Equites Newlands (Goldthorpe) Ltd
Land South of Dearne Valley Parkway, Goldthorpe

Transport Assessment

30 November 2023
Version 1.0
Issue


Fore

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1 Introduction

1.1 Commission

Fore Consulting Limited (Fore) has been commissioned by Equites Newlands (Goldthorpe) Ltd to provide highways advice in relation to a forthcoming hybrid planning application for a proposed employment development at Goldthorpe, Barnsley.

The commission includes the preparation of a Transport Assessment to accompany the planning application. A Travel Plan has been prepared under separate cover.

1.2 Local Plan Background

The majority of the site is located within Site ES10: "Land South of Dearne Valley Parkway" which is allocated in Barnsley Metropolitan Borough Council's (BMBC) Local Plan[1] for employment land and supporting infrastructure. The allocation covers an area of 72.9 hectares and the total site area is 85.3 hectares (a portion of the site to the west is located outside of the allocation).

The site is located to the south of the A635 and to the west/northwest of the villages of Goldthorpe and Bolton upon Dearne. The site location is demonstrated on Figure 1.

1.3 Proposed Development

The description of development is as follows:

> *Outline permission sought for the construction of Storage and Distribution (Use Class B8) and General Employment (Use Class B2) space with ancillary offices and gatehouses on four separate, self-contained and severable plots as shown on the submitted Parameters Plan. All matters reserved except for site access. Full permission sought for engineering infrastructure works to support the employment development comprising: the access roads; earthworks to create the development platform zones/bunding; drainage and culvert works; a flood compensation area; and strategic landscaping areas.*

The proposed development is for up to 204,000 sqm GIA for Storage and Distribution (Use Class B8) and General Employment (Use Class B2) space, with ancillary offices.

Flexibility is required to respond to potential market demand, so for the purpose of this Transport Assessment, a 70%:30% B8:B2 split has been assumed (142,800 sqm B8 and 61,200

[1] *Barnsley Local Plan*, Barnsley Metropolitan Borough Council, Adopted January 2019.

sqm B2). The B2 element of the proposed development will be limited to 30% of the total floorspace.

Vehicular access to the development will be taken from a new three-arm roundabout on the A635. Planning consent for the roundabout was granted by BMBC on 16 February 2022 (Application Reference: 2021/1511).

The Parameters and Phasing Plans are provided at Appendix A.

1.4 Scoping and Dialogue

A Scoping Note was prepared and submitted to BMBC Highways, as the Local Planning and Highway Authority, for discussion and agreement. The Scoping Note was also submitted to City of Doncaster Council (CDC) and National Highways (NH) given the anticipated potential impacts on the wider local and strategic transport networks.

An email response was received from BMBC Highways on 22 June 2022. A Response Letter and a Technical Memorandum[2] dated 22 June 2022 were received from NH and their appointed consultants Jacobs SYSTRA Joint Venture (JSJV). The responses are provided at Appendix B.

A series of meetings have been held with both BMBC and CDC in relation to transport and highways matters in preparing the planning application.

This Transport Assessment has been prepared in accordance with the methodology set out in the Scoping Study with comments received and discussions held with BMBC, CDC and NH addressed in this report.

1.5 Purpose of this Report

The purpose of this Transport Assessment is to provide a full and robust assessment of the transport impacts of the proposed development and to identify any mitigation measures required, as necessary.

The intention is to provide the necessary information to assist BMBC, as the Local Planning and Highway Authority, in determining the planning application.

1.6 Structure of the Report

This report is structured as follows:

[2] *Technical Memorandum AA.22.06.13 Site at Goldthorpe, Barnsley – West of A1(M)*, Jacobs SYSTRA Joint Venture, 2022.

- Section 2 examines the existing conditions on the local transport network, including the opportunities available for future employees to travel to and from work by sustainable modes of transport. The section also undertakes an assessment of the latest five-year personal injury collision record within the vicinity of the site.

- Section 3 identifies national and local transport policy that is relevant to the proposed development and sets out how the development proposals respond to, and accord with, this policy.

- Section 4 provides an overview of the development proposals and provides a summary of the access, parking and servicing arrangements.

- Section 5 details the methodology used to determine the predicted weekday AM and PM peak hour vehicle trip generations associated with the proposed development.

- Section 6 details the methodology used to determine the predicted weekday AM and PM peak hour person trip generations by mode associated with the proposed development.

- Section 7 details the methodology used to determine the predicted vehicle trip distribution associated with the proposed development.

- Section 8 assesses the predicted traffic impact of the proposed development at various locations on the local and strategic highway networks.

- Section 9 details the approach taken to derive existing and future year traffic flows on the local highway network.

- Section 10 details the capacity assessments undertaken.

- Section 11 summarises and concludes the findings of the Transport Assessment.

2 Existing Situation

2.1 Introduction

This section examines the existing conditions on the local transport network, including the opportunities available for future employees to travel to and from work by sustainable modes of transport.

The section also undertakes an assessment of the latest five-year personal injury collision record within the vicinity of the site.

2.2 Site Location

The site is located to the south of the A635 and to the west/northwest of the villages of Goldthorpe and Bolton upon Dearne.

The site comprises land of agricultural use with trees and the Carr Dike watercourse running through the site. Public Rights of Way (PRoW) Footpath 15 runs through the north-eastern portion of the site.

The site is bound by the A635 to the north, the Aldi Goldthorpe Regional Distribution Centre to the east, Carr Head Lane to the south and land of agricultural use to the west.

The location of the site is shown on Figure 1.

2.3 Pedestrian Network

Although walking distances vary between individuals and circumstances, the Chartered Institution of Highways & Transportation (CIHT) suggests acceptable walking distances for commuting as follows[3]:

- Desirable: 500m.
- Acceptable 1.0km.
- Preferred Maximum: 2.0km.

Figure 2 presents isochrones for these walking distance thresholds measured from an indicative central point within the site, assuming only formal road crossings and designated footways/footpaths are used.

[3] Chartered Institution of Highways & Transportation, *Guidelines for Providing for Journeys on Foot*, (2000, p49).

Residential areas in west Goldthorpe, west Bolton-upon-Dearne and Billingley village are located within 2.0km walking distance of the site. Employees living in these areas are therefore within acceptable walking distances for commuting, in line with the CIHT suggestions.

The following key amenities are also within walking distance of the site[4]:

- An Aldi supermarket is located to the north east of the site, approximately 1.1km walking distance from an indicative central point within the site.
- A number of amenities are located to the south east of the site at St Andrew's Square, including a Co-op Food convenience store, a post office and a sandwich bar. St Andrew's Square is located approximately 1.5km walking distance from an indicative central point within the site.
- Weldricks Pharmacy and a dental practice (mydentist) are also located at St Andrew's Square.
- The Highgate Dental Practice is located on Barnsley Road to the east of the site, approximately 1.7km walking distance from an indicative central point within the site.

2.4 Pedestrian Facilities

Within the vicinity of the site, a footway is provided on the northern side of the A635 between Hollygrove Roundabout and Cathill Roundabout.

At Hollygrove Roundabout, dropped kerbs and pedestrian refuge islands are provided on the Barnsley Road, Dudley Drive and A635 (West) arms. This allows for pedestrian access between Goldthorpe and the site via Barnsley Road or Dudley Drive/Commercial Road, where footways are provided. Street lighting is provided along the routes between the site and Goldthorpe.

PRoW Footpath Number 15 (FP15) runs through the north-eastern portion of site and connects between the A635 and Carr Field Lane. FP15 runs along the western perimeter of the adjacent Aldi Goldthorpe Regional Distribution Centre. A footway is provided on the southern side of Carr Field Lane and on both sides of Billingley View. Street lighting is provided at Carr Field Lane/Billingley View.

[4] Walking distances and times calculated using Google Maps route planner.

2.5 Cycle Access

Figure 3 illustrates the isochrone for a cycling distance of 8.0km from an indicative central point within the site. 8.0km is typically considered to be acceptable for a range of journey purposes, including commuting[5].

The catchment incudes local towns and villages, including Bolton upon Dearne, Goldthorpe, Mexborough, Thurnscoe, Wath upon Dearne and Wombwell.

Sustrans Cycle Map[6] indicates that the following routes are located within the 8.0km catchment, as set out below:

- NCR 62 provides a connection between northern areas of Doncaster to the east and Wombwell, and Worsbrough to the west. This section of NCR 62 is predominantly traffic-free. The route is accessible from the B6098 Mexborough Road approximately 3.6km cycling distance to the south east of the site, and the B6273 Pontefract Road approximately 3.8km cycling distance to the south west of the site. NCR 62 connects to NCR 67 at Wombwell.

- NCR 67 provides a connection between Barnsley and Sheffield. NCR 67 is predominantly traffic-free towards Barnsley and a combination of on-road/traffic-free towards Sheffield. The route is accessible from NCR 62, approximately 6.4km cycling distance to the south west of the site.

The BMBC cycling network map[7] shows a number of local cycling routes in the vicinity of the site. This includes a route that connects between Highgate Lane, Carr Field Lane and National Cycle Route 62 via a disused railway line.

2.6 Public Transport

2.6.1 Bus Services

The nearest bus stops to the site are located on the A635 to the north, Barnsley Road to the east, and Carr Field Lane and Carr Head Lane to the south east. The A635 stop provides access to the 203, 208, 218, 218a, 219e, and X19 services. The Barnsley Road stops provide access to the 208, 218, 218a, 219, 226, and X19 services. The Carr Field Lane and Carr Head Lane stops provide access to the 218 and 218a services. The services are operated by Stagecoach.

[5] *Integrating Cycling into Development Proposals,* Cycling England, 2009.
[6] *Sustrans Cycle Map*, Sustrans (Accessed 6 December 2022).
[7] *National Cycle Network Map*, Barnsley Metropolitan Borough Council (Accessed 6 December 2022).

The bus stop locations described above are shown on Figure 4 and the services are summarised in the Table below.

Table 1: Bus Services

Service	Route	Approximate Daytime Frequency (In Each Direction)		
		Monday - Friday	Saturday	Sunday
203	Wombwell – Doncaster	3 per day		No service
208	Rotherham Interchange – Grimethorpe	3 per day		
218	Barnsley Interchange - Rotherham Interchange	Hourly		No Service
218a	Barnsley Interchange - Rotherham Interchange	Hourly		No Service
219e	Doncaster Interchange - Barnsley Interchange	5 per evening		3 per evening
226	Barnsley Interchange – Thurnscoe	30 minutes		Hourly
X19	Barnsley Interchange – Doncaster Interchange	Hourly		

Note: Bus services correct as of 20 November 2023.

Access to existing bus services is to be maximised through the provision of footpath connections to Carr Field Lane/Billingley View via PRoW FP 15 and the A635. The footpath connections are shown indicatively on Figure 4.

2.6.2 Rail Services

Goldthorpe and Bolton upon Dearne are the nearest rail stations to the site and are located approximately 1.5km and 1.7km (straight line measurement) from the site.

The stations are located on the Wakefield Line and are operated by Northern who run an hourly service Monday to Sunday, southbound to Sheffield and Rotherham and northbound to Leeds and Wakefield Westgate.

2.7 Local Highway Network

2.7.1 A635

The A635 runs east-west along the northern boundary of the site. The proposed development will take access onto the A635 via a new three-arm roundabout. Planning consent for the roundabout was granted by BMBC on 16 February 2022 (Application Reference: 2021/1511) and at the time of writing the circulatory carriageway has been constructed.

The A635 is a key route within the area and provides a connection to the strategic road network to the east via A1(M) Junction 37. The road connects between Barnsley and Doncaster.

In the immediate vicinity of the site, the A635 is a single carriageway with one lane in each direction. The road connects to Cathill Roundabout and the A6195 to the west and Hollygrove Roundabout to the east. Beyond Hollygrove Roundabout, the road passes through Fields End Roundabout and the villages of Hickleton and Marr before reaching A1(M) Junction 37.

The road is subject to the national speed limit (60mph) with 30mph and 40mph speed limits in operation through the villages of Hickleton and Marr, respectively. Average speed checks are in operation through both villages.

2.7.2 A6195

The A6195 runs north-south to the west of the site. The A6195 is a key route within the area and connects between the A628 at Shafton and M1 Junction 36.

The A6195 connects to the A635 at Cathill Roundabout and the A633 at Broomhill Roundabout. Between Cathill Roundabout, Broomhill Roundabout and Wath Road Roundabout, the A6195 is a single carriageway with one lane in each direction. Between Wath Road roundabout and M1 Junction 36, the road is dual carriageway, with two lanes in each direction.

The road is subject to the national speed limit.

2.8 Road Safety

Personal injury collision data has been obtained from BMBC and CDC for the period covering 2015-2022. The years 2020 and 2021 have been excluded from the assessment given collision records on the network may have been affected by changes in traffic flows as a result of the Covid pandemic restrictions.

The full collision data is provided at Appendix C and the collisions at the junctions comprising the study area are described below.

2.8.1 A635 / Billingley Green Lane

Two collisions have been recorded at the A635 / Billingley Green Lane during the assessed period. The collisions are outlined below:

- Collision Ref - B-01238-15 (Friday 4 December 2015): A collision of slight severity occurred when a car turning right from Billingley Green Lane collided with a goods vehicle which was travelling east to west on the A635. The causation factor was recorded as "Careless/Reckless/In a hurry".

- Collision Ref – 17151951 (Monday 23 January 2017): A collision of slight severity occurred when a car approaching the junction from Billingley Green Lane skidded on ice and collided with a car which was travelling west to east on the A635. The causation factors were recorded as "Slippery road (due to weather)", "Road layout (e.g. bend, hill etc.)" and "Rain, sleet, snow or fog".

2.8.2 Hollygrove Roundabout

One collision has been recorded at the Hollygrove Roundabout during the assessed period. The collision is outlined below:

- Collision Ref – 1658718 (Saturday 9 April 2016): A collision of slight severity occurred at the roundabout when a car travelling east to west collided with a cyclist. The causation factors were recorded as "Failed to look properly" and "Failed to judge other persons path or speed".

2.8.3 Highgate Lane / Commercial Road

Two collisions have been recorded at the Highgate Lane / Commercial Road junction during the assessed period. The collisions are outlined below:

- Collision Ref – B-00099-15 (Friday 30 January 2015): A collision of slight severity occurred on Highgate Lane (approximately 42m north of the junction) when a car travelling north to south collided with the rear of a car which had slowed down for a pedestrian. The causation factor was recorded as "Failed to judge other persons path or speed" and "Following too close".

- Collision Ref – 17233724 (Wednesday 18 October 2017): A collision of serious severity occurred when a car waiting to turn right from Commercial Road reversed to avoid oncoming traffic on Highgate Lane. The car reversed into the stationary car behind before turning left onto Highgate Lane and colliding with another car travelling south to north on Highgate Lane. The causation factors were recorded as "Careless/Reckless/In a hurry" and "Failed to judge other persons path or speed."

2.8.4 Fields End Roundabout

One collision has been recorded at the Fields End Roundabout during the assessed period. The collision is outlined below:

- Collision Ref – 18277668 (Friday 23 February 2018): A collision of slight severity occurred at the roundabout when a car travelling east to west collided with a car waiting stationary at the roundabout. The causation factor was recorded as "Failed to judge other persons path or speed".

2.8.5 A635 / Red Hill Lane / Hickleton Road

Thirteen collisions have been recorded at the A635 / Red Hill Lane / Hickleton Road junction during the assessed period. Speed cameras were installed along the A635 through Hickleton in 2021 to improve compliance with the speed limit. The collisions are outlined below:

- Collision Ref – A-00069-15 (Thursday 15 January 2015): A collision of slight severity occurred at the junction when a vehicle travelling eastbound on the A653 overtook a vehicle in front turning left onto Red Hill Lane. At the same time another vehicle turning right from Hickleton Road, resulting in a collision with the overtaking vehicle. The causation factor was recorded as "poor turn or manoeuvre".

- Collision Ref – A-00313-15 (Saturday 28 February 2015): A collision of slight severity occurred at the junction when a vehicle travelling eastbound on the A635 collided with a vehicle emerging from Red Hill Lane. No causation factors were recorded.

- Collision Ref – A-00946-15 (Tuesday 7 July 2015): A collision of slight severity occurred at the junction when a vehicle turning into Red Hill Lane lost control and collided with the front of a vehicle waiting to emerge from the junction. The causation factors were recorded as "driver error by junction overshoot", "loss of control" and "learner or inexperienced driver / rider".

- Collision Ref – B-00729-15 (Thursday 20 August 2015): A collision of serious severity occurred at the junction when a vehicle pulled out of Hickleton Road and collided with a vehicle travelling eastbound on the A653. The causation factors were recorded as "poor turn or manoeuvre", "failed to look properly" and "vision affected by road layout".

- Collision Ref – A-01766-15 (Friday 20 November 2015): A collision of slight severity occurred at the junction when a vehicle approaching from Red Hill Lane braked and skidded across the junction, colliding with two other vehicles travelling on the A635. The causation factors were recorded as "slippery road" and "driver error by junction overshoot".

- Collision Ref – A-01823-15 (Monday 23 November 2015): A collision of slight severity occurred at the junction when a motorcyclist travelling eastbound on the A635 overtook a vehicle waiting to left at the traffic signals, resulting in a collision. The

causation factors were recorded as “disobeyed double white lines” and “careless, reckless or in a hurry”.

- Collision Ref – 1645326 (Tuesday 2 February 2016): A collision of slight severity occurred at the junction when a vehicle pulled out of Red Hill Lane and collided with a vehicle travelling westbound on the A635. The causation factors were recorded as “failed to look properly”, “failed to judge other persons path or speed” and “learner or inexperienced driver / rider”.

- Collision Ref – 17164990 (Thursday 9 March 2017): A collision of slight severity occurred on Red Hill Lane as a driver travelling southbound swerved into the path of an oncoming vehicle. The driver lost control when avoiding the vehicle and drove through some nearby hedges. The causation factors were recorded as “driver error by swerving” and “careless, reckless or in a hurry”.

- Collision Ref – 17232911 (Friday 4 August 2017): A collision of slight severity occurred at the junction as a vehicle travelling eastbound on the A653 stopped to allow a vehicle in front to turn right onto Hickleton Road. A motorcyclist travelling behind failed to stop and collided with the rear of the slowing vehicle. The causation factors were recorded as “travelling too fast” and “following too close”.

- Collision Ref – 17248454 (Friday 8 December 2017): A collision of serious severity occurred at the junction as a HGV travelling westbound on the A653 saw a stationary vehicle waiting to right onto Red Hill Lane too late. The HGV swerved to avoid and collided with the front of a car travelling in the opposite direction. The HGV driver sustained serious injuries. The causation factor was recorded as “careless, reckless or in a hurry”.

- Collision Ref – 19811146 (Thursday 24 January 2019): A collision of serious severity occurred at the junction a car pulled out of Red Hill Lane in front of a HGV. The HGV attempted to avoid the collision and collided with a tree. The causation factors were recorded as “failed to judge other person’s path or speed” and “careless, reckless or in a hurry”.

- Collision Ref – 19854005 (Tuesday 2 July 2019): A collision of slight severity occurred at the junction when a car travelling along the A635 collided with the back of a motorcycle as the motorcycle was slowing/stopping. The causation factor was recorded as “failed to look properly”.

- Collision Ref – 19879919 (Friday 20 September 2019): A collision resulting in two fatalities occurred at the junction when a taxi failed to stop when approaching the give-way of Red Hill Lane, pulling out into the path of a HGV that was travelling west

to east on the A635. The driver and passenger in the taxi suffered fatal injuries. The causation factor was recorded as "careless, reckless or in a hurry".

2.8.6 A635 / Blacksmiths Lane

Four collisions have been recorded at the A635 / Blacksmiths Lane junction during the assessed period. The collisions are outlined below:

- Collision Ref – A-00244-15 (Monday 16 February 2015): A collision of slight severity occurred at the junction when a vehicle pulled out of Blacksmiths Lane and failed to spot a vehicle travelling eastbound on the A635. The causation factors were recorded as "failed to look properly" and "distraction in the vehicle".

- Collision Ref – A-00580-15 (Sunday 26 April 2015): A collision of slight severity occurred on Blacksmiths Lane as a vehicle travelling southbound lost control and collided with a telegraph post. The causation factors were recorded as "exceeding speed limit", "loss of control", "impaired by alcohol" and "vision affected by dazzling sun".

- Collision Ref – 16102720 (Sunday 14 August 2016): A collision of slight severity occurred at the junction when a vehicle pulled out of Blacksmiths Lane and failed to spot a vehicle travelling westbound on the A635. The causation factors were recorded as "failed to look properly", "failed to judge other person's path or speed" and "careless, reckless or in a hurry".

- Collision Ref – 16113105 (Sunday 2 October 2016): A collision of slight severity occurred at the junction when a vehicle turning right out of Blacksmiths Lane collided with a vehicle travelling eastbound on the A653. The causation factors were recorded as "poor turn or manoeuvre", "failed to look properly" and "failed to judge other person's path or speed".

2.8.7 A635 / Church Lane

Six collisions have been recorded at the A635 / Church Lane junction during the assessed period. The collisions are outlined below:

- Collision Ref – 1639072 (Friday 8 January 2016): A collision of slight severity occurred at the junction when a vehicle pulling out of Church Lane collided with a vehicle travelling eastbound on the A653. The causation factors were recorded as "poor turn or manoeuvre" and "failed to look properly".

- Collision Ref – 1699042 (Tuesday 9 August 2016): A collision of slight severity occurred at the junction as a HGV turning right from Church Lane collided with a

vehicle travelling eastbound on the A653. The causation factor was recorded as "failed to look properly".

- Collision Ref – 17197900 (Friday 30 June 2017): A collision of slight severity occurred at the junction as a vehicle pulling out of Church Lane failed to spot a vehicle travelling westbound on the A653. The causation factor was recorded as "failed to look properly".

- Collision Ref – 18276362 (Monday 19 February 2018): A collision of slight severity occurred on Church Lane as a HGV travelling southbound in poor weather collided with the rear of a vehicle in front. This caused a domino effect between four vehicles all travelling southbound. The causation factor was recorded as "vision affected by rain, sleet, snow or fog".

- Collision Ref – 18312665 (Tuesday 10 July 2018): A collision of slight severity occurred as a driver travelling westbound on the A653 swerved to avoid a vehicle travelling in the opposite direction. The driver hit a lamp post which flipped the vehicle. The causation factor was recorded as "driver error by swerving".

- Collision Ref – 19911292 (Wednesday 18 December 2019): A collision of serious severity occurred as a van/goods vehicle emerged from Church Lane and collided with a car travelling westbound on the A635. The causation factors were recorded as "aggressive driving" and "vehicle in course of crime".

2.8.8 A1(M) Junction 37 (Marr Roundabout)

Thirteen collisions have been recorded at A1(M) Junction 37 the assessed period. It should be noted that nine collisions occurred on the motorway section not relating to the roundabout or slip roads. The collisions are outlined below:

- Collision Ref – A-00019-15 (Tuesday 6 January 2015): A collision of slight severity occurred on the motorway section as a HGV changed lanes and failed to spot a vehicle whilst turning, resulting in a four vehicle collision including vehicles travelling behind. The causation factors were recorded as "failed to look properly" and "failed to judge other person's path or speed".

- Collision Ref – A-00280-15 (Wednesday 25 February 2015): A collision of slight severity occurred on the motorway section as a vehicle travelling southbound collided with the rear of a vehicle in front, in slowing traffic. The causation factor was recorded as "failed to judge other person's path or speed".

- Collision Ref – A-01720-15 (Friday 20 November 2015): A collision of slight severity occurred at the roundabout as a vehicle travelling westbound braked sharply to avoid

another vehicle. This caused two vehicles behind to collide with the rear of each vehicle. The causation factors were recorded as “following too close”, “failed to judge other person’s path or speed” and “sudden braking”.

- Collision Ref – 16113686 (Tuesday 4 October 2016): A collision of slight severity occurred on the motorway section as a vehicle travelling southbound collided with the rear of a vehicle in front, in slowing traffic. The causation factor was recorded as “failed to judge other person’s path or speed”.

- Collision Ref – 16144740 (Saturday 31 December 2016): A collision of slight severity occurred on the motorway section as a vehicle travelling southbound collided with the rear of a vehicle in front, in slowing traffic, pushing the vehicle into the central crash barrier. The vehicle drove away from the scene without stopping. The causation factor was recorded as “failed to look properly”.

- Collision Ref – 1678411 (Sunday 12 June 2016): A collision of slight severity occurred on the motorway section as a vehicle travelling northbound collided with the rear of a vehicle in front, in slowing traffic. This caused a domino effect between six vehicles. The causation factor was recorded as “failed to judge other person’s path or speed”.

- Collision Ref – 17168378 (Thursday 16 March 2017): A collision of slight severity occurred at the roundabout as a vehicle entering from the southbound exit slip road collided with a vehicle travelling westbound across the roundabout, causing the vehicle to spin off into a bush. The causation factor was recorded as “careless, reckless or in a hurry”.

- Collision Ref – 17225987 (Monday 25 September 2017): A collision of slight severity occurred at the roundabout as a stationary motorcyclist parked at the junction was hit by a vehicle travelling eastbound towards the southbound entry slip road. The causation factor was recorded as “deposit on the road (e.g. oil, mud, chippings)”.

- Collision Ref – 17230383 (Friday 13 October 2017): A collision of slight severity occurred on the motorway section as a vehicle travelling southbound failed to react to slowing traffic and swerved into the central crash barrier. The causation factor was recorded as “failed to judge other person’s path or speed”.

- Collision Ref – 17237478 (Tuesday 24 October 2017): A collision of slight severity occurred on the motorway section as a LGV travelling southbound collided with the rear of an LGV in front. The causation factors were recorded as “slippery road surface” and “failed to look properly”.

- Collision Ref – 17284681 (Sunday 17 December 2017): A collision of slight severity occurred on the motorway section as a vehicle travelling northbound collided with the rear of a vehicle in front, in slowing traffic. This caused a domino effect between three vehicles. The causation factor was recorded as "failed to judge other person's path or speed".

- Collision Ref – 18283270 (Saturday 17 March 2018): A collision of slight severity occurred on the motorway section as a vehicle travelling northbound in poor weather conditions lost control and collided with a vehicle in front. The causation factor was a recorded as "slippery road surface".

- Collision Ref – 19818573 (Monday 25 February 2019): A collision of serious severity occurred on the A653, east of A1 Junction 47, as a vehicle travelling eastbound was "dazzled by the dun" and collided with a vehicle travelling in the opposite direction. The causation factor was recorded as "vision affected by dazzling sun".

2.8.9 Cathill Roundabout

Fifteen collisions have been recorded at the Cathill Roundabout during the assessed period. The collisions are outlined below:

- Collision Ref – B-00120-15 (Tuesday 3 February 2015): A collision of slight severity occurred at the roundabout when a goods vehicle collided with the rear of a car waiting stationary at the roundabout. The causation factors were recorded as "Travelling too fast for conditions" and "Failed to judge other persons path or speed".

- Collision Ref – B-00596-15 (Friday 26 June 2015): A collision of slight severity occurred at the roundabout when a car travelling north to south changed lane to turn right and collided with a motorcycle which was overtaking the car. The causation factors were recorded as "Failed to look properly" and "Failed to judge other persons path or speed".

- Collision Ref – 1638996 (Wednesday 6 January 2016): A collision of slight severity occurred at the roundabout when a car pulled out into the roundabout causing a motorcyclist to take evasive action and fall off their motorcycle. The causation factor was recorded as "Junction Restart".

- Collision Ref – 16139040 (Monday 12 December 2016): A collision of slight severity occurred at the roundabout when a car pulled out of the service station before colliding with a car which then collided with a car travelling in the opposite direction. The causation factors were recorded as "Failed to look properly" and "Failed to judge other persons path or speed".

- Collision Ref – 1690171 (Wednesday 20 July 2016): A collision of slight severity occurred at the roundabout when a car travelling south to north collided with a car travelling in the same direction. The causation factors were recorded as "Poor turn or manoeuvre", "Failed to judge other persons path or speed" and "Failed to look properly".

- Collision Ref – 17169008 (Saturday 25 March 2017): A collision of slight severity occurred at the roundabout when a car travelling south to north collided with the rear of a car which came to a stop. The causation factors were recorded as "Failed to look properly", "Failed to judge other persons path or speed", "Careless/Reckless/In a hurry".

- Collision Ref – 17217414 (Friday 18 August 2017): A collision of serious severity occurred at the roundabout when a bus approaching the roundabout had to break suddenly as a car on the roundabout had given an incorrect indication. A passenger was injured due to falling off their seat. The causation factor was recorded as "Sudden braking".

- Collision Ref – 17242458 (Monday 6 November 2017): A collision of slight severity occurred at the roundabout when a car waiting to enter the roundabout (south to west) stopped suddenly due to another car cutting across lanes. A car then collided into the rear of the stopping car. The causation factor was recorded as "Distraction outside vehicle".

- Collision Ref – 17257467 (Tuesday 19 December 2017): A collision of serious severity occurred at the roundabout when a car entered the roundabout and collided with a cyclist travelling around the roundabout. The causation factor was recorded as "Failed to look properly".

- Collision Ref – 18261701 (Saturday 6 January 2018): A collision of slight severity occurred at the roundabout when a car travelling northbound from the A6195 south arm swerved to avoid a vehicle in front suddenly braking. This caused a collision between three vehicles. The causation factors were recorded as "Failed to judge other persons path or speed" and "Sudden braking".

- Collision Ref – 18338451 (Wednesday 17 October 2018): A collision of slight severity occurred at the roundabout between four vehicles approaching northbound from the A6195 south arm. As traffic came to a stop, the vehicles collided to the rear of each other. The causation factors were recorded as "Careless/Reckless/In a hurry" and "Failed to look properly".

- Collision Ref – 18342567 (Thursday 1 November 2018): A collision of slight severity occurred at the roundabout when a vehicle entering the roundabout from the

western arm collided with the rear of a motorcyclist negotiating the roundabout. The motorcyclist sustained slight injuries, and the vehicle failed to stop at the scene. The causation factors were recorded as "Careless/Reckless/In a hurry" and "Disobeyed give way or stop sign markings".

- Collision Ref – 19851604 (Wednesday 26 June 2019): A collision of slight severity occurred at the adjacent petrol station; as a vehicle has pulled out of the station, a van deliberately rammed the rear of the vehicle and consequently left the scene without stopping. No causation factors were recorded.

- Collision Ref – 19903375 (Tuesday 12 November 2019): A collision of slight severity occurred at the roundabout. No details of the collision were recorded, but the causation factor was recorded as "learner or inexperienced driver / rider".

- Collision Ref – 221171615 (Wednesday 26 June 2019): A collision of slight severity occurred at the roundabout as a car and motorcycle exiting the roundabout to the A6195 south arm came together, resulting in a collision. The motorcyclist sustained minor injuries. The causation factor was recorded as "other".

2.8.10 Broomhill Roundabout

Three collisions have been recorded at Broomhill Roundabout during the assessed period. The collisions are outlined below:

- Collision Ref – 1644796 (Wednesday 3 February 2016): A collision of slight severity occurred at the roundabout as a vehicle waiting to enter the roundabout from the A6195 north arm was hit from behind by an approaching vehicle. The causation factor was recorded as "careless, reckless or in a hurry".

- Collision Ref – 16104921 (Saturday 3 September 2016): A collision of slight severity occurred at the roundabout as a vehicle entered the roundabout on the inside lane on the A6195 south arm and collided with a vehicle entering the roundabout on the outside lane. The causation factor was recorded as "failed to look properly".

- Collision Ref – 17219153 (Saturday 2 September 2017): A collision of slight severity occurred at the roundabout as a vehicle collided with a pedal cyclist on the circulatory carriageway. No causation factors were recorded.

2.8.11 Wath Road Roundabout

Ten collisions have been recorded at the Wath Road Roundabout during the assessed period. The collisions are outlined below:

- Collision Ref – B-00839-15 (Saturday 19 September 2015): A collision of slight severity occurred at the roundabout as a vehicle entering from the A6195 east arm collided with a pedal cycle travelling on the circulatory carriageway. The causation factor was recorded as “failed to look properly”.

- Collision Ref – B-01083-15 (Tuesday 24 November 2015): A collision of slight severity occurred at the roundabout as a vehicle approaching from the A6195 east arm slowed down causing a motorcyclist following behind to collide with the rear of the vehicle. The rider sustained slight injuries with the causation factor recorded as “aggressive driving”.

- Collision Ref – 16113078 (Monday 3 October 2016): A collision of slight severity occurred at the roundabout as a stationary vehicle on the A6195 east arm was hit by another vehicle from behind. The causation factor was recorded as “careless, reckless or in a hurry”.

- Collision Ref – 17239447 (Sunday 5 November 2017): A collision of slight severity occurred at the roundabout as a stationary vehicle on the A6195 east arm decided to undertake a U-turn. Whilst undertaking the manoeuvre, the vehicle hit a motorcyclist overtaking at the same time. The vehicle failed to stop at the scene and the motorcyclist sustained slight injuries. The causation factor was recorded as “poor turn or manoeuvre”.

- Collision Ref – 17253980 (Tuesday 5 December 2017): A collision of slight severity occurred at the roundabout as an approaching vehicle on the A6195 south arm was hit by another vehicle from behind. The causation factor was recorded as “careless, reckless or in a hurry”.

- Collision Ref – 18267199 (Thursday 25 January 2018): A collision of slight severity occurred at the roundabout as a motorcyclist exiting the roundabout was clipped by a passing car exiting at the same time, resulting in a collision. The causation factors were recorded as “poor turn or manoeuvre” and “failed to judge other person’s path or speed”.

- Collision Ref – 18302908 (Saturday 16 June 2018): A collision of serious severity occurred at the roundabout as a vehicle entering from the A633 collided with a vehicle travelling in the opposite direction head-on. The causation factor was recorded as “learner or inexperienced driver / rider”.

- Collision Ref – 18348582 (Thursday 29 November 2018): A collision of slight severity occurred at the roundabout has a vehicle stationary in queueing traffic on the A6195 south arm was hit on the nearside from a vehicle behind. The vehicle then failed to stop at the scene. The causation factor was recorded as “following too close”.

- Collision Ref – 19862951 (Sunday 10 March 2019): A collision of slight severity occurred at the roundabout as a vehicle collided with a pedal cyclist on the circulatory carriageway. The causation factors were recorded as “loss of control” and “careless, reckless or in a hurry”.

- Collision Ref – 19861802 (Thursday 25 July 2019): A collision of serious severity occurred at the roundabout as a vehicle pulling out from the A6195 south arm collided with a vehicle travelling on the circulatory carriageway. The causation factors were recorded as “disobeyed double white lines” and “failed to look properly”.

2.8.12 Cortonwood Roundabout

Six collisions have been recorded at the Cortonwood Roundabout during the assessed period. The collisions are outlined below:

- Collision Ref – 1677273 (Wednesday 27 April 2016): A collision of serious severity occurred at the roundabout as a vehicle travelling from the A6195 west arm failed to spot a vehicle stopping in queuing traffic in front, resulting in a collision and causing the driver in front to sustain serious injuries. The causation factors were recorded as “failed to look properly” and “sudden braking”.

- Collision Ref – 16101976 (Tuesday 16 August 2016): A collision of serious severity occurred at the roundabout as a vehicle turning right from the A6195 west arm was in the incorrect lane and collided with a vehicle in the adjacent lane. The causation factors were recorded as “failed to judge other person’s path or speed” and “other”.

- Collision Ref – 18281599 (Thursday 8 March 2018): A collision of slight severity occurred at the roundabout as a motorcyclist entering the roundabout from Corton Wood lost control in icy conditions and collided with the nearside of another vehicle. The causation factors were recorded as “deposit on the road (e.g oil, mud, chippings)” and “slippery road”.

- Collision Ref – 18336344 (Saturday 6 October 2018): A collision of slight severity occurred at the roundabout as a vehicle entering the roundabout from the A6195 north arm collided with a vehicle entering from the Corton Wood arm. The driver failed to stop at the scene. The causation factor was recorded as “careless, reckless or in a hurry”.

- Collision Ref – 19824310 (Sunday 17 March 2019): A collision of slight severity occurred at the roundabout as a vehicle moving straight ahead on the circulatory collided with the rear of a motorcyclist in the same lane, signalling to exit onto the A6195 north arm. The causation factor was recorded as “poor turn or manoeuvre”.

- Collision Ref – 19829723 (Sunday 7 April 2019): A collision of serious severity occurred at the roundabout as a vehicle entering the roundabout from the A6195 north arm sped up and collided with the rear of a vehicle travelling in front, catapulting the vehicle across the carriageway. No causation factors were recorded.

2.8.13 Summary

The collisions described above are summarised in the Table below.

Table 2: Collision Summary

Junction	Collision Severity			Total
	Slight	Serious	Fatal	
A635 / Billingley Green Lane	2	0	0	2
Hollygrove Roundabout	1	0	0	1
Highgate Lane / Commercial Road	1	1	0	2
Fields End Roundabout	1	0	0	1
A635 / Red Hill Lane / Hickleton Road	9	3	1	13
A635 / Blacksmiths Lane	4	0	0	4
A635 / Church Lane	5	1	0	6
A1(M) Junction 37 (Marr Roundabout)	12	1	0	13
Cathill Roundabout	13	2	0	15
Broomhill Roundabout	3	0	0	3
Wath Road Roundabout	8	2	0	10
Cortonwood Roundabout	3	3	0	6

A total of 76 collisions have been recorded at the junctions comprising the study highway network during the period covering 2015-2022 (excluding 2020 and 2021). Of the 76 collisions, 62 were classified as being of 'slight' severity, 13 as 'serious' and one resulted in fatalities. Given the daily traffic flows, the number of collisions occurring at the junctions is considered to be relatively low.

In addition to the above, a fatal collision involving a HGV and a pedestrian occurred on the A635 in Hickleton in August 2023. At the time of writing, the collision is subject to a police investigation. As such, causation factors for the collision are not available.

The causation factors of the collisions (where available) are summarised in the Table below.

Table 3: Collision Causation Factors

Recorded Causation Factor	Occurrence
Failed to Look Properly	23
Failed to Judge Other Persons Path or Speed	23
Careless/Reckless/In a Hurry	17
Poor Turn or Manoeuvre	8
Weather Related	6
Loss of Control	3
Learner or Inexperienced Driver/Rider	4
Sudden Braking	4
Following too Close	4
Slippery Road Surface	4
Disobeyed Double White Lines, Give Way or Stop Sign	3
Speeding	3
Swerved	2
Distraction	2
Deposit on the Road (e.g. Oil, Mud, Chippings)	2
Driver Error by Junction Overshoot	2
Aggressive Driving	2
Vision Affected by Road Layout	1
Impaired by Alcohol	1
Junction Restart	1
Road Layout e.g. Bend, Hill etc.	1
Vehicle in course of crime	1

It is apparent that the vast majority of collisions occurred for reasons indicative of driver error. The causation factors do not suggest a specific highway safety issue on the network that would need to be addressed.

2.9 Summary

This section has examined the existing conditions on the local transport network, including the opportunities available for future employees to travel to and from work by sustainable

modes of transport. An assessment of the latest five-year personal injury collision record at the junctions comprising the study highway network has also been undertaken.

It has been demonstrated that the site is well located in relation to the existing transport network and future employees will have the opportunity to travel to and from work by sustainable modes of transport including on foot, by cycle and by public transport.

The number of collisions occurring at the junctions comprising the study highway network is considered to be relatively low and the vast majority of collisions occurred for reasons indicative of driver error.

3 Transport Planning Policy

3.1 Introduction

This section identifies national and local transport policy that is relevant to the proposed development and sets out how the development proposals respond to, and accord with, this policy.

3.2 National Policy

3.2.1 National Planning Policy Framework

The National Planning Policy Framework[8] (NPPF) was updated in September 2023. It sets out national planning policy for England and in particular how the planning system is to contribute to achieving sustainable development.

Specifically in relation to transport, Paragraph 104 states that transport issues should be considered from the earliest stages of development proposals, so that:

> *"a) the potential impacts of development on transport networks can be addressed;*
>
> *b) opportunities from existing or proposed transport infrastructure, and changing transport technology and usage, are realised – for example in relation to the scale, location or density of development that can be accommodated;*
>
> *c) opportunities to promote walking, cycling and public transport use are identified and pursued;*
>
> *d) the environmental impacts of traffic and transport infrastructure can be identified, assessed and taken into account – including appropriate opportunities for avoiding and mitigating any adverse effects, and for net environmental gains; and*
>
> *e) patterns of movement, streets, parking and other transport considerations are integral to the design of schemes, and contribute to making high quality places".*

In considering applications for development, Paragraphs 110 and 111 state:

> *"In assessing sites that may be allocated for development in plans, or specific applications for development, it should be ensured that:*

[8] *National Planning Policy Framework*, Department for Levelling Up, Housing and Communities, 2023.

a) appropriate opportunities to promote sustainable transport modes can be – or have been – taken up, given 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".

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

Specifically, Paragraph 112 states that applications for development should:

"a) give priority first to pedestrian and cycle movements, both within the scheme and with neighbouring areas; and second – so far as possible – to facilitating access to high quality public transport, with layouts that maximise the catchment area for bus or other public transport services, and appropriate facilities that encourage public transport use;

b) address the needs of people with disabilities and reduced mobility in relation to all modes of transport;

c) create places that are safe, secure and attractive – which minimise the scope for conflicts between pedestrians, cyclists and vehicles, avoid unnecessary street clutter, and respond to local character and design standards;

d) allow for the efficient delivery of goods, and access by service and emergency vehicles; and

e) be designed to enable charging of plug-in and other ultra-low emission vehicles in safe, accessible and convenient locations".

Paragraph 113 states:

"All developments that will generate significant amounts of movement should be required to provide a travel plan, and the application should be supported by a transport statement or transport assessment so that the likely impacts of the proposal can be assessed".

3.2.2 Planning Practice Guidance

Planning Practice Guidance[9] (PPG) provides planning guidance in line with the overarching NPPF. PPG provides advice on when Transport Assessments and Transport Statements are required, and what they should contain:

"Transport Assessments are thorough assessments of the transport implications of development, and Transport Statements are a 'lighter-touch' evaluation to be used where this would be more proportionate to the potential impact of the development (i.e. in the case of developments with anticipated limited transport impacts)."

Furthermore, it states that:

"Transport Assessments and Statements can be used to establish whether the residual transport impacts of a proposed development are likely to be "severe", which may be a reason for refusal, in accordance with the National Planning Policy Framework."

And:

"The Transport Assessment or Transport Statement may propose mitigation measures where these are necessary to avoid unacceptable or "severe" impacts."

3.2.3 Department for Transport Circular 01/2022

The Department for Transport's (DfT) policy paper Circular 01/2022[10] explains how NH will engage with the planning system and fulfil its remit to be a delivery partner for sustainable economic growth whilst maintaining, managing and operating a safe and efficient strategic road network. Paragraphs 15 and 48 of the Circular set out the criteria for a 'vision led' approach to delivering new and sustainable development.

The new circular places additional requirements for developments to be demonstrably sustainable in terms of transport and states that "walking, wheeling, cycling and public transport must be the natural first choice for all who can take it" and that "development promoters must put forward clear targets and commitments to manage down the traffic impact of development and maximise the accessibility of and within sites by walking, wheeling, cycling, public transport and shared travel".

The circular expects "development promoters to enable a reduction in the need to travel by private car and prioritise sustainable transport opportunities ahead of capacity enhancements and new connections on the SRN, and that "high-powered and open-access EV charge points should be installed where developments include on-street or communal

[9] *National Planning Practice Guidance*, Department of Communities and Local Government, 2019.
[10] *Strategic road network and the delivery of sustainable development*, National Highways, 2022.

parking[footnote 17] to support the government's objective to end the sale of new conventional petrol and diesel cars/vans by 2030 and HGVs by 2040, and its commitment to decarbonise transport by 2050."

With regard to Travel Plans, the circular states that "Travel plans are an effective means of incentivising the use of sustainable modes of transport. Where these are required, development promoters must put forward clear targets and commitments to manage down the traffic impact of development and maximise the accessibility of and within sites by walking, wheeling, cycling, public transport and shared travel. Targets for achieving a modal shift to sustainable transport will need to be subject to sustained monitoring and management by an appointed travel plan coordinator."

With regard to HGV parking, the circular states that "development proposals for new or expanded goods distribution centres should make sufficient provision for HGV drivers, which should include overnight parking and an adequate level of welfare facilities."

3.3 Local Policy

3.3.1 Barnsley Local Plan 2019

Barnsley's Local Plan[11] was adopted on 3 January 2019. This document, together with the Joint Waste Plan (prepared with Doncaster and Rotherham councils and adopted in March 2012), forms the Statutory Development Plan.

The Local Plan considers the future use of all land within the borough and establishes policies and proposals up to the year 2033. The Local Plan is used when considering planning applications and to coordinate investment decisions that affect the towns, villages and countryside of Barnsley.

The following policies within the Barnsley Local Plan are of relevance to the development from a transport perspective:

Policy GD1 General Development

Policy GD1 states that proposals for development will be approved if, amongst other things, adequate access and internal road layouts are provided to allow the complete development of the entire site for residential purposes and to provide appropriate vehicular and pedestrian link throughout the site and into adjacent areas.

Policy T3 New Development and Sustainable Travel

[11] *Barnsley Local Plan*, Barnsley Metropolitan Borough Council, 2019.

Policy T3 states that new development will be expected to:

> *"Be located and designed to reduce the need to travel, be accessible to public transport and meet the needs of pedestrians and cyclists.*
>
> *Provide at least the minimum levels of parking for cycles, motorbikes, scooters, mopeds and disabled people set out in the relevant Supplementary Planning Document.*
>
> *Provide a Transport Statement or Assessment in line with guidance set out in the National Planning Policy Framework and guidance including where appropriate regard for cross boundary local authority impacts; and*
>
> *Provide a Travel Plan Statement or a Travel Plan in accordance with guidance set out in National Planning Policy Framework including where appropriate regard for cross boundary local authority impacts. Travel plans will be secured through a planning obligation or a planning condition."*

The policy goes on to explain that where levels of accessibility through public transport, cycling and walking are unacceptable, developers will be expected to take action or make financial contributions, secured through a planning obligation or planning condition.

Policy T4 New Development and Transport Safety

Policy T4 states that new development will be expected to be designed and built to provide safe, secure and convenient access for all road users. The policy goes on to explain that if a development is not suitably served by the existing highway, or would create or add to highway safety problems or the efficiency of the highway for all road users, developers will be expected to take mitigating action or to make a financial contribution to make sure the necessary improvements go ahead.

3.4 Site ES10: Land South of Dearne Valley Parkway 72.9ha

The site is allocated for employment development under reference: ES10 – Land South of Dearne Valley Parkway.

In relation to transport, the Policy relating to Site ES10 sets out that the development will be subject to the production of a phased Masterplan Framework and will be expected to:

> *"Improve the highway network to mitigate the impact of additional traffic generated by the development on surrounding roads and in particular effects on the A635 and other strategic road links to the A1/M and M1 motorways".*
>
> *"Provide appropriate access to housing site reference HS51 from Billingley View through the south east corner of the site".*

"Provide an air quality assessment to assess the impacts of traffic emissions within air quality management areas along the A635 and other strategic road links to the A1/M and M1. Any adverse impacts on air quality should be mitigated in accordance with policy AQ1".

3.5 Goldthorpe Masterplan Framework

The Goldthorpe Masterplan Framework[12] was adopted by BMBC in September 2021 and identifies the proposed development site for employment use. The site is identified under reference ES10 – Land South of Dearne Valley Parkway.

The masterplan outlines a framework for the delivery of an attractive and high-quality employment-led development comprised of offices, research and development and industrial uses in Class E across the 73-hectare site.

The masterplan framework sets out the following site-specific transport related requirements for developments on the site:

- The site is required to provide access into the residential allocation HS51. It is expected that this would be provided within the southeast corner of the site taken from Billingley View.
- Access into the site will be undertaken from the A635 new roundabout, which will be the main point of access for the development.
- High quality pedestrian routes are required to provide a link to the existing bus stops on Billingley View.
- Ensure access along the eastern boundary of the site to maximise the opportunity for sustainable travel to and from the site.
- Provide an air quality assessment to assess the impacts of traffic emissions within air quality management areas along the A635 and other strategic road links to the A1/M and M1. Any adverse impacts on air quality should be mitigated in accordance with policy AQ1.

3.6 Summary

The proposed development accords with the aims and objectives of the relevant local and national policy, and the associated transport impacts are set out in this Transport

[12] *Goldthorpe Masterplan Framework (Version 2.0)*, Barnsley Metropolitan Borough Council, Adopted September 2021.

Assessment. The proposed site is in a location which is accessible by a range of transport modes, ensuring sustainable access within the district and beyond.

4 Proposed Development

This section provides an overview of the development proposals and provides a summary of the access, parking and servicing arrangements.

4.1 Proposed Land Use

The proposed development is for up to 204,000 sqm GIA for Storage and Distribution (Use Class B8) and General Employment (Use Class B2) space, with ancillary offices.

Flexibility is required to respond to potential market demand, so for the purposes of this Transport Assessment, a 70%:30% B8:B2 split has been assumed (142,800 sqm B8 and 61,200 sqm B2). The B2 element of the proposed development will be limited to 30% of the total floorspace.

The Parameters and Phasing Plans are provided at Appendix A.

4.2 The Transport Vision

The transport vision for the development is to encourage and support active, healthy, and sustainable travel choices by those travelling to future development on the site, to maximise modal shift to active modes and public transport, to assist in delivering transport decarbonisation.

4.3 Achieving the Vision

4.3.1 Access by Active and Sustainable Modes

Pedestrian and cycle access is to be provided to the development at the approved site access roundabout (Application Reference: 2021/1511).

The approved site access roundabout includes the construction of a 3.0m wide footway/cycleway on the northern side of the A635. A section of footway will be constructed south of the A635, to the east of the roundabout, providing access into the site. Dropped kerbs and tactile paving are to be provided across the eastern arm of the roundabout, with pedestrian refuge provided on the splitter island.

As part of the proposals, PRoW Footpath Number 15 (FP15), which runs through the north-eastern portion of site and connects between the A635 and Carr Field Lane, is to be diverted as indicatively shown on the Phasing Plan provided at Appendix A. The overall routing is not to be altered as part of the proposals i.e. the route will still connect between the A635 and Carr Field Lane.

A pedestrian and cycle link is also to be provided to connect to PRoW FP15, ultimately connecting to Carr Field Lane/Billingley View to the southeast of the site.

A footway is to be provided within the site, linking to the external footways south of the A635 at a point east of Woodbine Cottage.

Within the site, a footway and combined footway / cycleway will be provided on the west and east sides of the proposed access road respectively. South of Plot 1, the footway / cycleway would be provided on the northern side of the access road, via uncontrolled crossings on the access roads within the site. In this way, each plot is linked directly by off-carriageway footway / cycleway provision to the external network of routes.

Cycle parking to be provided on each plot will be determined as part of future planning applications for reserved matters when specific occupier requirements are known, taking BMBC's prevailing policy requirements into account.

Access to existing bus services is to be maximised through the provision of footpath connections to Carr Field Lane/Billingley View via PRoW FP15 and the A635. The footpath connections are shown indicatively on Figure 4.

4.3.2 Travel Planning

A Framework Travel Plan has been prepared alongside the Transport Assessment. The Framework Travel Plan sets a framework detailing how sustainable travel will be supported on site, and details how individual occupiers will engage in Travel Plan process through developing their own Travel Plans.

The Framework Travel Plan sets out a package of measures to support future staff based at the site and visitors in choosing modes other than the private car when travelling, and effectively managing down car-based trips to and from the development. It also sets out the responsibilities and monitoring needed to ensure success of the Travel Plan objectives.

4.4 Vehicular Access

4.4.1 Access

Vehicular access to the development will be taken from a new three-arm roundabout on the A635. Planning consent for the roundabout was granted by BMBC on 16 February 2022 (Application Reference: 2021/1511), and at the time of writing the circulatory carriageway has been constructed.

The principal access road within the site will comprise a carriageway width of 10m, including one running lane in either direction and a marked central reserve to

accommodate vehicles turning right to individual development plots. A secondary access road will be provided to serve Plots 3 and 4, which will in turn comprise a carriageway width of 7.3m, for one running lane in either direction only. A grassed verge (of 1.0m width) will be provided adjacent the carriageway.

Separate points of entry to car parking and servicing areas, as well as two lanes for vehicles entering the controlled servicing areas, will be provided on each development plot. In addition, space allowing for multiple vehicles to be queued on entry without extending back and affecting the operation of the access road within the site will be provided.

Swept path analysis of the proposed access roads has been undertaken for articulated HGVs (as the largest vehicles that are likely to regularly access the site), as well as emergency vehicles.

The proposed access road arrangements (including swept path analysis drawings) are demonstrated the drawings submitted as part of the planning application.

4.4.2 Car Parking

Car parking will be determined as a reserved matter, when occupier requirements are known, taking BMBC's prevailing policy guidance into account. At the time of writing, this is set out in BMBC's 'Parking' Supplementary Planning Document[13] (SPD), which was adopted in November 2019 and offers guidance on the parking standards set out by BMBC for new developments as follows:

- Use class B2: 1 space per 30sqm.
- Use class B8: 1 space per 3 staff or 1 space per 60sqm gross floor area up to 300sqm then 1 space per 100sqm gross floor area up to 1000sqm and 1 space per 150sqm gross floor area thereafter.

Electric vehicle charging spaces are to be provided in line with Approved Document S of the Building Regulations 2010[14] which stipulates that for new building other than residential or mixed-use, both of the following apply:

- *"One electric vehicle charge point must be provided for the building."*

[13] *Barnsley Local Plan: Supplementary Planning Document, Parking*, Barnsley Metropolitan Borough Council, 2019.
[14] *The Building Regulations 2010: Infrastructure for the Charging of Electric Vehicles (Approved Document S)*, HM Government, 2021.

- *At least one in every five remaining parking spaces must be provided with cable routes."*

4.4.3 Servicing

Servicing requirements will be accommodated on each development plot, accessed individually from the access roads to be provided within the site. The precise layout (including requirements for overnight parking of lorry vehicles) of each development plot will be determined as part of future applications for reserved matters.

5 Trip Generation

5.1 Introduction

This section details the methodology used to determine the predicted weekday AM and PM peak hour vehicle trip generations associated with the proposed development.

The section also addresses comments received from BMBC, and JSJV on behalf of NH, and outlines the transport work that has been undertaken by AECOM in relation to the allocation site.

5.2 Vehicle Trip Generation

In the Technical Memorandum prepared by JSJV in response to the Scoping Note prepared by Fore, JSJV undertook their own vehicle trip generation analysis utilising an 'Actual Range' that they deemed to be more representative of the proposed quantum of development than that selected by Fore.

On reflection, Fore agrees with this approach and have selected the 'Actual Range' selected by JSJV in an updated vehicle trip generation analysis. It should be noted that the trip rates identified by JSJV included a survey site that was surveyed during Covid restrictions and the trip generation for this site may not reflect that which could be expected with no restrictions in place. This survey site has therefore been removed from the updated trip generation analysis.

The updated vehicle trip generation associated with the proposed development has therefore been derived from the TRICS database based on the criteria are set out in the Table below.

Table 4: TRICS Search Criteria

TRICS Land Use	Employment (02) / Warehousing (Commercial) (F)	Employment (02) / Industrial Unit (C)
Location	Edge of Town / Suburban Area	
Parameter	Gross Floor Area (GFA)	
Actual Range	10,446 sqm to 80,100 sqm	8,100 sqm to 14,125 sqm
Range Selected by User	10,000 sqm to 80,100 sqm	8,000 sqm to 14,125 sqm
Survey Days	Monday to Friday	
Calculation Factor	100 sqm	

The resulting TRICS outputs are presented in full at Appendix D with total vehicle and HGV trip rates (per 100 sqm) for the identified development peak hours (07:00 to 08:00 and 16:00-17:00) summarised in the Table below. The calculations to identify the development peak hours are provided at Appendix E.

Table 5: Vehicle Trip Rates per 100 sqm

Vehicle Type	Weekday AM Peak Hour *(07:00-08:00)*			Weekday PM Peak Hour *(16:00-17:00)*		
	Arr.	Dep.	Total	Arr.	Dep.	Total
Warehousing (Commercial)						
All Vehicles	0.114	0.067	0.181	0.072	0.101	0.173
HGVs	0.032	0.039	0.071	0.039	0.031	0.070
Industrial Unit						
All Vehicles	0.281	0.016	0.297	0.031	0.333	0.364
HGVs	0.016	0.002	0.018	0.007	0.013	0.020

The proposed development is for the construction of Storage and Distribution (Use Class B8) and General Employment (Use Class B2) space with ancillary offices. For this Transport Assessment, a floor area of 204,000 sqm GIA with a 70%:30% B8:B2 split (142,800 sqm B8 and 61,200 sqm B2) has been assumed. This scenario represents the maximum PCU trip generation associated with the development proposals.

The Table below shows the vehicle trip generation associated with the proposed development.

Table 6: Vehicle Trip Generation (204,000 sqm)

Vehicle Type	Weekday AM Peak Hour *(07:00-08:00)*			Weekday PM Peak Hour *(16:00-17:00)*		
	Arr.	Dep.	Total	Arr.	Dep.	Total
Warehousing (Commercial) – 142,800 sqm						
All Vehicles	163	96	258	103	144	247
HGVs	46	56	101	56	44	100
Light Vehicles	117	40	157	47	100	147
PCUs	208	151	360	159	188	347
Industrial Unit – 61,200 sqm						
All Vehicles	172	10	182	19	204	223
HGVs	10	1	11	4	8	12
Light Vehicles	162	9	171	15	196	211
PCUs	182	11	193	23	212	235
Total – 204,000 sqm						
All Vehicles	335	105	440	122	348	470
HGVs	55	57	112	60	52	112
Light Vehicles	279	49	328	62	296	358
PCUs	390	162	553	182	400	582

Note: Vehicle trips rounded to the nearest whole number.

The Table above shows that the proposed development is predicted to generate 440 and 470 two-way vehicle trips during the Weekday AM and PM peak hours, respectively.

As requested by JSJV, for junction modelling purposes, HGV trips have been converted to Passenger Car Unit (PCU) values. The size of HGVs visiting the development will vary and as such a conversion factor of 2.0 has been used.

5.3 Inter Peak Vehicle Trip Generation Assessment

JSJV have also recommended that an assessment is undertaken with regard to the likely operational impacts of the proposed development outside of typical weekday network peak periods and Saturdays.

Through interrogation of the TRICS output, it has been established that the highest two-way PCU trip generation outside of the typical Weekday peak periods is 614 PCUs (15:30-16:30). Whilst it is recognised that this is higher than the two-way PCU trip generation

during the peak periods, (553 PCUs in the identified AM peak hour and 582 PCUs in the identified PM peak hour), the base traffic on the local and strategic highway networks is likely to be lower during the inter-peak period.

The Table below provides a comparison between the total traffic flows (in PCUs) at the proposed site access roundabout and at A1(M) Junction 37 during the identified development inter-peak hour (15:30-16:30) and the highest-generating peak hour during the typical peak periods (16:00-17:00).

The Base 2022 traffic flows at the proposed site access roundabout have been identified from the traffic survey undertaken at Hollygrove Roundabout.

Table 7: Inter-Peak/PM Peak Hour Traffic Flow Comparison (PCU) – Proposed Site Access Roundabout and A1(M) J37

Time Period	Development Traffic Flow	Base 2022 Traffic Flow	Total
Proposed Site Access Roundabout			
15:30-16:30	614	2,086	2,701
16:00-17:00	582	2,238	2,820
A1(M) Junction 37			
15:30-16:30	123	2,547	2,670
16:00-17:00	113	2,698	2,812

It can be seen from the Table above that the total traffic flows at both the proposed site access roundabout and A1(M) Junction 37 are higher during the identified PM peak hour than the identified inter-peak hour. Therefore, a worst-case assessment, in terms of the combination of development and base traffic flow, is undertaken in this TA, and additional testing of the inter-peak periods should not be required.

With regard to a Saturday assessment, a similar comparison to the above has been undertaken using available WebTRIS data at the A1(M) Junction 37 northbound and southbound off-slips. WebTRIS data has been obtained for the Saturdays either side of the traffic surveys described in Section 9 (Saturday 18 and 25 June 2022), with the highest flow for each slip road identified across the two days.

Given the end occupiers of the proposed development are not known at this stage, to provide a robust assessment, it has been assumed that the highest two-way Weekday PCU trip generation (614 PCUs) would also be the highest on a Saturday.

The Table below provides a comparison between the total traffic flows at the A1(M) Junction 37 northbound and southbound off-slips during the hypothetical Saturday peak

hour, the identified development inter-peak hour (15:30-16:30) and the highest-generating peak hour during the typical Weekday peak periods (16:00-17:00).

Table 8: Saturday/Inter-Peak/PM Peak Hour Traffic Flow Comparison – A1(M) J37 Northbound and Southbound Off-Slips

Time Period	Development Traffic Flow	Base 2022 Traffic Flow	Total
A1(M) Junction 37 – Northbound Off-Slip			
Saturday Peak	28	499	527
15:30-16:30	28	693	721
16:00-17:00	24	742	766
A1(M) Junction 37 – Southbound Off-Slip			
Saturday Peak	15	357	372
15:30-16:30	15	383	398
16:00-17:00	13	462	475

It can be seen from the Table above that the total traffic flows at the A1(M) Junction 37 northbound and southbound off-slips are higher during the identified Weekday PM peak hour than during both the identified Weekday inter-peak hour and the hypothetical Saturday peak hour. Therefore, a worst-case assessment, in terms of the combination of development and base traffic flow, is undertaken in this TA, and additional testing of the Saturday peaks should not be required.

5.4 AECOM Work

In their respective Scoping Note responses, BMBC and JSJV referenced work undertaken by AECOM (on behalf of BMBC) in relation to the allocation of the site in the Local Plan. This work culminated in the production of the following reports:

- **Development of D1, Goldthorpe Summary Report – D1 Impact Assessment (2018).** This report assessed the traffic impact of the potential development site on the local road network and assessed a Gross Floor Area (GFA) of 168,619 sqm.

- **Goldthorpe (Site ES10) Analysis of Proposed Site Access (2021).** This report assessed the operation of the proposed site access roundabout. At the time of writing, the roundabout is being constructed. The report assessed a GFA of 204,000 sqm.

The above reports derived the vehicle trip generation of the site using trip rates from the TRICS database for 'Industrial Estate' sites. In their scoping response, JSJV requested that

reference is made to the vehicle trip generation assumed by AECOM and stated the following:

> *"The proposed development should not exceed the level of traffic generation associated with Site ES10 as considered in the AECOM TA."*

The Table below provides a comparison between the vehicle trip generation estimated by AECOM in the above reports and that estimated by Fore.

Table 9: AECOM/Fore Trip Generation Comparison

Trips	Weekday AM Peak Hour			Weekday PM Peak Hour		
	Arr.	Dep.	Total	Arr.	Dep.	Total
AECOM Assessment						
Vehicle Trip Rate (per 100 sqm)	0.269	0.132	0.401	0.085	0.234	0.319
Vehicle Trip Generation (168,619 sqm)	454	223	677	143	395	538
Fore Assessment						
Vehicle Trip Generation (204,000 sqm)	335	105	440	122	348	470
Difference						
Fore / AECOM Comparison	-119	-117	-236	-22	-47	-68

It can be seen from the Table above that the vehicle trip generation estimated by Fore does not exceed that estimated by AECOM. It should also be noted that the trip generation estimated by AECOM assumed a lower floor area.

Further to the above, in relation to the work undertaken by AECOM, BMBC stated that:

> *"It seems logical for there to be an element of consistency between the two assessments unless there has been a refinement over land use class since the roundabout application and associated modelling works were undertaken."*

It is considered that 'Industrial Estate' sites from TRICS are not appropriate given the proposed development is to be predominantly B8 Use Class. With regard to using the TRICS category '02/D – Industrial Estate' the TRICS website states:

> *"If predominantly warehousing then include as 02/E or 02/F."*

It is therefore considered that the TRICS category selected by Fore, 'Employment (02) / Warehousing (Commercial) (F)' is appropriate for the proposed development and for use in

this TA. The inclusion of 30% B2 use (TRICS category 'Employment (02) / Industrial Unit (C)' adds an appropriate level of robustness to the assessment.

5.5 Summary

The section has:

- Identified that the proposed development is predicted to generate 440 and 470 two-way vehicle trips during the Weekday AM and PM peak hours, respectively.
- Set out that a sensitivity assessment for the worst-case mix of B2 and B8 land use in terms of PCU trip generation should not be required. The inclusion of 30% of B2 floor space adds an appropriate level of robustness to the assessment.
- Undertaken an assessment of the likely operational impacts of the proposed development outside of typical weekday network peak periods and Saturdays. It is considered that a worst-case assessment, in terms of the combination of development and base traffic flow, is undertaken in this TA, and additional testing of the inter-peak/Saturday peak periods should not be required.
- Demonstrated that the vehicle trip generation estimated by Fore does not exceed that estimated by AECOM in their work undertaken in relation to the allocation of the site in the Local Plan.
- Demonstrated that the TRICS category selected by Fore, 'Employment (02) / Warehousing (Commercial) (F)' is appropriate for the proposed development and for use in this TA. The inclusion of 30% B2 use (TRICS category 'Employment (02) / Industrial Unit (C)' adds an appropriate level of robustness to the assessment.

6 Person Trip Generation by Mode

6.1 Introduction

This section details the methodology used to determine the predicted weekday AM and PM peak hour person trip generations by mode associated with the proposed development.

6.2 Person Trip Generation by Mode

The baseline mode share for the proposed development has been derived from the 2011 Census dataset "WP703EW – Method of travel to work (Workplace Population)".

The mode share for the Barnsley 022 and 025 MSOAs has been assumed. As these are the MSOAs in which the site is located, the mode share is considered to represent the likely travel characteristics of the proposed development, with regard to the existing accessibility of the site by public transport and the configuration of the local highway network.

By applying the estimated mode share to the predicted light vehicle/car trip generations for the proposed development, the predicted person trip generation by mode has been estimated. This is set out in the Table below. For completeness, HGV trips have also been included.

Table 10: Person Trip Generation

Mode of Travel	Baseline Mode Share	Weekday AM Peak Hour			Weekday PM Peak Hour		
		Arr.	Dep.	Total	Arr.	Dep.	Total
Light rail or tram	0.2%	1	0	1	0	1	1
Train	1.1%	5	1	5	1	5	6
Bus, minibus or coach	5.9%	25	4	29	5	26	31
Taxi	0.2%	1	0	1	0	1	1
Motorcycle, scooter or moped	0.5%	2	0	3	0	2	3
Driving a car or van	67.3%	279	49	328	62	296	358
Passenger in a car or van	9.1%	38	7	45	8	40	49
Bicycle	1.2%	5	1	6	1	5	6
On foot	14.5%	60	10	70	13	64	77
HGV Driver	N/A	55	57	112	60	52	112
Total		471	129	600	152	492	644

The baseline mode share presented in the Table above represents the method of travel to work that would be expected to occur without the implementation of a Travel Plan.

A Framework Travel Plan has been prepared for implementation by the eventual occupiers at the development and is submitted (under separate cover) as part of the planning application. The Framework Travel Plan includes measures to encourage the use of sustainable modes of travel and to reduce the overall number of single-occupancy vehicle trips. Initial Travel Plan targets will aim for a reduction of 10% of single occupancy vehicle trips. To provide a robust assessment, the vehicle trip generation presented in this report does not account for the targeted reduction.

7 Vehicle Trip Distribution and Assignment

7.1 Introduction

This section details the methodology used to determine the predicted vehicle trip distribution associated with the proposed development.

7.2 Light Vehicle/Car Trip Distribution

The distribution of light vehicles/cars associated with the proposed development has been estimated based on the 2011 Census dataset, "WU03EW - Location of usual residence and place of work by method of travel to work (MSOA level)". At the time of writing, the 2021 Census dataset is not available.

The Barnsley 022 and 025 Middle Layer Super Output Areas (MSOA) have been chosen as the place of work given the site is located within these MSOAs. The MSOAs contain the Goldthorpe Industrial Estate and are therefore considered to provide a reasonable assessment of travel to work origins/destinations in the area.

Trip origins/destinations have been broken down into MSOAs for Barnsley, Doncaster, Sheffield and Rotherham. For all other origins/destinations, the local authority district has been used. The following modes of travel have been considered: "Driving a car or van"; "Taxi"; and "Motorcycle, scooter or moped".

The number of vehicle trips to each MSOA/local authority district has been expressed as a percentage of the total and then assigned to routes on the highway network to give the light vehicle/car trip distribution to and from the proposed development.

The route choice analysis is included at Appendix F, with the resulting light vehicle/car trip distribution summarised in the Table below and illustrated on Figures 5 to 7.

Table 11: Light Vehicle/Car Trip Distribution

Ref.	Route	% of Trips	Weekday AM Peak Hour			Weekday AM Peak Hour		
			Arr.	Dep.	Total	Arr.	Dep.	Total
1	Billingley Green Lane	2.3%	6	1	8	1	7	8
2	Nicholas Lane	4.7%	13	2	15	3	14	17
3	Barrowfield Road	4.7%	13	2	15	3	14	17
4	Red Hill Lane	0.8%	2	0	3	1	2	3
5	A1(M) (North)	1.0%	3	0	3	1	3	4
6	A635 Barnsley Road	2.5%	7	1	8	2	7	9
7	A1(M) (South)	7.2%	20	4	24	4	21	26
8	Barnsley Road	6.1%	17	3	20	4	18	22
9	Highgate Lane	21.4%	60	10	70	13	63	77
10	A633 Manvers Way	1.8%	5	1	6	1	5	6
11	B6273 Pontefract Road	12.1%	34	6	40	7	36	43
12	A633 Wath Road	2.8%	8	1	9	2	8	10
13	A6195 Dearne Valley Parkway	10.5%	29	5	34	6	31	37
14	A635 Doncaster Road	12.9%	36	6	42	8	38	46
15	A6195 Park Spring Road	9.2%	26	4	30	6	27	33
Total		100%	279	49	328	62	296	358

The light vehicle/car trip distribution and assignment has been agreed with BMBC.

7.3 HGV Trip Distribution

In their respective scoping responses, both BMBC and NH requested that further information is presented regarding the methodology used to derive the HGV trip distribution. The HGV trip distribution in the Scoping Report was based on a high-level assessment of likely routing and settlement patterns.

This methodology has since been refined and for the purposes of this assessment, HGV trip distribution has been estimated using a population-based gravity model which considers 2011 Census population data for England and Wales. This effectively treats population and the relative travel distance as a proxy for generators of HGV traffic, which is assigned to the key routes on the highway network to estimate the distribution of HGVs.

Given planning permission for the development plots is sought for in outline, there are no confirmed operators of the proposed development at this stage. It is therefore considered that the HGV trip distribution provides a realistic and reasonable assessment of potential routing patterns of HGVs to/from the proposed development, reflecting a balance of local, regional and national journeys.

HGVs are assumed to utilise the strategic road network to the east and west of the site at A1(M) Junction 37 and M1 Junction 36, and local primary routes between the site and other regional destinations, including the A635 Doncaster Road, the A633 and the A6195 Park Spring Road. Such routes are 'A'-category routes, of appropriate standard for HGV use and therefore this assumption is considered reasonable.

The following assumptions are made to assign HGV trips to specific routes:

- Journeys to / from the midlands and the south of England are generally split between the A1(M) and M1 on a 50%:50% basis.
- Journeys to Leeds and Wakefield are assigned to routes via the A1(M) and M1.
- Journeys to / from North Yorkshire and the north east of England are assigned to the A1(M) north only.
- Journeys to / from the north west of England are assigned to the M62 via the A1(M) and M1 routes. Although the journey distance is longer using the A1(M), the journey time is comparable. This is with the exception of journeys to / from districts east of Manchester and Kirklees, which are assigned to the A628 via the A6195 Dearne Valley Parkway only, given the M62 is relatively long in terms of travel time and therefore less attractive for these journeys.

The resulting distribution assumes the majority of HGV trips (67.2%) use the strategic road network junctions to the east and west of the site (A1(M) Junction 37 and M1 Junction 36), and results in an east/west split of 33% to and from the east and 67% to and from the west. This pattern broadly reflects the location of local and regional population centres, as shown on the Stantec population density mapping provided at Appendix G. The routing assumptions have been discussed with BMBC.

The gravity model is included at Appendix G, with the resulting HGV trip distribution summarised in the Table below and illustrated on Figures 8 to 10.

Table 12: HGV Trip Distribution

Ref.	Route	% of Trips	Weekday AM Peak Hour			Weekday AM Peak Hour		
			Arr.	Dep.	Total	Arr.	Dep.	Total
5	A1(M) (North)	10.6%	6	6	12	6	6	12
6	A635 Barnsley Road	6.2%	3	4	7	4	3	7
7	A1(M) (South)	16.7%	9	9	19	10	9	19
10	A633 Manvers Way	4.6%	3	3	5	3	2	5
12	A633 Wath Road	5.0%	3	3	6	3	3	6
13	A6195 Dearne Valley Parkway	33.8%	19	19	38	20	18	38
14	A635 Doncaster Road	13.5%	7	8	15	8	7	15
15	A6195 Park Spring Road	9.7%	5	5	11	6	5	11
Total		100%	55	57	112	60	52	112

7.4 Total Vehicle Trip Distribution

Presented as the sum of the light vehicle/car trip distribution and the HGV trip distribution, the total vehicle trip distribution is set out in the Table below and illustrated on Figures 11 to 14.

Table 13: Total Vehicle Trip Distribution

Ref.	Route	Weekday AM Peak Hour			Weekday AM Peak Hour		
		Arr.	Dep.	Total	Arr.	Dep.	Total
1	Billingley Green Lane	6	1	8	1	7	8
2	Nicholas Lane	13	2	15	3	14	17
3	Barrowfield Road	13	2	15	3	14	17
4	Red Hill Lane	2	0	3	1	2	3
5	A1(M) (North)	9	7	15	7	9	16
6	A635 Barnsley Road	10	5	15	5	11	16
7	A1(M) (South)	29	13	42	14	30	45
8	Barnsley Road	17	3	20	4	18	22
9	Highgate Lane	60	10	70	13	63	77
10	A633 Manvers Way	7	3	11	4	8	11
11	B6273 Pontefract Road	34	6	40	7	36	43
12	A633 Wath Road	11	4	15	5	11	16
13	A6195 Dearne Valley Parkway	48	24	72	27	49	75
14	A635 Doncaster Road	44	14	58	16	45	61
15	A6195 Park Spring Road	31	10	41	12	32	44
Total		335	105	440	122	348	470

8 Traffic Impact Assessment

8.1 Introduction

This section assesses the predicted traffic impact of the proposed development at various locations on the local and strategic highway networks.

8.2 Traffic Impact – Local Highway Network

As referenced in Section 5 of this TA, AECOM prepared the "D1 Transport Impact Assessment" report which assessed the traffic impact of the potential development site. This work contributed to the site's allocation in the Local Plan (ES10 employment allocation). AECOM undertook capacity assessments at the following junctions which were considered to be the most likely to be affected by the potential development site:

- Cathill Roundabout.
- Broomhill Roundabout.
- Wath Road Roundabout.
- Cortonwood Roundabout.
- Rotherham Road Roundabout.
- A635 / B6411 Lidget Lane Junction.
- A635 / Red Hill Lane / Hickleton Road Junction.
- A635 / Blacksmiths Lane.
- A635 / Church Lane.

It should be noted that capacity improvements have been undertaken by BMBC at Cathill Roundabout, Broomhill Roundabout and Wath Road Roundabout, in part due to the anticipated traffic generation of the allocation site.

Base traffic data has been obtained by Fore for all the junctions assessed by AECOM, except for the Rotherham Road Roundabout and the A635 Doncaster Road / B6411 Lidget Lane Junction.

In the AECOM report, these two junctions were predicted to operate within capacity in the Local Plan design year of 2033. A comparison is drawn between the development-

generated traffic flows predicted by AECOM and those predicted by Fore at the two junctions in the Tables below.

Table 14: Rotherham Road Roundabout Comparison (Vehicles)

Approach	Weekday AM Peak Hour			Weekday PM Peak Hour		
	Fore	AECOM	Diff.	Fore	AECOM	Diff.
B6273	0	0	0	0	0	0
A6195 Rotherham Road	10	15	-5	32	27	+5
A6195 Park Spring Road	31	31	0	12	10	+2

Table 15: A635 Doncaster Road / B6411 Lidget Lane Junction Comparison (Vehicles)

Approach	Weekday AM Peak Hour			Weekday PM Peak Hour		
	Fore	AECOM	Diff.	Fore	AECOM	Diff.
A635 Doncaster Road (South)	25	29	-4	52	51	+1
B6411 Lidget Lane	0	0	0	0	0	0
A635 Doncaster Road (East)	51	58	-7	27	18	+9

The Tables above show that similar traffic flows are predicted at both junctions by both Fore and AECOM. It is therefore considered that the junctions have already been assessed as part of the Local Plan site allocation process with similar development-generated traffic demand. Given the junctions were predicted by AECOM to operate within capacity in the Local Plan design year of 2033, it is not considered necessary to undertake detailed junction capacity assessments at the junctions as part of this TA.

It is therefore considered that the extent of the junctions to be assessed as part of this TA is appropriate given the scale of the development and is in line with the assessments undertaken to assess the development as part of the Local Plan site allocation process.

Although not assessed in AECOM's "*D1 Transport Impact Assessment*" report, a comparison is drawn between the development-generated traffic flows predicted by AECOM and those predicted by Fore at the A635 / Billingley Green Lane three-arm priority junction in the Table below.

Table 16: A635 / Billingley Green Lane Junction Comparison (Vehicles)

Approach	Weekday AM Peak Hour			Weekday PM Peak Hour		
	Fore	AECOM	Diff.	Fore	AECOM	Diff.
A635 (West)	175	223	-48	70	71	-1
Billingley Green Lane	6	20	-14	1	6	-5
A635 (East)	63	120	-57	187	11	-24

The Table above shows the traffic flows predicted by Fore are lower than those predicted by AECOM. As such, and given that the junction was not assessed as part of the Local Plan site allocation process, it is considered that detailed junction capacity assessments are not required as part of this TA.

Further to this, it is predicted that the proposed development will generate a low number of turning movements at the junction, as demonstrated in the Table below.

Table 17: Turning Movements - A635 / Billingley Green Lane Junction

Movement	Weekday AM Peak Hour	Weekday PM Peak Hour
A635 (Right-turn)	1	7
Billingley Green Lane (Right-turn)	0	0
Billingley Green Lane (Left-turn)	6	1

Given the above, it is unlikely that the additional traffic associated with the proposed development will have a significant impact on the operation of the junction. As such, detailed junction capacity assessments are not undertaken as part of this TA.

In relation to the wider highway network, it is noted that no junction capacity assessments were undertaken by AECOM at junctions to the west of Cortonwood Roundabout, which is also the western extent of the study area considered within this TA.

A comparison is drawn between the development-generated traffic flows predicted by AECOM and those predicted by Fore at a point on the A6195 to the west of Cortonwood Roundabout. This is set out in the Table below.

Table 18: A6195 (West of Cortonwood Roundabout) Comparison (Vehicles)

Assessment	Weekday AM Peak Hour			Weekday PM Peak Hour		
	EB	WB	Total	EB	WB	Total
Fore (204,000 sqm)	48	24	72	27	49	75
AECOM (168,619 sqm)	42	20	62	13	36	49
Difference	6	4	10	14	13	26

Note: EB = Eastbound, WB = Westbound

It can be seen that there is not a material difference between the development-generated traffic predicted by AECOM and that predicted by Fore e.g. an additional vehicle approximately every 6 and 2 minutes during the Weekday AM and PM peak hours, respectively.

Further, AECOM prepared Technical Note 8[15] which re-assessed the traffic impact at Wath Road Roundabout, Broomhill Roundabout, Cathill Roundabout and the junctions in Hickleton and Marr using a greater floor area (219,000 sqm compared to 168,619 sqm as assessed in "D1 Transport Impact Assessment"). It was concluded that Wath Road Roundabout, Broomhill Roundabout and Cathill Roundabout would be able to accommodate the additional floor area and the floor area increase would have just a minor impact on the Hickleton and Marr junctions. No further assessments were undertaken on the wider highway network.

To provide a comparison between the traffic demand predicted by Fore and the updated AECOM position (Technical Note 8), it is prudent to uplift the AECOM traffic flows from the "D1 Transport Impact Assessment" to account for the increase in floor area to 219,000 sqm. A revised comparison of the development-generated traffic flows predicted by AECOM and Fore on the A6195 to the west of Cortonwood Roundabout is set out in the Table below.

Table 19: A6195 (West of Cortonwood Roundabout) Comparison (Vehicles)

Assessment	Weekday AM Peak Hour			Weekday PM Peak Hour		
	EB	WB	Total	EB	WB	Total
Fore (204,000 sqm)	48	24	72	27	49	75
AECOM (219,000 sqm)	55	26	81	17	47	64
Difference	-7	-2	-8	10	2	12

It can be seen that accounting for the increase in floor area assessed by AECOM in Technical Note 8, the difference between the development-generated traffic predicted by

[15] *Technical Note 8: Development of D1, Goldthorpe (Increased GFA) – Junction Assessment*, AECOM, 2018.

AECOM and that predicted by Fore is not significant in either the Weekday AM and PM peak hours.

It is therefore considered that the extent of the junctions to be assessed as part of this TA is appropriate given the scale of the development and is in line with the assessments undertaken to assess the development as part of the Local Plan site allocation process.

In addition, there has been further investment to increase the capacity of the highway network along the A6195 in recognition of further Local Plan growth within Hoyland Principal Town. These schemes were funded by Sheffield City Region's Investment Fund (SCRIF).

8.3 Traffic Impact - Strategic Road Network

With regard to the assessment of the strategic road network, in their scoping response, JSJV set out the following:

> *"The Goldthorpe Masterplan Framework states an evidence base for the site was collated initially as part of the Local Plan Site Allocation process, which included the "D1 Transport Impact Assessment Report" produced by AECOM (2018).*
>
> *JSJV would note Fore has not made reference to this TA in their TA Scoping Note. JSJV would state the proposed development should not exceed the level of traffic generation associated with Site ES10 as considered in the AECOM TA. If the level of traffic generation is exceeded, further capacity assessments may be required in order to determine the impact the overall uplift has on the SRN.*
>
> *Therefore, JSJV would recommend that Fore provide and make reference to the AECOM TA in the upcoming TA, namely the assumed trip generation, to ensure the traffic generation associated with the proposed development does not exceed that what was considered acceptable as part of the Local Plan and Masterplan Framework."*

It has previously been set out that the total vehicle trip generation estimated by Fore does not exceed that estimated by AECOM (see Section 5).

To determine the resulting traffic impact on the strategic road network, a comparison is drawn between the development-generated traffic flows predicted by AECOM and those predicted by Fore, at M1 Junction 36 and A1(M) Junction 37, located to the west and east of the proposed development site, respectively.

As with the comparison undertaken in Table 19, the AECOM traffic flows have been uplifted to reflect an increased floor area of 219,000 sqm, reflecting the updated AECOM position, as assessed in Technical Note 8. This is set out in the Table below.

Table 20: Strategic Road Network Comparison (Vehicles)

Approach	Weekday AM Peak Hour			Weekday PM Peak Hour		
	Fore	AECOM	Diff.	Fore	AECOM	Diff.
M1 Junction 36						
M1 Southbound Off-Slip	13	14	-2	6	4	2
A61 (East)	23	19	4	42	35	7
M1 Northbound Off-Slip	16	19	-3	14	6	7
A61 (West)	12	8	5	6	3	3
A1(M) Junction 37						
A1(M) Southbound Off-Slip	9	5	4	7	1	6
A635 (East)	10	12	-1	5	4	1
A1(M) Northbound Off-Slip	29	34	-4	14	10	4
A635 (West)	24	25	0	49	45	4

It can be seen that there is not a material difference between the development-generated traffic predicted by AECOM and that predicted by Fore at either M1 Junction 36 or A1(M) Junction 37. As such, and in line with comments received from JSJV, it is considered that detailed capacity assessment is not required for either junction.

8.4 Summary

This section has assessed the predicted traffic impact of the proposed development at various locations on the local and strategic highway networks. Given the analysis presented, it is considered appropriate to undertake detailed junction capacity assessments of the junctions listed below.

- Hollygrove Roundabout.
- Highgate Lane / Commercial Road.
- Fields End Roundabout.
- A635 / Red Hill Lane / Hickleton Road.
- A635 / Blacksmiths Lane.
- A635 / Church Lane.
- Cathill Roundabout.

- Broomhill Roundabout.
- Wath Road Roundabout.
- Cortonwood Roundabout.

9 Existing and Future Traffic Flows

9.1 Introduction

This section details the approach taken to derive existing and future year traffic flows on the local highway network.

9.2 Base Traffic Flows

Base traffic flows for the junctions identified in the previous section for detailed capacity assessment have been derived from junction turning count surveys undertaken by an independent traffic survey company. Queue surveys were also undertaken.

The surveys were undertaken on Tuesday 21 June 2022, a 'neutral' date, as defined in TAG Unit M1.2[16]. The surveys were undertaken between 07:00-09:00 and 15:00-18:00. The survey data is provided at Appendix H and the identified peak hours for each junction are set out in the Table below.

Table 21: Junction Turning Count Surveys – Peak Hours

Ref.	Junction	Weekday AM Peak Hour	Weekday PM Peak Hour
J1	Hollygrove Roundabout	07:15-08:15	16:15-17:15
J2	Highgate Lane / Commercial Road	08:00-09:00	16:30-17:30
J3	Fields End Roundabout	07:45-08:45	16:15-17:15
J4	A635 / Red Hill Lane / Hickleton Road	07:30-08:30	16:30-17:30
J5	A635 / Blacksmiths Lane	07:15-08:15	16:30-17:30
J6	A635 / Church Lane	07:15-08:15	16:30-17:30
J7	Cathill Roundabout	07:15-08:15	16:15-17:15
J8	Broomhill Roundabout	07:30-08:30	16:30-17:30
J9	Wath Road Roundabout	07:45-08:45	16:30-17:30
J10	Cortonwood Roundabout	08:00-09:00	16:30-17:30

The resulting 2022 Base Traffic Flows are set out on Figures 15 and 16 for the Weekday AM and PM peak hours, respectively. For robustness, peak hour flows at each junction are used for the purposes of this Transport Assessment. The traffic survey data has been converted into equivalent PCU values.

[16] *Transport Analysis Guidance (TAG) Unit M1.2 – Data Sources and Surveys*, Department for Transport, 2020.

9.3 Future Traffic Flows

Future year assessments are undertaken for 2028 (5 years after the anticipated planning application submission date).

2022 Base Traffic Flows have been factored to the 2028 future year through the addition of committed development/allocation site traffic and NTM/TEMPro traffic growth factors, as set out below.

9.3.1 Committed Developments and Allocation Sites

BMBC have requested that the committed developments/allocation sites shown in the Table below are considered in this Transport Assessment:

Table 22: Committed Development/Allocated Site List

Local Plan Reference (If Applicable)	Planning Application Reference (If Applicable)	Description
ES8	2020/1032	B2 and B8 development at Park Spring Road, Grimethorpe
ES11	2021/0012	7,400 sqm extension to existing warehouse at Fields End Business Park, Portwest, Colliery Lane, Thurnscoe
ES12	-	Thurnscoe Business Park – 6ha (1.5ha left to develop)
ES20	2018/1353	B1, B2 and B8 development at Land at Everill Gate, Wombwell
ES23	2021/1282	19,147 sqm employment development (Class E, B2 and B8) at Land at Houghton Main, Park Spring Road, Little Houghton
HS42	-	Land South of Lowfield Road, Bolton upon Dearne – 86 residential dwellings (indicative)
HS43	2017/1051	479 residential dwellings at Land off Willow Road, Thurnscoe
HS44	-	Bolton House Farm – 194 residential dwellings (indicative)
HS45	2020/1439	68 residential dwellings at Land off Barnburgh Lane, Goldthorpe
HS46	2021/1171	137 residential dwellings at Lockwood Road, Goldthorpe
HS47	2022/0420	109 residential dwellings at Land off Goldthorpe Road, Goldthorpe
HS48	-	Land North of Barnburgh Lane, Goldthorpe – 109 residential dwellings (indicative)
HS49	2019/1274	116 residential dwellings at Land at Kingsmark Way, Goldthorpe
HS50	-	Site at Brunswick Street – 45 residential dwellings (indicative)
HS51	-	Site to the west of Broadwater Estate - 279 residential dwellings (indicative)

Local Plan Reference (If Applicable)	Planning Application Reference (If Applicable)	Description
HS52	-	Land west of Thurnscoe Bridge Lane and south of Derry Grove, Thurnscoe – 308 residential dwellings (indicative)
HS53	-	Site south of King Street, Thurnscoe – 25 residential dwellings (indicative)
HS54	-	Land off Gooseacre Avenue, Thurnscoe - 80 residential dwellings (indicative)
HS55	-	Former Highgate Social Centre - 29 residential dwellings (indicative)
HS92	-	Everill Gate Farm - 26 residential dwellings (indicative)
MU6	2019/0089	235 residential dwellings at Lundhill Road, Wombwell
-	2015/1198	61 residential dwellings at Land off Barnburgh Lane, Goldthorpe (Phase 2)
-	2017/1001	150 residential dwellings at Land east of Lundhill Road, Wombwell
-	2020/1246	43 residential dwellings at Land off Barnsley Road, Goldthorpe
-	2022/0056	1,979 sqm retail unit at Former Goldthorpe Primary School, High Street, Goldthorpe

Traffic flows for the above committed/allocated sites have been included based on the information submitted as part of their respective planning applications, where applicable. Where there are no planning applications (e.g. allocated sites), a trip generation/ distribution exercise has been undertaken.

The total committed/allocated development traffic flows are illustrated on Figures 17 and 18.

9.3.2 NTM/TEMPro Traffic Growth

Background traffic growth factors have been obtained from TEMPro (v8.1) for principal roads in the Barnsley district and have been applied to the 2022 Base Traffic Flows.

The output is provided at Appendix I and summarised in the Table below.

Table 23: NTM/TEMPro Growth Factors

Time Period	2022 to 2028
Weekday AM Peak Period	1.0235
Weekday PM Peak Period	1.0241

It should be noted that to avoid double counting of proposed development and committed/allocated site trips, alternative assumptions have been applied in TEMPro. The methodology for this is presented at Appendix I.

9.4 Assessment Scenarios

2022 Base Year

The 2022 Base scenario is derived from the junction turning count surveys, with the peak hours for each junction selected.

2028 Future Assessment Year 'Do Minimum'

The Future Year 'Do Minimum' scenarios represent a future year situation on the highway network without the proposed development taking place. The 2028 'Do Minimum' scenarios include 2022 base traffic and relevant background growth and committed development/allocated site traffic.

2028 Future Assessment Year 'With Development'

The Future Year 'With Development' scenarios represent a future year situation on the local highway network with the proposed development taking place. The traffic flows have been derived by adding the proposed development traffic flows (which reflect the likely peak hour trip generation for the completed development) to the Future Year 'Do Minimum' traffic flows.

It should be noted that in practice, the identified peak hours for base traffic and development traffic flows at each junction may not match. The assessment therefore represents a robust, 'worst-case' scenario since traffic flows may be more dispersed than as forecast in this assessment.

The future year traffic flow diagrams are provided to the rear of this report as follows:

- Figures 19 and 20: 2028 Future Year Assessment Year 'Do Minimum' Traffic Flows.
- Figures 21 and 22: 2028 Future Year Assessment Year 'With Development' Traffic Flows.

10 Junction Capacity Assessments

10.1 Introduction

This section details the capacity assessment undertaken at the approved site access roundabout onto the A635 and the existing junctions set out below:

- Junction 1: Hollygrove Roundabout
- Junction 2: Highgate Lane / Commercial Road Three-arm Priority Junction
- Junction 3: Fields End Roundabout
- Junction 4: A635 / Red Hill Lane / Hickleton Road Crossroads
- Junction 5: A635 / Blacksmiths Lane Three-arm Priority Junction
- Junction 6: A635 / Church Lane Three-arm Priority Junction
- Junction 7: Cathill Roundabout
- Junction 8: Broomhill Roundabout
- Junction 9: Wath Road Roundabout
- Junction 10: Cortonwood Roundabout

The junction capacity assessments have been undertaken for the assessment scenarios set out in Section 9, summarised as follows:

- 2022 Base Year.
- 2028 Future Assessment Year 'Do Minimum'.
- 2028 Future Assessment Year 'With Development'.

Given the approved site access roundabout will only be operational as a three-arm roundabout if the proposed development is built out, capacity assessments at this junction have only been undertaken for the 'With Development' assessment scenarios.

Junctions10 software has been used to model the junctions. Amongst other performance indicators and statistics, the programme calculates the maximum Ratio of Flow to Capacity (RFC) and the maximum average queue length (Q) on each approach (measured in PCU).

The RFC is a key indicator of the likely performance of a turning movement at a junction under a given set of traffic flows. An RFC of 0.85 is widely accepted as being at the level at which a junction's practical capacity is reached and an RFC of 1.00 the level at which a junction's theoretical absolute capacity is reached. However, RFC values in excess of these thresholds do not indicate a situation that is inherently unacceptable; it indicates that further consideration of operating conditions (including impacts on queues) is appropriate.

10.2 Approved Site Access Roundabout

The results from the Junctions10 model for the with development assessment scenarios are summarised in the Table below. The full model outputs are provided at Appendix J.

Table 24: Junctions10 Output - Approved Site Access Roundabout (With Development Assessment Scenarios)

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
2028 With Development				
A635 (East)	0.69	2.4	0.66	2.1
Proposed Site Access	0.14	0.2	0.36	0.6
A635 (West)	0.71	2.7	0.64	1.9

The Table above shows that all approaches are predicted to operate with RFC values of less than 0.85 during both the Weekday AM and PM peak hours. The maximum predicted RFC is 0.71, occurring on the A635 (West) approach during the Weekday AM peak hour. The corresponding maximum average queue is 2.7 PCUs.

It is therefore concluded that the approved site access roundabout can satisfactorily accommodate traffic associated with the proposed development.

10.3 Existing Junctions

The capacity assessment undertaken at the existing junctions is set out within this sub-section.

The junction models have been validated based on comparisons with observed queue lengths and are therefore considered to reflect the existing operation of the junctions.

10.3.1 Junction 1: Hollygrove Roundabout

2022 Base Year Assessment

The results from the Junctions10 model for the 2022 Base assessment scenario are summarised in the Table below. The full model outputs are provided at Appendix K.

Table 25: Junctions10 Output - Junction 1 (2022 Base)

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
2022 Base				
Barnsley Road	0.25	0.3	0.26	0.6
Dudley Drive	0.20	0.3	0.34	0.8
A635 (West)	0.73	2.8	0.62	2.9
Unnamed Access Road	0.05	0.1	0.05	0.0
A635 (East)	0.62	1.9	0.74	4.9

The Table above shows that all approaches are predicted to currently operate with RFC values of less than 0.85 during both the Weekday AM and PM peak hours. The maximum predicted RFC is 0.74, occurring on the A635 (East) approach during the Weekday AM peak hour. The corresponding maximum average queue is 4.9 PCUs.

The Table below presents a comparison between the observed and modelled queues in each peak hour. The queues were recorded as one-minute spot queues and the average queue across each peak hour is presented.

Table 26: Junction 1 Queue Validation

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	Modelled	Observed	Modelled	Observed
Barnsley Road	0.3	0.4	0.6	0.4
Dudley Drive	0.3	0.2	0.8	0.4
A635 (West)	2.8	0.0	2.9	0.0
Unnamed Access Road	0.1	0.0	0.0	0.0
A635 (East)	1.9	0.1	4.9	0.2

It can be seen that the modelled queues are broadly reflective of the actual recorded queues and the model is therefore considered to provide a suitable baseline position on which to model the junction.

2028 Future Year Assessment

The results from the Junctions10 model for the future year assessment scenarios are summarised in the Table below.

Table 27: Junctions10 Output - Junction 1 (Future Year Assessments)

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
2028 Do Minimum				
Barnsley Road	0.37	0.6	0.33	0.9
Dudley Drive	0.28	0.5	0.39	1.0
A635 (West)	0.80	4.1	0.75	5.6
Unnamed Access Road	0.08	0.2	0.06	0.1
A635 (East)	0.68	2.5	0.85	8.5
2028 With Development				
Barnsley Road	0.40	0.7	0.35	0.6
Dudley Drive	0.34	0.6	0.42	0.7
A635 (West)	0.84	5.2	0.86	6.0
Unnamed Access Road	0.09	0.2	0.09	0.2
A635 (East)	0.76	3.6	0.92	9.2

The Table above shows that in the 2028 Do Minimum and With Development assessment scenarios, the majority of approaches are predicted to operate with RFC values of less than 0.85 during both the Weekday AM and PM peak hours.

In the 2028 Do Minimum assessment scenario, the A635 (East) arm is predicted to operate with an RFC value of 0.85 during the Weekday PM peak hour.

In the 2028 With Development assessment scenario, the A635 (West) and A635 (East) approaches are predicted to operate with RFC values of 0.86 and 0.92, respectively, during the Weekday PM peak hour. The corresponding maximum average queues are 6.0 PCUs and 9.2 PCUs representing increases of less than 1 PCU on each approach, when compared with the 2028 Do Minimum assessment scenario.

This increase in queueing is not considered to be significant and there is sufficient stacking space to accommodate the modelled queue without impacting on upstream junctions.

Given the assessments presented above, it is concluded that the proposed development is not predicted to have a significant impact on the future operation of the junction.

10.3.2 Junction 2: Highgate Lane / Commercial Road Three-arm Priority Junction

2022 Base Year Assessment

The results from the Junctions10 model for the 2022 Base assessment scenario are summarised in the Table below. The full model outputs are provided at Appendix L.

Table 28: Junctions10 Output - Junction 2 (2022 Base)

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
2022 Base				
Commercial Road	0.20	0.3	0.40	0.7
Highgate Lane (North)	0.04	0.1	0.04	0.0

Note: AH = Ahead, LT = Left-turn, RT = Right-turn

The Table above shows that all approaches are predicted to currently operate with RFC values of less than 0.85 during both the Weekday AM and PM peak hours. The maximum predicted RFC is 0.40, occurring on the Commercial Road approach during the Weekday PM peak hour. The corresponding maximum average queue is 0.7 PCUs.

The Table below presents a comparison between the observed and modelled queues in each peak hour. The queues were recorded as one-minute spot queues and the average queue across each peak hour is presented.

Table 29: Junction 2 Queue Validation

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	Modelled	Observed	Modelled	Observed
Commercial Road	0.3	0.2	0.7	0.6
Highgate Lane (North)	0.1	0.0	0.0	0.0

It can be seen that the modelled queues are broadly reflective of the actual recorded queues and the model is therefore considered to provide a suitable baseline position on which to model the junction.

2028 Future Year Assessment

The results from the Junctions10 model for the future year assessment scenarios are summarised in the Table below.

Table 30: Junctions10 Output - Junction 2 (Future Year Assessments)

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
2028 Do Minimum				
Commercial Road	0.27	0.4	0.48	0.9
Highgate Lane (North)	0.05	0.1	0.04	0.1
2028 With Development				
Commercial Road	0.31	0.5	0.66	1.9
Highgate Lane (North)	0.05	0.1	0.04	0.1

The Table above shows that all approaches are predicted to operate with RFC values of less than 0.85 during both the Weekday AM and PM peak hours, for both the Do Minimum and With Development scenarios. The maximum predicted RFC is 0.66, occurring on the Commercial Road approach during the Weekday PM peak hour in the With Development assessment scenario. The corresponding maximum average queue is 1.9 PCUs.

Given the assessments presented above, it is concluded that the proposed development is not predicted to have a significant impact on the future operation of the junction.

10.3.3 Junction 3: Fields End Roundabout

2022 Base Year Assessment

The results from the Junctions10 model for the 2022 Base assessment scenario are summarised in the Table below. The full model outputs are provided at Appendix M.

Table 31: Junctions10 Output - Junction 3 (2022 Base)

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
2022 Base				
Barrowfield Road	0.21	0.3	0.29	0.4
A635 (East)	0.32	0.6	0.33	0.5
B6098	0.25	0.3	0.20	0.3
A635 (West)	0.61	1.8	0.45	0.9

The Table above shows that all approaches are predicted to currently operate with RFC values of less than 0.85 during both the Weekday AM and PM peak hours. The maximum

predicted RFC is 0.61, occurring on the A635 (West) approach during the Weekday AM peak hour. The corresponding maximum average queue is 1.8 PCUs.

The Table below presents a comparison between the observed and modelled queues in each peak hour. The queues were recorded as one-minute spot queues and the average queue across each peak hour is presented.

Table 32: Junction 3 Queue Validation

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	Modelled	Observed	Modelled	Observed
Barrowfield Road	0.3	0.3	0.4	0.2
A635 (East)	0.6	0.0	0.5	0.0
B6098	0.3	0.2	0.3	0.2
A635 (West)	1.8	0.1	0.9	0.1

It can be seen that the modelled queues are broadly reflective of the actual recorded queues and the model is therefore considered to provide a suitable baseline position on which to model the junction.

2028 Future Year Assessment

The results from the Junctions10 model for the future year assessment scenarios are summarised in the Table below.

Table 33: Junctions10 Output - Junction 3 (Future Year Assessments)

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
2028 Do Minimum				
Barrowfield Road	0.24	0.4	0.33	0.5
A635 (East)	0.35	0.6	0.37	0.6
B6098	0.31	0.5	0.24	0.3
A635 (West)	0.67	2.3	0.50	1.1
2028 With Development				
Barrowfield Road	0.26	0.4	0.35	0.5
A635 (East)	0.38	0.7	0.39	0.7
B6098	0.33	0.5	0.24	0.3
A635 (West)	0.71	2.8	0.57	1.4

The Table above shows that all approaches are predicted to operate with RFC values of less than 0.85 during both the Weekday AM and PM peak hours, for both the Do Minimum and With Development scenarios. The maximum predicted RFC is 0.71, occurring on the A635 (West) approach during the Weekday AM peak hour in the With Development assessment scenario. The corresponding maximum average queue is 2.8 PCUs.

Given the assessments presented above, it is concluded that the proposed development is not predicted to have a significant impact on the future operation of the junction.

10.3.4 Junction 4: A635 / Red Hill Lane / Hickleton Road Crossroads

2022 Base Year Assessment

The results from the Junctions10 model for the 2022 Base assessment scenario are summarised in the Table below. The full model outputs are provided at Appendix N.

Table 34: Junctions10 Output - Junction 4 (2022 Base)

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
2022 Base				
Hickleton Road	0.41	0.7	0.41	0.7
A635 (East)	0.09	0.2	0.04	0.1
Red Hill Lane	0.91	4.9	0.78	2.7
A635 (West)	0.36	1.7	0.39	1.7

The Table above shows that all approaches are predicted to currently operate with RFC values of less than 0.85 during both the Weekday AM and PM peak hours, with the exception of the Red Hill Lane approach during the Weekday AM peak hour which operates with a predicted RFC of 0.91. The corresponding maximum average queue is 4.9 PCUs.

The Table below presents a comparison between the observed and modelled queues in each peak hour. The queues were recorded as one-minute spot queues and the average queue across each peak hour is presented.

Table 35: Junction 4 Queue Validation

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	Modelled	Observed	Modelled	Observed
Hickleton Road	0.7	0.6	0.7	0.8
A635 (East)	0.2	0.0	0.1	0.0
Red Hill Lane	4.9	2.4	2.7	2.3
A635 (West)	1.7	0.4	1.7	1.2

It can be seen that the modelled queues are broadly reflective of the actual recorded queues and the model is therefore considered to provide a suitable baseline position on which to model the junction.

2028 Future Year Assessment

The results from the Junctions10 model for the future year assessment scenarios are summarised in the Table below.

Table 36: Junctions10 Output - Junction 4 (Future Year Assessments)

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
2028 Do Minimum				
Hickleton Road	0.57	1.2	0.56	1.2
A635 (East)	0.10	0.3	0.06	0.1
Red Hill Lane	1.37	26.5	1.15	10.4
A635 (West)	0.49	3.0	0.50	2.7
2028 With Development				
Hickleton Road	0.70	2.0	0.67	1.7
A635 (East)	0.12	0.3	0.06	0.1
Red Hill Lane	1.77	47.8	1.43	21.8
A635 (West)	0.56	3.9	0.56	3.7

The Table above shows that in the 2028 Do Minimum and With Development assessment scenarios, the Red Hill Lane approach is predicted to operate with RFC values in excess of 1.00 during both the Weekday AM and PM peak hours.

In the 2028 With Development assessment scenario, in the Weekday AM peak hour, the Red Hill Lane approach is predicted to operate with RFC values of 1.77 and 1.43 during the

Weekday AM and PM peak hours, respectively. The corresponding maximum average queues are 47.8 PCUs and 21.8 PCUs. This increase in queueing is not considered to be significant as there is sufficient stacking space to accommodate the modelled queue without impacting on upstream junctions.

To isolate the impact of the proposed development, an assessment has been undertaken without traffic associated with NTM/TEMPro growth and committed developments.

Table 37: Junctions10 Output – Junction 4 (2022 Base + Development)

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
2022 Base				
Hickleton Road	0.41	0.7	0.41	0.7
A635 (East)	0.09	0.2	0.04	0.1
Red Hill Lane	0.91	4.9	0.78	2.7
A635 (West)	0.36	1.7	0.39	1.7
2022 Base + Development				
Hickleton Road	0.47	0.9	0.46	0.8
A635 (East)	0.10	0.2	0.05	0.1
Red Hill Lane	1.08	9.7	0.92	4.4
A635 (West)	0.39	2.0	0.44	2.2

It can be seen from the assessments presented in Table 36 that with the addition of NTM/TEMPro traffic growth and traffic associated with the committed developments, the Red Hill Lane approach is predicted to operate with an RFC value in excess of 1.00 during both the Weekday AM and PM peak hours.

However, as demonstrated in Table 37, with the addition of traffic associated with the proposed development in isolation, the Red Hill Lane approach is predicted to operate with RFC values marginally above 1.00 during the Weekday AM peak hour and within 1.00 during the Weekday PM peak hour. The corresponding maximum average queues are predicted to increase by a maximum of 4.8 PCUs, when compared with the 2022 Base assessment scenario.

Given the assessments presented above, it is concluded that the proposed development is not predicted to have a significant impact on the future operation of the junction.

On 4 October 2023, the UK Government announced a vision for transport in the North of England[17], which as part of a wide package of measures, identified funding to ensure delivery of road schemes in the North of England, including a 'A1-A19 Hickleton bypass'. As well as a bypass of the village of Hickleton, it is understood that this route would provide an upgraded connection from the A19 in the Doncaster district to the Dearne Valley via the A1. The precise scheme and delivery arrangements are not confirmed at this stage and will be subject to securing funding and planning permission; however, such a scheme would provide effective relief from through traffic for Hickleton, with benefits to the operation of the highway network and existing junctions, and environmental conditions in Hickleton.

Given the status of a potential A1-A19 Hickleton bypass, and taking into account the assessment demonstrated above, proposed changes to the A635 / Red Hill Lane junction layout have been discussed with both BMBC and CDC to accommodate development-related traffic as well as existing traffic plus traffic associated with planned and committed development. A preliminary junction layout has been prepared and discussed with BMBC (as the Local Planning Authority that will determine the planning application for the proposed development) and CDC (as the Local Highway Authority for the location of the identified works).

Briefly, the proposed changes to the junction include the realignment of Red Hill Lane to form a staggered arrangement (compared to the existing crossroads layout), and the provision of ghost-island right-turn facilities on the A635. The preliminary junction layout is provided at Appendix O.

A Junctions10 model of the proposed junction layout has been developed. A comparison is provided in the Table below between the 2028 With Development assessment scenario with the existing layout and the proposed layout.

[17] 'Network North: Transforming British Transport', Department for Transport, October 2023.

Table 38: Junctions10 Output - Junction 4 (Future Year Assessments) - Existing and Proposed Layout Comparison

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
2028 With Development - **Existing Layout**				
Hickleton Road	0.70	2.0	0.67	1.7
A635 (East)	0.12	0.3	0.06	0.1
Red Hill Lane	1.77	47.8	1.43	21.8
A635 (West)	0.56	3.9	0.56	3.7
2028 With Development - **Proposed Layout**				
Hickleton Road	1.34	8.1	1.00	4.3
A635 (East)	0.05	0.1	0.02	0.0
Red Hill Lane	1.39	26.8	1.12	9.8
A635 (West)	0.20	0.3	0.23	0.3

The Table above shows that queues on the A635 and Red Hill Lane approaches are predicted to reduce with the proposed layout in place. Whilst the queues on Hickleton Road are predicted to increase, the resulting increase is relatively minor (6.1 PCUs and 2.6 PCUs in the Weekday AM and PM peak hours, respectively) and would not affect the operation of upstream junctions, or the wider network beyond. Consequently, the overall benefit to queues at the junction outweighs the predicted increase to queues on Hickleton Road.

Further, the proposed scheme represents an overall improvement to the operation of the junction based on junction delay, as demonstrated in the Table below.

Table 39: Junctions10 Output - Junction 4 (Future Year Assessments) - Proposed Layout

	Junction Delay (seconds / pcu)	
Layout	Weekday AM Peak Hour	Weekday PM Peak Hour
Existing Layout	78.45	30.28
Proposed Layout	47.77	18.88
Difference	30.68	11.40

In addition to the overall improvements to the operation of the junction, the proposed scheme represents an improvement with regard to road safety. Currently, no provision for right-turning vehicles exists at the junction, and therefore any vehicles turning right are required to do so from the A635 carriageway. The proposed changes provide a specific

facility for right-turning vehicles, and in doing so improve road safety, through better facilitating conflicts between turning movements at the junction.

Overall, though the changes in traffic flows related to the development in isolation are not considered to represent a significant impact on the operation of the junction, changes to the junction layout have been identified in consultation with BMBC and CDC to safely and efficiently accommodate traffic associated with the development as well as relevant planned and committed development. Discussions with BMBC and CDC to define and agree the necessary works and mechanism for delivery are currently ongoing; however, it is proposed that the applicant will make a financial contribution commensurate with the impact of the development at the junction. The intention is that such a contribution will be used to facilitate either delivery of the identified scheme layout by CDC, or support CDC in delivering a bypass for Hickleton as part of the wider A19-A1 Hickleton bypass scheme identified by the 'Network North' vision.

10.3.5 Junction 5: A635 / Blacksmiths Lane Three-arm Priority Junction

2022 Base Year Assessment

The results from the Junctions10 model for the 2022 Base assessment scenario are summarised in the Table below. The full model outputs are provided at Appendix P.

Table 40: Junctions10 Output - Junction 5 (2022 Base)

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
2022 Base				
Blacksmiths Lane	0.82	3.4	0.77	2.6
A635 (West)	0.07	0.1	0.05	0.1

The Table above shows that all approaches are predicted to currently operate with RFC values of less than 0.85 during both the Weekday AM and PM peak hours. The maximum predicted RFC is 0.82, occurring on the Blacksmiths Lane approach during the Weekday AM peak hour. The corresponding maximum average queue is 3.4 PCUs.

The Table below presents a comparison between the observed and modelled queues in each peak hour. The queues were recorded as one-minute spot queues and the average queue across each peak hour is presented.

Table 41: Junction 5 Queue Validation

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	Modelled	Observed	Modelled	Observed
Blacksmiths Lane	3.4	3.3	1.7	2.6
A635 (West)	0.1	0.3	0.0	0.1

It can be seen that the modelled queues are broadly reflective of the actual recorded queues and the model is therefore considered to provide a suitable baseline position on which to model the junction.

2028 Future Year Assessment

The results from the Junctions10 model for the future year assessment scenarios are summarised in the Table below.

Table 42: Junctions10 Output - Junction 5 (Future Year Assessments)

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
2028 Do Minimum				
Blacksmiths Lane	1.06	10.1	1.07	8.3
A635 (West)	0.09	0.2	0.06	0.1
2028 With Development				
Blacksmiths Lane	1.26	21.7	1.27	15.1
A635 (West)	0.10	0.2	0.06	0.1

The Table above shows that in the 2028 Do Minimum and With Development assessment scenarios, the Blacksmiths Lane approach is predicted to operate with RFC values in excess of 1.00 during both the Weekday AM and PM peak hours.

In the 2028 With Development assessment scenario, the Blacksmiths Lane approach is predicted to operate with RFC values of 1.26 and 1.27 during the Weekday AM and PM peak hours, respectively. The corresponding maximum average queues are 21.7 PCUs and 15.1 PCUs, representing increases of 11.6 PCUs and 6.8 PCUs on each approach, when compared with the 2028 Do Minimum assessment scenario.

This increase in queueing is not considered to be significant as there is sufficient stacking space to accommodate the modelled queue without impacting on upstream junctions.

To isolate the impact of the proposed development, an assessment has been undertaken without traffic associated with NTM/TEMPro growth and committed developments.

Table 43: Junctions10 Output - Junction 5 (2022 Base + Development)

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
2022 Base				
Blacksmiths Lane	0.82	3.4	0.77	2.6
A635 (West)	0.07	0.1	0.05	0.1
2022 Base + Development				
Blacksmiths Lane	0.93	5.7	0.87	4.0
A635 (West)	0.08	0.2	0.05	0.1

It can be seen from the assessments presented in Table 42 that with the addition of NTM/TEMPro traffic growth and traffic associated with the committed developments, the Blacksmiths Lane approach is predicted to operate with an RFC value in excess of 1.00 during both the Weekday AM and PM peak hours.

However, as demonstrated in Table 43, with the addition of traffic associated with the proposed development in isolation, the Blacksmiths Lane approach is predicted to operate with RFC values below 1.00 during both peak hours. The corresponding maximum average queues are 5.7 PCUs and 4.0 PCUs, representing increases of 2.3 PCUs and 1.4 PCUs on each approach, when compared with the 2022 Base assessment scenario.

Given the assessments presented above, it is concluded that the proposed development is not predicted to have a significant impact on the future operation of the junction.

10.3.6 Junction 6: A635 / Church Lane Three-arm Priority Junction

2022 Base Year Assessment

The results from the Junctions10 model for the 2022 Base assessment scenario are summarised in the Table below. The full model outputs are provided at Appendix Q.

Table 44: Junctions10 Output - Junction 6 (2022 Base)

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
2022 Base				
Church Lane – LT	0.14	0.2	0.07	0.1
Church Lane – RT	0.64	1.7	0.47	0.9
A635 (East) – AH/RT	0.24	1.1	0.10	0.2

Note: AH = Ahead, LT = Left-turn, RT = Right-turn

The Table above shows that all approaches are predicted to currently operate with RFC values of less than 0.85 during both the Weekday AM and PM peak hours. The maximum predicted RFC is 0.64, occurring on the Church Lane approach during the Weekday AM peak hour. The corresponding maximum average queue is 1.7 PCUs.

The Table below presents a comparison between the observed and modelled queues in each peak hour. The queues were recorded as one-minute spot queues and the average queue across each peak hour is presented.

Table 45: Junction 6 Queue Validation

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	Modelled	Observed	Modelled	Observed
Church Lane – LT	0.2	0.0	0.1	0.1
Church Lane – RT	1.7	0.9	0.9	0.1
A635 (East) – AH/RT	1.1	0.1	0.2	0.1

It can be seen that the modelled queues are broadly reflective of the actual recorded queues and the model is therefore considered to provide a suitable baseline position on which to model the junction.

2028 Future Year Assessment

The results from the Junctions10 model for the future year assessment scenarios are summarised in the Table below.

Table 46: Junctions10 Output - Junction 6 (Future Year Assessments)

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
2028 Do Minimum				
Church Lane - LT	1.36	6.2	0.13	0.1
Church Lane - RT	1.34	10.0	0.70	2.0
A635 (East) – AH/RT	0.31	1.8	0.15	0.4
2028 With Development				
Church Lane - LT	2.51	11.2	1.03	2.6
Church Lane - RT	2.51	19.2	0.94	4.4
A635 (East) – AH/RT	0.36	2.6	0.18	0.6

Note: AH = Ahead, LT = Left-turn, RT = Right-turn

The Table above shows that in the 2028 Do Minimum and With Development assessment scenarios, the Church Lane approaches are predicted to operate with RFC values in excess of 1.00 during the Weekday AM peak hour. During the Weekday PM peak hour, in the 2028 With Development assessment scenario, the Church Lane left-turn and right-turn approaches are predicted to operate with RFC values in excess of 1.00 and 0.85, respectively.

In the 2028 With Development assessment scenario, in the Weekday AM peak hour, the Church Lane approaches are predicted to operate with RFC values of 2.51. The corresponding maximum average queues are 11.2 PCUs and 19.2 PCUs, representing increases of 5.0 PCUs 9.2 PCUs, when compared with the 2028 Do Minimum assessment scenario.

In the 2028 With Development assessment scenario, in the Weekday PM peak hour, the Church Lane approaches are predicted to operate with RFC values of 1.03 and 0.94, respectively. The corresponding maximum average queues are 2.6 PCUs and 4.4 PCUs, representing increases of 2.5 PCUs 2.5 PCUs, when compared with the 2028 Do Minimum assessment scenario.

This increase in queueing is not considered to be significant and there is sufficient stacking space to accommodate the modelled queue without impacting on upstream junctions.

To isolate the impact of the proposed development, an assessment has been undertaken without traffic associated with NTM/TEMPro growth and committed developments.

Table 47: Junctions10 Output - Junction 6 (2022 Base + Development)

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
2022 Base				
Church Lane - LT	0.14	0.2	0.07	0.1
Church Lane - RT	0.64	1.7	0.47	0.9
A635 (East) – AH/RT	0.24	1.1	0.10	0.2
2022 Base + Development				
Church Lane - LT	0.73	1.6	0.09	0.1
Church Lane - RT	0.84	3.2	0.57	1.3
A635 (East) – AH/RT	0.27	1.4	0.12	0.3

It can be seen from the assessments presented in Table 46 that with the addition of NTM/TEMPro traffic growth and traffic associated with the committed developments, the Church Lane approach is predicted to operate with an RFC value in excess of 1.00 during the Weekday AM peak hour.

However, as demonstrated in Table 47, with the addition of traffic associated with the proposed development in isolation, the Church Lane approach is predicted to operate with RFC values below 1.00 during both peak hours. The corresponding maximum average queues are predicted to increase by a maximum of 1.5 PCUs, when compared with the 2022 Base assessment scenario.

Given the assessments presented above, it is concluded that the proposed development is not predicted to have a significant impact on the future operation of the junction.

10.3.7 Junction 7: Cathill Roundabout

2022 Base Year Assessment

The results from the Junctions10 model for the 2022 Base assessment scenario are summarised in the Table below. The full model outputs are provided at Appendix R.

Table 48: Junctions10 Output - Junction 7 (2022 Base)

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
2022 Base				
A6195 (North)	0.49	1.0	0.43	0.8
A635 (East)	0.49	1.1	0.54	1.2
A6195 (South)	0.48	1.0	0.55	1.3
A635 (West)	0.57	1.4	0.45	0.9

The Table above shows that all approaches are predicted to currently operate with RFC values of less than 0.85 during both the Weekday AM and PM peak hours. The maximum predicted RFC is 0.57, occurring on the A635 (West) approach during the Weekday AM peak hour. The corresponding maximum average queue is 1.4 PCUs.

The Table below presents a comparison between the observed and modelled queues in each peak hour. The queues were recorded as one-minute spot queues and the average queue across each peak hour is presented.

Table 49: Junction 7 Queue Validation

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	Modelled	Observed	Modelled	Observed
A6195 (North)	1.0	3.1	0.8	2.0
A635 (East)	1.1	1.2	1.2	1.7
A6195 (South)	1.0	1.2	1.3	1.4
A635 (West)	1.4	1.8	0.9	1.2

It can be seen that the modelled queues are broadly reflective of the actual recorded queues and the model is therefore considered to provide a suitable baseline position on which to model the junction.

2028 Future Year Assessment

The results from the Junctions10 model for the future year assessment scenarios are summarised in the Table below.

Table 50: Junctions10 Output - Junction 7 (Future Year Assessments)

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
2028 Do Minimum				
A6195 (North)	0.56	1.3	0.52	1.1
A635 (East)	0.62	1.8	0.62	1.7
A6195 (South)	0.56	1.4	0.65	1.9
A635 (West)	0.66	2.1	0.56	1.3
2028 With Development				
A6195 (North)	0.62	1.7	0.55	1.3
A635 (East)	0.67	2.2	0.72	2.8
A6195 (South)	0.62	1.8	0.70	2.4
A635 (West)	0.75	3.2	0.61	1.6

The Table above shows that all approaches are predicted to operate with RFC values of less than 0.85 during both the Weekday AM and PM peak hours, for both the Do Minimum and With Development scenarios. The maximum predicted RFC is 0.75, occurring on the A635 (West) approach during the Weekday AM peak hour in the With Development assessment scenario. The corresponding maximum average queue is 3.2 PCUs.

Given the assessments presented above, it is concluded that the proposed development is not predicted to have a significant impact on the future operation of the junction.

10.3.8 Junction 8: Broomhill Roundabout

2022 Base Year Assessment

The results from the Junctions10 model for the 2022 Base assessment scenario are summarised in the Table below. The full model outputs are provided at Appendix S.

Table 51: Junctions10 Output - Junction 8 (2022 Base)

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
2022 Base				
Pontefract Road	0.03	0.0	0.04	0.0
A6195 (North)	0.37	0.6	0.39	0.7
A633 Manvers Way	0.65	1.9	0.68	2.2
A6195 (South)	0.46	0.9	0.54	1.2

The Table above shows that all approaches are predicted to currently operate with RFC values of less than 0.85 during both the Weekday AM and PM peak hours. The maximum predicted RFC is 0.68, occurring on the A633 Manvers Way approach during the Weekday PM peak hour. The corresponding maximum average queue is 2.2 PCUs.

The Table below presents a comparison between the observed and modelled queues in each peak hour. The queues were recorded as one-minute spot queues and the average queue across each peak hour is presented.

Table 52: Junction 8 Queue Validation

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	Modelled	Observed	Modelled	Observed
Pontefract Road	0.0	0.1	0.0	0.1
A6195 (North)	0.6	0.2	0.7	0.3
A633 Manvers Way	1.9	1.2	2.2	1.7
A6195 (South)	0.9	0.7	1.2	0.8

It can be seen that the modelled queues are broadly reflective of the actual recorded queues and the model is therefore considered to provide a suitable baseline position on which to model the junction.

2028 Future Year Assessment

The results from the Junctions10 model for the future year assessment scenarios are summarised in the Table below.

Table 53: Junctions10 Output - Junction 8 (Future Year Assessments)

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
2028 Do Minimum				
Pontefract Road	0.05	0.0	0.05	0.1
A6195 (North)	0.43	0.8	0.44	0.8
A633 Manvers Way	0.72	2.7	0.78	3.5
A6195 (South)	0.50	1.1	0.61	1.6
2028 With Development				
Pontefract Road	0.05	0.1	0.06	0.1
A6195 (North)	0.45	0.9	0.48	0.9
A633 Manvers Way	0.76	3.4	0.81	4.3
A6195 (South)	0.55	1.3	0.64	1.8

The Table above shows that all approaches are predicted to operate with RFC values of less than 0.85 during both the Weekday AM and PM peak hours, for both the Do Minimum and With Development scenarios. The maximum predicted RFC is 0.81, occurring on the A633 Manvers Way approach during the Weekday PM peak hour in the With Development assessment scenario. The corresponding maximum average queue is 4.3 PCUs.

Given the assessments presented above, it is concluded that the proposed development is not predicted to have a significant impact on the future operation of the junction.

10.3.9 Junction 9: Wath Road Roundabout

2022 Base Year Assessment

The results from the Junctions10 model for the 2022 Base assessment scenario are summarised in the Table below. The full model outputs are provided at Appendix T.

Table 54: Junctions10 Output - Junction 9 (2022 Base)

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
2022 Base				
Newlands Way	0.05	0.1	0.18	0.2
A6195 (East)	0.43	0.8	0.47	0.9
Wath Road	0.29	0.4	0.36	0.6
A6195 (West)	0.44	0.8	0.63	1.8
A633 Wath Road	0.46	0.9	0.56	1.3

The Table above shows that all approaches are predicted to currently operate with RFC values of less than 0.85 during both the Weekday AM and PM peak hours. The maximum predicted RFC is 0.63, occurring on the A6195 (West) approach during the Weekday PM peak hour. The corresponding maximum average queue is 1.8 PCUs.

The Table below presents a comparison between the observed and modelled queues in each peak hour. The queues were recorded as one-minute spot queues and the average queue across each peak hour is presented.

Table 55: Junction 9 Queue Validation

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	Modelled	Observed	Modelled	Observed
Newlands Way	0.1	0.3	0.2	0.8
A6195 (East)	0.8	0.2	0.9	1.0
Wath Road	0.4	0.7	0.6	1.4
A6195 (West)	0.8	0.2	1.8	0.3
A633 Wath Road	0.9	0.7	1.3	1.4

It can be seen that the modelled queues are broadly reflective of the actual recorded queues and the model is therefore considered to provide a suitable baseline position on which to model the junction.

2028 Future Year Assessment

The results from the Junctions10 model for the future year assessment scenarios are summarised in the Table below.

Table 56: Junctions10 Output - Junction 9 (Future Year Assessments)

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
2028 Do Minimum				
Newlands Way	0.06	0.1	0.21	0.3
A6195 (East)	0.48	1.0	0.51	1.1
Wath Road	0.32	0.5	0.39	0.6
A6195 (West)	0.48	1.0	0.69	2.3
A633 Wath Road	0.53	1.2	0.65	1.9
2028 With Development				
Newlands Way	0.06	0.1	0.22	0.3
A6195 (East)	0.50	1.1	0.54	1.2
Wath Road	0.32	0.5	0.41	0.7
A6195 (West)	0.51	1.1	0.71	2.6
A633 Wath Road	0.55	1.3	0.67	2.1

The Table above shows that all approaches are predicted to operate with RFC values of less than 0.85 during both the Weekday AM and PM peak hours, for both the Do Minimum and With Development scenarios. The maximum predicted RFC is 0.71, occurring on the A6195 (West) approach during the Weekday PM peak hour. The corresponding maximum average queue is 2.6 PCUs.

Given the assessments presented above, it is concluded that the proposed development is not predicted to have a significant impact on the future operation of the junction.

10.3.10 Junction 10: Cortonwood Roundabout

2022 Base Year Assessment

The results from the Junctions10 model for the 2022 Base assessment scenario are summarised in the Table below. The full model outputs are provided at Appendix U.

Table 57: Junctions10 Output - Junction 10 (2022 Base)

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
2022 Base				
A6195 (North)	0.63	1.9	0.73	2.8
Corton Wood	0.22	0.3	0.65	1.9
A6195 (West)	0.54	1.3	0.69	2.3

The Table above shows that all approaches are predicted to currently operate with RFC values of less than 0.85 during both the Weekday AM and PM peak hours. The maximum predicted RFC is 0.73, occurring on the A6195 (North) approach during the Weekday PM peak hour. The corresponding maximum average queue is 2.8 PCUs.

The Table below presents a comparison between the observed and modelled queues in each peak hour. The queues were recorded as one-minute spot queues and the average queue across each peak hour is presented.

Table 58: Junction 10 Queue Validation

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	Modelled	Observed	Modelled	Observed
A6195 (North)	1.9	0.3	2.8	0.1
Corton Wood	0.3	0.3	1.9	2.6
A6195 (West)	1.3	0.1	2.3	0.7

It can be seen that the modelled queues are broadly reflective of the actual recorded queues and the model is therefore considered to provide a suitable baseline position on which to model the junction.

2028 Future Year Assessment

The results from the Junctions10 model for the future year assessment scenarios are summarised in the Table below.

Table 59: Junctions10 Output - Junction 10 (Future Year Assessments)

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
2028 Do Minimum				
A6195 (North)	0.69	2.4	0.79	3.8
Corton Wood	0.24	0.3	0.71	2.5
A6195 (West)	0.58	1.5	0.75	3.1
2028 With Development				
A6195 (North)	0.72	2.7	0.83	4.8
Corton Wood	0.24	0.3	0.73	2.7
A6195 (West)	0.61	1.7	0.78	3.7

The Table above shows that all approaches are predicted to operate with RFC values of less than 0.85 during both the Weekday AM and PM peak hours, for both the Do Minimum and With Development scenarios. The maximum predicted RFC is 0.83, occurring on the A6195 (North) approach during the Weekday PM peak hour. The corresponding maximum average queue is 4.8 PCUs.

Given the assessments presented above, it is concluded that the proposed development is not predicted to have a significant impact on the future operation of the junction.

10.4 Summary

This section has detailed the capacity assessments undertaken at the approved site access roundabout onto the A635 and a number of existing junctions on the local highway network.

It has been demonstrated that:

- The approved site access roundabout can satisfactorily accommodate traffic associated with the proposed development.
- The proposed development is not predicted to have a significant impact on the future operation of the junctions assessed.
- Changes to the A635 / Red Hill Lane / Hickleton Road junction are identified to safely and efficiently accommodate traffic flows associated with the proposed development in combination with relevant planned and committed development. It is therefore proposed that the applicant will make a financial contribution

commensurate with the impact of the development at the junction, to be used to facilitate either delivery of the identified scheme layout by CDC, or support CDC in delivering a bypass for Hickleton as part of the wider A19-A1 Hickleton bypass scheme identified by the 'Network North' vision.

11 Summary and Conclusion

Fore Consulting Limited (Fore) has been commissioned by Equites Newlands (Goldthorpe) Ltd to provide highways advice in relation to a forthcoming hybrid planning application for a proposed employment development at Goldthorpe, Barnsley, as follows:

> *Outline permission sought for the construction of Storage and Distribution (Use Class B8) and General Employment (Use Class B2) space with ancillary offices and gatehouses on four separate, self-contained and severable plots as shown on the submitted Parameters Plan. All matters reserved except for site access. Full permission sought for engineering infrastructure works to support the employment development comprising: the access roads; earthworks to create the development platform zones/bunding; drainage and culvert works; a flood compensation area; and strategic landscaping areas.*

This report has been prepared to provide a full and robust assessment of the transport impacts of the proposed development and to identify any mitigation measures required, as necessary.

This Transport Assessment has:

- Examined the existing conditions on the local transport network, including the opportunities available for future employees to travel to and from work by sustainable modes of transport. An assessment of the latest five-year personal injury collision record within the vicinity of the site has also been undertaken.
- Identified national and local transport policy that is relevant to the proposed development and sets out how the development proposals respond to, and accord with, this policy.
- Provides an overview of the development proposals and provides a summary of the access, parking and servicing arrangements.
- Detailed the methodology used to determine the predicted changes in traffic flows associated with the proposals on the highway network.
- Undertaken capacity assessments at the approved site access roundabout onto the A635 and a number of existing junctions on the local highway network.

It is concluded that:

- The site is well located in relation to the existing transport network and future employees will have the opportunity to travel to and from work by sustainable modes of transport including on foot, by cycle and by public transport.

- The number of collisions occurring at the junctions comprising the study highway network is considered to be relatively low and the vast majority of collisions occurred for reasons indicative of driver error.

- The proposed development accords with the aims and objectives of the relevant local and national policy.

- Appropriate access, parking and servicing arrangements are accommodated.

- The approved site access roundabout can satisfactorily accommodate traffic associated with the proposed development.

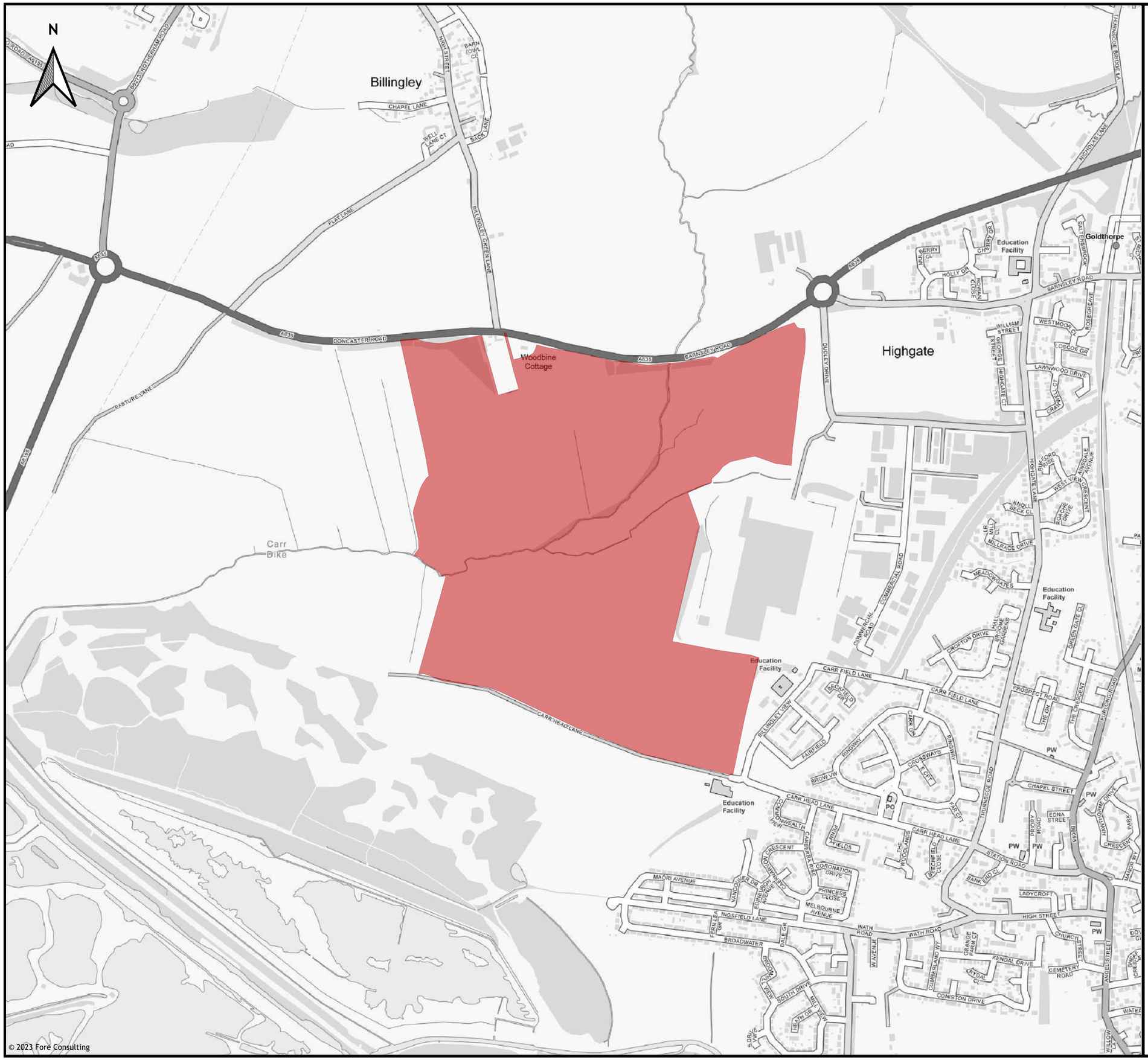
- Changes to the A635 / Red Hill Lane / Hickleton Road junction are identified to safely and efficiently accommodate traffic flows associated with the proposed development in combination with relevant planned and committed development. It is therefore proposed that the applicant will make a financial contribution commensurate with the impact of the development at the junction, to be used to facilitate either delivery of the identified scheme layout by CDC, or support CDC in delivering a bypass for Hickleton as part of the wider A19-A1 Hickleton bypass scheme identified by the 'Network North' vision.

- The proposed development is not predicted to have a significant impact on the future operation of the remaining junctions assessed.

Overall, it is concluded that the development proposals are acceptable and can be supported from a transport perspective.

The residual cumulative impacts of the proposed development are not considered to be severe within the context of Paragraph 111 of the NPPF.

Figures



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Key:

Indicative Site Location

Fore Consulting Limited
Suite 18, City Quadrant
11 Waterloo Square
Newcastle upon Tyne
NE1 4DP

0191 255 7778
www.foreconsulting.co.uk

Client:
Equites Newlands (Goldthorpe) Ltd

Project:
Land South of Dearne Valley Parkway, Goldthorpe

Figure Title:
Site Location

Scale:
1:10000

Figure Status:
Issue

Job Number:
3465

Figure Number:
Figure 1

N

Middlecliffe

West Kirk Lane

Billingley

Flat Lane

Billingley Green Lane

THURNSCOE

Thurnscoe Bridge Lane

Barrowfield

Thurnsoe Dike

B6098

Nicholas Lane

Goldthorpe

Barnsley Road

A635

Barnsley

Dudley Drive

Woodbine Cottage

Highgate

Commercial Road

Highgate

Carr Dike

Furlong Road

Station Road

Wath Road

High Street

Bolton-on-Dearn

BOLTON U

DEARN

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Key:

- Indicative Site Location
- 2.0km Walking Distance Isochrone
- Public Rights of Way
- Retail
- Health e.g. Pharmacy/Dentist

Fore Consulting Limited
Suite 18, City Quadrant
11 Waterloo Square
Newcastle upon Tyne
NE1 4DP

0191 255 7778
www.foreconsulting.co.uk

Client:
Equites Newlands (Goldthorpe) Ltd

Project:
Land South of Dearne Valley Parkway, Goldthorpe

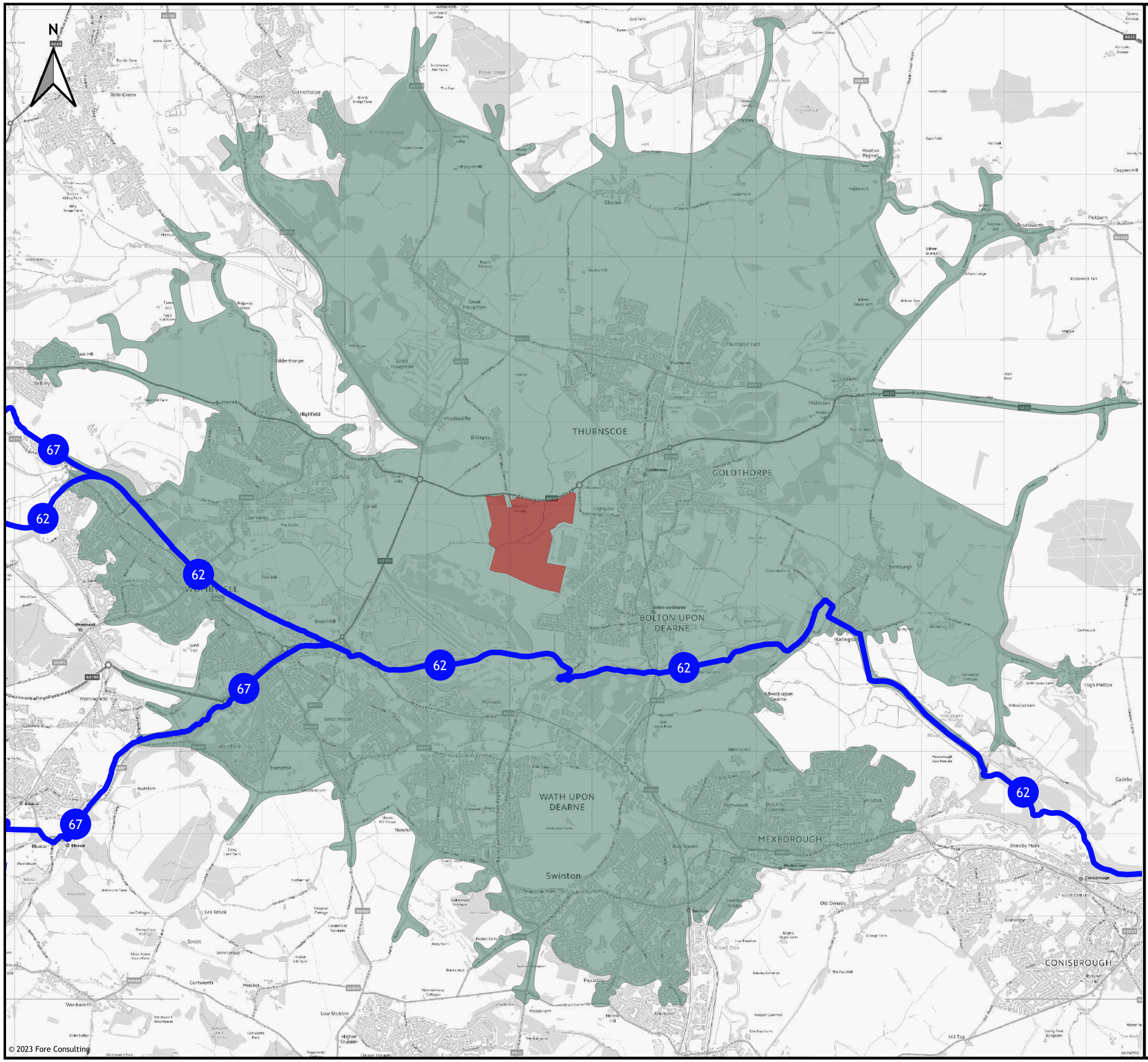
Figure Title:
Walking Catchment

Scale:
1:11000

Figure Status:
Issue

Job Number:
3465

Figure Number:
Figure 2



Key:

- Indicative Site Location
- 8.0km Cycling Distance Isochrone
- National Cycle Routes

Fore Consulting Limited
Suite 18, City Quadrant
11 Waterloo Square
Newcastle upon Tyne
NE1 4DP

0191 255 7778
www.foreconsulting.co.uk

Client:
Equites Newlands (Goldthorpe) Ltd

Project:
Land South of Dearne Valley Parkway, Goldthorpe

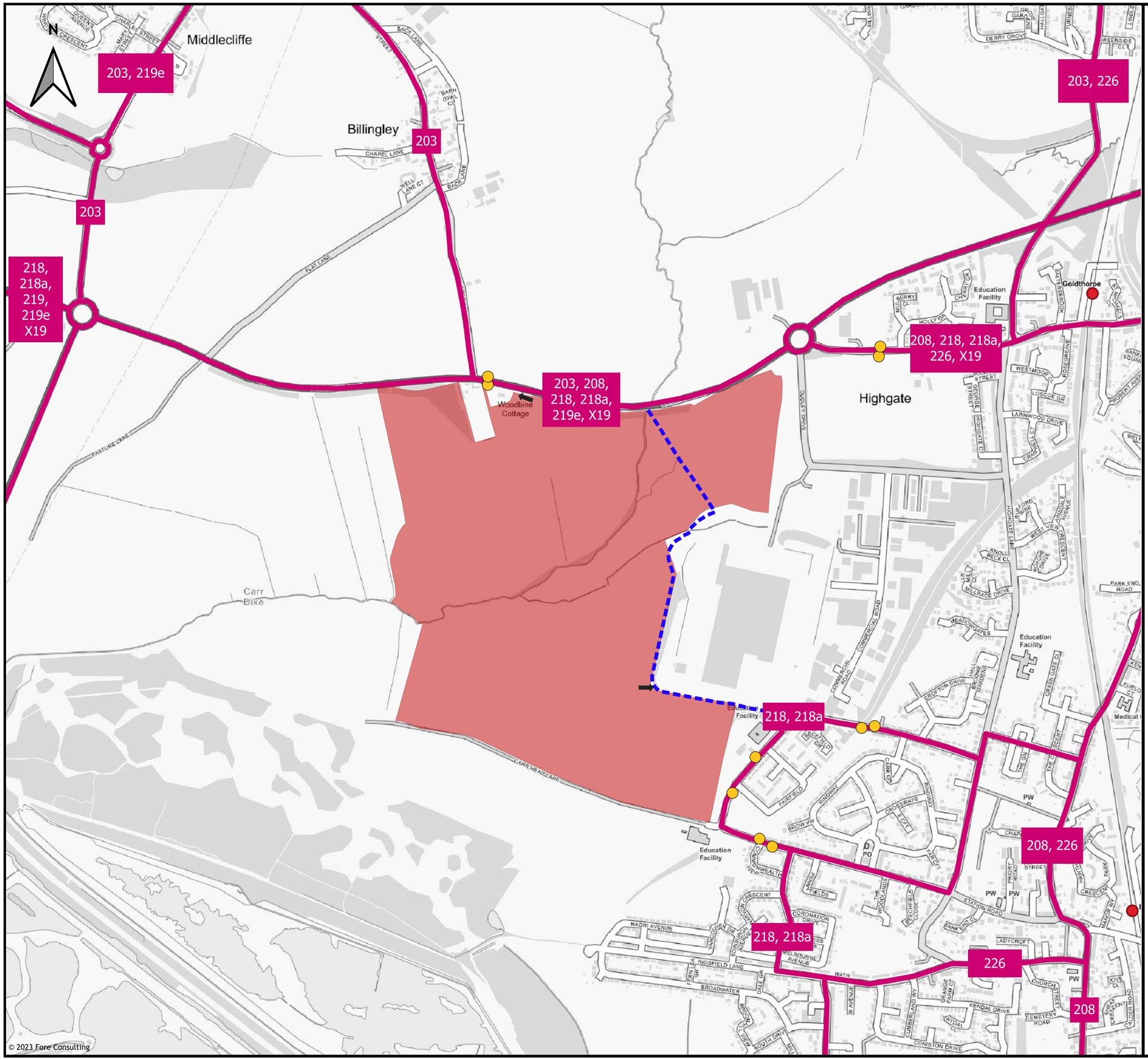
Figure Title:
Cycling Catchment

Scale:
1:45000

Figure Status:
Issue

Job Number:
3465

Figure Number:
Figure 3



Key:

- Indicative Site Location
- Bus Stop
- Rail Station
- Bus Route
- Existing Public Rights of Way Footpath 15
- Indicative Potential Footpath Connections

Fore Consulting Limited
Suite 18, City Quadrant
11 Waterloo Square
Newcastle upon Tyne
NE1 4DP

0191 255 7778
www.foreconsulting.co.uk

Client:
Equites Newlands (Goldthorpe) Ltd

Project:
Land South of Dearne Valley Parkway, Goldthorpe

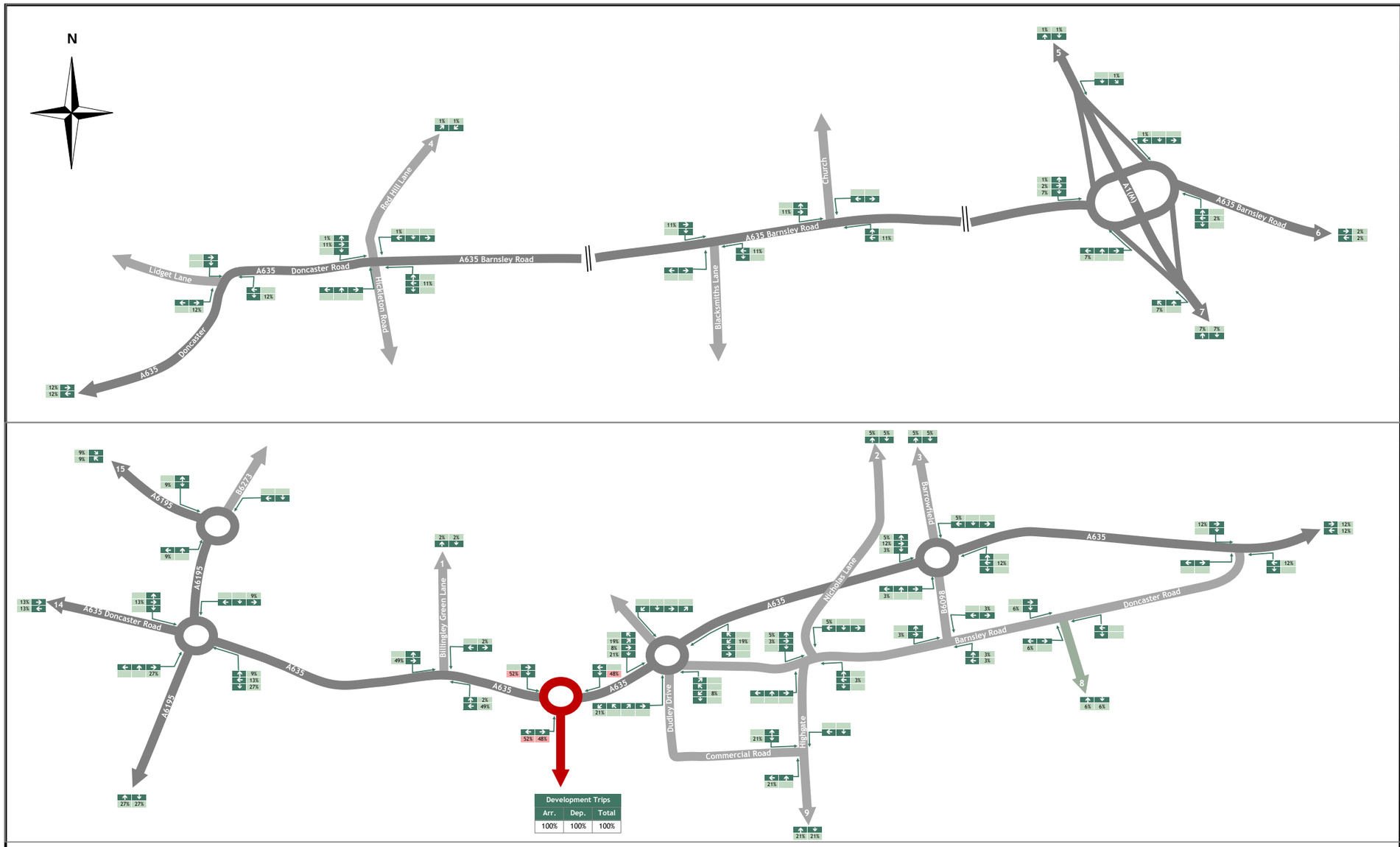
Figure Title:
Public Transport Network

Scale:
1:10000

Figure Status:
Issue

Job Number:
3465

Figure Number:
Figure 4



Ref.	Route	Arr.	Dep.	Total
1	Billingley Green Lane	2.3%	2.3%	2.3%
2	Nicholas Lane	4.7%	4.7%	4.7%
3	Barrowfield Road	4.7%	4.7%	4.7%
4	Red Hill Lane	0.8%	0.8%	0.8%
5	A1(M) (North)	1.0%	1.0%	1.0%
6	A635 Barnsley Road	2.5%	2.5%	2.5%
7	A1(M) (South)	7.2%	7.2%	7.2%
8	Barnsley Road	6.1%	6.1%	6.1%
9	Highgate Lane	21.4%	21.4%	21.4%
10	A633 Manvers Way	1.8%	1.8%	1.8%
11	B6273 Pontefract Road	12.1%	12.1%	12.1%
12	A633 Wath Road	2.8%	2.8%	2.8%
13	A6195 Dearne Valley Parkway	10.5%	10.5%	10.5%
14	A635 Doncaster Road	12.9%	12.9%	12.9%
15	A6195 Park Spring Road	9.2%	9.2%	9.2%
	Total	100%	100%	100%

Key:

- Primary Road
- Secondary Road
- Traffic movements not explicitly represented in the network diagram (e.g. minor roads)
- Proposed Site Access

Note: The number in each arrowhead relates to the route reference used in the Vehicle Trip Distribution.

Fore Consulting Limited
Suite 18, City Quadrant
11 Waterloo Square
Newcastle upon Tyne
NE1 4DP
0191 255 7778
enquiries@foreconsulting.co.uk
www.foreconsulting.co.uk

Client:
Equites Newlands (Goldthorpe) Ltd

Project:
Land South of Dearne Valley Parkway, Goldthorpe

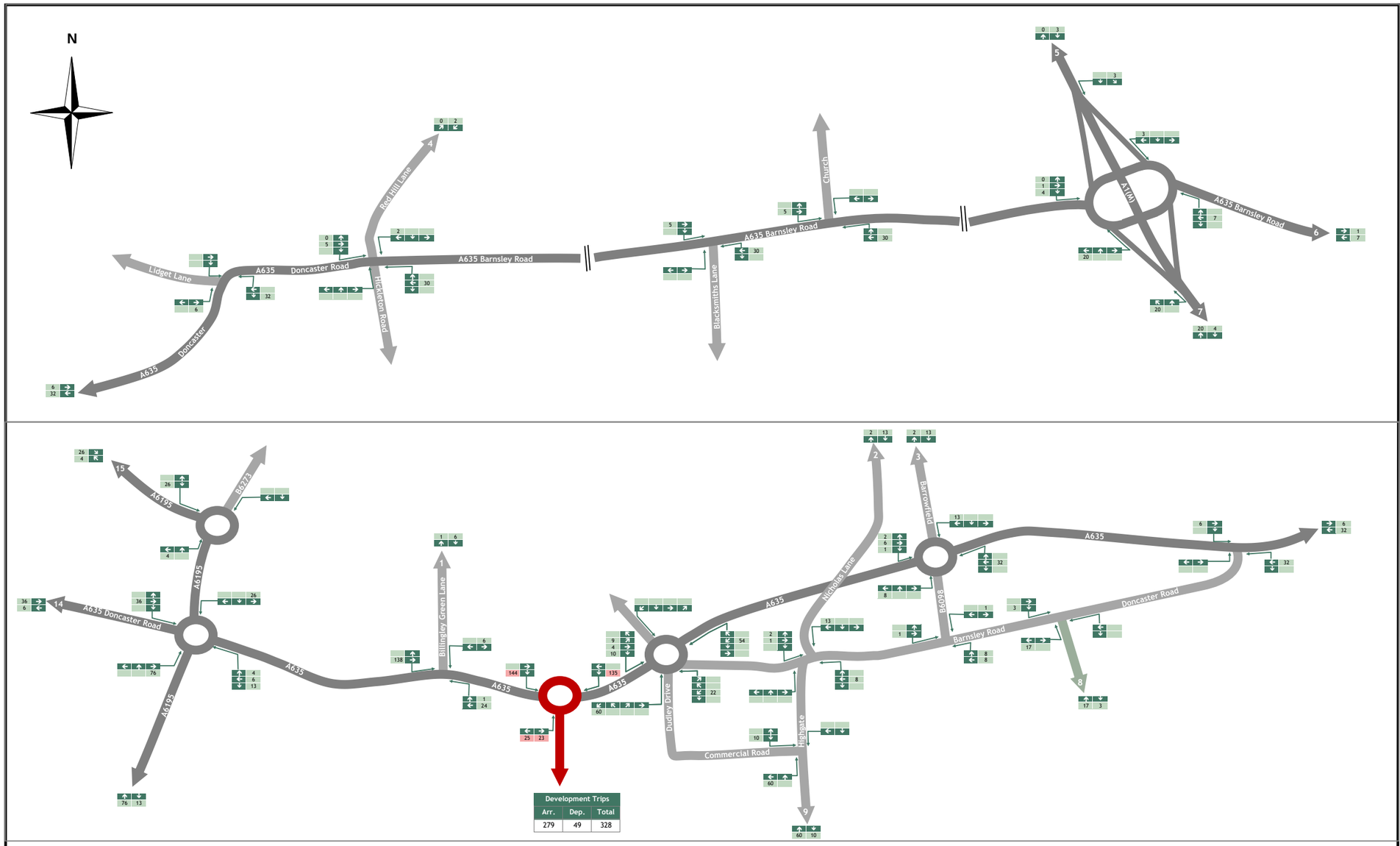
Figure Title:
Light Vehicle/Car Trip Distribution (%)

Scale:
Not to scale

Figure Status:
Issue

Job Number:
3465

Figure Number:
Figure 5



Ref.	Route	Arr.	Dep.	Total
1	Billingley Green Lane	6	1	8
2	Nicholas Lane	13	2	15
3	Barrowfield Road	13	2	15
4	Red Hill Lane	2	0	3
5	A1(M) (North)	3	0	3
6	A635 Barnsley Road	7	1	8
7	A1(M) (South)	20	4	24
8	Barnsley Road	17	3	20
9	Highgate Lane	60	10	70
10	A633 Manvers Way	5	1	6
11	B6273 Pontefract Road	34	6	40
12	A633 Wath Road	8	1	9
13	A6195 Dearne Valley Parkway	29	5	34
14	A635 Doncaster Road	36	6	42
15	A6195 Park Spring Road	26	4	30
	Total	279	49	328

Key:

- Primary Road
- Secondary Road
- Traffic movements not explicitly represented in the network diagram (e.g. minor roads)
- Proposed Site Access

Note: The number in each arrowhead relates to the route reference used in the Vehicle Trip Distribution.

Fore Consulting Limited
Suite 18, City Quadrant
11 Waterloo Square
Newcastle upon Tyne
NE1 4DP
0191 255 7778
enquiries@foreconsulting.co.uk
www.foreconsulting.co.uk

Client:
Equites Newlands (Goldthorpe) Ltd

Project:
Land South of Dearne Valley Parkway, Goldthorpe

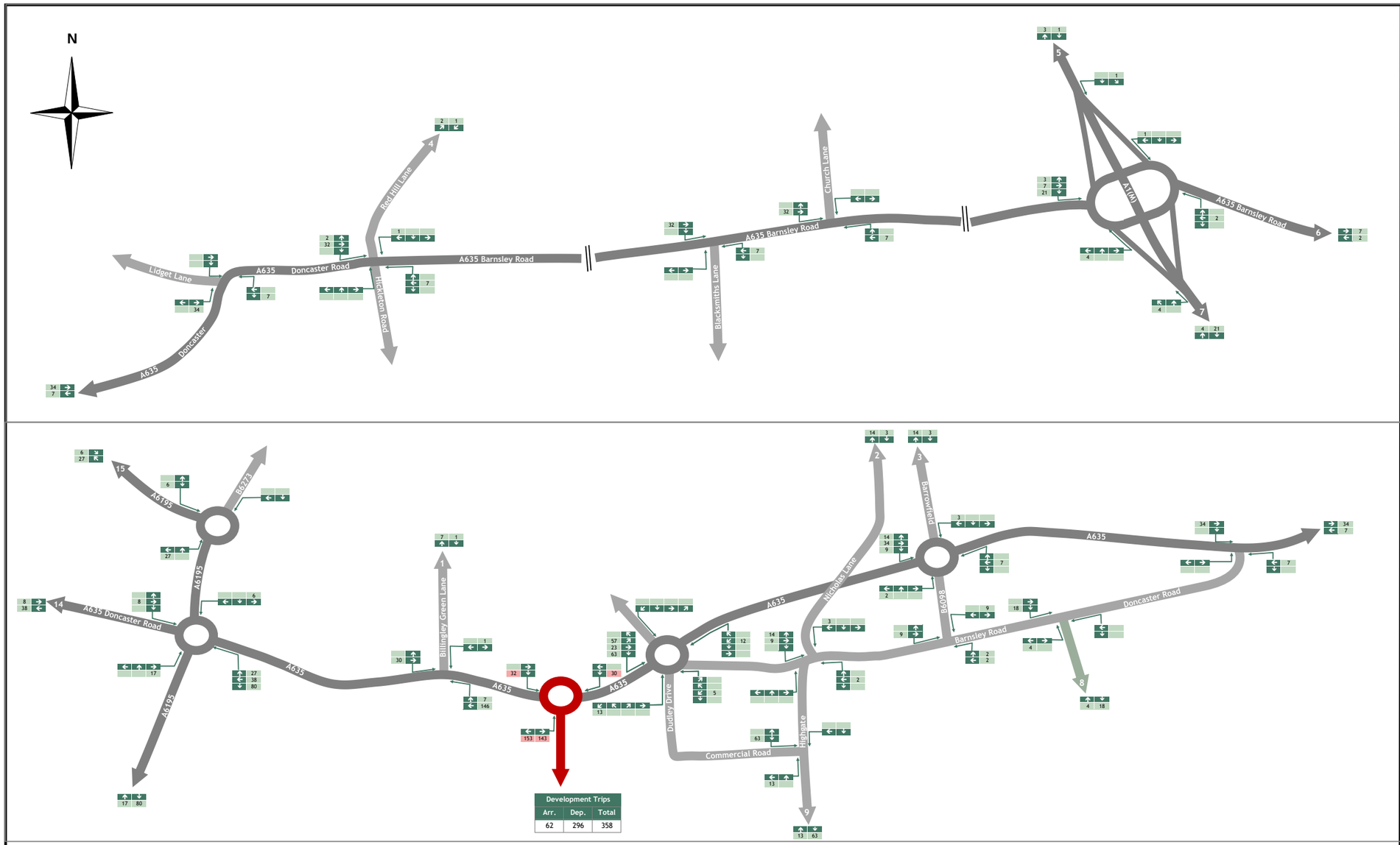
Figure Title:
Light Vehicle/Car Traffic Flows – Weekday AM Peak Hour

Scale:
Not to scale

Figure Status:
Issue

Job Number:
3465

Figure Number:
Figure 6



Ref.	Route	Arr.	Dep.	Total
1	Billingley Green Lane	1	7	8
2	Nicholas Lane	3	14	17
3	Barrowfield Road	3	14	17
4	Red Hill Lane	1	2	3
5	A1(M) (North)	1	3	4
6	A635 Barnsley Road	2	7	9
7	A1(M) (South)	4	21	26
8	Barnsley Road	4	18	22
9	Highgate Lane	13	63	77
10	A633 Manvers Way	1	5	6
11	B6273 Pontefract Road	7	36	43
12	A633 Wath Road	2	8	10
13	A6195 Dearne Valley Parkway	6	31	37
14	A635 Doncaster Road	8	38	46
15	A6195 Park Spring Road	6	27	33
	Total	62	296	358

Key:

- Primary Road
- Secondary Road
- Traffic movements not explicitly represented in the network diagram (e.g. minor roads)
- Proposed Site Access

Note: The number in each arrowhead relates to the route reference used in the Vehicle Trip Distribution.

Fore Consulting Limited
Suite 18, City Quadrant
11 Waterloo Square
Newcastle upon Tyne
NE1 4DP
0191 255 7778
enquiries@foreconsulting.co.uk
www.foreconsulting.co.uk

Client:
Equites Newlands (Goldthorpe) Ltd

Project:
Land South of Dearne Valley Parkway, Goldthorpe

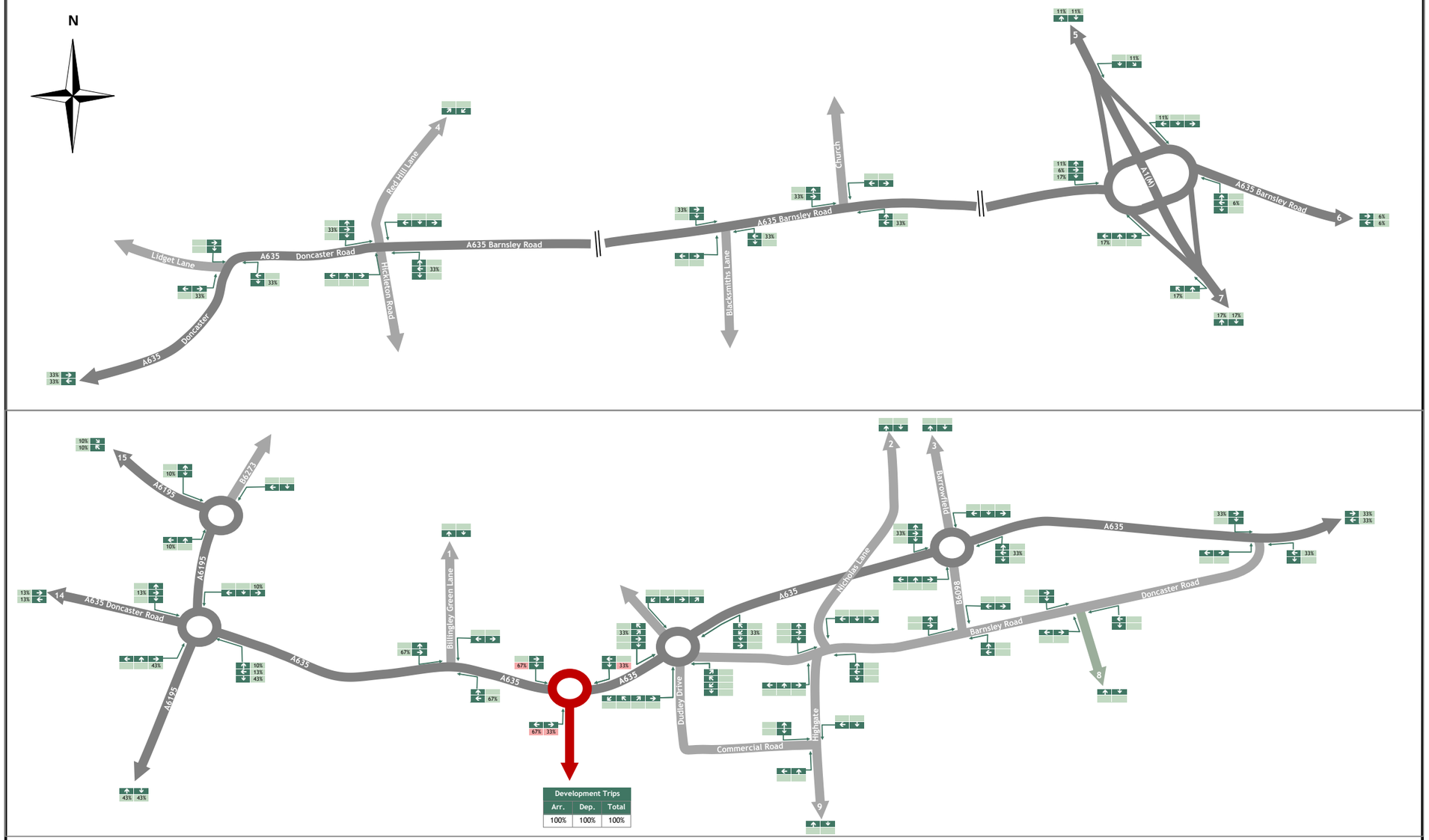
Figure Title:
Light Vehicle/Car Traffic Flows – Weekday PM Peak Hour

Scale:
Not to scale

Figure Status:
Issue

Job Number:
3465

Figure Number:
Figure 7



Ref.	Route	Arr.	Dep.	Total
1	Billingley Green Lane	0.0%	0.0%	0.0%
2	Nicholas Lane	0.0%	0.0%	0.0%
3	Barrowfield Road	0.0%	0.0%	0.0%
4	Red Hill Lane	0.0%	0.0%	0.0%
5	A1(M) (North)	10.6%	10.6%	10.6%
6	A635 Barnsley Road	6.2%	6.2%	6.2%
7	A1(M) (South)	16.7%	16.7%	16.7%
8	Barnsley Road	0.0%	0.0%	0.0%
9	Highgate Lane	0.0%	0.0%	0.0%
10	A633 Manvers Way	4.6%	4.6%	4.6%
11	B6273 Pontefract Road	0.0%	0.0%	0.0%
12	A633 Wath Road	5.0%	5.0%	5.0%
13	A6195 Dearne Valley Parkway	33.8%	33.8%	33.8%
14	A635 Doncaster Road	13.5%	13.5%	13.5%
15	A6195 Park Spring Road	9.7%	9.7%	9.7%
	Total	100%	100%	100%

Key:

- Primary Road
- Secondary Road
- Traffic movements not explicitly represented in the network diagram (e.g. minor roads)
- Proposed Site Access

Note: The number in each arrowhead relates to the route reference used in the Vehicle Trip Distribution.

Fore Consulting Limited
Suite 18, City Quadrant
11 Waterloo Square
Newcastle upon Tyne
NE1 4DP
0191 255 7778
enquiries@foreconsulting.co.uk
www.foreconsulting.co.uk

Client:
Equites Newlands (Goldthorpe) Ltd

Project:
Land South of Dearne Valley Parkway, Goldthorpe

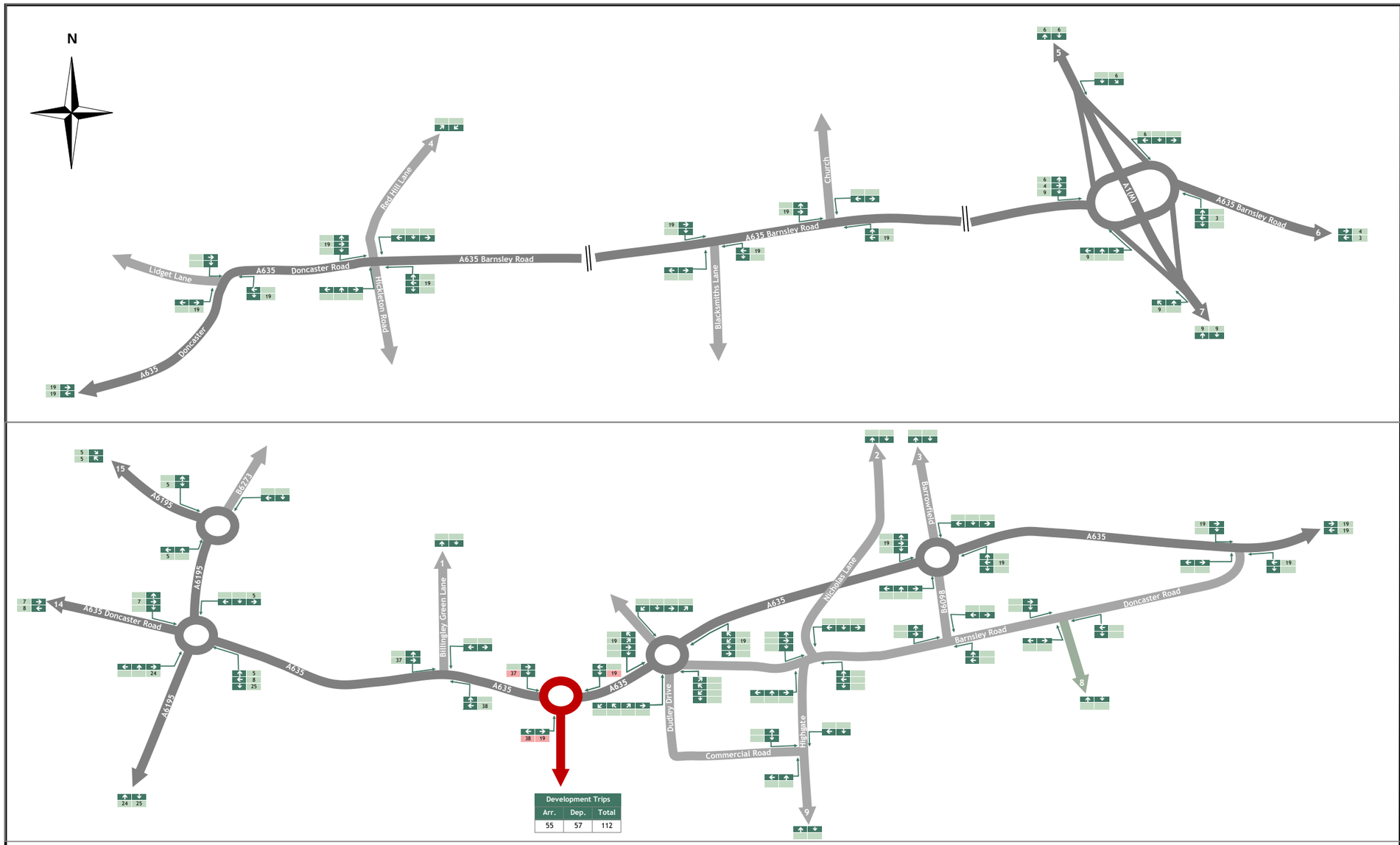
Figure Title:
HGV Trip Distribution (%)

Scale:
Not to scale

Figure Status:
Issue

Job Number:
3465

Figure Number:
Figure 8



Ref.	Route	Arr.	Dep.	Total
1	Billingley Green Lane			
2	Nicholas Lane			
3	Barrowfield Road			
4	Red Hill Lane			
5	A1(M) (North)	6	6	12
6	A635 Barnsley Road	3	4	7
7	A1(M) (South)	9	9	19
8	Barnsley Road			
9	Highgate Lane			
10	A633 Manvers Way	3	3	5
11	B6273 Pontefract Road			
12	A633 Wath Road	3	3	6
13	A6195 Dearne Valley Parkway	19	19	38
14	A635 Doncaster Road	7	8	15
15	A6195 Park Spring Road	5	5	11
	Total	55	57	112

Key:

- Primary Road
- Secondary Road
- Traffic movements not explicitly represented in the network diagram (e.g. minor roads)
- Proposed Site Access

Note: The number in each arrowhead relates to the route reference used in the Vehicle Trip Distribution.

Fore Consulting Limited
Suite 18, City Quadrant
11 Waterloo Square
Newcastle upon Tyne
NE1 4DP
0191 255 7778
enquiries@foreconsulting.co.uk
www.foreconsulting.co.uk

Client:
Equites Newlands (Goldthorpe) Ltd

Project:
Land South of Dearne Valley Parkway, Goldthorpe

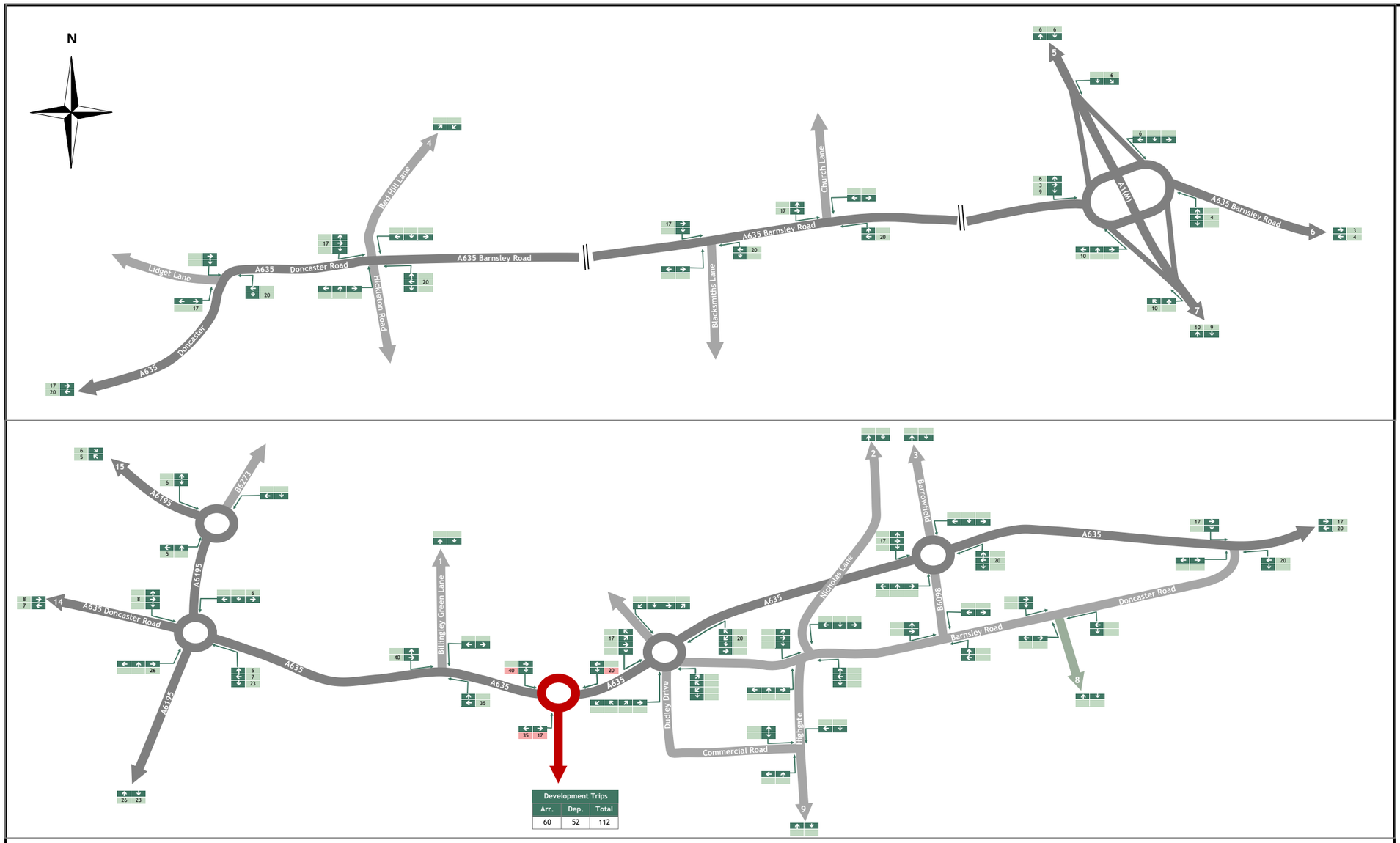
Figure Title:
HGV Traffic Flows – Weekday AM Peak Hour

Scale:
Not to scale

Figure Status:
Issue

Job Number:
3465

Figure Number:
Figure 9



Ref.	Route	Arr.	Dep.	Total
1	Billingley Green Lane	0	0	0
2	Nicholas Lane	0	0	0
3	Barrowfield Road	0	0	0
4	Red Hill Lane	0	0	0
5	A1(M) (North)	6	6	12
6	A635 Barnsley Road	4	3	7
7	A1(M) (South)	10	9	19
8	Barnsley Road	0	0	0
9	Highgate Lane	0	0	0
10	A633 Manvers Way	3	2	5
11	B6273 Pontefract Road	0	0	0
12	A633 Wath Road	3	3	6
13	A6195 Dearne Valley Parkway	20	18	38
14	A635 Doncaster Road	8	7	15
15	A6195 Park Spring Road	6	5	11
	Total	60	52	112

Key:

- Primary Road
- Secondary Road
- Traffic movements not explicitly represented in the network diagram (e.g. minor roads)
- Proposed Site Access

Note: The number in each arrowhead relates to the route reference used in the Vehicle Trip Distribution.

Fore Consulting Limited
Suite 18, City Quadrant
11 Waterloo Square
Newcastle upon Tyne
NE1 4DP
0191 255 7778
enquiries@foreconsulting.co.uk
www.foreconsulting.co.uk

Client:
Equites Newlands (Goldthorpe) Ltd

Project:
Land South of Dearne Valley Parkway, Goldthorpe

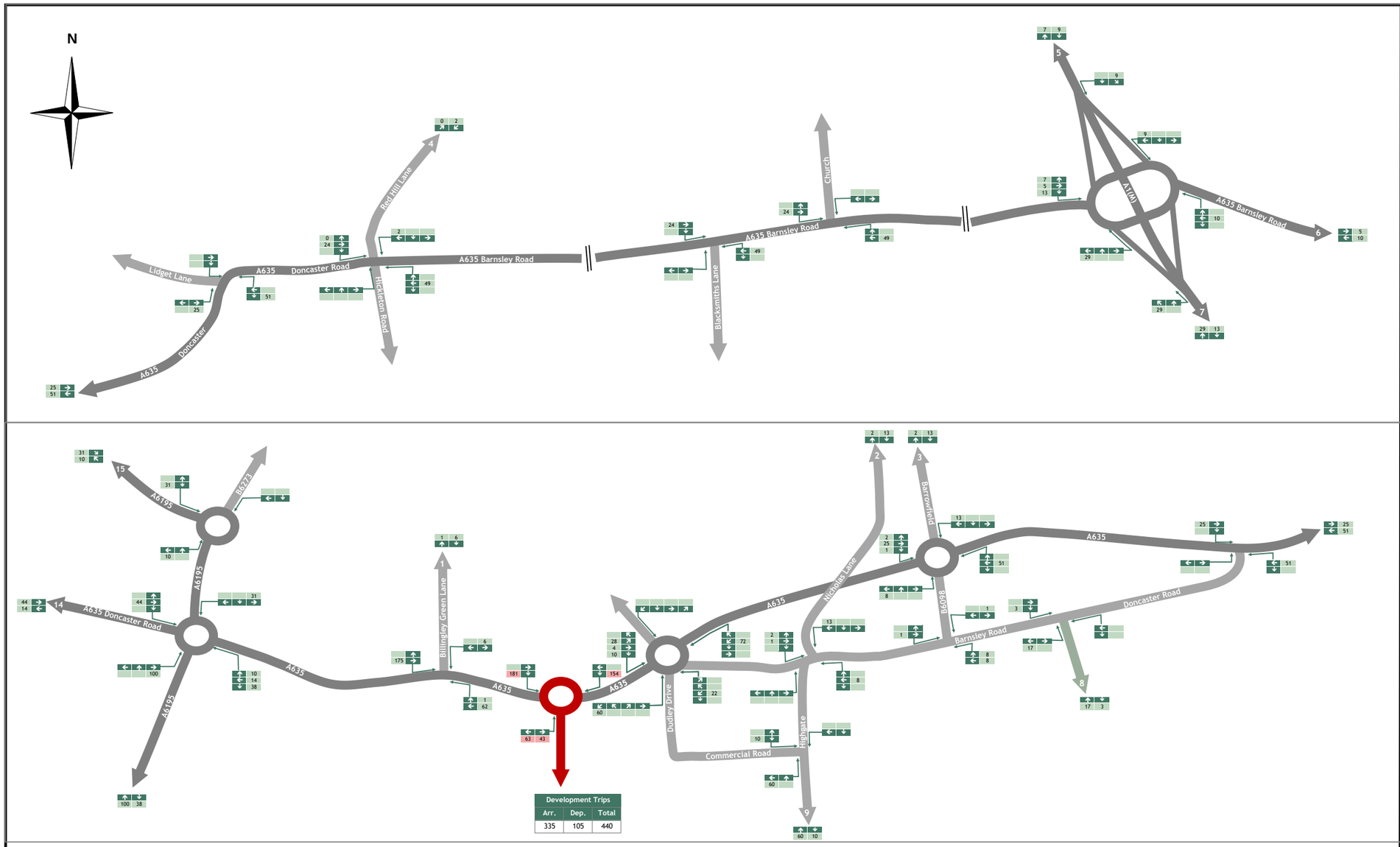
Figure Title:
HGV Traffic Flows – Weekday PM Peak Hour

Scale:
Not to scale

Figure Status:
Issue

Job Number:
3465

Figure Number:
Figure 10



Ref.	Route	Arr.	Dep.	Total
1	Billingley Green Lane	6	1	8
2	Nicholas Lane	13	2	15
3	Barrowfield Road	13	2	15
4	Red Hill Lane	2	0	3
5	A1(M) (North)	9	7	15
6	A635 Barnsley Road	10	5	15
7	A1(M) (South)	29	13	42
8	Barnsley Road	17	3	20
9	Highgate Lane	60	10	70
10	A633 Manvers Way	7	3	11
11	B6273 Pontefract Road	34	6	40
12	A633 Wath Road	11	4	15
13	A6195 Dearne Valley Parkway	48	24	72
14	A635 Doncaster Road	44	14	58
15	A6195 Park Spring Road	31	10	41
	Total	335	105	440

Key:

- Primary Road
- Secondary Road
- Traffic movements not explicitly represented in the network diagram (e.g. minor roads)
- Proposed Site Access

Note: The number in each arrowhead relates to the route reference used in the Vehicle Trip Distribution.

Fore Consulting Limited
Suite 18, City Quadrant
11 Waterloo Square
Newcastle upon Tyne
NE1 4DP
0191 255 7778
enquiries@foreconsulting.co.uk
www.foreconsulting.co.uk

Client:
Equites Newlands (Goldthorpe) Ltd

Project:
Land South of Dearne Valley Parkway, Goldthorpe

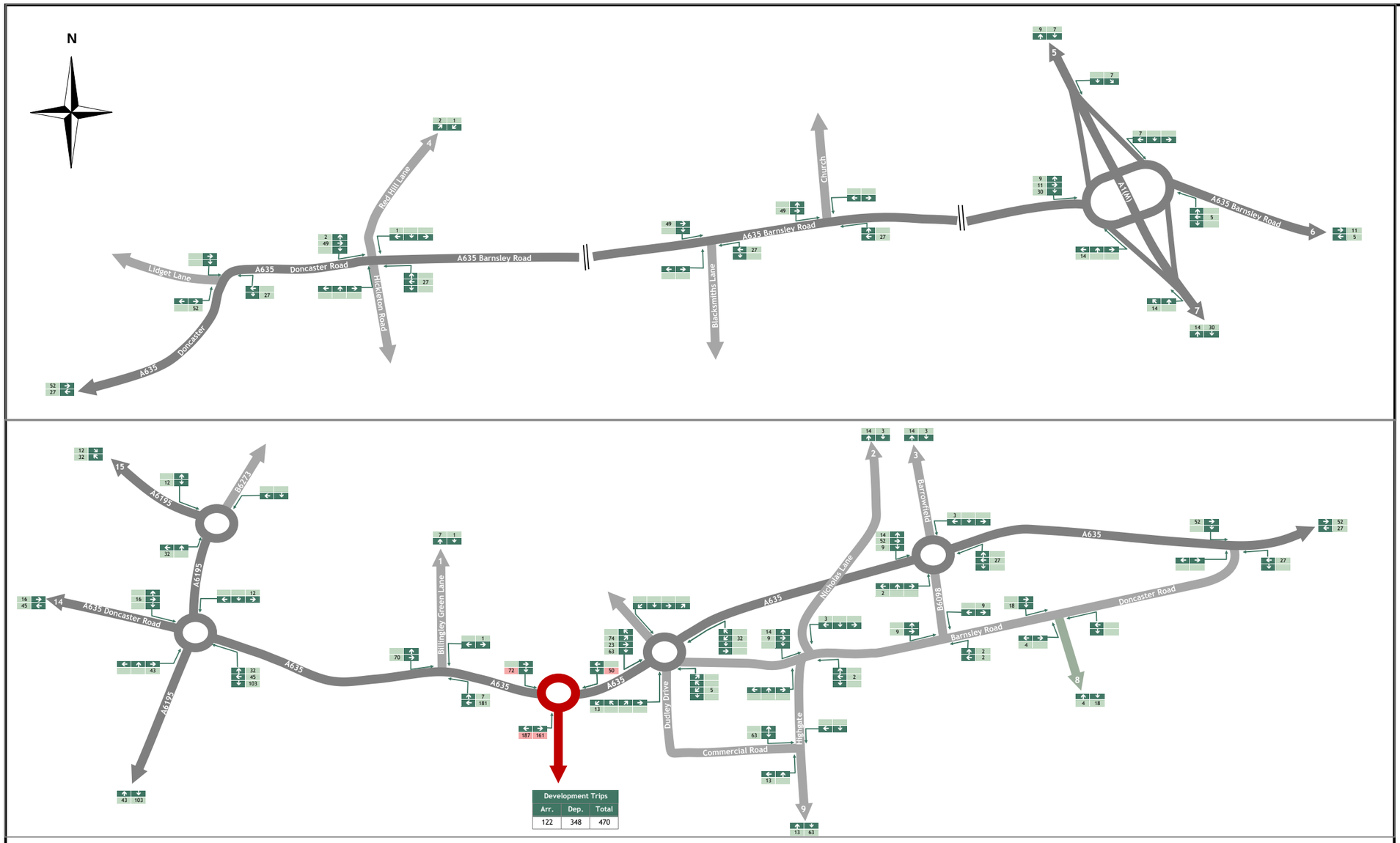
Figure Title:
Total Vehicle Traffic Flows - Weekday AM Peak Hour

Scale:
Not to scale

Figure Status:
Issue

Job Number:
3465

Figure Number:
Figure 11



Development Trips		
Arr.	Dep.	Total
122	348	470

Ref.	Route	Arr.	Dep.	Total
1	Billingley Green Lane	1	7	8
2	Nicholas Lane	3	14	17
3	Barrowfield Road	3	14	17
4	Red Hill Lane	1	2	3
5	A1(M) (North)	7	9	16
6	A635 Barnsley Road	5	11	16
7	A1(M) (South)	14	30	45
8	Barnsley Road	4	18	22
9	Highgate Lane	13	63	77
10	A633 Manvers Way	4	8	11
11	B6273 Pontefract Road	7	36	43
12	A633 Wath Road	5	11	16
13	A6195 Dearne Valley Parkway	27	49	75
14	A635 Doncaster Road	16	45	61
15	A6195 Park Spring Road	12	32	44
	Total	122	348	470

Key:

- Primary Road
- Secondary Road
- Traffic movements not explicitly represented in the network diagram (e.g. minor roads)
- Proposed Site Access

Note: The number in each arrowhead relates to the route reference used in the Vehicle Trip Distribution.

Fore Consulting Limited
Suite 18, City Quadrant
11 Waterloo Square
Newcastle upon Tyne
NE1 4DP
0191 255 7778
enquiries@foreconsulting.co.uk
www.foreconsulting.co.uk

Client:
Equites Newlands (Goldthorpe) Ltd

Project:
Land South of Dearne Valley Parkway, Goldthorpe

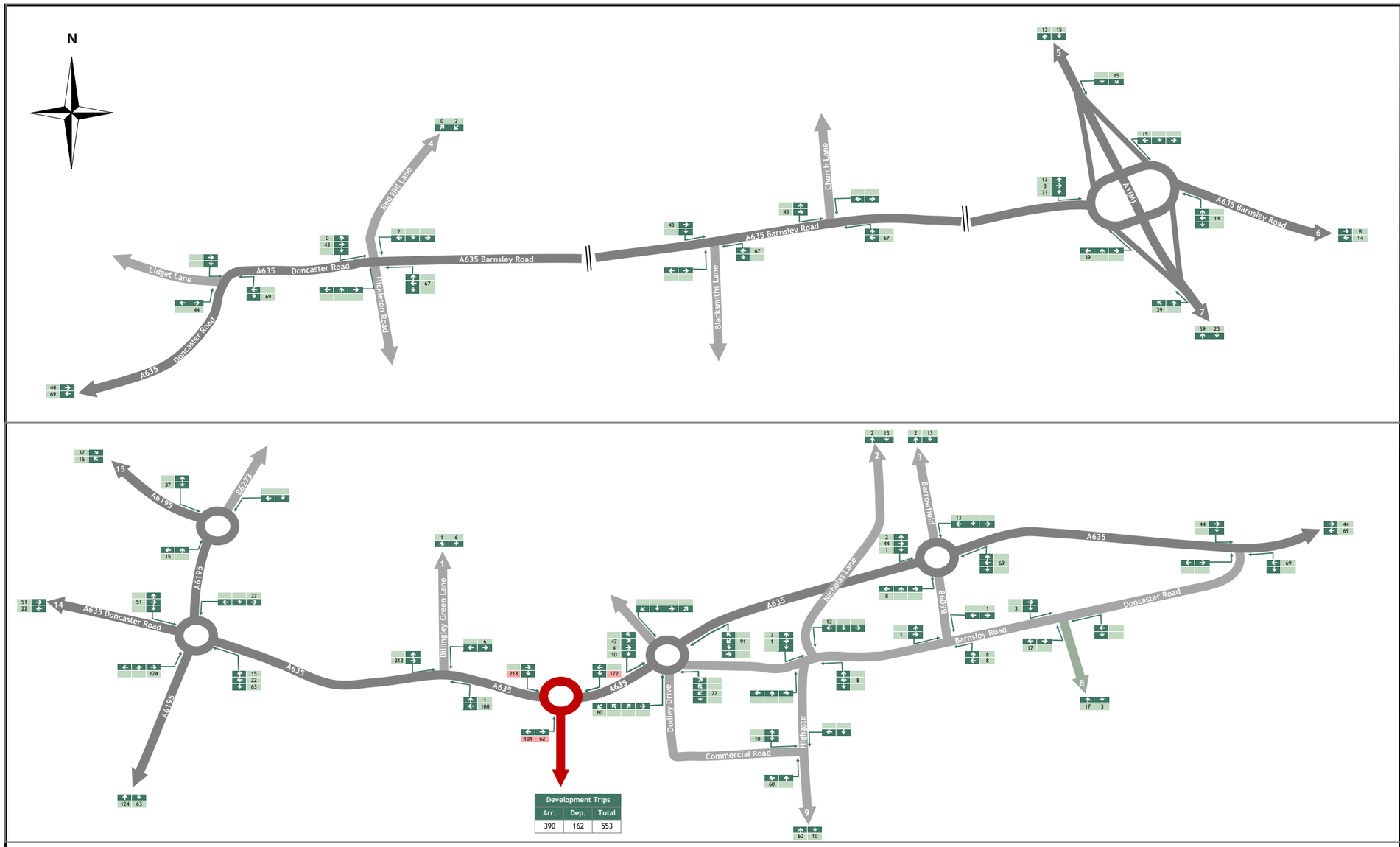
Figure Title:
Total Vehicle Traffic Flows – Weekday PM Peak Hour

Scale:
Not to scale

Figure Status:
Issue

Job Number:
3465

Figure Number:
Figure 12



Ref.	Route	Arr.	Dep.	Total
1	Billingley Green Lane	6	1	8
2	Nicholas Lane	13	2	15
3	Barrowfield Road	13	2	15
4	Red Hill Lane	2	0	3
5	A1(M) (North)	15	13	27
6	A635 Barnsley Road	14	8	22
7	A1(M) (South)	39	23	61
8	Barnsley Road	17	3	20
9	Highgate Lane	60	10	70
10	A633 Manvers Way	10	6	16
11	B6273 Pontefract Road	34	6	40
12	A633 Wath Road	13	7	20
13	A6195 Dearne Valley Parkway	67	44	110
14	A635 Doncaster Road	51	22	73
15	A6195 Park Spring Road	37	15	52
	Total	390	162	553

Key:

- Primary Road
- Secondary Road
- Traffic movements not explicitly represented in the network diagram (e.g. minor roads)
- Proposed Site Access

Note: The number in each arrowhead relates to the route reference used in the Vehicle Trip Distribution.

Fore Consulting Limited
Suite 18, City Quadrant
11 Waterloo Square
Newcastle upon Tyne
NE1 4DP
0191 255 7778
enquiries@foreconsulting.co.uk
www.foreconsulting.co.uk

Client:
Equites Newlands (Goldthorpe) Ltd

Project:
Land South of Dearne Valley Parkway, Goldthorpe

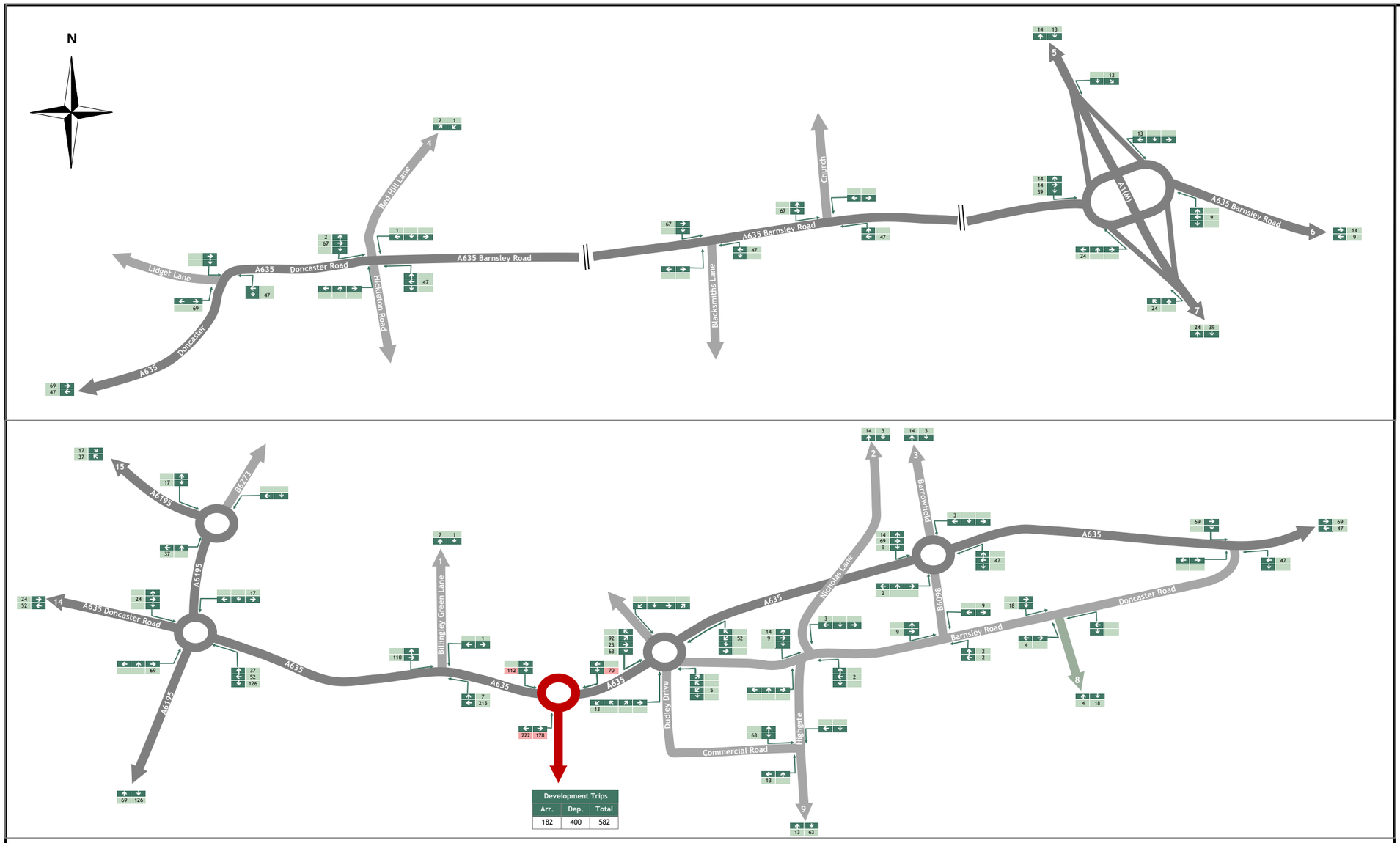
Figure Title:
PCU Traffic Flows - Weekday AM Peak Hour

Scale:
Not to scale

Figure Status:
Issue

Job Number:
3465

Figure Number:
Figure 13



Ref.	Route	Arr.	Dep.	Total
1	Billingley Green Lane	1	7	8
2	Nicholas Lane	3	14	17
3	Barrowfield Road	3	14	17
4	Red Hill Lane	1	2	3
5	A1(M) (North)	13	14	27
6	A635 Barnsley Road	9	14	23
7	A1(M) (South)	24	39	63
8	Barnsley Road	4	18	22
9	Highgate Lane	13	63	77
10	A633 Manvers Way	7	10	17
11	B6273 Pontefract Road	7	36	43
12	A633 Wath Road	8	14	21
13	A6195 Dearne Valley Parkway	47	66	113
14	A635 Doncaster Road	24	52	76
15	A6195 Park Spring Road	17	37	55
	Total	182	400	582

Key:

- Primary Road
- Secondary Road
- Traffic movements not explicitly represented in the network diagram (e.g. minor roads)
- Proposed Site Access

Note: The number in each arrowhead relates to the route reference used in the Vehicle Trip Distribution.

Fore Consulting Limited
Suite 18, City Quadrant
11 Waterloo Square
Newcastle upon Tyne
NE1 4DP
0191 255 7778
enquiries@foreconsulting.co.uk
www.foreconsulting.co.uk

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Equites Newlands (Goldthorpe) Ltd

Project:
Land South of Dearne Valley Parkway, Goldthorpe

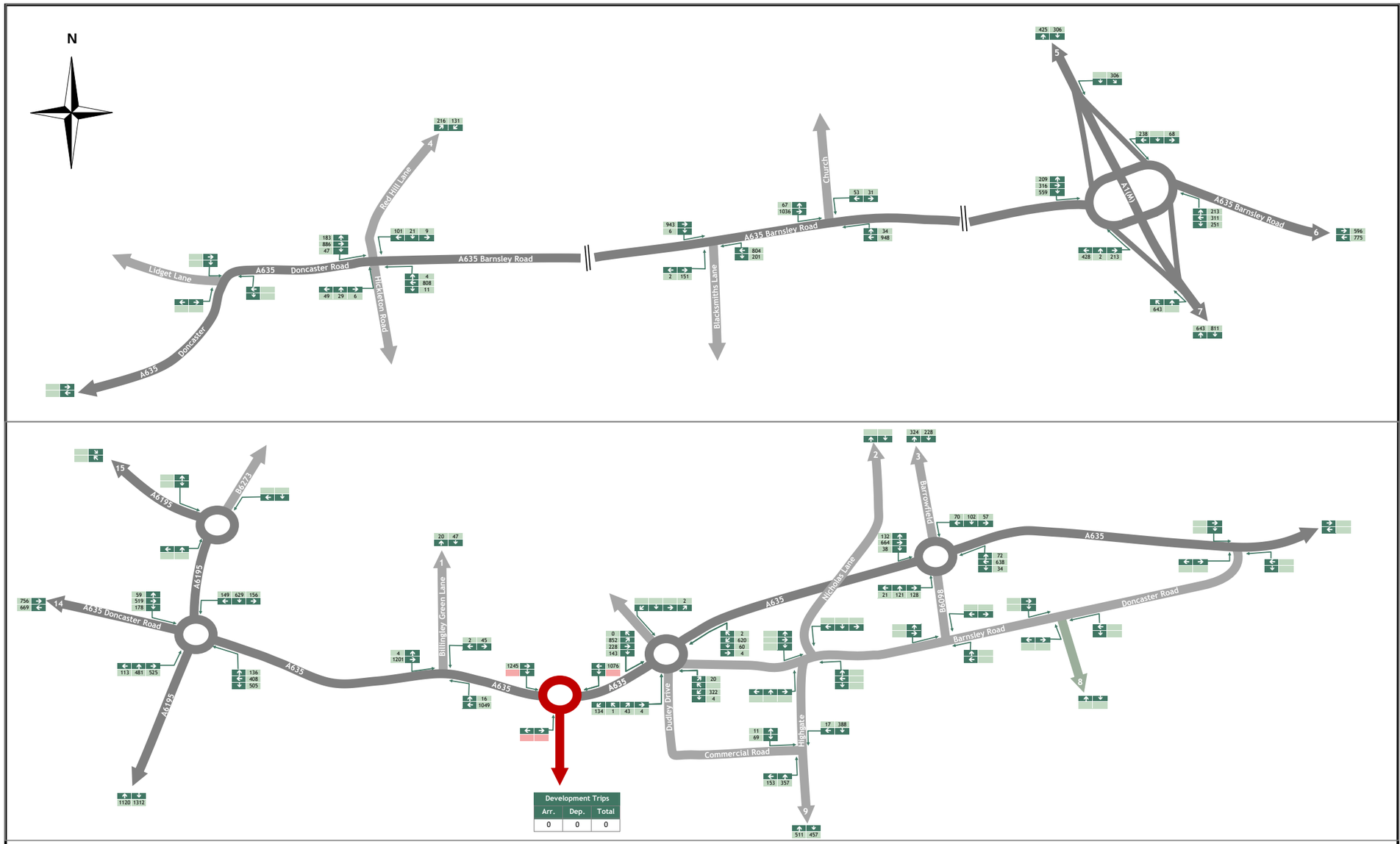
Figure Title:
PCU Traffic Flows – Weekday PM Peak Hour

Scale:
Not to scale

Figure Status:
Issue

Job Number:
3465

Figure Number:
Figure 14



Key:

- Primary Road
- Secondary Road
- Traffic movements not explicitly represented in the network diagram (e.g. minor roads)
- Proposed Site Access

Note: The number in each arrowhead relates to the route reference used in the Vehicle Trip Distribution.

Fore Consulting Limited
Suite 18, City Quadrant
11 Waterloo Square
Newcastle upon Tyne
NE1 4DP
0191 255 7778
enquiries@foreconsulting.co.uk
www.foreconsulting.co.uk

Client:
Equites Newlands (Goldthorpe) Ltd

Project:
Land South of Dearne Valley Parkway, Goldthorpe

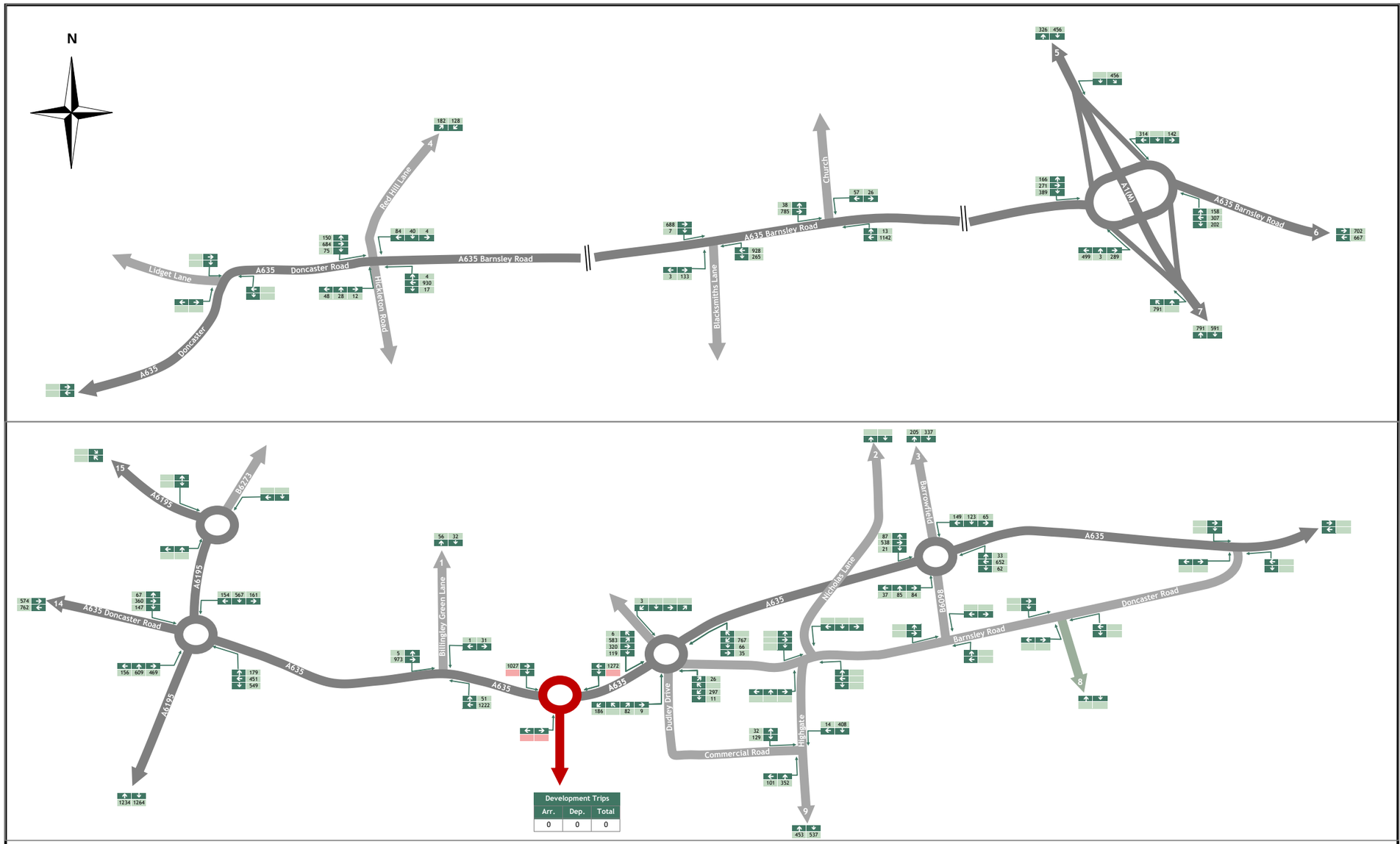
Figure Title:
2022 Base Traffic Flows - Weekday AM Peak Hour

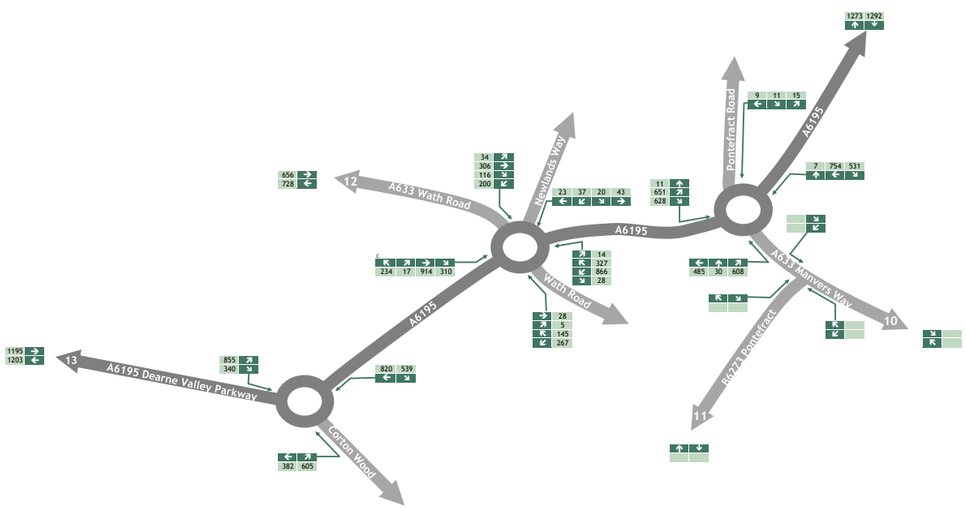
Scale:
Not to scale

Figure Status:
Issue

Job Number:
3465

Figure Number:
Figure 15





Key:

- Primary Road
- Secondary Road
- Traffic movements not explicitly represented in the network diagram (e.g. minor roads)
- Proposed Site Access

Note: The number in each arrowhead relates to the route reference used in the Vehicle Trip Distribution.

Fore Consulting Limited
Suite 18, City Quadrant
11 Waterloo Square
Newcastle upon Tyne
NE1 4DP
0191 255 7778
enquiries@foreconsulting.co.uk
www.foreconsulting.co.uk

Client:
Equites Newlands (Goldthorpe) Ltd

Project:
Land South of Dearne Valley Parkway, Goldthorpe

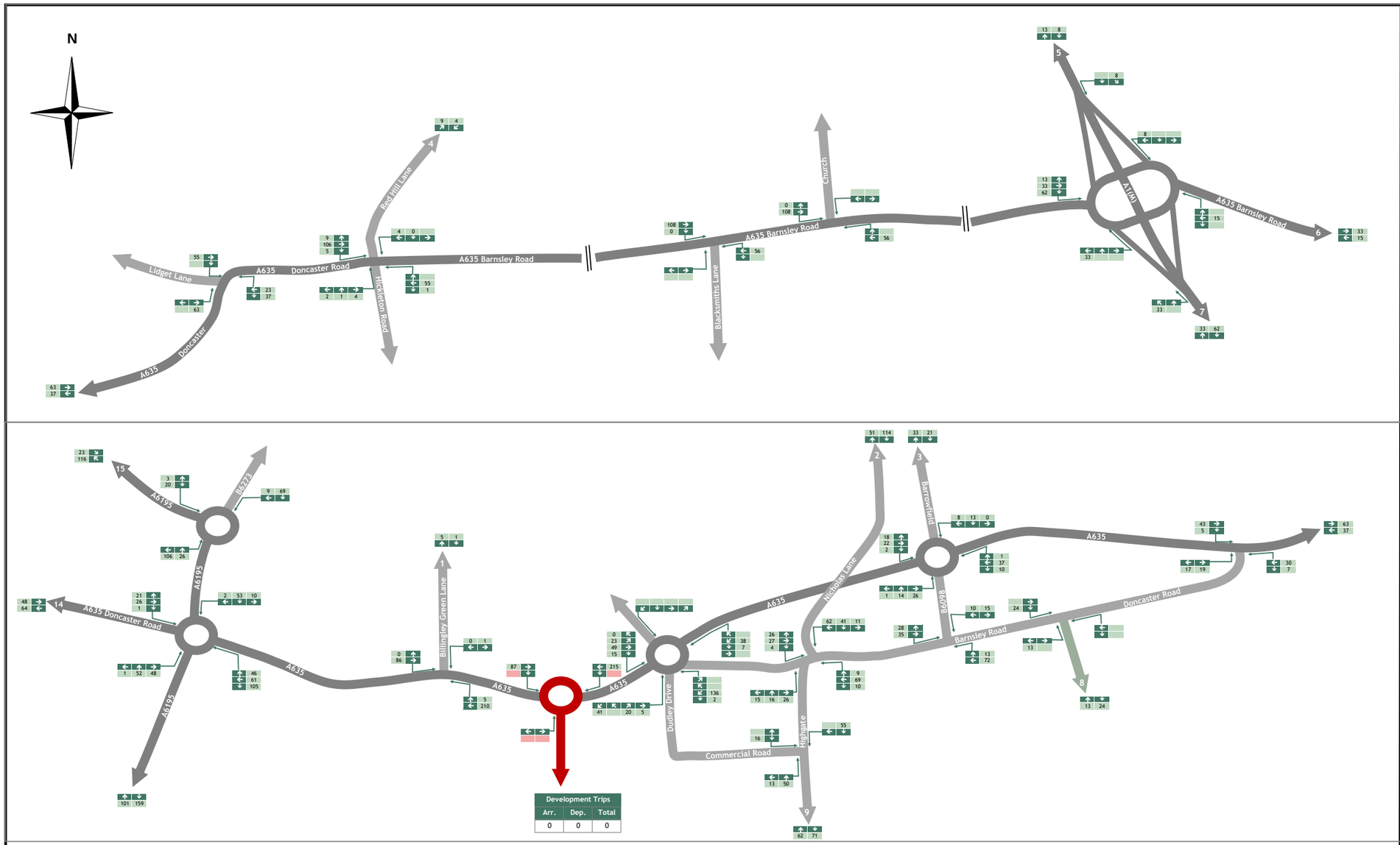
Figure Title:
2022 Base Traffic Flows - Weekday PM Peak Hour

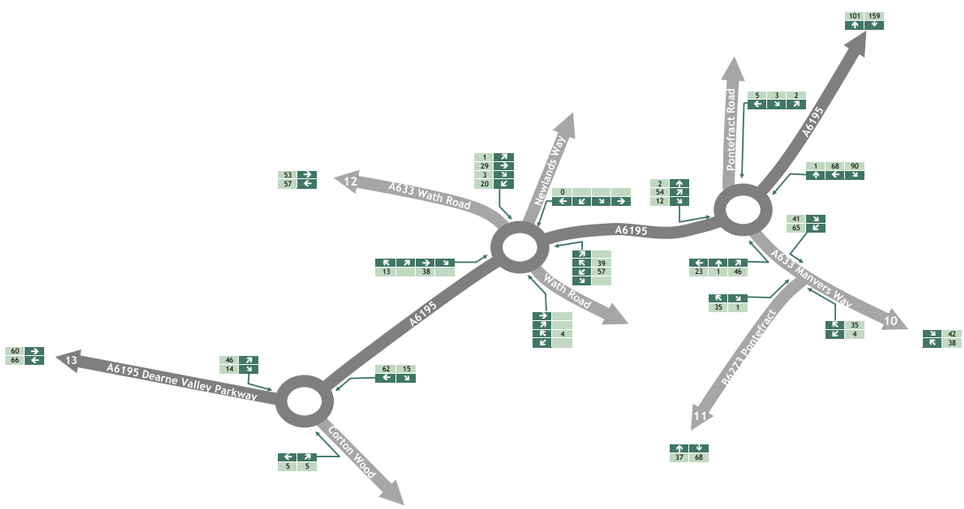
Scale:
Not to scale

Figure Status:
Issue

Job Number:
3465

Figure Number:
Figure 16





Ref.	Route	Arr.	Dep.	Total
1	Billingley Green Lane	1	5	6
2	Nicholas Lane	114	51	165
3	Barrowfield Road	21	33	54
4	Red Hill Lane	4	9	14
5	A1(M) (North)	8	13	21
6	A635 Barnsley Road	15	33	48
7	A1(M) (South)	33	62	94
8	Barnsley Road	13	24	36
9	Highgate Lane	62	71	133
10	A633 Manvers Way	38	42	81
11	B6273 Pontefract Road	37	68	105
12	A633 Wath Road	53	57	110
13	A6195 Dearne Valley Parkway	60	66	126
14	A635 Doncaster Road	48	64	111
15	A6195 Park Spring Road	23	116	138
	Total	531	714	1245

Key:

- Primary Road
- Secondary Road
- Traffic movements not explicitly represented in the network diagram (e.g. minor roads)
- Proposed Site Access

Note: The number in each arrowhead relates to the route reference used in the Vehicle Trip Distribution.

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Suite 18, City Quadrant
11 Waterloo Square
Newcastle upon Tyne
NE1 4DP
0191 255 7778
enquiries@foreconsulting.co.uk
www.foreconsulting.co.uk

Client:
Equites Newlands (Goldthorpe) Ltd

Project:
Land South of Dearne Valley Parkway, Goldthorpe

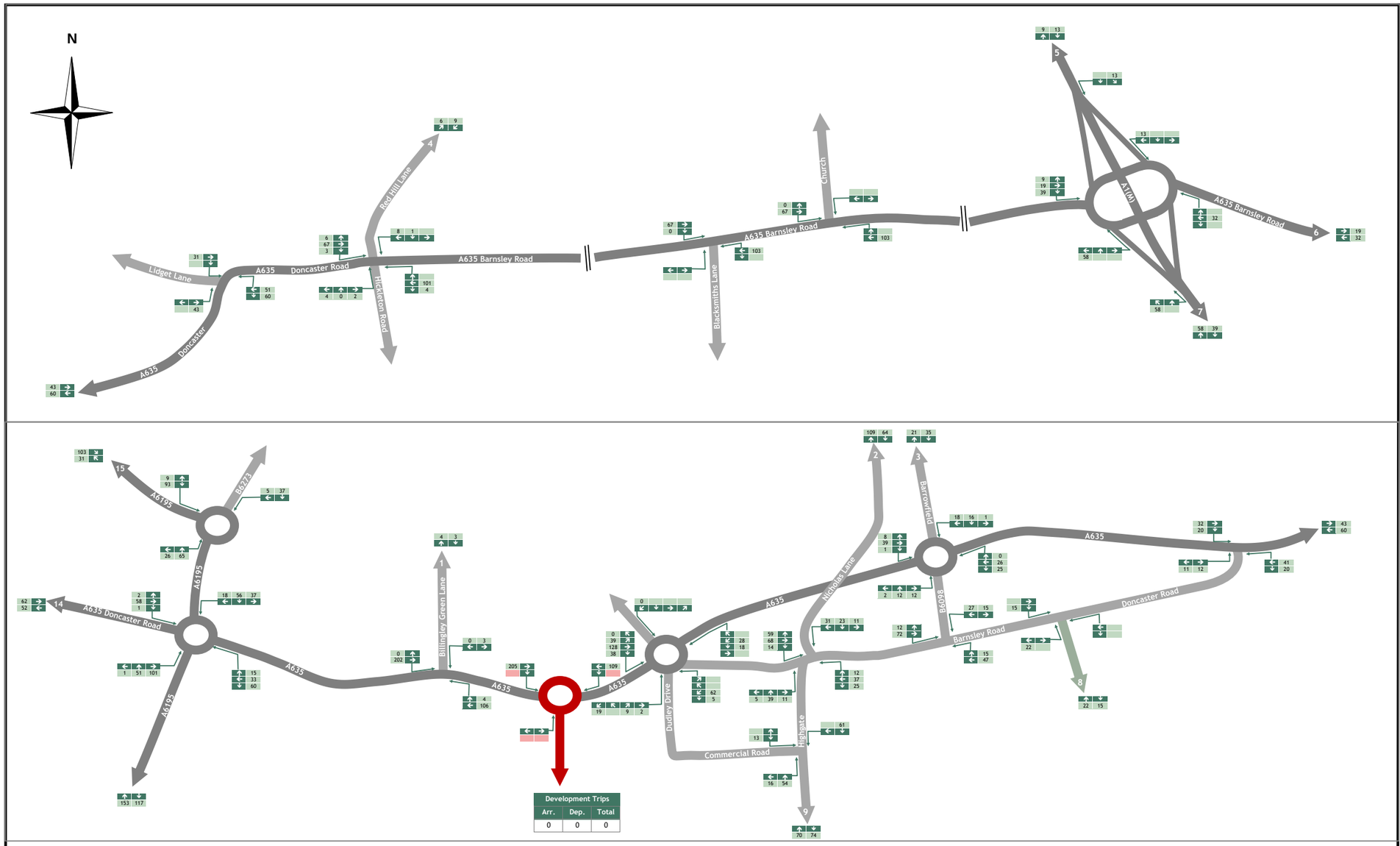
Figure Title:
Committed/Allocated Development Traffic Flows - Weekday AM Peak Hour

Scale:
Not to scale

Figure Status:
Issue

Job Number:
3465

Figure Number:
Figure 17



Ref.	Route	Arr.	Dep.	Total
1	Billingley Green Lane	3	4	7
2	Nicholas Lane	64	109	174
3	Barrowfield Road	35	21	56
4	Red Hill Lane	9	6	15
5	A1(M) (North)	13	9	22
6	A635 Barnsley Road	32	19	51
7	A1(M) (South)	58	39	97
8	Barnsley Road	22	15	38
9	Highgate Lane	70	74	144
10	A633 Manvers Way	41	42	83
11	B6273 Pontefract Road	64	44	108
12	A633 Wath Road	66	59	126
13	A6195 Dearne Valley Parkway	71	70	141
14	A635 Doncaster Road	62	52	114
15	A6195 Park Spring Road	103	31	133
	Total	712	596	1308

Key:

- Primary Road
- Secondary Road
- Traffic movements not explicitly represented in the network diagram (e.g. minor roads)
- Proposed Site Access

Note: The number in each arrowhead relates to the route reference used in the Vehicle Trip Distribution.

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Suite 18, City Quadrant
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Newcastle upon Tyne
NE1 4DP
0191 255 7778
enquiries@foreconsulting.co.uk
www.foreconsulting.co.uk

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Project:
Land South of Dearne Valley Parkway, Goldthorpe

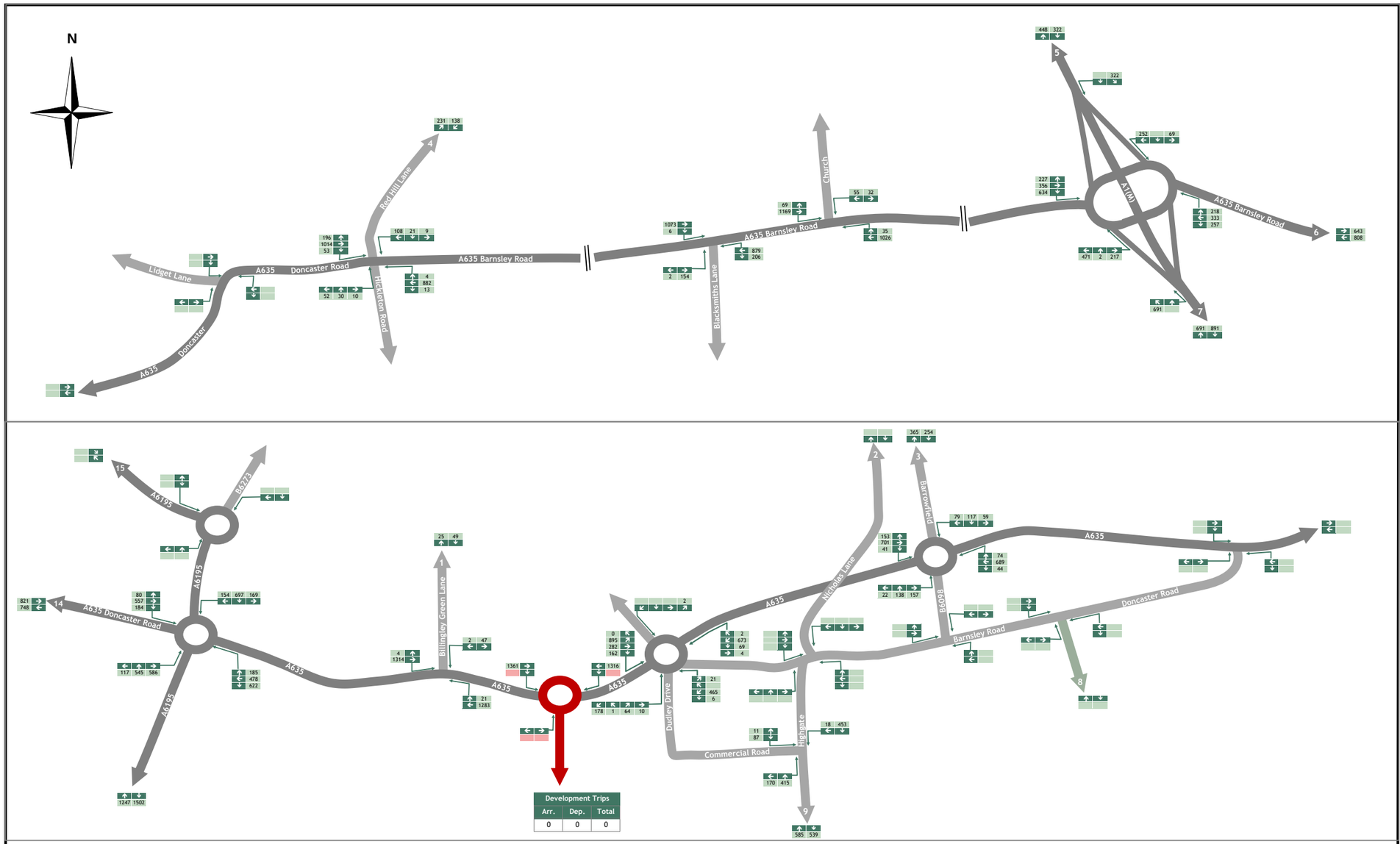
Figure Title:
Committed/Allocated Development Traffic Flows - Weekday PM Peak Hour

Scale:
Not to scale

Figure Status:
Issue

Job Number:
3465

Figure Number:
Figure 18



Key:

- Primary Road
- Secondary Road
- Traffic movements not explicitly represented in the network diagram (e.g. minor roads)
- Proposed Site Access

Note: The number in each arrowhead relates to the route reference used in the Vehicle Trip Distribution.

Fore Consulting Limited
Suite 18, City Quadrant
11 Waterloo Square
Newcastle upon Tyne
NE1 4DP
0191 255 7778
enquiries@foreconsulting.co.uk
www.foreconsulting.co.uk

Client:
Equites Newlands (Goldthorpe) Ltd

Project:
Land South of Dearne Valley Parkway, Goldthorpe

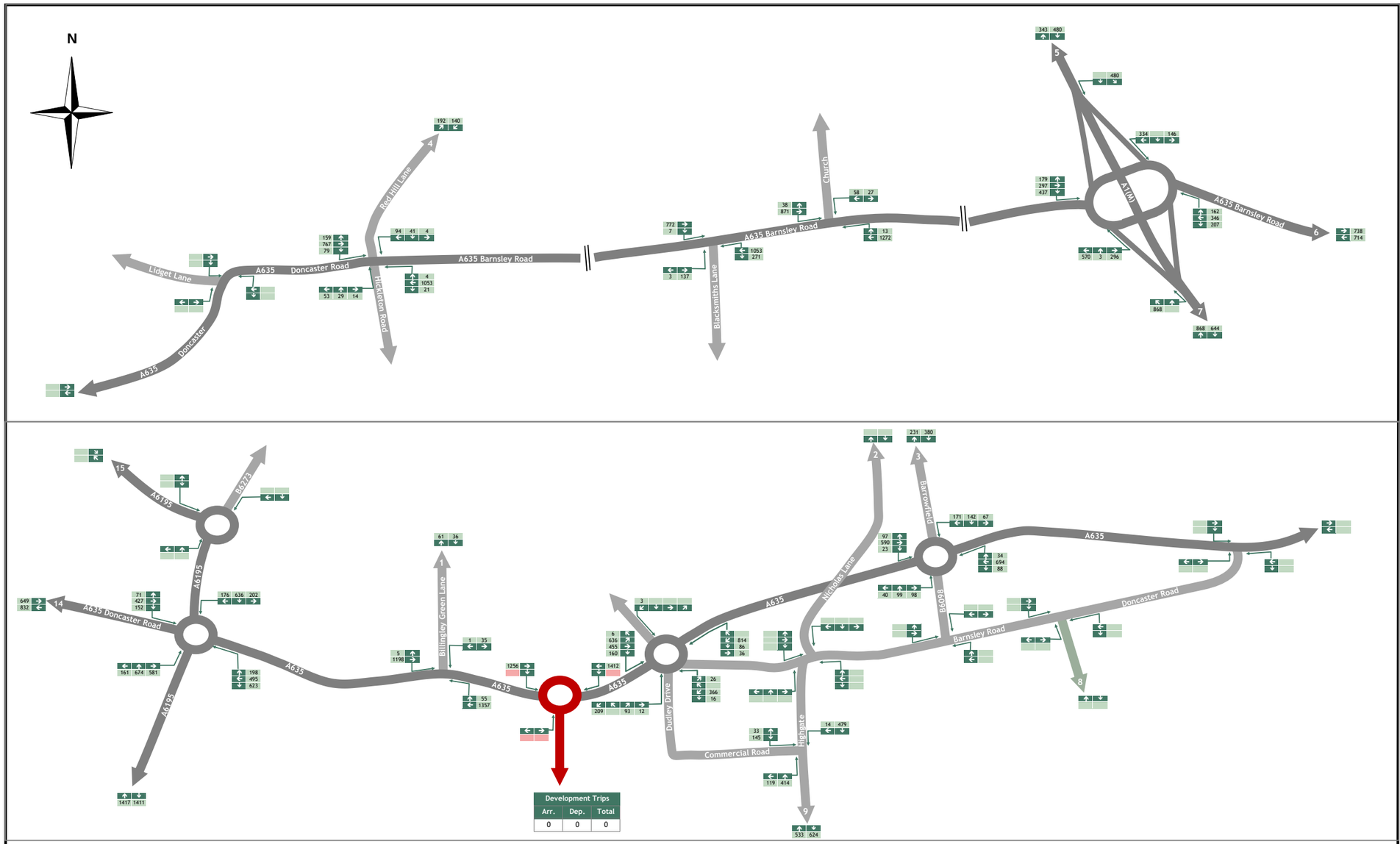
Figure Title:
2028 Do Minimum Traffic Flows - Weekday AM Peak Hour

Scale:
Not to scale

Figure Status:
Issue

Job Number:
3465

Figure Number:
Figure 19



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Client:
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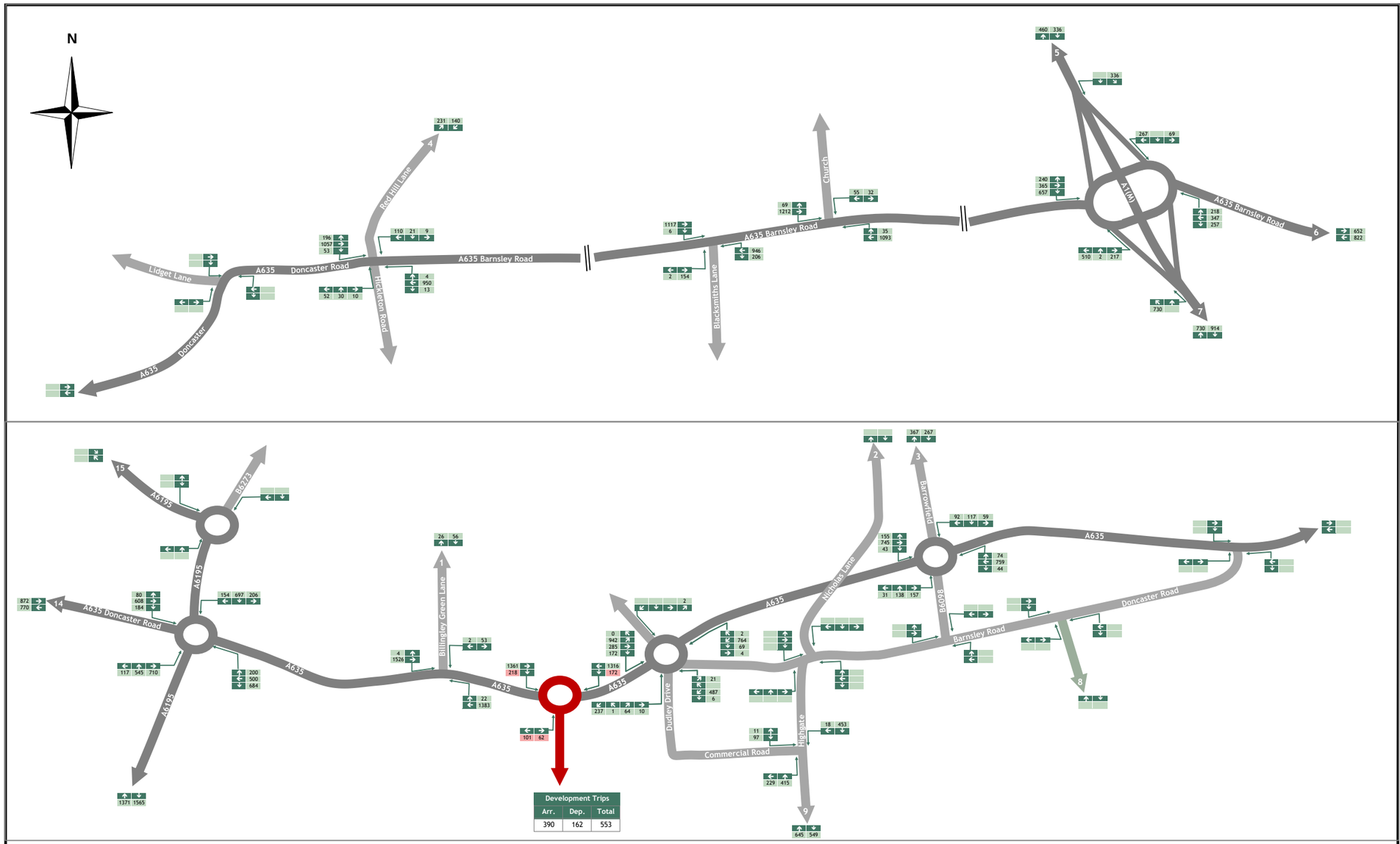
Figure Title:
2028 Do Minimum Traffic Flows - Weekday PM Peak Hour

Scale:
Not to scale

Figure Status:
Issue

Job Number:
3465

Figure Number:
Figure 20



Key:

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- Secondary Road
- Traffic movements not explicitly represented in the network diagram (e.g. minor roads)
- Proposed Site Access

Note: The number in each arrowhead relates to the route reference used in the Vehicle Trip Distribution.

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Client:
Equites Newlands (Goldthorpe) Ltd

Project:
Land South of Dearne Valley Parkway, Goldthorpe

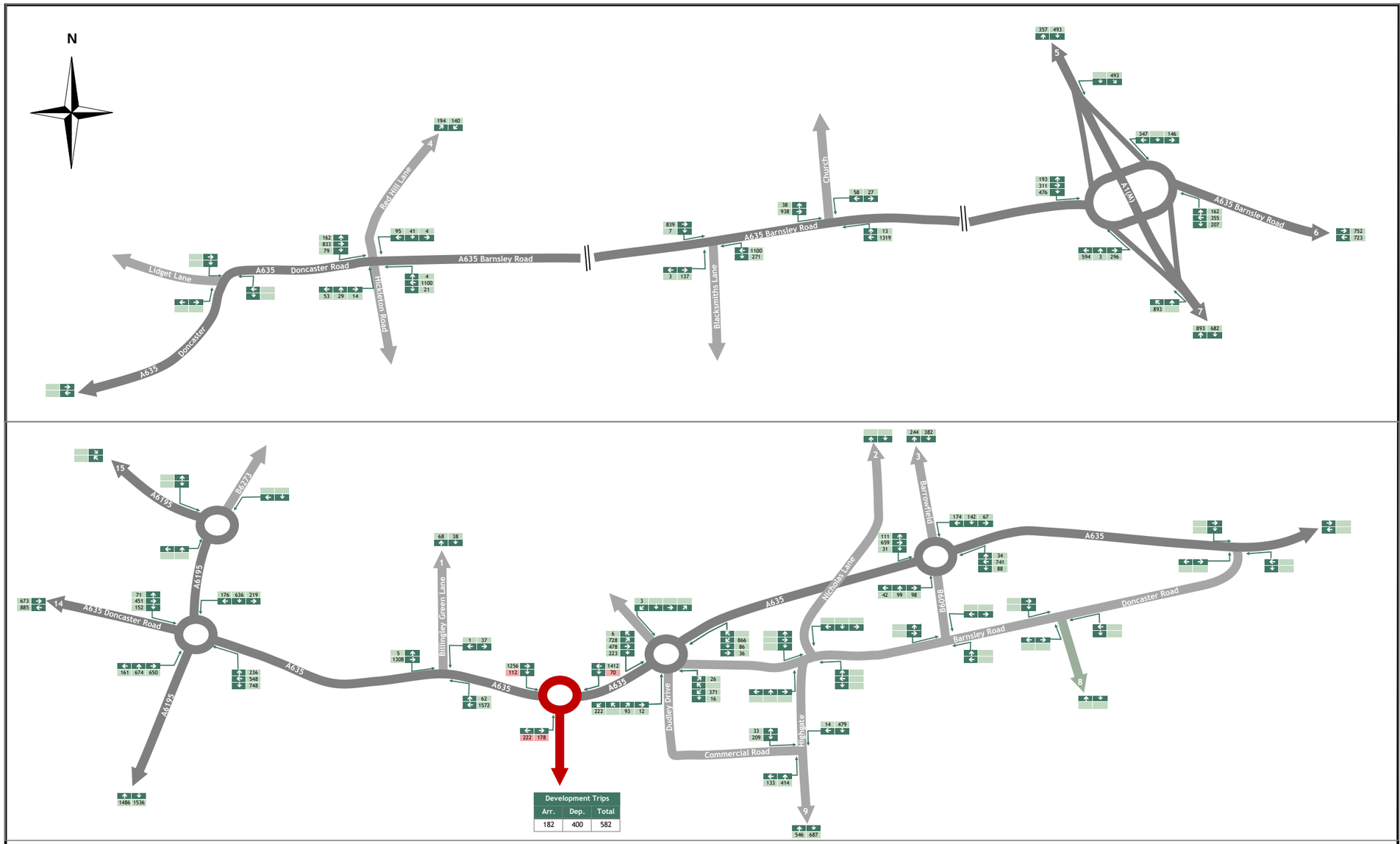
Figure Title:
2028 With Development Traffic Flows - Weekday AM Peak Hour

Scale:
Not to scale

Figure Status:
Issue

Job Number:
3465

Figure Number:
Figure 21



Key:

- Primary Road
- Secondary Road
- Traffic movements not explicitly represented in the network diagram (e.g. minor roads)
- Proposed Site Access

Note: The number in each arrowhead relates to the route reference used in the Vehicle Trip Distribution.

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Client:
Equites Newlands (Goldthorpe) Ltd

Project:
Land South of Dearne Valley Parkway, Goldthorpe

Figure Title:
2028 With Development Traffic Flows - Weekday PM Peak Hour

Scale:
Not to scale

Figure Status:
Issue

Job Number:
3465

Figure Number:
Figure 22

Appendix A

Parameters and Phasing Plans

- Dimensions are in millimeters, unless stated otherwise.
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N

Key

Planning Application Boundary — 210.81 ac — 85.31 ha

Parameters Key

- Development Plot Boundary
- Green and Blue infrastructure
- Strategic Landscape screening
- Estate Road infrastructure
- Indicative access points (subject to reserved matters)
- Safeguarded land

Roundabout delivered under a separate planning application [Ref. No. 2021/1511]

Flood Compensation Area

Flood Compensation Area

Plot 1

Plot 2

Plot 3

Plot 4

Hollygrove Roundabout

A635 Barnsley Road

Dudley Drive

Rose Valley

Woodbine Cottage

Billingley Green

Aldi Goldthorpe RDC

Heather Garth Primary School

Lacewood Primary School

Carr Head Lane

Carr Dike

Dike

50m SCALE 1:2500

Development Schedule

Zone	Plot Size NDA (ha)	Maximum GIA Floor Space (m^2)	Plateau Height(in meters above ordnance datum)	Maximum Finished Floor Level (in meters above ordnance datum) [+1.000m above proposed plateau]	Maximum Building Height Measured to roof ridge / highest point (in meters above ordnance datum)	Ridge Height (above F.F.L. level)
Zone 1	11.35	**204,000m²** Total Area distributed across Zones 1,2, 3 & 4	24.50	25.50	43.50	18.00
Zone 2	8.46		25.00	26.00	44.00	18.00
Zone 3	17.92		33.70	34.70	52.70	18.00
Zone 4	6.29		33.70	34.70	52.70	18.00
Total	44.02					

The use class applied for is primarily Class B8 with up to 30% of the floorspace being for Class B2 together with ancillary office space

For the avoidance of doubt, the information shown within the development plots is indicative only, and will be subject to subsequent Reserved Matters Applications

PLANNING

THIS DRAWING IS FOR PLANNING CONSIDERATION ONLY AND SHOULD NOT BE USED FOR ANY OTHER PURPOSE

rev	amendments	by	ckd	date

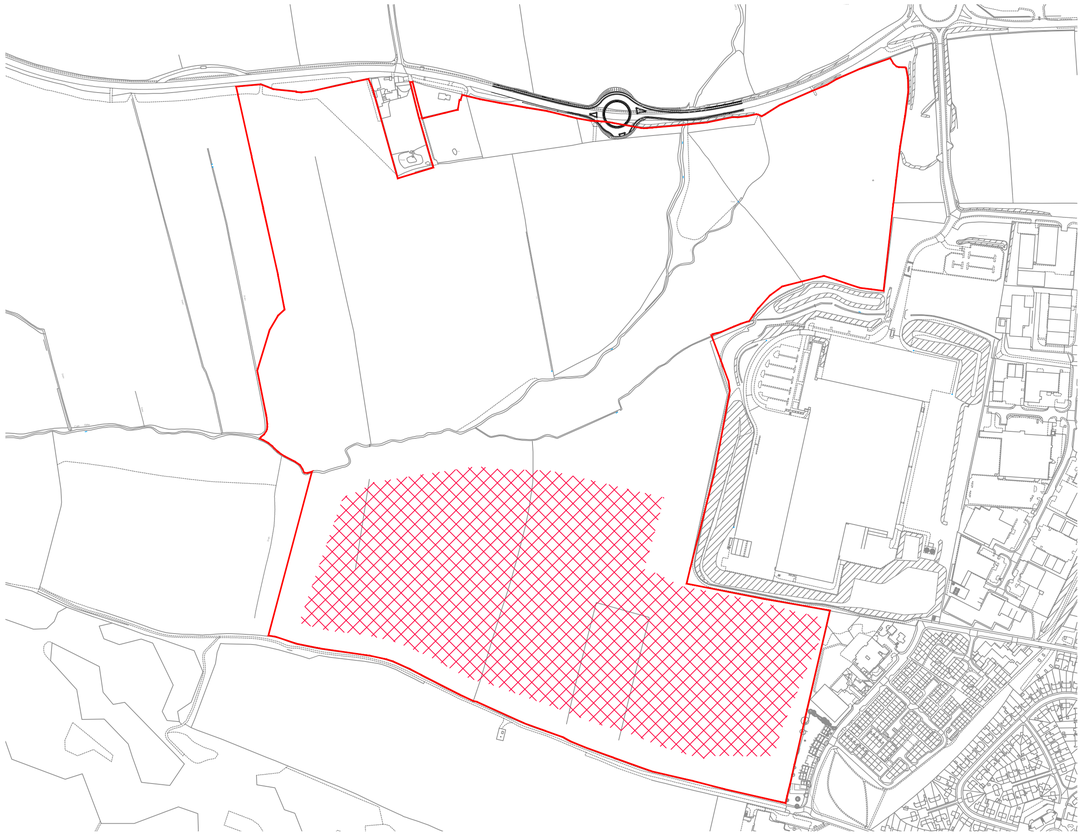
Barnsley Road, Goldthorpe

Parameters Plan

newlands developments

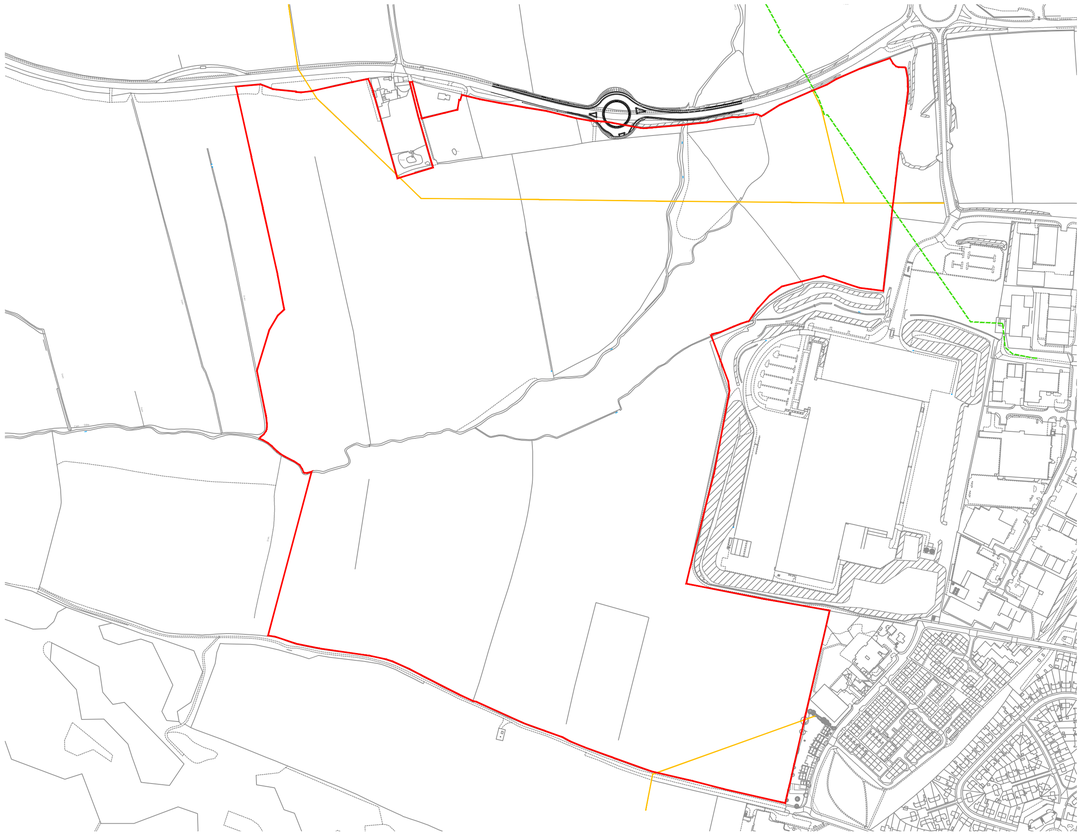
umc architects
Newark Beacon, Cafferata Way, Newark, Nottinghamshire NG24 2TN
o. +44 (0)1636 653027 e. info@umcarchitects.com

Drawing Status:	Planning
Drawn / Checked:	SS / SM
Date:	07/11/2023
Scale:	1:2500 A1
Drawing no:	22081 P0520
Revision:	E

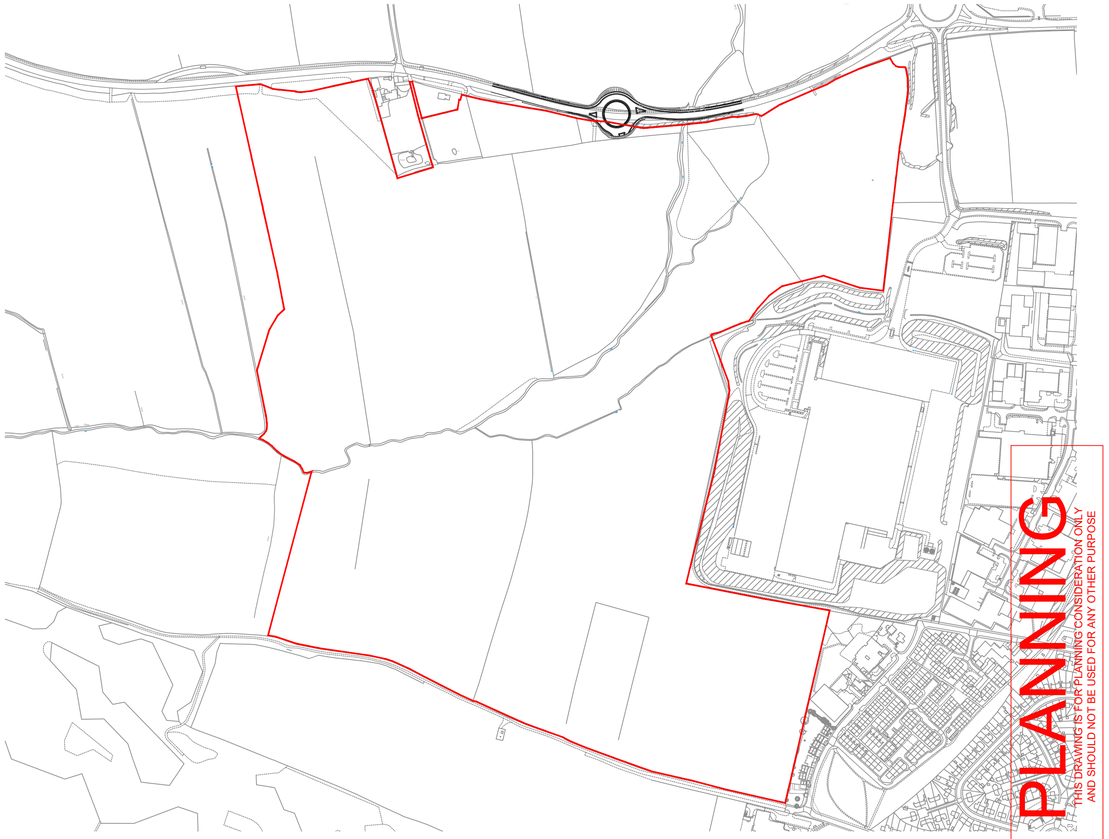


PHASE 1 - Archaeology (Extent to be agreed)

PHASE 3 - Earthworks (Plateaus to be Created)



PHASE 2 - Site Clearance & Utilities Diversion



PHASE 4 - Screen Bunding

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N

Key

Planning Application Boundary	210.81 ac	85.31 ha
Phase 1: Areas of Archaeological Works		
Phase 2: Site Clearance		
Phase 2: Existing YW Public Sewer Removed		
Phase 2: Existing Overhead Power-lines Diverted		
Phase 3: Earthworks to Form Plateaus		
Phase 3: Attenuation		
Phase 4: Screening Bund		
Phase 5: Site Roads with Combined Cycle & Footway		
Phase 5: Site Drainage		
Phase 5: Existing PRoW Retrained		
Phase 5: Existing PRoW Diverted		
Phase 5: Existing PRoW Removed		
Phase 5: Potential footpath link created		
Phase 6: Strategic Landscaping		
Phase 7: Future Reserved Matters		

For the avoidance of doubt, the information shown within the development plots is indicative only, and will be subject to subsequent Reserved Matters Applications

The Phasing Plan shows the key stages of the primary components for development of the site.
The various stages will run consecutively and, at times, concurrently with each other to ensure that the development is constructed/delivered in the most sustainable sequence to archive the constriction programme.

100m SCALE 1:5000

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Barnsley Road, Goldthorpe

Phasing Plan 1 of 2

newlands developments

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Newark Beacon, Cafferata Way, Newark, Nottinghamshire NG24 2TN
o. +44 (0)1636 653027 e. info@umcarchitects.com

Drawing Status:	Planning
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Date:	07/11/2023
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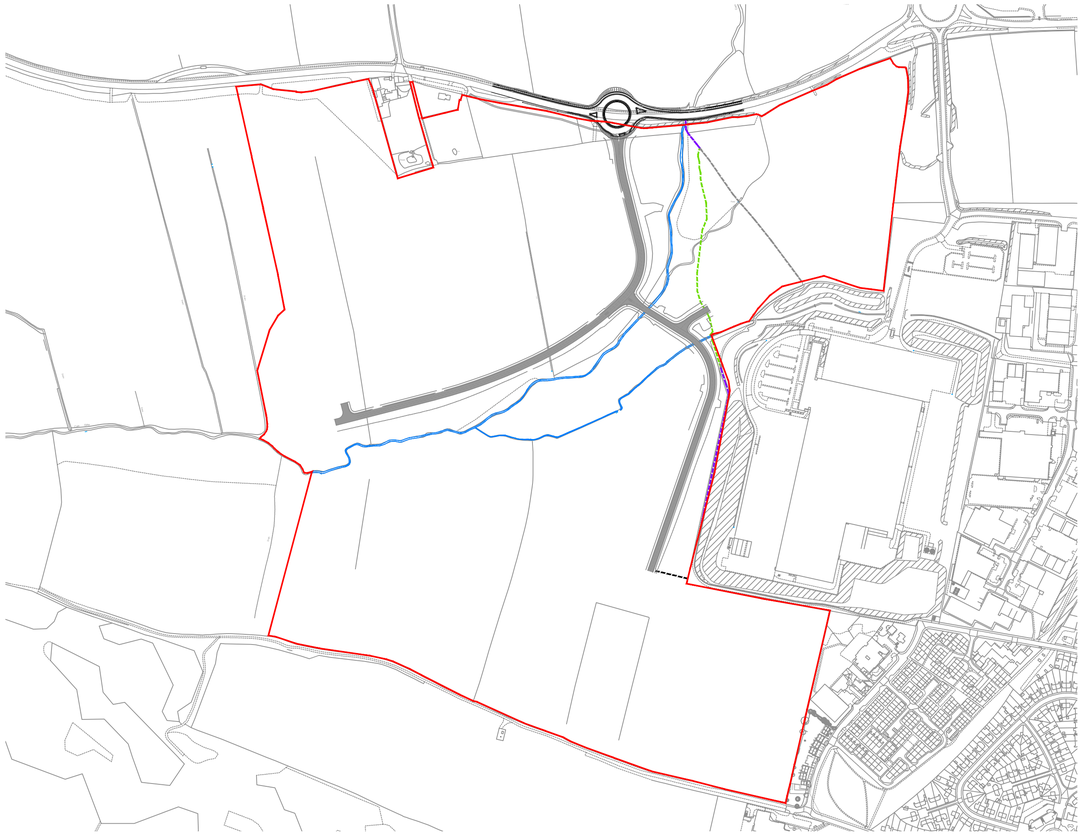
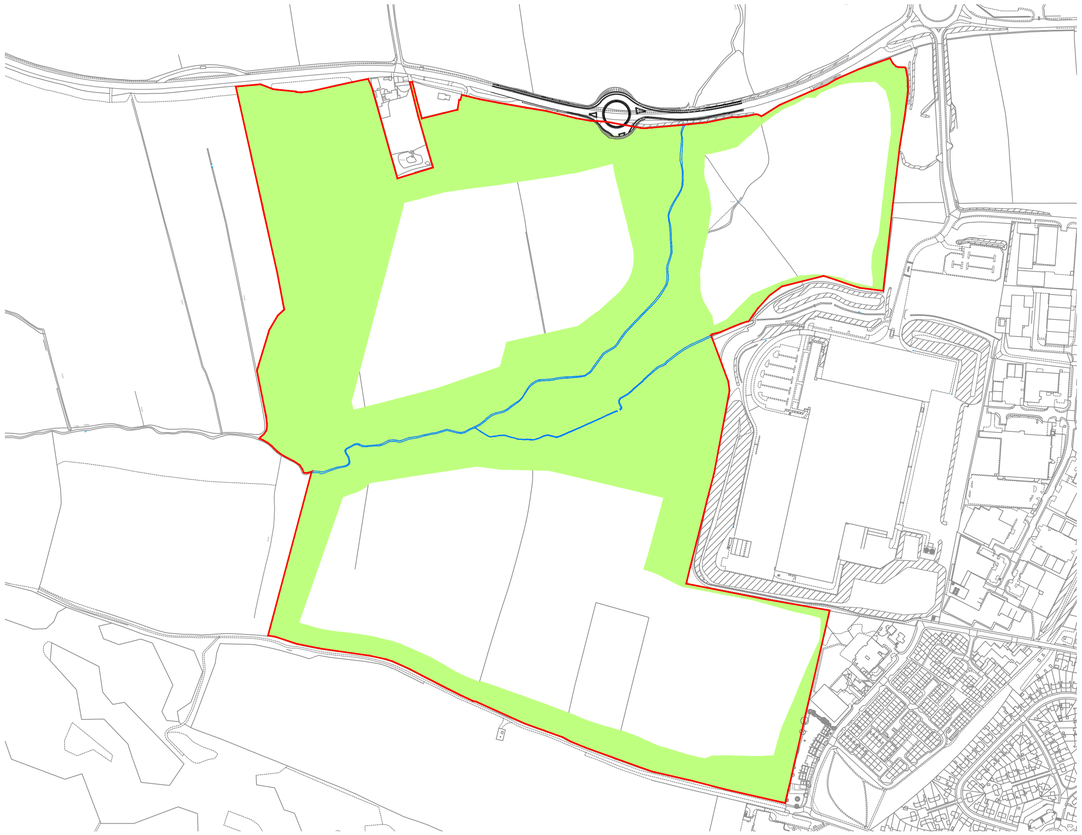
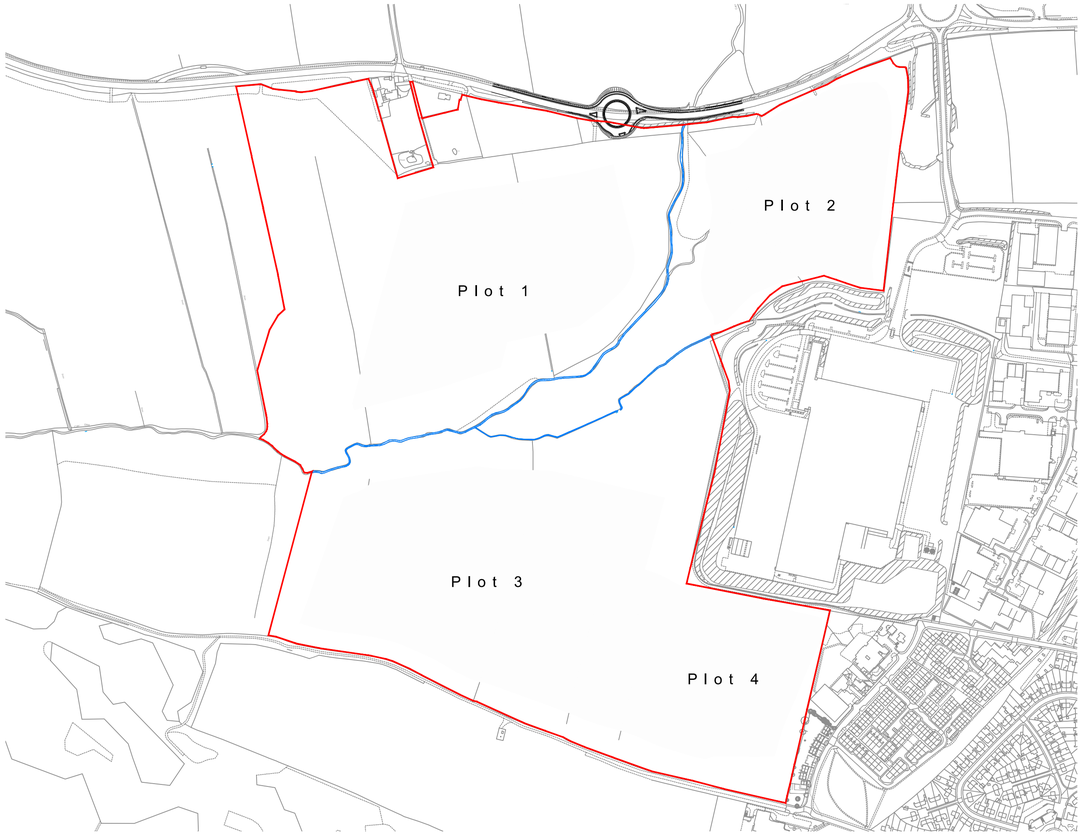
Drawing no:	Revision:
22081 P0550	B



PHASE 5 - Onsite Roads & PRoW Diversion



PHASE 6 - Landscaping (To Perimeter of Site)



PHASE 7 - Build-Out Plots

This phase will be updated in response to market demand which will dictate the number and size of future plot Future Development Area. Information will be submitted in respect of each of the Plots where required through plot-specific planning conditions. Each plot will be separate, self contained, and severable.

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N

Key

- Planning Application Boundary — 210.81 ac — 85.31 ha
- Phase 1: Areas of Archaeological Works
- Phase 2: Site Clearance
- Phase 2: Existing YW Public Sewer Removed
- Phase 2: Existing Overhead Power-lines Diverted
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- Phase 3: Attenuation
- Phase 4: Screening Bund
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- Phase 5: Existing PRoW Retrained
- Phase 5: Existing PRoW Diverted
- Phase 5: Existing PRoW Removed
- Phase 5: Potential footpath link created
- Phase 6: Strategic Landscaping
- Phase 7: Future Reserved Matters

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The Phasing Plan shows the key stages of the primary components for development of the site.
The various stages will run consecutively and, at times, concurrently with each other to ensure that the development is constructed/delivered in the most sustainable sequence to archive the constriction programme.

100m SCALE 1:5000

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Phasing Plan 2 of 2

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Newark Beacon, Cafferata Way, Newark, Nottinghamshire NG24 2TN
o. +44 (0)1636 653027 e. info@umcarchitects.com

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Date:	07/11/2023
Scale:	1:500 A1
Drawing no:	Revision:
22081 P0555	B

Appendix B

BMBC Highways and National Highways Scoping Responses

RE: FW: Goldthorpe: ES10

1 message

Lake , Wayne (GROUP LEADER HDC) 22 June 2022 at 08:06

Good morning Paul,

Having reviewed the scoping note and traffic survey specification, please find the following:

1.3 Proposed Development

For the purposes of scoping the Transport Assessment a 70%:30% B8:B2 floorspace split has been assumed. However there is no detail as to what this assumption is based on. This Section also cites the access roundabout planning application 2021/1511. The technical note / modelling report for the roundabout application was based on land use Employment – Industrial Estate with resultant TRICS trip generation of 818 2-way trips in the AM peak and 650 2-way trips in the pm peak compared with 512 2-way tips in the AM and 520 2-way trips in the PM peak. It seems logical for there to be an element of consistency between the two assessments unless there has been a refinement over land use class since the roundabout application and associated modelling works were undertaken.

2.1

This section should also include details of a site accessibility audit by mode to identify any requisite sustainable travel infrastructure improvements as an assessment is to be provided in this or the existing infrastructure section of the suitability of the highway network to accept the additional sustainable mode trips associated with the application.

2.4 Proposed Development

In addition to details of pedestrian, car and cycle parking provision and servicing arrangements, details regarding access to public transport is also required.

Reference to use class assumptions included within the note. Please refer to comments above under 1.3

2.4.2 Parking

Reference to Barnsley's parking SPD and electric vehicle parking. However it should be noted that EV charging standards are covered by Building Regulations from 15th June 2022 and standards contained therein are to be referenced.

2.6 Personal Injury Collision Analysis

Reference made to use of Crash map data, however it should be noted that detailed collision data must be used for the PIC analysis.

2.7 Junction Capacity Assessments

Notwithstanding the proposed study area, capacity analysis is to be undertaken for junctions that experience 30 or more 2-way peak hour development related trips.

Section 3.1 Study Area

Proposed study area subject to change based on comments above.

3.3.1 Traffic Survey Data

Please note:

TAG Unit M1.2 data sources and Surveys reads:

3.3.6 Surveys should typically be carried out during a 'neutral', or representative, month avoiding main and local holiday periods, local school holidays and half terms, and other abnormal traffic periods. However, there can be instances where a particular period (e.g. weekends or school holidays) is of interest, for example in regions with relatively high levels of seasonal tourism. The period for the surveys should be selected with careful consideration of the purpose of the transport model.

3.3.7 Neutral periods are defined as Mondays to Thursdays from March through to November (excluding August), provided adequate lighting is available, and avoiding the weeks before/after Easter, the Thursday before and all of the week of a bank holiday, and the school holidays. Surveys may be carried out outside of these days/months, ensuring that the conditions being surveyed (e.g. traffic flow) are representative of the transport condition being analysed/modelled

3.3.2 Traffic Growth

A list of committed developments to be provided either consented or allocated within the local plan where there is a reasonable degree of certainty will proceed within the next 3 years.

3.4 Assessment Scenarios

Reference to all classified traffic data being converted to PCU's. However in relation to junction capacity assessments (3.5) where HGV's are part of the overall vehicle composition, there is a need for the vehicle mix matrix to be completed whether working in PCU's or not. This is because some parts of the models work with PCU and others use vehicles. If HV%ages are not entered, there is a risk that in particular queue and delay results may not be accurate.

4.1 Vehicle Trip Generation

Please refer to comments above on section 1.3

4.2.2 HGV Trip Distribution

Assumed routing is based on likely routing and settlement patterns, however no details have been provided in relation to this assumption. Has a gravity model been established as a basis for HGV routing?

4.3 Person Trip Generation by Mode

Accessibility to site by public transport users is to be carefully considered within the TA / TP, given the existing bust stop infrastructure and location within a double white lined section of the A635.

Survey Specification

Please note comments above re trip generation / distribution and study area

Kind Regards

Wayne

Wayne Lake MSc MCIHT

Group Leader

Highways Development Control

Regeneration and Culture - Place Directorate

Barnsley Council

Wayne,

Further to our recent conversations on this site, as discussed we have prepared the attached detailed Transport Scoping report that sets out how we propose to assess the impacts of the development proposals for site ES10 at Goldthorpe as part of the forthcoming planning application. We would welcome your comments on this.

We are planning to collect the necessary traffic survey data in late June 2022 as set out in the attached specification. We have included a wide study area based on your response, so the attached specification should more than cover the extent of our impacts.

We will be issuing this to Doncaster and National Highways for their comments as well. We look forward to hearing from you.

Regards,

Paul

On Fri, 20 May 2022 at 09:51, Lake , Wayne (GROUP LEADER HDC) <

> Hi Paul,
>
> Further to below, and as discussed, I have sourced the following from the D1 report which was previously sent to Daniel Martin:
>
> The traffic counts for Cathill roundabout, Broomhill roundabout, Wath roundabout and Cortonwood roundabout were assessed as part of the Cortonwood Public Inquiry. The weekday surveys were conducted on Friday 25th January 2013 between 07:00-09:30 and 15:00-18:00.
>
> A report produced by AECOM was undertaken to assess the junctions at Hickleton and Marr in Barnsley. The traffic surveys used were conducted on Thursday 28th July 2016 at each of the junctions between 07:00-09:15 and 16:00-18:15.
>
> The traffic count for Park Springs roundabout was conducted on Wednesday 8th November 2017 between 07:00-09:30 and 16:00-18:30.
>
> Furthermore, the modelling report for the ES10 roundabout included details of survey undertaken but the results were not included in the report:
>
> A traffic count has been conducted to assess the current east and westbound traffic flows along the A635 within the vicinity of the proposed site access.
>
> The survey was conducted on Wednesday 8th September 2021 and recorded east and westbound flows between 07:00-10:00 and 16:00-19:00. The identified AM and PM Peak Hours are set out below.
>
> - • AM Peak Hour: 07:15 – 08:15am
> - • PM Peak Hour: 16:30 – 17:30
>
> Look forward to agreeing the scope as discussed,

Kind Regards

Wayne

Wayne Lake MSc MCIHT

Group Leader

Highways Development Control

Regeneration and Culture - Place Directorate

Barnsley Council

Hi Paul,

I hope you are well.

I will look at what traffic survey data we hold and let you know. I am in the office tomorrow and so will give you a call on your mobile number below to discuss in more detail if that's ok.

Is there an intention to submit a pre-application enquiry to agree the scope?

With regards the need to undertake new surveys, have Doncaster specified the historic neutral month cut off of June? Recent TAG guidance - Data Sources and Surveys (2020) reads:

3.3.6 - Surveys should typically be carried out during a 'neutral', or representative, month avoiding main and local holiday periods, local school holidays and half terms, and other abnormal traffic periods. However, there can be instances where a particular period (e.g. weekends or school holidays) is of interest, for example in regions with relatively high levels of seasonal tourism. The period for the surveys should be selected with careful consideration of the purpose of the transport model.

3.3.7 Neutral periods are defined as Mondays to Thursdays from March through to November (excluding August), provided adequate lighting is available, and avoiding the weeks before/after Easter, the Thursday before and all of the week of a bank holiday, and the school holidays. Surveys may be carried out outside of these days/months, ensuring that the conditions being surveyed (e.g. traffic flow) are representative of the transport condition being analysed/modelled.

Keen to discuss tomorrow,

Kind Regards

Wayne