

TRANSPORT ASSESSMENT

Masonite Group

Project Juggernaut, Birthwaite Business Park, Barnsley

16/10/2023

Transport Assessment

Birthwaite Business Park, Huddersfield Road, Darton, Barnsley

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1 Introduction

Context

- 1.1 Vectos (part of SLR) has been appointed by Masonite Group to provide traffic and transportation advice as part of a planning application for the development of two plots of land, either side of the existing Premdor main entrance on Birthwaite Business Park. The proposed development will consist of two units and will be a mixture of B2 / B8 uses with ancillary office space.
- 1.2 The two new buildings will utilise the existing access point on Huddersfield Road (A637).
- 1.3 The full site plan is attached as **Appendix A**.

Purpose of the Report

- 1.4 This Transport Assessment (TA) has been prepared to inform Highways Officers at Barnsley Metropolitan Borough Council (BMBC) of the traffic and transportation matters associated with this planning application.

Scope and References

- 1.5 The contents of the report is consistent with the former DfT's *Guidance for Transport Assessment*. This TA contains the following:
 - Review of the conditions and description of the operation of the local highway network;
 - Road safety assessment including an analysis of the accident history of the area;
 - Audit the accessibility of the site by sustainable modes of travel;
 - Description and review of the development proposals including parking provision;
 - Calculation of the trip generation using first principles;
 - Assessment of the impact on the highway network;
 - Combination of all the above into a TA report.

Structure of the Report

- 1.6 Following this introduction, **Section 2** of the report provides a comprehensive description of the existing site and its location, including the surrounding local highway network whereas **Section 3** considers the accessibility of the site by sustainable modes of transport. The development proposals of the site are described in **Section 4** while **Section 5** includes the first principles trip generation assessment and assesses the impact of the development upon the surrounding highway network. The report is summarised and concluded in **Section 6**.

2 Site Location and Baseline Conditions

Site Location

- 2.1 Birthwaite Business Park is located to the north of Huddersfield Road and directly to the south / west of the M1. The site's immediate surrounding area is characterised by commercial / industrial uses to the southeast, residential properties to the south and the motorway to the north and east.
- 2.2 The development site is approximately 1.4km to the southeast of Darton station (which equates to a 15-minute walking trip or 5-minute cycle trip) and it is also relatively close to other amenities, including local shops, cafes, and other facilities in Darton village centre, 1km away.

Existing Use & Site Access

- 2.3 The site is part of a wider Premdor manufacturing and HQ facility where garage doors and other products are manufactured. There is a substantial area of car parking to the front of the main manufacturing building for employees and visitors and an internal roadway network to allow lorries and other trucks to circulate the site moving materials and products around the facility.
- 2.4 One of the development plots is currently in use (in part) as a surfaced lorry and trailer storage area, with the majority of the development area out of use as a vacant, levelled area of self-seeded vegetation.
- 2.5 The site is accessed via an existing large ghost island right turn priority junction which leads to a gatehouse/barrier point which acts as the secure entrance to the private road network within the site. The existing access is around 7.5m wide and serves the existing site.

Local Highway Network Description

- 2.6 The A637 Huddersfield Road is two-way working with substantial lane widths (circa. 3.5m wide), suitable for HGV use. Huddersfield Road runs from a priority intersection with Churchfield Lane in the south-east to the Haigh Roundabout in the north. In the vicinity of the site, Huddersfield Road is characterised by predominantly residential properties to the south and agricultural land and a number of employment units, including Birthwaite Business Park to the north. Huddersfield Road has a footway on both sides, with some parts of the footway set back from the road with a large grass verge.
- 2.7 Huddersfield Road has a 50mph speed limit along the site frontage, that then changes to a 30mph limit to the east of the site access as the road enters a more residential setting. This stretch of Huddersfield Road has street lighting at regular intervals.
- 2.8 Huddersfield Road proceeds northbound at a tight bend circa. 500m west of the application site. Slow road markings and chevrons are present, bringing attention to bends in the road ahead. From this point Huddersfield Road has a footway on the eastern side.
- 2.9 As part of this TA work, full turning count surveys were undertaken on a 'neutral / typical' day at the Huddersfield Road / Premdor Access junction. In addition, two ATCs were placed on Huddersfield Road and the site access road, for a period of one-week that recorded both vehicle flows and speeds.

A breakdown of the vehicle flows on Huddersfield Road and the site access road are presented in **Table 2.1** and **Table 2.2** overleaf.

Period	Eastbound	Westbound
Average Daily (Weekday)	5054	5359
7 Day Average	4468	4704

Table 2.1 – Existing Vehicle Flows on Huddersfield Road

- 2.10 Average vehicle speeds on Huddersfield Road were recorded as 39mph in the eastbound direction and 40mph in the westbound direction.

Period	Northbound	Southbound
Average Daily (Weekday)	476	495
7 Day Average	357	373

Table 2.2 – Existing Vehicle Flows on the Premdor Site Access Road

- 2.11 Average vehicle speeds on the Premdor Access Road were recorded as 15mph in the northbound direction and 17mph in the southbound direction.
- 2.12 The raw ATC data can be found in **Appendix B**.

Safety Analysis

- 2.13 The Crashmap website (www.crashmap.co.uk) was used to provide baseline safety data to assess existing conditions around the vicinity of the development site. Crashmap uses validated Department for Transport data for collisions where a Personal Injury Collision has occurred (where Police attended). Data outlined below is from the most recent available 5-year period.
- 2.14 The accident search area is shown below in **Figure 2.1**.

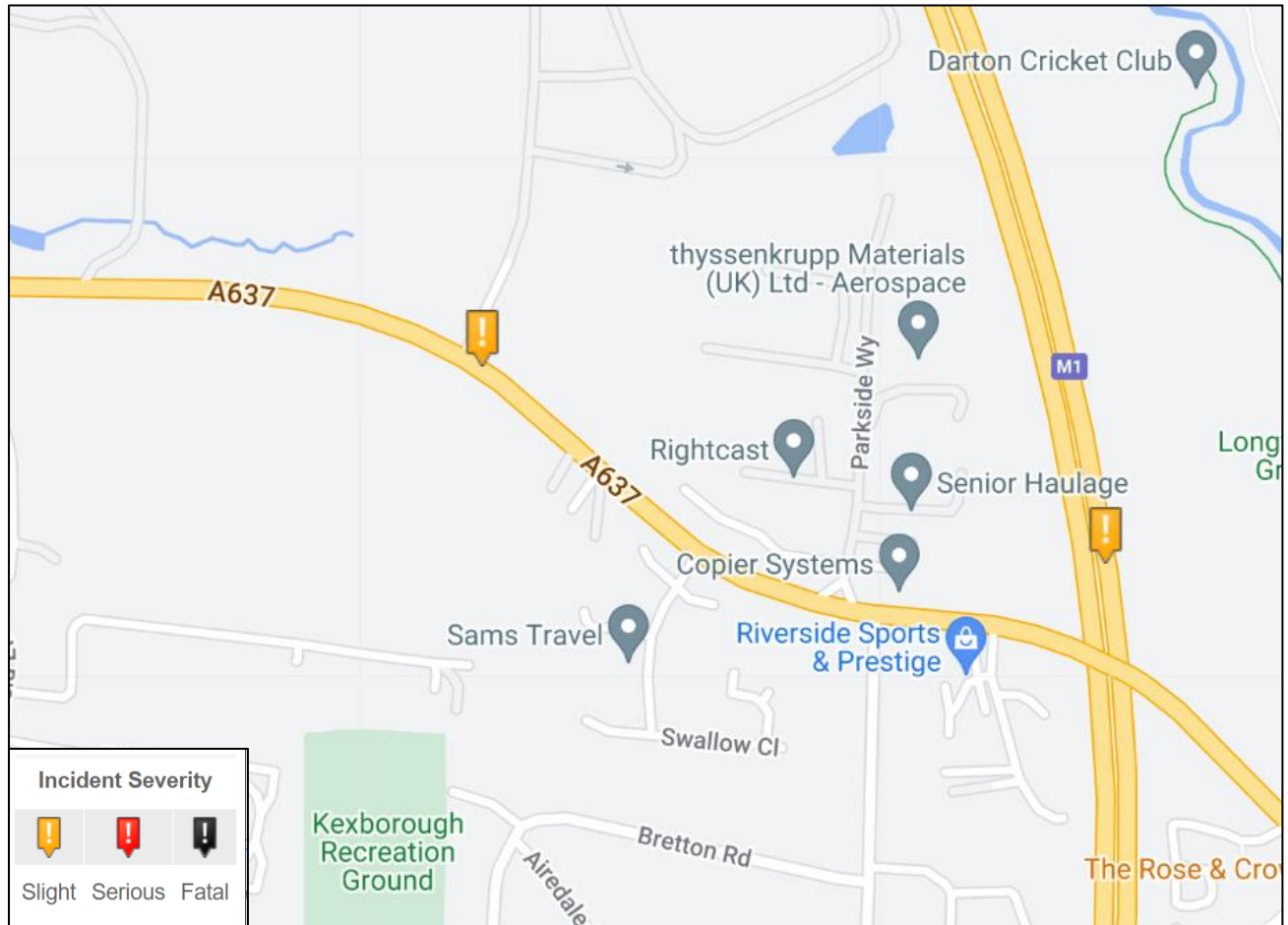


Figure 2.1 – Collision Search Area (Source: Crashmap)

- 2.15 As is shown from the above, two collisions were recorded in the study area during the period, which equates to one collision every 2.5 years.
- 2.16 Both these collisions were classified as 'slight' in severity, while no serious or fatal collisions were recorded in the study area.
- 2.17 One of the accidents occurred at the access road to the business park and this has been analysed in more detail. This accident occurred in February 2017 during the morning rush hour, involving two vehicles, with one occupant injured. The accident was a rear end shunt.
- 2.18 This low level of accidents in the vicinity of the site does not suggest an existing safety issue and it is reasonable to conclude that this situation is not likely to be exacerbated by the proposed access to the development site.

3 Accessibility by Sustainable Modes of Transport

Pedestrian Accessibility

- 3.1 Research has indicated that acceptable walking distances depend on a number of factors, including the quality of the development, the type of amenity offered, the surrounding area, topography and other local facilities.
- 3.2 The Chartered Institution for Highways and Transportation (CIHT) document entitled '*Providing for Journeys on Foot*' suggests walking distances which are relevant to this planning application. These are reproduced in **Table 3.1**.

CIHT Classification	Town Centres (m)	Commuting/School/Sightseeing (m)	Elsewhere/Local Services (m)
Desirable	200	500	400
Acceptable	400	1,000	800
Preferred Maximum	800	2,000	1,200

Table 3.1 – CIHT Suggested Acceptable Walking Distances

- 3.3 An indicative pedestrian catchment is illustrated in **Figure 3.1** below.

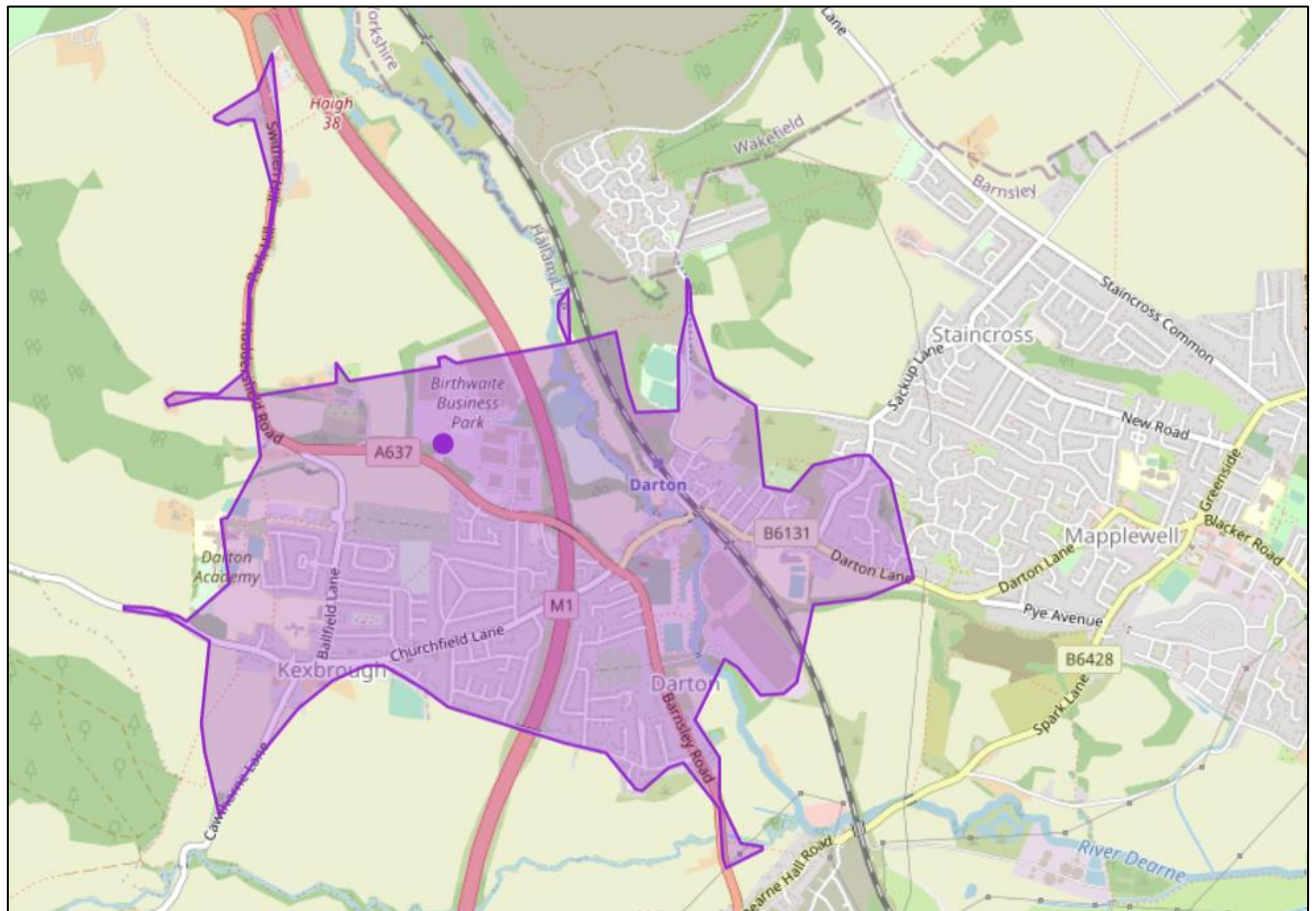


Figure 3.1 – 2km Indicative Walking Catchment

- 3.4 As is shown above, the 2km pedestrian catchment reaches the residential areas of Kexbrough and Darton and Darton Train Station.
- 3.5 The site is connected with an interconnected network of footways, in particular Huddersfield Road has wide (some segregated by a grass verge) footways on both sides. Across the Birthwaite Business Park site access junction there is dropped kerbs, tactile paving and a central reservation to assist with the safe crossing of pedestrians at this location.
- 3.6 The PRoW network map has been consulted and is shown in **Figure 3.2**. As is shown, there is a footpath that runs southwardly off Huddersfield Road towards Kexbrough and there is also a footpath that runs parallel to the trainline in proximity to Darton Station.

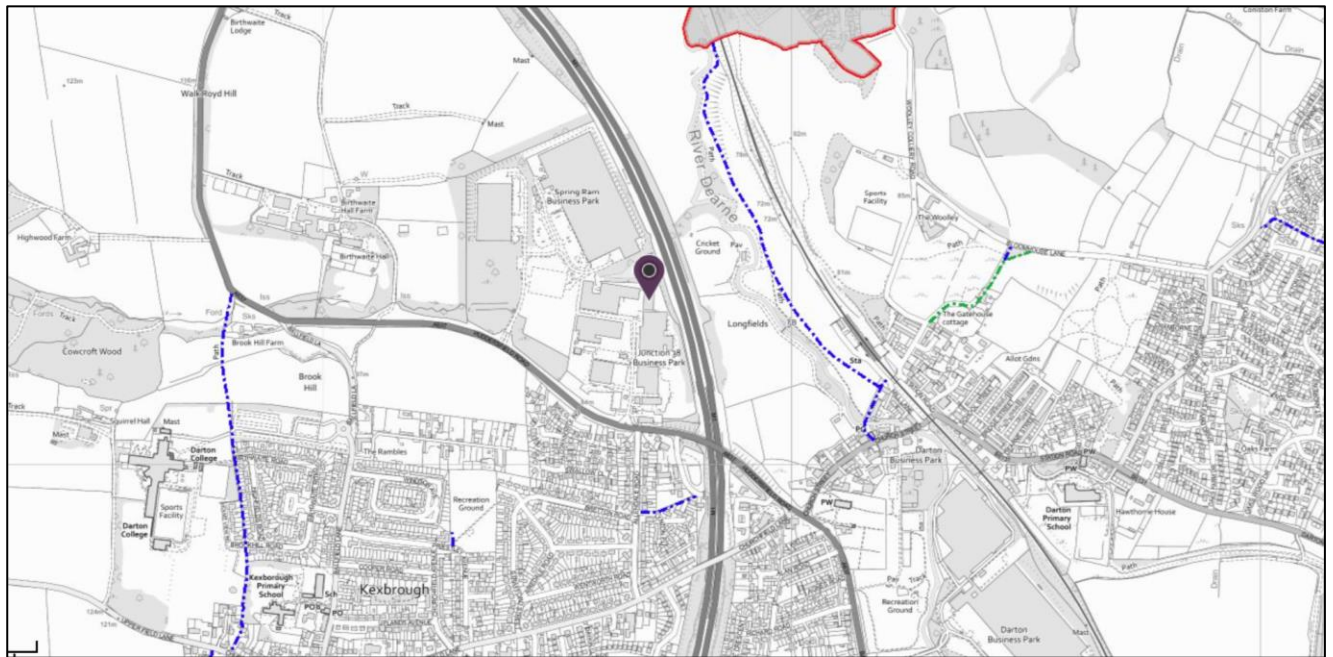


Figure 3.2 – Local PRoW Map

Accessibility by Cycle

- 3.7 To consider the accessibility of the site by cycle, a 5km cycle catchment for the site is adequate, as it equates to a journey time of around 25 minutes, while cycling at a speed of 12kph. An indicative 5km cycle catchment is presented as **Figure 3.3** below.

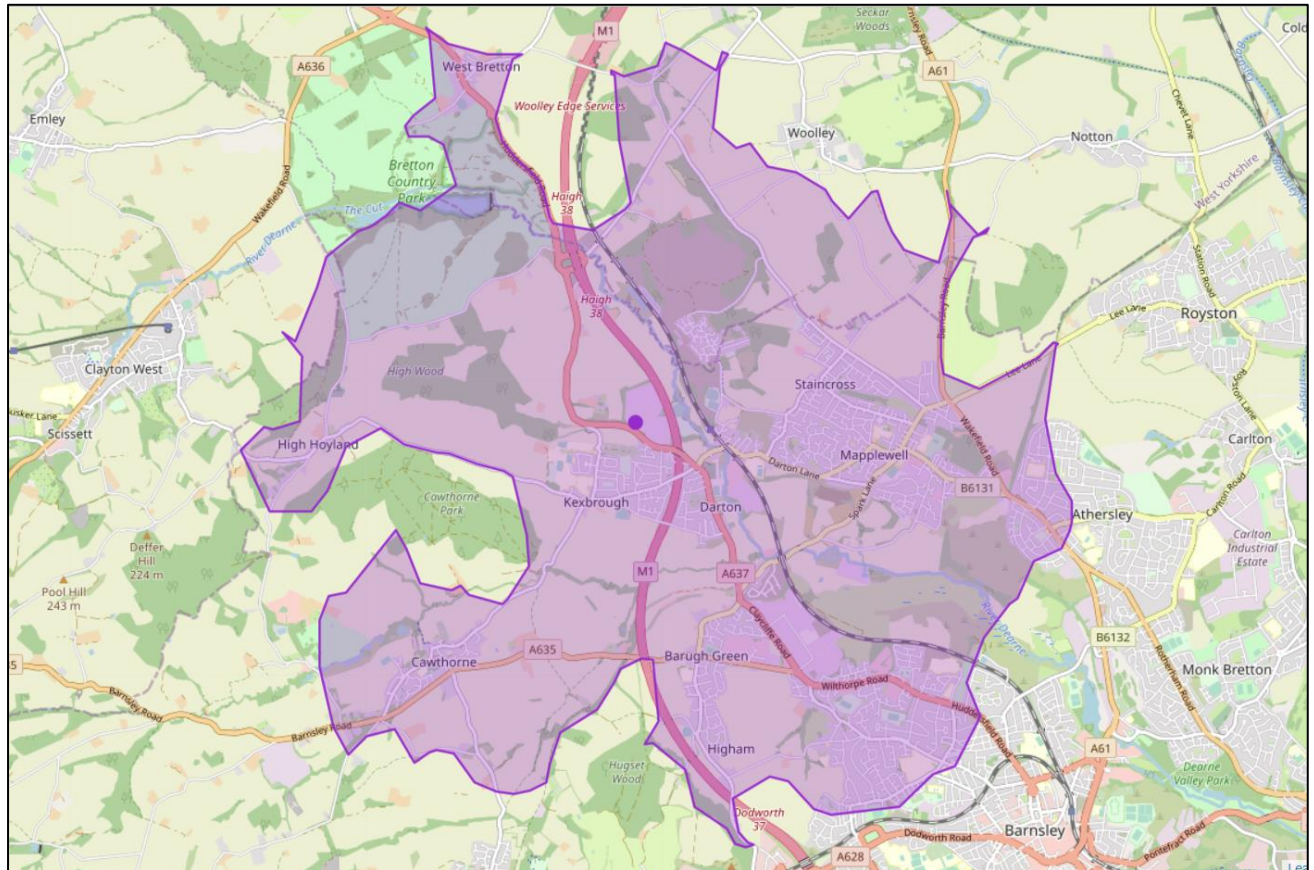


Figure 3.3 – 5km Indicative Cycle Catchment

- 3.8 The 5km catchment reaches the residential areas of Staincross, Mapplewell, Barugh Green, Higham, Cawthorne, High Hoyland, West Bretton and the north-western edge of Barnsley Town Centre.
- 3.9 According to BMBC's cycle network map, Huddersfield Road is an existing safe cycle route. This route extends from the Churchfield Lane junction in the southeast to Haigh Lodge in the north. National Cycle Route 67 lies a short distance to the east and route 62 lies a short distance to the south.
- 3.10 As part of the proposals, suitable cycle parking facilities and changing facilities will be provided to help facilitate travel via this mode.

Accessibility by Public Transport

- 3.11 Guidance from the Chartered Institution of Highways and Transportation (CIHT) document 'Guidelines for Planning for Public Transport in Development' indicates that ideally, a bus stop should be located within 400m from a new development (which equates to a 5-minute walk).
- 3.12 The nearest bus stops to the site are located on Ballfield Lane, approximately 470m west of the site. This bus stop provides services to Barnsley Town Centre; hourly X10 service and hourly service 96. A number of additional school services are also served from this location. An additional bus stop is located circa. 700m on the Churchfield Lane bus corridor (stop: Churchfield Lane / Allendale Road).

This includes a frequent number of services to and from Barnsley Town Centre (services 95, 93, 96 and X10).

3.13 Darton Railway Station is located approximately 0.9 miles east of the site and can easily access from/by the site via the interconnected network of footways (19 minutes). It is also a pleasant and easy cycle along roads with low-speed limits, taking only 6 minutes. Darton Railway Station provides hourly services to Leeds and Sheffield via additional destinations including Wakefield Kirkgate, Barnsley, Elsecar and Chapeltown.

3.14 **Table 3.2** shows the services that run from Darton Railway Station.

Destination	Travel Times to Last Stop	Monday to Saturday
Leeds	1 hour	Every 15-30 minutes
Woodlesford	1hour	Every 15-30 minutes
Castleford	1hour	Every 15-30 minutes
Normanton	50minutes	Every 15-30 minutes
Wakefield Kirkgate	50 minutes	Every 15-30minutes
Darton	30 minutes	Every 15-30 minutes
Barnsley	30 minutes	Every 15-30 minutes
Wombwell	20 minutes	Every 15-30 minutes
Elsecar	20 minutes	Every 15-30 minutes
Chapeltown	10 minutes	Every 15-30 minutes
Meadowhall	5 minutes	Every 15-30 minutes
Sheffield	10 minutes	Every 15-30 minutes

Table 3.2 – Rail Services Serving Darton Rail Station

Electric Vehicle Infrastructure

3.15 The popularity of electric cars in the UK has increased dramatically over the last few years, as more people choose to use these more environmentally friendly vehicles.

3.16 As part of the development standards there will be two active electric vehicle charging spaces. In addition to this, an additional 51 spaces will be cable-enabled for future electric vehicle car parking provision. When demand dictates these spaces will be converted to provide active provision.

Conclusions

3.17 The site is considered accessible via modes other than the private car. The site will be supported by a site wide Travel Plan that has been submitted and prepared as part of the planning application.

4 Development Proposals

Scheme Description

- 4.1 The proposed application is for the development of two plots of land either side of the main entrance to the Premdor facilities on Birthwaite Business Park, off Huddersfield Road (A637) in Darton, Barnsley. The two new buildings will utilise the existing access point on Huddersfield Road.
- 4.2 The development could be a mixture of B2/B8 uses with ancillary office space. There will be a total of two units; Unit A and Unit B, with each having their own parking area(s), servicing yard / lorry park and access. The following GIA for the two new buildings will be as follows:
 - Unit A: 6,606m²; and
 - Unit B: 4,926 m².

Access

- 4.3 Under the proposal, access off the highway will be gained via the existing priority junction off the A637 Huddersfield Road. The existing junction has a large right turn pocket on Huddersfield Road for traffic turning into the site. The site entrance gate is set back from the highway, hence in the unlikely event that an HGV has to wait for the gates to open, the HGV will not obstruct oncoming traffic on the A637 Huddersfield Road.
- 4.4 Under the proposals the security hut and access control barriers will be repositioned circa. 4.5 metres in a westerly direction towards Huddersfield Road. This minor change will have no materially affect on available queuing / stacking space between Huddersfield Road and the barrier control. As the capacity assessment in **Chapter 5** will demonstrate, there will only be a modest uplift in vehicle movements as a result of the proposal. However, in the unlikely event that queuing could occur (ie. shift change over times), the barrier gates will be temporarily left open. In addition, all HGV movements will be coordinated as such that they are spread out across the day to avoid HGVs turning up to the site at once.
- 4.5 As part of the proposals, the access road will undergo some minor widening to circa. 8.5m and some minor alteration to the southeastern radius of the junction. These changes will help accommodate any additional vehicular demand created from the proposals. Visibility splays will be unaffected because of these upgrades.

Internal Circulation & Design

- 4.6 The internal circulation of the development plots will be clear and coherent means of navigating between all units within the Estate, whilst also separating car and pedestrian routes from vehicular/servicing routes.
- 4.7 It is proposed to provide footways along the internal roads to assist with pedestrian movements to / from the units.

- 4.8 The proposed design has been rationalised to provide a simple, clear and coherent means of navigating the proposed development.

Parking Standards

Local Car Parking Standards

- 4.9 Parking Standards are set out in the Barnsley Local Plan Supplementary Planning Document (adopted November 2019). In accordance with this policy the level of recommended parking is for B1/B2 and B8 land uses is:

- Former B1, now E(g) – Office, R&D and Industrial Processes: 1 space per 30sqm;
- B2 – Industrial: 1 space every 30sqm to 50sqm; and
- B8 – Storage and Distribution: 1 space per 60sqm up to 300sqm, then 1 space per 100sqm

- 4.10 In accordance with the policy, standard parking bays should be 5m x 2.5m, with a 6m aisle width and a 3m reversing area at the end of the aisle.

Electric Vehicle Parking Standards

- 4.11 Additionally, Barnsley Council encourages the provision of electric vehicle charging infrastructure. BMBC Parking Standards documents states that “from the 15th June 2022 the requirements for provision of electric vehicle charging points falls under ‘The Building Regulations 2010 Approved Document S Infrastructure for the charging of electric vehicles’”.

- 4.12 The Building Regulations indicate that for new buildings other than residential or mixed-use buildings with more than 10 parking spaces, an electric vehicle charge point must be provided for the building and then at least one in every five remaining parking spaces must be provided with cable routes/ducting.

Disabled Car Parking Standards

- 4.13 In accordance with BMBC Parking Standards, it is recommended that commercial premises with off-street parking need to have the following provision for disabled users (with the document noting that parking provision to cater for the needs of people with disabilities in non-residential development is in addition to the standards):

- One space for every employee who is a disabled motorist, plus 5% of the total actual provision for visitors and customers; plus
- A further 4% should be capable for future enlargement or laid out as enlarged standard spaces.

- 4.14 Disabled spaces should be 2.4m x 4.8m with a 1.2m wide marked access zone between spaces and at the rear access.

Motorcycle Parking Standards

- 4.15 Barnsley Council recommended that powered two-wheel vehicles (motorcycle parking) should be provided. Such facilities should consist of secure anchor points, be located close to the entrance and be in an area with surveillance. In this case, 1 space per 20 car parking spaces with an absolute minimum provision of 1 space.

Cycle Parking Standards

- 4.16 Cycle Parking Standards are also set out in the aforementioned Barnsley Local Plan Supplementary Planning Document. In accordance with this policy minimum cycle parking standards for storage and distribution uses are as follows:
- 1 short-stay space per 1000 m2 gross floor area for visitors; and
 - 1 long-stay space per 40 staff

Commercial Vehicle Parking Standards

- 4.17 The Barnsley Local Plan Supplementary Planning Document also states that requirements for vehicles delivering to or removing goods from premises may be unique to a particular site. Commercial traffic varies with the type of activity within a given use class. An analysis of requirements in terms of the numbers and types of commercial vehicles visiting their premises is sufficient to meet usual needs, such as for loading, unloading and turning. Therefore, commercial vehicle parking should be analysed on a case-by-case basis.

Proposed Parking Provision

- 4.18 In accordance with the standards set out above, the following is proposed for the development:
- 264 car parking spaces made up of the following:
 - 198 regular car parking spaces;
 - 13 accessible car parking spaces;
 - Two active electric vehicle charging spaces;
 - 51 cable enabled (passive) charging spaces;
 - 46 lorry parking spaces, which has been calculated by the developer to be sufficient;
 - 16 cycle parking spaces; and
 - 12 motorcycle parking spaces;
- 4.19 The proposed level of parking is policy compliant and will ensure that the development proposals will not result in any overspill onto the adjoining highway and that the proposed provision is suitable to meet anticipated demand.
- 4.20 The site plan can be found as **Appendix A** attached to the rear of this report.

Staffing

- 4.21 It is anticipated that there would be approximately 150 – 250 members of staff across the two units.

5 Trip Generation & Highway Impact Assessment

Introduction

- 5.1 This section of the report calculates the trip generation for the proposed development. Due to the relatively unique development proposals, the trip generation calculations have been developed from ‘first principles’ from the 2023 traffic count at the site access as an accurate way to calculate a proxy for the trip generation for the proposed development. As the proposed new units will be operated by the same business as the existing units, in / out movements from the access are considered a very good predictor for the proposed trip generation.
- 5.2 It must be recognised that there is and will continue to be a committed effort to minimise the amount of vehicle movements that will occur in the network peak periods and hence the level of impact on the network will be minimal, however for completeness a junction capacity test has been undertaken.

Modelling Scenarios

- 5.3 It has been agreed with the Council to assess the following scenarios:
- 2023 surveyed baseline;
 - 2028 baseline; and
 - 2033 baseline + development.

2023 Surveyed Baseline

- 5.4 A turning count survey of the site access junction with Huddersfield Road was undertaken on Tuesday 6th June 2023. The peak hours have been calculated to be between 07:30 – 08:30 in the morning and 16:45 – 17:45 in the evening.
- 5.5 The raw turning count survey data can be found as **Appendix C**.

Traffic Growth Rates + Committed Development

- 5.6 TEMPRO growth as has been applied to enable future year base traffic flows to be calculated. It has been assumed that the development will be fully operational within around 5 years. Therefore, the 2028 traffic growth factors using the National Transport Model (NTM) on the TEMPRO tool have been applied to the 2023 survey data (growth rate of 5.02% has been applied).
- 5.7 In order to ensure the most robust assessment of future network capacity and operation, all applicable traffic associated with committed local development schemes have been researched and considered. It is concluded that there are no committed developments to consider and the TEMPRO growth factor will account for any future predicted local development in the surrounding area.

Proposed Trip Generation

- 5.8 As discussed, it is considered that the 2023 traffic count at the site access is an accurate way to calculate a proxy for the trip generation for the proposed development. As the units will be operated by the same business as the existing units around, then the existing use is a definite good predictor of the use of the proposed development.
- 5.9 It is anticipated that the proposed development will increase the number of industrial units on site and processing capabilities by around 30%. Therefore, a factor of 0.3 to the existing in and out movements recorded at the site access junction (2023 data) have been applied to calculate the anticipated trip generation for the proposed development. The results of this exercise and corresponding trip generation are illustrated in **Table 5.1** (total vehicle movements) and **Table 5.2** (HGV vehicle movements) below.

Time Period	Movement		
	Arrivals	Departures	Two-way
AM network peak	16	4	20
PM network peak	2	19	21
Daily	143	149	292

Table 5.1 – Anticipated Trip Generation (Total Vehicles)

Time Period	Movement		
	Arrivals	Departures	Two-way
AM network peak	0	1	1
PM network peak	1	1	2
Daily	18	15	33

Table 5.2 – Anticipated Trip Generation (HGV only)

Trip Distribution

- 5.10 The proposed development trips have been distributed based on existing turning proportions that were recorded in the 2023 traffic survey counts.

Junction Assessment

- 5.11 Capacity assessments using the PICADY (Junctions 11) program have been undertaken for the AM and PM peak hours with **Table 5.3** below presenting the results of the modelling scenarios. Full traffic flow diagrams can be found in **Appendix D** and the full modelling outputs for the junction is provided in **Appendix E**.
- 5.12 RFC values of 0.85 and under demonstrate a junction that operates within capacity and will not experience any significant queuing or delay.

Arm	AM Peak		PM Peak	
	RFC	Queue (PCU)	RFC	Queue (PCU)
2023 Surveyed Baseline				
Site Access – Huddersfield Road (E)	0.01	0.0	0.07	0.1
Site Access – Huddersfield Road (W)	0.02	0.0	0.09	0.1
Huddersfield Road	0.06	0.1	0.00	0.0
2028 Baseline				
Site Access – Huddersfield Road (E)	0.01	0.0	0.07	0.1
Site Access – Huddersfield Road (W)	0.02	0.0	0.10	0.1
Huddersfield Road	0.06	0.1	0.00	0.0
2028 Baseline + Proposed Development Site				
Site Access – Huddersfield Road (E)	0.02	0.0	0.09	0.1
Site Access – Huddersfield Road (W)	0.03	0.1	0.13	0.2
Huddersfield Road	0.08	0.1	0.00	0.0

Table 5.3 – Site Access / Huddersfield Road Junction Assessment

- 5.13 The results demonstrate that the junction has a very large junction capacity. The additional traffic generated by the development proposals will result in a minor uplift in RFC values with a maximum figure of 0.13 in the PM network peak. This demonstrates that post development, the existing junction will operate well within capacity with no discernible queuing.
- 5.14 The minimal additional trips onto Huddersfield Road are likely to be unnoticeable within the daily variations of traffic flow which could be expected at this location.
- 5.15 No additional junctions have been assessed as any other subsequent junction on the network will be subject to less than 30 peak hour vehicular movements generated by the application site, and hence no further assessments are required.

6 Summary and Conclusion

Summary

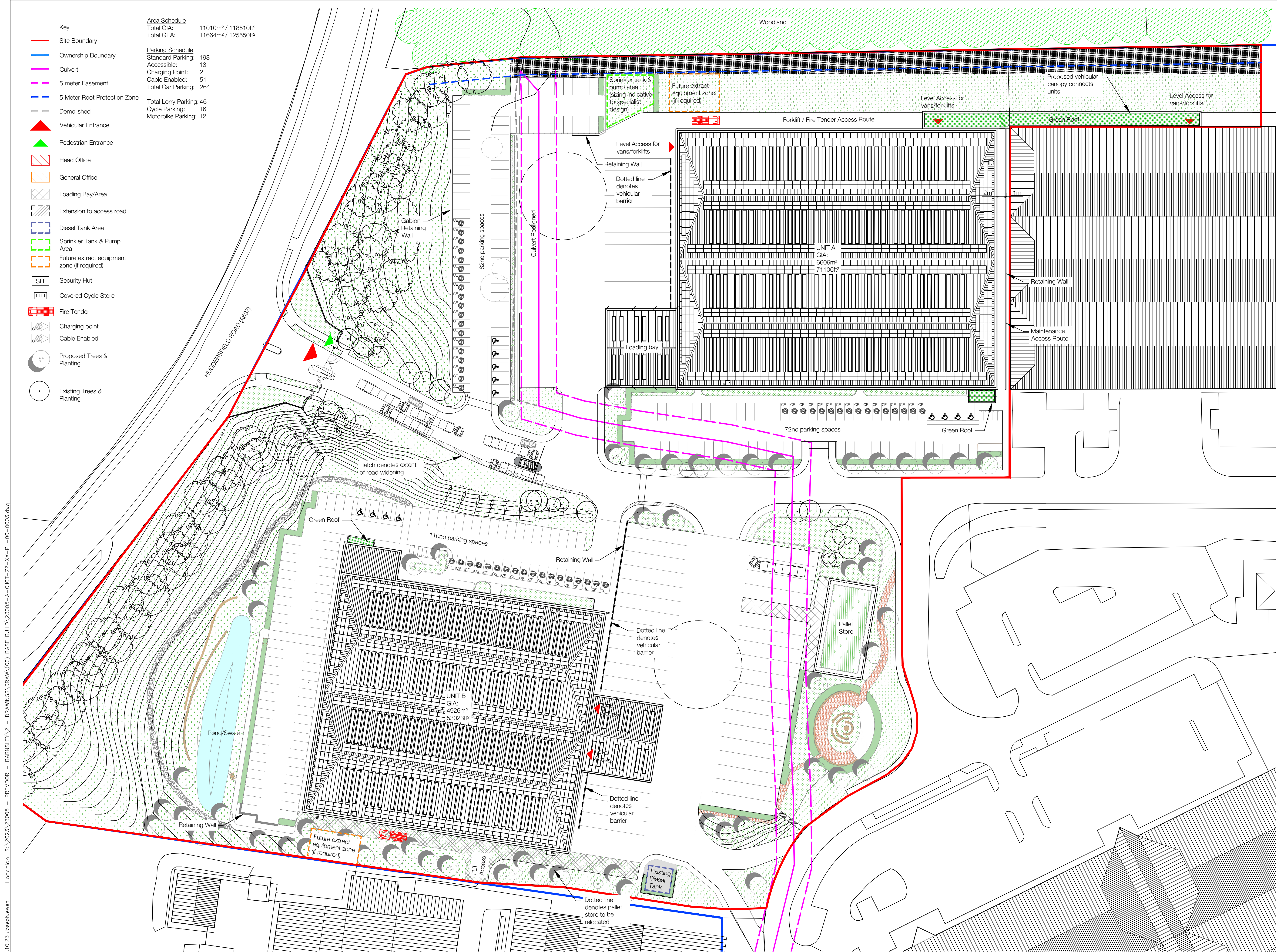
- 6.1 Vectos (part of SLR) has been appointed by Masonite Group to provide traffic and transportation advice as part of a planning application for the development of two plots of land, either side of the existing Premdor main entrance on Birthwaite Business Park. The proposed development will consist of a mixture of B2 / B8 uses with ancillary office space across two units.
- 6.2 The site is considered accessible via modes other than the private car. The site will be supported by a site wide Travel Plan that has been submitted and prepared as part of the planning application. The site will also provide a large number of cable enabled EV parking spaces (including two active charging points) and cycle parking facilities. This provision will further help encourage travel via these more sustainable modes.
- 6.3 A study of the collision history of the local highway network suggests that there are no highway safety concerns when the data has been analysed over a five-year period for a significant study area. It is highly unlikely that the level of traffic associated with the new development would alter this present situation.
- 6.4 The development has been designed in accordance with local planning policy and will provide a total of 264 car parking spaces (including 13 accessible spaces) across both units. The two units will also provide a total of 16 cycle parking spaces (with additional internal long stay provision) and 12 motorcycle spaces.
- 6.5 The proposed design has been rationalised to provide a simple, clear and coherent means of navigating the proposed development, with some minor widening and upgrades to the main access spine road.
- 6.6 This Transport Assessment has also evaluated the impact of the development proposals on the local highway network. The Site will be accessed from the existing access junction off Huddersfield Road, which is a large junction with a large right hand turning pocket. The junction modelling clearly shows that there is significant spare capacity within the junction with both future year and development scenarios.
- 6.7 Minimal peak hour trips (<30) will be generated by the development, so there will be no development impact on local junctions and the Strategic Road Network (SRN).
- 6.8 In summary, it is considered that the development proposals would bring investment directly through new jobs and that there are no highway concerns in terms of safety and capacity. Therefore, it is recommended that the scheme is given highways approval in accordance with paragraph 104 of the NPPF.

Conclusion

- 6.9 In conclusion, from a traffic and transportation perspective there are no reasons why the development proposals should not be granted planning approval.

Appendix A

00-0003 Proposed Site Plan
Scale - 1:500



Key		
[Red line]	Site Boundary	
[Blue line]	Ownership Boundary	
[Blue dashed line]	Culvert	
[Pink dashed line]	5 meter Easement	
[Blue dashed line]	5 Meter Root Protection Zone	
[Grey dashed line]	Demolished	
[Red triangle]	Vehicular Entrance	
[Green triangle]	Pedestrian Entrance	
[Red hatched box]	Head Office	
[Orange hatched box]	General Office	
[Grey hatched box]	Loading Bay/Area	
[Grey hatched box]	Extension to access road	
[Blue dashed box]	Diesel Tank Area	
[Green dashed box]	Sprinkler Tank & Pump Area	
[Orange dashed box]	Future extract equipment zone (if required)	
[SH symbol]	Security Hut	
[IITI symbol]	Covered Cycle Store	
[Fire Tender symbol]	Fire Tender	
[Charging point symbol]	Charging point	
[Cable Enabled symbol]	Cable Enabled	
[Proposed Trees & Planting symbol]	Proposed Trees & Planting	
[Existing Trees & Planting symbol]	Existing Trees & Planting	

Area Schedule		
Total GIA:	11010m² / 118510ft²	
Total GEA:	11664m² / 125550ft²	
Parking Schedule		
Standard Parking:	198	
Accessible:	13	
Charging Point:	2	
Cable Enabled:	51	
Total Car Parking:	264	
Total Lorry Parking:	46	
Cycle Parking:	16	
Motorbike Parking:	12	

Notes

Contractor must verify all dimensions on site before commencing any work or shop drawings. If this drawing exceeds the quantities taken in any way the Architects are to be informed before the work is initiated.
Only figured dimensions to be taken from this drawing. Do not scale off this drawing. Drawings based on Ordnance Survey and / or existing record drawings - design and drawing content subject to Site Survey, Structural Survey, Site Investigations, Planning and Statutory Requirements and Approvals. Authorised reproduction from Ordnance Survey Map with permission of the Controller of Her Majesty's Stationary Office. Crown Copyright reserved.
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Location Plan

P11	Levels & Retaining walls further coordinated following workshop with Civils & Landscape	JOE	12.10.23	AAH
P10	Green roofs to canopies & retaining walls indicated, stepped access to Unit B fire escapes indicated after civil's coordination	JOE	09.10.23	AAH
P09	PV's indicated & Drawing Coordinated with landscape architect's design	EMTJ	29.09.23	JOE
P08	FLT & Fire tender access combined	JOE	11.09.23	AAH
P07	Coordinated with landscape architects plan	JOE	08.09.23	AAH
P06	Coordinated with landscape architects plan, 5 meter root protection buffer indicated at arboriculturalists request	JOE	01.09.23	AAH
P05	Unit B Roof Plan Updated	JOE	14.08.23	AAH
P04	Unit A Roof Plans Updated & position of Unit realigned following Structural workshop, Existing tree removed.	JOE	07.08.23	AAH
P03	Future Extract Equipment zone indicated at client request	JOE	24.07.23	AAH
P02	Drawing naming amended to ISO convention formerly (00)003. Culvert realigned, entrance road amended, vehicular barriers indicated, entrance canopy indicated, 2.5 meter service access between units indicated, FLT access indicated, security hut relocated following DTM	JOE	07.07.23	AAH

P01	Rev.	Des.	By	Date	Ch.

Client:
Premdor

Project:
JUGGERNAUT
Barnsley

Title:
Proposed Site Plan

Scale:	Status:	Drawn by:	Checked by:	Date:
1:500 @A1		JOE	AAH	Sep 2023

Job No:	Drawing No:	Rev No:
23005	-A-CJCT-ZZ-XX-PL-00-0003	P11

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PLANNING

Appendix B

SUMMARY OF AUTOMATIC TRAFFIC COUNT DATA

LOCATION : Premdor Access road Barnsley

Menu

SITE NUMBER : 1

GRID REFERENCE : SE304102

SPEED LIMIT (mph) : 30mph

COUNT DURATION : 1 WEEK : Tue 06-Jun-2023 to Tue 13-Jun-2023



Location Plan

Combined Directions Traffic Volumes	Time Period	Weekday Average	7 Day Average
	24 Hr Day	971	730

Directional Traffic Data	DIRECTION 1 Northbound		DIRECTION 2 Southbound	
	Weekday Average	7 Day Average	Weekday Average	7 Day Average
Traffic Volumes				
24 Hr Day	476	357	495	373
Vehicle Speeds	Weekday Average	7 Day Average	Weekday Average	7 Day Average
85 Percentile Speed (mph)	17.8	17.7	20.4	20.4
Average Speed (mph)	14.8	14.6	16.7	16.7

Vehicle Speeds	Weekday Average		7 Day Average		Weekday Average		7 Day Average	
	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage
Vehicles exceeding 20 mph	21	4.4	16	4.4	105	21.2	79	21.2
Vehicles exceeding 30 mph	0	0.0	0	0.0	1	0.2	1	0.2
Vehicles exceeding 40 mph	0	0.0	0	0.0	0	0.0	0	0.0
Vehicles exceeding 50 mph	0	0.0	0	0.0	0	0.0	0	0.0
Vehicles exceeding 60 mph	0	0.0	0	0.0	0	0.0	0	0.0

Vehicle Classes	Weekday Average		7 Day Average		Weekday Average		7 Day Average	
	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage
Motor Cycle	17	3.5	12	3.4	12	2.5	9	2.4
Car	156	32.9	116	32.5	137	27.7	103	27.7
LGV	243	51.0	185	51.7	295	59.6	224	60.1
HGV	50	10.5	37	10.2	43	8.6	31	8.3
Bus	10	2.1	7	2.0	8	1.6	6	1.5

SUMMARY OF AUTOMATIC TRAFFIC COUNT DATA

LOCATION : Huddersfield Road Barnsley

Menu

SITE NUMBER : 2

GRID REFERENCE : SE304102

SPEED LIMIT (mph) : 30mph

COUNT DURATION : 1 WEEK : Tue 06-Jun-2023 to Tue 13-Jun-2023



Location Plan

Combined Directions Traffic Volumes	Time Period	Weekday Average	7 Day Average
	24 Hr Day	10,413	9,172

Directional Traffic Data	DIRECTION 1 Northbound		DIRECTION 2 Southbound	
	Weekday Average	7 Day Average	Weekday Average	7 Day Average
Traffic Volumes				
24 Hr Day	5,359	4,704	5,054	4,468

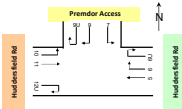
Vehicle Speeds	Weekday Average	7 Day Average	Weekday Average	7 Day Average
85 Percentile Speed (mph)	43.6	44.1	45.2	45.7
Average Speed (mph)	38.5	39.2	39.7	40.2

Vehicle Speeds	Weekday Average		7 Day Average		Weekday Average		7 Day Average	
	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage
Vehicles exceeding 20 mph	5,339	99.6	4,687	99.6	5,043	99.8	4,459	99.8
Vehicles exceeding 30 mph	4,983	93.0	4,409	93.7	4,821	95.4	4,283	95.9
Vehicles exceeding 40 mph	2,129	39.7	2,000	42.5	2,420	47.9	2,207	49.4
Vehicles exceeding 50 mph	103	1.9	105	2.2	162	3.2	167	3.7
Vehicles exceeding 60 mph	6	0.1	8	0.2	10	0.2	12	0.3

Vehicle Classes	Weekday Average		7 Day Average		Weekday Average		7 Day Average	
	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage
Motor Cycle	36	0.7	37	0.8	34	0.7	35	0.8
Car	2,416	45.1	2,134	45.4	1,705	33.7	1,534	34.3
LGV	2,476	46.2	2,197	46.7	2,780	55.0	2,484	55.6
HGV	387	7.2	302	6.4	475	9.4	369	8.3
Bus	42	0.8	31	0.7	56	1.1	42	0.9

Appendix C

Job No. : GSD148204
Client : Vectris
Suburb : Darton
Location : Huddersfield Rd / Premior Access
Day/Date : Tue, 6th Jun 2023
Weather : Fine
Description : Classified Intersection Count
: 15 mins Data

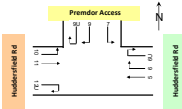


Classification	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6
	HC	Car	LT	OVHT	OVLT	Heavy

Approach		Huddersfield Rd															
Direction		Direction 3 (Through)								Direction 4 (Right Turn)							
Time Period		HC	Car	LT	OVHT	OVLT	Heavy	PU	Total	HC	Car	LT	OVHT	OVLT	Heavy	PU	Total
07:00 to 07:15		0	64	21	4	3	1	230	124	0	4	1	0	0	0	5	6
07:15 to 07:30		0	100	24	7	3	1	144	135	0	1	0	0	0	1	1	2
07:30 to 07:45		0	138	26	4	4	0	177	168	0	1	1	0	0	0	4	6
07:45 to 08:00		0	130	31	5	7	4	176	169	0	1	0	0	0	1	5	7
08:00 to 08:15		0	148	33	3	2	0	186	186	0	2	0	0	0	2	2	4
08:15 to 08:30		0	1	0	0	0	0	0	0	0	127	1	0	0	0	12	129
08:30 to 08:45		0	12	16	1	1	1	74	79	0	2	1	0	0	0	3	6
08:45 to 09:00		0	137	30	3	2	0	175	171	0	1	0	0	0	1	3	5
09:00 to 09:15		0	70	8	4	3	0	85	85	0	1	1	0	0	0	2	4
09:15 to 09:30		0	1	26	13	4	2	46	45	0	0	0	0	0	0	0	0
09:30 to 09:45		0	1	49	11	7	0	71	64	0	0	1	0	0	1	5	6
09:45 to 10:00		0	47	14	2	3	0	71	64	0	0	0	0	0	0	0	0
10:00 to 10:15		0	76	12	2	1	0	91	81	0	0	0	0	0	0	0	0
10:15 to 10:30		0	73	11	3	2	0	89	86	0	0	0	1	0	0	2	3
10:30 to 10:45		0	77	8	1	1	0	89	87	0	0	0	0	0	0	0	0
10:45 to 11:00		0	80	1	3	1	0	84	84	0	1	0	0	0	1	1	3
11:00 to 11:15		0	76	12	2	1	0	91	81	0	0	0	0	0	0	0	0
11:15 to 11:30		0	80	10	0	1	0	91	88	0	0	0	0	0	0	0	0
11:30 to 11:45		0	73	11	3	2	0	89	86	0	0	0	1	0	0	2	3
11:45 to 12:00		0	77	8	1	1	0	89	87	0	0	0	0	0	0	0	0
12:00 to 12:15		0	80	1	3	1	0	84	84	0	1	0	0	0	1	1	3
12:15 to 12:30		0	76	12	2	1	0	91	81	0	0	0	0	0	0	0	0
12:30 to 12:45		0	80	10	0	1	0	91	88	0	0	0	0	0	0	0	0
12:45 to 13:00		0	73	11	3	2	0	89	86	0	0	0	1	0	0	2	3
13:00 to 13:15		0	77	8	1	1	0	89	87	0	0	0	0	0	0	0	0
13:15 to 13:30		0	80	1	3	1	0	84	84	0	1	0	0	0	1	1	3
13:30 to 13:45		0	76	12	2	1	0	91	81	0	0	0	0	0	0	0	0
13:45 to 14:00		0	43	4	2	0	0	53	53	0	1	0	0	0	1	1	3
14:00 to 14:15		0	37	8	1	1	0	49	47	0	0	0	0	0	0	0	0
14:15 to 14:30		0	3	0	0	0	0	3	3	0	1	0	0	0	1	1	3

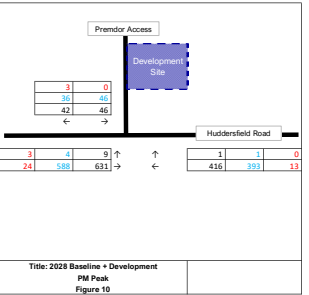
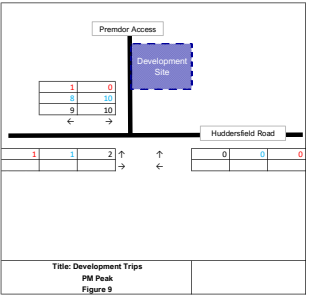
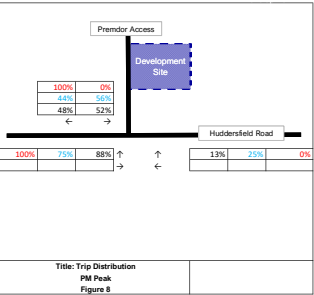
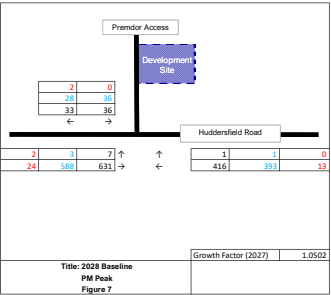
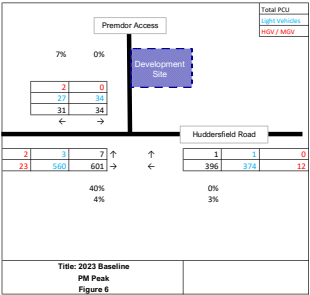
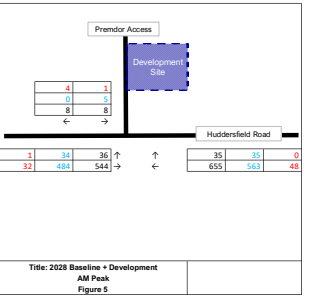
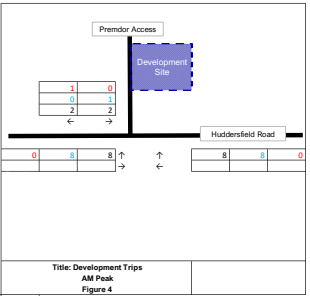
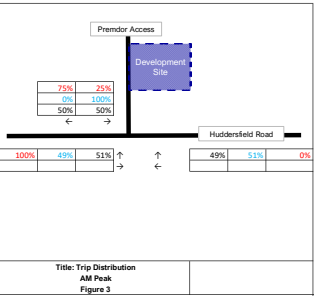
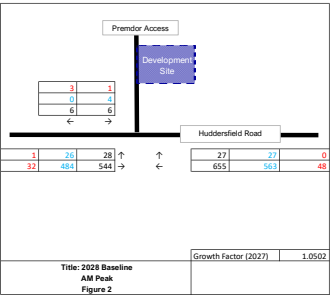
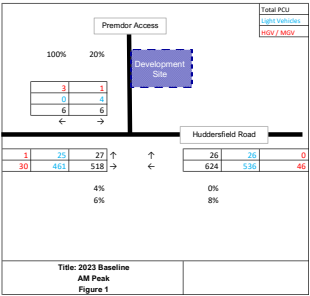
Approach		Huddersfield Rd															
Direction		Direction 7 (Left Turn)								Direction 8 (Right Turn)							
Time Period		HC	Car	LT	OVHT	OVLT	Heavy	PU	Total	HC	Car	LT	OVHT	OVLT	Heavy	PU	Total
07:00 to 07:15		0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	2
07:15 to 07:30		0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	2
07:30 to 07:45		0	3	0	0	1	0	1	4	0	0	0	0	0	0	0	0
07:45 to 08:00		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 to 08:15		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 to 08:30		0	1	0	0	0	0	1	1	0	0	0	0	0	0	0	0
08:30 to 08:45		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45 to 09:00		0	1	0	0	0	0	1	1	0	0	0	0	0	0	0	0
09:00 to 09:15		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:15 to 09:30		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:30 to 09:45		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:45 to 10:00		0	2	0	0	1	0	4	3	0	0	0	0	0	0	0	0
10:00 to 10:15		0	7	0	0	0	0	7	7	0	0	0	0	0	0	0	0
10:15 to 10:30		0	2	1	0	0	0	4	4	0	0	0	0	0	0	0	0
10:30 to 10:45		0	3	0	0	0	0	3	3	0	0	0	0	0	0	0	0
10:45 to 11:00		0	1	0	0	0	0	1	1	0	0	0	0	0	0	0	0
11:00 to 11:15		0	290	40	0	0	0	200	360	0	0	0	0	0	0	0	0
11:15 to 11:30		0	5	1	0	0	0	6	6	0	0	0	0	0	0	0	0
11:30 to 11:45		0	3	0	0	0	0	3	3	0	0	0	0	0	0	0	0
11:45 to 12:00		0	1	0	0	0	0	1	1	0	0	0	0	0	0	0	0
12:00 to 12:15		0	4	0	0	1	0	5	5	0	0	0	0	0	0	0	0
12:15 to 12:30		0	1	0	0	0	0	1	1	0	0	0	0	0	0	0	0
12:30 to 12:45		0	3	0	0	0	0	3	3	0	0	0	0	0	0	0	0
12:45 to 13:00		0	1	0	0	0	0	1	1	0	0	0	0	0	0	0	0
13:00 to 13:15		0	1	0	0	0	0	1	1	0	0	0	0	0	0	0	0
13:15 to 13:30		0	3	0	0	0	0	3	3	0	0	0	0	0	0	0	0
13:30 to 13:45		0	1	0	0	0	0	1	1	0	0	0	0	0	0	0	0
13:45 to 14:00		0	1	0	0	0	0	1	1	0	0	0	0	0	0	0	0
14:00 to 14:15		0	1	0	0	0	0	1	1	0	0	0	0	0	0	0	0
14:15 to 14:30		0	1	0	0	0	0	1	1	0	0	0	0	0	0	0	0
14:30 to 14:45		0	1	0	0	0	0	1	1	0	0	0	0	0	0	0	0
14:45 to 15:00		0	1	0	0	0	0	1	1	0	0	0	0	0	0	0	0
15:00 to 15:15		0	1	0	0	0	0	1	1	0	0	0	0	0	0	0	0
15:15 to 15:30		0	1	0	0	0	0	1	1	0	0	0	0	0	0	0	0
15:30 to 15:45		0	1	0	0	0	0	1	1	0	0	0	0	0	0	0	0
15:45 to 16:00		0	1	0	0	0	0	1	1	0	0	0	0	0	0	0	0

Job No. : GSD148204
Client : Vectris
Suburb : Darton
Location : Huddersfield Rd / Premior Access
Day/Date : Tue, 6th Jun 2023
Weather : Fine
Description : Classified Intersection Count
: Hourly Summary



Approach		Huddersfield Rd																								
Direction		Direction 1 (Through)										Direction 5 (Right Turn)										Direction 6/2 (B-Turn)				
Time Period		HC	Car	LT	OVHT	OVLT	Heavy	PU	Total	HC	Car	LT	OVHT	OVLT	Heavy	PU	Total	HC	Car	LT	OVHT	OVLT	Heavy	PU	Total	
07:00 to 08:00		0	402	86	22	19	0	527	553	0	16	2	0	0	0	0	17	17	0	0	1	0	0	0	0	1
08:00 to 09:00		1	416	80	21	18	0	535	605	0	13	1	0	0	0	0	14	14	0	0	1	0	0	0	0	2
09:00 to 10:00		2	402	71	19	19	0	514	553	0	24	2	0	0	0	0	26	26	0	0	1	0	0	0	0	2
10:00 to 11:00		3	387	61	14	14	0	521	488	0	25	2	0	0	0	0	27	29	0	0	1	0	0	0	0	2
11:00 to 12:00		3	310	61	11	5	0	420	399	0	17	2	0	0	0	0	19	19	0	0	0	0	0	0	0	0
12:00 to 13:00		3	260	54	12	9	1	382	345	0	17	2	0	0	0	0	19	19	0	0	0	0	0	0	0	0
13:00 to 14:00		4	216	53	13	7	1	286	291	0	1	1	0	0	0	0	4	6	0	0	0	0	0	0	0	0
14:00 to 15:00		3	212	47	19	4	0	280	287	0	3	1	0	0	0	0	4	6	0	0	0	0	0	0	0	0
15:00 to 16:00		3	207	46	14	7	0	269	262	0	2	1	0	0	0	0	3	5	0	0	0	0	0	0	0	0
BHEFT		6	909	149	32	35	0	1246	1246	0	24	1	0	0	0	0	25	26	0	0	1	0	0	0	0	2
16:00 to 17:00		1	246	56	11	7	0	305	301	0	2	1	1	0	0	0	5	6	0	0	0	0	0	0	0	0
17:00 to 17:30		0	360	56	9	4	0	399	397	0	1	0	1	0	0	0	2	3	0	0	0	0	0	0	0	0
16:00 to 17:00		0	333	55	6	4	0	375	367	0	1	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0
16:00 to 17:00		1	140	33	4	0	0	176	166	0	1	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0
17:00 to 18:00		1	320	40	4	4	0	369	369	0	2	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0
17:00 to 18:00		1	311	34	3	7	0	355	354	0	3	0	0	0	0	0	3	3	0	0	0	0	0	0	0	0
17:00 to 18:00		1	240	29	7	4	0	279	269	0	1	0	0	0	0	0	4	4	0	0	0	0	0	0	0	0
17:00 to 18:00		0	207	46	7	0	0	253	248	0	1	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0
18:00 to 19:00		1	170	18	6	8	0	201	201	0	0	0	0	0	0	0	3	3	0	0	0	0	0	0	0	0
BHEFT		3	795	94	21	21	0	970	954	0	7	1	1	0	0	0	10	9	0	0	0	0	0	0	0	0

Appendix D



Appendix E

Junctions 10									
PICADY 10 - Priority Intersection Module									
Version: 10.0.3.1598									
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+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: Site Access Junction.j10

Path: N:\Vectos Job Data\2023\VN232637 Huddersfield Road, Darton\Picady

Report generation date: 25/07/2023 16:15:34

- »2023 Baseline, AM
- »2023 Baseline, PM
- »2028 Baseline, AM
- »2028 Baseline, PM
- »2028 Baseline + Development, AM
- »2028 Baseline + Development, PM

Summary of junction performance

	AM					PM				
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Set ID	Queue (PCU)	Delay (s)	RFC	LOS
	2023 Baseline									
Stream B-C	D1	0.0	7.40	0.01	A	D2	0.1	6.82	0.07	A
Stream B-A		0.0	21.45	0.02	C		0.1	11.63	0.09	B
Stream C-AB		0.1	7.61	0.06	A		0.0	7.41	0.00	A
	2028 Baseline									
Stream B-C	D3	0.0	7.50	0.01	A	D4	0.1	6.98	0.07	A
Stream B-A		0.0	22.26	0.02	C		0.1	12.10	0.10	B
Stream C-AB		0.1	7.73	0.06	A		0.0	7.52	0.00	A
	2028 Baseline + Development									
Stream B-C	D5	0.0	7.55	0.02	A	D6	0.1	7.19	0.09	A
Stream B-A		0.1	22.68	0.03	C		0.2	12.51	0.13	B
Stream C-AB		0.1	7.91	0.08	A		0.0	7.53	0.00	A

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

File summary

File Description

Title	Huddersfield Rd / Premdor Access
Location	
Site number	
Date	25/07/2023
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	VECTOSNORTH\manchester.modelling
Description	

Units

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

Analysis Options

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

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2023 Baseline	AM	ONE HOUR	07:15	08:45	15
D2	2023 Baseline	PM	ONE HOUR	16:30	18:00	15
D3	2028 Baseline	AM	ONE HOUR	07:15	08:45	15
D4	2028 Baseline	PM	ONE HOUR	16:30	18:00	15
D5	2028 Baseline + Development	AM	ONE HOUR	07:15	08:45	15
D6	2028 Baseline + Development	PM	ONE HOUR	16:30	18:00	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

2023 Baseline, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Arm A Direction	Arm B Direction	Arm C Direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	Two-way	Two-way		0.31	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	0.31	A

Arms

Arms

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

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right-turn storage	Width for right-turn storage (m)	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C	9.00		✓	2.50	60.0	✓	11.00

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	9.00	6.30	4.20	3.75	✓	2.00	70	55

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	592	0.094	0.237	0.149	0.338
B-C	739	0.098	0.249	-	-
C-B	629	0.212	0.212	-	-

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)
D1	2023 Baseline	AM	ONE HOUR	07:15	08:45	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	545	100.000
B		✓	12	100.000
C		✓	650	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A	B	C
	A	0	27	518
	B	6	0	6
	C	624	26	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
		A	B	C
	A	0	4	6
	B	100	0	20
	C	8	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-C	0.01	7.40	0.0	A
B-A	0.02	21.45	0.0	C
C-AB	0.06	7.61	0.1	A
C-A				
A-B				
A-C				

Main Results for each time segment

07:15 - 07:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	5	638	0.007	4	0.0	6.818	A
B-A	5	421	0.011	4	0.0	17.279	C
C-AB	20	542	0.036	19	0.0	6.891	A
C-A	470			470			
A-B	20			20			
A-C	390			390			

07:30 - 07:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	5	618	0.009	5	0.0	7.055	A
B-A	5	388	0.014	5	0.0	18.809	C
C-AB	23	525	0.045	23	0.0	7.178	A
C-A	561			561			
A-B	24			24			
A-C	466			466			

07:45 - 08:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	7	590	0.011	7	0.0	7.400	A
B-A	7	342	0.019	7	0.0	21.447	C
C-AB	29	502	0.057	29	0.1	7.611	A
C-A	687			687			
A-B	30			30			
A-C	570			570			

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	7	590	0.011	7	0.0	7.404	A
B-A	7	342	0.019	7	0.0	21.441	C
C-AB	29	502	0.057	29	0.1	7.611	A
C-A	687			687			
A-B	30			30			
A-C	570			570			

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	5	617	0.009	5	0.0	7.062	A
B-A	5	389	0.014	5	0.0	18.798	C
C-AB	23	525	0.045	23	0.0	7.179	A
C-A	561			561			
A-B	24			24			
A-C	466			466			

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	5	637	0.007	5	0.0	6.831	A
B-A	5	422	0.011	5	0.0	17.262	C
C-AB	20	542	0.036	20	0.0	6.895	A
C-A	470			470			
A-B	20			20			
A-C	390			390			

2023 Baseline, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Arm A Direction	Arm B Direction	Arm C Direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	Two-way	Two-way		0.56	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	0.56	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)
D2	2023 Baseline	PM	ONE HOUR	16:30	18:00	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	608	100.000
B		✓	65	100.000
C		✓	397	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
	A	B	C	
From	A	0	7	601
	B	31	0	34
	C	396	1	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
	A	B	C	
From	A	0	40	4
	B	7	0	0
	C	3	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-C	0.07	6.82	0.1	A
B-A	0.09	11.63	0.1	B
C-AB	0.00	7.41	0.0	A
C-A				
A-B				
A-C				

Main Results for each time segment

16:30 - 16:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	26	624	0.041	25	0.0	6.015	A
B-A	23	435	0.054	23	0.1	9.350	A
C-AB	0.75	532	0.001	0.75	0.0	6.780	A
C-A	298			298			
A-B	5			5			
A-C	452			452			

16:45 - 17:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	31	599	0.051	31	0.1	6.329	A
B-A	28	406	0.069	28	0.1	10.187	B
C-AB	0.90	513	0.002	0.90	0.0	7.031	A
C-A	356			356			
A-B	6			6			
A-C	540			540			

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	37	565	0.066	37	0.1	6.817	A
B-A	34	365	0.093	34	0.1	11.623	B
C-AB	1	487	0.002	1	0.0	7.410	A
C-A	436			436			
A-B	8			8			
A-C	662			662			

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	37	565	0.066	37	0.1	6.819	A
B-A	34	365	0.093	34	0.1	11.628	B
C-AB	1	487	0.002	1	0.0	7.410	A
C-A	436			436			
A-B	8			8			
A-C	662			662			

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	31	599	0.051	31	0.1	6.336	A
B-A	28	406	0.069	28	0.1	10.196	B
C-AB	0.90	513	0.002	0.90	0.0	7.033	A
C-A	356			356			
A-B	6			6			
A-C	540			540			

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	26	623	0.041	26	0.0	6.025	A
B-A	23	435	0.054	23	0.1	9.358	A
C-AB	0.75	532	0.001	0.75	0.0	6.782	A
C-A	298			298			
A-B	5			5			
A-C	452			452			

2028 Baseline, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Arm A Direction	Arm B Direction	Arm C Direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	Two-way	Two-way		0.31	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	0.31	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D3	2028 Baseline	AM	ONE HOUR	07:15	08:45	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	572	100.000
B		✓	12	100.000
C		✓	682	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A	B	C
From	A	0	28	544
	B	6	0	6
	C	655	27	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
		A	B	C
From	A	0	4	6
	B	100	0	20
	C	8	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-C	0.01	7.50	0.0	A
B-A	0.02	22.26	0.0	C
C-AB	0.06	7.73	0.1	A
C-A				
A-B				
A-C				

Main Results for each time segment

07:15 - 07:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	5	633	0.007	4	0.0	6.872	A
B-A	5	413	0.011	4	0.0	17.639	C
C-AB	20	537	0.038	20	0.0	6.958	A
C-A	493			493			
A-B	21			21			
A-C	410			410			

07:30 - 07:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	5	612	0.009	5	0.0	7.124	A
B-A	5	378	0.014	5	0.0	19.317	C
C-AB	24	520	0.047	24	0.0	7.265	A
C-A	589			589			
A-B	25			25			
A-C	489			489			

07:45 - 08:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	7	583	0.011	7	0.0	7.494	A
B-A	7	330	0.020	7	0.0	22.264	C
C-AB	30	495	0.060	30	0.1	7.731	A
C-A	721			721			
A-B	31			31			
A-C	599			599			

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	7	583	0.011	7	0.0	7.498	A
B-A	7	330	0.020	7	0.0	22.259	C
C-AB	30	495	0.060	30	0.1	7.733	A
C-A	721			721			
A-B	31			31			
A-C	599			599			

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	5	611	0.009	5	0.0	7.132	A
B-A	5	378	0.014	5	0.0	19.304	C
C-AB	24	520	0.047	24	0.0	7.267	A
C-A	589			589			
A-B	25			25			
A-C	489			489			

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	5	632	0.007	5	0.0	6.885	A
B-A	5	413	0.011	5	0.0	17.620	C
C-AB	20	537	0.038	20	0.0	6.962	A
C-A	493			493			
A-B	21			21			
A-C	410			410			

2028 Baseline, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Arm A Direction	Arm B Direction	Arm C Direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	Two-way	Two-way		0.59	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	0.59	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)
D4	2028 Baseline	PM	ONE HOUR	16:30	18:00	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	638	100.000
B		✓	69	100.000
C		✓	417	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
	A	B	C	
From	A	0	7	631
	B	33	0	36
	C	416	1	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
	A	B	C	
From	A	0	40	4
	B	7	0	0
	C	3	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-C	0.07	6.98	0.1	A
B-A	0.10	12.10	0.1	B
C-AB	0.00	7.52	0.0	A
C-A				
A-B				
A-C				

Main Results for each time segment

16:30 - 16:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	27	617	0.044	27	0.0	6.099	A
B-A	25	428	0.058	25	0.1	9.551	A
C-AB	0.75	527	0.001	0.75	0.0	6.841	A
C-A	313			313			
A-B	5			5			
A-C	475			475			

16:45 - 17:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	32	591	0.055	32	0.1	6.439	A
B-A	30	397	0.075	30	0.1	10.480	B
C-AB	0.90	507	0.002	0.90	0.0	7.110	A
C-A	374			374			
A-B	6			6			
A-C	567			567			

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	40	556	0.071	40	0.1	6.975	A
B-A	36	355	0.102	36	0.1	12.095	B
C-AB	1	480	0.002	1	0.0	7.518	A
C-A	458			458			
A-B	8			8			
A-C	695			695			

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	40	556	0.071	40	0.1	6.977	A
B-A	36	355	0.102	36	0.1	12.101	B
C-AB	1	480	0.002	1	0.0	7.518	A
C-A	458			458			
A-B	8			8			
A-C	695			695			

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	32	591	0.055	32	0.1	6.447	A
B-A	30	397	0.075	30	0.1	10.489	B
C-AB	0.90	507	0.002	0.90	0.0	7.110	A
C-A	374			374			
A-B	6			6			
A-C	567			567			

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	27	617	0.044	27	0.0	6.107	A
B-A	25	428	0.058	25	0.1	9.561	A
C-AB	0.75	527	0.001	0.75	0.0	6.844	A
C-A	313			313			
A-B	5			5			
A-C	475			475			

2028 Baseline + Development, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Arm A Direction	Arm B Direction	Arm C Direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	Two-way	Two-way		0.40	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	0.40	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)
D5	2028 Baseline + Development	AM	ONE HOUR	07:15	08:45	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	580	100.000
B		✓	16	100.000
C		✓	690	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
	A	B	C	
From	A	0	36	544
	B	8	0	8
	C	655	35	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
	A	B	C	
From	A	0	4	6
	B	100	0	20
	C	8	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-C	0.02	7.55	0.0	A
B-A	0.03	22.68	0.1	C
C-AB	0.08	7.91	0.1	A
C-A				
A-B				
A-C				

Main Results for each time segment

07:15 - 07:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	6	632	0.010	6	0.0	6.902	A
B-A	6	410	0.015	6	0.0	17.818	C
C-AB	26	536	0.049	26	0.1	7.054	A
C-A	493			493			
A-B	27			27			
A-C	410			410			

07:30 - 07:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	7	610	0.012	7	0.0	7.163	A
B-A	7	375	0.019	7	0.0	19.573	C
C-AB	31	518	0.061	31	0.1	7.395	A
C-A	589			589			
A-B	32			32			
A-C	489			489			

07:45 - 08:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	9	581	0.015	9	0.0	7.548	A
B-A	9	326	0.027	9	0.1	22.685	C
C-AB	39	493	0.078	38	0.1	7.913	A
C-A	721			721			
A-B	40			40			
A-C	599			599			

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	9	581	0.015	9	0.0	7.552	A
B-A	9	326	0.027	9	0.1	22.682	C
C-AB	39	493	0.078	39	0.1	7.914	A
C-A	721			721			
A-B	40			40			
A-C	599			599			

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	7	609	0.012	7	0.0	7.175	A
B-A	7	375	0.019	7	0.0	19.566	C
C-AB	31	518	0.061	32	0.1	7.398	A
C-A	589			589			
A-B	32			32			
A-C	489			489			

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	6	631	0.010	6	0.0	6.916	A
B-A	6	411	0.015	6	0.0	17.799	C
C-AB	26	536	0.049	26	0.1	7.062	A
C-A	493			493			
A-B	27			27			
A-C	410			410			

2028 Baseline + Development, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Arm A Direction	Arm B Direction	Arm C Direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	Two-way	Two-way		0.75	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	0.75	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)
D6	2028 Baseline + Development	PM	ONE HOUR	16:30	18:00	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	640	100.000
B		✓	88	100.000
C		✓	417	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
	A	B	C	
From	A	0	9	631
	B	42	0	46
	C	416	1	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
	A	B	C	
From	A	0	40	4
	B	7	0	0
	C	3	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-C	0.09	7.19	0.1	A
B-A	0.13	12.51	0.2	B
C-AB	0.00	7.53	0.0	A
C-A				
A-B				
A-C				

Main Results for each time segment

16:30 - 16:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	35	615	0.056	34	0.1	6.200	A
B-A	32	427	0.074	31	0.1	9.719	A
C-AB	0.75	527	0.001	0.75	0.0	6.845	A
C-A	313			313			
A-B	7			7			
A-C	475			475			

16:45 - 17:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	41	588	0.070	41	0.1	6.581	A
B-A	38	397	0.095	38	0.1	10.724	B
C-AB	0.90	507	0.002	0.90	0.0	7.115	A
C-A	374			374			
A-B	8			8			
A-C	567			567			

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	51	552	0.092	51	0.1	7.182	A
B-A	46	354	0.131	46	0.2	12.494	B
C-AB	1	479	0.002	1	0.0	7.526	A
C-A	458			458			
A-B	10			10			
A-C	695			695			

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	51	551	0.092	51	0.1	7.188	A
B-A	46	354	0.131	46	0.2	12.506	B
C-AB	1	479	0.002	1	0.0	7.526	A
C-A	458			458			
A-B	10			10			
A-C	695			695			

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	41	588	0.070	41	0.1	6.588	A
B-A	38	397	0.095	38	0.1	10.736	B
C-AB	0.90	507	0.002	0.90	0.0	7.115	A
C-A	374			374			
A-B	8			8			
A-C	567			567			

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	35	614	0.056	35	0.1	6.212	A
B-A	32	428	0.074	32	0.1	9.733	A
C-AB	0.75	527	0.001	0.75	0.0	6.848	A
C-A	313			313			
A-B	7			7			
A-C	475			475			

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