	0	1	0	1	2.30
1800 - 1815	0	0	0	0	1	1	0	0	2	2.50
1815 - 1830	0	0	0	0	0	0	0	0	0	0.00
Hourly Total	0	0	1	0	1	2	4	0	8	14.20
Hourly Average	0.00	0.00	0.25	0.00	0.25	0.50	1.00	0.00	2.00	3.55
Session Total	0	1	6	0	6	5	17	0	35	59.00
Session Average	0.00	0.08	0.50	0.00	0.50	0.42	1.42	0.00	2.92	4.92

Rochdale, Greater Manchester
Classified Junction Count

Site 1 of 1

Birch Business Park Access
Moss Hall Road (South)
Moss Hall Road (North)

Lat/Long

lat 53.571852° lon -2.242425°

Date

Thursday 09 September 2021

Weather

Sunny Intervals
Temp: 14°C

0700 - 0930 (Weekday AM Peak)

Movement 1.6: Right from Moss Hall Road (North) to Moss Hall Road (South)									Original Data	
TIME	P/CYCLE	M/CYCLE	CAR	TAXI	LGV	OGV1	OGV2	BUS/COACH	TOTAL	PCU TOTAL
0700 - 0715	0	1	23	1	2	1	0	0	28	27.90
0715 - 0730	0	0	24	1	7	0	0	0	32	32.00
0730 - 0745	0	2	31	1	4	0	1	0	39	39.10
0745 - 0800	0	1	39	2	8	0	0	0	50	49.40
Hourly Total	0	4	117	5	21	1	1	0	149	148.40
Hourly Average	0.00	1.00	29.25	1.25	5.25	0.25	0.25	0.00	37.25	37.10
0800 - 0815	0	0	48	2	7	0	0	1	58	59.00
0815 - 0830	1	0	26	0	5	0	0	0	32	31.20
0830 - 0845	0	0	35	0	0	0	0	0	35	35.00
0845 - 0900	0	0	45	0	4	1	0	0	50	50.50
Hourly Total	1	0	154	2	16	1	0	1	175	175.70
Hourly Average	0.25	0.00	38.50	0.50	4.00	0.25	0.00	0.25	43.75	43.93
0900 - 0915	0	0	21	4	7	0	0	0	32	32.00
0915 - 0930	0	0	26	1	4	0	0	0	31	31.00
1/2 Hourly Total	0	0	47	5	11	0	0	0	63	63.00
1/2 Hourly Average	0.00	0.00	23.50	2.50	5.50	0.00	0.00	0.00	31.50	31.50
Session Total	1	4	318	12	48	2	1	1	387	387.10
Session Average	0.10	0.40	31.80	1.20	4.80	0.20	0.10	0.10	38.70	38.71

Date

Thursday 09 September 2021

Weather

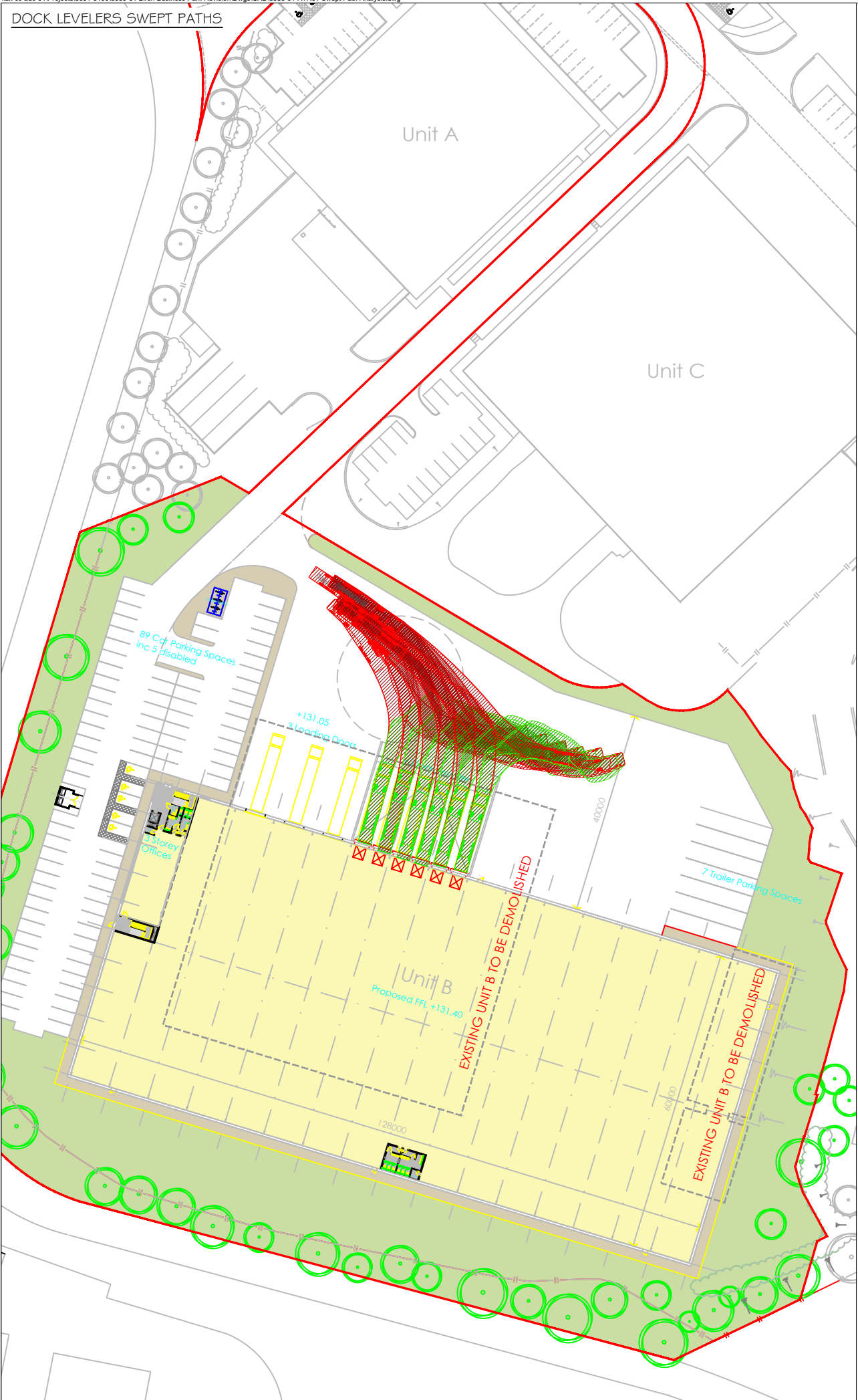
Sunny Intervals
Temp: 12°C

1530 - 1830 (Weekday PM Peak)

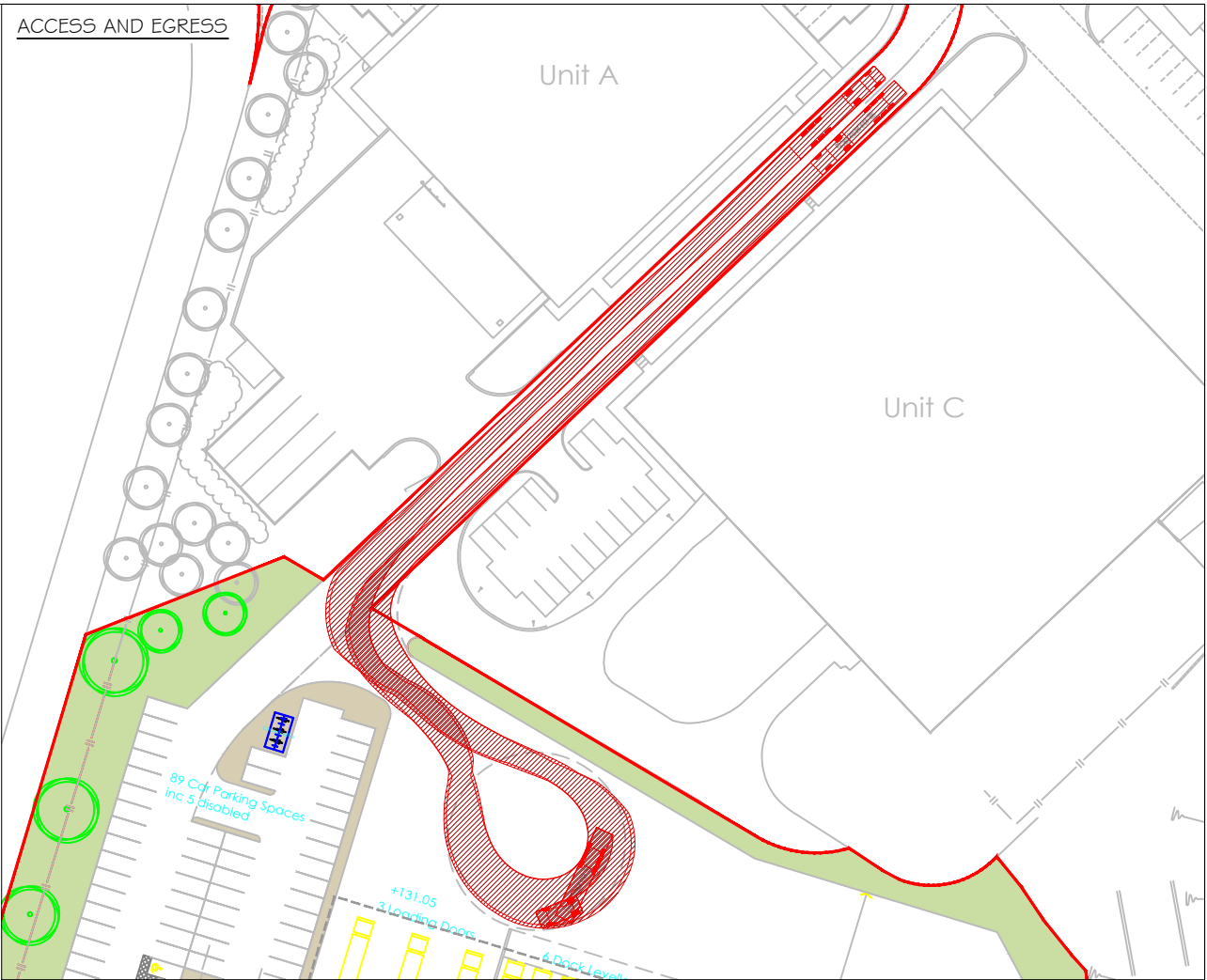
Movement 1.6: Right from Moss Hall Road (North) to Moss Hall Road (South)									Original Data	
TIME	P/CYCLE	M/CYCLE	CAR	TAXI	LGV	OGV1	OGV2	BUS/COACH	TOTAL	PCU TOTAL
1530 - 1545	0	0	33	0	7	1	0	0	41	41.50
1545 - 1600	0	1	38	0	4	0	1	0	44	44.70
1600 - 1615	0	2	81	1	6	1	0	0	91	90.30
1615 - 1630	0	1	38	1	8	1	0	0	49	48.90
Hourly Total	0	4	190	2	25	3	1	0	225	225.40
Hourly Average	0.00	1.00	47.50	0.50	6.25	0.75	0.25	0.00	56.25	56.35
1630 - 1645	1	0	44	3	2	1	1	0	52	53.00
1645 - 1700	0	0	49	0	6	0	0	0	55	55.00
1700 - 1715	0	0	82	0	14	0	0	0	96	96.00
1715 - 1730	0	0	53	3	1	1	0	0	58	58.50
Hourly Total	1	0	228	6	23	2	1	0	261	262.50
Hourly Average	0.25	0.00	57.00	1.50	5.75	0.50	0.25	0.00	65.25	65.63
1730 - 1745	1	0	52	0	4	2	0	0	59	59.20
1745 - 1800	1	0	54	1	5	0	0	0	61	60.20
1800 - 1815	1	0	52	1	5	0	0	0	59	58.20
1815 - 1830	0	2	38	0	1	0	0	0	41	39.80
Hourly Total	3	2	196	2	15	2	0	0	220	217.40
Hourly Average	0.75	0.50	49.00	0.50	3.75	0.50	0.00	0.00	55.00	54.35
Session Total	4	6	614	10	63	7	2	0	706	705.30
Session Average	0.33	0.50	51.17	0.83	5.25	0.58	0.17	0.00	58.83	58.78

APPENDIX 4 – DRAWING NO. 3080-01-ATR01: SWEPT PATH ANALYSIS

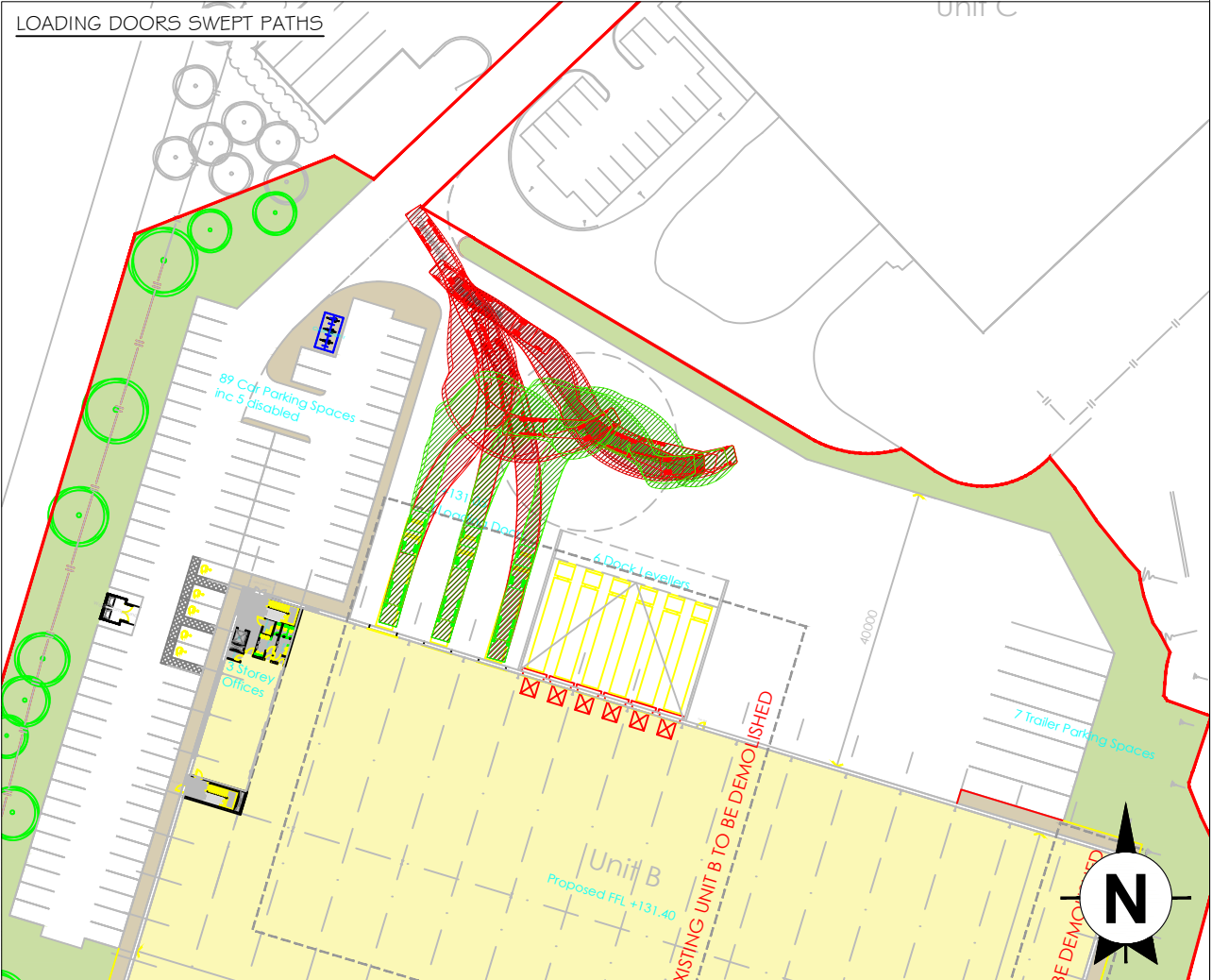
DOCK LEVELERS SWEEP PATHS



ACCESS AND EGRESS



LOADING DOORS SWEEP PATHS



This drawing is the copyright of AXIS P.E.D Limited and may not be loaned, copied or reproduced in any way -or used for any offer, quote, tender or construction purposes without written consent of the company to do so

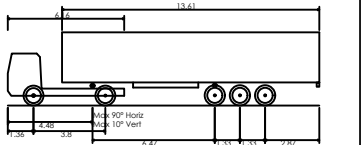
Follow any figured dimensions - do not scale for construction purposes. IF IN DOUBT ASK.

Revision History	Date

KEY:

APPLICATION SITE BOUNDARY

VEHICLE USED IN TRACKING:



FTA Design Articulated Vehicle (1998)

Overall Length	16.48m
Overall Width	2.550m
Overall Body Height	3.870m
Min Body Ground Clearance	0.515m
Max Track Width	2.470m
Lock to lock time	3.00s
Kerb to kerb Turning Radius	6.550m

Client Office: Well House Barns Chester CH4 8DH		South Manchester Office: Canella House 76 Water Lane Wilmslow SK9 6BB	axis
0844 8700 007 - www.axisped.co.uk			
client: YEARGATE LTD			
project: BIRCH BUSINESS PARK			
drawing title: SWEEP PATH ANALYSIS			
date: 23.09.32	drawn by: JW	checked: CZ	
drawing number: 3080-01-ATRO1	status: PRELIM	rev: --	
scale(s): 1:1000@A3			
planning environment design			

APPENDIX 5 – TRICS OUTPUT REPORT

Calculation Reference: AUDIT-339901-160915-0948

TRIP RATE CALCULATION SELECTION PARAMETERS:

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

Selected regions and areas:

04	EAST ANGLIA	
	CA CAMBRIDGESHIRE	1 days
09	NORTH	
	CB CUMBRIA	1 days

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

Filtering Stage 2 selection:

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

Parameter: Gross floor area
Actual Range: 2063 to 17708 (units: sqm)
Range Selected by User: 552 to 234115 (units: sqm)

Public Transport Provision:

Selection by: Include all surveys

Date Range: 01/01/08 to 22/10/15

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

Selected survey days:

Monday	1 days
Wednesday	1 days

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

Selected survey types:

Manual count	2 days
Directional ATC Count	0 days

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

Selected Locations:

Edge of Town	2
--------------	---

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

Selected Location Sub Categories:

Industrial Zone	1
No Sub Category	1

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

Filtering Stage 3 selection:

Use Class:

B8 2 days

This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order 2005 has been used for this purpose, which can be found within the Library module of TRICS®.

Population within 1 mile:

1,000 or Less 1 days
25,001 to 50,000 1 days

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

Population within 5 miles:

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

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

Car ownership within 5 miles:

1.1 to 1.5 2 days

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

Travel Plan:

No 2 days

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

LIST OF SITES relevant to selection parameters

1	CA-02-D-02	IND. ESTATE	CAMBRIDGESHIRE
	COLDHAM'S ROAD		
	COLDHAM'S COMMON		
	CAMBRIDGE		
	Edge of Town		
	Industrial Zone		
	Total Gross floor area:	2063 sqm	
	Survey date: MONDAY	19/10/09	Survey Type: MANUAL
2	CB-02-D-04	INDUSTRIAL ESTATE	CUMBRIA
	CARLISLE ROAD		
	BRAMPTON		
	Edge of Town		
	No Sub Category		
	Total Gross floor area:	17708 sqm	
	Survey date: WEDNESDAY	16/12/09	Survey Type: MANUAL

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

TRIP RATE for Land Use 02 - EMPLOYMENT/D - INDUSTRIAL ESTATE

VEHICLES

Calculation factor: 100 sqm

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 00:30									
00:30 - 01:00									
01:00 - 01:30									
01:30 - 02:00									
02:00 - 02:30									
02:30 - 03:00									
03:00 - 03:30									
03:30 - 04:00									
04:00 - 04:30									
04:30 - 05:00									
05:00 - 05:30									
05:30 - 06:00									
06:00 - 06:30									
06:30 - 07:00									
07:00 - 07:30	2	9886	0.086	2	9886	0.020	2	9886	0.106
07:30 - 08:00	2	9886	0.243	2	9886	0.061	2	9886	0.304
08:00 - 08:30	2	9886	0.217	2	9886	0.106	2	9886	0.323
08:30 - 09:00	2	9886	0.207	2	9886	0.167	2	9886	0.374
09:00 - 09:30	2	9886	0.248	2	9886	0.167	2	9886	0.415
09:30 - 10:00	2	9886	0.253	2	9886	0.182	2	9886	0.435
10:00 - 10:30	2	9886	0.192	2	9886	0.228	2	9886	0.420
10:30 - 11:00	2	9886	0.212	2	9886	0.157	2	9886	0.369
11:00 - 11:30	2	9886	0.243	2	9886	0.217	2	9886	0.460
11:30 - 12:00	2	9886	0.314	2	9886	0.298	2	9886	0.612
12:00 - 12:30	2	9886	0.182	2	9886	0.253	2	9886	0.435
12:30 - 13:00	2	9886	0.258	2	9886	0.248	2	9886	0.506
13:00 - 13:30	2	9886	0.147	2	9886	0.207	2	9886	0.354
13:30 - 14:00	2	9886	0.258	2	9886	0.192	2	9886	0.450
14:00 - 14:30	2	9886	0.303	2	9886	0.243	2	9886	0.546
14:30 - 15:00	2	9886	0.263	2	9886	0.182	2	9886	0.445
15:00 - 15:30	2	9886	0.298	2	9886	0.278	2	9886	0.576
15:30 - 16:00	2	9886	0.142	2	9886	0.212	2	9886	0.354
16:00 - 16:30	2	9886	0.238	2	9886	0.243	2	9886	0.481
16:30 - 17:00	2	9886	0.096	2	9886	0.243	2	9886	0.339
17:00 - 17:30	2	9886	0.086	2	9886	0.217	2	9886	0.303
17:30 - 18:00	2	9886	0.096	2	9886	0.177	2	9886	0.273
18:00 - 18:30	2	9886	0.066	2	9886	0.187	2	9886	0.253
18:30 - 19:00	2	9886	0.000	2	9886	0.147	2	9886	0.147
19:00 - 19:30									
19:30 - 20:00									
20:00 - 20:30									
20:30 - 21:00									
21:00 - 21:30									
21:30 - 22:00									
22:00 - 22:30									
22:30 - 23:00									
23:00 - 23:30									
23:30 - 24:00									
Total Rates:			4.648			4.632			9.280

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

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

Parameter summary

Trip rate parameter range selected:	2063 - 17708 (units: sqm)
Survey date date range:	01/01/08 - 22/10/15
Number of weekdays (Monday-Friday):	2
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	0

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

TRIP RATE for Land Use 02 - EMPLOYMENT/D - INDUSTRIAL ESTATE

OGVS

Calculation factor: 100 sqm

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 00:30									
00:30 - 01:00									
01:00 - 01:30									
01:30 - 02:00									
02:00 - 02:30									
02:30 - 03:00									
03:00 - 03:30									
03:30 - 04:00									
04:00 - 04:30									
04:30 - 05:00									
05:00 - 05:30									
05:30 - 06:00									
06:00 - 06:30									
06:30 - 07:00									
07:00 - 07:30	2	9886	0.005	2	9886	0.010	2	9886	0.015
07:30 - 08:00	2	9886	0.015	2	9886	0.005	2	9886	0.020
08:00 - 08:30	2	9886	0.020	2	9886	0.020	2	9886	0.040
08:30 - 09:00	2	9886	0.010	2	9886	0.015	2	9886	0.025
09:00 - 09:30	2	9886	0.005	2	9886	0.000	2	9886	0.005
09:30 - 10:00	2	9886	0.015	2	9886	0.010	2	9886	0.025
10:00 - 10:30	2	9886	0.010	2	9886	0.020	2	9886	0.030
10:30 - 11:00	2	9886	0.000	2	9886	0.000	2	9886	0.000
11:00 - 11:30	2	9886	0.020	2	9886	0.020	2	9886	0.040
11:30 - 12:00	2	9886	0.020	2	9886	0.005	2	9886	0.025
12:00 - 12:30	2	9886	0.010	2	9886	0.015	2	9886	0.025
12:30 - 13:00	2	9886	0.000	2	9886	0.005	2	9886	0.005
13:00 - 13:30	2	9886	0.000	2	9886	0.010	2	9886	0.010
13:30 - 14:00	2	9886	0.025	2	9886	0.005	2	9886	0.030
14:00 - 14:30	2	9886	0.015	2	9886	0.010	2	9886	0.025
14:30 - 15:00	2	9886	0.025	2	9886	0.025	2	9886	0.050
15:00 - 15:30	2	9886	0.046	2	9886	0.040	2	9886	0.086
15:30 - 16:00	2	9886	0.005	2	9886	0.025	2	9886	0.030
16:00 - 16:30	2	9886	0.030	2	9886	0.010	2	9886	0.040
16:30 - 17:00	2	9886	0.015	2	9886	0.015	2	9886	0.030
17:00 - 17:30	2	9886	0.010	2	9886	0.000	2	9886	0.010
17:30 - 18:00	2	9886	0.015	2	9886	0.035	2	9886	0.050
18:00 - 18:30	2	9886	0.010	2	9886	0.005	2	9886	0.015
18:30 - 19:00	2	9886	0.000	2	9886	0.005	2	9886	0.005
19:00 - 19:30									
19:30 - 20:00									
20:00 - 20:30									
20:30 - 21:00									
21:00 - 21:30									
21:30 - 22:00									
22:00 - 22:30									
22:30 - 23:00									
23:00 - 23:30									
23:30 - 24:00									
Total Rates:			0.326			0.310			0.636

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

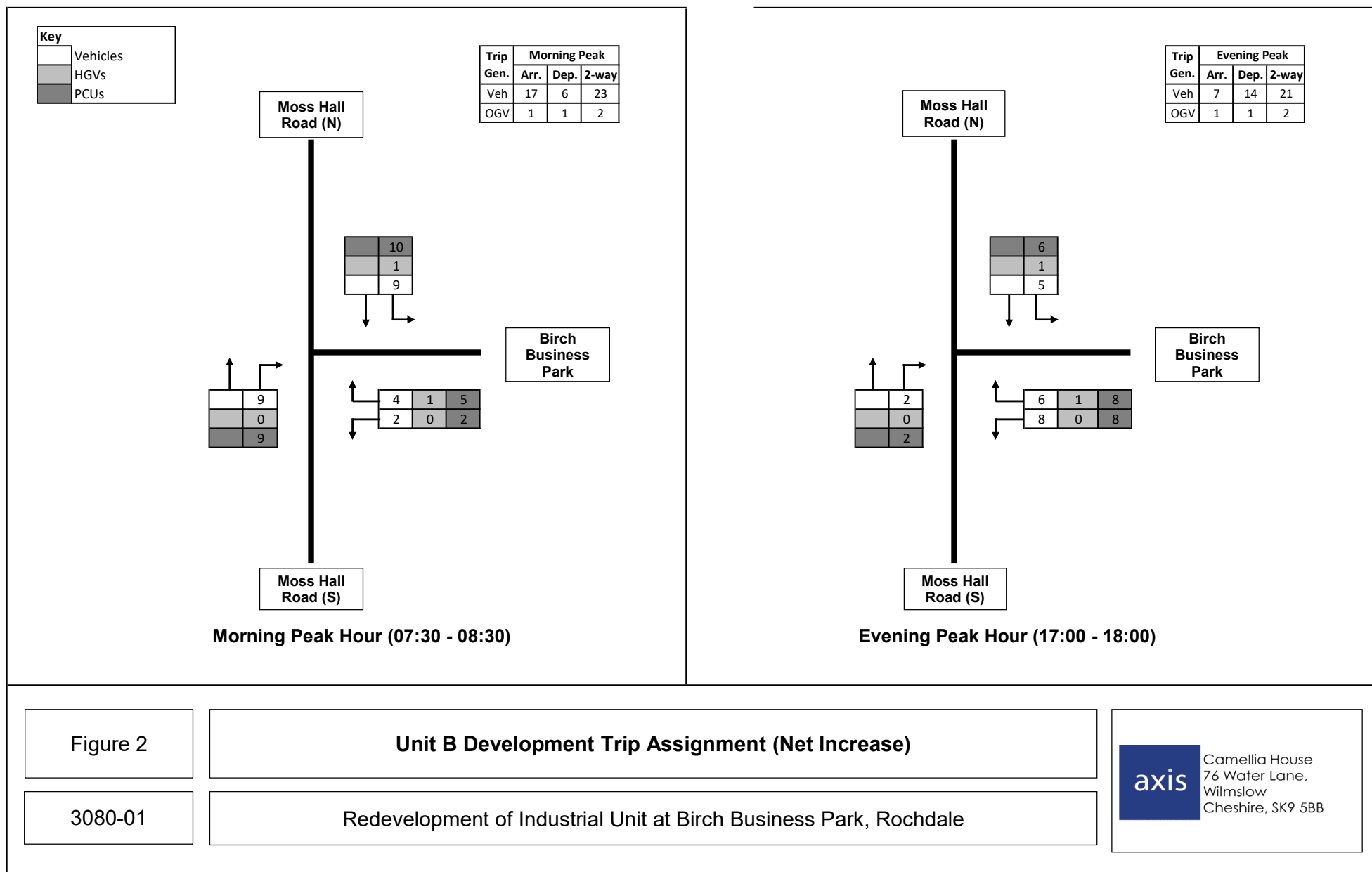
To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected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

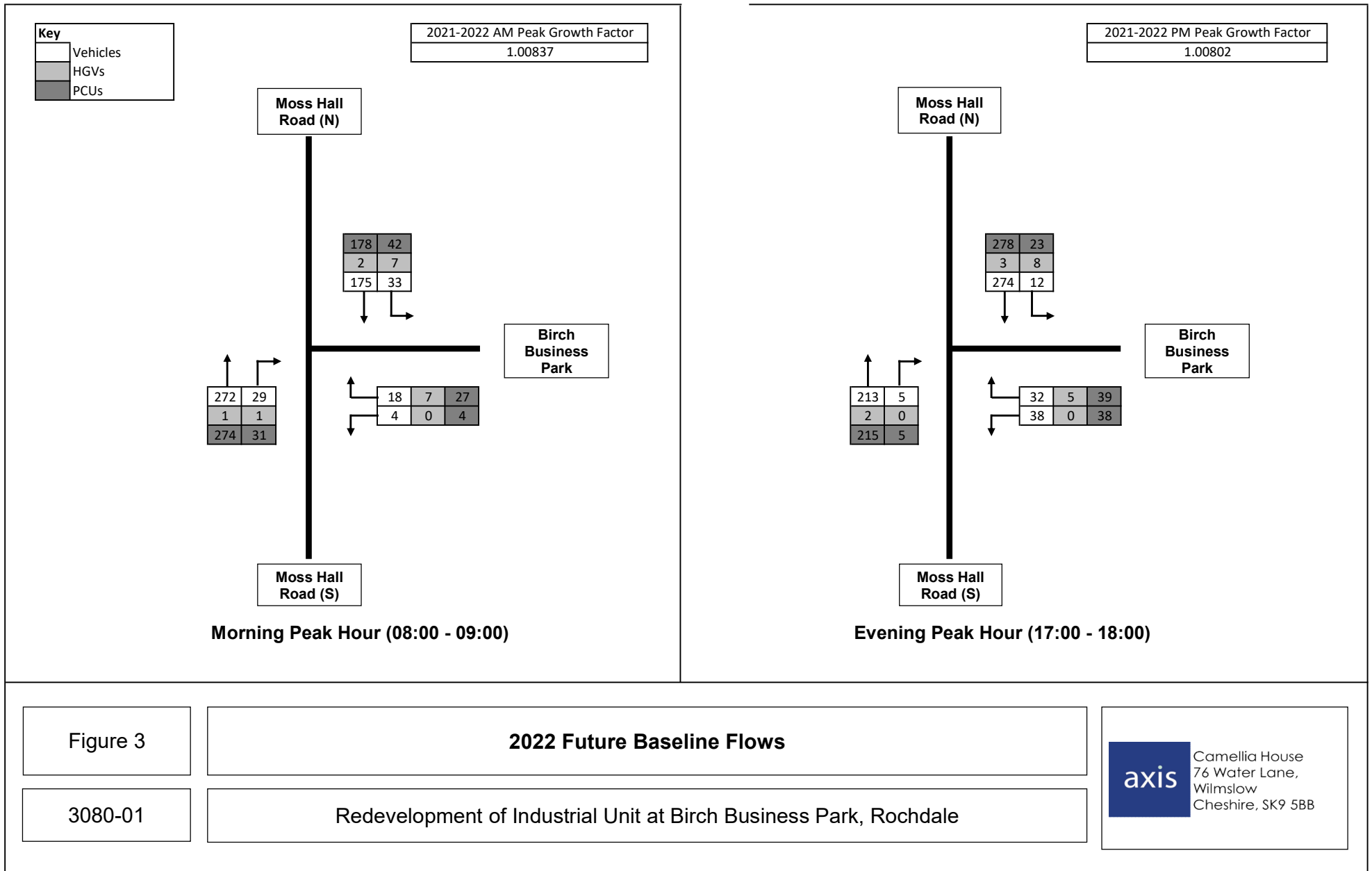
Parameter summary

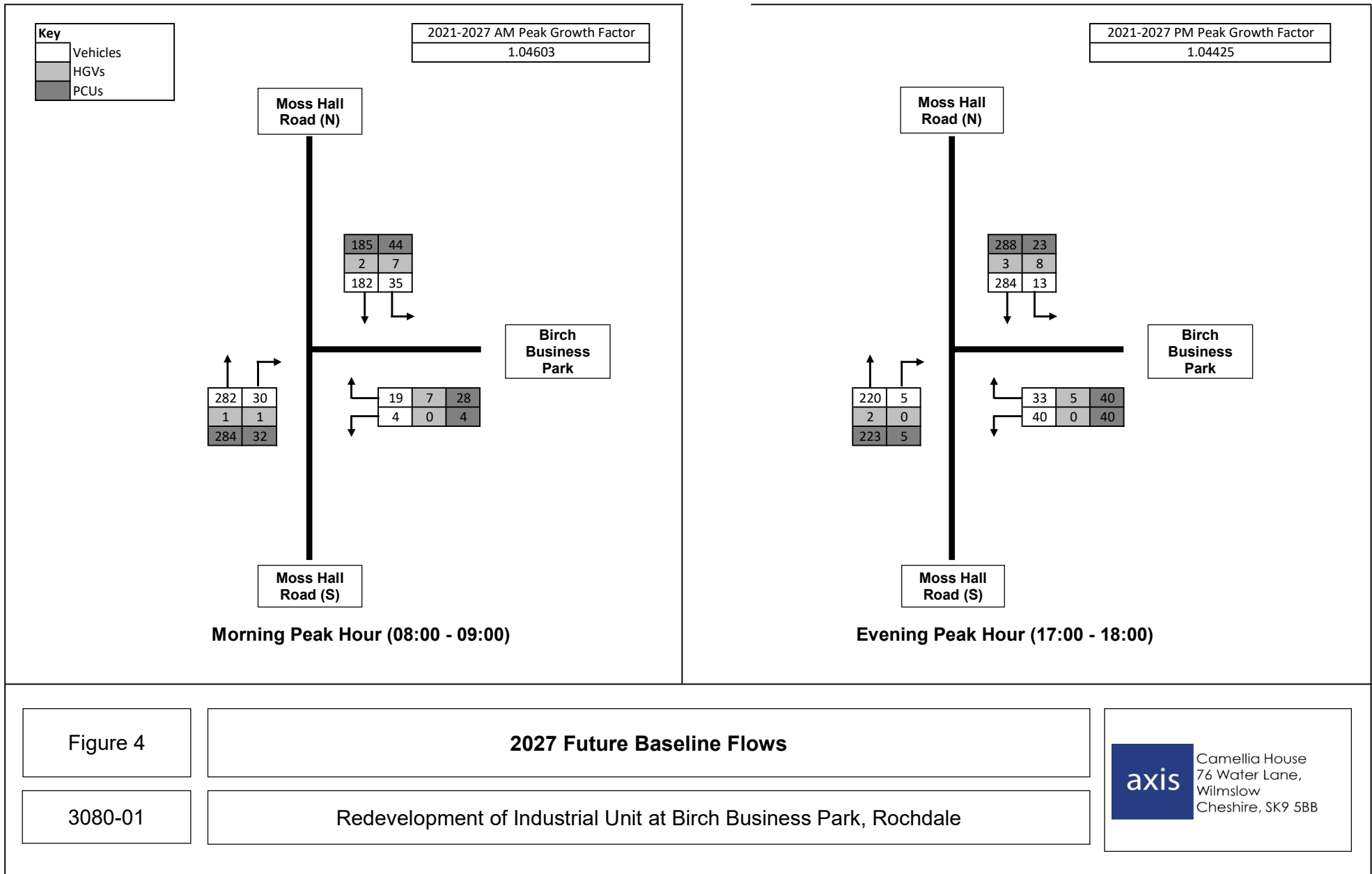
Trip rate parameter range selected:	2063 - 17708 (units: sqm)
Survey date date range:	01/01/08 - 22/10/15
Number of weekdays (Monday-Friday):	2
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	0

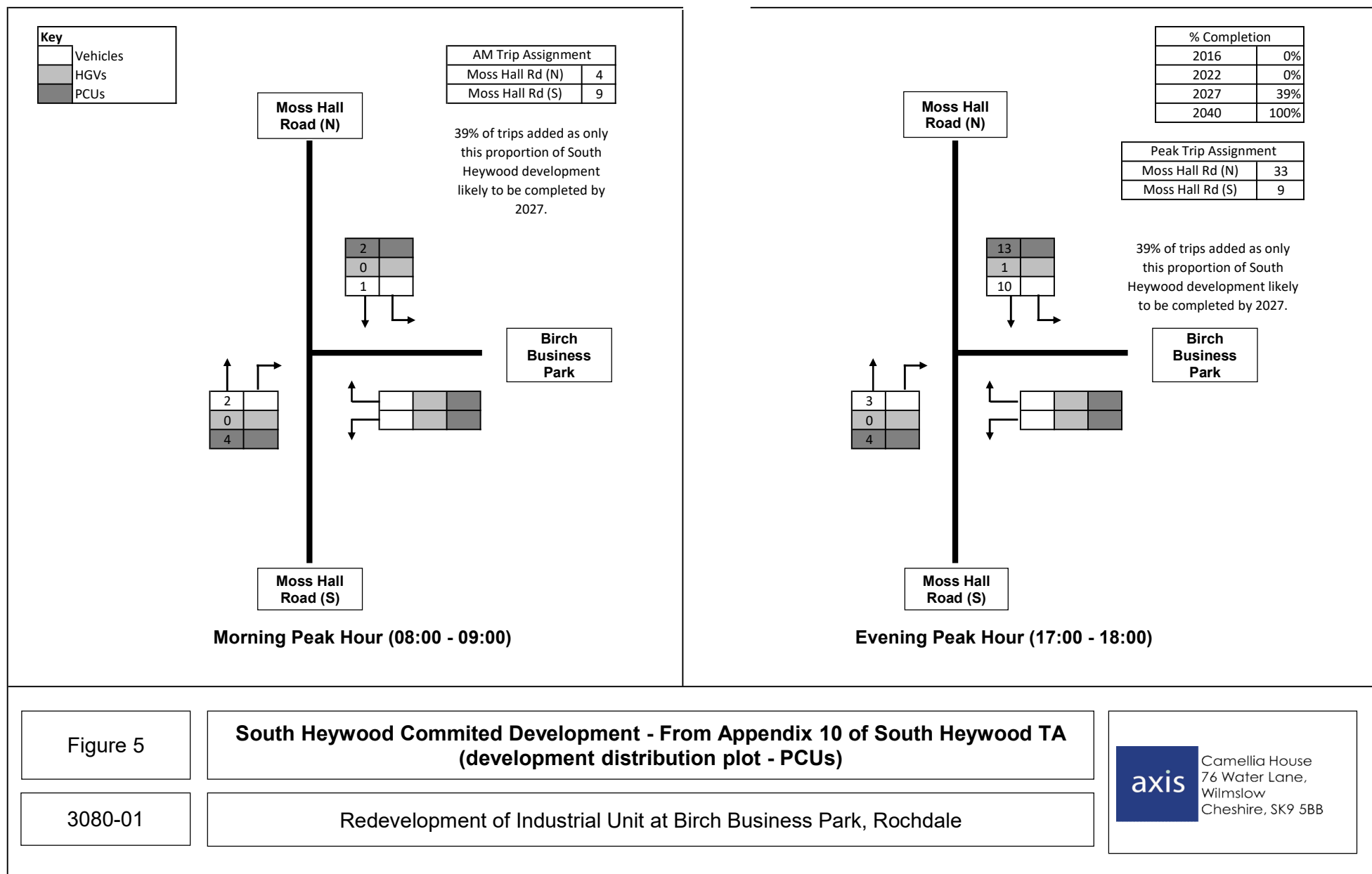
This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected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

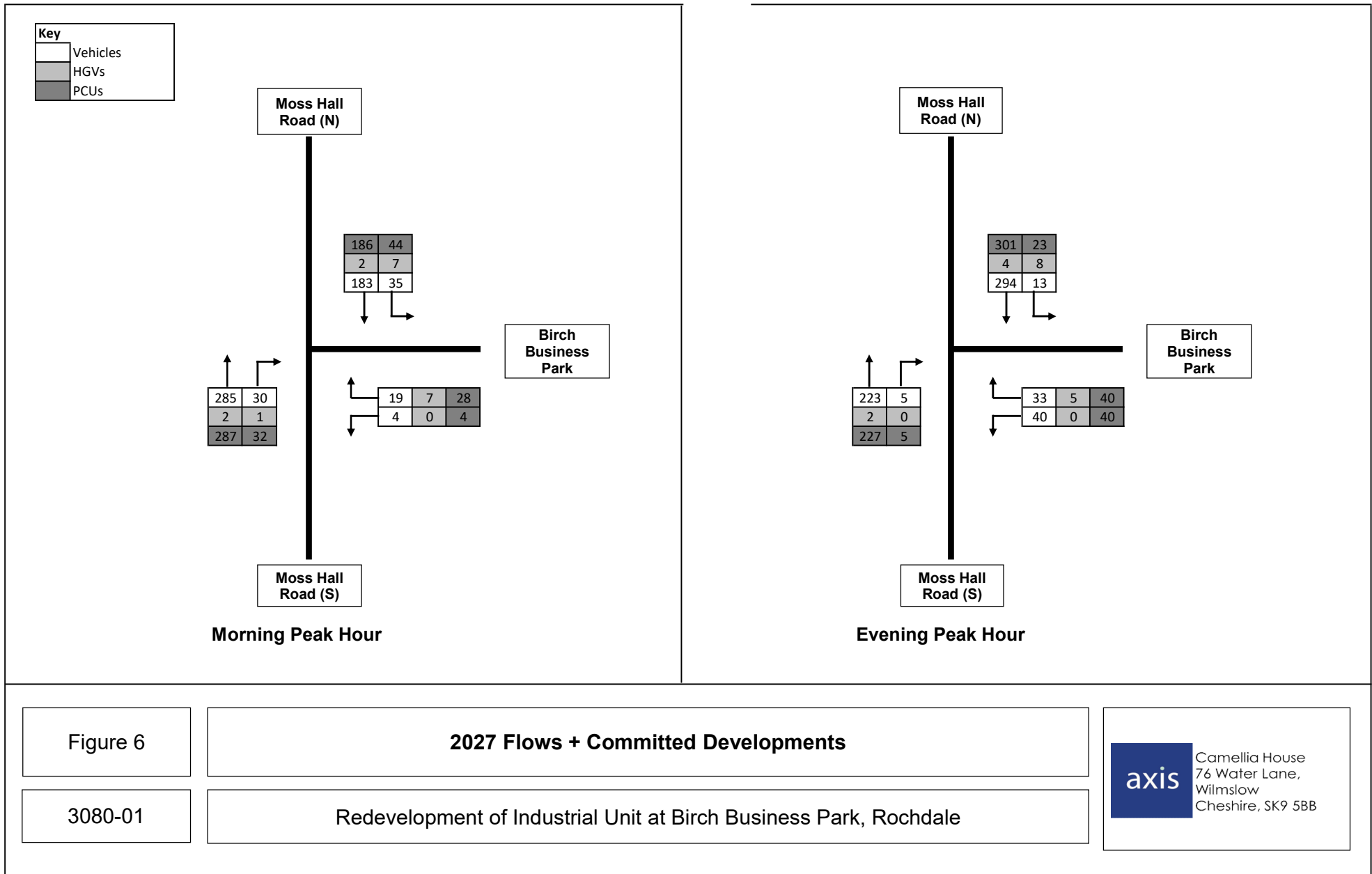
APPENDIX 6 - TRAFFIC FLOW DIAGRAMS











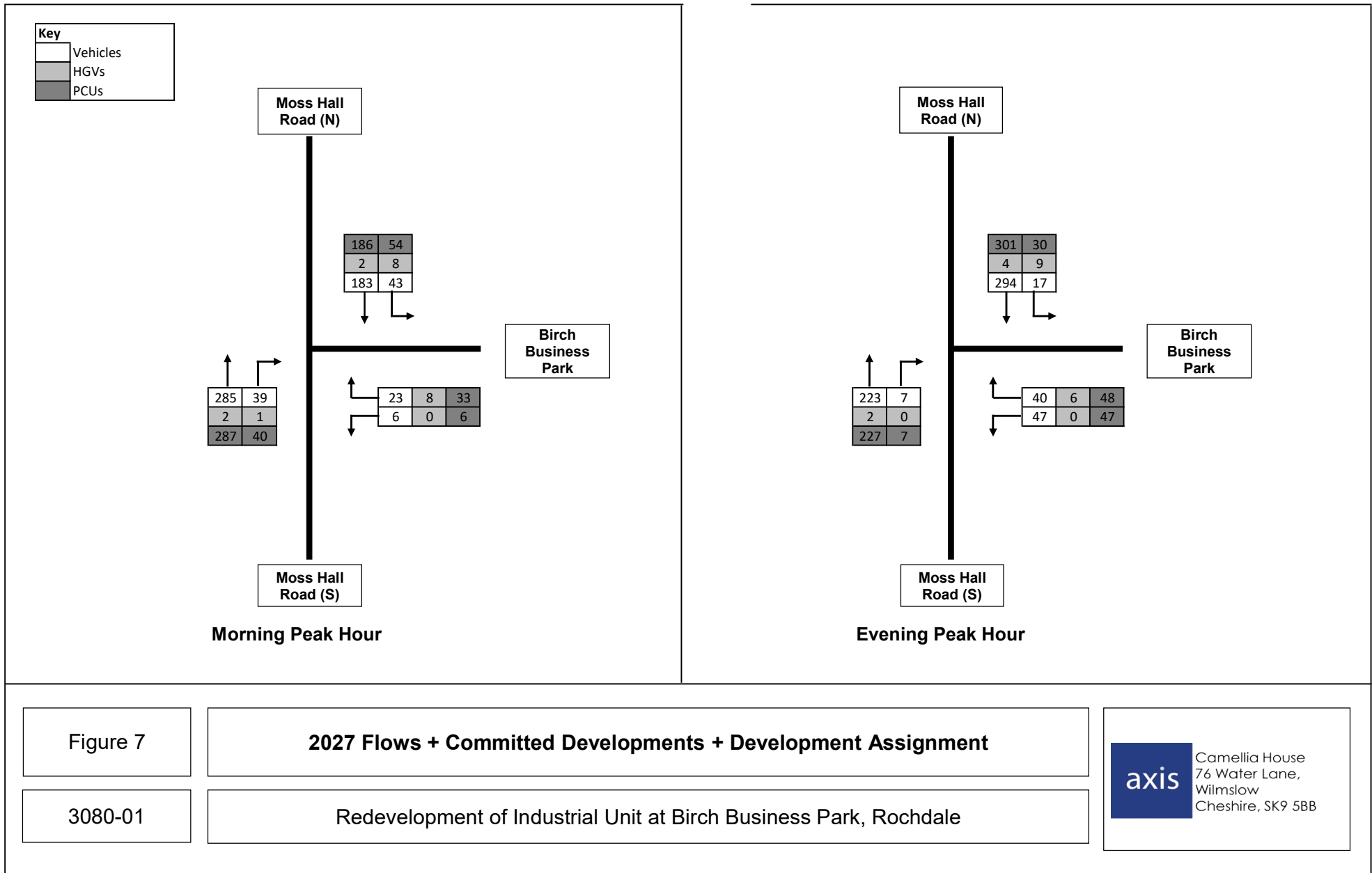


Figure 7

2027 Flows + Committed Developments + Development Assignment

3080-01

Redevelopment of Industrial Unit at Birch Business Park, Rochdale

axis

Camellia House
76 Water Lane,
Wilmslow
Cheshire, SK9 5BB

**APPENDIX 7 - MOSS HALL ROAD / BIRCH BUSINESS PARK JUNCTIONS 10
REPORT**

Junctions 10

PICADY 10 - Priority Intersection Module

Version: 10.0.1.1519
© Copyright TRL Software Limited, 2021

For sales and distribution information, program advice and maintenance, contact TRL Software:
+44 (0)1344 379777 software@trl.co.uk trlsoftware.com

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: Moss Hall Road - Birch Business Park J10 PICADY.j10

Path: Q:\3051-3100\3080-01 Birch Business Park Revision\Documents\TA03 - Unit B\Junction Capacity Assessments

Report generation date: 27/09/2021 14:20:20

- »2022 Baseline, AM Peak Hour
- »2022 Baseline, PM Peak Hour
- »2027 Without Development, AM Peak Hour
- »2027 Without Development, PM Peak Hour
- »2027 With Development, AM Peak Hour
- »2027 With Development, PM Peak Hour

Summary of junction performance

	AM Peak Hour									PM Peak Hour								
	Set ID	Queue (PCU)	95% Queue (PCU)	Delay (s)	RFC	LOS	Junction Delay (s)	Junction LOS	Network Residual Capacity	Set ID	Queue (PCU)	95% Queue (PCU)	Delay (s)	RFC	LOS	Junction Delay (s)	Junction LOS	Network Residual Capacity
	2022 Baseline																	
Stream B-C	D1	0.0	0.5	6.02	0.01	A	0.99	A	218 % [Stream B-A]	D2	0.1	0.5	6.00	0.07	A	1.07	A	184 % [Stream B-A]
Stream B-A		0.1	0.7	9.92	0.06	A					0.1	0.6	9.63	0.09	A			
Stream C-AB		0.1	0.9	5.38	0.07	A					0.0	0.5	5.40	0.01	A			
	2027 Without Development																	
Stream B-C	D3	0.0	0.5	6.05	0.01	A	0.99	A	204 % [Stream B-A]	D4	0.1	0.5	6.09	0.07	A	1.07	A	167 % [Stream B-A]
Stream B-A		0.1	0.7	10.06	0.06	B					0.1	0.6	9.88	0.09	A			
Stream C-AB		0.1	1.0	5.37	0.08	A					0.0	0.5	5.38	0.01	A			
	2027 With Development																	
Stream B-C	D5	0.0	0.5	6.07	0.01	A	1.18	A	187 % [Stream B-A]	D6	0.1	0.5	6.22	0.08	A	1.26	A	153 % [Stream B-A]
Stream B-A		0.1	0.7	10.18	0.07	B					0.1	0.6	10.12	0.11	B			
Stream C-AB		0.2	1.1	5.45	0.10	A					0.0	0.5	5.41	0.02	A			

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

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

File summary

File Description

Title	Moss Hall Road/ Birch Business Park
Location	Heywood, Rochdale
Site number	
Date	03/09/2021
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	3080-01
Enumerator	AXISPED\Traffic
Description	

Units

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

Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Show lane queues in feet / metres	Show all PICADY stream intercepts	Calculate residual capacity	Residual capacity criteria type	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)	Use iterations with HCM roundabouts	Max number of iterations for roundabouts
5.75	✓				✓	Delay	0.85	36.00	20.00		500

Demand Set Summary

--	--	--	--	--	--	--	--

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2022 Baseline	AM Peak Hour	ONE HOUR	07:45	09:15	15	✓
D2	2022 Baseline	PM Peak Hour	ONE HOUR	16:45	18:15	15	✓
D3	2027 Without Development	AM Peak Hour	ONE HOUR	07:45	09:15	15	✓
D4	2027 Without Development	PM Peak Hour	ONE HOUR	16:45	18:15	15	✓
D5	2027 With Development	AM Peak Hour	ONE HOUR	07:45	09:15	15	✓
D6	2027 With Development	PM Peak Hour	ONE HOUR	16:45	18:15	15	✓

Analysis Set Details

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

2022 Baseline, AM Peak Hour

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Minor arm visibility to right	Arm B - Minor arm geometry	Visibility to right expected to have two components if the arm has two lanes, or two lanes in a flared section.
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Arm A Direction	Arm B Direction	Arm C Direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	Moss Hall Lane / Birch Business Park	T-Junction	Two-way	Two-way	Two-way		0.99	A

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	218	Stream B-A	0.99	A

Arms

Arms

Arm	Name	Description	Arm type
A	Moss Hall Road (North)		Major
B	Birch Business Park Access		Minor
C	Moss Hall Road (South)		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right-turn storage	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C	6.50			70.0	✓	0.00

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

Minor Arm Geometry

Arm	Minor arm type	Width at give-way (m)	Width at 5m (m)	Width at 10m (m)	Width at 15m (m)	Width at 20m (m)	Estimate flare length	Flare length (PCU)	Visibility to left (m)	Visibility to right (m)
B	One lane plus flare	10.00	6.40	4.50	4.20	4.10	✓	2.00	83	142

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
B-A	671	0.120	0.302	0.190	0.432
B-C	665	0.100	0.252	-	-
C-B	615	0.233	0.233	-	-

The slopes and intercepts shown above include custom intercept adjustments only.

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

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2022 Baseline	AM Peak Hour	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	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	220	100.000
B		ONE HOUR	✓	31	100.000
C		ONE HOUR	✓	305	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A	B	C
	A	0	42	178
	B	27	0	4
	C	274	31	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
		A	B	C
	A	0	21	1
	B	39	0	0
	C	0	3	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max 95th percentile Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-C	0.01	6.02	0.0	0.5	A	4	6
B-A	0.06	9.92	0.1	0.7	A	25	37
C-AB	0.07	5.38	0.1	0.9	A	44	66
C-A						236	354
A-B						39	58
A-C						163	245

Main Results for each time segment

07:45 - 08:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	3	0.75	623	0.005	3	0.0	0.0	5.807	A
B-A	20	5	577	0.035	20	0.0	0.1	8.978	A
C-AB	33	8	716	0.046	33	0.0	0.1	5.376	A
C-A	197	49			197				
A-B	32	8			32				
A-C	134	34			134				

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	4	0.90	614	0.006	4	0.0	0.0	5.894	A
B-A	24	6	559	0.043	24	0.1	0.1	9.356	A
C-AB	42	10	737	0.057	42	0.1	0.1	5.286	A
C-A	232	58			232				
A-B	38	9			38				
A-C	160	40			160				

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	4	1	603	0.007	4	0.0	0.0	6.017	A
B-A	30	7	534	0.056	30	0.1	0.1	9.922	A
C-AB	56	14	766	0.074	56	0.1	0.1	5.166	A
C-A	279	70			279				
A-B	46	12			46				
A-C	196	49			196				

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	4	1	603	0.007	4	0.0	0.0	6.017	A
B-A	30	7	534	0.056	30	0.1	0.1	9.924	A

C-AB	57	14	766	0.074	57	0.1	0.1	5.166	A
C-A	279	70			279				
A-B	46	12			46				
A-C	196	49			196				

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	4	0.90	614	0.006	4	0.0	0.0	5.897	A
B-A	24	6	559	0.043	24	0.1	0.1	9.361	A
C-AB	42	11	737	0.057	42	0.1	0.1	5.279	A
C-A	232	58			232				
A-B	38	9			38				
A-C	160	40			160				

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	3	0.75	623	0.005	3	0.0	0.0	5.809	A
B-A	20	5	577	0.035	20	0.1	0.1	8.988	A
C-AB	33	8	716	0.046	33	0.1	0.1	5.376	A
C-A	197	49			197				
A-B	32	8			32				
A-C	134	34			134				

Queue Variation Results for each time segment**07:45 - 08:00**

Stream	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	0.00	0.00	0.00	0.00	0.00			N/A	N/A
B-A	0.05	0.00	0.00	0.05	0.05			N/A	N/A
C-AB	0.07	0.00	0.00	0.07	0.07			N/A	N/A

08:00 - 08:15

Stream	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	0.01	0.01	0.25	0.45	0.48			N/A	N/A
B-A	0.06	0.03	0.35	0.63	0.66			N/A	N/A
C-AB	0.09	0.03	0.26	0.46	0.49			N/A	N/A

08:15 - 08:30

Stream	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	0.01	0.00	0.00	0.01	0.01			N/A	N/A
B-A	0.08	0.04	0.36	0.65	0.68			N/A	N/A
C-AB	0.13	0.03	0.27	0.49	0.89			N/A	N/A

08:30 - 08:45

Stream	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	0.01	0.00	0.00	0.01	0.01			N/A	N/A
B-A	0.08	0.00	0.00	0.08	0.08			N/A	N/A
C-AB	0.13	0.00	0.00	0.13	0.13			N/A	N/A

08:45 - 09:00

Stream	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	0.01	0.00	0.00	0.01	0.01			N/A	N/A
B-A	0.06	0.00	0.00	0.06	0.06			N/A	N/A
C-AB	0.09	0.00	0.00	0.09	0.09			N/A	N/A

09:00 - 09:15

Stream	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	0.00	0.00	0.00	0.00	0.00			N/A	N/A
B-A	0.05	0.00	0.00	0.05	0.05			N/A	N/A
C-AB	0.07	0.00	0.00	0.07	0.07			N/A	N/A

2022 Baseline, PM Peak Hour

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Minor arm visibility to right	Arm B - Minor arm geometry	Visibility to right expected to have two components if the arm has two lanes, or two lanes in a flared section.
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Arm A Direction	Arm B Direction	Arm C Direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	Moss Hall Lane / Birch Business Park	T-Junction	Two-way	Two-way	Two-way		1.07	A

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	184	Stream B-A	1.07	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D2	2022 Baseline	PM Peak Hour	ONE HOUR	16:45	18:15	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	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	301	100.000
B		ONE HOUR	✓	77	100.000
C		ONE HOUR	✓	220	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
	A	B	C	
From	A	0	23	278
	B	39	0	38
	C	215	5	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
	A	B	C	
From	A	0	67	1
	B	16	0	0
	C	1	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max 95th percentile Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-C	0.07	6.00	0.1	0.5	A	35	52
B-A	0.09	9.63	0.1	0.6	A	36	54
C-AB	0.01	5.40	0.0	0.5	A	7	10
C-A						195	293
A-B						21	32

A-C						255	383
-----	--	--	--	--	--	-----	-----

Main Results for each time segment

16:45 - 17:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	29	7	675	0.042	28	0.0	0.0	5.563	A
B-A	29	7	517	0.057	29	0.0	0.1	8.549	A
C-AB	5	1	673	0.007	5	0.0	0.0	5.400	A
C-A	161	40			161				
A-B	17	4			17				
A-C	209	52			209				

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	34	9	661	0.052	34	0.0	0.1	5.741	A
B-A	35	9	500	0.070	35	0.1	0.1	8.973	A
C-AB	6	2	686	0.009	6	0.0	0.0	5.313	A
C-A	192	48			192				
A-B	21	5			21				
A-C	250	62			250				

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	42	10	642	0.065	42	0.1	0.1	6.001	A
B-A	43	11	477	0.090	43	0.1	0.1	9.624	A
C-AB	8	2	703	0.012	8	0.0	0.0	5.195	A
C-A	234	58			234				
A-B	25	6			25				
A-C	306	77			306				

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	42	10	642	0.065	42	0.1	0.1	6.002	A
B-A	43	11	477	0.090	43	0.1	0.1	9.627	A
C-AB	8	2	703	0.012	8	0.0	0.0	5.198	A
C-A	234	58			234				
A-B	25	6			25				
A-C	306	77			306				

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	34	9	661	0.052	34	0.1	0.1	5.744	A
B-A	35	9	500	0.070	35	0.1	0.1	8.977	A
C-AB	6	2	686	0.009	6	0.0	0.0	5.318	A
C-A	192	48			192				
A-B	21	5			21				
A-C	250	62			250				

18:00 - 18:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	29	7	675	0.042	29	0.1	0.0	5.572	A
B-A	29	7	517	0.057	29	0.1	0.1	8.558	A
C-AB	5	1	673	0.007	5	0.0	0.0	5.402	A
C-A	161	40			161				
A-B	17	4			17				
A-C	209	52			209				

Queue Variation Results for each time segment

16:45 - 17:00

Stream	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	0.04	0.00	0.00	0.04	0.04			N/A	N/A
B-A	0.07	0.00	0.00	0.07	0.07			N/A	N/A
C-AB	0.01	0.00	0.00	0.01	0.01			N/A	N/A

17:00 - 17:15

Stream	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	0.05	0.03	0.25	0.45	0.48			N/A	N/A
B-A	0.09	0.03	0.29	0.53	0.56			N/A	N/A
C-AB	0.01	0.01	0.25	0.45	0.48			N/A	N/A

17:15 - 17:30

Stream	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	0.07	0.03	0.26	0.47	0.49			N/A	N/A
B-A	0.11	0.03	0.30	0.54	0.57			N/A	N/A
C-AB	0.01	0.00	0.00	0.01	0.01			N/A	N/A

17:30 - 17:45

Stream	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	0.07	0.00	0.00	0.07	0.07			N/A	N/A
B-A	0.11	0.03	0.29	0.52	0.55			N/A	N/A
C-AB	0.01	0.00	0.00	0.01	0.01			N/A	N/A

17:45 - 18:00

Stream	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	0.05	0.00	0.00	0.05	0.05			N/A	N/A
B-A	0.09	0.00	0.00	0.09	0.09			N/A	N/A
C-AB	0.01	0.00	0.00	0.01	0.01			N/A	N/A

18:00 - 18:15

Stream	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	0.04	0.00	0.00	0.04	0.04			N/A	N/A
B-A	0.07	0.00	0.00	0.07	0.07			N/A	N/A
C-AB	0.01	0.00	0.00	0.01	0.01			N/A	N/A

2027 Without Development, AM Peak Hour

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Minor arm visibility to right	Arm B - Minor arm geometry	Visibility to right expected to have two components if the arm has two lanes, or two lanes in a flared section.
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Arm A Direction	Arm B Direction	Arm C Direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	Moss Hall Lane / Birch Business Park	T-Junction	Two-way	Two-way	Two-way		0.99	A

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	204	Stream B-A	0.99	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D3	2027 Without Development	AM Peak Hour	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	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	230	100.000
B		ONE HOUR	✓	32	100.000
C		ONE HOUR	✓	319	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
	A	B	C	
From	A	0	44	186
	B	28	0	4
	C	287	32	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
	A	B	C	
From	A	0	21	1
	B	39	0	0
	C	1	3	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max 95th percentile Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-C	0.01	6.05	0.0	0.5	A	4	6
B-A	0.06	10.06	0.1	0.7	B	26	39
C-AB	0.08	5.37	0.1	1.0	A	46	69
C-A						247	370
A-B						40	61

A-C						171	256
-----	--	--	--	--	--	-----	-----

Main Results for each time segment

07:45 - 08:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	3	0.75	620	0.005	3	0.0	0.0	5.829	A
B-A	21	5	573	0.037	21	0.0	0.1	9.053	A
C-AB	34	9	721	0.048	34	0.0	0.1	5.363	A
C-A	206	51			206				
A-B	33	8			33				
A-C	140	35			140				

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	4	0.90	612	0.006	4	0.0	0.0	5.920	A
B-A	25	6	554	0.045	25	0.1	0.1	9.453	A
C-AB	44	11	743	0.059	44	0.1	0.1	5.270	A
C-A	243	61			243				
A-B	40	10			40				
A-C	167	42			167				

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	4	1	599	0.007	4	0.0	0.0	6.049	A
B-A	31	8	528	0.058	31	0.1	0.1	10.060	B
C-AB	60	15	774	0.077	60	0.1	0.1	5.151	A
C-A	292	73			292				
A-B	48	12			48				
A-C	205	51			205				

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	4	1	599	0.007	4	0.0	0.0	6.050	A
B-A	31	8	528	0.058	31	0.1	0.1	10.063	B
C-AB	60	15	774	0.077	60	0.1	0.1	5.153	A
C-A	291	73			291				
A-B	48	12			48				
A-C	205	51			205				

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	4	0.90	612	0.006	4	0.0	0.0	5.920	A
B-A	25	6	554	0.045	25	0.1	0.1	9.461	A
C-AB	44	11	743	0.060	44	0.1	0.1	5.267	A
C-A	243	61			243				
A-B	40	10			40				
A-C	167	42			167				

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	3	0.75	620	0.005	3	0.0	0.0	5.833	A
B-A	21	5	573	0.037	21	0.1	0.1	9.062	A
C-AB	35	9	721	0.048	35	0.1	0.1	5.367	A
C-A	206	51			206				
A-B	33	8			33				
A-C	140	35			140				

Queue Variation Results for each time segment

07:45 - 08:00

Stream	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	0.00	0.00	0.00	0.00	0.00			N/A	N/A
B-A	0.05	0.00	0.00	0.05	0.05			N/A	N/A
C-AB	0.07	0.00	0.00	0.07	0.07			N/A	N/A

08:00 - 08:15

Stream	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	0.01	0.01	0.25	0.45	0.48			N/A	N/A
B-A	0.07	0.03	0.35	0.63	0.66			N/A	N/A
C-AB	0.10	0.03	0.26	0.46	0.49			N/A	N/A

08:15 - 08:30

Stream	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	0.01	0.00	0.00	0.01	0.01			N/A	N/A
B-A	0.09	0.04	0.36	0.65	0.68			N/A	N/A
C-AB	0.14	0.03	0.28	0.50	0.96			N/A	N/A

08:30 - 08:45

Stream	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	0.01	0.00	0.00	0.01	0.01			N/A	N/A
B-A	0.09	0.00	0.00	0.09	0.09			N/A	N/A
C-AB	0.14	0.00	0.00	0.14	0.14			N/A	N/A

08:45 - 09:00

Stream	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	0.01	0.00	0.00	0.01	0.01			N/A	N/A
B-A	0.07	0.00	0.00	0.07	0.07			N/A	N/A
C-AB	0.10	0.00	0.00	0.10	0.10			N/A	N/A

09:00 - 09:15

Stream	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	0.00	0.00	0.00	0.00	0.00			N/A	N/A
B-A	0.05	0.00	0.00	0.05	0.05			N/A	N/A
C-AB	0.07	0.00	0.00	0.07	0.07			N/A	N/A

2027 Without Development, PM Peak Hour

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Minor arm visibility to right	Arm B - Minor arm geometry	Visibility to right expected to have two components if the arm has two lanes, or two lanes in a flared section.
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Arm A Direction	Arm B Direction	Arm C Direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	Moss Hall Lane / Birch Business Park	T-Junction	Two-way	Two-way	Two-way		1.07	A

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	167	Stream B-A	1.07	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D4	2027 Without Development	PM Peak Hour	ONE HOUR	16:45	18:15	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	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	324	100.000
B		ONE HOUR	✓	80	100.000
C		ONE HOUR	✓	232	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
From		A	B	C
	A	0	23	301
	B	40	0	40
	C	227	5	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
From		A	B	C
	A	0	67	1
	B	16	0	0
	C	1	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max 95th percentile Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-C	0.07	6.09	0.1	0.5	A	37	55
B-A	0.09	9.88	0.1	0.6	A	37	55
C-AB	0.01	5.38	0.0	0.5	A	7	10
C-A						206	309
A-B						21	32

A-C						276	414
-----	--	--	--	--	--	-----	-----

Main Results for each time segment

16:45 - 17:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	30	8	672	0.045	30	0.0	0.0	5.609	A
B-A	30	8	510	0.059	30	0.0	0.1	8.692	A
C-AB	5	1	676	0.007	5	0.0	0.0	5.381	A
C-A	170	42			170				
A-B	17	4			17				
A-C	227	57			227				

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	36	9	656	0.055	36	0.0	0.1	5.802	A
B-A	36	9	492	0.073	36	0.1	0.1	9.160	A
C-AB	6	2	689	0.009	6	0.0	0.0	5.289	A
C-A	202	51			202				
A-B	21	5			21				
A-C	271	68			271				

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	44	11	635	0.069	44	0.1	0.1	6.087	A
B-A	44	11	466	0.094	44	0.1	0.1	9.882	A
C-AB	9	2	708	0.012	9	0.0	0.0	5.166	A
C-A	247	62			247				
A-B	25	6			25				
A-C	331	83			331				

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	44	11	635	0.069	44	0.1	0.1	6.088	A
B-A	44	11	466	0.094	44	0.1	0.1	9.885	A
C-AB	9	2	708	0.012	9	0.0	0.0	5.167	A
C-A	247	62			247				
A-B	25	6			25				
A-C	331	83			331				

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	36	9	656	0.055	36	0.1	0.1	5.807	A
B-A	36	9	492	0.073	36	0.1	0.1	9.166	A
C-AB	6	2	689	0.009	6	0.0	0.0	5.292	A
C-A	202	51			202				
A-B	21	5			21				
A-C	271	68			271				

18:00 - 18:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	30	8	671	0.045	30	0.1	0.0	5.617	A
B-A	30	8	510	0.059	30	0.1	0.1	8.703	A
C-AB	5	1	676	0.007	5	0.0	0.0	5.384	A
C-A	170	42			170				
A-B	17	4			17				
A-C	227	57			227				

Queue Variation Results for each time segment

16:45 - 17:00

Stream	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	0.05	0.00	0.00	0.05	0.05			N/A	N/A
B-A	0.07	0.00	0.00	0.07	0.07			N/A	N/A
C-AB	0.01	0.00	0.00	0.01	0.01			N/A	N/A

17:00 - 17:15

Stream	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	0.06	0.03	0.25	0.45	0.48			N/A	N/A
B-A	0.09	0.03	0.30	0.53	0.56			N/A	N/A
C-AB	0.01	0.01	0.25	0.45	0.48			N/A	N/A

17:15 - 17:30

Stream	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	0.07	0.03	0.26	0.47	0.49			N/A	N/A
B-A	0.12	0.03	0.30	0.54	0.57			N/A	N/A
C-AB	0.01	0.00	0.00	0.01	0.01			N/A	N/A

17:30 - 17:45

Stream	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	0.07	0.00	0.00	0.07	0.07			N/A	N/A
B-A	0.12	0.03	0.29	0.52	0.55			N/A	N/A
C-AB	0.01	0.00	0.00	0.01	0.01			N/A	N/A

17:45 - 18:00

Stream	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	0.06	0.00	0.00	0.06	0.06			N/A	N/A
B-A	0.09	0.00	0.00	0.09	0.09			N/A	N/A
C-AB	0.01	0.00	0.00	0.01	0.01			N/A	N/A

18:00 - 18:15

Stream	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	0.05	0.00	0.00	0.05	0.05			N/A	N/A
B-A	0.07	0.00	0.00	0.07	0.07			N/A	N/A
C-AB	0.01	0.00	0.00	0.01	0.01			N/A	N/A

2027 With Development, AM Peak Hour

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Minor arm visibility to right	Arm B - Minor arm geometry	Visibility to right expected to have two components if the arm has two lanes, or two lanes in a flared section.
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Arm A Direction	Arm B Direction	Arm C Direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	Moss Hall Lane / Birch Business Park	T-Junction	Two-way	Two-way	Two-way		1.18	A

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	187	Stream B-A	1.18	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D5	2027 With Development	AM Peak Hour	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	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	240	100.000
B		ONE HOUR	✓	39	100.000
C		ONE HOUR	✓	327	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
From		A	B	C
	A	0	54	186
	B	33	0	6
	C	287	40	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
From		A	B	C
	A	0	19	1
	B	37	0	0
	C	1	3	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max 95th percentile Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-C	0.01	6.07	0.0	0.5	A	6	8
B-A	0.07	10.18	0.1	0.7	B	30	45
C-AB	0.10	5.45	0.2	1.1	A	58	87
C-A						242	363
A-B						50	74

A-C						171	256
-----	--	--	--	--	--	-----	-----

Main Results for each time segment

07:45 - 08:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	5	1	622	0.007	4	0.0	0.0	5.834	A
B-A	25	6	568	0.044	25	0.0	0.1	9.076	A
C-AB	43	11	720	0.060	43	0.0	0.1	5.444	A
C-A	203	51			203				
A-B	41	10			41				
A-C	140	35			140				

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	5	1	612	0.009	5	0.0	0.0	5.931	A
B-A	30	7	548	0.054	30	0.1	0.1	9.511	A
C-AB	55	14	741	0.075	55	0.1	0.1	5.371	A
C-A	239	60			239				
A-B	49	12			49				
A-C	167	42			167				

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	7	2	599	0.011	7	0.0	0.0	6.072	A
B-A	36	9	521	0.070	36	0.1	0.1	10.171	B
C-AB	75	19	772	0.097	75	0.1	0.2	5.281	A
C-A	285	71			285				
A-B	59	15			59				
A-C	205	51			205				

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	7	2	599	0.011	7	0.0	0.0	6.073	A
B-A	36	9	521	0.070	36	0.1	0.1	10.177	B
C-AB	75	19	772	0.097	75	0.2	0.2	5.281	A
C-A	285	71			285				
A-B	59	15			59				
A-C	205	51			205				

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	5	1	612	0.009	5	0.0	0.0	5.935	A
B-A	30	7	548	0.054	30	0.1	0.1	9.519	A
C-AB	55	14	742	0.075	56	0.2	0.1	5.370	A
C-A	239	60			239				
A-B	49	12			49				
A-C	167	42			167				

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	5	1	621	0.007	5	0.0	0.0	5.837	A
B-A	25	6	568	0.044	25	0.1	0.1	9.089	A
C-AB	43	11	720	0.060	43	0.1	0.1	5.447	A
C-A	203	51			203				
A-B	41	10			41				
A-C	140	35			140				

Queue Variation Results for each time segment

07:45 - 08:00

Stream	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	0.01	0.00	0.00	0.01	0.01			N/A	N/A
B-A	0.06	0.00	0.00	0.06	0.06			N/A	N/A
C-AB	0.10	0.00	0.00	0.10	0.10			N/A	N/A

08:00 - 08:15

Stream	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	0.01	0.01	0.25	0.45	0.48			N/A	N/A
B-A	0.08	0.03	0.34	0.62	0.65			N/A	N/A
C-AB	0.14	0.03	0.27	0.48	0.51			N/A	N/A

08:15 - 08:30

Stream	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	0.01	0.00	0.00	0.01	0.01			N/A	N/A
B-A	0.10	0.04	0.36	0.64	0.68			N/A	N/A
C-AB	0.19	0.03	0.28	0.50	1.14			N/A	N/A

08:30 - 08:45

Stream	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	0.01	0.00	0.00	0.01	0.01			N/A	N/A
B-A	0.10	0.00	0.00	0.10	0.10			N/A	N/A
C-AB	0.19	0.00	0.00	0.19	0.19			N/A	N/A

08:45 - 09:00

Stream	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	0.01	0.00	0.00	0.01	0.01			N/A	N/A
B-A	0.08	0.00	0.00	0.08	0.08			N/A	N/A
C-AB	0.14	0.00	0.00	0.14	0.14			N/A	N/A

09:00 - 09:15

Stream	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	0.01	0.00	0.00	0.01	0.01			N/A	N/A
B-A	0.06	0.00	0.00	0.06	0.06			N/A	N/A
C-AB	0.10	0.00	0.00	0.10	0.10			N/A	N/A

2027 With Development, PM Peak Hour

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Minor arm visibility to right	Arm B - Minor arm geometry	Visibility to right expected to have two components if the arm has two lanes, or two lanes in a flared section.
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Arm A Direction	Arm B Direction	Arm C Direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	Moss Hall Lane / Birch Business Park	T-Junction	Two-way	Two-way	Two-way		1.26	A

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	153	Stream B-A	1.26	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D6	2027 With Development	PM Peak Hour	ONE HOUR	16:45	18:15	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	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	331	100.000
B		ONE HOUR	✓	95	100.000
C		ONE HOUR	✓	234	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
From		A	B	C
	A	0	30	301
	B	48	0	47
	C	227	7	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
From		A	B	C
	A	0	54	1
	B	16	0	0
	C	1	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max 95th percentile Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-C	0.08	6.22	0.1	0.5	A	43	65
B-A	0.11	10.12	0.1	0.6	B	44	66
C-AB	0.02	5.41	0.0	0.5	A	9	14
C-A						205	308
A-B						28	41

A-C						276	414
-----	--	--	--	--	--	-----	-----

Main Results for each time segment

16:45 - 17:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	35	9	668	0.053	35	0.0	0.1	5.689	A
B-A	36	9	510	0.071	36	0.0	0.1	8.806	A
C-AB	7	2	675	0.010	7	0.0	0.0	5.406	A
C-A	169	42			169				
A-B	23	6			23				
A-C	227	57			227				

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	42	11	652	0.065	42	0.1	0.1	5.903	A
B-A	43	11	491	0.088	43	0.1	0.1	9.315	A
C-AB	9	2	687	0.013	9	0.0	0.0	5.319	A
C-A	201	50			201				
A-B	27	7			27				
A-C	271	68			271				

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	52	13	630	0.082	52	0.1	0.1	6.222	A
B-A	53	13	466	0.114	53	0.1	0.1	10.111	B
C-AB	12	3	706	0.017	12	0.0	0.0	5.203	A
C-A	246	61			246				
A-B	33	8			33				
A-C	331	83			331				

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	52	13	630	0.082	52	0.1	0.1	6.223	A
B-A	53	13	466	0.114	53	0.1	0.1	10.116	B
C-AB	12	3	706	0.017	12	0.0	0.0	5.206	A
C-A	246	61			246				
A-B	33	8			33				
A-C	331	83			331				

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	42	11	652	0.065	42	0.1	0.1	5.909	A
B-A	43	11	491	0.088	43	0.1	0.1	9.325	A
C-AB	9	2	687	0.013	9	0.0	0.0	5.325	A
C-A	201	50			201				
A-B	27	7			27				
A-C	271	68			271				

18:00 - 18:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	35	9	667	0.053	35	0.1	0.1	5.698	A
B-A	36	9	510	0.071	36	0.1	0.1	8.818	A
C-AB	7	2	675	0.010	7	0.0	0.0	5.410	A
C-A	169	42			169				
A-B	23	6			23				
A-C	227	57			227				

Queue Variation Results for each time segment

16:45 - 17:00

Stream	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	0.06	0.00	0.00	0.06	0.06			N/A	N/A
B-A	0.09	0.00	0.00	0.09	0.09			N/A	N/A
C-AB	0.01	0.00	0.00	0.01	0.01			N/A	N/A

17:00 - 17:15

Stream	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	0.07	0.03	0.25	0.45	0.48			N/A	N/A
B-A	0.11	0.03	0.29	0.52	0.55			N/A	N/A
C-AB	0.01	0.01	0.25	0.45	0.48			N/A	N/A

17:15 - 17:30

Stream	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	0.09	0.03	0.26	0.47	0.49			N/A	N/A
B-A	0.15	0.03	0.30	0.54	0.57			N/A	N/A
C-AB	0.02	0.00	0.00	0.02	0.02			N/A	N/A

17:30 - 17:45

Stream	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	0.09	0.00	0.00	0.09	0.09			N/A	N/A
B-A	0.15	0.03	0.29	0.52	0.55			N/A	N/A
C-AB	0.02	0.00	0.00	0.02	0.02			N/A	N/A

17:45 - 18:00

Stream	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	0.07	0.00	0.00	0.07	0.07			N/A	N/A
B-A	0.11	0.00	0.00	0.11	0.11			N/A	N/A
C-AB	0.01	0.00	0.00	0.01	0.01			N/A	N/A

18:00 - 18:15

Stream	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	0.06	0.00	0.00	0.06	0.06			N/A	N/A
B-A	0.09	0.00	0.00	0.09	0.09			N/A	N/A
C-AB	0.01	0.00	0.00	0.01	0.01			N/A	N/A