

Preliminary Transport Assessment

Title	Proposed Strategic Logistics Development
Client	Wilson Bowden Developments Ltd
Location	Land South of Chesterfield Road, Markham Vale
Project number	25-0382
BIM reference	CRMV-BSP-XX-XX-T-H-0002_P02_Preliminary_Transport_Assessment
Date	26 February 2026

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Authorisation Sheet & Revisions Record

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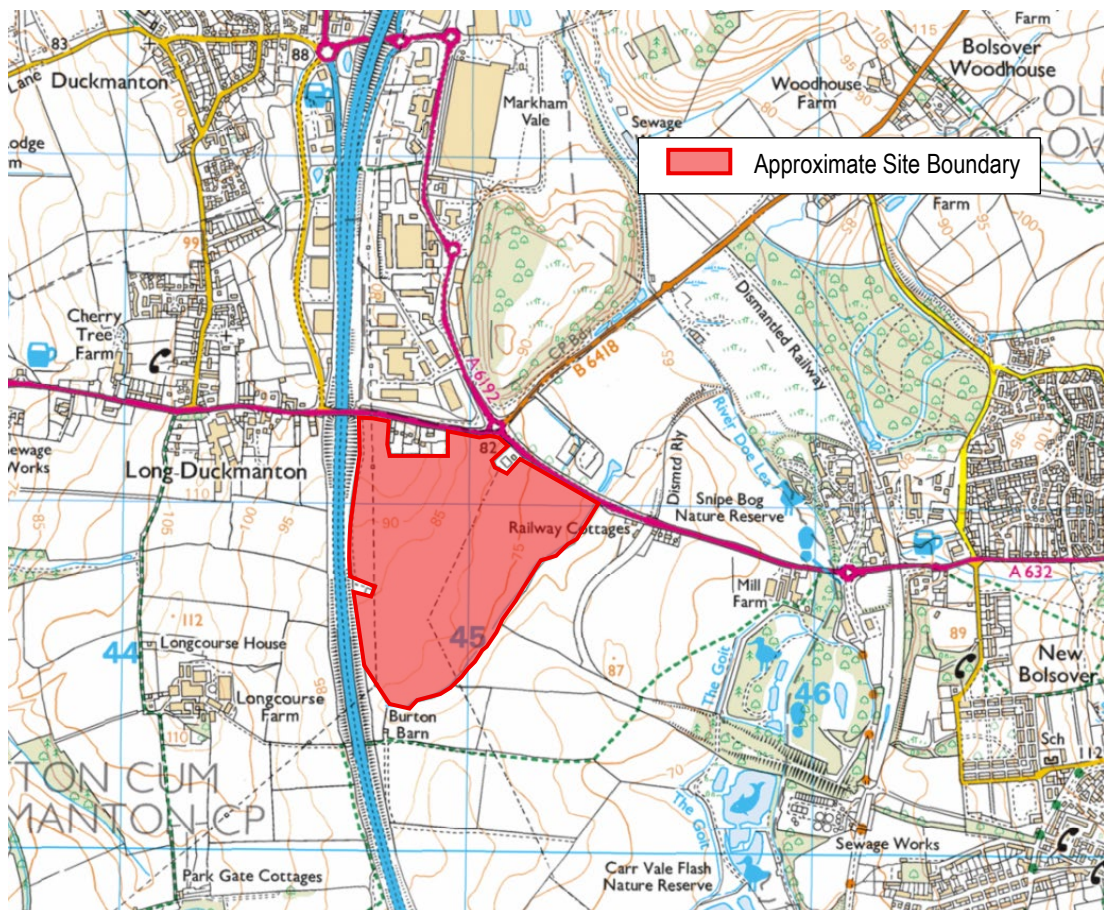
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1.0 Introduction

- 1.1 This Preliminary Transport Assessment has been prepared by BSP Consulting with regards to promoting an approximately 40ha site on land south of Chesterfield Road, Markham Vale, as a major strategic logistics site in the North East Derbyshire Local Plan, on behalf of Wilson Bowden Developments Ltd. A Development Parameters Plan is provided in **Appendix A**.
- 1.2 The site is located to the south of Chesterfield Road (A632) just south of Markham Vale, and approximately 7km east of Chesterfield and 3km west of Bolsover. The approximate indicative site boundary is shown in **Figure 1** below.

Figure 1: Site Location Plan



- 1.3 The site is located within North East Derbyshire but the existing Markham Vale industrial area is within the borough of Chesterfield, and the boundary with the district of Bolsover lies just to the east.
- 1.4 This report has been prepared in accordance with the National Planning Policy Framework (NPPF) (MHCLG 2024) and Planning Practice Guidance: *Travel Plans, Transport Assessments and Statements* (MHCLG 2014). North East Derbyshire District Council (NEDDC) the local planning authority and

Derbyshire County Council (DCC) is the local highway authority (LHA). The site lies adjacent to the M1 and therefore National Highways will also need to be consulted on the development proposals.

- 1.5 For a development of this scale, a Transport Assessment (TA) and Framework Travel Plan (TP) are considered appropriate for submission as part of the planning application.
- 1.6 In the meantime, this preliminary Transport Assessment has been prepared as part of promoting the site for allocation in the Local Plan, and to seek scoping advice from DCC and NH to agree the methodologies and content of the final Transport Assessment and Travel Plan reports. The reports prepared for the planning application will seek to address any specific highways and transportation concerns raised by the LHA and NH at this stage.
- 1.7 The structure of this report is presented as follows:
 - Section 2.0 establishes the policy context.
 - Section 3.0 establishes the baseline situation, with regards to traffic flows, committed developments and providing analysis of recent accident records for the local highway network.
 - Sections 4.0 sets out the current level of connectivity by mode and the existing sustainable travel facilities available to access the site, as part of identifying opportunities to promote active travel and public transport us.
 - Section 5.0 outlines the development proposals, including the proposed site access arrangements for all modes, Framework Travel Plan proposals, parking provision and servicing arrangements, with reference to the appropriate standards and guidance.
 - Section 6.0 quantifies the amount of traffic likely to be generated by the development proposals using the TRICS database, sets out the distribution model and assigns the trips onto the local highway network.
 - Section 7.0 considers the off-site impacts likely to result from the development proposals and includes capacity assessments for the site access junction.
 - Section 8.0 summarises the key findings of the report, highlighting the transport implications of the proposals, conclusions and recommendations.

2.0 Policy Context

2.1 National Planning Policy Framework (NPPF)

2.1.1 By the time a decision is made on these development proposals, in terms of allocation in the Local Plan or a planning application, the current NPPF (Dec 2024) may be superseded by the draft NPPF (2025) which is currently being consulted upon until 10th March 2026. Therefore, both versions have been considered below.

2.2 Current National Planning Policy Framework (NPPF) (Dec 2024)

2.2.1 Paragraph 109 of the current NPPF states how:

Transport issues should be considered from the earliest stages of plan-making and development proposals, using a vision-led approach to identify transport solutions that deliver well-designed, sustainable and popular places. This should involve:

- a) making transport considerations an important part of early engagement with local communities;
- b) ensuring patterns of movement, streets, parking and other transport considerations are integral to the design of schemes, and contribute to making high quality places;
- c) understanding and addressing the potential impacts of development on transport networks;
- d) realising opportunities from existing or proposed transport infrastructure, and changing transport technology and usage – for example in relation to the scale, location or density of development that can be accommodated;
- e) identifying and pursuing opportunities to promote walking, cycling and public transport use; and
- f) identifying, assessing and taking into account the environmental impacts of traffic and transport infrastructure – including appropriate opportunities for avoiding and mitigating any adverse effects, and for net environmental gains.

2.2.2 Paragraph 110 discussed how “significant development should be focused on locations which are or can be made sustainable, through limiting the need to travel and offering a genuine choice of transport modes.” Reasoning that this can reduce congestion and emissions. However, it is also acknowledged that sustainable transport opportunities do vary between urban and rural areas.

2.2.3 Paragraph 111 sets out guidance for planning policies, and the suggestions include the following attributes:

- a) support an appropriate mix of uses across an area, and within larger scale sites, to minimise the number and length of journeys needed for employment, shopping, leisure, education and other activities
- b) be prepared with the active involvement of local highways authorities, other transport infrastructure providers and operators and neighbouring councils, so that strategies and investments for supporting sustainable transport and development patterns are aligned
- c) identify and protect, where there is robust evidence, sites and routes which could be critical in developing infrastructure to widen transport choice and realise opportunities for large scale development
- d) provide for attractive and well-designed walking and cycling networks with supporting facilities such as secure cycle parking (drawing on Local Cycling and Walking Infrastructure Plans)

2.2.4 In accordance with the NPPF, when assessing sites that may be allocated for development in plans, it should be ensured that:

- a) sustainable transport modes are prioritised taking account of the vision for the site, the type of development and its location;
- b) safe and suitable access to the site can be achieved for all users;
- c) the design of streets, parking areas, other transport elements and the content of associated standards reflects current national guidance, including the National Design Guide and the National Model Design Code; and
- d) any significant impacts from the development on the transport network (in terms of capacity and congestion), or on highway safety, can be cost effectively mitigated to an acceptable degree through a vision-led approach.

2.2.5 Paragraph 116 then goes on to state 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, following mitigation, would be severe, taking into account all reasonable future scenarios.

2.2.6 It is anticipated that a Travel Plan and vision-led Transport Assessment will be required to accompany a planning application, in accordance with paragraph 118 of the NPPF. In the meantime, this preliminary Transport Assessment has been prepared to demonstrate the above points as part of promoting the site for allocation in the Local Plan

2.2.7 The anticipated overall transport vision for the development of the site would be to:

- a. Provide a development with safe and suitable access, allowing for the efficient delivery of goods, and access by service and emergency vehicles
- b. Promote sustainable travel options to both access and travel within the site
 - i. provide improved infrastructure to access the site by active travel or public transport
 - ii. provide improved links to local public rights of way and cycle routes
 - iii. provide high quality infrastructure for active travel within the site, including safe routes, parking and other facilities
 - iv. ensure consideration of those of all abilities within any infrastructure design
 - v. enable the charging of electric vehicles in safe, accessible and convenient locations
 - vi. utilise a Framework Travel Plan to promote and incentivise sustainable travel options
- c. Manage the anticipated highway impacts of the development through the Framework Travel Plan and, if required, cost-effective mitigation measures for improved network capacity and/or highway safety schemes.

2.3 **Draft National Planning Policy Framework (NPPF) (Dec 2025)**

2.3.1 Policy TR1: Vision-led approach to planning for transport, states that:

Sustainable transport should be considered from the earliest stages of plan-making, so that it is reflected in the vision for the plan area and its specific proposals, and forms an integral part of a plan's strategy for creating well-designed, sustainable, inclusive and popular places.

2.3.2 Key actions to achieve policy TR1 part 1, relevant to these proposals, are:

- a. Making sustainable transport considerations part of early engagement with local communities, highway and transport authorities, transport infrastructure providers, operators, land promoters and neighbouring councils; so that proposals reflect local views, evidence relating to accessibility, capacity and transport service provision, and take account of opportunities for prioritising and maximising sustainable movement across the area. Plans should align land use policies and allocations with wider strategies (such as Local Transport Plans, Local Cycling and Walking Infrastructure Plans and Rights of Way Improvement Plans) and investments in transport to ensure that the potential impacts of development on transport networks are understood and addressed

b. Locating proposed development where it can support sustainable patterns of movement and make effective use of existing or proposed transport infrastructure, reflecting the principles in policy TR3. The Connectivity Tool (Connectivity Tool - GOV.UK) should be used to inform the assessment and selection of sites for development alongside other relevant evidence

c. Supporting an appropriate mix of uses across the plan area, and within larger scale sites, to minimise the number and length of journeys needed for employment, shopping, leisure, education and other activities

d. Identifying and protecting sites and routes which will widen transport choice and are essential to facilitate sustainable development, including networks for walking, wheeling and cycling, and public transport infrastructure

2.3.3 Policy TR3 is focused on locating development in “in locations that are, or can be made sustainable, by limiting the need to travel and offering a genuine choice of transport modes for residents and users” and utilise existing or proposed transport infrastructure “especially where this can support more walking, wheeling, cycling” particularly in rural area.

2.3.4 It also covers “taking opportunities to avoid or mitigate any adverse environmental effects, and to secure net environmental gains such as reductions in air pollution”.

2.3.5 Part 2 of Policy TR3 suggests use of the Connectivity Tool alongside other relevant evidence in assessing the connectivity of particular locations proposed for development. Therefore, this is included in the section below on sustainable travel opportunities.

2.4 **Active Travel England**

2.4.1 Active Travel England (ATE) have become a statutory consultee on all planning applications for developments equal to or exceeding 150 housing units, 7,500sqm of floorspace or an area of 5 hectares. Therefore, ATE is anticipated to be consulted on any planning applications as the scale of the development will exceed this. ATEs role as consultee is to help planning authorities to secure good active travel design as part of developments, including walking, wheeling and cycling connectivity. This focus on active travel will also contribute to improving public health and environmental impacts of development.

2.4.2 The ATC Standing Advice Note: Active Travel and Sustainable Development (ATE 2024) has been considered in the production of this report and will need to be considered further as part of a Transport Assessment and Travel Plan work to support a planning application.

2.5 Local Plan

- 2.5.1 North East Derbyshire District Council are preparing a new Local Plan to replace the current plan that was adopted in November 2021. The current Local Plan covers the area of North East Derbyshire outside of the Peak District National Park and covers the period from 2014 to 2034, and will continue to be the development plan for the area and will be used in the determination of planning applications until a new Local Plan is adopted by the Council.
- 2.5.2 The site is located to the south of an existing well-established area of employment land, and it is noted that there are employment allocations in the current Local Plan just to the northeast of this site: LD/01: Markham Vale, NE of Chesterfield Road (part former Coalite works) and Coalite Priority Regeneration Area.
- 2.5.3 The Local Plan, together with the Growth Strategy and Action Plan (2014) and the Housing and economic Development Strategy (2015-2020) identify major employment sites and locations for employment along the M1 Strategic Growth Corridor (and the A61 Growth Corridor) including the large cross boundary Markham Vale Economic Growth Zone and the Former Coalite site, both of which are already partially developed with construction work continuing.
- 2.5.4 There are proposed cycleway/greenway connections on A632 to the north and east. It is expected that pedestrian and cycle crossing provisions will be needed on the A632. There is also a proposed cycleway/greenway route just to the south of the site that could be connected to in the southeast corner.
- 2.5.5 A North Derbyshire SATURN model has been utilised by North East Derbyshire District Council, Derbyshire County Council and other neighbouring authorities. The Local Plan provides a summary of the work and identifies the main infrastructure issue is on the A61 between Chesterfield and Clay Cross. This led to The A61 Growth Corridor Strategy being developed. There is also mention of a A61/A617 Avenue link road associated with a strategic allocation at Wingerworth, and the need for contributions for mitigation around Dronfield. None of these locations are particularly close to this site. It also identifies that proposed housing will have some impact on Junction 30 of the M1 but would not alone require mitigation there. There is no mention of any capacity issues at M1 Junction 29a.
- 2.5.6 A Transport Assessment and Travel Plan will need to accompany a planning application to fully demonstrate how the proposed development conforms with Policy ID3 "Sustainable Travel" within the Local Plan. This states:
1. The Council will seek to maximise walking, cycling, and the use of public transport through the location and design of new development, with the aim of reducing congestion, and improving air quality and health.

2. Proposals for major development will be required to promote sustainable travel through necessary interventions as identified through appropriate transport statements or assessments including the following:

- a. Site specific and area wide travel demand measures;
- b. Improvements to existing pedestrian, cycle and public transport services and facilities, and provision of new walking and cycling routes. New routes should provide direct links to new or existing footpaths, cycling networks, and local facilities; and
- c. Optimisation of the existing highway network to prioritise walking, cycling, public transport and other forms of sustainable travel.

3. Highway capacity enhancements should deal with residual car demand where the initiatives required in criteria (a) to (c) above are insufficient to avoid significant additional car journeys.

4. In all cases, planning permission will only be refused on transport grounds if there would be an unacceptable impact on highway safety, or where the residual cumulative impacts on the road network would be severe.

2.6 Local Transport Plan

2.6.1 Derbyshire's LTP covers the period 2011-2026, and work has started on an updated LTP. The overall LTP vision is to secure the provision of a safe and sustainable transport system, where people feel safe using whatever their mode of travel, and one that is designed so that where collisions do happen the risk of casualties resulting is minimised.

2.6.2 The Transport Assessment and Travel Plan provided alongside a planning application will need to reference the LTP and other supporting documents such as Planning, Streets and Places, Transport Network Management Plan, Rights of Way Improvement Plan and the Local Cycling and Walking Infrastructure Plan.

3.0 Baseline Conditions

3.1 Local Highway Network

- 3.1.1 Chesterfield Road is a classified A-road (A632) and distributor road between the A61 in Chesterfield and Bolsover, continuing to the A60 to the east. It has a bridge over the M1 just to the west of the proposed development site.
- 3.1.2 Markham Lane is a classified A-road (A6192) and a local distributor road serving the industrial area between the M1 junction 29a and the A632 Chesterfield Road. The road passes under the M1 and has an off-slips for the M1 from a dumbbell roundabout arrangement. Markham Lane also extends from the west side of the M1 north up to meet the A619. This connects the A61 at Chesterfield and the A60/A57 at Worksop.
- 3.1.3 The existing roundabout of the A632 Chesterfield Road / A6192 Markham Lane / Buttermilk Lane was upgraded to enhance capacity in around 2021-22, including increasing from one to two lanes around the circulatory carriageway and improving footways provision.

3.2 Traffic Survey

- 3.2.1 A turning count was undertaken at the A632 Chesterfield Road / A6192 Markham Lane / Buttermilk Lane junction on Tuesday 27th January 2026 for a 12-hour period from 07:00 to 19:00. The traffic survey data is provided in **Appendix B**. The peak hours for movement through the junction were confirmed to be the typical weekday AM and PM peak hours, of 08:00-09:00 and 17:00-18:00, as summarised in **Table 3.1**. The 2026 base traffic flows are shown on Diagram 1 in **Appendix C**.

Table 3.1: A632 Chesterfield Road / A6192 Markham Lane / Buttermilk Lane - Hourly Traffic Flows

2026 Hour Period	Total Vehicular Traffic Movements
07:00-08:00	1711
08:00-09:00	1745
09:00-10:00	1239
10:00-11:00	970
11:00-12:00	1088
12:00-13:00	1262
13:00-14:00	1226
14:00-15:00	1420
15:00-16:00	1527
16:00-17:00	1893
17:00-18:00	1926
18:00-19:00	1061

3.3 TEMPro

3.3.1 A Transport Assessment to support a planning application is expected to need assess the anticipated year(s) of opening, with a phased approach if appropriate. However, this preliminary assessment has used the end of the current Local Plan period (2034) as the assessment year. This is expected to be a reasonable assessment year if a planning application was submitted in the near future. The end of the new Local Plan period may also need to be considered as part of future work, potentially along with sensitivity testing to include for allocated development assumed to be constructed within that period.

3.3.2 Locally adjusted NTM TEMPro growth factors for 2026 to 2034 have been obtained for all road types within the two MSOA that share a boundary through the junction, using the Core Scenario. These are “Chesterfield 006” and “North East Derbyshire 007”. As shown in **Table 3.2** the growth factor for the North East Derbyshire MOSA was higher, and so this has been used to ensure a robust preliminary assessment. These have been applied to the traffic flows in Diagram 1 to provide a 2034 base traffic scenario which is shown on Diagram 2 in **Appendix C**, assuming the addition of the proposed fifth arm to the roundabout to provide the site access.

Table 3.2: TEMPro Growth Factors

	Weekday AM Period	Weekday PM Period
Chesterfield 006	1.069272	1.066533
North East Derbyshire 007	1.078264	1.077489

3.3.3 Should off-site junction assessments be required, alternative TEMPro growth factors appropriate to the type of road and specific MOSA can be used.

3.4 Committed Developments

3.4.1 Further discussions with the local planning authorities will help to establish the status of potentially committed developments in the local area that are to be considered in any assessment work. The initial assumptions for the capacity assessment work in this report are set out below.

3.4.2 It is understood that the majority of the Markham Vale Employment Growth Zone (15/00497/OL) has been constructed and occupied, except for the following:

- Plot 9A on the corner of Chesterfield Road and Buttermilk Lane (25/00063/OL, 25/00498/RM) still which is due to have recently started on site.
- Some Plots furthest north off Bolsover Road, which appear still to be completed but are unlikely to have any significant impact on the site access junction.

- 3.4.3 Two large warehouse units off Buttermilk Lane which are understood to form part of the former Coalite site (App Ref: 19/00925/OL, 22/010008/OL and 24/01030/AMEND) have been recently constructed. However, as it is not clear if either of them would have been occupied at the time of the traffic surveys in January 2026 both have been assumed to be committed developments. These are warehousing units with a total GIA of 46,760sqm (Dec 2024 Construction Drawing for 24/01030/AMEND). At least four of a further six large industrial/warehouse units also recently constructed on the former Coalite site on Buttermilk Lane also appear to be occupied. Overall, the occupied units appear to equate to around 40% of the total GIA. Therefore, we have included 60% of the committed development traffic applied in the (24/00786/MFL) planning application travelling two and from developments on Buttermilk Lane (see below). Flow Diagrams in **Appendix C** show the committed development flows for the Employment Zone (Diagram 3) and Warehousing (Diagram 4) on Buttermilk Lane.
- 3.4.4 A planning application for up to 202 dwellings are proposed on Chesterfield Road (24/00786/MFL) is still to be determined. However, this is also part of the former Coalite site, allocated in the Local Plan, and so has been included in the testing of capacity at the proposed site access junction. Traffic Data has been extracted from the Transport Assessment submitted with the application. Diagram 5 in shows the committed development flows for the residential development on Chesterfield Road.
- 3.4.5 The TA for the above scheme, dated March 2025 stated that an application for 218 dwellings on land off Woodhouse Lane (Bolsover DC, App Ref:16/00463/OUT) was around 50% built out. The Gleasons website suggests these houses are now 90% sold. Therefore, we can assume a high proportion of the trips would have been accounted for in the traffic survey. Given that TEMPro growth factors have also been applied, no additional committed development traffic has been added for this site.
- 3.4.6 Also in Bolsover, there is a recently approved application (Nov 2025) for Bolsover Business Park (23/00180/OL) that may also generate committed development traffic, although distribution assumptions would need to be established as their study area was very limited.
- 3.4.7 An outline application for 950 dwellings on land between Welbeck Road and Oxcroft Lane, Bolsover (Bolsover DC, App Ref: 14/00080/OUTEA) is still coming forward with an RM for 547 dwellings currently under determination (25/00069/REM). This equates to just under 60% of the total outline development. Therefore 60% of the total outline development traffic from the outline application has been added as committed development traffic. Diagram 6 shows the committed development flows for the residential development on land between Welbeck Road and Oxcroft Lane.
- 3.4.8 Diagram 7 shows the total of the committed development traffic flows set out above. In addition to the TEMPro background growth, the committed development traffic results in around an additional 1,000 vehicle movement through the junction per peak hour. Subject to confirmation on the status of the

assumed committed developments, there is potential for double counting within the assessment year figures.

3.5 Committed Highway Works

- 3.5.1 Discharge of condition 19 part A (Transport - Highways Mitigation) pursuant of 19/00925/OL on land on the Former Coalite Site on the North West and South East Sides of Buttermilk Lane, Long Duckmanton (22/00706/DISC) was a highway improvement scheme at the A632 Chesterfield Road / A6192 Markham Lane / Buttermilk Lane roundabout. This increased the number of lanes on the Markham Lane approach to from two to three lanes, with other minor lane widening on other arms, particularly Buttermilk Lane and an increased ICD. It appears that this work has been completed, albeit following completion, the road markings on Markham Lane were soon amended to provide two wide lanes rather than three lanes (see **Image 3.1**).

Image 3.1: 2021/2 Highway Works – Markham Lane



Source: Google Maps, image dated June 2022

- 3.5.2 **Images 3.2 and 3.3** show the changes to the kerblines on Buttermilk Lane between images in May 2021 and June 2022.

Image 3.2: 2021/2 Highway Works - Buttermilk Lane 2021



Source: Google Maps, image dated May 2021

Image 3.2: 2021/2 Highway Works - Buttermilk Lane



Source: Google Maps, image dated May 2021

3.5.3 Part B of the planning condition states the following.

*Prior to 50% occupation/first use of the buildings hereby approved, construction mitigation measures, as highlighted in the Transport Assessment dated 27th August 2019 - reference VC261 R1.2, shall be carried out at the **Staveley Road/A632 Chesterfield Road traffic signal controlled junction** and **Sutton Lane/A632 Chesterfield Road roundabout**, generally in accordance with the submitted details, but more specifically in accordance with detailed designs which shall be submitted to and be agreed in writing with the Local Planning Authority*

3.5.4 It is understood that highway improvements have been undertaken at the Staveley Road/A632 Chesterfield Road traffic signal-controlled junction, but not at the Sutton Lane/A632 Chesterfield Road roundabout.

3.5.5 As part of further collaboration with the LPA and LHA, the status of a planning condition for highway improvements to improve capacity at junction 29a of the M1 included in (Bolsover DC) App Ref: 14/00145/OL for the redevelopment of the former Coalite site will need to be confirmed. We have reviewed a Technical Note prepared in 2017 for a Section 73 application to vary this planning condition, and in fact remove the condition, as it is demonstrated that the works are no longer warranted as the development traffic could be accommodated within the available capacity, accounting for an updated position on baseline traffic flows and committed development.

3.6 **Accident Data**

3.6.1 An initial review of accident records for the area has been completed using Crashmap for the latest available 5-year period running from 01/01/2020 to 31/12/2024. The results are shown on **Figure 3.1**.

3.6.2 There have been several recorded incidents over the period, which includes the M1 and significant distributor roads.

3.6.3 Of the incidents recorded, nine were classified as resulting in serious injury and 32 classified as resulting in slight injury. None resulted in a fatality.

3.6.4 Two of the incidents in the area involved a pedal cyclist casualty, four a motorcycle casualty, and seven a pedestrian casualty.

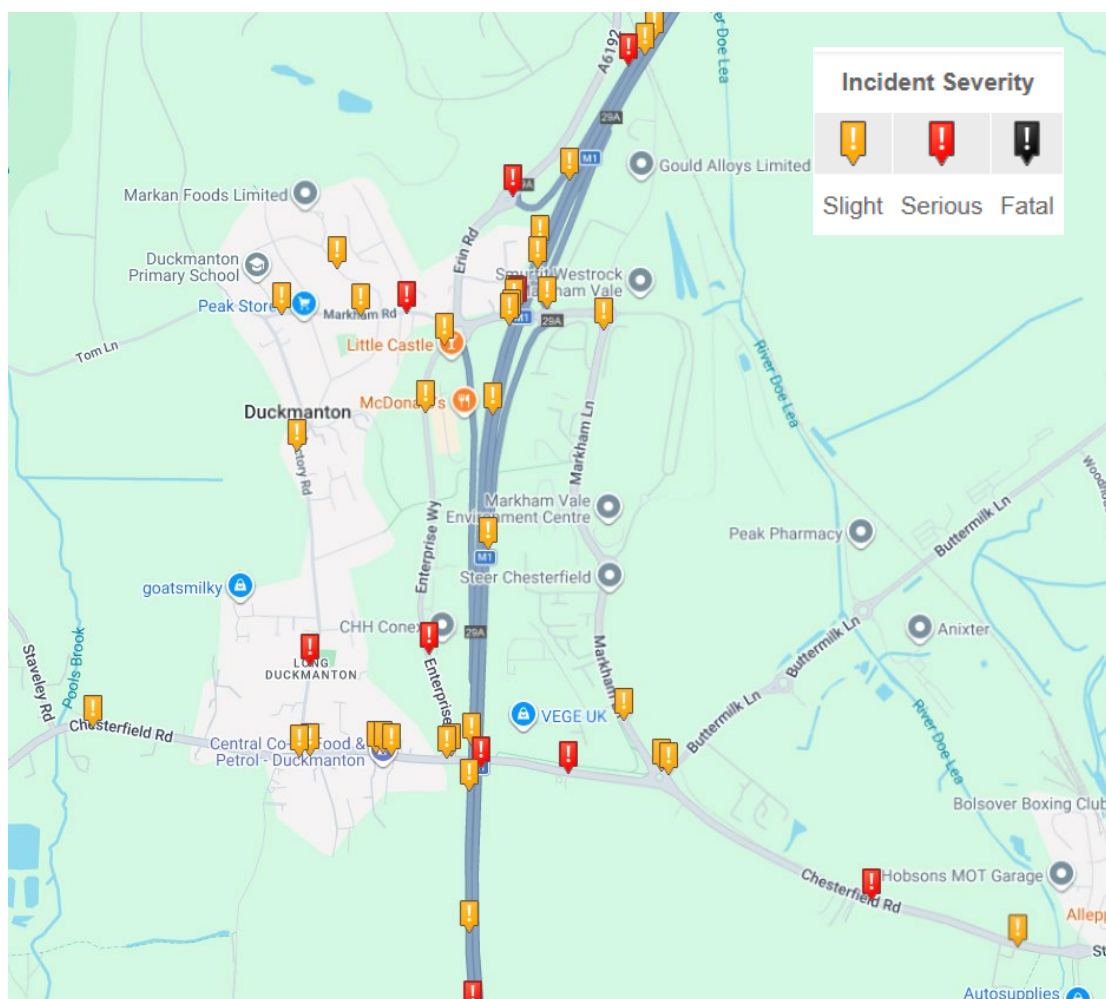
3.6.5 Nine of the 41 incidents involved a goods vehicle, but these were predominantly on the M1. Two involved a bus, three a pedal cycle and five a motorcycle. Seven were recorded as involving a young driver.

3.6.6 There were two accidents classified as slight at the proposed site access junction. One of these occurred on 17/08/2022 and involved two vehicles and three casualties, the other occurred on 04/02/2023 and involved two vehicles and one casualty. The serious incident on Chesterfield Road along the front of the

site occurred on 22/03/2024 and involved three vehicles and two casualties. None of these involved any of the vulnerable road user categories above, and the vehicles involved all appear to have all been cars.

- 3.6.7 A more detailed analysis of existing highway safety records will need to be completed for a Transport Assessment to accompany a planning application. This should focus on the key distribution routes. However, there are no significant clusters identified with less than 1 per incident per year in any single location.

Figure 3.1: Accident Data from Crashmap for 2020-2024 inclusive



Source: Crashmap.co.uk

4.0 Sustainable Travel Opportunities

4.1 Connectivity Tool

4.1.1 The Connectivity Tool has been used to establish the score for the site using the proposed site access location. The results are presented in **Appendix D**.

4.1.2 The results for connectivity by public transport (primarily buses in this case) and cycling are “slightly above average”. Whereas connectivity by walking is “slightly below average”. Opportunities to increase these scores are considered in the sections below. Unsurprisingly, given the location of the site access on a classified A-road in very close proximity to a junction of the M1, connectivity by driving is “very high”.

4.2 Active Travel

4.2.1 The existing footways around the perimeter of the site, alongside Chesterfield Road, are narrow, except for around the roundabout junction with Markham Lane (A6192) and Buttermilk Lane (B6418). There is street lighting and grass verges alongside the narrow footways, separating them from the carriageway. There is also a footway / cycleway offset behind the hedgerow on the north side of Chesterfield Road from the M1 bridge to Markham Lane and then alongside Chesterfield Road into Bolsover.

4.2.2 The junction of Chesterfield Road (A632), Markham Lane (A6192) and Buttermilk Lane (B6418) has pedestrian crossings with dropped kerbs and tactile paving at the splitter island of all arms of the junction. There are also dropped kerbs and pedestrian crossings between bus stops on Chesterfield Road to the northeast of the site.

4.2.3 The bridge over the M1 provides a constraint in terms of achievable footway/cycleway width. The junction of Enterprise Way includes toucan crossing facilities on both Chesterfield Road and Enterprise Way. There are also uncontrolled pedestrian crossings at key junctions.

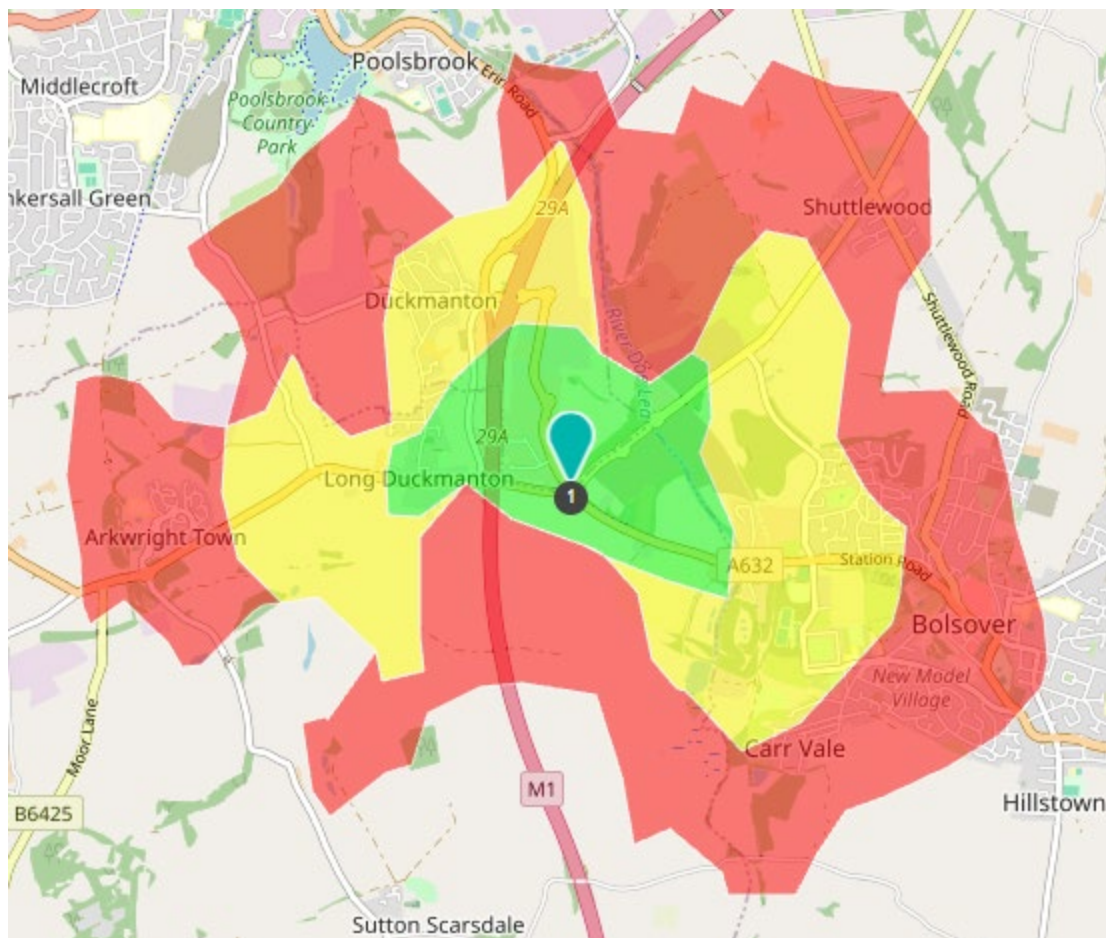
4.2.4 As set out above, there are proposals in the current Local Plan for improved infrastructure for cycling in the area surrounding the site. This provides opportunities for further active travel links to and from the site.

4.2.5 Guidance document “Planning for Walking” (CIHT 2015) highlights that, in Britain, about 80% of journeys shorter than 1 mile (1.6km) are made wholly on foot, and that figure has remained similar for decades. It also sets out that just over a quarter of journeys between 1 and 2 miles (1.6 and 3.2km) are on foot.

4.2.6 “Guidelines for Providing for Journeys on Foot” (Institution of Highways and Transportation 2000) suggests that for commuters and school pupils without mobility impairment walking to local amenities, up to 500 metres is the desirable walking distance, up to 1,000 metres is an acceptable walking distance, and up to 2,000 metres is the preferred maximum walking distance.

- 4.2.7 **Figure 4.1** shows the 1km, 2km and 3km pedestrian isochrones from the proposed site access. This shows the areas within a 3km walking distance of the site includes, allowing the potential for a number of trips to and from the site to be made by walking.
- 4.2.8 This demonstrates that employees from the local area will have the opportunity to commute to and from the site on foot. The source data (OpenRouteService.org) for the isochrones provides population numbers of around 700 within 1km, increasing to just under 4,000 within 2km and just over 10,500 within 3km – including Duckmanton, Arkwright Town and a majority of Bolsover. There is an established network of pedestrian infrastructure connecting the site with these residential areas to support and encourage people to walk to and from the site.
- 4.2.9 There are opportunities for improvements in the connectivity score for walking if the current application for a residential development on Chesterfield Road is approved, and committed residential developments within the 3km are constructed and occupied.

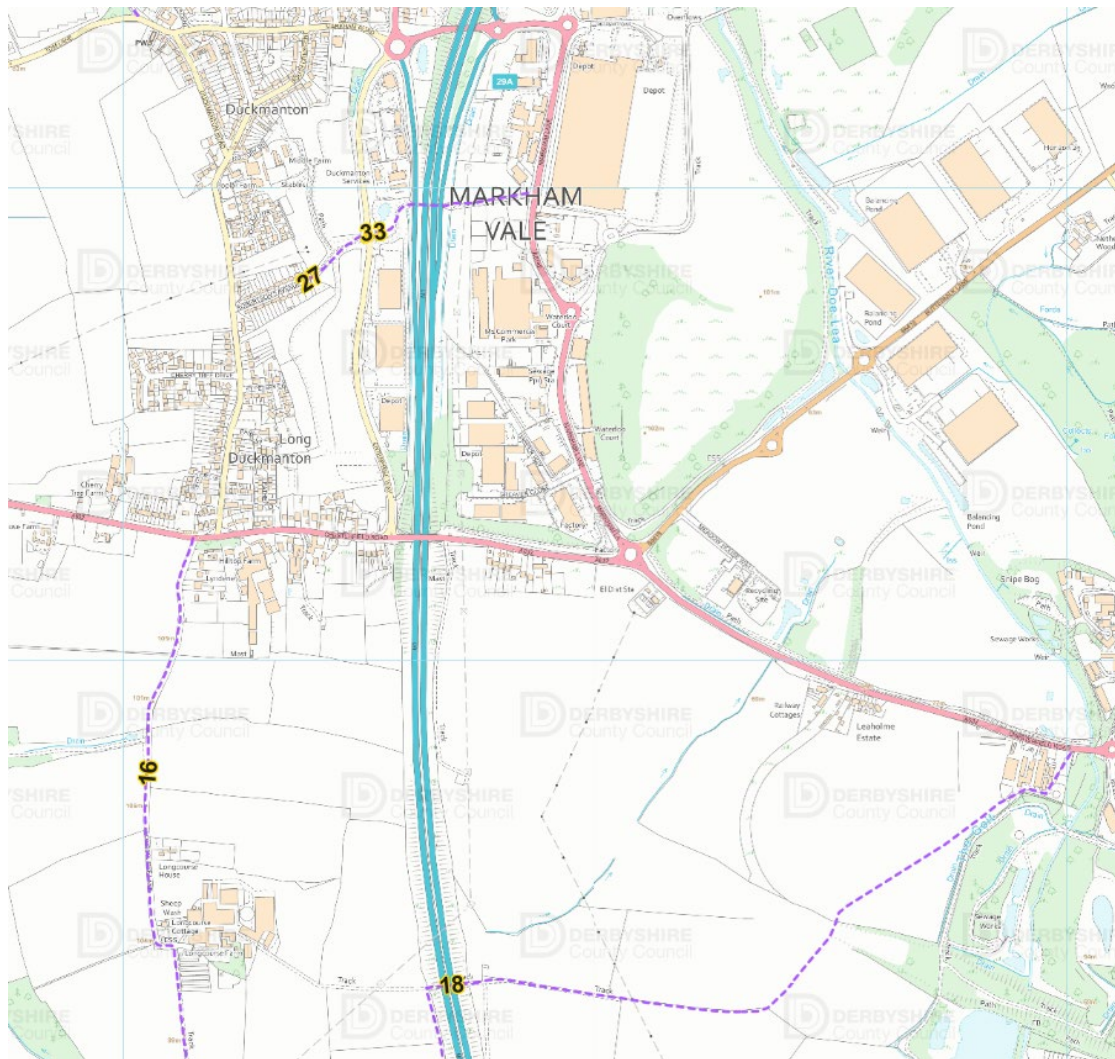
Figure 4.1: 1km, 2km and 3km Walking Isochrones



Source: classic-maps.OpenRouteService.org

- 4.2.10 Alongside the footway network, the site benefits from being within easy reach of various public right of way (PRoW) routes which add additional permeability. The public rights of way are shown within **Figure 4.2** below.

Figure 4.2: Public Rights of Way Plan

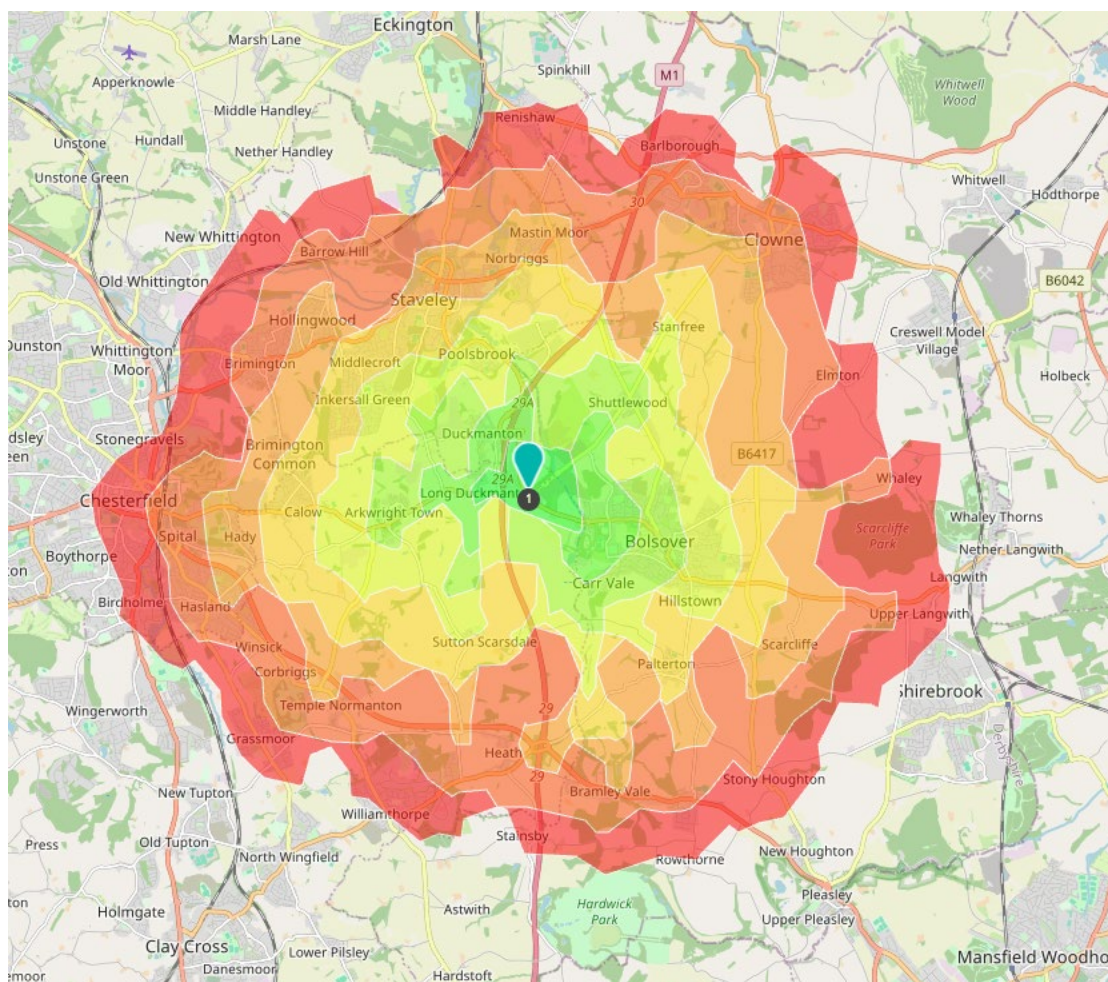


Source: Derbyshire Mapping Portal maps.derbyshire.gov.uk

- 4.2.11 Guidance document “Planning for Cycling” (CIHT 2014) highlights that “the majority of cycling trips are for short distances, with 80% being less than five miles and with 40% being less than two miles” and that “electric bicycles extend the range that can be cycled comfortably”. While some confident and experienced cyclists will cycle longer distances, 8km (c. 5miles) represents a reasonable maximum cycling distance for non-leisure journeys, such as commuting. The lower thresholds of around 5km (c. 3 miles) and 3km (c. 2 miles) may be more appropriate for less confident cyclists, and for shopping and leisure activities.

4.2.12 **Figure 4.3** shows an 8km isochrone from the site, at 1km intervals. The area with 3km (just under 2 miles) with most potential to cycle to the site includes the area shown in the walking isochrone and includes a population of around 10,500. The additional area within 8km (5miles) includes all of Bolsover, Clowne, Barlborough, Holmewood and Grassmoor as well as large parts of Chesterfield. Much of this wider area is predominantly rural and so the potential for cycling trips beyond 2 miles would tend to be more of an option for keen cyclists. The 8km range does reach the train station in Chesterfield and extends close to other train stations (including Shirebrook and Langwith-Whaley Thorns) which could be used as part of a multi-modal trip.

Figure 4.3: 8km Cycling Isochrone (1km intervals)



Source: classic-maps.OpenRouteService.org

4.2.13 A 3m wide shared footway / cycleway is separated from the carriageway by a hedgerow and runs along the north and east of the A632 Chesterfield Road along the site boundary and beyond. This high-quality facility provides a shared footway / cycleway from the M1 bridge to the A632 / A6192 Markham Lane /

Buttermilk Lane roundabout and then onward to the A632 / Intake Road / Riverside Way roundabout, before continuing south. The route “Stockley Trail” which also extends through the Markham Vale Business Park northwest connects to the nearest National Cycle Network route in Staveley. The NCN route 67 between Chesterfield and Leeds forms the main route of the Transpennine Trail (central).

- 4.2.14 The key and local routes are shown on **Figure 4.4** below, as well as a proposed key route partially following the public footpath to the south of the site. **Figure 4.5** show the NCN route.

Figure 4.4: PRoW and Cycle Routes

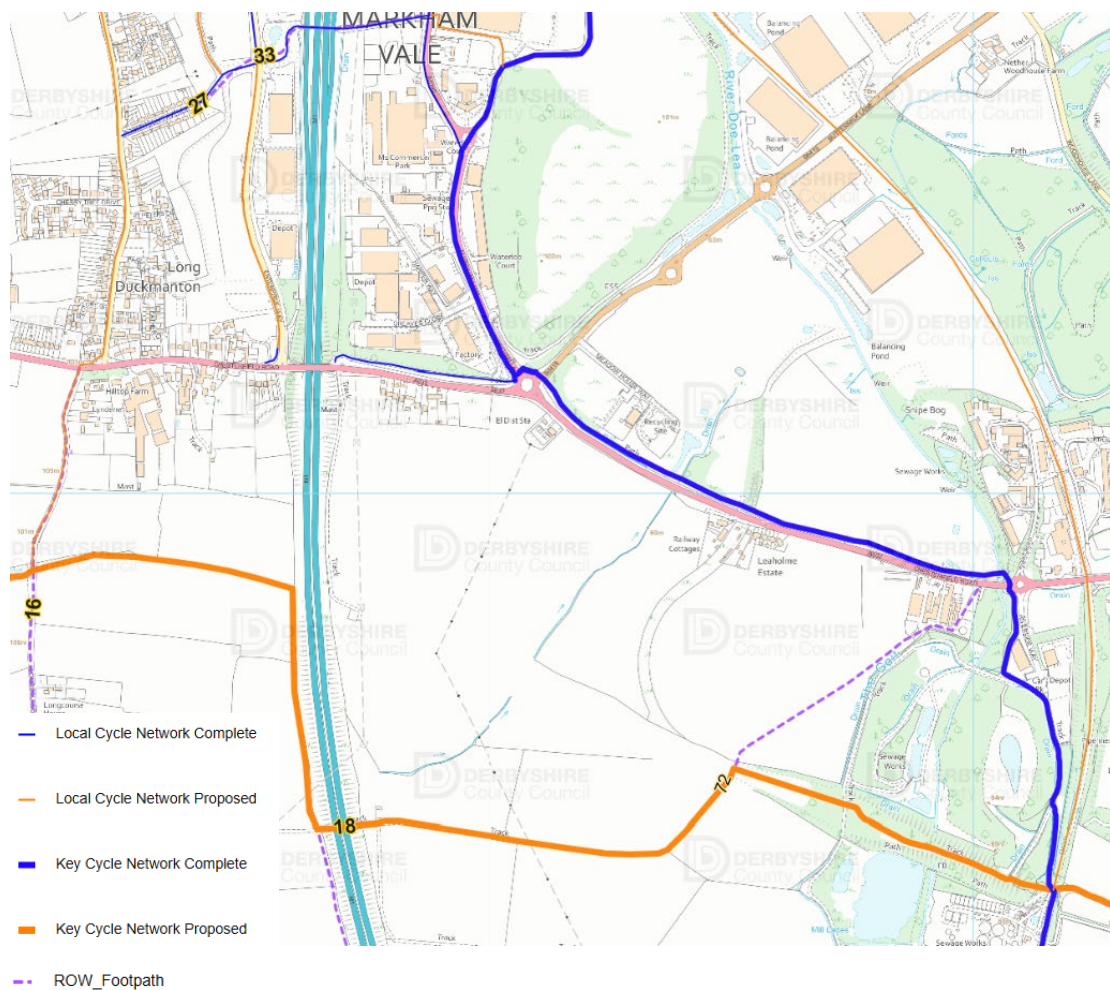
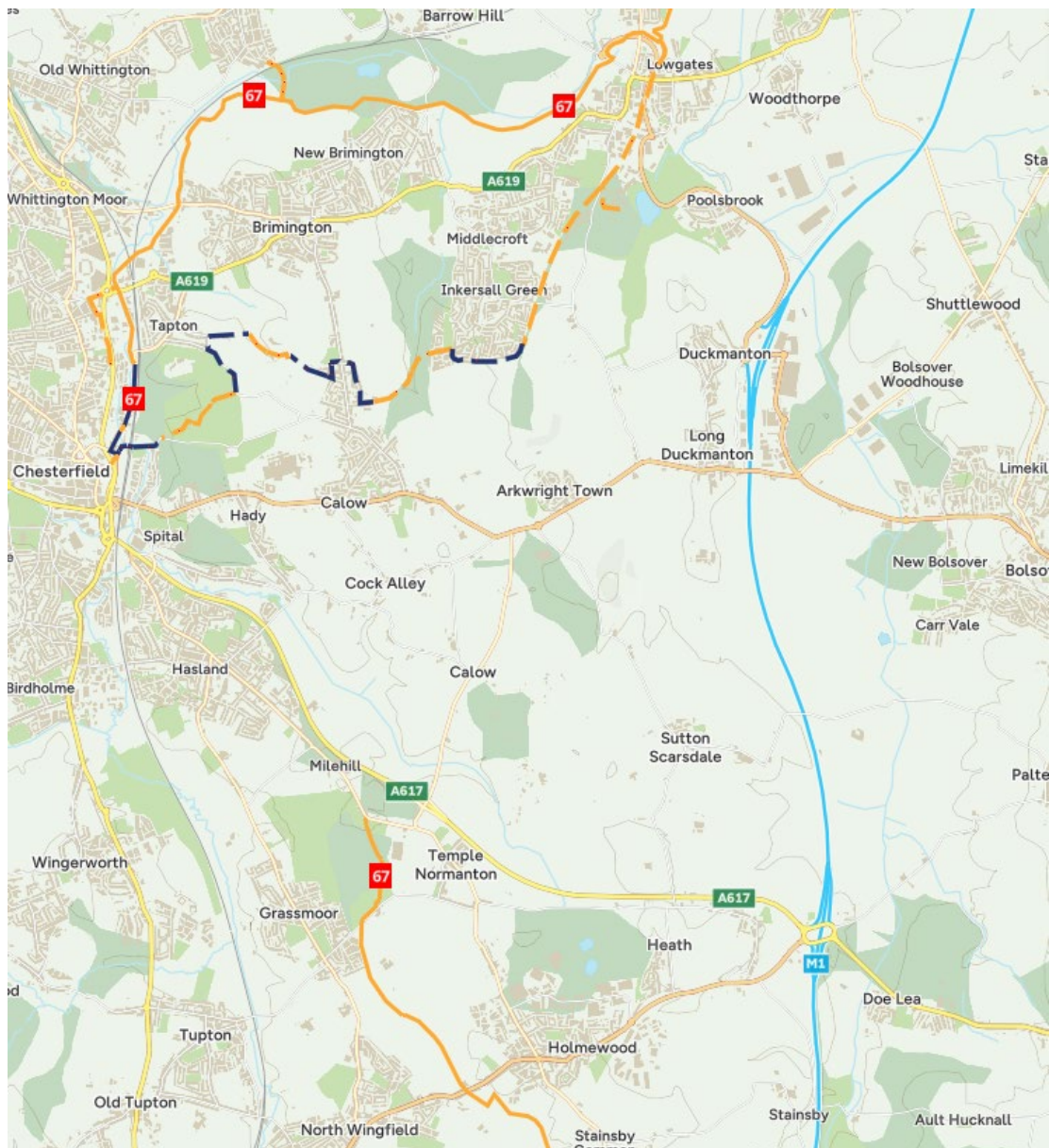


Figure 4.5: National Cycle Network Routes



4.3 Public Transport

- 4.3.1 There are bus stop laybys with raised kerbs, shelters and seating, on Chesterfield Road and Markham Lane, at the junction of Chesterfield Road (A632), Markham Lane (A6192) and Buttermilk Lane (B6418), which has good pedestrian crossing facilities. There are also bus stops with raised kerbing and shelters on Chesterfield Road to the northwest corner of the site, with is a pedestrian crossing with dropped kerbs and tactile paving between the bus stops in each direction.

4.3.2 There are various regular bus services available from the stops on Markham Lane. Only bus service number 583 appears to travel along Chesterfield Road along the northern boundary of the site, which is a Bolsover school bus service.

4.3.3 A summary of the current bus services is provided in **Table 4.1** below.

Table 4.1: Bus Services Summary

Service Number	Route	Days	Times	Approximate Frequency
1 / 2	Chesterfield - Duckmanton - Markham Vale - Bolsover - Shirebrook - Langwith - Whaley Thorns	Mon-Fri	05:17 – 23:26	30mins
		Sat	05:32 – 23:26	30mins
		Sun	08:26 – 23:27	30mins
	Whaley Thorns - Langwith - Shirebrook - Bolsover - Markham Vale - Duckmanton - Chesterfield	Mon-Fri	05:09 – 00:09	30mins
		Sat	05:57 – 23:52	30mins
		Sun	08:59 – 23:52	30mins
90 / 90a / 90b	Yew Tree – Walton – Chesterfield – Staveley – Markham Vale – Creswell	Mon-Fri	06:45 – 23:51	30mins
		Sat	06:45 – 23:51	30mins
		Sun	10:48 – 23:51	Hourly
	Creswell – Markham Vale – Staveley – Chesterfield – Walton – Yew Tree	Mon-Fri	06:18 – 23:06	30mins
		Sat	07:23 – 23:06	30mins
		Sun	09:53 – 23:06	Hourly
583 / 583a	Arkwright Town/Markham Vale – Bolsover School	Mon – Fri	07:53	Two services a day
	Bolsover School – Arkwright Town/Markham Vale	Mon – Fri	15:41	Two services a day

4.3.1 Although the existing bus services run along the perimeter of the site and utilise bus stops on both sides of the Chesterfield Road (W) and Markham Lane approaches to the site access junction, given the size of the site, the furthest building entrances on the current Illustrative Masterplan are around 600m-700m from an existing bus stop.

4.3.2 A 400m walking distance to the nearest bus stop is recommended by the Institute of Highways and Transportation's "Guidelines for Planning for Public Transport in Developments" (IHT 1999). However, the guidelines also state that the recommended 400m is to be "treated as guidance" and that it is "more important to provide services that are easy for passengers to understand and attractive to use than to achieve slavish adherence to some arbitrary criteria for walking distance".

- 4.3.3 Nonetheless, there is potential to divert an existing bus service into the site to provide access by public transport to a new bus stop within the recommended walking distance of all building entrances. This would require a loop road or roundabout within the site (or two points of access, which would not be easy to accommodate) and bus stop infrastructure. The internal road width for an industrial development will be suitable as a bus route.

5.0 Development Proposals

5.1 Proposed Site Layout and Development Schedule

- 5.1.1 The Development Parameters Plan in **Appendix A** shows several development zones which are intended for a strategic logistics development (B8) consisting of warehousing units with ancillary offices. An initial masterplan exercise considered the provision of one unit in each zone of varying sizes with a total GIA of c. 65,000sqm to 75,000sqm expected to be achievable across the site. The higher figure has been used to estimate the potential trip generation associated with the development of the site, subject to further progress in preparing a masterplan.

5.2 Access by Active Travel

- 5.2.1 Opportunities to maximise the number of sustainable transport access points have been considered in the Development Parameters Plan (see **Appendix A**). These are shown as “Secondary Access Routes”.
- 5.2.2 There is a potential pedestrian and cycle access from the northwest corner of the site utilising an existing track. This could be proposed as an emergency access.
- 5.2.3 There is a link from the PRoW and proposed Local Cycle Network route that join in the southeastern corner of the site. This links to existing footpaths through the neighbouring Carr Vale nature reserve and Stockley Trail.
- 5.2.4 Any new or upgraded infrastructure will need to utilise current design guidance, including LTN 1/20 and Inclusive Mobility. It is anticipated that Active Travel England will be consulted as the commercial development is over 7,500sqm and the site is over 5 hectares.
- 5.2.5 Both the main site access (see below) and the pedestrian and cycle access to the northwest corner of the site provide easy access to bus stops, and an existing local cycle network route.

5.3 Access by Public Transport

- 5.3.1 The existing bus services run along the perimeter of the site and utilise bus stops on both sides of the Chesterfield Road (W) and Markham Lane approaches to the site access junction.
- 5.3.2 There is potential to divert an existing bus service into the site to provide access by public transport to a new bus stop within the 400m recommended walking distance of all building entrances. The internal road width for an industrial development will be suitable as a bus route, and a loop within the site could be provided as a turning point for a bus service.

5.4 Travel Plan

- 5.4.1 A Framework Travel Plan will be required to accompany a planning application for the development of the site, as there are expected to be several end user organisations occupying various buildings on the site. The FTP will need to be controlled by the developer / a management company, with implementation of measures and actions from each of the end user organisations, who will be expected to develop building specific Travel Plans based on the FTP.
- 5.4.2 The FTP will need to include SMART targets to manage single occupancy car journeys to and from the site and promote more sustainable travel options. The baseline modal split position will be established through travel surveys on occupation, and progress towards the targets will be monitored annually or every two years. Should the targets not be met, remedial action may be required, potentially including the implementation of additional measures and/or an extension to the standard monitoring period of 5 years.
- 5.4.3 Infrastructure to improve access the site by active travel modes and public transport, car share and utilising electric vehicles for commuting and operational journeys will need to be considered as part of the development of the site layout. The buildings should include end of journey facilities such as secure cycle storage, showers, lockers, changing facilities and drying facilities. These “hard measures” will be supported by “soft measures” to encourage and incentivise the use the sustainable travel options available. This is expected to include providing travel information to employees and visitors, financial incentives for cycle purchases or bus passes, cycle to work days and a car share scheme. There may be potential opportunities for working with other local businesses to promote sustainable travel within this key local employment area.

5.5 Vehicular Access

- 5.5.1 The proposed site access arrangements (see **Appendix E**) involve creation of a fifth arm on the existing roundabout at the junction of Chesterfield Road (A632), Markham Lane (A6192) and Buttermilk Lane (B6418).
- 5.5.2 The preliminary proposed layout for the amendments to the existing roundabout has been designed in accordance with DMRB CD116. It will continue to incorporate facilities for pedestrians and cyclists. Swept path analysis has been completed using the FTA articulated design vehicle and is also shown on the drawing.
- 5.5.3 A review of the adopted highway extents plan for the local area informed the design and is provided in **Appendix F**. It appears that the shared footways are not adopted highway but are expected to be provided on local authority owned land.

- 5.5.4 A topographical survey of the current roundabout layout and approaches will be needed to update the preliminary site access design, as well as consideration of other factors and constraints, such as the location of statutory undertakers' equipment/services, levels and drainage, and any necessary responses to a Stage 1 Road Safety Audit.
- 5.5.5 There is no clear guidance on a maximum quantity of development from a single point of access for an employment site in Derbyshire's current highway design guide, Places Streets and Places, and there is generally more flexibility on such limits when considering maintaining access for emergency vehicles and access by all modes. However, it is generally preferable to have one point of access from a roundabout rather than a priority junction. The type of land use has low employee densities and therefore traffic generation is not expected to be particularly high in relation to the size of the site and the proposed buildings.
- 5.5.6 A loop road is also proposed within the site to provide a turning point for a bus service. Turning areas for light vehicles and HGVs are provided in each of the service yards, which are separated from the car parking areas.
- 5.6 **Parking Provision**
- 5.6.1 Parking provision for cycles, cars, EVs and HGVs should comply with local parking standards set out in Derbyshire County Council's "Parking Guidance for New Developments" (DCC, September 2024). However, there are no specific standards for car parking and HGV parking set out for commercial and industrial land uses. The guidelines suggest end users should have good understanding of their car parking demands, but at the Local Plan stage and outline application stage, end users are rarely secured.
- 5.6.2 Bolsover District Council's Local Parking Standards SPG suggests for warehousing units over 250sqm, 7 spaces + 1 space per 100m² internal + 200m² external storage area should be provided. Applying this to such large units as those proposed (approximately 6,500sqm – 20,000sqm) is likely to result in excessive car parking provision.
- 5.6.3 Neighbouring LHA, Nottinghamshire County Council, suggest 1 car parking space per 120sqm for out of town warehousing developments.
- 5.6.4 A cross check against typical employee densities for warehousing units, and the number of employees likely to be based in each of the units, and the baseline and targeted modal splits for driving to work, would ensure the proposed level of provision is practical.
- 5.6.5 The number of parking spaces designated as disabled spaces should comply with the following table from the DCC's parking guidance document.

Table 5.1: DCC Requirements for Accessible Spaces

Size of Car Park (no of spaces)	Designated Bay Provision
1-50	2 + 3% of total car park
51-200	3 + 3% of total car park
201-500	4 + 3% of total car park
501-1000	5 + 3% of total car park
1000 +	6 + 3% of total car park

- 5.6.6 Electric vehicle charging provision should be provided in accordance with Building Regulations Approved Document S. This requires each building that is not residential or mix-use, with more than 10 parking spaces to have at least 1 electric vehicle charging point and cable routes for a minimum of one fifth of the total number of remaining spaces.
- 5.6.7 The guidance references LTN 1/20 for cycle parking provision, which suggests short stay cycle spaces at a rate of 1 per 1,000sqm of industrial or warehousing space, plus long stay spaces that should be covered, at a rate of 1 per 500sqm. 5% of the total capacity should be suitable for adopted cycles for disabled people, co-located with disabled car parking.
- 5.6.8 A cross check of the level of provision of cycle parking suggested in LTN 1/20 against typical employee densities for warehousing units, and the number of employees likely to be based in each of the units, and the baseline and targeted modal splits for cycling to work, would ensure the proposed level of provision is practical.

6.0 Trip Generation and Distribution

6.1 Trip Generation

6.1.1 The Development Parameters Plan in **Appendix A** shows several development zones which are intended for a strategic logistics development (B8) consisting of warehousing units with ancillary offices. An initial masterplan exercise considered the provision of one unit in each zone of varying sizes with a total GIA of c. 65,000sqm to 75,000sqm expected to be achievable across the site. The higher figure has been used to estimate the potential trip generation associated with the development of the site, subject to further progress in preparing a masterplan.

6.1.2 The sites within the “Warehousing (Commercial)” category have been filtered using the following parameters:

- Sites with a multi-modal survey undertaken on weekdays, dated from 2016 onwards
- Sites located within ‘Edge of Town’ of ‘Freestanding’ locations
- There is an approximate population of just under 4,000 within 1 mile of the site access and 100,000 within 5 miles. The population range more than one band above the relevant population were excluded from the selection.
- This left just 4 sites each with a notable variety of site size, but filtering by size had very little difference on trip rate, and excluding the smaller sites just reduced the trip rates slightly. Therefore, all four site surveys were included to provide a robust trip rate.

6.1.3 The TRICS output data is included within **Appendix G**, whilst **Table 6.1** provides a summary of the resulting average vehicular trip rates and calculated trip generation for the total area, which has been rounded up to 75,000sqm for the calculations.

Table 6.1: Total Vehicle Trip Rates & Generation – Warehousing (Commercial)

TOTAL VEHICLES	AM 07:00-08:00		AM 08:00-09:00		PM 16:00-17:00		PM 17:00-18:00	
	In	Out	In	Out	In	Out	In	Out
Trip Rates (per 100m ²)	0.061	0.034	0.064	0.036	0.022	0.038	0.027	0.049
Trip Generation (75,000sqm)	46	26	48	27	17	29	20	37

6.1.4 The trip generation calculations indicate that the development could be expected to generate 75 vehicular trips during the AM peak hour (08:00-09:00) and 57 vehicular trips in the PM peak hour (17:00-18:00).

6.1.5 The TRICS data was also used to establish likely HGV movements during the peak hours, and the calculations are shown in **Table 6.2**.

Table 6.2: OGV Trip Rates & Generation – Warehousing (Commercial)

OGVs	AM 07:00-08:00		AM 08:00-09:00		PM 16:00-17:00		PM 17:00-18:00	
	In	Out	In	Out	In	Out	In	Out
Trip Rates (per 100m²)	0.018	0.020	0.019	0.019	0.008	0.009	0.014	0.007
Trip Generation (75,000sqm)	14	15	14	14	6	7	11	5

6.2 Trip Distribution and Assignment

6.2.1 A distribution model for an employment development is typically based on 2011 Census journey to work data to establish the home location of people currently driving to a workplace within the Middle Layer Super Output Area (MSOA) within which the site is located.

6.2.2 The site is located within the MSOA “North East Derbyshire 007” which includes large rural areas between Chesterfield and Bolsover, with limited employment sites of a similar nature. The site is located on the boundary of three authority areas, Bolsover, Chesterfield and North East Derbyshire, and therefore three MSOAs including “Chesterfield 006” which includes all of the Markham Vale industrial estate and the rest of Duckmanton. This is considered likely to include workplace sites of a very similar nature to the likely operators of the proposed site, in very close proximity to M1 junction 29a, and had a higher sample size. There were 867 persons driving a car or van to work in “Chesterfield 006” compared to 650 in “North East Derbyshire 007”. The boundary of each of these MSOAs are provided in **Figure 6.1** and **6.2** below. The Bolsover MSOA.

6.2.3 Traffic travelling between the site and the M1 Junction 29a would need to use Enterprise Way or Markham Lane. This would form part of the journey to strategic routes east/west, as well as to travel north/south. The AA journey planner tool suggested that those travelling from locations to the north via the M1 would arrive via Markham Lane and depart via Enterprise Way, and vice versa for those travelling from locations to the south via the M1. Therefore, this resulted in a slightly different distribution for inbound and outbound development trips. The suggested routes via Erin Road and Markham Road both to and from the site, used Enterprise Way. The resulting proportion of movements across the local highway network are summarised in the employment trip distribution model included as **Appendix H**. This also sets out the resulting distribution at the site access for inbound and outbound trips, which is also shown on Diagram 8 in **Appendix C**.

Figure 6.1: MSOA North East Derbyshire 007

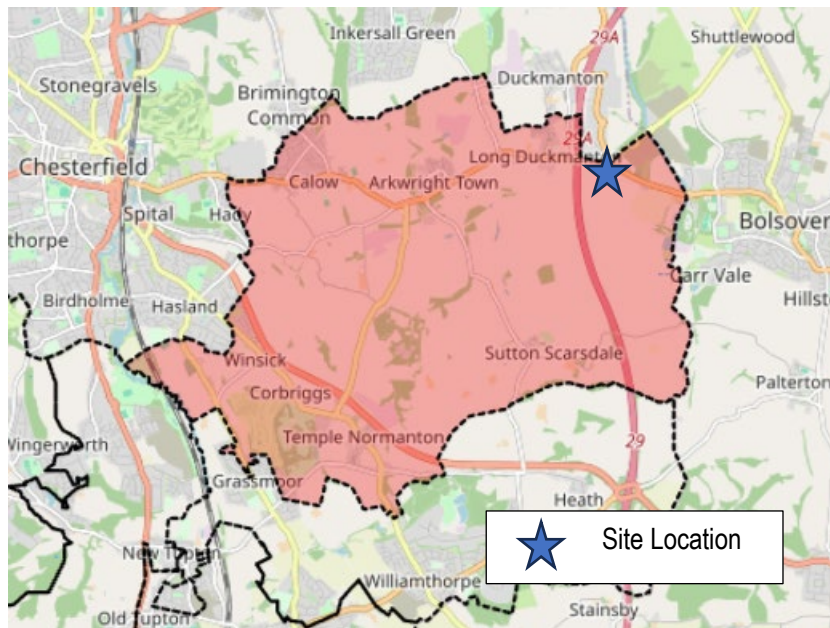
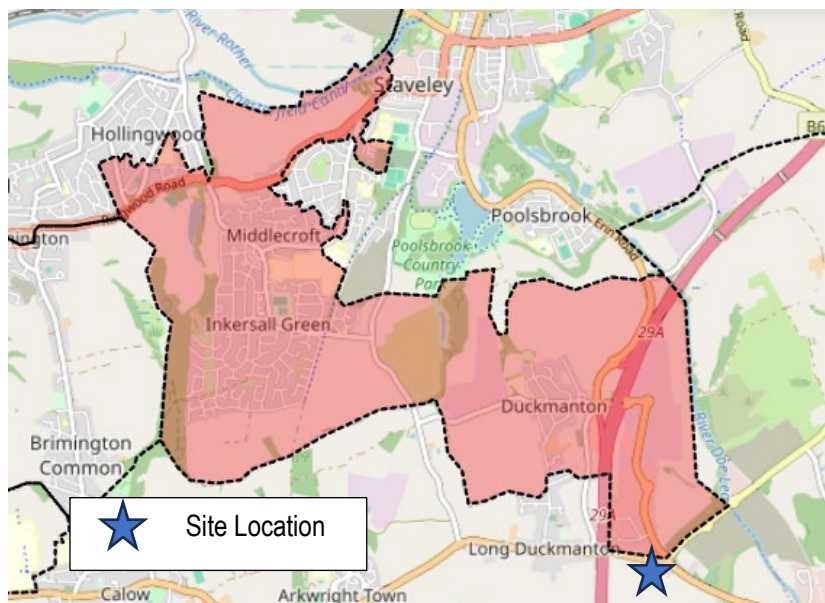


Figure 6.2: MSOA Chesterfield 006



- 6.2.4 The employment trip distribution model suggests that around 38% would come from the Chesterfield direction (also forming a key route from the A61, A6 and M5), with around 15% from each of the other broad zones via a) local roads to the northwest, b) local roads to the south or east (Bolsover direction), c) from the M1 north and d) from the M1 south.
- 6.2.5 The employment trip distribution model is considered appropriate for the light vehicle development trips, which have been determined by deducting the OGV trips from the total vehicle trips. The light vehicle

movements have then been assigned to the highway network based on the employment trip distribution model and shown on Diagram 9 in **Appendix C**.

- 6.2.6 However, the OGV trips are expected to travel more directly to and from the strategic network, with some movements between local sites. For the initial capacity check, the following assumptions have been made to distribute the OGV trips. A total of 70% to use the M1, split equally northbound (35%) and southbound (35%), but noting the alternative routing via Enterprise Way or Markham Lane depending on arrivals and departures. Of the remaining 30%, 10% have been assumed to use the A632 Chesterfield Road in each direction, and just 5% to use each of Buttermilk Lane and Erin Road>
- 6.2.7 The resulting distribution is shown on Diagram 10 in **Appendix C**. The OGV trips have then been assigned to the highway network based on these proportions as shown on Diagram 11.
- 6.2.8 The total development trips are shown in PCUs on Diagram 12 in **Appendix C** and assume 2 PCUs for each OGV trip.

7.0 Highway Impact

7.1 Study Area for Capacity Assessments

7.1.1 **Tables 7.1 to 7.4** below summarise the impact on the local highway network junctions by vehicle type for each of the AM and PM peak hours. These are added together to conclude with the total number of vehicle movements expected at each junction during each peak hour, which is shown on **Table 7.5**.

Table 7.1: Local Network Junctions Impact Assessment - AM Peak Hour Light Vehicles

Junction	Percentage Distribution		AM Peak Hour Trips		
	IN	OUT	IN	OUT	TOTAL
Site Access	100.0%	100.0%	34	13	47
Chesterfield Road (W) / Enterprise Way	70.1%	69.6%	24	9	33
Chesterfield Road (W) / Staveley Road	38.5%	38.5%	13	5	18
Enterprise Way / Markham Rd / Erin Rd / M1 NB on slip / Markham Ln / M1 SB off slip	31.6%	31.1%	11	4	15
M1 Northbound on slip	0.0%	14.5%	0	2	2
M1 Southbound off slip	15.0%	0.0%	5	0	5
Markham Ln / M1 NB off slip / M1 SB on slip	14.5%	15.0%	5	2	7
M1 Northbound off slip	14.5%	0.0%	5	0	5
M1 Southbound on slip	0.0%	15.0%	0	2	2
Buttermilk Lane/B6418 Chesterfield Rd/Clowne Rd / Woodthorpe Rd / Bolsover Rd	6.4%	6.4%	2	1	3
Chesterfield Road (E) / Intake Road / Riverside Way	9.1%	9.1%	3	1	4

Table 7.2: Local Network Junctions Impact Assessment - PM Peak Hour Light Vehicles

Junction	Percentage Distribution		PM Peak Hour Trips		
	IN	OUT	IN	OUT	TOTAL
Site Access	100.0%	100.0%	10	32	42
Chesterfield Road (W) / Enterprise Way	70.1%	69.6%	7	22	29
Chesterfield Road (W) / Staveley Road	38.5%	38.5%	4	12	16
Enterprise Way / Markham Rd / Erin Rd / M1 NB on slip / Markham Ln / M1 SB off slip	31.6%	31.1%	3	10	13
M1 Northbound on slip	0.0%	14.5%	0	5	5
M1 Southbound off slip	15.0%	0.0%	2	0	2
Markham Ln / M1 NB off slip / M1 SB on slip	14.5%	15.0%	1	5	6
M1 Northbound off slip	14.5%	0.0%	1	0	1
M1 Southbound on slip	0.0%	15.0%	0	5	5
Buttermilk Lane/B6418 Chesterfield Rd/Clowne Rd / Woodthorpe Rd / Bolsover Rd	6.4%	6.4%	1	2	3
Chesterfield Road (E) / Intake Road / Riverside Way	9.1%	9.1%	1	3	4

Table 7.3: Local Network Junctions Impact Assessment - AM Peak Hour HGVs

Junction	Percentage Distribution		AM Peak Hour Trips		
	IN	OUT	IN	OUT	TOTAL
Site Access	100%	100%	14	14	28
Chesterfield Road (W) / Enterprise Way	50%	50%	7	7	14
Chesterfield Road (W) / Staveley Road	5%	5%	1	1	1
Enterprise Way / Markham Rd / Erin Rd / M1 NB on slip / Markham Ln / M1 SB off slip	35%	35%	5	5	10
M1 Northbound on slip	0%	35%	0	5	5
M1 Southbound off slip	35%	0%	5	0	5
Markham Ln / M1 NB off slip / M1 SB on slip	35%	35%	5	5	10
M1 Northbound off slip	35%	0%	5	0	5
M1 Southbound on slip	0%	35%	0	5	5
Buttermilk Lane/B6418 Chesterfield Rd/Clowne Rd / Woodthorpe Rd / Bolsover Rd	5%	5%	1	1	1
Chesterfield Road (E) / Intake Road / Riverside Way	10%	10%	1	1	3

Table 7.4: Local Network Junctions Impact Assessment - PM Peak Hour HGVs

Junction	Percentage Distribution		PM Peak Hour Trips		
	IN	OUT	IN	OUT	TOTAL
Site Access	100%	100%	11	5	16
Chesterfield Road (W) / Enterprise Way	50%	50%	7	7	14
Chesterfield Road (W) / Staveley Road	5%	5%	1	1	1
Enterprise Way / Markham Rd / Erin Rd / M1 NB on slip / Markham Ln / M1 SB off slip	35%	35%	5	5	10
M1 Northbound on slip	0%	35%	0	5	5
M1 Southbound off slip	35%	0%	5	0	5
Markham Ln / M1 NB off slip / M1 SB on slip	35%	35%	5	5	10
M1 Northbound off slip	35%	0%	5	0	5
M1 Southbound on slip	0%	35%	0	5	5
Buttermilk Lane/B6418 Chesterfield Rd/Clowne Rd / Woodthorpe Rd / Bolsover Rd	5%	5%	1	1	1
Chesterfield Road (E) / Intake Road / Riverside Way	10%	10%	1	1	3

Table 7.5: Local Network Junctions Impact Assessment – Total Vehicles

Junction	AM Peak Hour Trips			PM Peak Hour Trips		
	IN	OUT	TOTAL	IN	OUT	TOTAL
Site Access	48	27	75	21	37	58
Chesterfield Road (W) / Enterprise Way	31	16	47	13	25	37
Chesterfield Road (W) / Staveley Road	14	6	19	4	13	17
Enterprise Way / Markham Rd / Erin Rd / M1 NB on slip / Markham Ln / M1 SB off slip	16	9	25	7	12	19
M1 Northbound on slip	0	7	7	0	6	6
M1 Southbound off slip	10	0	10	5	0	5
Markham Ln / M1 NB off slip / M1 SB on slip	10	7	17	5	7	12
M1 Northbound off slip	10	0	10	5	0	5
M1 Southbound on slip	0	7	7	0	7	7
Buttermilk Lane/B6418 Chesterfield Rd/Clowne Rd / Woodthorpe Rd / Bolsover Rd	3	2	4	1	2	3
Chesterfield Road (E) / Intake Road / Riverside Way	4	3	7	2	3	5

- 7.1.2 Where the development traffic is expected to add less than 30 two-way vehicle movements per peak hour on the local highway network it is unlikely to have any 'severe' impact and the junctions or slip roads can be excluded from the detailed capacity assessments, unless the LHA or National Highways have specific concerns about existing capacity issues in these locations.

- 7.1.3 The study area for further capacity assessment work to be include in the Transport Assessment to accompany a planning application will need to be agreed with the LHA, Derbyshire County Council, and National Highways. However, the initial impact assessment figures show that the level of impact may only require the site access and Chesterfield Road / Enterprise Way junctions to be assessed in detail.

7.2 Site Access Junction Capacity Assessment

- 7.2.1 Capacity assessments have been completed for the proposed site access junction. The assessment scenarios consider the weekday AM and PM peak hours in a future year of 2034.
- 7.2.2 The 2034 base flows are shown on Diagram 2 in **Appendix C**. The combined committed development traffic flows are shown on Diagram 7. These are added to provide the Base + Committed Development flows shown on Diagram 13.
- 7.2.3 The development traffic shown on Diagram is then added to provide the Base + Committed Development + Proposed Development flows shown on Diagram 14.
- 7.2.4 The capacity assessments have been undertaken using the appropriate industry standard traffic modelling computer software package (JUNCTIONS). The JUNCTIONS software is used to assess priority controlled junctions, including roundabouts, providing output in the form of Ratio of Flow to Capacity (RFC). An RFC below 0.85 indicates that a priority controlled junction operates comfortably within capacity. An RFC value between 0.85 and 1.00 indicates that there may be occasions during the period modelled when queues will develop and delays may begin to occur. An RFC value greater than 1.00 indicates that a junction operates over its full theoretical capacity.
- 7.2.5 The results of the capacity assessments undertaken at the site access junction are summarised in **Table 7.6** and **7.7**. The full output of the results is included in **Appendix H**.

Table 7.6: Capacity Assessment Results - A632 Chesterfield Road / A6192 Markham Lane / Buttermilk Lane / Site Access (2034 Base and 2034 Base plus Committed Development)

Arm / Movement	2034				2034 + Com			
	AM Peak		PM Peak		AM Peak		PM Peak	
	RFC	Q	RFC	Q	RFC	Q	RFC	Q
1 - Markham Lane	0.14	0.2	0.29	0.4	0.42	0.8	0.36	0.6
2 - Buttermilk Lane	0.18	0.2	0.19	0.2	0.22	0.3	0.58	1.4
3 - Chesterfield Road (E)	0.29	0.4	0.21	0.3	0.46	0.9	0.31	0.5
4 - Site Access	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0
5 - Chesterfield Road (W)	0.30	0.4	0.34	0.5	0.46	0.8	0.44	0.8

Table 7.7: Capacity Assessment Results - A632 Chesterfield Road / A6192 Markham Lane / Buttermilk Lane / Site Access (2034 with Development Traffic)

Arm / Movement	2034 + Com + Dev			
	AM Peak		PM Peak	
	RFC	Q	RFC	Q
1 - Markham Lane	0.43	0.8	0.36	0.6
2 - Buttermilk Lane	0.23	0.3	0.59	1.5
3 - Chesterfield Road (E)	0.47	0.9	0.32	0.5
4 - Site Access	0.03	0.0	0.03	0.0
5 - Chesterfield Road (W)	0.48	0.9	0.45	0.8

7.2.6 The results demonstrate that proposed amended roundabout junction is expected to operate comfortably in the future year AM and PM peak hour scenarios, both with the committed development traffic included and the traffic associated with the proposed development site. This provides a positive position with spare capacity for other potentially committed developments or emerging Local Plan sites that may not have been accounted for in this initial assessment work.

8.0 Conclusions

- 8.1 This Preliminary Transport Assessment has been prepared by BSP Consulting with regards to promoting land south of Chesterfield Road, Markham Vale, as a major strategic logistics site in the North East Derbyshire Local Plan, on behalf of Wilson Bowden Developments Ltd.
- 8.2 The site is located to the south of Chesterfield Road (A632) just south of Markham Vale, and approximately 7km east of Chesterfield and 3km west of Bolsover. A Development Parameters Plan is provided as **Appendix A**.
- 8.3 The site located within a well-established employment area alongside Markham Vale Enterprise Zone and the redevelopment of the former Coalite site, which also includes proposals for residential development between the site and Bolsover.
- 8.4 The site is accessible a large residential population by various sustainable travel modes. There is good pedestrian and cycle connectivity along the established network of footways and cycle routes, which will be extended into the site. The nearest bus stops located on two approaches to the proposed site access roundabout and these offer regular and frequent bus serves to and from a range of destinations.
- 8.5 The development scheme will need to maximise opportunities for active travel and other sustainable travel options. This will be developed as part of a Framework Travel Plan for the site, which will set out the proposed infrastructure and promotional measures.
- 8.6 The development will need to include cycle parking, car parking, disabled badge holder parking spaces and EV charging facilities, in accordance with the appropriate parking standards and guidance.
- 8.7 The trip generation calculations indicate that the development could be expected to generate 75 vehicular trips during the AM peak hour (08:00-09:00) and 57 vehicular trips in the PM peak hour (17:00-18:00). Due to the proposed land use, many of the vehicular trips would be expected to be HGVs movements. These have been quantified and included for in the capacity assessment work.
- 8.8 Initial junction capacity assessments have been undertaken at the proposed site access junction, and it is shown to operate well within theoretical capacity in the future assessment year of 2034 in the AM and PM peak hours. The assessment scenarios include TEMPro growth to 2034, as well as traffic associated with various committed developments, although the committed development assumptions will need to be reviewed with the LPA and LHA.
- 8.9 Personal Injury Accident (PIA) records for just over a 5-year period running between 01/01/2020 and 31/12/2024. There were no single locations within the study area with an accident rate greater than 1 per year.

- 8.10 Further capacity assessment and highway safety analysis work will be undertaken as part of a Transport Assessment to support a planning application or to respond to comments from the LPA, LHA or National Highways. This will establish if any specific highway capacity or safety schemes are warranted, as part of the proposals.
- 8.11 However, the traffic generated by the development has been distributed through an initial study area and is expected to generate less than 30 two-way trips other than at the site access junction and the Chesterfield Road / Enterprise Way junction and therefore is not expected to directly result in capacity or road safety issues on the highway network within the wider study area.
- 8.12 In accordance with the vision for this Transport Assessment, the development of a strategic logistics site in this location is considered meet the key objectives of national and local policy in terms of transport planning. The Development Parameters Plan in **Appendix A**, Preliminary Site Access Arrangements drawing in **Appendix E** and the assessment work provided in this **Preliminary Transport Assessment** demonstrate that the site would be able to:
- a. Provide a development with safe and suitable access, allowing for the efficient delivery of goods, and access by service and emergency vehicles
 - b. Promote sustainable travel options to both access and travel within the site
 - i. provide improved infrastructure to access the site by active travel or public transport
 - ii. provide improved links to local public rights of way and cycle routes
 - iii. provide high quality infrastructure for active travel within the site, including safe routes, parking and other facilities
 - iv. ensure consideration of those of all abilities within any infrastructure design
 - v. enable the charging of electric vehicles in safe, accessible and convenient locations
 - vi. utilise a Framework Travel Plan to promote and incentivise sustainable travel options
- 8.13 Following further consultation with the LPA, LHA and National Highways, completion of off-site assessment work, within an agreed study area, will fully identify the anticipated impact of the development. It could then be agreed if this impact can be managed through the Framework Travel Plan, or if any mitigation measures for improved network capacity and/or highway safety schemes would also be required. However, the assessment work to date suggests that the level of impact beyond the site access and Chesterfield Road / Enterprise Way junction would be low.

- 8.14 In light of the above assessment, the allocation of the site in the Local Plan for a strategic logistics development is supported. No highway concerns have identified, subject to further off-site assessment work that could be completed as part of a planning application.

Project Number: 25-0382
Project Title: Proposed Strategic Logistics Development
Location: Land South of Chesterfield Road, Markham Vale
BSP Document Ref: CRMV-BSP-XX-XX-T-H-0001_P02_Preliminary_Transport_Assessment



Appendix A Development Parameters Plan



- Gross Site Area 87.8 acres
- Development Zones
- PROW
- Local Cycle Network
- Local Cycle Network (Proposed)
- Bus Stop
- Recreation Area
- Primary Access Point
- Primary Access Route
- Secondary Access Routes (Emergency vehicles, Cycles/Pedestrian)
- Over Head Electricity Power Lines
- Over Head Electricity Power Lines (To Be Diverted)
- SUDS Features

SGP

Architects + Masterplanners

Waterfront House
2a Smith Way
Grove Park
Enderby
Leicester LE19 1SX

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www.stephengeorge.co.uk

Land South of Chesterfield Road
Markham Vale

Development Parameter Plan

CDE Reference:

Drawing Status:	Preliminary	Rev:
CAD Reference:	17-060-MP09	
Drawn:	CD	
Team:	CD	
Date:	Feb 2026	
Scale:	1:2000 @A3	
Project:	17-060	
Dwg no:	MP09-002	

Project Number: 25-0382
Project Title: Proposed Strategic Logistics Development
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BSP Document Ref: CRMV-BSP-XX-XX-T-H-0001_P02_Preliminary_Transport_Assessment



Appendix B Traffic Survey Data

Manual Classified Turning Counts, Markham Vale

DATE: TUESDAY 27th JANUARY 2026

LOCATION: A6192 MARKHAM LANE / B6418 BUTTERMILK LANE / A632 CHESTERFIELD ROAD

ARM: A6192 MARKHAM LANE

TIME / CLASS	LEFT TO										STRAIGHT TO										RIGHT TO										U-TURN TO										TOTAL MOVEMENT FROM ARM
	B6418 BUTTERMILK LANE										A632 CHESTERFIELD ROAD (SOUTH)										A632 CHESTERFIELD ROAD (WEST)										A6192 MARKHAM LANE										
	PEDAL CYCLE	MOTOR CYCLE	CAR	TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR	TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR	TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR	TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL					
7:00 - 7:15	0	0	10	0	0	1	1	0	12	0	0	14	0	4	1	1	0	20	0	0	8	0	1	0	1	0	10	0	0	0	0	0	0	1	0	1	43				
7:15 - 7:30	0	0	9	0	3	0	0	0	12	0	0	17	0	8	1	2	0	28	0	0	8	0	2	0	1	0	11	0	0	0	0	0	1	2	0	3	54				
7:30 - 7:45	0	0	11	0	2	2	0	0	15	0	0	15	0	12	0	0	2	29	0	0	14	0	3	0	1	0	18	0	0	0	0	0	1	0	0	62					
7:45 - 8:00	0	0	17	0	4	0	0	1	23	0	0	31	0	7	0	1	0	39	0	0	7	0	3	0	1	0	11	0	0	0	0	0	0	0	0	73					
HOURLY TOTAL	0	0	47	0	9	3	2	1	62	0	0	77	0	31	2	4	2	116	0	0	37	0	9	0	4	0	50	0	0	0	0	0	2	2	4	232					
8:00 - 8:15	0	0	15	0	5	1	3	0	24	0	0	32	0	8	1	1	1	43	0	0	5	0	3	0	0	0	8	0	0	0	0	0	1	0	1	76					
8:15 - 8:30	0	0	20	0	4	1	0	0	25	0	0	23	0	11	1	1	1	37	0	0	3	0	2	0	1	0	6	0	0	0	0	0	0	1	1	69					
8:30 - 8:45	0	0	10	0	1	1	1	0	13	0	0	30	0	8	0	0	0	38	0	0	3	0	1	3	0	0	7	0	0	0	0	0	0	0	0	58					
8:45 - 9:00	0	0	12	0	5	0	0	1	18	0	0	25	0	5	1	0	1	32	0	0	2	0	3	0	2	0	7	0	0	0	0	0	0	0	0	57					
HOURLY TOTAL	0	0	57	0	15	3	4	1	80	0	0	110	0	32	3	2	3	150	0	0	13	0	9	3	3	0	28	0	0	0	0	0	1	1	2	260					
9:00 - 9:15	0	0	5	0	5	1	0	0	11	0	0	30	0	14	1	1	0	46	0	0	7	0	2	0	0	0	9	0	0	0	0	0	0	0	0	66					
9:15 - 9:30	0	0	3	0	6	1	2	0	12	0	0	21	0	6	0	1	1	29	0	0	5	0	1	0	0	0	6	0	0	0	0	0	0	1	1	48					
9:30 - 9:45	0	0	8	0	6	2	1	0	17	0	0	19	0	5	0	1	0	25	0	0	2	0	0	1	0	3	0	0	0	0	0	0	0	0	0	45					
9:45 - 10:00	0	0	8	0	7	1	0	1	17	0	0	18	0	13	1	0	1	33	0	0	2	0	4	0	0	0	6	0	0	0	0	0	0	0	0	56					
HOURLY TOTAL	0	0	24	0	24	5	3	1	57	0	0	88	0	38	2	3	2	133	0	0	16	0	7	0	1	0	24	0	0	0	0	0	0	1	1	215					
10:00 - 10:15	0	0	5	0	5	2	1	0	13	0	0	13	0	8	1	0	0	22	0	0	4	0	2	1	1	0	8	0	0	0	0	0	0	0	0	43					
10:15 - 10:30	0	0	13	0	2	1	1	0	17	0	0	11	0	10	2	0	1	24	0	0	2	0	2	0	0	0	4	0	0	0	0	0	0	1	1	46					
10:30 - 10:45	0	0	2	0	5	1	0	0	8	0	0	10	0	7	1	1	0	19	0	0	2	0	2	0	0	0	4	0	0	0	0	0	0	0	0	31					
10:45 - 11:00	0	0	7	0	2	0	1	1	11	0	0	19	0	9	2	1	1	32	0	0	7	0	1	0	0	0	8	0	0	0	0	1	0	0	1	52					
HOURLY TOTAL	0	0	27	0	14	4	3	1	49	0	0	53	0	34	6	2	2	97	0	0	15	0	7	1	1	0	24	0	0	0	0	1	0	1	2	172					
11:00 - 11:15	0	0	5	0	2	0	4	0	11	0	0	19	0	6	0	0	0	25	0	0	3	0	1	0	0	0	4	0	0	0	0	0	0	0	0	40					
11:15 - 11:30	0	0	5	0	2	0	0	0	7	0	0	15	0	5	0	1	1	22	0	0	1	0	2	0	1	0	4	0	0	0	0	0	1	1	34						
11:30 - 11:45	0	0	10	0	5	0	3	0	18	0	0	11	0	2	1	0	0	14	0	0	5	0	1	0	0	0	6	0	0	0	0	0	0	0	0	38					
11:45 - 12:00	0	0	8	0	3	0	1	1	13	0	0	14	0	10	1	0	1	26	0	0	3	0	2	0	1	0	6	0	0	0	0	0	0	0	0	45					
HOURLY TOTAL	0	0	28	0	12	0	8	1	49	0	0	59	0	23	2	1	2	87	0	0	12	0	6	0	2	0	20	0	0	0	0	0	0	1	1	157					
12:00 - 12:15	0	0	7	0	3	0	0	0	10	0	0	18	0	5	1	0	0	24	0	0	5	0	4	0	0	0	9	0	0	0	0	0	0	0	0	43					
12:15 - 12:30	0	0	7	0	4	1	0	0	12	0	0	18	0	7	2	0	1	28	0	0	7	0	4	0	0	0	11	0	0	0	0	0	0	1	1	52					
12:30 - 12:45	0	0	3	0	4	0	3	0	10	0	0	17	0	12	0	1	0	30	0	0	5	0	4	0	0	0	9	0	0	0	0	0	0	0	0	49					
12:45 - 13:00	0	0	10	0	3	3	1	1	18	0	0	26	0	7	1	1	1	36	0	0	9	0	3	1	0	0	13	0	0	0	0	0	0	0	0	67					
HOURLY TOTAL	0	0	27	0	14	4	4	1	50	0	0	73	0	31	4	2	2	118	0	0	26	0	15	1	0	0	42	0	0	0	0	0	1	1	211						
13:00 - 13:15	0	0	13	0	7	0	0	0	20	0	0	22	0	6	1	1	0	30	0	0	9	0	2	2	1	0	14	0	0	0	0	0	0	0	0	64					
13:15 - 13:30	0	0	8	0	8	0	1	0	17	0	0	18	0	12	1	0	0	31	0	0	10	0	1	1	0	0	12	0	0	0	0	0	1	1	61						
13:30 - 13:45	0	0	14	0	4	1	1	0	20	0	0	26	0	0	0	0	1	34	0	0	4	0	0	0	0	0	4	0	0	0	0	0	0	0	0	58					
13:45 - 14:00	0	0	14	0	3	0	0	1	18	0	0	25	0	10	0	0	1	26	0	0	4	0	1	0	0	0	5	0	0	0	0	0	0	0	0	49					
HOURLY TOTAL	0	0	49	0	22	1	2	1	75	0	0	81	0	35	2	1	2	121	0	0	27	0	4	3	1	0	35	0	0	0	0	0	0	1	1	232					
14:00 - 14:15	0	0	8	0	6	1	0	0	15	0	0	33	2	8	5	1	0	49	0	0	8	0	2	0	0	0	10	0	0	0	0	0	0	0	0	74					
14:15 - 14:30	0	0	10	0	4	0	1	0	15	0	1	35	1	11	1	2	0	51	0	0	3	0	5	0	0	1	9	0	0	0	0	0	0	1	1	76					
14:30 - 14:45	0	0	5	0	3	0	1	0	9	0	0	46	0	15	0	0	1	62	0	0	11	0	3	0	0	0	14	0	0	0	0	0	0	0	0	85					
14:45 - 15:00	0	0	10	0	6	0	0	0	16	0	0	39	0	4	1	0	2	46	0	0	5	0	2	0	1	0	8	0	0	0	0	0	0	0	0	70					
HOURLY TOTAL	0	0	33	0	19	1	2	0	55	0	1	153	3	38	7	3	3	208	0	0	27	0	12	0	1	1	41	0	0	0	0	0	0	1	1	305					
15:00 - 15:15	0	0	14	0	3	0	0	0	17	0	0	25	0	9	2	0	0	36	0	0	8	0	4	0	0	0	12	0	0	0	0	0	0	0	0	65					
15:15 - 15:30	0	0	13	0	3	3	1	0	20	0	0	46	0	8	0	0	0	54	0	0	5	0	1	0	0	0	6	0	0	0	0	0	1	1	81						
15:30 - 15:45	0	0	13	0	6	0	1	0	20	0	0	44	0	15	1	0	1	61	0	0	10	0	4	0	0	0	14	0	0	0	0	0	0	0	0	95					
15:45 - 16:00	0	0	11	0	7	0	2	1	21	0	0	37	0	11	1	2	0	51	0	0	6	0	2	0	0	0	8	0	0	0	0	0	0	0	0	80					
HOURLY TOTAL	0	0	51	0	19	3	4	1	78	0	0	152	0	43	4	2	1	202	0	0	29	0	11	0	0	0	40	0	0	0	0	0	1	1	321						
16:00 - 16:15	0	0	25	0	5	0	1	0	31	0	0	55	0	20	2	0	1	78	0	0	18	0	5	1	0	0	24	0	0	0	0	0	0	0	0	133					
16:15 - 16:30	0	0	13	0	8	0	0	0	21	0	0	56	0	9	0	0	0	65	0	0	14	0	2	1	0	0	17	0	0	0	0	0	0	0	0	103					
16:30 - 16:45	0	0	27	0	5	0	2	0	34	0	1	62	0	12	1	0	2	78	0	0	26	0	3	0	0	0	29	0	0	0	0	0	1	1	142						
16:45 - 17:00	0	0	17	0	7	0	0	0	24	0	0	65	0	13	1	0	0	79	0	0	22	0	3	0	0	0	25	0	0	0	0	0	0	0	0	128					
HOURLY TOTAL	0	0	82	0	25	0	3	0	110	0	1	238	0	54																											

Manual Classified Turning Counts, Markham Vale

DATE: TUESDAY 27th JANUARY 2026
LOCATION: A6192 MARKHAM LANE / B6418 BUTTERMILK LANE / A632 CHESTERFIELD ROAD

ARM: B6418 BUTTERMILK LANE																																						
TIME / CLASS	LEFT TO								STRAIGHT TO								RIGHT TO								U-TURN TO								TOTAL MOVEMENT FROM ARM					
	A632 CHESTERFIELD ROAD (SOUTH)								A632 CHESTERFIELD ROAD (WEST)								A6192 MARKHAM LANE								B6418 BUTTERMILK LANE													
	PEDAL CYCLE	MOTOR CYCLE	CAR	TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR	TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR	TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR	TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL		
7:00 - 7:15	0	0	3	0	0	0	0	0	3	0	0	32	0	3	0	0	0	35	0	0	17	0	4	1	0	0	22	0	0	0	0	0	0	0	0	0	60	
7:15 - 7:30	0	0	3	0	0	0	0	0	3	0	1	46	0	2	0	0	0	49	0	0	12	0	5	0	2	0	19	0	0	0	0	0	0	0	0	0	71	
7:30 - 7:45	0	0	5	0	1	1	0	0	7	0	1	71	0	8	0	0	0	80	0	0	29	0	5	1	0	0	35	0	0	0	0	0	0	0	0	0	122	
7:45 - 8:00	0	0	3	0	2	2	0	0	7	0	0	52	0	5	0	0	0	57	0	0	16	0	5	1	0	1	23	0	0	0	0	0	0	0	0	0	87	
HOURLY TOTAL	0	0	14	0	3	3	0	0	20	0	2	201	0	18	0	0	0	221	0	0	74	0	19	3	2	1	99	0	0	0	0	0	0	0	0	0	0	340
8:00 - 8:15	0	0	7	0	1	1	0	0	9	0	0	62	0	2	1	0	0	65	0	0	21	0	4	1	2	0	28	0	0	0	0	0	0	0	0	0	102	
8:15 - 8:30	0	0	4	0	2	0	0	0	6	0	0	45	0	6	0	1	0	52	0	0	14	0	8	1	1	0	24	0	0	0	0	0	0	0	0	0	82	
8:30 - 8:45	0	0	7	0	0	0	0	0	7	0	0	41	0	7	0	0	0	48	0	0	16	0	3	1	2	0	22	0	0	0	0	0	0	0	0	0	77	
8:45 - 9:00	0	0	7	0	2	0	0	0	9	0	0	28	0	5	1	1	0	35	0	0	10	0	3	2	1	1	17	0	0	0	0	0	0	0	0	0	61	
HOURLY TOTAL	0	0	25	0	5	1	0	0	31	0	0	176	0	20	2	2	0	200	0	0	61	0	18	5	6	1	91	0	0	0	0	0	0	0	0	0	0	322
9:00 - 9:15	0	0	2	0	3	0	0	0	5	0	0	28	0	4	1	0	0	33	0	0	7	0	4	0	0	0	11	0	0	0	0	0	0	0	0	0	49	
9:15 - 9:30	0	0	4	0	1	0	0	0	6	0	1	30	0	6	0	0	0	37	0	0	3	0	4	2	2	0	11	0	0	0	0	0	0	0	0	0	54	
9:30 - 9:45	0	0	2	0	2	0	0	0	4	0	0	30	0	8	1	1	0	40	0	0	13	0	7	1	0	0	21	0	0	0	0	0	0	0	0	0	65	
9:45 - 10:00	0	0	8	0	6	0	0	1	15	0	0	21	0	6	0	0	0	27	0	0	6	0	7	0	1	1	15	0	0	0	0	0	0	0	0	0	57	
HOURLY TOTAL	0	0	16	0	12	0	1	1	30	0	1	109	0	24	2	1	0	137	0	0	29	0	22	3	3	1	58	0	0	0	0	0	0	0	0	0	0	225
10:00 - 10:15	0	0	6	0	0	0	0	0	6	0	0	19	0	2	0	0	0	21	0	0	6	0	2	1	1	0	10	0	0	0	0	0	0	0	0	0	37	
10:15 - 10:30	0	0	4	0	0	0	0	0	4	0	0	20	0	8	0	0	0	28	0	0	6	0	3	1	2	0	12	0	0	0	0	0	0	0	0	0	44	
10:30 - 10:45	0	0	4	0	2	0	0	0	6	0	0	19	0	3	0	0	0	22	0	0	6	0	6	0	1	0	13	0	0	0	0	0	0	0	0	0	41	
10:45 - 11:00	0	0	5	0	2	0	0	0	7	0	1	17	0	3	2	0	0	23	0	0	4	0	4	2	1	1	12	0	0	0	0	0	0	0	0	0	42	
HOURLY TOTAL	0	0	19	0	4	0	0	0	23	0	1	75	0	16	2	0	0	94	0	0	22	0	15	4	5	1	47	0	0	0	0	0	0	0	0	0	0	164
11:00 - 11:15	0	0	15	0	2	0	0	0	17	0	0	26	0	7	1	0	0	34	0	0	4	0	7	1	0	0	12	0	0	0	0	0	0	0	0	0	63	
11:15 - 11:30	0	0	6	0	2	0	0	0	8	0	1	23	0	3	0	0	0	27	0	0	4	0	4	0	0	0	8	0	0	0	0	0	0	0	0	0	43	
11:30 - 11:45	0	0	5	0	1	0	0	0	6	0	0	23	0	2	0	0	0	25	0	0	5	0	4	0	2	0	11	0	0	0	0	0	0	0	0	0	42	
11:45 - 12:00	0	0	6	0	1	0	0	0	7	0	0	20	0	4	0	1	0	25	0	0	7	0	2	0	2	1	12	0	0	0	0	0	0	0	0	0	44	
HOURLY TOTAL	0	0	32	0	6	0	0	0	38	0	1	92	0	16	1	1	0	111	0	0	20	0	17	1	4	1	43	0	0	0	0	0	0	0	0	0	0	192
12:00 - 12:15	0	0	5	0	2	0	0	0	7	0	0	21	0	5	1	0	0	27	0	0	4	0	3	0	1	0	8	0	0	0	0	0	0	0	0	0	42	
12:15 - 12:30	0	0	6	0	1	0	0	0	7	0	0	28	0	8	0	0	0	36	0	0	7	0	3	1	0	0	11	0	0	0	0	0	0	0	0	0	54	
12:30 - 12:45	0	0	9	0	4	0	0	0	13	0	0	34	0	3	0	0	0	37	0	1	14	0	3	0	1	0	19	0	0	0	0	0	0	0	0	0	69	
12:45 - 13:00	0	0	4	0	0	0	0	0	4	0	0	20	0	6	0	2	0	28	0	1	2	0	2	0	0	1	6	0	0	0	0	0	0	0	0	0	38	
HOURLY TOTAL	0	0	24	0	7	0	0	0	31	0	0	103	0	22	1	2	0	128	0	2	27	0	11	1	2	1	44	0	0	0	0	0	0	0	0	0	0	203
13:00 - 13:15	0	0	7	0	2	0	0	0	9	0	0	23	0	2	1	0	0	26	0	0	3	0	7	0	0	0	10	0	0	0	0	0	0	0	0	0	45	
13:15 - 13:30	0	0	7	0	1	1	0	0	9	0	0	29	0	3	0	1	0	33	0	0	9	1	1	1	0	0	12	0	0	0	0	1	0	0	0	1	55	
13:30 - 13:45	0	0	6	0	0	0	0	0	6	0	0	24	0	4	0	0	0	28	0	0	7	0	3	0	0	0	10	0	0	0	0	0	0	0	0	0	44	
13:45 - 14:00	0	0	4	0	2	0	0	0	6	0	0	18	0	1	0	0	0	19	0	0	13	0	3	1	0	1	18	0	0	0	0	0	0	0	0	0	43	
HOURLY TOTAL	0	0	24	0	5	1	0	0	30	0	0	94	0	10	1	1	0	106	0	0	32	1	14	2	0	1	50	0	0	0	0	1	0	0	0	1	187	
14:00 - 14:15	0	0	4	0	3	0	0	0	7	0	0	33	0	7	0	0	0	40	0	0	18	0	5	2	0	0	25	0	0	0	0	0	0	0	0	0	72	
14:15 - 14:30	0	0	5	0	0	0	0	0	5	0	0	23	0	6	0	0	0	29	0	0	10	0	2	1	0	0	13	0	0	0	0	0	0	0	0	0	47	
14:30 - 14:45	0	0	5	0	0	0	0	0	5	0	0	22	0	7	1	0	0	30	0	0	6	0	1	1	2	0	10	0	0	0	0	0	0	0	0	0	45	
14:45 - 15:00	0	0	5	0	2	0	0	0	7	0	0	26	0	5	0	0	0	31	0	0	7	0	3	1	4	1	16	0	0	0	0	0	0	0	0	0	54	
HOURLY TOTAL	0	0	19	0	5	0	0	0	24	0	0	104	0	25	1	0	0	130	0	0	41	0	11	5	6	1	64	0	0	0	0	0	0	0	0	0	0	218
15:00 - 15:15	0	0	4	0	2	0	0	0	6	0	0	25	0	5	0	0	0	30	0	0	8	0	2	0	0	0	10	0	0	0	0	0	0	0	0	0	46	
15:15 - 15:30	0	0	6	0	1	0	0	0	7	0	0	31	0	4	0	0	0	35	0	0	10	0	4	0	1	0	15	0	0	0	0	0	0	0	0	0	57	
15:30 - 15:45	0	0	4	0	1	0	0	1	6	0	0	42	0	4	0	0	0	46	0	0	18	0	1	0	1	1	21	0	0	0	0	0	0	0	0	0	73	

Manual Classified Turning Counts, Markham Vale

DATE: TUESDAY 27th JANUARY 2026
LOCATION: A6192 MARKHAM LANE / B6418 BUTTERMILK LANE / A632 CHESTERFIELD ROAD
ARM: A632 CHESTERFIELD ROAD (SOUTH)

TIME / CLASS	LEFT TO									STRAIGHT TO									RIGHT TO									U-TURN TO									TOTAL MOVEMENT FROM ARM		
	A632 CHESTERFIELD ROAD (WEST)									A6192 MARKHAM LANE									B6418 BUTTERMILK LANE									A632 CHESTERFIELD ROAD (SOUTH)											
	PEDAL CYCLE	MOTOR CYCLE	CAR	TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR	TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR	TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR	TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL			
7:00 - 7:15	0	1	82	0	8	0	0	0	91	0	0	39	0	8	0	0	2	49	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	141		
7:15 - 7:30	0	1	91	0	17	0	0	1	110	0	0	55	0	14	1	0	0	70	0	0	6	0	0	1	0	1	8	0	0	0	0	0	0	0	0	0	188		
7:30 - 7:45	0	0	89	0	17	0	0	0	106	0	0	64	0	17	1	1	0	83	0	0	4	0	0	0	1	0	5	0	0	0	0	0	0	0	0	0	194		
7:45 - 8:00	0	0	88	0	6	0	1	0	95	0	0	70	0	5	1	0	1	77	0	0	4	0	0	1	0	1	1	7	0	0	0	0	0	0	0	0	179		
HOURLY TOTAL	0	2	350	0	48	0	1	1	402	0	0	228	0	44	3	1	3	279	0	0	14	0	2	1	2	2	21	0	0	0	0	0	0	0	0	0	0	702	
8:00 - 8:15	0	0	87	0	18	2	0	1	108	0	0	60	0	9	2	1	1	73	0	0	4	0	1	1	0	0	5	0	0	0	0	0	0	0	0	0	0	186	
8:15 - 8:30	0	0	82	0	15	1	1	2	101	0	0	49	0	10	0	0	0	59	0	0	7	0	3	0	0	0	10	0	0	0	0	0	0	0	0	0	170		
8:30 - 8:45	0	0	84	0	6	0	0	0	90	0	0	49	0	13	0	0	0	62	0	0	5	0	1	0	0	0	6	0	0	0	0	0	0	0	0	0	158		
8:45 - 9:00	0	0	55	0	6	0	1	0	62	0	0	34	0	3	2	0	1	40	0	0	3	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	105		
HOURLY TOTAL	0	0	308	0	45	3	2	3	361	0	0	192	0	35	4	1	2	234	0	0	19	0	5	0	0	0	0	24	0	0	0	0	0	0	0	0	0	619	
9:00 - 9:15	0	0	72	1	9	1	0	0	83	0	0	25	0	7	1	2	0	35	0	0	3	0	1	1	0	0	5	0	0	0	0	0	0	0	0	0	0	123	
9:15 - 9:30	0	0	60	1	10	0	0	0	71	0	0	25	0	8	0	0	1	34	0	0	4	0	3	1	0	0	8	0	0	0	0	0	0	0	0	0	0	113	
9:30 - 9:45	0	0	54	3	5	0	0	0	62	0	0	23	0	11	2	0	0	36	0	0	3	0	1	0	1	0	5	0	0	0	0	0	0	0	0	0	0	103	
9:45 - 10:00	0	0	48	0	11	0	1	0	60	0	0	14	0	5	0	3	1	23	0	0	6	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	89	
HOURLY TOTAL	0	0	234	5	35	1	1	0	276	0	0	87	0	31	3	5	2	128	0	0	16	0	5	2	1	0	0	24	0	0	0	0	0	0	0	0	0	428	
10:00 - 10:15	0	0	39	0	9	2	0	0	50	0	0	10	0	4	1	1	0	16	0	0	4	0	1	0	0	0	5	0	0	1	0	1	0	1	0	0	2	73	
10:15 - 10:30	0	0	54	0	10	1	0	0	65	0	0	14	0	5	1	0	1	21	0	0	3	0	2	0	0	0	5	0	0	0	0	0	0	0	0	0	0	91	
10:30 - 10:45	0	0	51	0	4	1	0	0	56	0	0	24	0	8	2	0	0	34	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	91	
10:45 - 11:00	0	0	44	0	9	0	0	0	53	0	0	11	0	5	1	0	1	18	0	0	5	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	76	
HOURLY TOTAL	0	0	188	0	32	4	0	0	224	0	0	59	0	22	5	1	2	89	0	0	13	0	3	0	0	0	0	16	0	0	1	0	1	0	0	0	2	334	
11:00 - 11:15	0	0	51	0	10	0	0	0	61	0	0	18	0	11	1	0	0	30	0	0	7	0	1	0	0	0	8	0	0	0	0	0	0	0	0	0	0	99	
11:15 - 11:30	0	0	53	0	11	0	0	0	64	0	0	26	0	11	0	0	1	38	0	0	7	0	4	0	0	0	11	0	0	0	0	0	0	0	0	0	0	113	
11:30 - 11:45	0	0	58	0	8	1	0	0	67	0	0	17	0	4	1	0	0	22	0	0	7	0	0	1	0	0	8	0	0	0	0	0	0	0	0	0	0	97	
11:45 - 12:00	0	1	57	0	9	0	1	0	68	0	0	19	0	5	0	2	1	27	0	0	6	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	101	
HOURLY TOTAL	0	1	219	0	38	1	1	0	260	0	0	80	0	31	2	2	2	117	0	0	27	0	5	1	0	0	0	33	0	0	0	0	0	0	0	0	0	410	
12:00 - 12:15	0	0	60	0	9	1	0	0	70	0	0	24	0	10	1	0	0	35	0	0	7	0	1	1	0	0	9	0	0	0	0	0	0	0	0	0	0	114	
12:15 - 12:30	0	0	53	0	8	1	0	0	62	0	0	14	0	5	0	1	2	22	0	0	8	0	1	0	0	0	9	0	0	0	0	0	0	0	0	0	1	94	
12:30 - 12:45	0	0	65	1	9	1	0	0	76	0	0	12	0	7	1	0	0	20	0	0	5	0	0	0	0	0	5	0	0	1	0	0	0	0	0	0	1	102	
12:45 - 13:00	0	0	42	0	10	1	2	0	55	0	0	21	0	4	2	0	1	28	0	0	5	0	1	0	1	0	7	0	0	0	0	0	0	0	0	0	0	90	
HOURLY TOTAL	0	0	220	1	36	4	2	0	263	0	0	71	0	26	4	1	3	105	0	0	25	0	3	1	1	0	0	30	0	0	2	0	0	0	0	0	2	400	
13:00 - 13:15	0	0	30	0	8	0	2	0	40	0	0	48	0	12	0	0	0	60	0	0	7	0	0	0	0	0	7	0	0	1	0	0	0	0	0	0	1	108	
13:15 - 13:30	0	0	60	0	9	2	0	0	71	0	0	22	0	7	1	0	1	31	0	0	4	0	0	0	0	0	4	0	0	2	0	0	0	0	0	0	2	108	
13:30 - 13:45	1	0	57	0	10	2	0	0	70	0	0	17	0	6	1	0	0	24	0	0	9	0	1	0	0	0	10	0	0	0	0	0	0	0	0	0	0	104	
13:45 - 14:00	0	0	56	0	11	1	0	0	68	0	0	11	0	5	1	2	1	20	0	0	8	0	0	0	0	0	8	0	0	0	0	0	0	0	0	0	0	0	96
HOURLY TOTAL	1	0	203	0	38	5	2	0	249	0	0	98	0	30	3	2	2	135	0	0	28	0	1	0	0	0	0	29	0	0	3	0	0	0	0	0	0	3	416
14:00 - 14:15	0	0	60	0	8	3	0	0	71	0	0	19	0	6	1	1	0	27	0	0	9	0	1	0	0	0	10	0	0	0	0	0	0	0	0	0	0	108	
14:15 - 14:30	0	0	58	0	6	0	0	0	64	0	0	20	0	5	2	0	3	30	0	0	7	0	1	0	0	0	8	0	0	0	0	0	0	0	0	0	0	102	
14:30 - 14:45	0	1	60	0	13	1	1	0	76	0	0	16	0	11	2	1	0	30	0	0	9	0	1	0	0	0	10	0	0	0	0	0	0	0	0	0	0	116	
14:45 - 15:00	0	1	48	1	5	1	0	0	56	0	0	22	0	7	1	1	1	32	0	0	7	0	2	0	0	0	9	0	0	0	0	0	1	0	0	0	1	98	
HOURLY TOTAL	0	2	226	1	32	5	1	0	267	0	0	77	0	29	6	3	4	119	0	0	32	0	5	0	0	0	0	37	0	0	0	0	1	0	0	0	1	424	
15:00 - 15:15	0	0	65	0	9	1	0	0	75	0	0	24	0	8	0	0	0	32	0	0	8	0	0	0	0	0	8	0	0	0	0	0	0	0	0	0	0	115	
15:15 - 15:30	0	0	56	0	10	0	0	0	66	0	0	24	0	10	3	0	2	39	0	0	8	0	1	0	0	0	9	0	0	0	0	0	0	0	0	0	0	114	

VEHICLE TO PCU FACTORS REFERENCED IN TABLES BELOW

CAR	1	OGV1	1.5	PSV	2
LGV	1	OGV2	2.3	MC	0.4

AM PEAK HOUR
PCUS excl. pedal cycles

	A	B	C	D	TOTAL
A	4	88	157	33	283
B	102	0	32	204	337
C	239	24	0	368	631
D	89	181	275	0	545
TOTAL	435	292	464	605	1796

CAR + LGVs

	A	B	C	D	TOTAL
A	0	72	142	22	236
B	79	0	30	196	305
C	227	24	0	353	604
D	86	178	269	0	533
TOTAL	392	274	441	571	1678

OGV1

	A	B	C	D	TOTAL
A	0	3	3	3	0
B	5	0	1	2	8
C	4	0	0	3	7
D	0	0	4	0	4
TOTAL	9	3	8	8	19

OGV2

	A	B	C	D	TOTAL
A	1	4	2	3	10
B	6	0	0	2	8
C	1	0	0	2	3
D	1	1	0	0	2
TOTAL	9	5	2	7	23

PSV

	A	B	C	D	TOTAL
A	1	1	3	0	5
B	1	0	0	0	1
C	2	0	0	3	5
D	0	0	0	0	0
TOTAL	4	1	3	3	11

MC

	A	B	C	D	TOTAL
A	0	0	0	0	0
B	0	0	0	0	0
C	0	0	0	0	0
D	2	1	0	0	3
TOTAL	2	1	0	0	3

AM PEAK HOUR
HGVs

	A	B	C	D	TOTAL
A	2	8	8	6	24
B	12	0	1	4	17
C	7	0	0	8	15
D	1	1	4	0	6
TOTAL	22	9	13	18	62

PM PEAK HOUR
PCUS excl. pedal cycles

	A	B	C	D	TOTAL
A	2	121	325	86	535
B	81	0	25	199	304
C	157	17	0	291	466
D	25	216	393	0	633
TOTAL	264	354	744	577	1938

CAR + LGVs

	A	B	C	D	TOTAL
A	0	117	317	84	518
B	73	0	25	198	296
C	149	17	0	288	454
D	23	214	391	0	628
TOTAL	245	348	733	570	1896

OGV1

	A	B	C	D	TOTAL
A	0	0	0	0	0
B	2	0	0	0	2
C	1	0	0	2	3
D	1	1	1	0	3
TOTAL	4	1	1	2	8

OGV2

	A	B	C	D	TOTAL
A	0	1	1	1	3
B	2	0	0	0	2
C	1	0	0	0	1
D	0	0	0	0	0
TOTAL	3	1	1	1	6

PSV

	A	B	C	D	TOTAL
A	1	1	3	0	5
B	0	0	0	0	0
C	2	0	0	0	2
D	0	0	0	0	0
TOTAL	3	1	3	0	7

MC

	A	B	C	D	TOTAL
A	0	0	0	0	0
B	0	0	0	2	2
C	1	0	0	1	2
D	0	0	2	0	2
TOTAL	1	0	2	3	6

PM PEAK HOUR
HGVs

	A	B	C	D	TOTAL
A	1	2	4	1	8
B	4	0	0	0	4
C	4	0	0	2	6
D	1	1	1	0	3
TOTAL	10	3	5	3	21

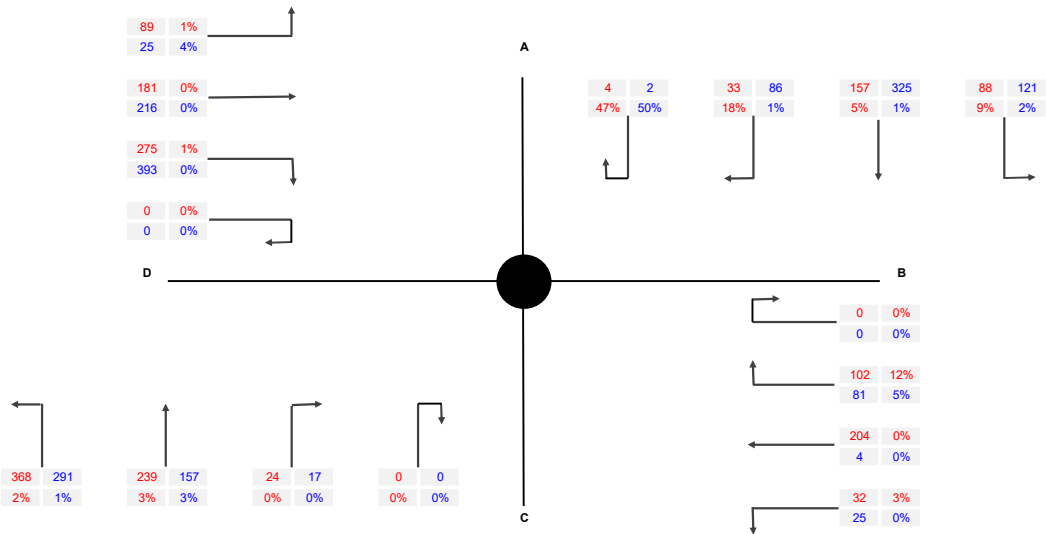
Project Number: 25-0382
Project Title: Proposed Strategic Logistics Development
Location: Land South of Chesterfield Road, Markham Vale
BSP Document Ref: CRMV-BSP-XX-XX-T-H-0001_P02_Preliminary_Transport_Assessment



Appendix C Flow Diagrams

PROPOSED SITE ACCESS / A632 CHESTERFIELD ROAD

- ARM Description
- A: A6192 Markham Lane
 - B: Buttermilk Lane
 - C: A632 Chesterfield Road (SE)
 - D: A632 Chesterfield Road (W)



AM PEAK HOUR

PCUs					
	A	B	C	D	TOTAL
A	4	88	157	33	283
B	102	0	32	204	337
C	239	24	0	368	631
D	89	181	275	0	545
TOTAL	435	292	464	605	1796

HGVs

	A	B	C	D	TOTAL
A	2	8	8	6	24
B	12	0	1	4	17
C	7	0	0	8	15
D	1	1	4	0	6
TOTAL	22	9	13	18	62

%HGVs

	A	B	C	D
A	47%	9%	5%	18%
B	12%		3%	0%
C	3%	0%		2%
D	1%	0%	1%	

PM PEAK HOUR

PCUs					
	A	B	C	D	TOTAL
A	2	121	325	86	535
B	81	0	25	199	304
C	157	17	0	291	466
D	25	216	393	0	633
TOTAL	264	354	744	577	1938

HGVs

	A	B	C	D	TOTAL
A	1	2	4	1	8
B	4	0	0	0	4
C	4	0	0	2	6
D	1	1	1	0	3
TOTAL	10	3	5	3	21

%HGVs

	A	B	C	D
A	50%	2%	1%	1%
B	5%		0%	0%
C	3%	0%		1%
D	4%	0%	0%	

KEY:

- 0 = AM PCUs
- 0 = AM %HGVs
- 0 = PM PCUs
- 0 = PM %HGVs



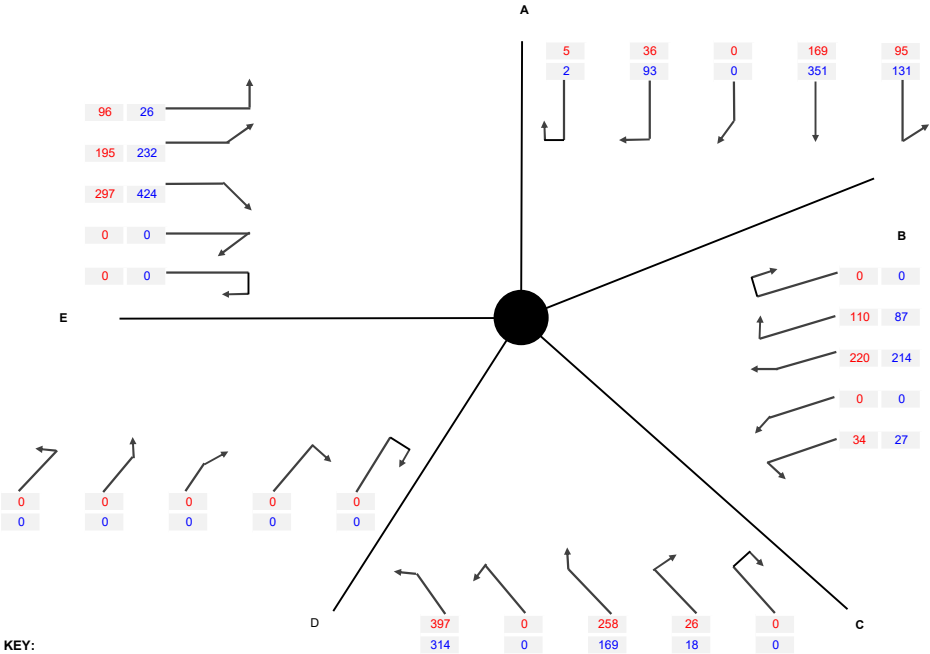
Project Number: 25-0382
Project Title: Proposed Commercial Warehousing Development
Location: Chesterfield Road, Markham Vale
BSP Document Ref: CRMV-BSP-XX-XX-T-H-0002_P01_Preliminary_Transport_Assessment
Diagram Title: Diagram 1: 2026 Base - Traffic Survey Data

PROPOSED SITE ACCESS / A632 CHESTERFIELD ROAD

- ARM Description**
A: A6192 Markham Lane
B: Buttermilk Lane
C: A632 Chesterfield Road (SE)
D: (New Arm) Site Access
E: A632 Chesterfield Road (W)

TEMPro NTM Growth Factors
2026-2034
AM PEAK HOUR
1.078

PM PEAK HOUR
1.077



KEY:
0 = AM PCUs
0 = PM PCUs

AM PEAK HOUR

PCUs	A	B	C	D	E	TOTAL
A	5	95	169	0	36	305
B	110	0	34	0	220	364
C	258	26	0	0	397	681
D	0	0	0	0	0	0
E	96	195	297	0	0	587
TOTAL	469	315	500	0	652	1937

PM PEAK HOUR

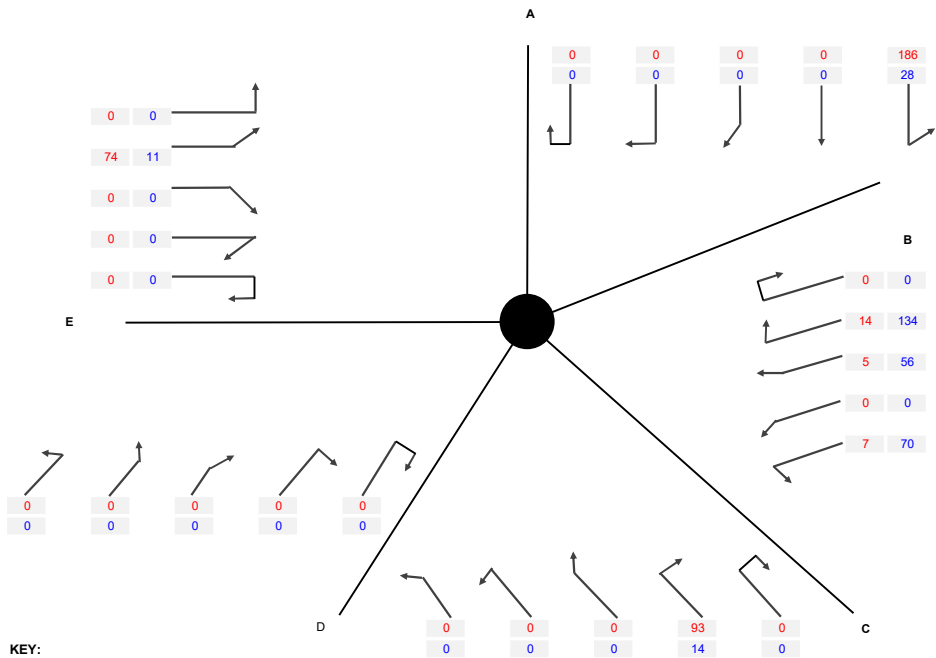
PCUs	A	B	C	D	E	TOTAL
A	2	131	351	0	93	576
B	87	0	27	0	214	328
C	169	18	0	0	314	502
D	0	0	0	0	0	0
E	26	232	424	0	0	682
TOTAL	285	381	801	0	621	2088



Project Number: 25-0382
Project Title: Proposed Commercial Warehousing Development
Location: Chesterfield Road, Markham Vale
BSP Document Ref: CRMV-BSP-XX-XX-T-H-0002_P01_Preliminary_Transport_Assessment
Diagram Title: Diagram 2: 2034 Base

PROPOSED SITE ACCESS / A632 CHESTERFIELD ROAD

- ARM Description
- A: A6192 Markham Lane
 - B: Buttermilk Lane
 - C: A632 Chesterfield Road (SE)
 - D: (New Arm) Site Access
 - E: A632 Chesterfield Road (W)



KEY:

- 0 = AM PCUs
- 0 = PM PCUs

60% of TOTAL

AM PEAK HOUR						
PCUs						
	A	B	C	D	E	TOTAL
A	0	186	0	0	0	186
B	14	0	7	0	5	26
C	0	93	0	0	0	93
D	0	0	0	0	0	0
E	0	74	0	0	0	74
TOTAL	14	353	7	0	5	380

TOTAL

AM PEAK HOUR						
PCUs						
	A	B	C	D	E	TOTAL
A	0	310	0	0	0	310
B	23	0	12	0	9	44
C	0	155	0	0	0	155
D	0	0	0	0	0	0
E	0	124	0	0	0	124
TOTAL	23	589	12	0	9	633

PM PEAK HOUR

PCUs						
	A	B	C	D	E	TOTAL
A	0	28	0	0	0	28
B	134	0	70	0	56	260
C	0	14	0	0	0	14
D	0	0	0	0	0	0
E	0	11	0	0	0	11
TOTAL	134	53	70	0	56	313

PM PEAK HOUR

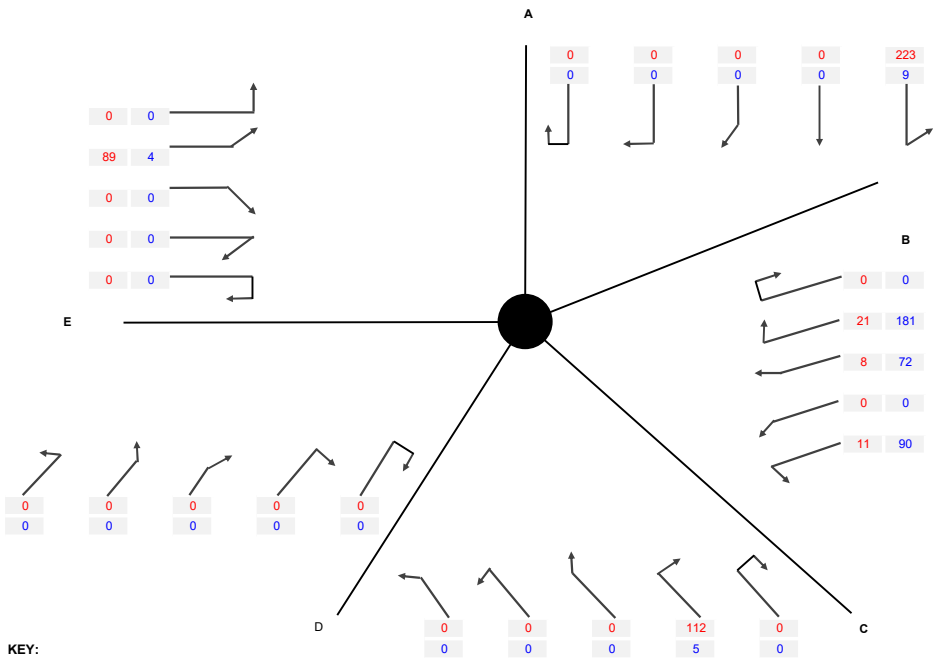
PCUs						
	A	B	C	D	E	TOTAL
A	0	46	0	0	0	46
B	223	0	117	0	93	433
C	0	23	0	0	0	23
D	0	0	0	0	0	0
E	0	19	0	0	0	19
TOTAL	223	88	117	0	93	521



Project Number: 25-0382
Project Title: Proposed Commercial Warehousing Development
Location: Chesterfield Road, Markham Vale
BSP Document Ref: CRMV-BSP-XX-XX-T-H-0002_P01_Preliminary_Transport_Assessment
Diagram Title: Diagram 3: Committed Development - Buttermilk Employment Zone

PROPOSED SITE ACCESS / A632 CHESTERFIELD ROAD

- ARM Description
- A: A6192 Markham Lane
 - B: Buttermilk Lane
 - C: A632 Chesterfield Road (SE)
 - D: (New Arm) Site Access
 - E: A632 Chesterfield Road (W)



KEY:

- 0 = AM PCUs
- 0 = PM PCUs

60% of TOTAL

AM PEAK HOUR						
PCUs						
	A	B	C	D	E	TOTAL
A	0	223	0	0	0	223
B	21	0	11	0	8	40
C	0	112	0	0	0	112
D	0	0	0	0	0	0
E	0	89	0	0	0	89
TOTAL	21	424	11	0	8	464

TOTAL

AM PEAK HOUR						
PCUs						
	A	B	C	D	E	TOTAL
A	0	223	0	0	0	223
B	21	0	11	0	8	40
C	0	112	0	0	0	112
D	0	0	0	0	0	0
E	0	89	0	0	0	89
TOTAL	21	424	11	0	8	464

PM PEAK HOUR

PCUs						
	A	B	C	D	E	TOTAL
A	0	9	0	0	0	9
B	181	0	90	0	72	343
C	0	5	0	0	0	5
D	0	0	0	0	0	0
E	0	4	0	0	0	4
TOTAL	181	18	90	0	72	361

PM PEAK HOUR

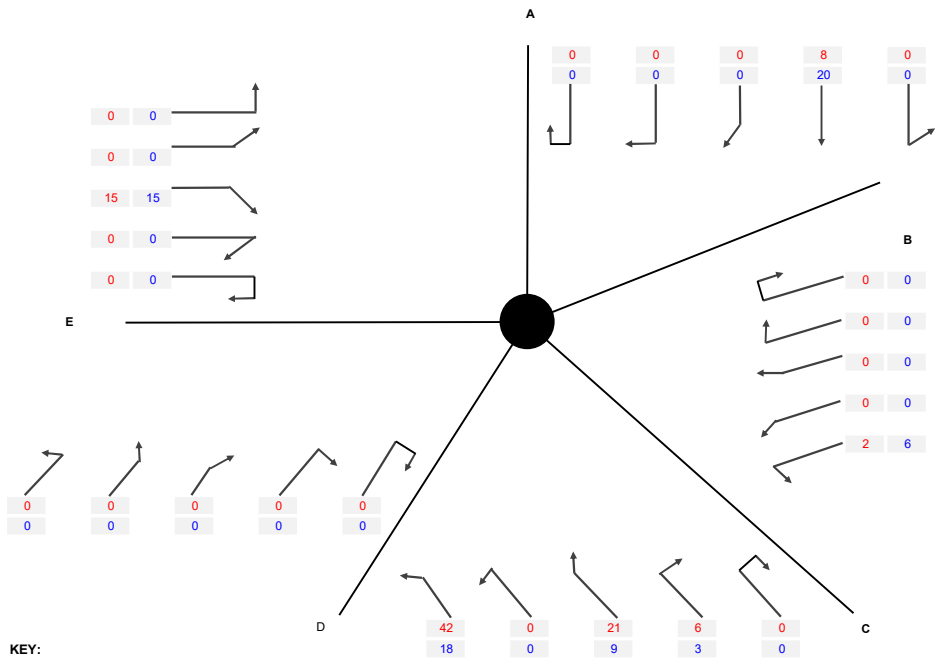
PCUs						
	A	B	C	D	E	TOTAL
A	0	9	0	0	0	9
B	181	0	90	0	72	343
C	0	5	0	0	0	5
D	0	0	0	0	0	0
E	0	4	0	0	0	4
TOTAL	181	18	90	0	72	361



Project Number: 25-0382
Project Title: Proposed Commercial Warehousing Development
Location: Chesterfield Road, Markham Vale
BSP Document Ref: CRMV-BSP-XX-XX-T-H-0002_P01_Preliminary_Transport_Assessment
Diagram Title: Diagram 4: Committed Development - Buttermilk Warehousing

PROPOSED SITE ACCESS / A632 CHESTERFIELD ROAD

- ARM Description**
A: A6192 Markham Lane
B: Buttermilk Lane
C: A632 Chesterfield Road (SE)
D: (New Arm) Site Access
E: A632 Chesterfield Road (W)



KEY:
0 = AM PCUs
0 = PM PCUs

AM PEAK HOUR

PCUs						
	A	B	C	D	E	TOTAL
A	0	0	8	0	0	8
B	0	0	2	0	0	2
C	21	6	0	0	42	69
D	0	0	0	0	0	0
E	0	0	15	0	0	15
TOTAL	21	6	25	0	42	94

PM PEAK HOUR

PCUs						
	A	B	C	D	E	TOTAL
A	0	0	20	0	0	20
B	0	0	6	0	0	6
C	9	3	0	0	18	30
D	0	0	0	0	0	0
E	0	0	15	0	0	15
TOTAL	9	3	41	0	18	71

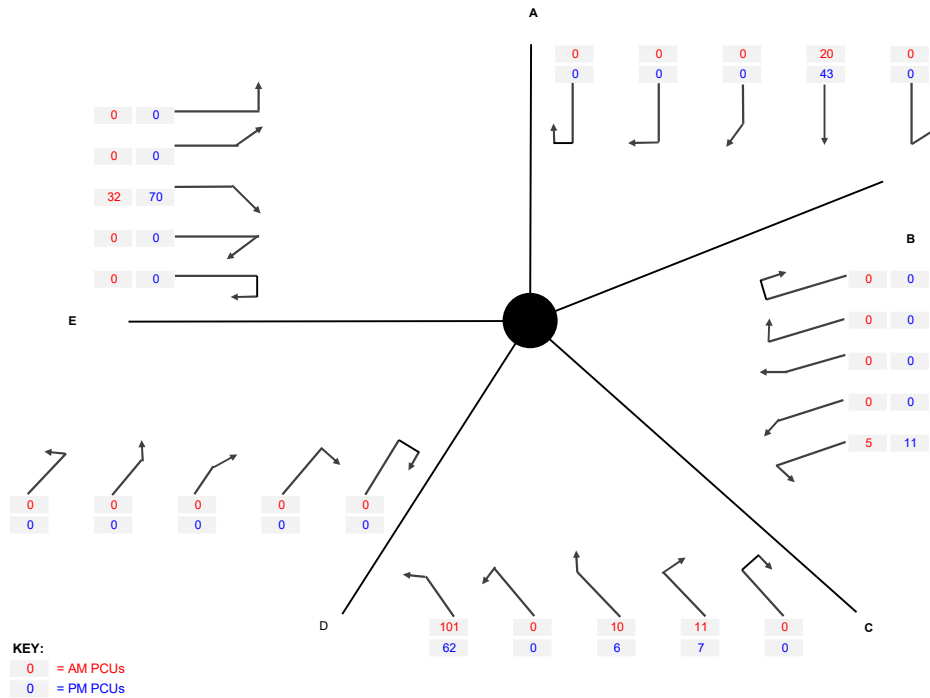


Project Number: 25-0382
Project Title: Proposed Commercial Warehousing Development
Location: Chesterfield Road, Markham Vale
BSP Document Ref: CRMV-BSP-XX-XX-T-H-0002_P01_Preliminary_Transport_Assessment
Diagram Title: Diagram 5: Committed Development - 202 Dwellings Chesterfield Road

PROPOSED SITE ACCESS / A632 CHESTERFIELD ROAD

ARM Description

- A: A6192 Markham Lane
- B: Buttermilk Lane
- C: A632 Chesterfield Road (SE)
- D: (New Arm) Site Access
- E: A632 Chesterfield Road (W)



AM PEAK HOUR

60% of TOTAL

PCUs	A	B	C	D	E	TOTAL
A	0	0	20	0	0	20
B	0	0	5	0	0	5
C	10	11	0	0	101	121
D	0	0	0	0	0	0
E	0	0	32	0	0	32
TOTAL	10	11	56	0	101	178

PM PEAK HOUR

PCUs	A	B	C	D	E	TOTAL
A	0	0	43	0	0	43
B	0	0	11	0	0	11
C	6	7	0	0	62	74
D	0	0	0	0	0	0
E	0	0	70	0	0	70
TOTAL	6	7	124	0	62	199

AM PEAK HOUR

Ph1-5

PCUs	A	B	C	D	E	TOTAL
A	0	0	31	0	0	31
B	0	0	8	0	0	8
C	15	17	0	0	158	190
D	0	0	0	0	0	0
E	0	0	50	0	0	50
TOTAL	15	17	89	0	158	279

PM PEAK HOUR

PCUs	A	B	C	D	E	TOTAL
A	0	0	68	0	0	68
B	0	0	17	0	0	17
C	9	10	0	0	97	116
D	0	0	0	0	0	0
E	0	0	110	0	0	110
TOTAL	9	10	195	0	97	311

AM PEAK HOUR

Ph6

PCUs	A	B	C	D	E	TOTAL
A	0	0	2	0	0	2
B	0	0	0	0	0	0
C	1	1	0	0	10	12
D	0	0	0	0	0	0
E	0	0	3	0	0	3
TOTAL	1	1	5	0	10	17

PM PEAK HOUR

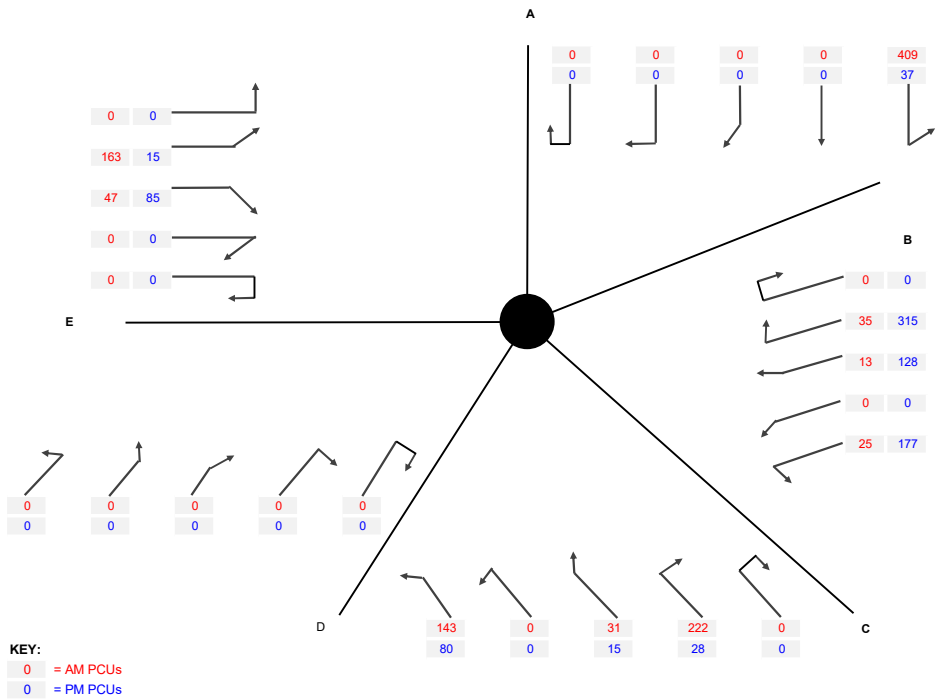
PCUs	A	B	C	D	E	TOTAL
A	0	0	4	0	0	4
B	0	0	1	0	0	1
C	1	1	0	0	6	8
D	0	0	0	0	0	0
E	0	0	7	0	0	7
TOTAL	1	1	12	0	6	20



Project Number: 25-0382
 Project Title: Proposed Commercial Warehousing Development
 Location: Chesterfield Road, Markham Vale
 BSP Document Ref: CRMV-BSP-XX-XX-T-H-0002_P01_Preliminary_Transport_Assessment
 Diagram Title: Diagram 6: Committed Development - 547 of 950 Dwellings between Welbeck Road and Oxcroft Lane

PROPOSED SITE ACCESS / A632 CHESTERFIELD ROAD

- ARM Description**
A: A6192 Markham Lane
B: Buttermilk Lane
C: A632 Chesterfield Road (SE)
D: (New Arm) Site Access
E: A632 Chesterfield Road (W)



AM PEAK HOUR

PCUs	A	B	C	D	E	TOTAL
A	0	409	28	0	0	437
B	35	0	25	0	13	73
C	31	222	0	0	143	395
D	0	0	0	0	0	0
E	0	163	47	0	0	210
TOTAL	65	794	100	0	156	1115

PM PEAK HOUR

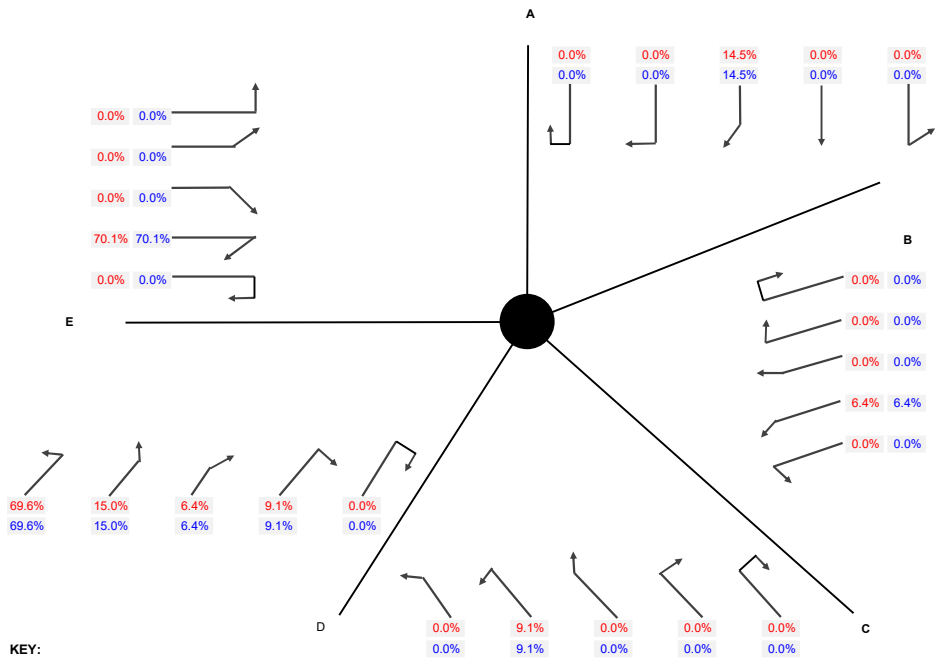
PCUs	A	B	C	D	E	TOTAL
A	0	37	63	0	0	100
B	315	0	177	0	128	620
C	15	28	0	0	80	123
D	0	0	0	0	0	0
E	0	15	85	0	0	101
TOTAL	330	80	325	0	208	943



Project Number: 25-0382
Project Title: Proposed Commercial Warehousing Development
Location: Chesterfield Road, Markham Vale
BSP Document Ref: CRMV-BSP-XX-XX-T-H-0002_P01_Preliminary_Transport_Assessment
Diagram Title: Diagram 7: Committed Development (TOTAL)

PROPOSED SITE ACCESS / A632 CHESTERFIELD ROAD

- ARM Description**
A: A6192 Markham Lane
B: Buttermilk Lane
C: A632 Chesterfield Road (SE)
D: (New Arm) Site Access
E: A632 Chesterfield Road (W)



KEY:
0 = AM % Light Vehicles
0 = PM % Light Vehicles

AM PEAK HOUR

Light Vehicles						
	A	B	C	D	E	TOTAL
A	0%	0%	0%	14.5%	0%	15%
B	0%	0%	0%	6.4%	0%	6%
C	0%	0%	0%	9.1%	0%	9%
D	15.0%	6.4%	9.1%	0.0%	69.6%	100%
E	0%	0%	0%	70.1%	0%	70%
TOTAL	15%	6%	9%	100%	70%	200%

PM PEAK HOUR

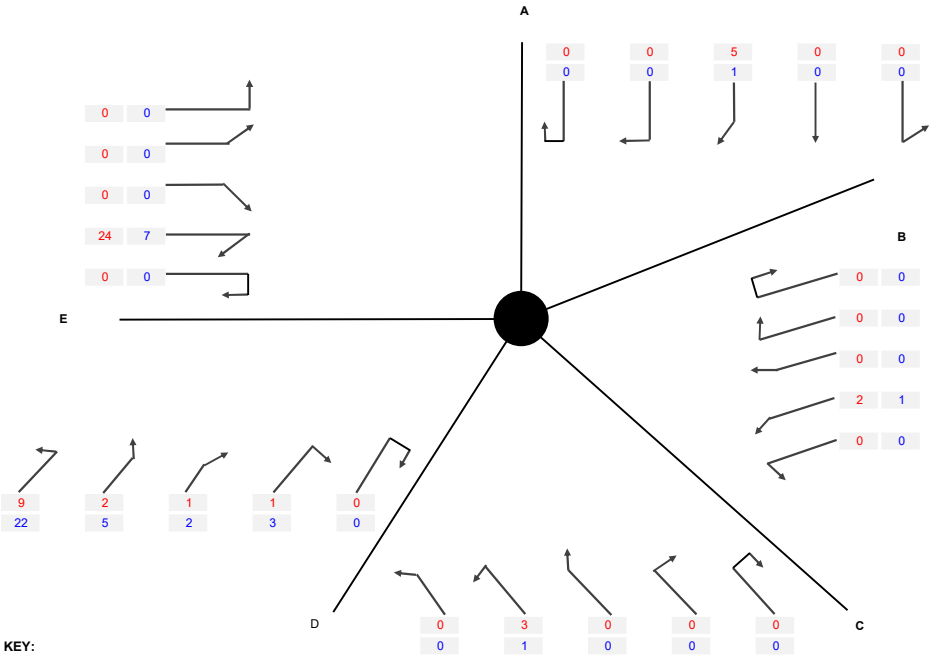
Light Vehicles						
	A	B	C	D	E	TOTAL
A	0%	0%	0%	14.5%	0%	15%
B	0%	0%	0%	6.4%	0%	6%
C	0%	0%	0%	9.1%	0%	9%
D	15.0%	6.4%	9.1%	0.0%	69.6%	100%
E	0%	0%	0%	70.1%	0%	70%
TOTAL	15%	6%	9%	100%	70%	200%



Project Number: 25-0382
Project Title: Proposed Commercial Warehousing Development
Location: Chesterfield Road, Markham Vale
BSP Document Ref: CRMV-BSP-XX-XX-T-H-0002_P01_Preliminary_Transport_Assessment
Diagram Title: Diagram 8: Distribution (Light Vehicles)

PROPOSED SITE ACCESS / A632 CHESTERFIELD ROAD

- ARM Description**
A: A6192 Markham Lane
B: Buttermilk Lane
C: A632 Chesterfield Road (SE)
D: (New Arm) Site Access
E: A632 Chesterfield Road (W)



KEY:
0 = AM Light Vehicles
0 = PM Light Vehicles

AM PEAK HOUR

Light Vehicles	
IN	OUT
34	13

AM PEAK HOUR

Light Vehicles						
	A	B	C	D	E	TOTAL
A	0	0	0	5	0	5
B	0	0	0	2	0	2
C	0	0	0	3	0	3
D	2	1	1	0	9	13
E	0	0	0	24	0	24
TOTAL	2	1	1	34	9	47

PM PEAK HOUR

Light Vehicles	
IN	OUT
10	32

PM PEAK HOUR

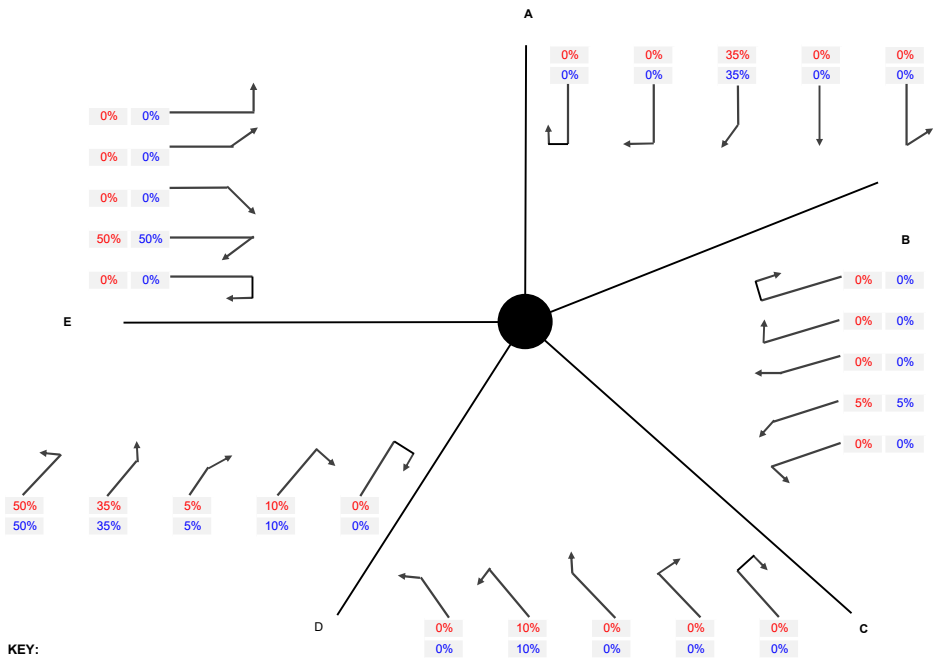
Light Vehicles						
	A	B	C	D	E	TOTAL
A	0	0	0	1	0	1
B	0	0	0	1	0	1
C	0	0	0	1	0	1
D	5	2	3	0	22	32
E	0	0	0	7	0	7
TOTAL	5	2	3	10	22	42



Project Number: 25-0382
Project Title: Proposed Commercial Warehousing Development
Location: Chesterfield Road, Markham Vale
BSP Document Ref: CRMV-BSP-XX-XX-T-H-0002_P01_Preliminary_Transport_Assessment
Diagram Title: Diagram 9: Development Traffic (Light Vehicles)

PROPOSED SITE ACCESS / A632 CHESTERFIELD ROAD

- ARM Description**
A: A6192 Markham Lane
B: Buttermilk Lane
C: A632 Chesterfield Road (SE)
D: (New Arm) Site Access
E: A632 Chesterfield Road (W)



KEY:
0 = AM % HGVs
0 = PM % HGVs

AM PEAK HOUR

HGVs	A	B	C	D	E	TOTAL
A	0%	0%	0%	35%	0%	35%
B	0%	0%	0%	5%	0%	5%
C	0%	0%	0%	10%	0%	10%
D	35%	5%	10%	0%	50%	100%
E	0%	0%	0%	50%	0%	50%
TOTAL	35%	5%	10%	100%	50%	200%

PM PEAK HOUR

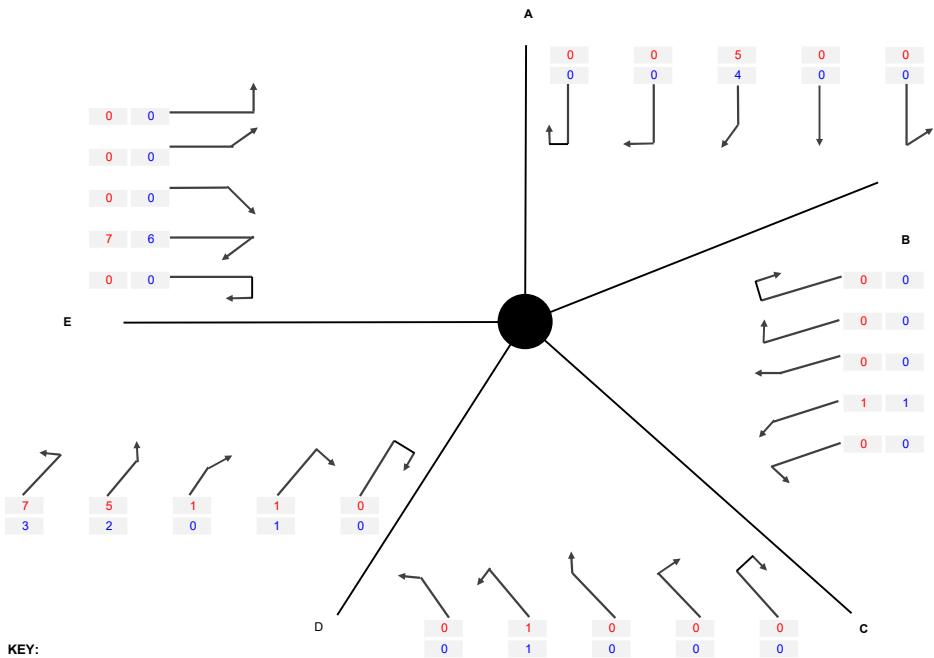
HGVs	A	B	C	D	E	TOTAL
A	0%	0%	0%	35%	0%	35%
B	0%	0%	0%	5%	0%	5%
C	0%	0%	0%	10%	0%	10%
D	35%	5%	10%	0%	50%	100%
E	0%	0%	0%	50%	0%	50%
TOTAL	35%	5%	10%	100%	50%	200%



Project Number: 25-0382
Project Title: Proposed Commercial Warehousing Development
Location: Chesterfield Road, Markham Vale
BSP Document Ref: CRMV-BSP-XX-XX-T-H-0002_P01_Preliminary_Transport_Assessment
Diagram Title: Diagram 10: Distribution (HGVs)

PROPOSED SITE ACCESS / A632 CHESTERFIELD ROAD

- ARM Description
- A: A6192 Markham Lane
 - B: Buttermilk Lane
 - C: A632 Chesterfield Road (SE)
 - D: (New Arm) Site Access
 - E: A632 Chesterfield Road (W)



KEY:

- 0 = AM Light Vehicles
- 0 = PM Light Vehicles

AM PEAK HOUR

HGVs	
IN	OUT
14	14

AM PEAK HOUR

HGVs						
	A	B	C	D	E	TOTAL
A	0	0	0	5	0	5
B	0	0	0	1	0	1
C	0	0	0	1	0	1
D	5	1	1	0	7	14
E	0	0	0	7	0	7
TOTAL	5	1	1	14	7	28

PM PEAK HOUR

HGVs	
IN	OUT
11	5

PM PEAK HOUR

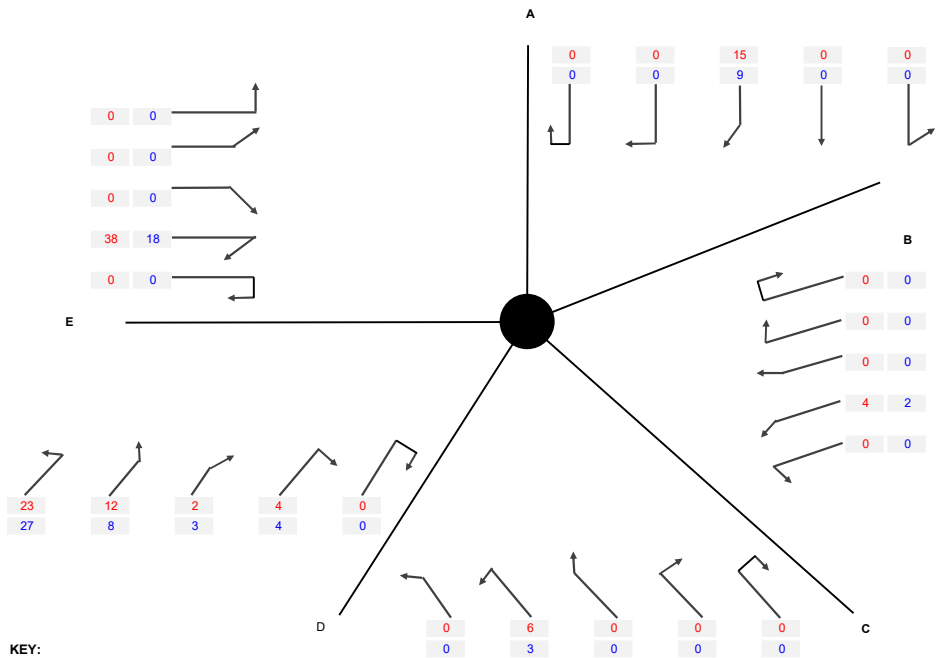
HGVs						
	A	B	C	D	E	TOTAL
A	0	0	0	4	0	4
B	0	0	0	1	0	1
C	0	0	0	1	0	1
D	2	0	1	0	3	5
E	0	0	0	6	0	6
TOTAL	2	0	1	11	3	16



Project Number: 25-0382
Project Title: Proposed Commercial Warehousing Development
Location: Chesterfield Road, Markham Vale
BSP Document Ref: CRMV-BSP-XX-XX-T-H-0002_P01_Preliminary_Transport_Assessment
Diagram Title: Diagram 11: Development Traffic (HGVs)

PROPOSED SITE ACCESS / A632 CHESTERFIELD ROAD

- ARM Description
- A: A6192 Markham Lane
 - B: Buttermilk Lane
 - C: A632 Chesterfield Road (SE)
 - D: (New Arm) Site Access
 - E: A632 Chesterfield Road (W)



KEY:

- 0 = AM PCUs
- 0 = PM PCUs

AM PEAK HOUR

PCUs						
	A	B	C	D	E	TOTAL
A				15		15
B				4		4
C				6		6
D	12	2	4	0	23	41
E				38		38
TOTAL	12	2	4	62	23	103

PM PEAK HOUR

PCUs						
	A	B	C	D	E	TOTAL
A				9		9
B				2		2
C				3		3
D	8	3	4	0	27	42
E				18		18
TOTAL	8	3	4	32	27	74

%HGVs

	A	B	C	D	E
A				33%	
B				20%	
C				24%	
D	42%	31%	35%	0%	30%
E				19%	

%HGVs

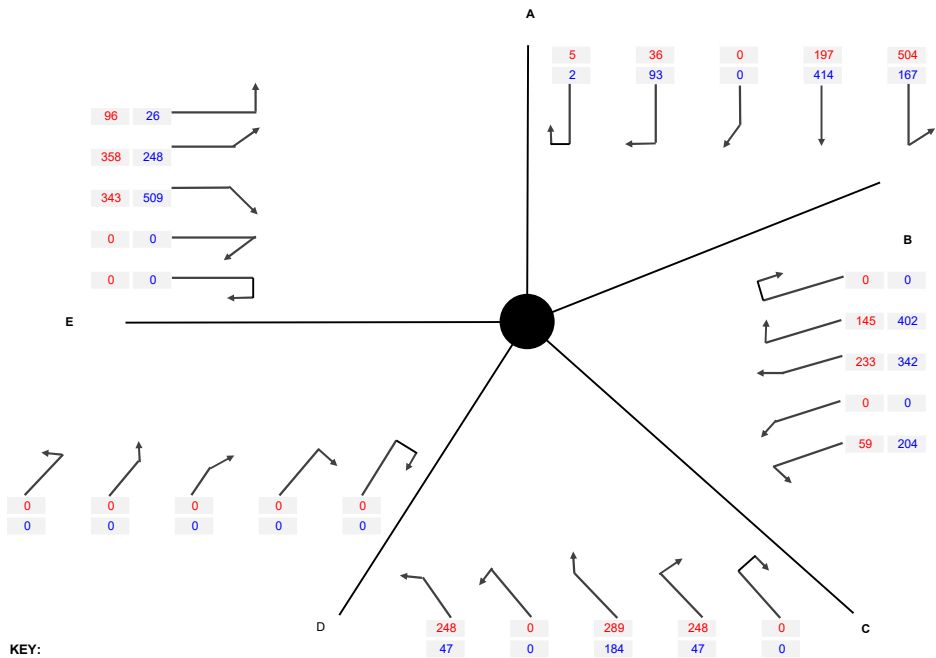
	A	B	C	D	E
A				42%	
B				32%	
C				35%	
D	21%	10%	13%	0%	9%
E				31%	



Project Number: 25-0382
Project Title: Proposed Commercial Warehousing Development
Location: Chesterfield Road, Markham Vale
BSP Document Ref: CRMV-BSP-XX-XX-T-H-0002_P01_Preliminary_Transport_Assessment
Diagram Title: Diagram 12: Development Traffic (PCUs)

PROPOSED SITE ACCESS / A632 CHESTERFIELD ROAD

- ARM Description**
A: A6192 Markham Lane
B: Buttermilk Lane
C: A632 Chesterfield Road (SE)
D: (New Arm) Site Access
E: A632 Chesterfield Road (W)



KEY:
0 = AM PCUs
0 = PM PCUs

AM PEAK HOUR

PCUs						
	A	B	C	D	E	TOTAL
A	5	504	197	0	36	741
B	145	0	59	0	233	437
C	289	248	0	0	540	1076
D	0	0	0	0	0	0
E	96	358	343	0	0	798
TOTAL	534	1109	599	0	809	3052

PM PEAK HOUR

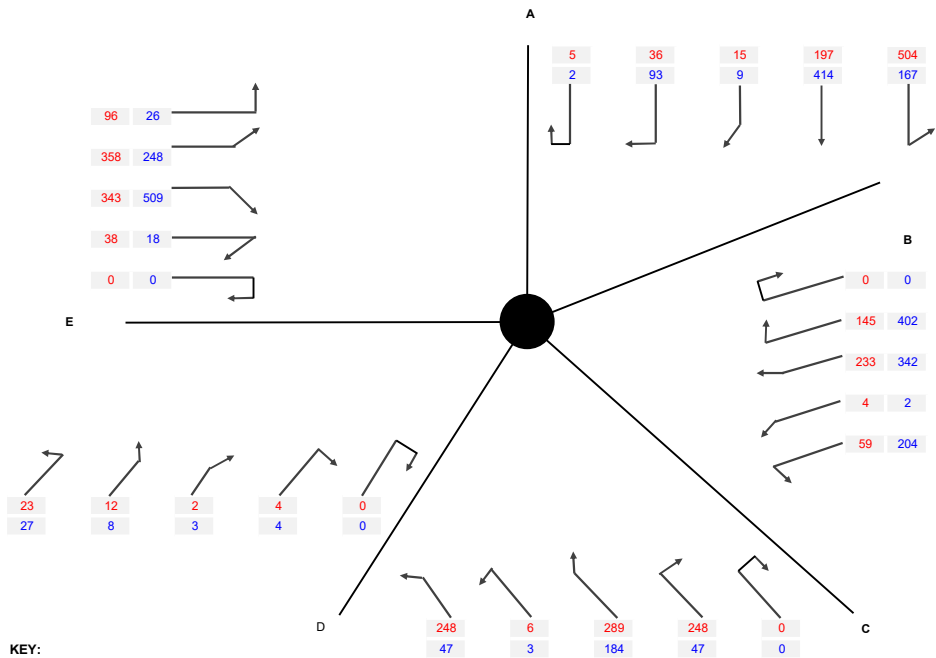
PCUs						
	A	B	C	D	E	TOTAL
A	2	167	414	0	93	676
B	402	0	204	0	342	948
C	184	47	0	0	394	625
D	0	0	0	0	0	0
E	26	248	509	0	0	783
TOTAL	615	462	1127	0	829	3032



Project Number: 25-0382
Project Title: Proposed Commercial Warehousing Development
Location: Chesterfield Road, Markham Vale
BSP Document Ref: CRMV-BSP-XX-XX-T-H-0002_P01_Preliminary_Transport_Assessment
Diagram Title: Diagram 13: 2034 + Committed Development

PROPOSED SITE ACCESS / A632 CHESTERFIELD ROAD

- ARM Description**
A: A6192 Markham Lane
B: Buttermilk Lane
C: A632 Chesterfield Road (SE)
D: (New Arm) Site Access
E: A632 Chesterfield Road (W)



KEY:
0 = AM PCUs
0 = PM PCUs

AM PEAK HOUR

PCUs						
	A	B	C	D	E	TOTAL
A	5	504	197	15	36	756
B	145	0	59	4	233	441
C	289	248	0	6	540	1082
D	12	2	4	0	23	41
E	96	358	343	38	0	835
TOTAL	546	1112	603	62	832	3155

PM PEAK HOUR

PCUs						
	A	B	C	D	E	TOTAL
A	2	167	414	9	93	685
B	402	0	204	2	342	949
C	184	47	0	3	394	628
D	8	3	4	0	27	42
E	26	248	509	18	0	801
TOTAL	623	464	1131	32	856	3106



Project Number: 25-0382
Project Title: Proposed Commercial Warehousing Development
Location: Chesterfield Road, Markham Vale
BSP Document Ref: CRMV-BSP-XX-XX-T-H-0002_P01_Preliminary_Transport_Assessment
Diagram Title: Diagram 14: 2034 + Committed Development + Proposed Development

Project Number: 25-0382
Project Title: Proposed Strategic Logistics Development
Location: Land South of Chesterfield Road, Markham Vale
BSP Document Ref: CRMV-BSP-XX-XX-T-H-0001_P02_Preliminary_Transport_Assessment



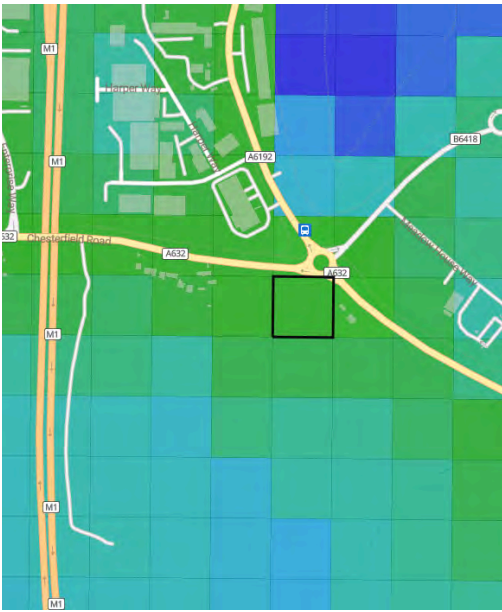
Appendix D Connectivity Tool Results

Connectivity Tool Lite

Guidance

Explore the score

Square ID	445050_371150
Local authorities	North East Derbyshire Derbyshire East Midlands
Latitude	53.235479
Longitude	-1.326514



Overall

Type	National score	National distribution
Overall (except driving)	46	Slightly below average (40-50%)
Public transport	54	Slightly above average (50-60%)
Walking	34	Below average (30-40%)
Cycling	54	Slightly above average (50-60%)
Driving	85	Very high (80-90%)

Workplaces

Type	National score	National distribution
Overall (except driving)	48	Slightly below average (40-50%)
Public transport	50	Slightly above average (50-60%)

Type	National score	National distribution
Walking	38	Below average (30-40%)
Cycling	54	Slightly above average (50-60%)
Driving	82	Very high (80-90%)

Project Number: 25-0382
Project Title: Proposed Strategic Logistics Development
Location: Land South of Chesterfield Road, Markham Vale
BSP Document Ref: CRMV-BSP-XX-XX-T-H-0001_P02_Preliminary_Transport_Assessment



Appendix E Preliminary Site Access Arrangements

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Chesterfield Road, Markham Vale.
Proposed Site Access Arrangement
Scale 1:500

Markham Lane
Entry Width - 9.5m
Entry Angle - 26.0 degrees
Entry Radii - 30mR
Effective Flare Length - 19.1m
Exit Width - 9.8m
Exit Radii - 26.8mR

Chesterfield Road (West)
Entry Width - 9.0m
Entry Angle - 29.0 degrees
Entry Radii - 13mR
Effective Flare Length - 17.2m
Exit Width - 8.1m
Exit Radii - 26.3mR

Roundabout providing:
58m Inscribed Circle Diameter
34m Diameter Central Island
2m Apron
12m Circulatory Carriageway (2 lanes)

Buttermilk Lane
Entry Width - 8.7m
Entry Angle - 28.5 degrees
Entry Radii - 30mR
Effective Flare Length - 15.8m
Exit Width - 7.3m
Exit Radii - 54.9mR

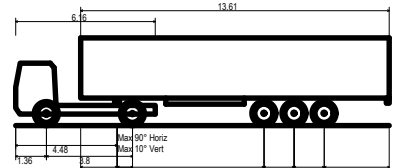
Site Access
Entry Width - 9.3m
Entry Angle - 31.8 degrees
Entry Radii - 30mR
Effective Flare Length - 17.4m
Exit Width - 9.5m
Exit Radii - 30.0mR

Chesterfield Road (East)
Entry Width - 10.3m
Entry Angle - 22.04 degrees
Entry Radii - 30mR
Effective Flare Length - 12.1m
Exit Width - 7.9m
Exit Radii - 56.6mR

Proposed Swept Path Analysis
16.5m HGV Vehicle Entering/Exiting at 15kph
1:500

Proposed Swept Path Analysis
16.5m HGV Vehicle Entering/Exiting at 15kph
1:500

KEY PLAN



FTA Design Articulated Vehicle (1998)
Overall Length 16.400m
Overall Width 2.550m
Overall Body Height 3.870m
Max Entry Offset Clearance 6.530m
Max Track Width 2.470m
Lock to Lock Time 3.00s
Kerb to Kerb Turning Radius 6.550m

Show Settings

Design speed forwards 15.00 km/h
Design speed reverse 2.50 km/h

Construction Risks Maintenance/Clearing Risks Demolition/Adaptation Risks

In addition to the hazards/risks normally associated with the type of works detailed on this drawing take note of the above.
It is assumed that all works on this drawing will be carried out by a competent contractor working, where appropriate, to an appropriate method statement.

SAFETY HEALTH AND ENVIRONMENTAL INFORMATION BOX

NOTES

- DO NOT SCALE.
- Should there be any conflict between the details indicated on this drawing and those indicated on other drawings the Engineer should be informed PRIOR to construction on site.
- Until technical approval has been obtained from the relevant Authority, it should be understood that all drawings issued are Preliminary and NOT for construction. Should the contractor commence site work prior to such approval being given, it is entirely at his own risk.
- All dimensions are in millimetres unless otherwise stated.
- The BSP Hazard Identification and Risk Assessment information for this project must be reviewed and understood by the contractor PRIOR to the commencement of any works on site.
- This drawing contains the following model files:
- This drawing to be viewed in conjunction with:
- The construction of the new roads shall be in accordance with LCC Design Guide and Specification, together with the Department of Transport, Specification for Highway Works.
- Prior to commencing any works on site the contractor shall check all tie ins for line and level together with the inverts and sizes of all existing drainages and inform the engineer if there is any variation with the details indicated on this or any other relevant drawings.
- Services diversions may be required to facilitate the proposed S278 works. Contractor to liaise with utility providers to confirm extent of diversions required.
- NOTE - EXTENT OF SECTION 278 WORKS IS SUBJECT TO APPROVAL FROM THE HIGHWAY AUTHORITY AT COMPLETION OF THE TRANSPORT ASSESSMENT. ADDITIONAL WORKS MAY BE REQUESTED TO ACHIEVE SECTION 278 TECHNICAL APPROVAL.

Initial Issue

REV COMMENT

SCALE @ A1

ISSUING OFFICE

PROJECT NUMBER

CLIENT APPROVAL

A - APPROVED

B - APPROVED WITH COMMENTS

C - DO NOT USE

STATUS

PURPOSE OF ISSUE

S1 PRELIMINARY

CIVIL • STRUCTURAL • TRANSPORTATION • GEOTECHNICAL • ENVIRONMENTAL



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PROJECT

Land South of Chesterfield Road,
Markham Vale

TITLE
Proposed Site Access Arrangements
& Swept Path Analysis
Option A

CLIENT

Wilson Bowden Developments Limited

PROJECT ORIGINATOR ZONE LEVEL TYPE ROLE NUMBER REV

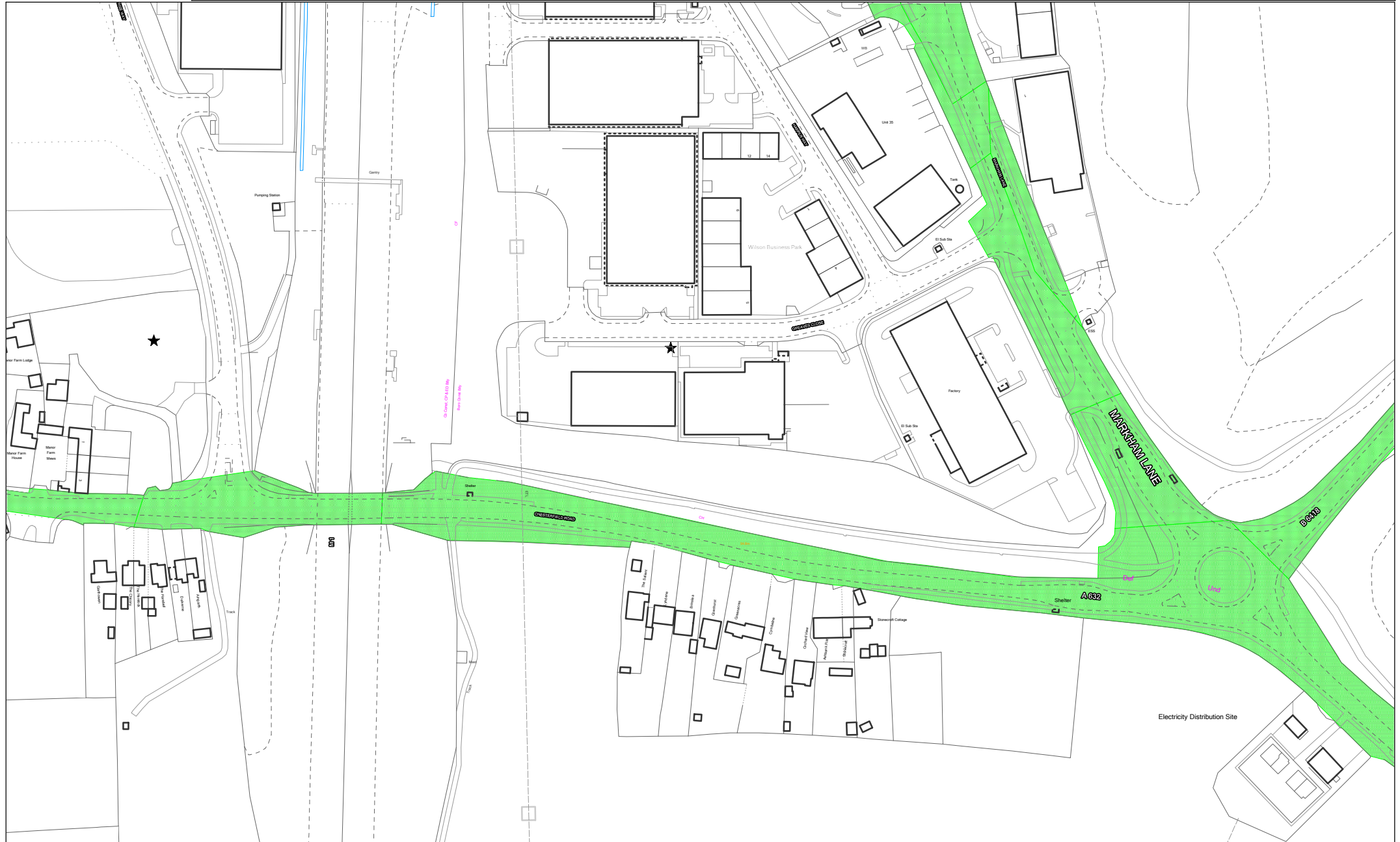
CRMV-BSP-XX-XX-D-H-0001 P01

Project Number: 25-0382
Project Title: Proposed Strategic Logistics Development
Location: Land South of Chesterfield Road, Markham Vale
BSP Document Ref: CRMV-BSP-XX-XX-T-H-0001_P02_Preliminary_Transport_Assessment



Appendix F Highway Extents Plan

Chesterfield Road



Project Number: 25-0382
Project Title: Proposed Strategic Logistics Development
Location: Land South of Chesterfield Road, Markham Vale
BSP Document Ref: CRMV-BSP-XX-XX-T-H-0001_P02_Preliminary_Transport_Assessment



Appendix G TRICS Data

Audit Code: f25e99cd-a8cd-4201-8640-5af2157859f8

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use: 02 - EMPLOYMENT

Category: F - WAREHOUSING (COMMERCIAL)

Selected Vehicle Type: Total Vehicles

Selected regions and areas:

03	SOUTH WEST	
	DV	DEVON
		1 day
05	EAST MIDLANDS	
	NT	NOTTINGHAMSHIRE
		1 day
07	YORKSHIRE & NORTH LINCOLNSHIRE	
	NY	NORTH YORKSHIRE
		1 day
09	NORTH	
	CU	CUMBERLAND
		1 day

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

Audit Code: f25e99cd-a8cd-4201-8640-5af2157859f8

Primary Filtering Selection:

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

Parameter:	GFA
Actual Range:	1750 to 105335 (units:sqm)
Range Selected by User:	950 to 105335 (units:sqm)
Parking Spaces Range:	4 - 1192

Public Transport Provision:

Selection by:	All Surveys Included
Date Range:	05/01/16 to 24/06/25

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	2 days
Wednesday	2 days

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

Selected survey types:

Manual count	4
Direction ATC Count	0

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	3 days
Free Standing	1 days

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:

Development Zone	1 days
Industrial Zone	2 days
Out of Town	1 days

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

Inclusion of Servicing Vehicle Counts:

Servicing vehicles Included	2 days
Servicing vehicles Unknown	2 days

Audit Code: f25e99cd-a8cd-4201-8640-5af2157859f8

Secondary Filtering Selection:

Use Class:

B8	4 surveys
----	-----------

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

Population within 500m Range:

200 - 616

Population within 1 mile:

1,000 or Less	1 surveys
1,001 to 5,000	2 surveys
5,001 to 10,000	1 surveys

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

Population within 5 miles:

100,001 to 125,000	1 surveys
25,001 to 50,000	1 surveys
5,001 to 25,000	1 surveys
75,001 to 100,000	1 surveys

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	4 surveys
------------	-----------

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.

Audit Code: f25e99cd-a8cd-4201-8640-5af2157859f8

Petrol filling station:

This data displays the number of surveys within the selected set that include petrol filling station activity, and the number of surveys that do not.

Travel Plan:

No	3 surveys
Yes	1 surveys

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

PTAL Rating:

No PTAL Present	4 surveys
-----------------	-----------

This data displays the number of surveys within the selected set that include petrol filling station activity, and the number of surveys that do not.

COVID-19 Restrictions:

No

Audit Code: f25e99cd-a8cd-4201-8640-5af2157859f8

1	CU-02-F-01	WAREHOUSING & DISTRIBUTION	CUMBERLAND
CARLISLE ROAD BRAMPTON Edge of Town Industrial Zone Gross floor area: 4007 sqm Survey date: Wednesday 19/06/2024			
		Survey Type: Manual	
2	DV-02-F-03	LIDL DISTRIBUTION CENTRE	DEVON
CHILLPARK BRAKE NEAR EXETER CLYST HONITON Free Standing Out of Town Gross floor area: 49081 sqm Survey date:			
		Survey Type: Manual	
3	NT-02-F-01	LOGISTICS WAREHOUSING PARK	NOTTINGHAMSHIRE
NOOK FLATT ROAD NEAR WORKSOP BLYTH Edge of Town Development Zone Gross floor area: 105335 sqm Survey date: Wednesday 18/10/2023			
		Survey Type: Manual	
4	NY-02-F-01	REMOVALS SERVICE	NORTH YORKSHIRE
GRIMBALD CRAG CLOSE KNARESBOROUGH Edge of Town Industrial Zone Gross floor area: 1750 sqm Survey date:			
		Survey Type: Manual	

Audit Code: f25e99cd-a8cd-4201-8640-5af2157859f8

TRIP RATE for Land Use 02 - EMPLOYMENT/F - WAREHOUSING (COMMERCIAL)

Total Vehicles

Calculation factor: 100 sqm

**BOLD print indicates peak (busiest) period*

Time Range	No. Days	Ave. GFA	Arrivals	Departures	Totals
00:00-01:00					
01:00-02:00					
02:00-03:00					
03:00-04:00					
04:00-05:00					
05:00-06:00	3	52808	0.056	0.022	0.078
06:00-07:00	3	52808	0.039	0.023	0.062
07:00-08:00	4	40043	0.061	0.034	0.095
08:00-09:00	4	40043	0.064	0.036	0.100
09:00-10:00	4	40043	0.040	0.030	0.070
10:00-11:00	4	40043	0.039	0.031	0.070
11:00-12:00	4	40043	0.030	0.025	0.055
12:00-13:00	4	40043	0.034	0.040	0.074
13:00-14:00	4	40043	0.029	0.044	0.073
14:00-15:00	4	40043	0.029	0.064	0.093
15:00-16:00	4	40043	0.021	0.033	0.054
16:00-17:00	4	40043	0.022	0.038	0.060
17:00-18:00	4	40043	0.027	0.049	0.076
18:00-19:00	4	40043	0.010	0.023	0.033
19:00-20:00	3	52808	0.011	0.013	0.024
20:00-21:00	3	52808	0.011	0.011	0.022
21:00-22:00					
22:00-23:00					
23:00-00:00					
Total Rates:			0.523	0.516	1.039

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: $COUNT/TRP \times FACT$. Trip rates are then rounded to 3 decimal places.

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Audit Code: f25e99cd-a8cd-4201-8640-5af2157859f8

Parameter Summary:

Trip rate parameter range selected:	950 - 105335 (units: sqm)
Survey date date range:	22/11/2021 - 19/06/2024
Number of weekdays (Monday-Friday):	4
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	0

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

Audit Code: f25e99cd-a8cd-4201-8640-5af2157859f8

TRIP RATE for Land Use 02 - EMPLOYMENT/F - WAREHOUSING (COMMERCIAL)

Total People

Calculation factor: 100 sqm

**BOLD print indicates peak (busiest) period*

Time Range	No. Days	Ave. GFA	Arrivals	Departures	Totals
00:00-01:00					
01:00-02:00					
02:00-03:00					
03:00-04:00					
04:00-05:00					
05:00-06:00	3	52808	0.065	0.026	0.091
06:00-07:00	3	52808	0.042	0.027	0.069
07:00-08:00	4	40043	0.074	0.040	0.114
08:00-09:00	4	40043	0.076	0.040	0.116
09:00-10:00	4	40043	0.046	0.034	0.080
10:00-11:00	4	40043	0.042	0.034	0.076
11:00-12:00	4	40043	0.036	0.029	0.065
12:00-13:00	4	40043	0.046	0.044	0.090
13:00-14:00	4	40043	0.042	0.052	0.094
14:00-15:00	4	40043	0.032	0.078	0.110
15:00-16:00	4	40043	0.025	0.039	0.064
16:00-17:00	4	40043	0.026	0.050	0.076
17:00-18:00	4	40043	0.029	0.061	0.090
18:00-19:00	4	40043	0.011	0.027	0.038
19:00-20:00	3	52808	0.013	0.015	0.028
20:00-21:00	3	52808	0.014	0.013	0.027
21:00-22:00					
22:00-23:00					
23:00-00:00					
Total Rates:			0.619	0.609	1.228

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

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

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Audit Code: f25e99cd-a8cd-4201-8640-5af2157859f8

Parameter Summary:

Trip rate parameter range selected:	950 - 105335 (units: sqm)
Survey date date range:	22/11/2021 - 19/06/2024
Number of weekdays (Monday-Friday):	4
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	0

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

Audit Code: f25e99cd-a8cd-4201-8640-5af2157859f8

TRIP RATE for Land Use 02 - EMPLOYMENT/F - WAREHOUSING (COMMERCIAL)

Cyclists

Calculation factor: 100 sqm

*BOLD print indicates peak (busiest) period

Time Range	No. Days	Ave. GFA	Arrivals	Departures	Totals
00:00-01:00					
01:00-02:00					
02:00-03:00					
03:00-04:00					
04:00-05:00					
05:00-06:00	3	52808	0.002	0.001	0.003
06:00-07:00	3	52808	0.000	0.001	0.001
07:00-08:00	4	40043	0.001	0.000	0.001
08:00-09:00	4	40043	0.001	0.000	0.001
09:00-10:00	4	40043	0.000	0.000	0.000
10:00-11:00	4	40043	0.000	0.000	0.000
11:00-12:00	4	40043	0.000	0.000	0.000
12:00-13:00	4	40043	0.001	0.000	0.001
13:00-14:00	4	40043	0.001	0.000	0.001
14:00-15:00	4	40043	0.000	0.001	0.001
15:00-16:00	4	40043	0.000	0.000	0.000
16:00-17:00	4	40043	0.000	0.001	0.001
17:00-18:00	4	40043	0.000	0.001	0.001
18:00-19:00	4	40043	0.000	0.000	0.000
19:00-20:00	3	52808	0.001	0.000	0.001
20:00-21:00	3	52808	0.001	0.000	0.001
21:00-22:00					
22:00-23:00					
23:00-00:00					
Total Rates:			0.008	0.005	0.013

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.

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Audit Code: f25e99cd-a8cd-4201-8640-5af2157859f8

Parameter Summary:

Trip rate parameter range selected:	950 - 105335 (units: sqm)
Survey date date range:	22/11/2021 - 18/10/2023
Number of weekdays (Monday-Friday):	3
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	0

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

Audit Code: f25e99cd-a8cd-4201-8640-5af2157859f8

TRIP RATE for Land Use 02 - EMPLOYMENT/F - WAREHOUSING (COMMERCIAL)

PSVs

Calculation factor: 100 sqm

*BOLD print indicates peak (busiest) period

Time Range	No. Days	Ave. GFA	Arrivals	Departures	Totals
00:00-01:00					
01:00-02:00					
02:00-03:00					
03:00-04:00					
04:00-05:00					
05:00-06:00	3	52808	0.000	0.000	0.000
06:00-07:00	3	52808	0.000	0.000	0.000
07:00-08:00	4	40043	0.000	0.002	0.002
08:00-09:00	4	40043	0.001	0.000	0.001
09:00-10:00	4	40043	0.000	0.000	0.000
10:00-11:00	4	40043	0.000	0.000	0.000
11:00-12:00	4	40043	0.000	0.000	0.000
12:00-13:00	4	40043	0.001	0.000	0.001
13:00-14:00	4	40043	0.000	0.000	0.000
14:00-15:00	4	40043	0.000	0.001	0.001
15:00-16:00	4	40043	0.001	0.001	0.002
16:00-17:00	4	40043	0.001	0.000	0.001
17:00-18:00	4	40043	0.000	0.000	0.000
18:00-19:00	4	40043	0.000	0.000	0.000
19:00-20:00	3	52808	0.000	0.000	0.000
20:00-21:00	3	52808	0.000	0.000	0.000
21:00-22:00					
22:00-23:00					
23:00-00:00					
Total Rates:			0.004	0.004	0.008

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: $COUNT/TRP \times FACT$. Trip rates are then rounded to 3 decimal places.

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Audit Code: f25e99cd-a8cd-4201-8640-5af2157859f8

Parameter Summary:

Trip rate parameter range selected:	950 - 105335 (units: sqm)
Survey date date range:	19/06/2024 - 19/06/2024
Number of weekdays (Monday-Friday):	1
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	0

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

Audit Code: f25e99cd-a8cd-4201-8640-5af2157859f8

TRIP RATE for Land Use 02 - EMPLOYMENT/F - WAREHOUSING (COMMERCIAL)

OGVs

Calculation factor: 100 sqm

*BOLD print indicates peak (busiest) period

Time Range	No. Days	Ave. GFA	Arrivals	Departures	Totals
00:00-01:00					
01:00-02:00					
02:00-03:00					
03:00-04:00					
04:00-05:00					
05:00-06:00	3	52808	0.010	0.011	0.021
06:00-07:00	3	52808	0.019	0.014	0.033
07:00-08:00	4	40043	0.018	0.020	0.038
08:00-09:00	4	40043	0.019	0.019	0.038
09:00-10:00	4	40043	0.027	0.022	0.049
10:00-11:00	4	40043	0.021	0.019	0.040
11:00-12:00	4	40043	0.015	0.014	0.029
12:00-13:00	4	40043	0.012	0.019	0.031
13:00-14:00	4	40043	0.007	0.021	0.028
14:00-15:00	4	40043	0.014	0.017	0.031
15:00-16:00	4	40043	0.011	0.009	0.020
16:00-17:00	4	40043	0.008	0.009	0.017
17:00-18:00	4	40043	0.014	0.007	0.021
18:00-19:00	4	40043	0.005	0.006	0.011
19:00-20:00	3	52808	0.005	0.003	0.008
20:00-21:00	3	52808	0.003	0.001	0.004
21:00-22:00					
22:00-23:00					
23:00-00:00					
Total Rates:			0.208	0.211	0.419

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

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

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Audit Code: f25e99cd-a8cd-4201-8640-5af2157859f8

Parameter Summary:

Trip rate parameter range selected:	950 - 105335 (units: sqm)
Survey date date range:	22/11/2021 - 19/06/2024
Number of weekdays (Monday-Friday):	4
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	0

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

Audit Code: f25e99cd-a8cd-4201-8640-5af2157859f8

TRIP RATE for Land Use 02 - EMPLOYMENT/F - WAREHOUSING (COMMERCIAL)

Taxis

Calculation factor: 100 sqm

*BOLD print indicates peak (busiest) period

Time Range	No. Days	Ave. GFA	Arrivals	Departures	Totals
00:00-01:00					
01:00-02:00					
02:00-03:00					
03:00-04:00					
04:00-05:00					
05:00-06:00	3	52808	0.000	0.000	0.000
06:00-07:00	3	52808	0.000	0.000	0.000
07:00-08:00	4	40043	0.000	0.000	0.000
08:00-09:00	4	40043	0.001	0.001	0.002
09:00-10:00	4	40043	0.001	0.001	0.002
10:00-11:00	4	40043	0.000	0.000	0.000
11:00-12:00	4	40043	0.000	0.000	0.000
12:00-13:00	4	40043	0.001	0.001	0.002
13:00-14:00	4	40043	0.000	0.000	0.000
14:00-15:00	4	40043	0.000	0.000	0.000
15:00-16:00	4	40043	0.000	0.000	0.000
16:00-17:00	4	40043	0.000	0.000	0.000
17:00-18:00	4	40043	0.000	0.000	0.000
18:00-19:00	4	40043	0.000	0.000	0.000
19:00-20:00	3	52808	0.000	0.000	0.000
20:00-21:00	3	52808	0.000	0.000	0.000
21:00-22:00					
22:00-23:00					
23:00-00:00					
Total Rates:			0.003	0.003	0.006

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

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

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Audit Code: f25e99cd-a8cd-4201-8640-5af2157859f8

Parameter Summary:

Trip rate parameter range selected:	950 - 105335 (units: sqm)
Survey date date range:	22/11/2021 - 19/06/2023
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 show. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

Audit Code: f25e99cd-a8cd-4201-8640-5af2157859f8

TRIP RATE for Land Use 02 - EMPLOYMENT/F - WAREHOUSING (COMMERCIAL)

Cars

Calculation factor: 100 sqm

*BOLD print indicates peak (busiest) period

Time Range	No. Days	Ave. GFA	Arrivals	Departures	Totals
00:00-01:00					
01:00-02:00					
02:00-03:00					
03:00-04:00					
04:00-05:00					
05:00-06:00	3	52808	0.040	0.008	0.048
06:00-07:00	3	52808	0.019	0.008	0.027
07:00-08:00	4	40043	0.038	0.006	0.044
08:00-09:00	4	40043	0.033	0.011	0.044
09:00-10:00	4	40043	0.008	0.005	0.013
10:00-11:00	4	40043	0.012	0.006	0.018
11:00-12:00	4	40043	0.011	0.007	0.018
12:00-13:00	4	40043	0.016	0.014	0.030
13:00-14:00	4	40043	0.015	0.018	0.033
14:00-15:00	4	40043	0.008	0.039	0.047
15:00-16:00	4	40043	0.006	0.016	0.022
16:00-17:00	4	40043	0.009	0.024	0.033
17:00-18:00	4	40043	0.009	0.038	0.047
18:00-19:00	4	40043	0.004	0.016	0.020
19:00-20:00	3	52808	0.004	0.007	0.011
20:00-21:00	3	52808	0.008	0.009	0.017
21:00-22:00					
22:00-23:00					
23:00-00:00					
Total Rates:			0.240	0.232	0.472

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

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

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Audit Code: f25e99cd-a8cd-4201-8640-5af2157859f8

Parameter Summary:

Trip rate parameter range selected:	950 - 105335 (units: sqm)
Survey date date range:	22/11/2021 - 19/06/2024
Number of weekdays (Monday-Friday):	4
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	0

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

Audit Code: f25e99cd-a8cd-4201-8640-5af2157859f8

TRIP RATE for Land Use 02 - EMPLOYMENT/F - WAREHOUSING (COMMERCIAL)

LGVs

Calculation factor: 100 sqm

*BOLD print indicates peak (busiest) period

Time Range	No. Days	Ave. GFA	Arrivals	Departures	Totals
00:00-01:00					
01:00-02:00					
02:00-03:00					
03:00-04:00					
04:00-05:00					
05:00-06:00	3	52808	0.003	0.002	0.005
06:00-07:00	3	52808	0.001	0.001	0.002
07:00-08:00	4	40043	0.004	0.006	0.010
08:00-09:00	4	40043	0.010	0.006	0.016
09:00-10:00	4	40043	0.003	0.002	0.005
10:00-11:00	4	40043	0.006	0.006	0.012
11:00-12:00	4	40043	0.004	0.004	0.008
12:00-13:00	4	40043	0.004	0.006	0.010
13:00-14:00	4	40043	0.005	0.004	0.009
14:00-15:00	4	40043	0.007	0.004	0.011
15:00-16:00	4	40043	0.003	0.007	0.010
16:00-17:00	4	40043	0.004	0.004	0.008
17:00-18:00	4	40043	0.004	0.003	0.007
18:00-19:00	4	40043	0.001	0.001	0.002
19:00-20:00	3	52808	0.001	0.003	0.004
20:00-21:00	3	52808	0.000	0.000	0.000
21:00-22:00					
22:00-23:00					
23:00-00:00					
Total Rates:			0.060	0.059	0.119

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

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

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Audit Code: f25e99cd-a8cd-4201-8640-5af2157859f8

Parameter Summary:

Trip rate parameter range selected:	950 - 105335 (units: sqm)
Survey date date range:	22/11/2021 - 19/06/2024
Number of weekdays (Monday-Friday):	4
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	0

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

Audit Code: f25e99cd-a8cd-4201-8640-5af2157859f8

TRIP RATE for Land Use 02 - EMPLOYMENT/F - WAREHOUSING (COMMERCIAL)

Motorcycles

Calculation factor: 100 sqm

*BOLD print indicates peak (busiest) period

Time Range	No. Days	Ave. GFA	Arrivals	Departures	Totals
00:00-01:00					
01:00-02:00					
02:00-03:00					
03:00-04:00					
04:00-05:00					
05:00-06:00	3	52808	0.003	0.001	0.004
06:00-07:00	3	52808	0.001	0.001	0.002
07:00-08:00	4	40043	0.001	0.000	0.001
08:00-09:00	4	40043	0.000	0.000	0.000
09:00-10:00	4	40043	0.001	0.000	0.001
10:00-11:00	4	40043	0.000	0.001	0.001
11:00-12:00	4	40043	0.001	0.000	0.001
12:00-13:00	4	40043	0.001	0.001	0.002
13:00-14:00	4	40043	0.002	0.002	0.004
14:00-15:00	4	40043	0.000	0.002	0.002
15:00-16:00	4	40043	0.000	0.000	0.000
16:00-17:00	4	40043	0.000	0.000	0.000
17:00-18:00	4	40043	0.000	0.001	0.001
18:00-19:00	4	40043	0.000	0.000	0.000
19:00-20:00	3	52808	0.001	0.000	0.001
20:00-21:00	3	52808	0.000	0.000	0.000
21:00-22:00					
22:00-23:00					
23:00-00:00					
Total Rates:			0.011	0.009	0.020

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: $COUNT/TRP \times FACT$. Trip rates are then rounded to 3 decimal places.

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Audit Code: f25e99cd-a8cd-4201-8640-5af2157859f8

Parameter Summary:

Trip rate parameter range selected:	950 - 105335 (units: sqm)
Survey date date range:	22/11/2021 - 18/10/2023
Number of weekdays (Monday-Friday):	3
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	0

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

Audit Code: f25e99cd-a8cd-4201-8640-5af2157859f8

TRIP RATE for Land Use 02 - EMPLOYMENT/F - WAREHOUSING (COMMERCIAL)

Vehicle Occupants

Calculation factor: 100 sqm

**BOLD print indicates peak (busiest) period*

Time Range	No. Days	Ave. GFA	Arrivals	Departures	Totals
00:00-01:00					
01:00-02:00					
02:00-03:00					
03:00-04:00					
04:00-05:00					
05:00-06:00	3	52808	0.061	0.024	0.085
06:00-07:00	3	52808	0.042	0.026	0.068
07:00-08:00	4	40043	0.070	0.040	0.110
08:00-09:00	4	40043	0.074	0.040	0.114
09:00-10:00	4	40043	0.044	0.032	0.076
10:00-11:00	4	40043	0.041	0.033	0.074
11:00-12:00	4	40043	0.034	0.027	0.061
12:00-13:00	4	40043	0.041	0.043	0.084
13:00-14:00	4	40043	0.034	0.050	0.084
14:00-15:00	4	40043	0.032	0.073	0.105
15:00-16:00	4	40043	0.025	0.037	0.062
16:00-17:00	4	40043	0.024	0.047	0.071
17:00-18:00	4	40043	0.029	0.059	0.088
18:00-19:00	4	40043	0.011	0.026	0.037
19:00-20:00	3	52808	0.011	0.014	0.025
20:00-21:00	3	52808	0.011	0.012	0.023
21:00-22:00					
22:00-23:00					
23:00-00:00					
Total Rates:			0.584	0.583	1.167

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

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

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Audit Code: f25e99cd-a8cd-4201-8640-5af2157859f8

Parameter Summary:

Trip rate parameter range selected:	950 - 105335 (units: sqm)
Survey date date range:	22/11/2021 - 19/06/2024
Number of weekdays (Monday-Friday):	4
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	0

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

Audit Code: f25e99cd-a8cd-4201-8640-5af2157859f8

TRIP RATE for Land Use 02 - EMPLOYMENT/F - WAREHOUSING (COMMERCIAL)

Pedestrians

Calculation factor: 100 sqm

*BOLD print indicates peak (busiest) period

Time Range	No. Days	Ave. GFA	Arrivals	Departures	Totals
00:00-01:00					
01:00-02:00					
02:00-03:00					
03:00-04:00					
04:00-05:00					
05:00-06:00	3	52808	0.000	0.000	0.000
06:00-07:00	3	52808	0.000	0.000	0.000
07:00-08:00	4	40043	0.001	0.000	0.001
08:00-09:00	4	40043	0.000	0.000	0.000
09:00-10:00	4	40043	0.000	0.001	0.001
10:00-11:00	4	40043	0.001	0.001	0.002
11:00-12:00	4	40043	0.001	0.001	0.002
12:00-13:00	4	40043	0.001	0.001	0.002
13:00-14:00	4	40043	0.001	0.001	0.002
14:00-15:00	4	40043	0.000	0.001	0.001
15:00-16:00	4	40043	0.000	0.001	0.001
16:00-17:00	4	40043	0.001	0.001	0.002
17:00-18:00	4	40043	0.000	0.001	0.001
18:00-19:00	4	40043	0.000	0.000	0.000
19:00-20:00	3	52808	0.000	0.000	0.000
20:00-21:00	3	52808	0.000	0.000	0.000
21:00-22:00					
22:00-23:00					
23:00-00:00					
Total Rates:			0.006	0.009	0.015

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

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

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Audit Code: f25e99cd-a8cd-4201-8640-5af2157859f8

Parameter Summary:

Trip rate parameter range selected:	950 - 105335 (units: sqm)
Survey date date range:	22/11/2021 - 19/06/2024
Number of weekdays (Monday-Friday):	4
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	0

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

Audit Code: f25e99cd-a8cd-4201-8640-5af2157859f8

TRIP RATE for Land Use 02 - EMPLOYMENT/F - WAREHOUSING (COMMERCIAL)

Public Transport Users

Calculation factor: 100 sqm

*BOLD print indicates peak (busiest) period

Time Range	No. Days	Ave. GFA	Arrivals	Departures	Totals
00:00-01:00					
01:00-02:00					
02:00-03:00					
03:00-04:00					
04:00-05:00					
05:00-06:00	3	52808	0.003	0.001	0.004
06:00-07:00	3	52808	0.000	0.001	0.001
07:00-08:00	4	40043	0.002	0.000	0.002
08:00-09:00	4	40043	0.001	0.000	0.001
09:00-10:00	4	40043	0.001	0.001	0.002
10:00-11:00	4	40043	0.000	0.001	0.001
11:00-12:00	4	40043	0.001	0.001	0.002
12:00-13:00	4	40043	0.003	0.000	0.003
13:00-14:00	4	40043	0.006	0.002	0.008
14:00-15:00	4	40043	0.000	0.003	0.003
15:00-16:00	4	40043	0.000	0.001	0.001
16:00-17:00	4	40043	0.001	0.001	0.002
17:00-18:00	4	40043	0.000	0.001	0.001
18:00-19:00	4	40043	0.000	0.001	0.001
19:00-20:00	3	52808	0.000	0.001	0.001
20:00-21:00	3	52808	0.002	0.001	0.003
21:00-22:00					
22:00-23:00					
23:00-00:00					
Total Rates:			0.020	0.016	0.036

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

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

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Audit Code: f25e99cd-a8cd-4201-8640-5af2157859f8

Parameter Summary:

Trip rate parameter range selected:	950 - 105335 (units: sqm)
Survey date date range:	22/11/2021 - 19/06/2023
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 show. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

Audit Code: f25e99cd-a8cd-4201-8640-5af2157859f8

TRIP RATE for Land Use 02 - EMPLOYMENT/F - WAREHOUSING (COMMERCIAL)

Bus/Tram Passengers

Calculation factor: 100 sqm

*BOLD print indicates peak (busiest) period

Time Range	No. Days	Ave. GFA	Arrivals	Departures	Totals
00:00-01:00					
01:00-02:00					
02:00-03:00					
03:00-04:00					
04:00-05:00					
05:00-06:00	3	52808	0.003	0.001	0.004
06:00-07:00	3	52808	0.000	0.001	0.001
07:00-08:00	4	40043	0.002	0.000	0.002
08:00-09:00	4	40043	0.001	0.000	0.001
09:00-10:00	4	40043	0.001	0.001	0.002
10:00-11:00	4	40043	0.000	0.001	0.001
11:00-12:00	4	40043	0.001	0.001	0.002
12:00-13:00	4	40043	0.003	0.000	0.003
13:00-14:00	4	40043	0.006	0.002	0.008
14:00-15:00	4	40043	0.000	0.003	0.003
15:00-16:00	4	40043	0.000	0.001	0.001
16:00-17:00	4	40043	0.001	0.001	0.002
17:00-18:00	4	40043	0.000	0.001	0.001
18:00-19:00	4	40043	0.000	0.001	0.001
19:00-20:00	3	52808	0.000	0.001	0.001
20:00-21:00	3	52808	0.002	0.001	0.003
21:00-22:00					
22:00-23:00					
23:00-00:00					
Total Rates:			0.020	0.016	0.036

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

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

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Audit Code: f25e99cd-a8cd-4201-8640-5af2157859f8

Parameter Summary:

Trip rate parameter range selected:	950 - 105335 (units: sqm)
Survey date date range:	22/11/2021 - 19/06/2023
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 show. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

Audit Code: f25e99cd-a8cd-4201-8640-5af2157859f8

TRIP RATE for Land Use 02 - EMPLOYMENT/F - WAREHOUSING (COMMERCIAL)

Coach Passengers

Calculation factor: 100 sqm

*BOLD print indicates peak (busiest) period

Time Range	No. Days	Ave. GFA	Arrivals	Departures	Totals
00:00-01:00					
01:00-02:00					
02:00-03:00					
03:00-04:00					
04:00-05:00					
05:00-06:00	3	52808	0.000	0.000	0.000
06:00-07:00	3	52808	0.000	0.000	0.000
07:00-08:00	4	40043	0.000	0.000	0.000
08:00-09:00	4	40043	0.000	0.000	0.000
09:00-10:00	4	40043	0.000	0.000	0.000
10:00-11:00	4	40043	0.000	0.000	0.000
11:00-12:00	4	40043	0.000	0.000	0.000
12:00-13:00	4	40043	0.000	0.000	0.000
13:00-14:00	4	40043	0.000	0.000	0.000
14:00-15:00	4	40043	0.000	0.000	0.000
15:00-16:00	4	40043	0.000	0.000	0.000
16:00-17:00	4	40043	0.000	0.000	0.000
17:00-18:00	4	40043	0.000	0.000	0.000
18:00-19:00	4	40043	0.000	0.000	0.000
19:00-20:00	3	52808	0.000	0.000	0.000
20:00-21:00	3	52808	0.000	0.000	0.000
21:00-22:00					
22:00-23:00					
23:00-00:00					
Total Rates:			0.000	0.000	0.000

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.

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Audit Code: f25e99cd-a8cd-4201-8640-5af2157859f8

Parameter Summary:

Trip rate parameter range selected:	950 - 105335 (units: sqm)
Survey date date range:	N/A - N/A
Number of weekdays (Monday-Friday):	0
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	0

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

Audit Code: f25e99cd-a8cd-4201-8640-5af2157859f8

TRIP RATE for Land Use 02 - EMPLOYMENT/F - WAREHOUSING (COMMERCIAL)

Total Rail Passengers

Calculation factor: 100 sqm

*BOLD print indicates peak (busiest) period

Time Range	No. Days	Ave. GFA	Arrivals	Departures	Totals
00:00-01:00					
01:00-02:00					
02:00-03:00					
03:00-04:00					
04:00-05:00					
05:00-06:00	3	52808	0.000	0.000	0.000
06:00-07:00	3	52808	0.000	0.000	0.000
07:00-08:00	4	40043	0.000	0.000	0.000
08:00-09:00	4	40043	0.000	0.000	0.000
09:00-10:00	4	40043	0.000	0.000	0.000
10:00-11:00	4	40043	0.000	0.000	0.000
11:00-12:00	4	40043	0.000	0.000	0.000
12:00-13:00	4	40043	0.000	0.000	0.000
13:00-14:00	4	40043	0.000	0.000	0.000
14:00-15:00	4	40043	0.000	0.000	0.000
15:00-16:00	4	40043	0.000	0.000	0.000
16:00-17:00	4	40043	0.000	0.000	0.000
17:00-18:00	4	40043	0.000	0.000	0.000
18:00-19:00	4	40043	0.000	0.000	0.000
19:00-20:00	3	52808	0.000	0.000	0.000
20:00-21:00	3	52808	0.000	0.000	0.000
21:00-22:00					
22:00-23:00					
23:00-00:00					
Total Rates:			0.000	0.000	0.000

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

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

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Audit Code: f25e99cd-a8cd-4201-8640-5af2157859f8

Parameter Summary:

Trip rate parameter range selected:	950 - 105335 (units: sqm)
Survey date date range:	N/A - N/A
Number of weekdays (Monday-Friday):	0
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	0

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

Project Number: 25-0382
Project Title: Proposed Strategic Logistics Development
Location: Land South of Chesterfield Road, Markham Vale
BSP Document Ref: CRMV-BSP-XX-XX-T-H-0001_P02_Preliminary_Transport_Assessment



Appendix H JUNCTIONS Report

Junctions 9			
ARCADY 9 - Roundabout Module			
Version: 9.5.0.6896 © Copyright TRL Limited, 2018			
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Filename: Site Access - Chesterfield Road (PTA).j9

Path: Z:\Projects\Projects 25\25-0382 Chesterfield Road, Markham Vale\Design_Data\Transport\Junctions

Report generation date: 2/20/2026 1:36:39 PM

- »2034, AM
- »2034, PM
- »2034 +Com, AM
- »2034 +Com, PM
- »2034 +Com +Dev, AM
- »2034 +Com +Dev, PM

Summary of junction performance

	AM				PM			
	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS
2034								
1 - Markham Lane	0.2	1.95	0.14	A	0.4	2.33	0.29	A
2 - Buttermilk Lane	0.2	2.10	0.18	A	0.2	2.36	0.19	A
3 - Chesterfield Road (E)	0.4	1.97	0.29	A	0.3	1.79	0.21	A
4 - Site Access	0.0	0.00	0.00	A	0.0	0.00	0.00	A
5 - Chesterfield Road (W)	0.4	2.43	0.30	A	0.5	2.43	0.34	A
2034 +Com								
1 - Markham Lane	0.8	3.40	0.42	A	0.6	2.71	0.36	A
2 - Buttermilk Lane	0.3	2.28	0.22	A	1.4	4.95	0.58	A
3 - Chesterfield Road (E)	0.9	2.64	0.46	A	0.5	2.41	0.31	A
4 - Site Access	0.0	0.00	0.00	A	0.0	0.00	0.00	A
5 - Chesterfield Road (W)	0.8	3.48	0.46	A	0.8	3.28	0.44	A
2034 +Com +Dev								
1 - Markham Lane	0.8	3.57	0.43	A	0.6	2.79	0.36	A
2 - Buttermilk Lane	0.3	2.36	0.23	A	1.5	5.14	0.59	A
3 - Chesterfield Road (E)	0.9	2.76	0.47	A	0.5	2.46	0.32	A
4 - Site Access	0.0	3.35	0.03	A	0.0	2.74	0.03	A
5 - Chesterfield Road (W)	0.9	3.69	0.48	A	0.8	3.39	0.45	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	
Location	
Site number	
Date	2/19/2026
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	BSP-CONSULTING\jposnett
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	2034	AM	ONE HOUR	07:45	09:15	15
D2	2034	PM	ONE HOUR	16:45	18:15	15
D3	2034 +Com	AM	ONE HOUR	07:45	09:15	15
D4	2034 +Com	PM	ONE HOUR	16:45	18:15	15
D5	2034 +Com +Dev	AM	ONE HOUR	07:45	09:15	15
D6	2034 +Com +Dev	PM	ONE HOUR	16:45	18:15	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

2034, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A631/A6192/Site Access	Standard Roundabout		1, 2, 3, 4, 5	2.13	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
1	Markham Lane	
2	Buttermilk Lane	
3	Chesterfield Road (E)	
4	Site Access	
5	Chesterfield Road (W)	

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	I' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
1 - Markham Lane	7.20	9.50	19.1	30.0	58.0	26.0	
2 - Buttermilk Lane	7.40	8.70	15.8	30.0	58.0	28.5	
3 - Chesterfield Road (E)	7.70	10.30	12.1	30.0	58.0	20.0	
4 - Site Access	7.30	9.30	17.4	30.0	58.0	31.8	
5 - Chesterfield Road (W)	6.60	9.00	17.2	13.0	58.0	29.0	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1 - Markham Lane	0.765	2766
2 - Buttermilk Lane	0.735	2609
3 - Chesterfield Road (E)	0.801	2943
4 - Site Access	0.744	2682
5 - Chesterfield Road (W)	0.694	2445

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2034	AM	ONE HOUR	07:45	09:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Markham Lane		✓	305	100.000
2 - Buttermilk Lane		✓	364	100.000
3 - Chesterfield Road (E)		✓	681	100.000
4 - Site Access		✓	0	100.000
5 - Chesterfield Road (W)		✓	588	100.000

Origin-Destination Data

Demand (PCU/hr)

	To					
		1 - Markham Lane	2 - Buttermilk Lane	3 - Chesterfield Road (E)	4 - Site Access	5 - Chesterfield Road (W)
From	1 - Markham Lane	5	95	169	0	36
	2 - Buttermilk Lane	110	0	34	0	220
	3 - Chesterfield Road (E)	258	26	0	0	397
	4 - Site Access	0	0	0	0	0
	5 - Chesterfield Road (W)	96	195	297	0	0

Vehicle Mix

Heavy Vehicle Percentages

	To					
		1 - Markham Lane	2 - Buttermilk Lane	3 - Chesterfield Road (E)	4 - Site Access	5 - Chesterfield Road (W)
From	1 - Markham Lane	47	9	5	0	18
	2 - Buttermilk Lane	12	0	3	0	2
	3 - Chesterfield Road (E)	3	0	0	0	2
	4 - Site Access	0	0	0	0	0
	5 - Chesterfield Road (W)	1	1	1	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1 - Markham Lane	0.14	1.95	0.2	A
2 - Buttermilk Lane	0.18	2.10	0.2	A
3 - Chesterfield Road (E)	0.29	1.97	0.4	A
4 - Site Access	0.00	0.00	0.0	A
5 - Chesterfield Road (W)	0.30	2.43	0.4	A

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Markham Lane	230	389	2468	0.093	229	0.1	1.738	A
2 - Buttermilk Lane	274	381	2329	0.118	273	0.1	1.837	A
3 - Chesterfield Road (E)	513	279	2719	0.189	512	0.2	1.668	A
4 - Site Access	0	790	2093	0.000	0	0.0	0.000	A
5 - Chesterfield Road (W)	443	300	2237	0.198	442	0.2	2.024	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Markham Lane	274	465	2410	0.114	274	0.1	1.822	A
2 - Buttermilk Lane	327	456	2274	0.144	327	0.2	1.939	A
3 - Chesterfield Road (E)	612	333	2676	0.229	612	0.3	1.783	A
4 - Site Access	0	945	1978	0.000	0	0.0	0.000	A
5 - Chesterfield Road (W)	529	359	2197	0.241	528	0.3	2.179	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Markham Lane	336	570	2330	0.144	336	0.2	1.952	A
2 - Buttermilk Lane	401	558	2199	0.182	401	0.2	2.100	A
3 - Chesterfield Road (E)	750	408	2616	0.287	749	0.4	1.973	A
4 - Site Access	0	1158	1820	0.000	0	0.0	0.000	A
5 - Chesterfield Road (W)	647	439	2141	0.302	647	0.4	2.434	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Markham Lane	336	570	2330	0.144	336	0.2	1.952	A
2 - Buttermilk Lane	401	558	2199	0.182	401	0.2	2.100	A
3 - Chesterfield Road (E)	750	408	2615	0.287	750	0.4	1.973	A
4 - Site Access	0	1158	1820	0.000	0	0.0	0.000	A
5 - Chesterfield Road (W)	647	439	2141	0.302	647	0.4	2.434	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Markham Lane	274	466	2409	0.114	274	0.1	1.822	A
2 - Buttermilk Lane	327	456	2274	0.144	327	0.2	1.942	A
3 - Chesterfield Road (E)	612	334	2675	0.229	613	0.3	1.787	A
4 - Site Access	0	946	1977	0.000	0	0.0	0.000	A
5 - Chesterfield Road (W)	529	359	2196	0.241	529	0.3	2.182	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Markham Lane	230	390	2467	0.093	230	0.1	1.739	A
2 - Buttermilk Lane	274	382	2328	0.118	274	0.1	1.840	A
3 - Chesterfield Road (E)	513	279	2719	0.189	513	0.2	1.671	A
4 - Site Access	0	792	2092	0.000	0	0.0	0.000	A
5 - Chesterfield Road (W)	443	301	2237	0.198	443	0.2	2.026	A

2034, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A631/A6192/Site Access	Standard Roundabout		1, 2, 3, 4, 5	2.24	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D2	2034	PM	ONE HOUR	16:45	18:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Markham Lane		✓	577	100.000
2 - Buttermilk Lane		✓	328	100.000
3 - Chesterfield Road (E)		✓	501	100.000
4 - Site Access		✓	0	100.000
5 - Chesterfield Road (W)		✓	682	100.000

Origin-Destination Data

Demand (PCU/hr)

	To					
		1 - Markham Lane	2 - Buttermilk Lane	3 - Chesterfield Road (E)	4 - Site Access	5 - Chesterfield Road (W)
From	1 - Markham Lane	2	131	351	0	93
	2 - Buttermilk Lane	87	0	27	0	214
	3 - Chesterfield Road (E)	169	18	0	0	314
	4 - Site Access	0	0	0	0	0
	5 - Chesterfield Road (W)	26	232	424	0	0

Vehicle Mix

Heavy Vehicle Percentages

	To					
		1 - Markham Lane	2 - Buttermilk Lane	3 - Chesterfield Road (E)	4 - Site Access	5 - Chesterfield Road (W)
From	1 - Markham Lane	50	2	1	0	1
	2 - Buttermilk Lane	5	0	0	0	0
	3 - Chesterfield Road (E)	3	0	0	0	1
	4 - Site Access	0	0	0	0	0
	5 - Chesterfield Road (W)	4	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1 - Markham Lane	0.29	2.33	0.4	A
2 - Buttermilk Lane	0.19	2.36	0.2	A
3 - Chesterfield Road (E)	0.21	1.79	0.3	A
4 - Site Access	0.00	0.00	0.0	A
5 - Chesterfield Road (W)	0.34	2.43	0.5	A

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Markham Lane	434	506	2379	0.183	433	0.2	1.875	A
2 - Buttermilk Lane	247	654	2129	0.116	246	0.1	1.937	A
3 - Chesterfield Road (E)	377	297	2704	0.139	377	0.2	1.571	A
4 - Site Access	0	674	2180	0.000	0	0.0	0.000	A
5 - Chesterfield Road (W)	513	207	2301	0.223	512	0.3	2.014	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Markham Lane	519	606	2303	0.225	518	0.3	2.044	A
2 - Buttermilk Lane	295	782	2035	0.145	295	0.2	2.095	A
3 - Chesterfield Road (E)	450	356	2658	0.169	450	0.2	1.656	A
4 - Site Access	0	806	2082	0.000	0	0.0	0.000	A
5 - Chesterfield Road (W)	613	248	2273	0.270	613	0.4	2.171	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Markham Lane	635	742	2199	0.289	635	0.4	2.333	A
2 - Buttermilk Lane	361	957	1906	0.189	361	0.2	2.359	A
3 - Chesterfield Road (E)	552	436	2594	0.213	551	0.3	1.790	A
4 - Site Access	0	987	1947	0.000	0	0.0	0.000	A
5 - Chesterfield Road (W)	751	304	2235	0.336	750	0.5	2.429	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Markham Lane	635	742	2198	0.289	635	0.4	2.333	A
2 - Buttermilk Lane	361	958	1905	0.190	361	0.2	2.360	A
3 - Chesterfield Road (E)	552	436	2593	0.213	552	0.3	1.791	A
4 - Site Access	0	988	1947	0.000	0	0.0	0.000	A
5 - Chesterfield Road (W)	751	304	2234	0.336	751	0.5	2.429	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Markham Lane	519	606	2302	0.225	519	0.3	2.046	A
2 - Buttermilk Lane	295	783	2034	0.145	295	0.2	2.098	A
3 - Chesterfield Road (E)	450	356	2657	0.170	451	0.2	1.657	A
4 - Site Access	0	807	2081	0.000	0	0.0	0.000	A
5 - Chesterfield Road (W)	613	248	2273	0.270	614	0.4	2.172	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Markham Lane	434	508	2377	0.183	435	0.2	1.877	A
2 - Buttermilk Lane	247	655	2128	0.116	247	0.1	1.938	A
3 - Chesterfield Road (E)	377	298	2704	0.140	377	0.2	1.572	A
4 - Site Access	0	676	2179	0.000	0	0.0	0.000	A
5 - Chesterfield Road (W)	513	208	2301	0.223	514	0.3	2.018	A

2034 +Com, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A631/A6192/Site Access	Standard Roundabout		1, 2, 3, 4, 5	2.99	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D3	2034 +Com	AM	ONE HOUR	07:45	09:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Markham Lane		✓	742	100.000
2 - Buttermilk Lane		✓	437	100.000
3 - Chesterfield Road (E)		✓	1077	100.000
4 - Site Access		✓	0	100.000
5 - Chesterfield Road (W)		✓	797	100.000

Origin-Destination Data

Demand (PCU/hr)

	To					
		1 - Markham Lane	2 - Buttermilk Lane	3 - Chesterfield Road (E)	4 - Site Access	5 - Chesterfield Road (W)
From	1 - Markham Lane	5	504	197	0	36
	2 - Buttermilk Lane	145	0	59	0	233
	3 - Chesterfield Road (E)	289	248	0	0	540
	4 - Site Access	0	0	0	0	0
	5 - Chesterfield Road (W)	96	358	343	0	0

Vehicle Mix

Heavy Vehicle Percentages

	To					
		1 - Markham Lane	2 - Buttermilk Lane	3 - Chesterfield Road (E)	4 - Site Access	5 - Chesterfield Road (W)
From	1 - Markham Lane	47	9	5	34	18
	2 - Buttermilk Lane	12	0	3	39	2
	3 - Chesterfield Road (E)	3	0	0	34	2
	4 - Site Access	42	42	42	0	24
	5 - Chesterfield Road (W)	1	1	1	5	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1 - Markham Lane	0.42	3.40	0.8	A
2 - Buttermilk Lane	0.22	2.28	0.3	A
3 - Chesterfield Road (E)	0.46	2.64	0.9	A
4 - Site Access	0.00	0.00	0.0	A
5 - Chesterfield Road (W)	0.46	3.48	0.8	A

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Markham Lane	559	713	2221	0.252	557	0.4	2.345	A
2 - Buttermilk Lane	329	436	2288	0.144	328	0.2	1.933	A
3 - Chesterfield Road (E)	811	315	2690	0.301	809	0.4	1.946	A
4 - Site Access	0	1124	1845	0.000	0	0.0	0.000	A
5 - Chesterfield Road (W)	600	516	2087	0.287	598	0.4	2.440	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Markham Lane	667	852	2114	0.316	667	0.5	2.698	A
2 - Buttermilk Lane	393	522	2226	0.177	393	0.2	2.067	A
3 - Chesterfield Road (E)	968	376	2641	0.367	968	0.6	2.190	A
4 - Site Access	0	1344	1681	0.000	0	0.0	0.000	A
5 - Chesterfield Road (W)	716	617	2017	0.355	716	0.6	2.792	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Markham Lane	817	1044	1968	0.415	816	0.8	3.387	A
2 - Buttermilk Lane	481	639	2140	0.225	481	0.3	2.284	A
3 - Chesterfield Road (E)	1186	461	2573	0.461	1185	0.9	2.636	A
4 - Site Access	0	1646	1457	0.000	0	0.0	0.000	A
5 - Chesterfield Road (W)	878	756	1921	0.457	876	0.8	3.478	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Markham Lane	817	1045	1967	0.415	817	0.8	3.395	A
2 - Buttermilk Lane	481	640	2139	0.225	481	0.3	2.285	A
3 - Chesterfield Road (E)	1186	461	2573	0.461	1186	0.9	2.641	A
4 - Site Access	0	1647	1456	0.000	0	0.0	0.000	A
5 - Chesterfield Road (W)	878	756	1921	0.457	878	0.8	3.485	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Markham Lane	667	854	2112	0.316	668	0.5	2.705	A
2 - Buttermilk Lane	393	523	2225	0.177	393	0.2	2.070	A
3 - Chesterfield Road (E)	968	377	2641	0.367	969	0.6	2.193	A
4 - Site Access	0	1346	1680	0.000	0	0.0	0.000	A
5 - Chesterfield Road (W)	716	618	2016	0.355	718	0.6	2.803	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Markham Lane	559	715	2219	0.252	559	0.4	2.353	A
2 - Buttermilk Lane	329	438	2287	0.144	329	0.2	1.935	A
3 - Chesterfield Road (E)	811	316	2690	0.301	811	0.4	1.952	A
4 - Site Access	0	1127	1843	0.000	0	0.0	0.000	A
5 - Chesterfield Road (W)	600	518	2086	0.288	601	0.4	2.448	A

2034 +Com, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A631/A6192/Site Access	Standard Roundabout		1, 2, 3, 4, 5	3.50	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D4	2034 +Com	PM	ONE HOUR	16:45	18:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Markham Lane		✓	676	100.000
2 - Buttermilk Lane		✓	948	100.000
3 - Chesterfield Road (E)		✓	625	100.000
4 - Site Access		✓	0	100.000
5 - Chesterfield Road (W)		✓	783	100.000

Origin-Destination Data

Demand (PCU/hr)

	To					
		1 - Markham Lane	2 - Buttermilk Lane	3 - Chesterfield Road (E)	4 - Site Access	5 - Chesterfield Road (W)
From	1 - Markham Lane	2	167	414	0	93
	2 - Buttermilk Lane	402	0	204	0	342
	3 - Chesterfield Road (E)	184	47	0	0	394
	4 - Site Access	0	0	0	0	0
	5 - Chesterfield Road (W)	26	248	509	0	0

Vehicle Mix

Heavy Vehicle Percentages

	To					
		1 - Markham Lane	2 - Buttermilk Lane	3 - Chesterfield Road (E)	4 - Site Access	5 - Chesterfield Road (W)
From	1 - Markham Lane	50	2	1	43	1
	2 - Buttermilk Lane	5	0	0	43	0
	3 - Chesterfield Road (E)	3	0	0	44	1
	4 - Site Access	25	20	23	0	3
	5 - Chesterfield Road (W)	4	0	0	15	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1 - Markham Lane	0.36	2.71	0.6	A
2 - Buttermilk Lane	0.58	4.95	1.4	A
3 - Chesterfield Road (E)	0.31	2.41	0.5	A
4 - Site Access	0.00	0.00	0.0	A
5 - Chesterfield Road (W)	0.44	3.28	0.8	A

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Markham Lane	509	604	2304	0.221	508	0.3	2.030	A
2 - Buttermilk Lane	714	765	2047	0.349	712	0.5	2.745	A
3 - Chesterfield Road (E)	471	630	2438	0.193	470	0.2	1.856	A
4 - Site Access	0	1099	1863	0.000	0	0.0	0.000	A
5 - Chesterfield Road (W)	589	477	2115	0.279	588	0.4	2.359	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Markham Lane	608	722	2213	0.275	607	0.4	2.271	A
2 - Buttermilk Lane	852	915	1937	0.440	851	0.8	3.380	A
3 - Chesterfield Road (E)	562	753	2339	0.240	562	0.3	2.055	A
4 - Site Access	0	1315	1703	0.000	0	0.0	0.000	A
5 - Chesterfield Road (W)	704	570	2050	0.343	703	0.5	2.675	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Markham Lane	744	884	2090	0.356	744	0.6	2.709	A
2 - Buttermilk Lane	1044	1120	1787	0.584	1041	1.4	4.913	A
3 - Chesterfield Road (E)	688	922	2204	0.312	688	0.5	2.410	A
4 - Site Access	0	1609	1484	0.000	0	0.0	0.000	A
5 - Chesterfield Road (W)	862	698	1961	0.440	861	0.8	3.273	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Markham Lane	744	885	2089	0.356	744	0.6	2.712	A
2 - Buttermilk Lane	1044	1121	1786	0.585	1044	1.4	4.952	A
3 - Chesterfield Road (E)	688	924	2202	0.312	688	0.5	2.412	A
4 - Site Access	0	1612	1482	0.000	0	0.0	0.000	A
5 - Chesterfield Road (W)	862	699	1960	0.440	862	0.8	3.281	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Markham Lane	608	724	2212	0.275	608	0.4	2.275	A
2 - Buttermilk Lane	852	916	1936	0.440	855	0.8	3.408	A
3 - Chesterfield Road (E)	562	756	2337	0.240	562	0.3	2.061	A
4 - Site Access	0	1319	1700	0.000	0	0.0	0.000	A
5 - Chesterfield Road (W)	704	572	2048	0.344	705	0.5	2.686	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Markham Lane	509	606	2302	0.221	509	0.3	2.036	A
2 - Buttermilk Lane	714	767	2045	0.349	715	0.5	2.764	A
3 - Chesterfield Road (E)	471	633	2436	0.193	471	0.2	1.861	A
4 - Site Access	0	1103	1860	0.000	0	0.0	0.000	A
5 - Chesterfield Road (W)	589	479	2113	0.279	590	0.4	2.368	A

2034 +Com +Dev, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A631/A6192/Site Access	Standard Roundabout		1, 2, 3, 4, 5	3.15	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D5	2034 +Com +Dev	AM	ONE HOUR	07:45	09:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Markham Lane		✓	757	100.000
2 - Buttermilk Lane		✓	441	100.000
3 - Chesterfield Road (E)		✓	1083	100.000
4 - Site Access		✓	41	100.000
5 - Chesterfield Road (W)		✓	835	100.000

Origin-Destination Data

Demand (PCU/hr)

	To					
		1 - Markham Lane	2 - Buttermilk Lane	3 - Chesterfield Road (E)	4 - Site Access	5 - Chesterfield Road (W)
From	1 - Markham Lane	5	504	197	15	36
	2 - Buttermilk Lane	145	0	59	4	233
	3 - Chesterfield Road (E)	289	248	0	6	540
	4 - Site Access	12	2	4	0	23
	5 - Chesterfield Road (W)	96	358	343	38	0

Vehicle Mix

Heavy Vehicle Percentages

	To					
		1 - Markham Lane	2 - Buttermilk Lane	3 - Chesterfield Road (E)	4 - Site Access	5 - Chesterfield Road (W)
From	1 - Markham Lane	47	9	5	34	18
	2 - Buttermilk Lane	12	0	3	39	2
	3 - Chesterfield Road (E)	3	0	0	34	2
	4 - Site Access	42	42	42	0	24
	5 - Chesterfield Road (W)	1	1	1	5	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1 - Markham Lane	0.43	3.57	0.8	A
2 - Buttermilk Lane	0.23	2.36	0.3	A
3 - Chesterfield Road (E)	0.47	2.76	0.9	A
4 - Site Access	0.03	3.35	0.0	A
5 - Chesterfield Road (W)	0.48	3.69	0.9	A

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Markham Lane	570	746	2196	0.260	568	0.4	2.407	A
2 - Buttermilk Lane	332	479	2257	0.147	331	0.2	1.972	A
3 - Chesterfield Road (E)	815	358	2656	0.307	814	0.5	1.990	A
4 - Site Access	31	1124	1845	0.017	31	0.0	2.604	A
5 - Chesterfield Road (W)	629	530	2078	0.303	627	0.4	2.506	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Markham Lane	681	892	2084	0.327	680	0.5	2.791	A
2 - Buttermilk Lane	396	573	2188	0.181	396	0.2	2.119	A
3 - Chesterfield Road (E)	974	428	2600	0.374	973	0.6	2.255	A
4 - Site Access	37	1344	1681	0.022	37	0.0	2.874	A
5 - Chesterfield Road (W)	751	633	2006	0.374	750	0.6	2.898	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Markham Lane	833	1092	1931	0.432	832	0.8	3.566	A
2 - Buttermilk Lane	486	701	2094	0.232	485	0.3	2.361	A
3 - Chesterfield Road (E)	1192	524	2523	0.473	1191	0.9	2.752	A
4 - Site Access	45	1646	1457	0.031	45	0.0	3.347	A
5 - Chesterfield Road (W)	919	775	1907	0.482	918	0.9	3.677	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Markham Lane	833	1093	1930	0.432	833	0.8	3.575	A
2 - Buttermilk Lane	486	702	2093	0.232	486	0.3	2.362	A
3 - Chesterfield Road (E)	1192	524	2523	0.473	1192	0.9	2.757	A
4 - Site Access	45	1647	1456	0.031	45	0.0	3.350	A
5 - Chesterfield Road (W)	919	776	1907	0.482	919	0.9	3.687	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Markham Lane	681	894	2082	0.327	682	0.5	2.803	A
2 - Buttermilk Lane	396	575	2187	0.181	397	0.2	2.121	A
3 - Chesterfield Road (E)	974	428	2599	0.375	975	0.6	2.261	A
4 - Site Access	37	1346	1679	0.022	37	0.0	2.877	A
5 - Chesterfield Road (W)	751	635	2005	0.374	752	0.6	2.908	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Markham Lane	570	748	2194	0.260	570	0.4	2.416	A
2 - Buttermilk Lane	332	481	2256	0.147	332	0.2	1.975	A
3 - Chesterfield Road (E)	815	359	2655	0.307	816	0.5	1.997	A
4 - Site Access	31	1127	1843	0.017	31	0.0	2.610	A
5 - Chesterfield Road (W)	629	531	2077	0.303	629	0.4	2.518	A

2034 +Com +Dev, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A631/A6192/Site Access	Standard Roundabout		1, 2, 3, 4, 5	3.60	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D6	2034 +Com +Dev	PM	ONE HOUR	16:45	18:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Markham Lane		✓	685	100.000
2 - Buttermilk Lane		✓	950	100.000
3 - Chesterfield Road (E)		✓	628	100.000
4 - Site Access		✓	42	100.000
5 - Chesterfield Road (W)		✓	801	100.000

Origin-Destination Data

Demand (PCU/hr)

	To					
		1 - Markham Lane	2 - Buttermilk Lane	3 - Chesterfield Road (E)	4 - Site Access	5 - Chesterfield Road (W)
From	1 - Markham Lane	2	167	414	9	93
	2 - Buttermilk Lane	402	0	204	2	342
	3 - Chesterfield Road (E)	184	47	0	3	394
	4 - Site Access	8	3	4	0	27
	5 - Chesterfield Road (W)	26	248	509	18	0

Vehicle Mix

Heavy Vehicle Percentages

	To					
		1 - Markham Lane	2 - Buttermilk Lane	3 - Chesterfield Road (E)	4 - Site Access	5 - Chesterfield Road (W)
From	1 - Markham Lane	50	2	1	43	1
	2 - Buttermilk Lane	5	0	0	43	0
	3 - Chesterfield Road (E)	3	0	0	44	1
	4 - Site Access	25	20	23	0	3
	5 - Chesterfield Road (W)	4	0	0	15	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1 - Markham Lane	0.36	2.79	0.6	A
2 - Buttermilk Lane	0.59	5.14	1.5	A
3 - Chesterfield Road (E)	0.32	2.46	0.5	A
4 - Site Access	0.03	2.74	0.0	A
5 - Chesterfield Road (W)	0.45	3.39	0.8	A

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Markham Lane	516	622	2290	0.225	515	0.3	2.062	A
2 - Buttermilk Lane	715	788	2030	0.352	713	0.6	2.786	A
3 - Chesterfield Road (E)	473	652	2421	0.195	472	0.2	1.877	A
4 - Site Access	32	1099	1863	0.017	32	0.0	2.151	A
5 - Chesterfield Road (W)	603	488	2107	0.286	601	0.4	2.399	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Markham Lane	616	745	2196	0.280	615	0.4	2.316	A
2 - Buttermilk Lane	854	942	1917	0.446	853	0.8	3.453	A
3 - Chesterfield Road (E)	565	779	2318	0.244	564	0.3	2.086	A
4 - Site Access	38	1315	1703	0.022	38	0.0	2.366	A
5 - Chesterfield Road (W)	720	584	2040	0.353	720	0.5	2.735	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Markham Lane	754	912	2069	0.365	753	0.6	2.783	A
2 - Buttermilk Lane	1046	1154	1762	0.594	1043	1.5	5.101	A
3 - Chesterfield Road (E)	691	953	2179	0.317	691	0.5	2.460	A
4 - Site Access	46	1609	1484	0.031	46	0.0	2.740	A
5 - Chesterfield Road (W)	882	714	1950	0.452	881	0.8	3.379	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Markham Lane	754	913	2068	0.365	754	0.6	2.787	A
2 - Buttermilk Lane	1046	1155	1761	0.594	1046	1.5	5.144	A
3 - Chesterfield Road (E)	691	956	2177	0.318	691	0.5	2.463	A
4 - Site Access	46	1612	1482	0.031	46	0.0	2.744	A
5 - Chesterfield Road (W)	882	716	1949	0.453	882	0.8	3.387	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Markham Lane	616	746	2195	0.281	617	0.4	2.320	A
2 - Buttermilk Lane	854	944	1915	0.446	857	0.8	3.483	A
3 - Chesterfield Road (E)	565	783	2316	0.244	565	0.3	2.092	A
4 - Site Access	38	1319	1700	0.022	38	0.0	2.370	A
5 - Chesterfield Road (W)	720	586	2039	0.353	721	0.6	2.744	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Markham Lane	516	625	2288	0.225	516	0.3	2.068	A
2 - Buttermilk Lane	715	790	2028	0.353	716	0.6	2.803	A
3 - Chesterfield Road (E)	473	654	2418	0.196	473	0.2	1.880	A
4 - Site Access	32	1103	1860	0.017	32	0.0	2.154	A
5 - Chesterfield Road (W)	603	490	2105	0.286	604	0.4	2.407	A



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