

Hallam Land Management
Proposed Residential Development at Land at Deepcar, Stocksbridge

Transport Assessment

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Issue





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1 Introduction

1.1 Commission

Hallam Land Management is bringing forward an outline planning application for the proposed development of land at Deepcar, Stocksbridge, Sheffield.

Fore Consulting Limited (Fore) has been commissioned by Hallam Land Management to provide highways and transport advice in relation to the site, including the preparation of a Transport Assessment to accompany the planning application. A Travel Plan has also been prepared under a separate cover.

The Scope of this Transport Assessment has been discussed and agreed with Sheffield City Council's Highways Officer, Matthew Dodson (SCC Highways) through regular email and telephone correspondence along with meetings held on Monday 8 August and Friday 26 August.

1.2 The Site

The site comprises an area of some 2.7ha and is located on the south-west edge of the built up area of Deepcar, approximately 12.5km to the northwest of Sheffield.

The site is currently in use as agricultural farmland and is bordered by a mixture of stone walls, fences and hedgerows.

Carr Road runs alongside the eastern boundary of the site with Hollin Busk Lane to the south, agricultural farmland to the west and an area of woodland to the north. Beyond the immediate frontages, the area is generally characterised by the built up residential areas of Deepcar and Stocksbridge to the north, east and west whilst Stocksbridge Golf Club and agricultural land lie to the south.

Carr Road serves as a local distributor road and provides access to a number of residential streets and driveways, which take direct access onto the carriageway. Hollin Busk Lane runs alongside the southern boundary of the site and provides a connection between the residential areas situated to the east and west of Stocksbridge and Deepcar.

The location of the site is shown on Figure 1.

1.3 Surrounding Area

The site is located within the village of Deepcar, on the eastern fringe of the town of Stocksbridge, Sheffield. The village is located to the northwest of Sheffield and lies to the south of the A616 and to the west of the River Don.

Within the locality of the site there is a mixture of modern and historic development, and a number of public amenities including retail, shopping, education and healthcare facilities.

1.4 The Development Proposal

The proposal is to develop the site to provide up to 93 privately owned houses. The site is to be accessed from a new simple three-arm priority junction onto Carr Road. The full description of development is as follows:

“Outline application for up to 93 residential dwellings with all matters except for access reserved”.

The proposed site layout is presented at Appendix A.

1.5 Purpose of this Report

This report is the Transport Assessment for the development proposals. The report has been commissioned to understand and analyse the effects of the proposed development from a transport perspective, and to inform the proposals for the site and the subsequent planning application.

The purpose of this Transport Assessment is to provide a robust assessment of the transportation implications of the development. The intention is to provide the necessary information to assist Sheffield City Council (SCC) as the Local Planning Authority and Highway Authority, in determining the planning application.

The structure and content of this Transport Assessment follows the national planning policy contained within the National Planning Policy Framework¹ and Planning Practice Guidance². Due consideration has also been given to the relevant local guidance and standards published by SCC.

1.6 Structure of the Report

This report is structured as follows:

- Section 2 describes the local highway network within the vicinity of the site.
- Section 3 describes the opportunities to access the site by sustainable modes of travel including walking, cycling and public transport.

¹ *National Planning Policy Framework*, Department of Communities and Local Government, 2012.

² *Planning Practice Guidance*, Department of Communities and Local Government, 2014.

- Section 4 identifies national and local transport policies that are relevant to the proposed development.
- Section 5 provides an overview of the development proposals and provides a summary of the access, parking and servicing arrangements.
- Section 6 describes the approach taken to identify the existing Weekday AM and PM peak hour traffic flows on the study highway network. The Section also identifies the predicted growth in baseline traffic up to a projected Future Year of 2022.
- Section 7 provides an estimate of the predicted vehicle trip generations and distributions associated with the proposed development.
- Section 8 provides an estimate of the predicted total person trip generations and mode share associated with the proposed development.
- Section 9 details the capacity assessments undertaken at the junctions identified as part of the study highway network.
- Section 10 provides a summary of the latest five year personal injury accident data on the study highway network.
- Section 11 summarises and concludes the findings of the Report.

2 Local Highway Network

2.1 Introduction

This Section describes the local highway network within the vicinity of the site, comprising a number of key links and junctions which are identified on Figure 2 and discussed in turn below.

2.2 Carr Road

Carr Road serves as a local distributor road and bus corridor, linking the central area of Deepcar with an established residential area to the south. Locally, Carr Road runs alongside the eastern boundary of the site, primarily providing vehicular access between Manchester Road and ultimately Cockshot Lane, Hollin Busk Lane and Royd Lane. Carr Road is a single lane two-way carriageway, is lit and is subject to a 30mph limit in the vicinity of the site.

Beyond the southeast corner of the site, Carr Road forms the northern arm of a four-arm crossroad junction with Hollin Busk Lane, Royd Lane and Cockshot Lane. Carr Road has a carriageway width of approximately 8.0m within the immediate vicinity of the site.

Beyond the northeast boundary of the site 'School Keep Clear' road markings and kerb buildouts are present, encouraging drivers to reduce their speed on approach to Royd Nursery Infant School. The footway buildouts are used as a school patrol crossing point.

A continuous footway, approximately 1.8m wide runs along the eastern side of Carr Road. On the west side of Carr Road, the existing footway starts at a point to the immediate north of the site boundary and continues northwards through the built up residential areas. An additional short section of footway is provided along the west side of Carr Road, approximately 35m south of the site boundary. There is no existing footway along the site frontage.

2.3 Carr Road / B6088 Manchester Road / A6102 Vaughton Hill

At its northernmost point, Carr Road forms the minor arm of a three-arm simple priority junction with the B6088 Manchester Road.

To the immediate east of the junction the B6088 Manchester Road meets the A6102 Vaughton Hill and A6102 Manchester Road at a three-arm signalised junction. A two-stage signal controlled pedestrian crossing is provided on the northern arm of the junction. A zebra crossing is provided along the B6088 Manchester Road, to the immediate west of Carr Road. Within the junction, waiting restrictions in the form of double yellow lines are present on all three arms of the junction.

Northwards from the junction, A6102 Vaughton Hill ultimately provides access onto the A616 which is part of the strategic highway network, running beyond the northern fringes of Stocksbridge. The A616 bypasses Stocksbridge and serves a regional distributor road, connecting Stocksbridge with the M1 to the east.

Access is provided onto the A616 via lane gain on-slips heading eastwards and westwards, with access off the A616 provided via tapered diverges.

2.4 Cockshot Lane

Cockshot Lane forms a continuation of Carr Road heading southwards from the site, ultimately linking the southern fringes of Deepcar with Bolsterstone. Cockshot Lane forms the southern arm of the four-arm crossroads with Carr Road, Hollin Busk Lane and Royd Lane.

Cockshot Lane is a single lane two-way carriageway of varying width but is approximately 6.0m wide within the vicinity of the site and is subject to the national speed limit.

The road is unlit and flanked by wide grass verges on both sides. Due to the rural nature of the road there are currently no footways along Cockshot Lane. The road is not subject to any waiting restrictions within the vicinity of the site.

2.5 Hollin Busk Lane

Hollin Busk Lane serves as a local distributor road running alongside the southern boundary of the site, ultimately providing access to an established residential area situated to the south of central Stocksbridge. Hollin Busk Lane also provides access onto Hollin Busk Road, Coal Pit Lane and Broomfield Lane via a simple three-arm priority junction to the far west.

Beyond the southeast corner of the site Hollin Busk Lane forms the western arm of the four-arm crossroads with Carr Road, Cockshot Lane and Royd Lane.

Hollin Busk Lane is a single lane two-way carriageway of varying width but is approximately 6.5m wide within the immediate vicinity of the site and is subject to a speed limit of 30mph.

A continuous footway is present along the full extent of the site frontage, with a narrow grass verge on the southern side of the carriageway. The road is lit and not subject to any waiting restrictions within the vicinity of the site.

2.6 Broomfield Lane / Hollin Busk Road / Coal Pit Lane

To the west of the site Hollin Busk Lane becomes Hollin Busk Road, which forms the minor arm of a three-arm simple priority junction with Broomfield Lane and Coal Pit Lane.

Collectively, they provide access between two established residential areas, situated to the north and southeast of central Stocksbridge. Broomfield Lane ultimately provides access onto the B6088 Manchester Road to the far north, via Bracken Moor Lane, Bocking Hill and Nanny Hill, respectively.

Approximately 200m to the east of the junction with B6088 Manchester Road, Bocking Hill provides access onto Nanny Hill and Haywood Lane via a 'triangular' arrangement of three separate simple three-arm priority junctions. The junction configuration is designed to accommodate for a split in vehicular movements travelling westbound, eastbound and southbound.

2.7 Royd Lane

Royd Lane serves as a local distributor road and provides access to a large residential area situated between Carr Road and the A6102 Manchester Road. Royd Lane forms the eastern arm of the four-arm crossroads with Carr Road, Cockshot Lane and Hollin Busk Lane.

Royd Lane is a single lane two-way carriageway of varying width but is approximately 6.5m within the vicinity of the site and is subject to a speed limit of 30mph.

The carriageway is lit and continuous footways are present along both sides of the road. The footway on the northern side of Royd Lane connects to existing pedestrian provision on the eastern side of Carr Road.

3 Sustainable Access

3.1 Pedestrian Access

3.1.1 Pedestrian Catchment

Although walking distances will obviously vary between individuals and circumstances the Chartered Institution of Highways & Transportation (CIHT) suggests acceptable walking distances for commuting as follows³:

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

Figure 3 presents the isochrone of a 2.0km walking distance threshold measured from an indicative central point within the site and using the most convenient and likely pedestrian routes through the site, assuming only formal road crossings and designated footways / footpaths are used. The 2.0km walking distance isochrone covers the following range of local amenities:

- **Retail:**
 - The nearest supermarket (Lidl) is located to the northwest of the site on the southern side of the B6088 Manchester Road, and is accessible on foot within approximately 1.8km of the site. A range of other local shops are situated along the northern and southern side of the B6088 Manchester road, including a number of high street banks, butchers, convenience supermarket, greengrocers and an array of takeaway food outlets.
 - Two takeaway food outlets are located on either side of Victoria Road, at the junction with Shay House Lane and Pot House Lane, both of which are accessible on foot within approximately 1.9km of the site.
 - A promenade of local shops is situated to the east of the site on the southern side of Pot House Lane, adjacent to St Ann's Catholic Primary School. The retail facilities available include a convenience supermarket (Spar) and bakery, both of which are accessible within approximately 1.6km walking distance of the site.

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

- Further retail provision is provided to the north of the site, which includes a takeaway food outlet situated to the west of the Carr Road / B6088 Manchester Road junction. The takeaway food outlet is accessible on foot within approximately 1.3km of the site. Additionally, a petrol filling station, with associated convenience store, is located on the northern side of the B6088 Manchester Road approximately 230m to the west of the Carr Road / B6088 Manchester Road junction. Both retail facilities are accessible on foot within approximately 1.3km of the site.
 - The recently developed Fox Valley Sheffield retail and leisure park is located between B6088 Manchester Road and Fox Valley Way, accessible between approximately 1.8km and 2km walking distance of the site. The retail and leisure park features a wide range of high street retail facilities, an independent shopping quarter and a range of restaurants and takeaway food outlets.
- **Leisure:**
 - The nearest public house (The Nook) is located approximately 820m walking distance from the site on the western side of Helliwell Lane. Further provision, namely the King and Miller and The Royal Oak, are located to the north, adjacent to the Carr Road / B6088 Manchester Road junction. Both are accessible on foot within approximately 1.3km of the site. Additional provision is located to the west of the site at the junction with Bracken Moor Lane and Broomfield Lane (Miner's Arms) and on the western side of Spink Hall Lane (The Red Grouse). Both public houses are accessible on foot within approximately 1.2km and 1.5km of the site, respectively. Additional provision is located to the north of the site on the northern side of Manchester Road (The Coach), which is accessible on foot within approximately 1.8km of the site. A further public house (The Castle Inn) is located to the south of the site within the village of Bolsterstone, accessible on foot within approximately 1.1km of the site (non-direct route, via Public Right of Way).
 - Stocksbridge Golf Club is situated to the southeast of the site, accessible on foot within approximately 470m of the site. Stocksbridge Cricket Club is located on the eastern side of Bracken Moor Lane and is accessible within approximately 1.3km walking distance of the site. Further recreational grounds are located to the east of Cricket Club (football pitches / playing fields). Additionally, an enclosed multi-use sports pitch is located on the northern side of Linden Crescent, accessible on foot within approximately 1.8km walking distance of the site.
 - Additional recreational and leisure facilities are accessible from the recently developed Fox Valley Sheffield retail and leisure park. Leisure facilities include a

range of bars and restaurants and a leisure and fitness centre. Most of the facilities are accessible between 1.8km and 2km walking distance of the site.

- **Education:**

- Royd Nursery Infant School is the nearest school to the site, located on the eastern side of Carr Road. The school is accessible on foot within approximately 310m of the site. Further education provision, namely Deepcar St John's Church of England Junior School, is located further to the east of Carr Road, accessible on foot via St Margaret Avenue within approximately 520m of the site.
- A number of other educational facilities are located to the west of the site. Stocksbridge Junior School is located on the eastern side of Cedar Road and is accessible on foot within approximately 1.6km of the site. St Ann's Catholic Primary School and Stocksbridge High School are located on the western and eastern side of Shay House Lane, respectively, both of which are accessible within approximately 1.7km walking distance of the site. Further education provision is provided on the southern side of Alpine Road, namely Stocksbridge Nursery Infant School, which is accessible on foot within approximately 2km of the site.

- **Healthcare:**

- The nearest medical centre (Deepcar Medical Centre) to the site is located on the southern side of Manchester Road, between New Street and Ash Lane. The medical centre is accessible on foot within approximately 1.2km of the site.
- The nearest pharmacy is located within the Deepcar Medical Centre, accessible on foot within approximately 1.2km of the site. Further provision is also located on the southern side of Manchester Road, accessible on foot within approximately 2km of the site.
- The nearest dental practice (Deepcar Dental Surgery) is located on the northern side of Manchester Road, approximately 190m to the west of Deepcar Medical Centre. The dental surgery is accessible on foot within approximately 1.4km of the site.

Worthy of a mention are the medical facilities situated at the Valley Medical Centre, located on the eastern side of Johnson Street. The facilities include a medical and dental surgery, both of which are accessible on foot within approximately 2.2km of the site.

3.1.2 Pedestrian Facilities

Pedestrian facilities within the vicinity of the site are outlined as follows:

- **Footways:**
 - An existing footway is present along the eastern side of Carr Road for the full extent of the road. The footway connects to further provision to the north and to the south. The footway provides convenient access towards Royd Nursery Infant School and Deepcar St John's Church of England Junior School.
 - Within the vicinity of the site a short stretch of footway is present along the western side of Carr Road, which primarily serves a cluster of residential properties situated to the east of the site. The footway resumes on approach to Royd Nursery Infant school and continues for the full extent of the road.
 - A footway is present along the northern side of Hollin Busk Lane, ultimately connecting to further provision on the western side of Hollin Busk Road and the northern side of Broomfield Lane.
 - A footway is present on either side of Royd Lane heading eastwards from the site.
 - Dropped kerbs and tactile paving is typically present in most places where there is an adjacent footway and continuous pedestrian facilities are available between the site and the local amenities identified in the previous section.
 - Street lighting is provided at suitable locations within close proximity of the site, in particular along the full extent of Carr Road and Hollin Busk Lane.
 - Due to the rural nature of Cockshot Lane, formal footways are currently not present, though a wide grass verge features on the eastern and western side of the road.
- **Public Rights of Way:**
 - A footpath passes to the immediate north of the site, providing traffic free pedestrian access between Wood Royd Road, Fox Glen Road and Broomfield Lane.
 - A footpath is located to the south of the site, accessible from the southern side of Royd Lane. The footpath provides access across Stocksbridge Golf Course towards further footpath provision located to the north of Sunny Bank Road. In particular, it connects to a footpath heading westwards towards the village of Bolsterstone. Further provision heads southwards towards Ewden Village and Moor Hall Reservoir.

- A further footpath is accessible from the southern side of Hollin Busk Lane and provides a direct traffic-free pedestrian route towards the village of Bolsterstone.
- A number of linked footpaths are situated to the north west of the site, providing direct and convenient connections between the areas of East Whitwell, Bracken Moor and Knoll Top.
- A section of bridleway / byway is located to the east of the site (Common Lane), which ultimately connects to further footpath provision to the west of Bitholmes Wood.

Beyond the 2.0km isochrone presented, a network of public rights of way and footpaths offer good opportunities for recreational walking.

- **Pedestrian Crossings:**

- Beyond the north eastern boundary of the site there is an uncontrolled pedestrian crossing point, with kerb buildouts, dropped kerbs, tactile paving and traffic bollards. The kerb buildouts encourage drivers to reduce their speeds and the crossing as a school patrol crossing point for the Royd Nursery Infant School.
- To the northeast of the site a zebra crossing, with dropped kerbs and tactile paving provides pedestrian access between the northern and southern side of the B6088 Manchester Road. The pedestrian crossing point is located to the immediate west of Carr Road.
- A two-stage signal controlled pedestrian crossing is provided on the northern arm of the B6088 Manchester Road / A6102 Manchester Road / A6102 Vaughton Hill junction, providing access between the eastern and western side of the A6102 Vaughton Hill.
- In most locations on the local highway network informal uncontrolled crossing points with dropped kerbs and tactile paving are typically present where there is an adjacent footway.

3.1.3 Proposed Pedestrian Infrastructure

Pedestrian access to the site will be provided from new 2.0m wide footway connections extending into the site from both sides of the access onto Carr Road. Dropped kerbs and tactile paving will be provided across the access mouth.

A new 2.0m wide footway will be provided northwards from the access, tying into the existing footway provision on approach to the school patrol crossing. Southwards, a new footway will extend a short distance around the access radius with a new uncontrolled

pedestrian crossing (dropped kerbs and tactile paving) providing a pedestrian connection to the continuous footway along the east side of Carr Road.

A 2.0m wide footway will be provided adjacent to the pedestrian link / emergency access onto Carr Road, a short distance to the north of Hollin Busk Lane. The footway will tie into the existing provision on the northern side of Hollin Busk Lane.

It is envisaged that the majority of pedestrian movements to / from the site will be via the proposed new access onto Carr Road, however the footway improvements between Hollin Busk Lane and the southern extent of Carr Road will provide an improved route for anyone wishing to access the bus stops located along Royd Lane.

The internal layout of the site will ensure that an attractive pedestrian environment is provided within the site, in order to encourage journeys to be made on foot.

3.2 Cycle Access

The Cycling England document *Integrating Cycling into Development Proposals*⁴ suggests acceptable cycling distances of commuting and non-work purposes, as follows:

“Most cycle journeys for non-work purposes and those to rail stations are between 0.5 miles [0.8km] and 2 miles [3.2km], but many cyclists are willing to cycle much further. For work, a distance of 5 miles [8 km] should be assumed.”

With regards to these distances, Figure 4 shows that a number of villages, towns and public amenities can be accessed within 8km of the site.

The entirety of Stocksbridge is accessible within approximately 3.8km cycling distance of the site, providing access to a large range of public amenities including retail, leisure, education and health facilities.

Cycle access is also provided to a range of larger settlements and towns, which provide essential access to local services and facilities. In particular, Wharncliffe Side and Oughtibridge are located to the south of the site, accessible within approximately 4.7km and 6.9km, respectively. Collectively they provide access to a range of education, leisure and retail facilities.

Importantly, with reference to the Sheffield Cycle Map North⁵, a large proportion of roads within close proximity of the site are designated as ‘suggested cycle routes’. While it is recognised that traffic volumes may vary according to the time of day, the suggested

⁴ *Integrating Cycling into Development Proposals*, Cycling England, 2009, p4.

⁵ *Sheffield Cycle Map North*, Sheffield City Council, 2016. Available Online (<https://www.sheffield.gov.uk/roads/travel/cycling/finding-your-way/sheffield-cycle-map.html>)

routes provide convenient cycling access to a range of amenities and facilities, as well as connecting to additional cycle routes to the north and south of the site.

With reference to the above, cycle access is provided to a number of smaller settlements, which provide access to a range of local services and amenities, outlined as follows:

- Wortley is accessible within approximately 4.5km cycling distance of the site and provides access to a small range of local amenities, including two public houses, a café, restaurant and local store.
- Thurgoland is located to the north of the site, accessible within approximately 5.5km cycling distance. The village provides access to a larger range of local services, including a Post Office, primary school, public house and restaurant.
- Oxspring is accessible within approximately 7.6km cycling distance of the site and provides access to a small range of local services, including a primary school and Post Office.

In addition, the northern fringes of Sheffield can be accessed within approximately 8km cycling distance of the site (Middlewood and Worrall) with further access provided towards Sheffield City Centre.

A number of cycle routes are accessible within 8km of the site, and are outlined as follows:

- National Cycle Route 627 passes to the east of the River Don, providing a predominantly on-road route from Kirkburton to Millhouse Green (where it joins the Trans-Pennine Trail). Locally the route provides a cycle connection between Oxspring, Thurgoland, Stocksbridge and the northern fringes of Sheffield.
- National Route 67 joins National Route 627 to the southeast of the site. The long-distance route runs from Long Whatton near Loughborough to join National Route 71 near Northallerton in Yorkshire. The majority of the route consists of traffic-free cycling.

3.3 Public Transport

3.3.1 Bus Services

The CIHT document *Planning for Public Transport in Developments*⁶ states that:

“The maximum walking distance to a bus stop should not exceed 400m and preferably be no more than 300m.”

⁶ *Planning for Public Transport in Developments*, Chartered Institution of Highways & Transportation, 1999, p11.

The document also states that:

“It is better to provide bus routes that are simple and direct than slavishly follow limits on walk distance to stops. Routes should not be split or diverted to achieve a walk distance of less than 400m from every destination to its nearest bus stop.”

With regards to the CIHT guidelines Figure 5 indicates that the closest bus stops in relation to the site are located on either side of Royd Lane and are accessible on foot within approximately 290m of the site (measured from an indicative central point). The bus stops provide access to the Number 23 bus service. The bus stops are accessible via the proposed new section of footway along the western side of Carr Road and the footways on both the northern and southern side of Royd Lane.

Further provision is also located on both the northern and southern side of St. Margaret Avenue to the north of the site, both of which are accessible within approximately 380m walking distance of the site (measured from an indicative central point). The bus stops provide access to the Number 57 and 781 bus services. The bus stops will be accessible to residents of the site via the proposed new footway along the site frontage, crossing at the school patrol crossing and continuing along the footway along the eastern side of Carr Road leading to St. Margaret Avenue.

Further bus stop provision is available on both the eastern and western side of Wood Royd Road, approximately 600m walking distance from the site. The bus stops provide access to the Number 23A, 57, 201, 781 and SL bus services. The bus stops are accessible via a continuous footway on the western side of Carr Road and a footway on both the eastern and western side of Wood Royd Road.

The Table below provides a summary of the bus services available within proximity of the site, including the nearest bus stop, respective frequencies and destinations served.

Table 1: Bus Services, Destinations and Frequencies

Bus Stop	Service	Operator	Destinations Served	Approx. Daily Frequency (Both Directions)		
				Mon-Fri.	Saturday	Sunday
Royd Lane	23	Stagecoach	Barnsley - Crane Moor - Deepcar - Stocksbridge - Midhoptstones - Oxspring - Stocksbridge - Midhoptstones - Penistone - Crow Edge	Every 120 minutes	Every 120 minutes	-
St Margaret Avenue	57	Stagecoach	Sheffield Centre - Oughtibridge - Deepcar - Stocksbridge - Oughtibridge	Every 30 minutes	Every 30 minutes (60 minute frequency between 0800-0900 hours)	Every 60 minutes (AM service only)
	781	Mass Brightbus	Stocksbridge - Deepcar - Oughtibridge - Middlewood -- Ranmoor	3 services daily (school days only)	-	-
Wood Royd Road	201	Stagecoach	Chapelton - Tankersley - Deepcar - Stocksbridge	Every 60 minutes	Every 60 minutes	-
	SL (SuperTram Link)	Stagecoach	Middlewood P&R - Wharncliffe Side - Deepcar - Stocksbridge - Middlewood P&R	Every 10 minutes	Every 10 minutes	Every 20 minutes
	23A	Stagecoach	Barnsley - Crane Moor - Deepcar - Stocksbridge - Midhoptstones - Oxspring - Stocksbridge - Midhoptstones - Penistone - Crow Edge	Every 120 minutes (from 1900 to 2300 hours)	Every 120 minutes (from 1900 to 2300 hours)	Every 120 minutes

Note: Bus services correct as of 13 June 2016.

The Number 23 bus service provides a relatively frequent service between Barnsley and Crow Edge, in both directions, via Deepcar, Stocksbridge and Penistone. There are currently six services daily in each direction, Monday to Saturday. The Number 23A bus service provides the same service between 1900 and 2300 hours, Monday to Saturday, and all day on Sunday.

The Number 57 bus service provides a frequent service between Sheffield and Stocksbridge, in both directions, via Worall, Oughtibridge and Deepcar. The service currently runs approximately every 30 minutes, Monday to Saturday, with a reduced service currently in operation on a Sunday.

The Number 781 bus service runs on school days only and provides an AM and PM school service between Stocksbridge and Ranmoor.

The Number 201 bus service provides an hourly circular service between Chapeltown and Stocksbridge, via Tankersley and Deepcar. The service is currently in operation Monday to Saturday, with no Sunday service.

The Number SL (SuperTram Link) service provides a frequent service between Middlewood Park and Ride (Tram Station) and Stocksbridge. The service currently runs approximately every 10 minutes Monday to Saturday and every 20 minutes on a Sunday.

3.3.2 Rail Services

The nearest main railway station to the site is located in Penistone, approximately 6.4km to the northwest of the site (direct measurement). The station can be accessed via the Number 23 and 23A bus service, which both stop approximately 600m to the west of the railway station.

Penistone Railway Station serves the Penistone Line, which currently connects Huddersfield with Sheffield, via Barnsley, with an hourly train in each direction. The Table below provides a summary of the rail services available from Penistone Railway Station.

Table 2: Rail Services, Destinations and Frequencies

Operator	Destinations Served	Monday to Saturday Frequency		
		Daytime	Late Evening	Sunday Frequency
Northern	Huddersfield - Denby Dale - Barnsley - Sheffield	Every 60 minutes	Every 60 minutes	Every 60 / 120 minutes

Note: Rail services correct as of 13 June 2016.

Middlewood Tram Station is located approximately 8.0km to the southeast of the site. The tram station provides access onto the Yellow Route of the Sheffield 'SuperTram' system, which provides an 18 minute connection towards Sheffield City Centre. During peak hours tram services run every 10 minutes to and from Sheffield and Meadowhall. Middlewood Tram Station is accessible via the Number 57 and SL bus services.

4 Transport and Planning Policy

4.1 Introduction

This Section identifies national and local transport policies that are relevant to the proposed development and sets out how the development proposals respond to, and accord with, these policies.

4.2 National Policy

4.2.1 National Planning Policy Framework

The National Planning Policy Framework⁷ (NPPF) was published by the Department of Communities and Local Government (DCLG) on 27 March 2012. The NPPF sets out how the planning system will contribute to achieving sustainable development. In effect, this means planning is required to perform the following three specific roles:

- An economic role, contributing to building a strong, responsive and competitive economy.
- A social role, supporting strong, vibrant and healthy communities.
- An environmental role, protecting and enhancing the natural, built and historic environment.

The NPPF sets out a presumption in favour of sustainable development. This effectively means that development proposals that accord with the development plan should be approved without delay. Where the development plan is out-of-date or absent, proposals should be approved unless the adverse impacts would significantly and demonstrably outweigh the benefits when assessed against the NPPF, or specific policies in the NPPF indicate development should be restricted (for example, if the site is subject to certain environmental designations).

The NPPF sets out twelve core land-use planning principles that should be taken into account when making planning decisions, including:

“planning should....actively manage patterns of growth to make fullest possible use of public transport, walking and cycling, and focus significant development in locations which are or can be made sustainable”

Paragraph 32 of the NPPF states that:

⁷ National Planning Policy Framework, Department of Communities and Local Government, 2012.

“All developments that generate significant amounts of movement should be supported by a Transport Statement or Transport Assessment. Plans and decisions should take account of whether:

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

Furthermore, Paragraph 34 of the NPPF states that:

“Plans and decisions should ensure developments that generate significant movement are located where the need to travel will be minimised and the use of sustainable transport modes can be maximised.”

The proposed development is consistent with the NPPF. The site offers opportunities to travel by sustainable modes including walking, cycling and public transport. A suitable vehicle access arrangement has been identified onto Carr Road and a robust Transport Assessment has been prepared for the proposed development. The residual cumulative impacts of the development are not considered to be severe.

4.2.2 Planning Practice Guidance

Planning Practice Guidance⁸ (PPG) was launched by the DCLG on 6 March 2014. It brings together many areas of English planning guidance into a new stream-lined format, which is linked to the NPPF. PPG replaces previous planning practice guidance documents. The guidance is a key material consideration in the decision making process, set within the overarching NPPF.

PPG provides advice on when Transport Assessments and Transport Statements are required and what they should contain⁹:

“Transport Assessments are thorough assessments of the transport implications of development, and Transport Statements are a ‘lighter-touch’ evaluation to be used

⁸ *Planning Practice Guidance*, Department of Communities and Local Government, 2014.

⁹ *Planning Practice Guidance: Travel Plans, transport assessments and statements in decision-taking*, Department of Communities and Local Government, Revision Date: 06/03/2014, Paragraph 005.

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."

The content and structure of this Transport Assessment has been prepared in accordance with PPG.

4.3 Local Policy

4.3.1 Background

Sheffield City Council (SCC) is the City Council for the Metropolitan Borough of Sheffield in South Yorkshire.

SCC are currently preparing a new development plan for the whole of Sheffield (excluding the area in the Peak District National Park), which will guide the future of the city region by setting out how and where development will take place up to 2034. The Sheffield Plan is expected to be adopted in 2018.

The Sheffield Plan will replace the Core Strategy (adopted in 2009) and incorporate some of the work already carried out for the Pre-submission Draft City Policies and Sites Document and Proposals Map. It will also replace the Unitary Development Plan (UDP) (adopted in 1998).

Until the new Sheffield Plan is formally adopted, Development Management decisions will be based on the following policy documents:

- Core Strategy (adopted 2009)¹⁰.
- Unitary Development Plan - saved policies and Proposals Map (adopted March 1998).¹¹

¹⁰ *Sheffield Development Framework Core Strategy*, Sheffield City Council, 2009.

¹¹ *Sheffield Unitary Development Plan*, Sheffield City Council, 1998.

- Pre-Submission Draft City Policies and Sites and Proposals Map (approved April 2013)¹².

Where policy documents were originally adopted some time ago, it is likely that material considerations, in particular the emergence of new national policy and also new evidence, will be afforded considerable weight in decisions on planning applications. The NPPF is a material consideration in the decision making process.

4.3.2 Sheffield Development Framework (SDF) Core Strategy

The SDF is the City Council's Local Development Framework, comprising a set of planning documents that deliver a spatial vision for Sheffield and the surrounding area.

The Core Strategy was adopted on 4 March 2009 and was the first of the planning documents of the SDF. The Core Strategy sets out the overall vision, objectives and spatial strategy and policies for Sheffield over the period to 2026.

Importantly, the Core Strategy is only one part of the SDF, and it is necessary to consult two other documents that also form part of the framework, namely the City Policies and City Sites document. These documents have been considered alongside the Core Strategy.

The following policies within the Core Strategy are of relevance to the development proposals from a transportation perspective:

Policy CS 23: Locations for New Housing

“New housing development will be concentrated where it would support urban regeneration and make efficient use of land and infrastructure. In the period 2008/09 to 2020/21, the main focus will be on suitable, sustainably located, sites within, or adjoining:

- *The main urban area of Sheffield (at least 90% of additional dwellings).*
- *The urban area of Stocksbridge/Deepcar”.*

Policy CS 26: Efficient Use of Housing Land and Accessibility

“Housing development will be required to make efficient use of land but the density of new developments should be in keeping with the character of the area and support the development of sustainable, balanced communities. Subject to the character of the area being protected, densities will vary according to the accessibility of locations, with the highest densities in the City Centre and the lowest in rural areas. Density ranges for new

¹² *City Policies and Site (Pre-Submission)*, Sheffield City Council, 2013.

housing development will vary, in decreasing order of intensity, according to whether a development is:

- *Within or near to the City Centre - at least 70 dwellings per hectare.*
- *Within or near to Meadowhall or a District Centre - 50 to 80 dwellings per hectare.*
- *Near to Supertram stops and high-frequency bus routes in the urban areas - 40 to 60 dwellings per hectare.*
- *In remaining parts of the urban area - 30 to 50 dwellings per hectare*
- *In rural areas - 30 to 40 dwellings per hectare.*

Densities outside these ranges will be allowed where they achieve good design, reflect the character of an area or protect a sensitive area”.

Policy CS 51: Transport Priorities

“The strategic priorities for transport are:

- *Promoting choice by developing alternatives to the car.*
- *Maximising accessibility.*
- *Containing congestion levels.*
- *Improving air quality.*
- *Improving road safety.*
- *Supporting economic objectives through demand management measures and sustainable travel initiatives”.*

Policy CS 53: Management of Demand for Travel

“Increasing demand for travel in all parts of the city will be managed to meet the different needs of particular areas through:

- *Promoting good quality public transport and routes for walking and cycling to broaden the choice of modes of travel.*
- *Making best use of existing road capacity through the use of variable-message signing and Intelligent Transport Systems.*

- *Implementing Travel Plans for new developments to maximise the use of sustainable forms of travel and mitigate the negative impacts of transport, particularly congestion and vehicle emissions.*
- *Active promotion of more efficient and sustainable use of vehicles through car clubs, car sharing to increase vehicle occupancy and incentives for using alternatively fuelled vehicles. These will be associated with new residential and commercial developments and particularly in the City Centre.*
- *Managing public car parking to reduce long-stay commuter parking in favour of short-stay and providing long-stay park-and-ride facilities near the edge of the main urban area.*
- *Creating Controlled Parking Zones to manage traffic levels in constrained locations and encourage the use of more sustainable modes of travel, with priority to:*
 - *The City Centre.*
 - *The Peripheral Residential Parking Zone around the City Centre, incorporating Broomhill, Sharrow, Broomhall and Crookesmoor.*
- *Applying maximum parking standards for all new developments to manage the provision of private parking spaces”.*

Policy CS 63: Responses to Climate Change

“Action to reduce the city’s impact on climate change will include:

- *Giving priority to development in the City Centre and other areas that are well served by sustainable forms of transport.*
- *Promoting higher densities of development in locations that are well served by sustainable forms of transport.*
- *Promoting routes that encourage walking, cycling and the use of public transport.*
- *Designing development to increase energy efficiency and reduce energy consumption and carbon emissions.*
- *Promoting developments that generate renewable energy.*
- *Reducing the volume of waste disposed of in landfill sites and generating energy from waste”.*

Policy CS 74: Design Principles

“High-quality development will be expected, which would respect, take advantage of and enhance the distinctive features of the city, its districts and neighbourhoods.

Development should also:

- *Contribute to place-making, be of a high quality, that contributes to a healthy, safe and sustainable environment, that promotes the city’s transformation.*
- *Help to transform the character of physical environments that have become run down and are lacking in distinctiveness.*
- *Enable all people to gain access safely and conveniently, providing, in particular, for the needs of families and children, and of disabled people and older people.*
- *Contribute towards creating attractive, sustainable and successful neighbourhoods”.*

The proposed development site is considered to make efficient use of existing infrastructure (i.e. local facilities and the existing public transport network) and is considered to be situated in a sustainable location. The proposed development is located within convenient walking distance of frequent bus services, therefore supporting sustainable travel choices and travel patterns. A robust Travel Plan has been prepared to maximise the use of sustainable forms of travel. Maximum parking standards have been applied with reference to SCC guidance and the proposed development is considered to promote accessibility through design.

4.3.3 City Policies and Sites (Pre-Submission)

The City Policies and Sites (Pre-Submission) document was approved by the Council on 3 April 2013 and forms the second of the two citywide Local Plan documents. It flows from the Core Strategy’s vision, objectives and policies and it supplements the policies of the Core Strategy by:

- Informing the development management process in securing development that is appropriate and sustainable and enhances the built environment.
- Showing the implications of the spatial policies of the Core Strategy through policy areas and site allocations that can be presented on the Ordnance Survey base of the Proposals Map.

The following policies within the City Policies and Sites document are of relevance to the development proposals from a transportation perspective:

Policy C1: Access to Local Services and Community Facilities in New Residential Developments

“Medium and larger-scale residential developments should be integrated with existing residential communities and most of the new homes in the development should be located where public transport, a convenience shop and at least five other key local services and community facilities would be readily accessible by walking routes that are safe, attractive and convenient”.

Policy D1: Inclusive Design in Public Buildings and Workplaces

“All places of employment and developments that are accessible to the public should provide a high standard of inclusive design and safe and convenient access for all. This means that they should:

- *Be sited and designed to ensure that the development is accessible to all users from the surrounding area, within the site, and into buildings.*
- *Maximise access for disabled people through the treatment of levels, gradients, orientation, and the location of facilities and buildings within the site.*
- *Provide well designed, accessible and well-lit external pedestrian routes, which meet the needs of all, whether using steps or ramps at changes in level.*
- *Have accessible entrances that avoid the need for separate arrangements for disabled people.*

Access to existing environments, buildings and their surroundings should be improved as opportunities arise to enable all users to move around with equal ease”.

Policy E1: Development and Trip Generation

“Travel demand arising from new development will be accommodated by existing transport infrastructure and only where necessary through new infrastructure. Developers and managers of new developments will be expected to promote measures that will reduce the number of trips that users of the development need to make and to increase the incentives to travel in ways that would:

- *Reduce the impact of the development on congestion on the highway network at any time of the day, especially on routes into the City Centre, on the Inner Ring Road and on routes feeding M1 Junctions 33 and 34.*
- *Generate lower carbon emissions, air pollution, noise and visual intrusion and contribute to strategies to address known health problems.*

- *Make fullest possible use of public transport through a variety of measures and enable, at least, minimum service frequency standards to be achieved.*
- *Increase opportunities for walking and cycling, in ways that provide safe, convenient and viable travel to and from the development.*

To achieve this, a Travel Plan and either a Transport Assessment or a Transport Statement must be prepared and implemented for all new development that:

- *Is likely to generate significant numbers of trips.*
- *Would have significant highway safety or capacity impacts.*
- *Is in an area already covered by an area or framework Travel Plan, in which Travel Plans for specific organisations would still be required.*

Walking and cycling will be promoted through Travel Plans and the improvement of main walking and cycling routes that are identified on the Proposals Map. Cycle parking for visitors and residents in new residential developments will be promoted through Travel Plans.

Incentives to use car clubs will also be required in Travel Plans where there is a high density of potential users near the development or the development is in a Controlled Parking Zone or other area where car parking is constrained”.

Policy E2: Parking

“New development (including extensions to existing places of work) should provide:

- *Car and cycle parking that is suitable for the use and location as set out in the tables below.*
- *Sufficient, and appropriately sited, parking and drop-off facilities for disabled people.*

Off-street parking within new development will be subject to maximum standards with a range for residential development. The upper limit for residential development will only be applied where:

- *There would be little opportunity for safe on-street parking.*
- *On-street parking would cause operational problems for service vehicles.*

- *Where measures to encourage sustainable travel choices are promoted, through Travel Plans.*

No additional publicly available car parks will be permitted for long-stay parking, unless they are being provided in association with new or existing Park-and-Ride facilities”.

Policy E3: Design for Roads and Movement

“Roads, pedestrian routes and areas, cycleways and public spaces should provide safe and attractive travel choices and make way-finding easy for everyone, particularly disabled people, older people, young people and people with young children. These routes and spaces should be designed or improved to:

- *Ensure that levels and gradients are designed to maximise access for disabled people, subject to the topography, including ramps where needed.*
- *Maximise the safety of users, particularly at night, providing appropriate lighting and ensuring that, wherever possible, pedestrian and cycle routes are well overlooked and laid out to minimise conflict between users; new residential streets should be designed for travel at 20 mph or less.*
- *Include places for meeting or relaxing if located in areas where people live, visit or work.*
- *Reduce the need for traffic movements that would cause unhealthy levels of air or noise pollution.*
- *Meet current or anticipated operational requirements for buses, where they need to run through the area to meet minimum public transport accessibility standards.*
- *Ensure that sufficient and well designed car parking is provided that is integrated into the development and street scene in safe and easy-to-use layouts and would meet the needs of all users; parking for people with disabilities should be located to provide convenient access to facilities.*
- *Contribute to sustainable drainage.*
- *Be easily maintained and managed”.*

Policy P2: The Green Network

“Any development within the Green Network should:

- *Maintain or increase its continuity and green and open character.*
- *Not damage its value for wildlife and, wherever possible, increase it by including new areas of habitat, particularly for species identified as being of national, regional or local importance.*
- *Create open space and appropriate public right-of-way links in areas of Desired Green Links.*
- *Provide access to any public rights of way adjoining the site.*

Where space permits, and providing it would not harm its wildlife value, the Green Network should also be used to extend opportunities for informal recreation, including walking and wheelchair use, and, where appropriate, cycling and horse-riding away from the road network”.

The development is well located in relation to the local transport network, with a number of bus services accessible within the recommended 400m. Pedestrian and cyclist accessibility has been assessed and the proposed development is considered to promote inclusive design. A robust Transport Assessment and Travel Plan have been prepared to assess the impact on the local highway network. Car and cycle parking provision has been applied with reference to SCC guidance. The access arrangements can be suitably accommodated onto the local highway network and an analysis of the latest five year personal injury accident data suggests that there are no accident ‘hotspots’ on the study highway network.

4.3.4 Unitary Development Plan (UDP)

The Unitary Development Plan (UDP) was adopted as the statutory development plan for Sheffield in March 1998, consisting of a policy document and proposals map. The Proposals Map and many of the policies (‘saved policies’) continue to form part of the development plan alongside the more recent Core Strategy.

Some UDP policies are partly superseded by the Core Strategy but are retained until the Sheffield Plan is adopted, so that they can continue to guide decisions about planning applications. In the event of any conflict between a UDP policy and an adopted Core Strategy Policy, the Core Strategy will take precedence.

The following ‘saved’ policies within the UDP are of relevance to the development proposals from a transportation perspective:

Policy BE9: Design for Vehicles

“New developments and refurbishments should provide a safe, efficient and environmentally acceptable site layout for all vehicles (including cycles) and pedestrians. They will be expected to include the following:

- *A clear definition of vehicle access and exit.*
- *Good quality design of internal roadways and signs.*
- *Adequate manoeuvring, turning and parking space for service vehicles.*
- *Effective access at all times for emergency vehicles.*
- *Adequate standing space for operational vehicles when not in use, particularly within the premises from which they operate.*
- *Adequate parking space suitably located for vehicles used by people with disabilities.*
- *Parking areas designed to minimise the risk of crime against people and vehicles by making all parts of each area visible by users.*
- *Adequate safeguards for people living, working or walking at the site or nearby from exhaust fumes, traffic noise or risk of accident”.*

Policy BE10: Design of Streets, Pedestrian Routes, Cycleways and Public Spaces

“The design and environmental improvement of streets, pedestrian routes and areas, cycleways and public spaces should, where appropriate and practicable:

- *Make them convenient and safe to use for people with disabilities, elderly people, young people, and people with young children.*
- *Maximise the personal safety of pedestrians, particularly at night, and provide landscaping which does not significantly reduce visibility or form potential hiding places.*
- *Create attractive, welcoming and usable open areas where people can gather informally.*
- *Co-ordinate paving, street lighting, cycle parking, signs, street furniture, road crossing points and landscaping and other public utilities requirements.*

- *Lead to an overall reduction in the harmful effects of traffic, particularly near where people live.*
- *Minimise the conflict between pedestrians, cyclists and motorised traffic.*
- *Ensure that road layouts facilitate the efficient provision of public transport services.*
- *Be to a standard which will enable them to be adopted for maintenance at public expense”.*

Policy T8: Pedestrian Routes

“The safety, convenience and attractiveness of footpaths and pedestrian areas will be improved, and new routes and areas created, to form a pedestrian-friendly network throughout the City and provide access to the countryside around Sheffield. Major new developments will be required to include links to nearby existing or proposed pedestrian routes”.

Policy T10: Cycle Routes

“New developments will be required to include cycle links with existing or proposed routes where such an opportunity exists. Cycle parking facilities will be expected in new developments, including at park-and-ride sites and tram stops. The provision of cycle parking facilities will be encouraged at existing major destinations for cyclists, including in the City Centre and at railway stations”.

Policy T25: Car Parking in Residential Areas

“In residential areas, car parking will be regulated to:

- *Limit all-day parking by commuters, particularly those with jobs in the City Centre*
- *Protect adjacent pedestrian areas and verges*
- *Encourage property owners to provide suitable off-street parking within the boundary of their property, wherever possible.*

Housebuilders will be required to provide off-street parking”.

Policy T28: Transport Infrastructure and Development

“New development which would generate high levels of travel will be permitted only where it could be served adequately by:

- *Existing public transport services and infrastructure.*
- *Additions or extensions to such services linked directly to the development.*
- *Proposed extensions to the Supertram network.*
- *The existing highway network.*

and will be promoted where it would be best served by public transport, and where its location would reduce the need to travel, especially by car.

Where transport improvements will be needed to enable the proposal to go ahead, these should normally be provided, or commitment entered into to secure their provision, before any part of the developments comes into use”.

A suitable access arrangement has been identified onto Carr Road with an internal site layout designed to accommodate service vehicles and suitable levels of parking provision. The proposed development is considered to promote accessibility through the provision of pedestrian connectivity to the surrounding area. Car and cycle parking is to be provided against standards set by SCC. Travel patterns associated with the proposed development can be accommodated on the local highway network.

4.3.5 Sheffield City Region (SCR) Transport Strategy

The SCR Transport Strategy, or Local Transport Plan (LTP), is a statutory document which sets out how transport will help support the advancement of the SCR over the next fifteen years, from 2011 - 2016. The strategy defines the transport priorities and acts as the LTP Strategy for South Yorkshire, but covers the wider SCR, which functions as a coherent economic area. The SCR Transport Strategy has four main goals, as follows:

- To support the economic growth of the SCR through improving connectivity, supporting regeneration and linking people to jobs.
- Enhancing social inclusion and health, ensuring that people in all parts of the SCR have access to a variety of activities.
- Reducing the emissions from vehicles by encouraging sustainable travel choices.
- Make transport increasingly safe and secure.

In order for the strategy to meet its intended goals, a set of twenty-six policies summarise the highest priorities for transport improvements over the next fifteen years. The policies are designed so that they can be translated into actions and provide a framework for

delivery and implementation. The key policies of relevance to the development proposals are as follows:

- To focus development along key public transport corridors and in places adjacent to existing shops and services.
- To ensure public transport is accessible to all.
- To encourage active travel and develop high quality cycling and walking networks.
- To provide information and travel advice for the users of all modes of transport, so that they can make informed travel choices.

The proposed development supports the aspirations of the SCR Transport Strategy and by delivering housing in a sustainable location.

4.3.6 South Yorkshire Residential Design Guide

The South Yorkshire Residential Design Guide¹³ is intended for use by residential developers and their design professionals, consultants and agents in formulating designs and making applications for planning permission for residential development in South Yorkshire. It is intended to provide a clear and consistent approach to design in the development management process - an approach that will result in higher quality neighbourhoods and efficiency savings for developers.

The Guide has been produced by a working group from the four South Yorkshire local authorities, which includes SCC. It incorporates both their planning and highway responsibilities.

4.3.7 Highways Development Information Sheets

To assist developers through the highway and transportation side of the planning application process, SCC has published a series of 'Information Sheets' to provide advice. Current Information Sheets offer guidance on:

- Transport Assessments and Travel Plans.
- Car Parking Guidelines.
- Bicycle Parking Guidelines.

¹³ *South Yorkshire Residential Design Guide*, Transform South Yorkshire, 2011.

-
- Motorcycle Parking Guidelines.
 - Construction of New Roads and Footpaths for Adoption.
 - Information and Drawing Requirements for Section 38 Agreements.

5 Development Proposals

5.1 Introduction

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

5.2 The Development Proposal

The proposal is to develop the site to provide up to 93 privately owned houses. The site is to be accessed from a new simple three-arm priority junction onto Carr Road. The full description of development is as follows:

“Outline application for up to 93 residential dwellings with all matters except for access reserved”.

The proposed site layout is presented at Appendix A.

5.3 Vehicular Access

5.3.1 Access onto Carr Road

As agreed with SCC Highways during pre-application discussions, the vehicular access onto Carr Road is to be provided as a simple three-arm priority junction. The proposed preliminary access arrangement is shown on Fore Drawing 3421/SK001/004 Rev B to the rear of this report and includes:

- 6.0m carriageway width.
- 10.0m kerb radii.
- 2.0m wide footways to be provided on both sides of the access road. On the north side, a new 2.0m wide footway will be provided along the site frontage to tie into the existing footway provision on approach to the school patrol crossing. Southwards, a new 2.0m wide footway will extend a short distance around the access radius with a new uncontrolled pedestrian crossing (dropped kerbs and tactile paving) providing a pedestrian connection to the continuous footway along the east side of Carr Road.
- Provision of 2.4 x 52m visibility splay to the north and 2.4 x 44m visibility splay to the south, in line with the stopping sight distances required for the identified 85th percentile vehicle speeds - see below. A Traffic Regulation Order will be sought to

provide parking restrictions in the form of double yellow lines at the site frontage along the required extent of the visibility splays.

In order to determine the required visibility splays for the proposed site access junction from Carr Road, a speed survey was undertaken by an independent survey company.

The speed survey was carried out by Automatic Traffic Counts (ATCs), in compliance with DMRB TA 22/81¹⁴ and was positioned across Carr Road, approximately 40m to the south of the junction with Coultas Avenue, for a continuous one week period between 26 May 2016 and 2 June 2016.

The Table below provides a summary of the recorded 85th percentile vehicle speeds at the location described above. A full copy of the survey data is provided in Appendix B.

Table 3: Recorded Traffic Speeds along Carr Road

Location	Direction	Speed Limit	Mean Speed	85 th Percentile Speed
Carr Road	Northbound	30.0mph	25.2mph	30.7mph
	Southbound	30.0mph	27.7mph	34.3mph

In accordance with DMRB TA 22/81 for new major/minor junctions or accesses on to existing roads, the normal design methods are based on the 85th percentile wet weather journey speed of vehicles.

The recorded 85th percentile speeds along Carr Road were 30.7mph northbound and 34.3mph southbound. From DMRB TA 22/81, the adjustment factor from dry to wet weather speeds for All Purpose Single carriageway roads is a reduction of 4.0kph (2.5mph). However, as the speed surveys were carried out over a full week period, with the variation in weather conditions unknown, no adjustment factor has been applied. This provides for a robust assessment.

The site access is to be located within a built up urban environment and as such it is considered that visibility splays are to be provided in accordance with the stopping site distances set out in Manual for Streets. Given the above, it is considered that the provision of 2.4m x 52m (north) and 2.4m x 44m (south) visibility splays at the proposed site access onto Carr Road are suitable.

All highways works will be undertaken within land either controlled by the applicant or within the adopted highway. Should works be required within the adopted highway then it is proposed that the applicant will enter into an agreement with the Local Highway

¹⁴ *Design Manual for Roads and Bridges, TA 22/81: Vehicle Speed Measurement on All Purpose Roads*, Highways England, 1981.

Authority, under Section 278 of the Highways Act 1980, in order to deliver the works to the existing highway.

5.3.2 Internal Road Layout

The access road onto Carr Road will form the main internal spine road within the site. The spine road will form the major arm of a series of simple internal priority junctions which will provide access to residential cul-de-sacs.

The internal layout will be designed to ensure that carriageways can accommodate the necessary turning movements associated with a 11.0m refuse vehicle. The primary carriageways within the site will have a width of 5.5m and 2.0m wide footways will ensure that pedestrian movements within the site are adequately accounted for.

Access to individual dwellings will be provided directly from the local access roads through the site by private driveways or, alternatively, by shared space areas. The surface treatment of the shared space areas will be visually and texturally different to that of the local access road. The shared space areas will be subject to low traffic speeds and will be jointly used by pedestrians, cyclists and vehicular traffic.

It is intended that the internal road network will be built to adoptable standards and the majority will be offered for adoption under Section 38 of the Highways Act.

5.3.3 Parking

It is proposed that car and cycle parking provision within the site is provided in accordance with the adopted local guidelines and standards. SCC's Highway Development Adoptions Information Sheet 3 (Car Parking Guidelines)¹⁵ provides guidance on the level of car parking within new developments, which has been reproduced in the Table below.

It should be noted that the guidelines should be interpreted as 'maximum' standards, in accordance with Policy CS53 of the adopted Core Strategy.

¹⁵ *Information Sheet 3, Car Parking Guidelines*, Sheffield City Council (Highway Development and Adoptions), 2016.

Table 4: SCC Maximum Car Parking Standards

Use	City Centre Location	Threshold	Outside City Centre	Threshold
Housing	Up to 1 space per dwelling	N/A	1 space 2 spaces 2-3 spaces Negotiated In addition 1 visitor space per 4 houses should be provided	1 bedroom 2-3 bedroom 4-5 bedroom 6+ bedroom

With regards to the standards set out in the Table above, dedicated car parking provision will be provided for each residential dwelling in the form of detached or integral private garages and driveways.

For cycle parking the minimum standards set out in SCC's Highway Development and Adoptions Information Sheet 4 (Bicycle Parking Guidelines)¹⁶ have been applied, which are set out in the Table below.

Table 5: SCC Minimum Cycle Parking Standards

Use	Short Stay	Long Stay
Housing	N/A	1 space per dwelling

The proposed development will ensure that cycle parking can be adequately accommodated within the curtilage of the residential dwellings. Dwellings without garages will provide adequate internal storage space for cycles. Dwellings with garages will be designed so that access to and from the cycle storage is not hindered by parked cars or other stored items.

5.4 Servicing

Refuse vehicles will be able to access the site from either of the access points. Sufficient turning space will be provided within the site to allow the vehicles to enter and exit the site in forward gear.

¹⁶ Information Sheet 4, Bicycle Parking Guidelines, Sheffield City Council, Highway Development and Adoptions, 2016.

6 Baseline Traffic Conditions

6.1 Introduction

It has been agreed with SCC Highways that the traffic analysis contained in this Transport Assessment is to consider the Weekday AM and PM peak hours on the local highway network.

This Section describes the approach taken to identify the Weekday AM and PM peak hour traffic flows on the study highway network. The Section also identifies the predicted growth in baseline traffic, up to a projected Future Year of 2022.

6.2 Study Highway Network

The extent of the study highway network to be considered as part of this Transport Assessment has been discussed and agreed with SCC Highways Officer. The study highway network includes:

- Carr Road / Site Access proposed new three-arm simple priority junction.
- Carr Road / Royd Lane / Cockshot Lane / Hollin Busk Lane four-arm crossroad junction.
- Broomfield Lane / Coal Pit Lane / Hollin Busk Lane three-arm simple priority junction.
- Nanny Hill / Bocking Hill three-arm priority arrangement. Note that the configuration of this junction comprises three separate three-arm priority junctions, namely:
 - Junction 1: Nanny Hill West / Nanny Hill East / Bocking Hill three-arm simple priority junction.
 - Junction 2: Nanny Hill East / Bocking Hill (Link) / Nanny Hill West three-arm simple priority junction.
 - Junction 3: Bocking Hill North / Bocking Hill (Link) / Bocking Hill South three-arm simple priority junction.
- B6088 Manchester Road / A6102 Manchester Road / A6102 Vaughton Hill three-arm signalised junction (including the priority junction with Carr Road).

6.3 Existing 2017 Traffic Flows

Fully classified junction turning counts were undertaken at the identified study highway network junctions on 9 June 2016 at 15 minute intervals between 0700 to 1000 hours and 1600 to 1900 hours. The full survey data is provided in Appendix C.

TEMPRO Growth factors have been applied to the 2016 traffic flows up to the 2017 planning application submission date. The full output is presented in Appendix D and is summarised in the Table below:

Table 6: Local Traffic Growth Factors

Peak Period	Local Traffic Growth 2016 to 2017
Weekday AM Peak Period (0700-0959)	1.0165
Weekday PM Peak Period (1600-1859)	1.0162

Analysis of the data has identified the network peak hours as:

- **Weekday AM Peak: 0745 to 0845 hours.**
- **Weekday PM Peak: 1630 to 1730 hours.**

In terms of the existing mainline traffic flows along Carr Road in the vicinity of the site access, these have been determined through the placement of an Automatic Traffic Counter for a continuous one week period. The corresponding mainline traffic flows along Carr Road have thus been derived for the identified Weekday AM and PM peak hours.

The Existing 2017 Weekday AM and PM peak hour traffic flows are shown on Figures 6 and 7.

6.4 Committed Development

The predicted traffic flows associated with the following committed developments have been accounted for as part of the assessments:

- **Application Reference (08/02703/FUL):** Mixed use development including retail (Use Class A1), food and drink (Use Class A3), Leisure (Use Class D2), offices (Use Class B1), health centre (Use Class D1) and associated highway works, ground works, car parking accommodation, public open space and landscaping works (as amended 21.7.08, 24.7.08, 22.10.08).
- **Application Reference 11/00384/FUL):** Residential development of 114 dwelling houses (Application to approve details in relation to appearance, landscaping, layout

and scale - matters reserved by 11/00384/FUL) as amended 11.07.14, 18.08.14, 16.01.15, 28.01.15, 08.02.15, 17.02.15 and 19.02.15.

- **Application Reference (14/00318/FUL):** Residential development comprising 417 dwellings with associated car parking accommodation, landscaping works, access roads, bridge, site infrastructure and open space (amended scheme).

It should be noted that the approach and methodology of deriving the vehicle trip generations for the committed development sites has been discussed and agreed with SCC Highways.

The total committed development traffic flows are shown on Figures 8 and 9.

6.5 Future Assessment Year 2022

A Future Year of 2022 (five years after the projected planning application submission date) assessment has been considered as part of this Transport Assessment.

Background traffic growth factors have been taken from TEMPRO for principal urban roads in the Stocksbridge 002 Middle Layer Super Output Area (MSOA). The full output is presented in Appendix D and is summarised in the Table below.

Table 7: Local Traffic Growth Factors

Peak Period	Local Traffic Growth 2017 to 2022
Weekday AM Peak Period (0700-0959)	1.0859
Weekday PM Peak Period (1600-1859)	1.0846

The Base 2022 (without development) traffic flows are shown on Figures 10 and 11. It should be noted that these traffic flows include both the growth in baseline traffic and the predicted traffic flows associated with the committed developments.

7 Vehicle Trip Generations and Distribution

7.1 Introduction

This Section provides an estimate of the predicted vehicle trip generations and distributions associated with the proposed development.

The vehicle trip generations have been estimated based on a proposed development of up to 93 privately owned dwellings and have been shown for the identified local study network Weekday AM and PM peak periods (0745-0845 hours and 1630-1730 hours). These periods are also likely to represent the maximum trip generations from the proposed development.

It should be noted that the vehicular trip rates presented below have been agreed through Scoping with SCC Highways.

7.1.1 Vehicle Trip Generation

Traffic generation for the proposed development has been estimated based on the proposed 93 residential dwellings.

For simplicity and continuity with recent developments, Weekday AM and PM peak hour average vehicular trip rates for the land use proposed have been obtained from a Transport Note¹⁷ dated 2015 prepared by Hyder on behalf of the Bloor Homes development on land at Manchester Road, Deepcar.

The resulting trip rates are presented in the Table below for the identified peak hours.

Table 8: Average Weekday Vehicular Trip Rates

Land Use	Unit	Vehicular Trip Rates (per dwelling)			
		AM Peak (0800-0900)		PM Peak (1700-1800)	
		Arrivals	Departures	Arrivals	Departures
Residential	1 Dwelling	0.140	0.490	0.350	0.170

The resulting predicted vehicular generations for the proposed site are shown in the Table below.

¹⁷ *Deepcar Residential Development*, Transport Technical Note, Hyder, 2015.

Table 9: Predicted Vehicular Generations

Land Use	Unit	Vehicular Trip Generations (Vehicles)			
		AM Peak (0800-0900)		PM Peak (1700-1800)	
		Arrivals	Departures	Arrivals	Departures
Residential	93 Dwellings	13	46	33	16

It can be seen that the development is predicted to generate a total of 59 and 49 two-way vehicle trips during the identified Weekday AM and PM peak hours.

7.2 Vehicle Trip Distribution and Traffic Assignment

The vehicle trip distribution associated with the development proposals has been estimated based on the dataset, Location of usual residence and place of work by method of travel to work (MSOA level), as taken from the 2011 Census.

The destination of travel to work for people who live in the Sheffield 001 and 002 Middle Layer Super Output Area (MSOA) has been considered, as the area in which the site is located.

Destinations have been broken down in to MSOAs for the districts of Sheffield, Barnsley, High Peak and Kirklees; for other 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 vehicle trip distribution to and from the proposed development site.

The Gravity Model is presented in Appendix E and the resulting development vehicle trip distribution is summarised in the Table below, and illustrated on Figure 12.

Table 10: Vehicle Trip Distribution

Ref.	Route	Vehicle Trip Distribution
1	A616 (East)	31.8%
2	Soughley Lane	0.0%
3	Manchester Road (West)	13.0%
4	Manchester Road (South)	41.7%
5	Cockshot Lane	5.6%
6	Sheffield 001 / 002 (MSOA)	7.8%
7	A616 (West)	0.0%
8	Royd Lane	0.0%
9	Coal Pit Lane	0.0%
Total		100.0%

Figures 13 and 14 show the predicted Weekday AM and PM peak hour development traffic, based on a provision of 93 dwellings whilst Figures 15 and 16 show the corresponding Total 2022 (with development) traffic flows.

8 Total Person Trip Generations by Mode

8.1 Introduction

This Section provides an estimate of the predicted total person trip generations and mode share associated with the proposed development.

8.2 Mode Share

The 2011 Census data ('Method of Travel to Work') has been used to derive the baseline mode share for the development proposals. The mode share for the Lower Super Output Area (LSOA) Sheffield 002A has been used. As this is the MSOA in which the site is located, the mode share accurately represents the likely travel characteristics of the site, with regards to the existing accessibility of the site by public transport and the configuration of the local highway network.

The mode share from this data is summarised in the Table below. The categories 'works mainly at or from home', 'other method of travel to work' and 'not in employment' have been excluded from the assessments.

Table 11: Baseline Mode Share

Mode	Baseline Mode Share (% of journeys by mode)
Underground, metro, light rail, tram	1.8%
Train	0.8%
Bus, minibus or coach	11.3%
Taxi or minicab	0.2%
Motorcycle, scooter or moped	1.2%
Driving a car or van	69.8%
Passenger in a car or van	4.4%
Bicycle	1.1%
On foot	9.4%
Total	100.0%

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

It should be noted that a Travel Plan has been prepared to accompany the planning application at the site. The overriding aim of the Travel Plan is to reduce the number of

vehicular trips made to the site. Measures will be included within the Travel Plan to encourage travel by more sustainable modes such as walking, cycling and public transport.

As part of the Travel Plan a ‘target’ mode share has been identified. The initial modal split has been based on the mode share presented above, with future year targets set to encourage the use of sustainable modes of travel to and from the development and reduce the overall number of vehicular trips.

8.3 Person Trip Generation

By applying the established baseline mode share with the predicted vehicle generations for the proposed development, the predicted person trip generation by mode has been estimated. This is set out in the Table below.

Table 12: Baseline Person Trip Generation by Mode

Mode	Person Trip Generation (Trips)			
	AM Peak (0800-0900)		PM Peak (1700-1800)	
	Arrivals	Departures	Arrivals	Departures
Underground, metro, light rail, tram	0	1	1	0
Train	0	1	0	0
Bus, minibus or coach	2	7	5	3
Taxi or minicab	0	0	0	0
Motorcycle, scooter or moped	0	1	1	0
Driving a car or van	13	46	33	16
Passenger in a car or van	1	3	2	1
Bicycle	0	1	1	0
On foot	2	6	4	2
Total	19	65	47	23

It can be seen that the proposed development is predicted to generate a total of 84 and 70 two-way person trips during the identified Weekday AM and PM peak hours.

9 Junction Capacity Assessments

9.1 Introduction

This Section details the capacity assessments undertaken at the junctions identified as part of the study network, namely:

- Carr Road / Site Access proposed new three-arm simple priority junction.
- Carr Road / Royd Lane / Cockshot Lane / Hollin Busk Lane four-arm crossroad junction.
- Broomfield Lane / Coal Pit Lane / Hollin Busk Lane three-arm simple priority junction.
- Nanny Hill / Bocking Hill three-arm priority arrangement. Note that the configuration of this junction comprises three separate three-arm priority junctions, namely:
 - Junction 1: Nanny Hill West / Nanny Hill East / Bocking Hill three-arm simple priority junction.
 - Junction 2: Nanny Hill East / Bocking Hill (Link) / Nanny Hill West three-arm simple priority junction.
 - Junction 3: Bocking Hill North / Bocking Hill (Link) / Bocking Hill South three-arm simple priority junction.
- B6088 Manchester Road / A6102 Manchester Road / A6102 Vaughton Hill three-arm signalised junction (including the priority junction with Carr Road).

The capacity assessments have been undertaken for the identified Weekday AM and PM peak hours for the Existing 2017, Base 2022 (without development) and Total 2022 (with development) scenarios.

A Junctions9 (v9.0.1) model of the priority junctions set out above has been developed. Amongst other performance indicators and statistics, the Junctions9 program 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 the level at which a junction's operational capacity is reached. Whilst its functional capacity is not breached (i.e. it is not operating above an RFC of 1.00), queues and delay can increase



disproportionately to the flow of traffic approaching the junction once an RFC of 0.85 is exceeded.

Traffic demand has been input based on the ‘Direct’ method of entry, using observed flow profiles and turning proportions from the traffic survey undertaken. The Direct methodology allows the operation of the junction to be assessed using the actual turning count data for each of the 15 minute periods within each peak hour, thereby providing a detailed analysis of the actual traffic flows over the course of the whole of the hourly periods.

It should be noted that the model output results reported within this section provide an analysis of the reported worst case 15 minute period within each peak hour, thereby providing a robust assessment of each junction across the peak hours.

In terms of the B6088 Manchester Road / A6102 Manchester Road / A6102 Vaughton Hill three-arm signalised junction, a LINSIG model has been constructed which includes the priority junction with Carr Road. The traffic signal data has been supplied by SCC’s Traffic Signal Team.

In understanding the data presented, the normally accepted maximum degree of saturation threshold is 90%. Above this level of saturation, a junction arm is considered to be approaching operational capacity whereby the arm could experience problems associated with queuing and delay.

9.2 Carr Road / Site Access Proposed New Three-Arm Priority Junction

9.2.1 Total 2022 (With Development)

The junction will only be in place if the development is built out. Therefore, only the Total 2022 (With Development) scenario has been assessed.

The Total 2022 (With Development) results from the Junctions9 model are summarised in the Table below and are presented in full at Appendix F.

Table 13: Carr Road / Site Access Junction – Total 2022

Arm	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
Site Access - RT/LT	0.06	0.1	0.02	0.0
Carr Road - AH/RT	0.02	0.0	0.05	0.1

Note: LT (Left Turn), RT (Right Turn), AH (Ahead).

The Table above indicates that the junction is predicted to operate well within the 0.85 RFC threshold.

The maximum predicted RFC is 0.06, occurring during the AM peak hour on the Proposed Site Access arm of the junction, with a corresponding maximum average queue of 0.1 PCUs.

9.3 Carr Road / Royd Lane / Cockshot Lane / Hollin Busk Lane Four-Arm Priority Junction

9.3.1 Existing 2017

The Existing 2017 results from the Junctions9 model are summarised in the Table below and are presented in full at Appendix G.

Table 14: Carr Road / Royd Lane / Cockshot Lane / Hollin Busk Lane Junction – Existing 2017

Arm	AM Peak Hour		PM Peak Hour	
	RFC	Q	RFC	Q
Hollin Busk Lane - LT/AH	0.26	0.3	0.12	0.1
Hollin Busk Lane - RT/AH	0.08	0.1	0.07	0.1
Cockshot Lane - LT/AH/RT	0.02	0.0	0.03	0.0
Royd Lane - LT/AH	0.11	0.1	0.08	0.1
Royd Lane - AH/RT	0.15	0.2	0.10	0.1
Carr Road - AH/RT/LT	0.11	0.1	0.13	0.2

Note: LT (Left Turn), RT (Right Turn), AH (Ahead).

The Table above indicates that the junction currently operates within capacity and with only minimal queues during both peak periods for the Existing 2017 assessment scenario. All arms of the junction are predicted to operate well within the 0.85 RFC threshold.

The maximum predicted RFC is 0.26, occurring during the AM peak hour on the Hollin Busk Lane arm of the junction, with a corresponding maximum average queue of 0.3 PCUs.

9.3.2 Base 2022 (Without Development)

The Base 2022 (Without Development) results from the Junctions9 model are summarised in the Table below and are presented in full at Appendix G.

Table 15: Carr Road / Royd Lane / Cockshot Lane / Hollin Busk Lane Junction – Base 2022

Arm	AM Peak Hour		PM Peak Hour	
	RFC	Q	RFC	Q
Hollin Busk Lane - LT/AH	0.30	0.4	0.14	0.2
Hollin Busk Lane - RT/AH	0.09	0.1	0.08	0.1
Cockshot Lane - LT/AH/RT	0.03	0.0	0.04	0.0
Royd Lane - LT/AH	0.12	0.1	0.09	0.1
Royd Lane - AH/RT	0.17	0.2	0.12	0.1
Carr Road - AH/RT/LT	0.13	0.1	0.18	0.2

Note: LT (Left Turn), RT (Right Turn), AH (Ahead).

The Table above indicates that the junction is predicted to continue to operate within capacity and with only minimal queues during both peak periods for the Base 2022 (Without Development) assessment scenario. All arms of the junction are predicted to operate well within the 0.85 RFC threshold.

It can be seen that the predicted future growth of base traffic alongside the committed development traffic, is predicted to result in a marginal increase to the reported RFCs and queues.

The maximum predicted RFC is 0.30, occurring during the AM peak hour on the Hollin Busk Lane arm of the junction, with a corresponding maximum average queue of 0.4 PCUs.

9.3.3 Total 2022 (With Development)

The Total 2022 (With Development) results from the Junctions9 model are summarised in the Table below and are presented in full at Appendix G.

Table 16: Carr Road / Royd Lane / Cockshot Lane / Hollin Busk Lane Junction – Total 2022

Arm	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
Hollin Busk Lane - LT/AH	0.29	0.4	0.15	0.2
Hollin Busk Lane - RT/AH	0.09	0.1	0.08	0.1
Cockshot Lane - LT/AH/RT	0.03	0.0	0.04	0.0
Royd Lane - LT/AH	0.12	0.1	0.09	0.1
Royd Lane - AH/RT	0.17	0.2	0.12	0.1
Carr Road - AH/RT/LT	0.13	0.2	0.18	0.3

Note: LT (Left Turn), RT (Right Turn), AH (Ahead).

The Table above indicates that the junction is predicted to continue to operate within capacity and with only minimal queues for both peak periods during the Total 2022 (With Development) assessment scenario. All arms of the junction are predicted to operate well within the 0.85 RFC threshold.

It can be seen that the development is predicted to result in only a marginal increase to the reported RFCs and queues.

The maximum predicted RFC is 0.30, occurring during the AM peak hour on the Hollin Busk Lane arm of the junction, with a corresponding maximum average queue of 0.4 PCUs.

It is therefore concluded that the proposed development will not have a material impact on the operation of Carr Road / Royd Lane / Cockshot Lane / Hollin Busk Lane Four-Arm Priority Junction.

9.4 Broomfield Lane / Coal Pit Lane / Hollin Busk Road Three-Arm Priority Junction.

9.4.1 Existing 2017

The Existing 2017 results from the Junctions9 model are summarised in the Table below and are presented in full at Appendix H.

Table 17: Broomfield Lane / Coal Pit Lane / Hollin Busk Road Junction – Existing 2017

Arm	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
Hollin Busk Road - LT	0.18	0.2	0.13	0.2
Hollin Busk Road - RT	0.09	0.1	0.10	0.1
Coal Pit Lane - AH/RT	0.18	0.3	0.08	0.1

Note: LT (Left Turn), RT (Right Turn), AH (Ahead).

The Table above indicates that the junction currently operates within capacity and with only minimal queues for both peak periods during the Existing 2017 assessment scenarios. All arms of the junction are predicted to operate well within the 0.85 RFC threshold.

The maximum predicted RFC is 0.18, occurring during the AM peak hour on the Hollin Busk Road and Coal Pit Lane arms of the junction, with a corresponding maximum average queue of 0.2 PCUs and 0.3 PCUs respectively.

9.4.2 Base 2022 (Without Development)

The Base 2022 (Without Development) results from the Junctions9 model are summarised in the Table below and are presented in full at Appendix H.

Table 18: Broomfield Lane / Coal Pit Lane / Hollin Busk Road Junction – Base 2022

Arm	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
Hollin Busk Road - LT	0.20	0.3	0.15	0.2
Hollin Busk Road - RT	0.10	0.1	0.11	0.1
Coal Pit Lane - AH/RT	0.20	0.3	0.09	0.1

Note: LT (Left Turn), RT (Right Turn), AH (Ahead).

The Table above indicates that the junction is predicted to operate within capacity and with only minimal queues during both peak periods for the Base 2022 (Without Development) assessment scenario. All arms of the junction are predicted to operate well within the 0.85 RFC threshold.

It can be seen that the predicted future growth of base traffic alongside committed development traffic, is predicted to result in a marginal increase to the reported RFC's and queues.

The maximum predicted RFC is 0.20, occurring during the AM peak hour on the Coal Pit Lane arm of the junction, with a corresponding maximum average queue of 0.3 PCUs.

9.4.3 Total 2022 (With Development)

The Total 2022 (With Development) results from the Junctions9 model are summarised in the Table below and are presented in full at Appendix H.

Table 19: Broomfield Lane / Coal Pit Lane / Hollin Busk Road Junction – Total 2022

Arm	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
Hollin Busk Road - LT	0.20	0.3	0.15	0.2
Hollin Busk Road - RT	0.11	0.1	0.11	0.1
Coal Pit Lane - AH/RT	0.20	0.3	0.09	0.1

Note: LT (Left Turn), RT (Right Turn), AH (Ahead).

The Table above indicates that the junction is predicted to operate within capacity and with only minimal queues during both peak periods for the Total 2022 (With Development) assessment scenario. All arms of the junction are predicted to operate well within the 0.85 RFC threshold.

It can be seen that the development is predicted to result in no increase to the reported RFC's and queues.

The maximum predicted RFC is 0.20, occurring during the AM peak hour on the Hollin Busk Road and Coal Pit Lane arms of the junction, with a corresponding maximum average queue of 0.3 PCUs.

It is therefore concluded that the proposed development will not have a material impact on the operation of Broomfield Lane / Coal Pit Lane / Hollin Busk Road Three-Arm priority junction.

9.5 Nanny Hill / Bocking Hill Three-Arm Priority Junction

Note that the configuration of this junction comprises three separate three-arm priority junctions, namely:

- Junction 1: Nanny Hill West / Nanny Hill East / Bocking Hill Three-Arm Priority Junction.
- Junction 2: Nanny Hill East / Bocking Hill (Link) / Nanny Hill West Three-Arm Priority Junction.

- Junction 3: Bocking Hill North / Bocking Hill (Link) / Bocking Hill South Three-Arm Priority Junction.

9.5.1 Existing 2017

The Existing 2017 results from the Junctions9 model are summarised in the Table below and are presented in full at Appendix I.

Table 20: Nanny Hill / Bocking Hill Junction – Existing 2017

Arm	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
Junction 1				
Nanny Hill East - RT/LT	0.03	0.0	0.03	0.0
Bocking Hill - AH/RT	0.00	0.0	0.00	0.0
Junction 2				
Bocking Hill (Link) - RT/LT	0.11	0.1	0.04	0.0
Nanny Hill West - AH/RT	0.00	0.0	0.00	0.0
Junction 3				
Bocking Hill Link - RT/LT	0.02	0.0	0.03	0.0
Bocking Hill South - AH/RT	0.12	0.2	0.04	0.1

Note: LT (Left Turn), RT (Right Turn), AH (Ahead).

The Table above indicates that all three junctions currently operate within capacity and with only minimal queues during both peak periods for the Existing 2017 assessment scenarios. Each of the junctions is predicted to operate well within the 0.85 RFC threshold.

Across all three junctions the maximum predicted RFC is 0.12, occurring during the AM peak hour at Junction 3 on the Bocking Hill south arm of the junction, with a corresponding maximum average queue of 0.2 PCUs.

9.5.2 Base 2022 (Without Development)

The Base 2022 (Without Development) results from the Junctions9 model are summarised in the Table below and are presented in full at Appendix I.



Table 21: Nanny Hill / Bocking Hill Junction – Base 2022

Arm	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
Junction 1				
Nanny Hill East - RT/LT	0.03	0.0	0.04	0.0
Bocking Hill - AH/RT	0.00	0.0	0.00	0.0
Junction 2				
Bocking Hill (Link) - RT/LT	0.12	0.1	0.04	0.0
Nanny Hill West - AH/RT	0.00	0.0	0.00	0.0
Junction 3				
Bocking Hill Link - RT/LT	0.02	0.0	0.03	0.0
Bocking Hill South - AH/RT	0.14	0.2	0.05	0.1

Note: *LT (Left Turn), RT (Right Turn), AH (Ahead).*

The Table above indicates that all three junctions is predicted to operate within capacity and with only minimal queues during both peak periods during the Base 2022 (Without Development) assessment scenario. Each of the junctions is predicted to operate well within the 0.85 RFC threshold.

Across all three junctions it can be seen that the predicted future growth of base traffic alongside committed development traffic, is predicted to result in a marginal increase to the reported RFC’s and queues.

The maximum predicted RFC is 0.14, occurring during the AM peak hour at Junction 3 on the Bocking Hill South arm of the junction, with a corresponding maximum average queue of 0.2 PCUs.

9.5.3 Total 2022 (With Development)

The Total 2022 (With Development) results from the Junctions9 model are summarised in the Table below and are presented in full at Appendix I.

Table 22: Nanny Hill / Bocking Hill Junction – Total 2022

Arm	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
Junction 1				
Nanny Hill East - RT/LT	0.03	0.0	0.04	0.0
Bocking Hill - AH/RT	0.00	0.0	0.00	0.0
Junction 2				
Bocking Hill (Link) - RT/LT	0.12	0.1	0.04	0.0
Nanny Hill West - AH/RT	0.00	0.0	0.00	0.0
Junction 3				
Bocking Hill Link - RT/LT	0.03	0.0	0.03	0.0
Bocking Hill South - AH/RT	0.14	0.2	0.05	0.1

Note: *LT (Left Turn), RT (Right Turn), AH (Ahead).*

The Table above indicates that all three junctions are predicted to operate within capacity and with only minimal queues during both peak periods for the Total 2022 (With Development) assessment scenario. Each of the junctions is predicted to operate well within the 0.85 RFC threshold.

It can be seen that the development is predicted to result in only a marginal increase to the reported RFC's and queues.

The maximum predicted RFC is 0.14, occurring during the AM peak hour at Junction 3 on the Bocking Hill South arm of the junction, with a corresponding maximum average queue of 0.2 PCUs.

It is therefore concluded that the proposed development will not have a material impact on the operation of Broomfield Lane / Coal Pit Lane / Hollin Busk Road Three-Arm priority junction.

9.6 A6102 Manchester Road / A6102 Vaughton Hill / B6088 Manchester Road Three-Arm Signalised Junction

As a note, the assessments at the signalised junction include the priority arrangement with Carr Road, located a short distance back from the B6088 Manchester Road signal stopline. The priority arrangement is such that vehicles turning right from Carr Road do so either during gaps in the queues along the B6088 Manchester Road or indeed through courtesy gaps.

Traffic signal data has been supplied by SCC Highways and the junction has been modelled using the LinSig computer programme.

SCC Highways has advised that the junction currently operates Vehicle-Actuated (VA) control and is not controlled by the Urban Traffic Control System (UTC). Under current operations the control strategy will constantly vary the cycle times and green splits to suit the incoming traffic demands and so, consequently, absolute values for the signal cycles or green times at any particular time of the day cannot be specified. However, a review of the video surveys shows that the average cycle times during the identified Weekday AM and PM peak hours are 75 seconds and 84 seconds respectively.

In understanding the data presented, the normally accepted maximum degree of saturation threshold is 90%. Above this level of saturation, a junction arm is considered to be approaching operational capacity whereby the arm could experience problems associated with queuing and delay.

9.6.1 Existing 2017

The Existing 2017 results from the LinSig model are summarised in the Table below and are presented in full at Appendix J.

It should be noted that the queue length model outputs have been calibrated by reviewing the traffic survey videos and it is considered that the model outputs satisfactorily and reasonably reflect the current queueing levels at the junction.

The minor differences queuing output mainly occur on the B6088 Manchester Road arm and a review of the video surveys shows that the differences are likely to be as a consequence of the way that the junction operates in terms of a 'stop-start' queuing effect as drivers approaching the junction from the B6088 Manchester Road arm let vehicles exit from Carr Road in courtesy gaps. Nevertheless, the sum total of the recorded vehicles queuing along the B6088 Manchester Road and Carr Road arms are consistent with the model output. The calibration of the junction modelling has been discussed with SCC Highways and Traffic Signal Team as part of the pre-application discussions.

Table 23: A6102 Manchester Road /A6102 Vaughton Hill / B6088 Manchester Road Junction – Existing 2017

Arm	Existing 2017			
	Weekday AM Peak Hour		Weekday PM Peak Hour	
	Deg.Sat (%)	MMQ (PCU)	Deg.Sat (%)	MMQ (PCU)
A6102 Vaughton Hill (AH/R)	74.4	5.2	87.3	11.7
A6102 Manchester Road (s) (L/AH)	71.7	5.1	86.0	12.7
B6088 Manchester Road (w) (L/R)	75.1	13.8	85.6	12.5
Carr Road	63.8	1.3	33.3	0.2
PRC (%)	19.9		3.1	
Cycletime (Seconds)	75		84	

The Table above shows that all three arms of the junction are operating close to 90% degree of saturation during the Existing 2017 Weekday PM peak hour with an overall PRC of 3.1%.

9.6.2 Base 2022 (Without Development)

The Base 2022 (Without Development) results from the LinSig model are summarised in the Table below and are presented in full at Appendix J.

Table 24: A6102 Manchester Road / A6102 Vaughton Hill / B6088 Manchester Road Junction – Base 2022

Arm	Base 2022			
	Weekday AM Peak Hour		Weekday PM Peak Hour	
	Deg.Sat (%)	MMQ (PCU)	Deg.Sat (%)	MMQ (PCU)
A6102 Vaughton Hill (AH/R)	89.2	7.8	108.8	39.2
A6102 Manchester Road (s) (L/AH)	86.4	8.6	111.8	70.5
B6088 Manchester Road (w) (L/R)	89.8	20.6	113.0	52.7
Carr Road	78.0	3.3	42.3	0.4
PRC (%)	0.2		-25.5	
Cycletime (Seconds)	75		84	

Accounting for a the growth in background traffic up to the future assessment year of 2022 along with the traffic flows associated with the committed Bloor Homes and Outo Kumpu developments, it can be seen that all arms of the junction are predicted to be approaching the 90% degree of saturation level during the Weekday AM peak and above 100% degree of saturation during the Weekday PM peak hour with an overall PRC of -25.5%.

9.6.3 Total 2022 (With Development)

The 2022 (With Development) results from the LinSig model are summarised in the Table below and are presented in full at Appendix J.

Table 25: A6102 Manchester Road / A6102 Vaughton Hill / B6088 Manchester Road Junction – Total 2022

Arm	Total 2022			
	Weekday AM Peak Hour		Weekday PM Peak Hour	
	Deg.Sat (%)	MMQ (PCU)	Deg.Sat (%)	MMQ (PCU)
A6102 Vaughton Hill (AH/R)	90.9	8.4	111.6	46.5
A6102 Manchester Road (s) (L/AH)	88.2	9.2	114.0	78.8
B6088 Manchester Road (w) (L/R)	93.4	23.7	115.1	58.3
Carr Road	86.2	7.0	44.8	0.4
PRC (%)	-3.8		-27.9	
Cycletime (Seconds)	75		84	

Accounting for the proposed development traffic, the operation of the junction is further intensified. However, in order to put the proposed development's impact at the junction into context, the Tables below provide a summary comparison between the traffic flows of the committed developments with those of the proposed development during the identified peak hours.

Table 26: Entry Flow Comparison – Weekday AM Peak Hour (PCUS)

Entry Arm	Weekday AM Peak Hour		
	Base 2022 (no committed development)	Committed Development (% increase)	Proposed Development (% increase)
A6102 Vaughton Hill (AH/R)	360	13 (3.6%)	4 (1.1%)
A6102 Manchester Road (s) (L/AH)	353	73 (20.7%)	5 (1.4%)
B6088 Manchester Road (w) (L/R)	814	61 (7.5%)	34 (4.2%)
TOTAL	1,527	147 (9.6%)	43 (2.8%)

Table 27: Entry Flow Comparison – Weekday PM Peak Hour (PCUS)

Entry Arm	Weekday PM Peak Hour		
	Base 2022 (no committed development)	Committed Development (% increase)	Proposed Development (% increase)
A6102 Vaughton Hill (AH/R)	544	13 (2.4%)	10 (1.8%)
A6102 Manchester Road (s) (L/AH)	654	200 (30.6%)	14 (2.1%)
B6088 Manchester Road (w) (L/R)	487	97 (19.9%)	12 (2.5%)
TOTAL	1,685	310 (18.4%)	36 (2.1%)

It can be seen that the committed developments have a much greater impact on the traffic flows at the junction than the proposed development.

During the Weekday AM peak hour, the committed development flows are higher on all arms than the proposed development with particular intensification on the A6102 Manchester Road (s) arm. Overall, the committed development flows represent an increase of 9.6% of the total traffic approaching the junction whilst the proposed development represents an increase of 2.8%.

Similarly, during the Weekday PM peak hour (which is the worst case peak hour in terms of the operation of the junction) the committed development flows are significantly higher on both the A6102 Manchester Road (s) and B6088 Manchester Road (w) arms. Overall, during the Weekday PM peak hour the committed development flows represent an increase of 18.4% of the total traffic approaching the junction whilst the proposed development represents an increase of 2.1%.

9.6.4 Proposed Mitigation Measures

SCC Highways has advised that the junction is proposed to be updated to operate under Microprocessor Optimised Vehicle Actuation (MOVA) as part of a planning condition associated with the committed Bloor Homes / Outo Kumpu developments.

MOVA is a recognised traffic signal strategy which provides an improved control and operating efficiency of traffic signals at isolated junctions. Through discussions with SCC Highways, it is understood that these improvements are likely to improve the operational capacity of the junction by 10% - 15%.

Notwithstanding the above, it is appreciated that the proposed development will have an additional impact on the operation of the junction, particularly along the Carr Road approach arm during the Weekday AM peak hour (although it should be noted that even during this peak period, the proposed development is predicted to generate only

approximately one new vehicle every two minutes along Carr Road on approach to the signalised junction).

Nevertheless, with the above in mind a series of meetings and discussions have been held with SCC Highways and Traffic Signal Team. Through these discussions, it has been concluded that the development's impact at this junction can be suitably mitigated through provision of the following measures:

- The provision of additional detectors on Manchester Road and Carr Road to detect when there is a queuing on Manchester Road and queuing on Carr Road. Essentially, this allows queue lengths along Carr Road to be detected as part of the recognised queues along the B6088 Manchester Road arm, which in turn re-optimises the green time given to this arm as part of the signal control.
- Additional inputs to be configured into the MOVA system to provide bus priority for buses on all approaches to the junction including Carr Road.

Through discussion with SCC Highways and Traffic Signal Team, the measures outlined above are considered to be in scale and context with the proposed development's impact at the signalised junction (bearing in mind the comparisons made in Tables 26 and 27 above) and particularly along the Carr Road approach arm.

It is envisaged therefore that a suitable planning condition would be attached to any approval in order to ensure that the above mitigation measures are implemented as part of the development proposals.

9.7 Impact on South Pennine Moor Special Area of Conservation (SAC)

The South Pennine Moors SAC includes the major moorland blocks of the South Pennines from Ilkley in the north to Leek and Matlock in the south. The eastern edge of the conservation area runs to the west of Stocksbridge.

The predicted development vehicular trips routing through the SAC will be negligible. Figure 13 and Figure 14 show the predicted development traffic flows. These show that the development will only generate 8 and 6 two-way flows along the western periphery (A616 Manchester Road) of the study network during the respective peak hours. It is likely that these movements will be further dispersed beyond the study highway network, prior to entering the SAC.

It is therefore concluded that the development's impact on vehicular movements through the SAC will be negligible.

10 Personal Injury Accident Data

10.1 Introduction

This section provides a summary of the latest five year personal injury accident data at, or within close proximity to, the junctions that represent the study area for this Transport Assessment. The section identifies all road traffic accidents that have been recorded during the latest five year period, as supplied by SCC Highways.

The accident data has been examined in order to determine whether there are any ‘cluster spots’ that could indicate a particular issue at a location and if so, to determine the potential cause (s) of these accidents through analysis of the dataset provided.

The road traffic accident data, detailing the precise locations and dates of accidents recorded is attached as Appendix K. A summary of this information is set out in the Table below, and described in the following sections.

Table 28: Road Traffic Accident Summary

Location	Accident Severity		
	Slight	Serious	Fatal
Carr Road within 100m of the proposed Site Access Junction	0	0	0
Carr Road / Cockshot Lane / Royd Lane / Hollin Busk Lane Junction	1	0	0
Broomfield Lane / Coal Pit Lane / Hollin Busk Lane Junction	0	0	0
Nanny Hill / Bocking Hill Junction	1	0	0
A6102 Manchester Road / A6102 Vaughton Hill / B6088 Manchester Road Junction	3	0	0
Total	5	0	0

10.2 Road Traffic Accidents

10.2.1 Proposed Site Access onto Carr Road

There have been no recorded accidents along Carr Road within the vicinity of the proposed site access junction during the latest five year period.

10.2.2 Carr Road / Cockshot Lane / Royd Lane / Hollin Busk Lane Junction

One slight accident was recorded at the Carr Road / Cockshot lane / Royd Lane / Hollin Busk Lane Junction during the latest five year period. The accident occurred between a pedestrian and a vehicle travelling northbound on Cockshot Lane, approximately 50m to the south of the junction. The accident resulted from the vehicle colliding with the pedestrian at the side of the carriageway. 'Careless, reckless or in a hurry' was recorded as a contributory factor to the accident.

10.2.3 Broomfield Lane / Coal Pit Lane / Hollin Busk Lane Junction

There have been no recorded accidents within the vicinity of this junction during the latest five year period.

10.2.4 Nanny Hill / Bocking Hill Junction

One slight accident was recorded at the Bocking Hill / Nanny Hill Junction, during the latest five year period. The accident occurred between a vehicle travelling northbound and vehicle travelling southbound on Bocking Hill. The accident resulted from the southbound vehicle swerving across the carriageway and colliding with the rear of the northbound vehicle. 'Impaired by alcohol' was recorded as a contributory factor the accident.

10.2.5 A6102 Manchester Road / A6102 Vaughton Hill / B6088 Manchester Road Junction

A total of three accidents were recorded at the A6102 Manchester Road / A6102 Vaughton Hill / B6088 Manchester Road Junction during the latest five year period. All three of the accidents were classed as slight. A summary of the accidents is provided below:

- An accident of slight severity occurred between a vehicle travelling southbound on Wortley Road (north of A6102 Vaughton Hill) and a parked vehicle. The accident resulted from the southbound vehicle swerving to avoid an animal and colliding with a steel fence and parked vehicle. 'Careless, reckless or in a hurry', 'Loss of control', 'Distraction in vehicle' and 'Aggressive driving' were recorded as contributory factors to the accident.
- An accident of slight severity occurred between a moving vehicle and a pedestrian at the Manchester Road junction with A6102 Vaughton Hill. The accident resulted from a vehicle striking a pedestrian while standing at the side of the road. The driver of the vehicle failed to stop. 'Failed to look properly' was recorded as a contributory factor to the accident.
- An accident of slight severity occurred between two vehicles travelling northbound at the junction with Manchester Road and A6102 Vaughton Hill. The accident resulted

from a vehicle colliding with the rear of a stationary vehicle, while stopped at a red light. No contributory factors to the accident were recorded.

10.3 Summary

A total of five accidents have occurred over the latest five year period at the junctions / extent of highway considered to be the study area as part of this Transport Assessment. All five accidents were classed as slight. There were no serious or fatal accidents.

There were no recorded accidents along Carr Road within vicinity of the proposed site access junction.

The most notable trend in the data provided by SCC, is that the majority of the accidents appear to be the result of driver error, typically involving collisions on entry /rear shunts on approach to the junction. Of the accidents, two involved a pedestrian and there were no recorded accidents involving cyclists.

Overall, the number of accidents occurring on the study highway network over the latest five year period is considered to be low and the proposed development is unlikely to have a detrimental impact on the accident rate on the network.

11 Summary and Conclusions

This Transport Assessment has been prepared to accompany an outline planning application for a proposed development of up to 93 dwellings on land at Deepcar, Stocksbridge, Sheffield. The report provides a robust assessment of the transportation implications of the development proposals.

The Scope of this Transport Assessment has been discussed and agreed with Sheffield City Council's Highways Officer, Matthew Dodson (SCC Highways) through regular email and telephone correspondence along with meetings held on Monday 8 August and Friday 26 August.

The Transport Assessment has:

- Examined the baseline conditions of the study transport network.
- Considered relevant national and local transport planning policy.
- Provided an analysis of sustainable travel opportunities to the site by walking, cycling and public transport.
- Outlined the proposed development including the access, parking and servicing arrangements.
- Determined the predicted Weekday AM and PM peak hour vehicle generations and trip distributions onto the study highway network.
- Determined the predicted total person trips by mode to the site during the identified Weekday AM and PM peak hours.
- Undertaken capacity assessments at the identified junctions forming the study highway network for a Future Year 2022 both with and without the development in place and accounting for traffic flows associated with committed developments.
- Provided an analysis of the latest recorded five year personal injury accident data on the study highway network.

It is considered that:

- The development accords with both national and local transport policy.
- The development offers the opportunity to travel to the site by modes other than single occupancy car trips, including walking, cycling and public transport. It has

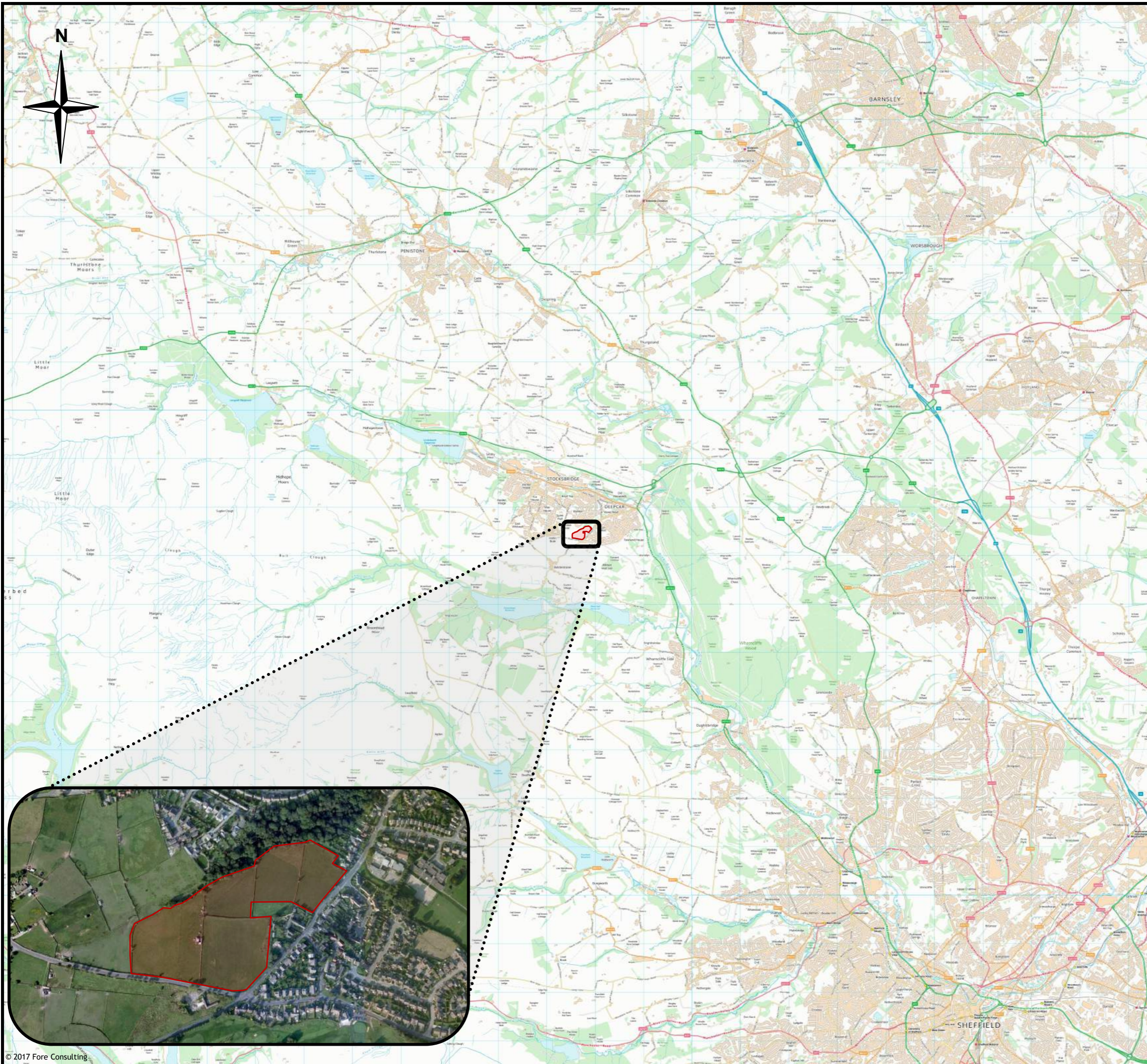
been demonstrated that the development lies within the preferred maximum walking and cycling catchment distances to a number of residential areas as well as a range of local attractors. It has also been demonstrated that the site offers the opportunity to travel to the development using the bus stops and services along Royd Road, St. Margaret Avenue and Wood Royd Road.

- A Travel Plan has been prepared as a separate document to this Transport Assessment, aimed at further encouraging sustainable travel to the site and reducing the number of single occupancy car trips.
- The development can provide a suitable access arrangement onto Carr Road. The access arrangement has been discussed in detail and agreed with SCC Highways as part of the pre-application discussions.
- With the exception of the B6088 Manchester Road / A6102 Manchester Road / A6102 Vaughton Hill signalised junction, it has been demonstrated that all other junctions considered as part of the study highway network will continue to operate within capacity both with and without the development in place.
- It has been demonstrated that the B6088 Manchester Road / A6102 Manchester Road / A6102 Vaughton Hill signalised junction is currently operating close to operational capacity and that the junction is predicted to exceed capacity for a future year 2022, without the proposed development in place. It has also been demonstrated that the committed developments have a much greater impact on the traffic flows at the junction than the proposed development. Notwithstanding this, a series of meetings and discussions have been held with SCC Highways and Traffic Signal Team to identify suitable mitigation measures at the junction which could be brought forward as part of the proposed development. These are:
 - The provision of additional detectors on Manchester Road and Carr Road to detect when there is a queuing on Manchester Road and queuing on Carr Road. Essentially, this allows queue lengths along Carr Road to be detected as part of the recognised queues along the B6088 Manchester Road arm, which in turn re-optimises the green time given to this arm as part of the signal control.
 - Additional inputs to be configured into the MOVA system to provide bus priority for buses on all approaches to the junction including Carr Road.
- Through discussion with SCC Highways and Traffic Signal Team, the measures outlined above are considered to be in scale and context with the proposed development's impact at the signalised junction and it is envisaged that a suitable planning condition would be attached to any approval in order to ensure that the above mitigation measures are implemented as part of the development proposals.

- The development is unlikely to materially influence the road safety record on the study highway network.

The residual cumulative impacts of the proposed development are not considered to be severe within the context of Paragraph 32 of the NPPF. It is therefore concluded that, in terms of highways, the development proposals are acceptable.

Figures



Key:

 Site Location

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 2nd Floor, Queens House
 34 Wellington Street
 Leeds
 LS1 2DE
 0113 246 0204
 enquiries@foreconsulting.co.uk
 www.foreconsulting.co.uk



Client:
Hallam Land Management

Project:
Proposed Residential Development at Land at Deepcar, Stocksbridge

Figure Title:
Site Location

Scale:
Not to Scale

Figure Status:
Issue

Job Number:
3241

Figure Number:
Figure 1



Key:

-  Site Location
-  Local Links

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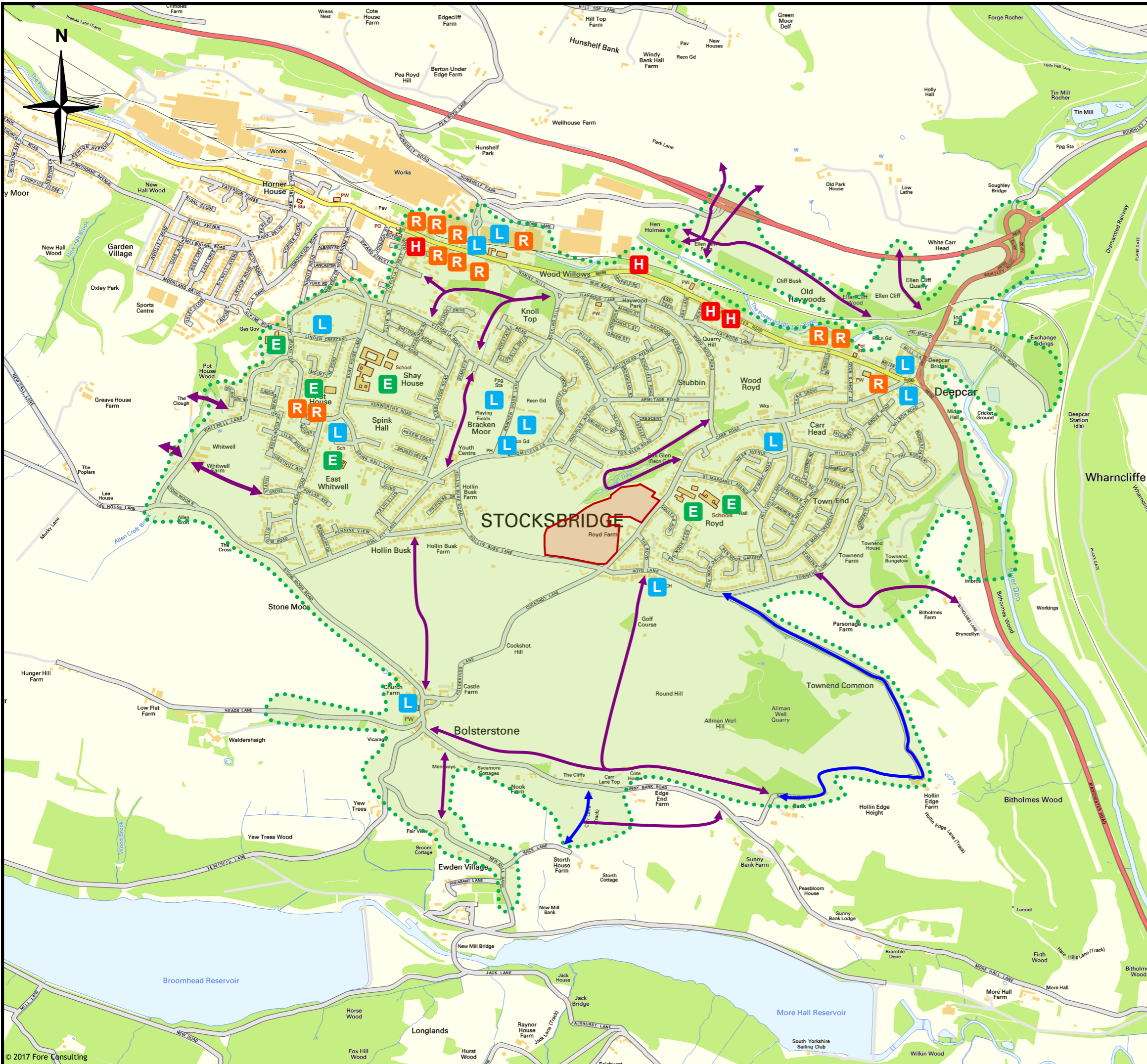
Figure Title:
 Local Highway Network

Scale:
 Not to Scale









Figure Status:
 Issue

Job Number:
 3241

Figure Number:
 Figure 2



Key:

-  Site Location
-  2.0km Walking Distance Isochrone
- Note: Isochrone measured from indicative central point within site
-  Retail Site (eg shops and restaurants)
-  Leisure Site (eg public houses and leisure centres)
-  Healthcare Site (eg medical centres and pharmacies)
-  Education Site (eg schools and colleges)
-  Public Right of Way (Footpath)
-  Public Right of Way (Bridleway / Byway)

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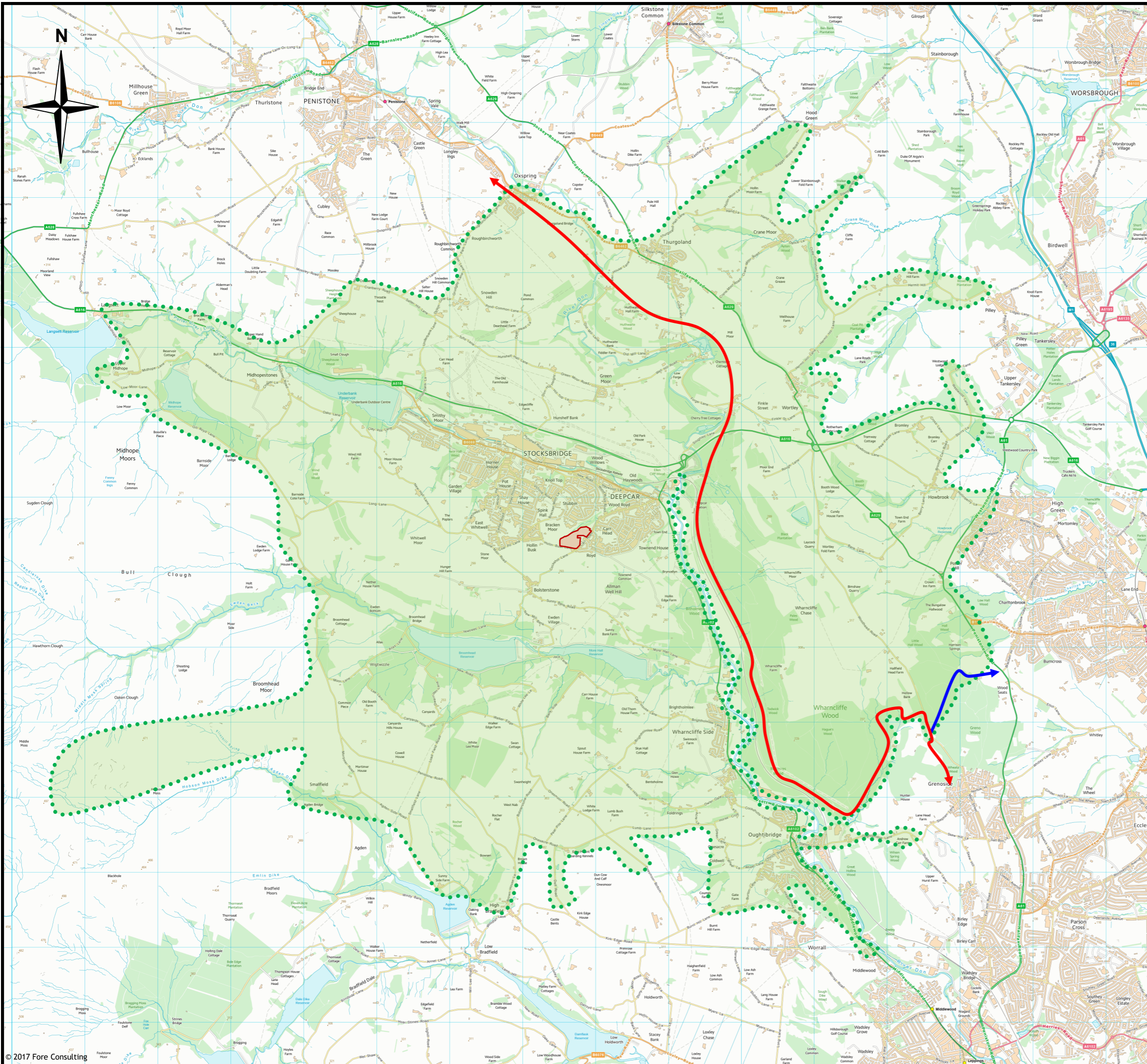


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Project:
Proposed Residential Development at Land at Deepcar, Stocksbridge

Figure Title:
Pedestrian Catchment and Local Amenities



Scale: Not to Scale	Figure Status: Issue
Job Number: 3241	Figure Number: Figure 3



Key:

-  Site Location
-  8km Cycling Distance Isochrone

Note: Isochrone measured from indicative central point within the site

-  National Cycle Route 627
-  National Cycle Route 67

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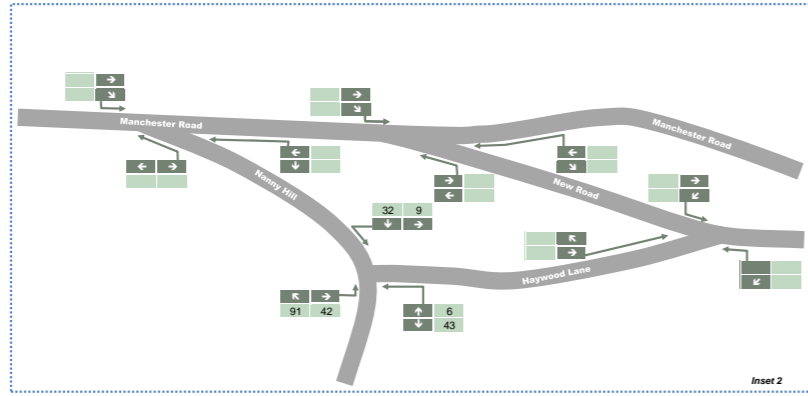
Figure Title:
 Cycle Catchment

Scale:
 Not to Scale

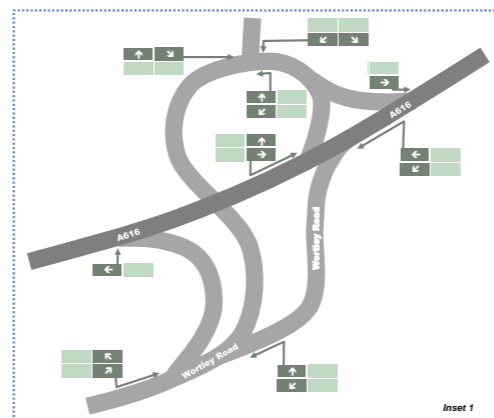
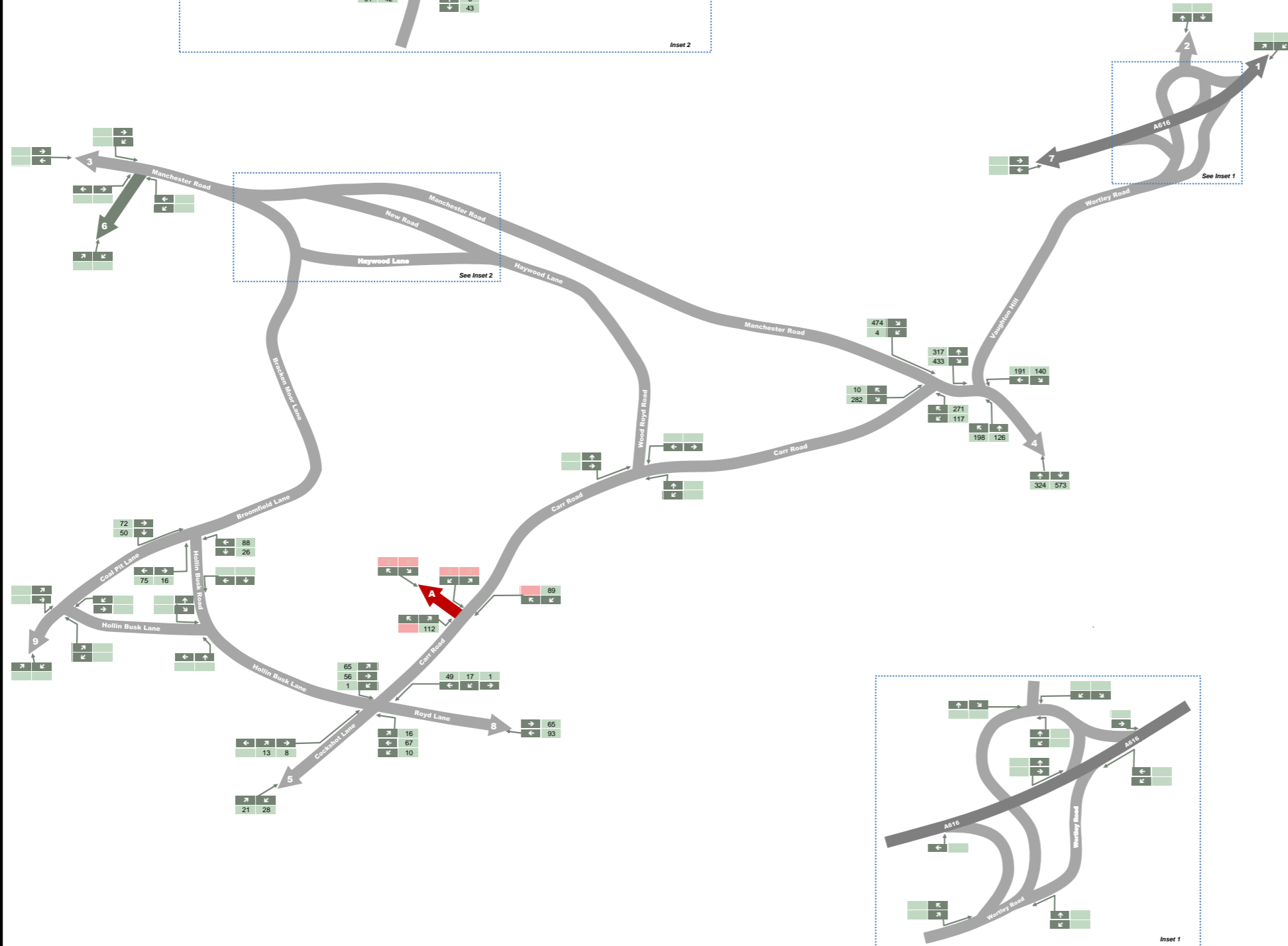
Figure Status:
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Job Number:
 3241

Figure Number:
 Figure 4



Ref.	Route	Arr.	Dep.
1	A616 (East)		
2	Soughley Lane		
3	Manchester Road (West)		
4	Manchester Road (South)	324	573
5	Cockshott Lane	21	28
6	Sheffield 001 / 002 (MSOA)		
7	A616 (West)		
8	Royd Lane	93	65
9	Coal Pit Lane		
Total Vehicle Trips		439	666



Key:

- Primary Road
- Secondary Road
- Proposed Site Access
- Additional traffic movements not explicitly represented in the network diagram (eg minor and/or accessroads)

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

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 Wellington Street
 Leeds
 LS1 2DE
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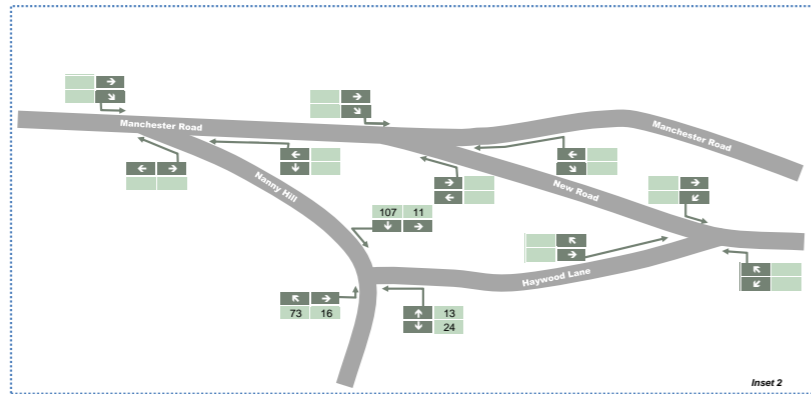
Figure Title:
Existing 2017 Traffic Flows - Weekday AM Peak Hour

Scale:
Not to scale

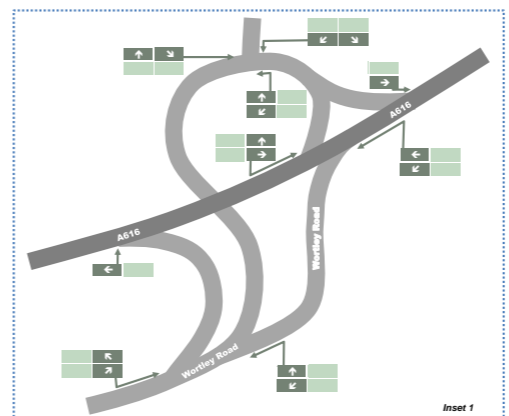
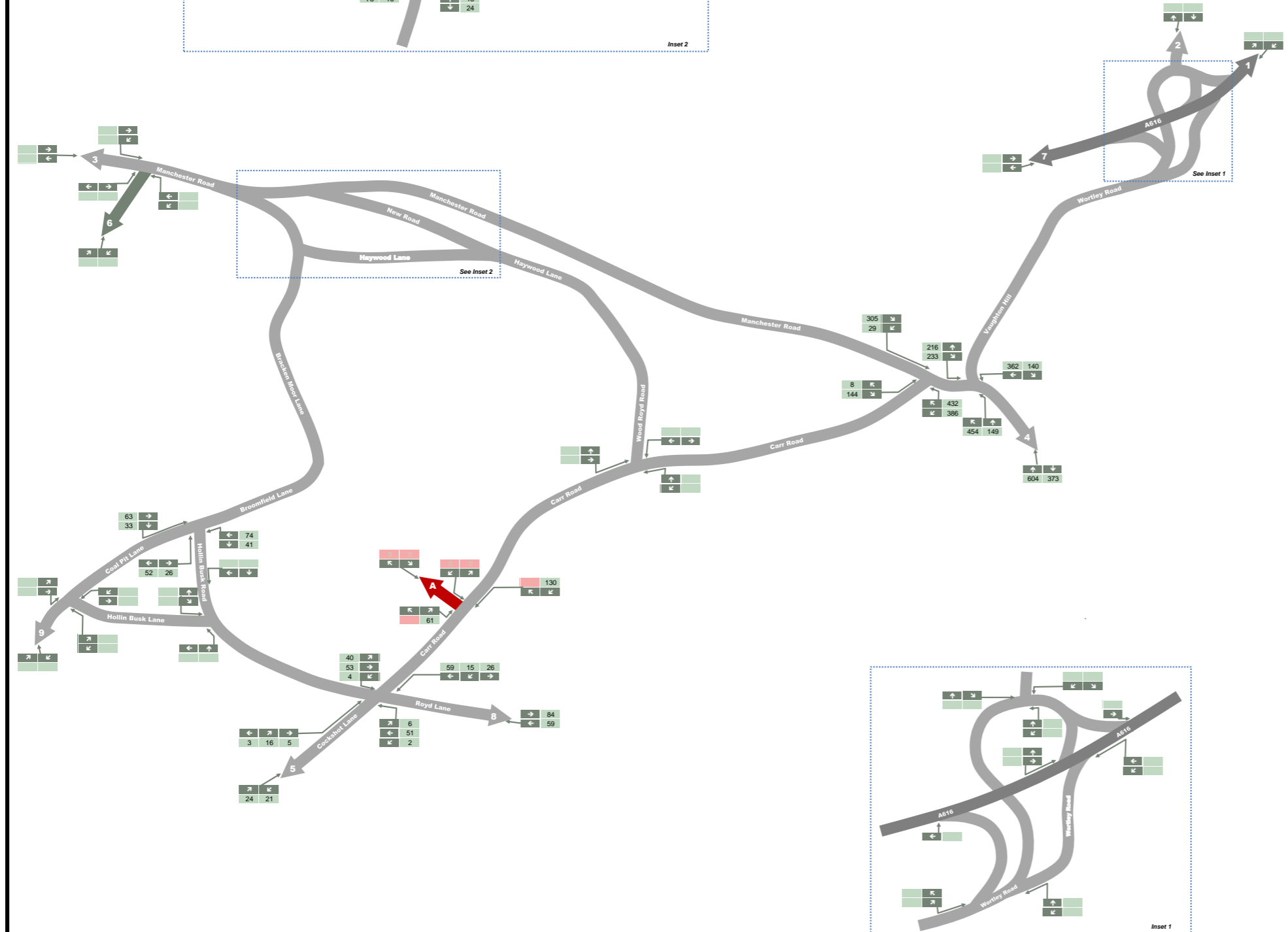
Figure Status:
Issue

Job Number:
3421

Figure Number:
Figure 6



Ref.	Route	Arr.	Dep.
1	A616 (East)		
2	Soughley Lane		
3	Manchester Road (West)		
4	Manchester Road (South)	604	373
5	Cockshott Lane	24	21
6	Sheffield 001 / 002 (MSOA)		
7	A616 (West)		
8	Royd Lane	59	84
9	Coal Pit Lane		
Total Vehicle Trips		687	479



Key:

- Primary Road
- Secondary Road
- Proposed Site Access
- Additional traffic movements not explicitly represented in the network diagram (eg minor and/or accessroads)

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

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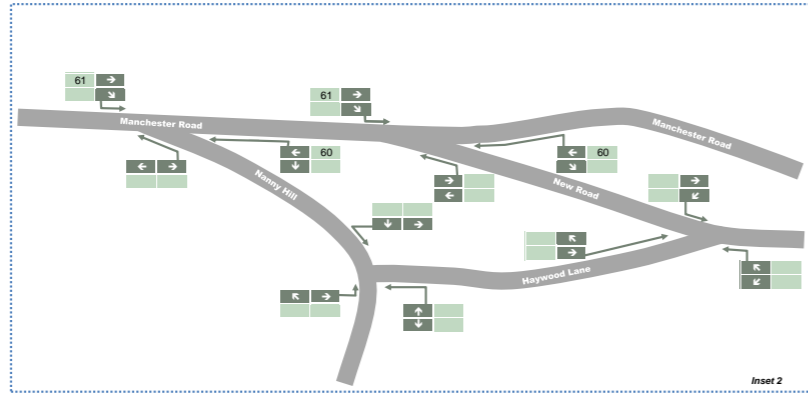


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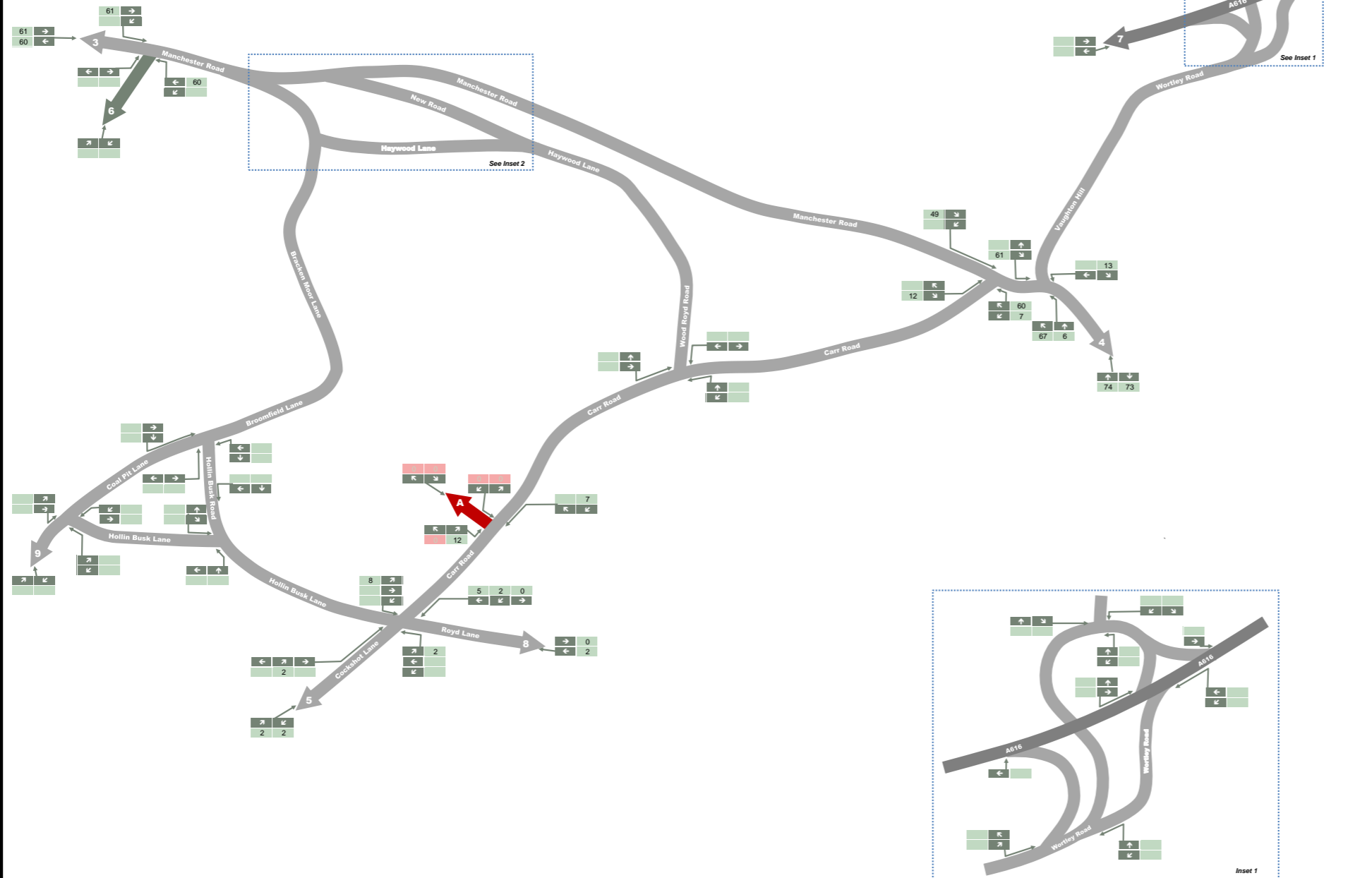
Project:
 Proposed Residential Development at Land at Deepcar, Stocksbridge

Figure Title:
 Existing 2017 Traffic Flows - Weekday PM Peak Hour





Scale: Not to scale	Figure Status: Issue
Job Number: 3421	Figure Number: Figure 7



Ref.	Route	Arr.	Dep.
1	A616 (East)		
2	Soughley Lane		
3	Manchester Road (West)	61	60
4	Manchester Road (South)	74	73
5	Cockshott Lane	2	2
6	Sheffield 001 / 002 (MSOA)		
7	A616 (West)		
8	Royd Lane	2	0
9	Coal Pit Lane		
Total Vehicle Trips		136	136



Key:

-  Primary Road
-  Secondary Road
-  Proposed Site Access
-  Additional traffic movements not explicitly represented in the network diagram (eg minor and/or accessroads)

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

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 2nd Floor, Queens House
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 0113 2460204
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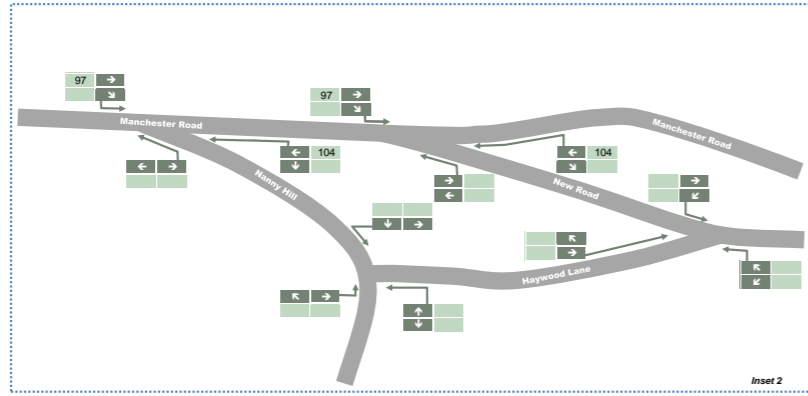
Figure Title:
 Committed Development Traffic Flows - Weekday AM Peak
 Hour

Scale:
 Not to scale

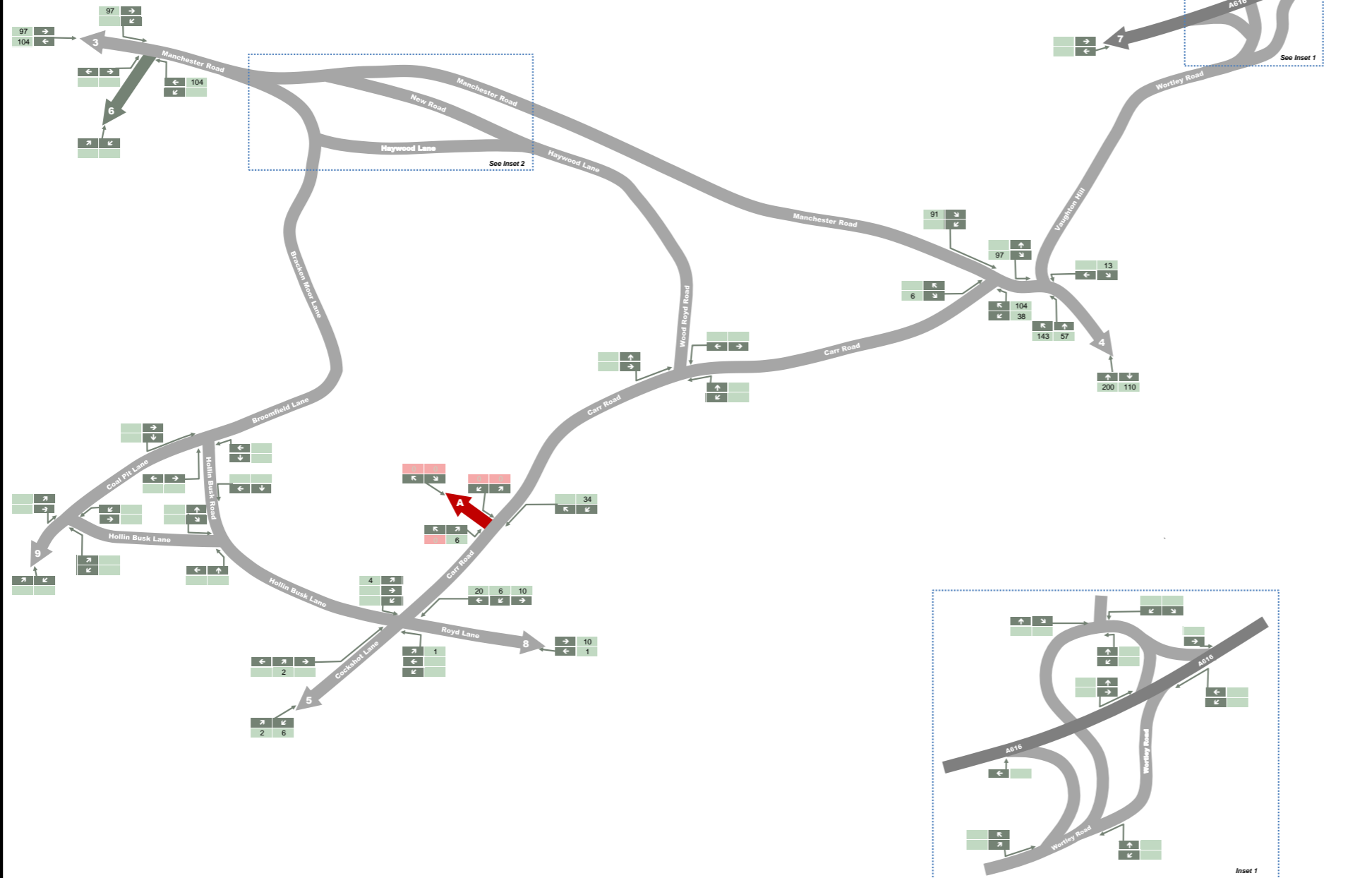
Figure Status:
 Issue

Job Number:
 3421





Figure Number:
 Figure 8



Ref.	Route	Arr.	Dep.
1	A616 (East)		
2	Soughley Lane		
3	Manchester Road (West)	97	104
4	Manchester Road (South)	200	110
5	Cockshott Lane	2	6
6	Sheffield 001 / 002 (MSOA)		
7	A616 (West)		
8	Royd Lane	1	10
9	Coal Pit Lane		
Total Vehicle Trips		299	230



Key:

-  Primary Road
-  Secondary Road
-  Proposed Site Access
-  Additional traffic movements not explicitly represented in the network diagram (eg minor and/or accessroads)

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

Fore Consulting Limited
 2nd Floor, Queens House
 Wellington Street
 Leeds
 LS1 2DE
 0113 2460204
 enquiries@foreconsulting.co.uk
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 Proposed Residential Development at Land at Deepcar,
 Stocksbridge

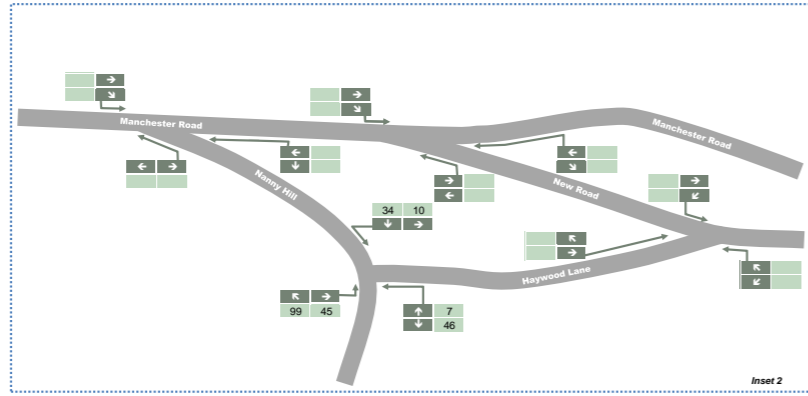
Figure Title:
 Committed Development Traffic Flows - Weekday PM Peak
 Hour

Scale:
 Not to scale

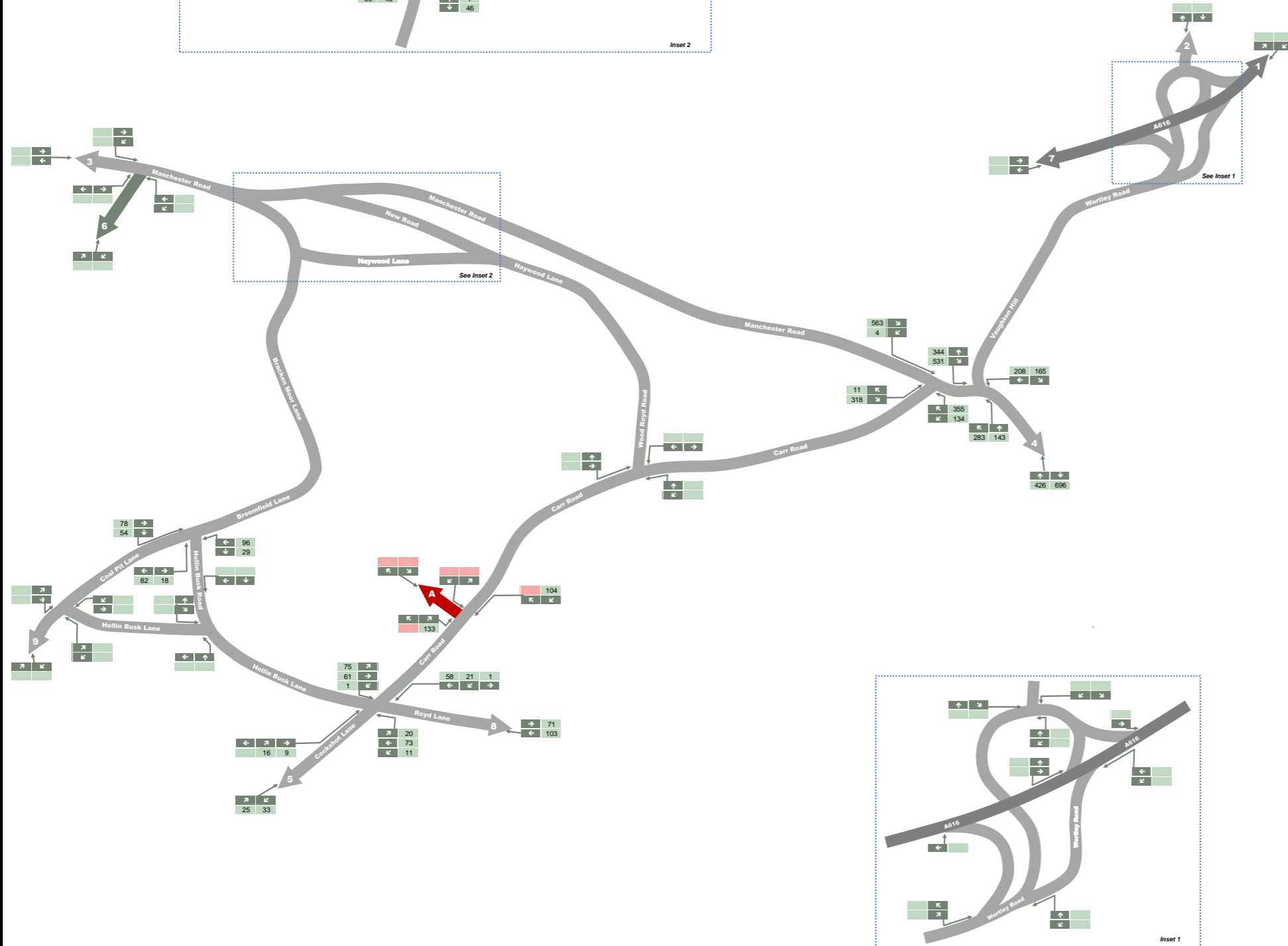
Figure Status:
 Issue

Job Number:
 3421





Figure Number:
 Figure 9



Ref.	Route	Arr.	Dep.
1	A616 (East)		
2	Soughley Lane		
3	Manchester Road (West)		
4	Manchester Road (South)	426	696
5	Cockshott Lane	25	33
6	Sheffield 001 / 002 (MSOA)		
7	A616 (West)		
8	Royd Lane	103	71
9	Coal Pit Lane		
Total Vehicle Trips		554	799



Key:

-  Primary Road
-  Secondary Road
-  Proposed Site Access
-  Additional traffic movements not explicitly represented in the network diagram (eg minor and/or accessroads)

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

Fore Consulting Limited
 2nd Floor, Queens House
 Wellington Street
 Leeds
 LS1 2DE
 0113 2460204
 enquiries@foreconsulting.co.uk
 www.foreconsulting.co.uk



Client:
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Project:
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 Stocksbridge

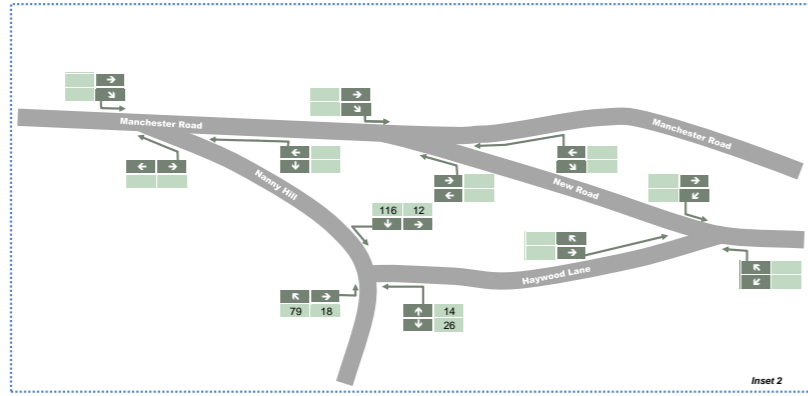
Figure Title:
 Base 2022 (Without Development) Traffic Flows - Weekday
 AM Peak Hour

Scale:
 Not to scale

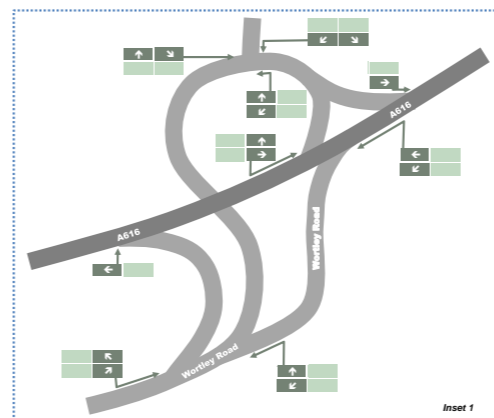
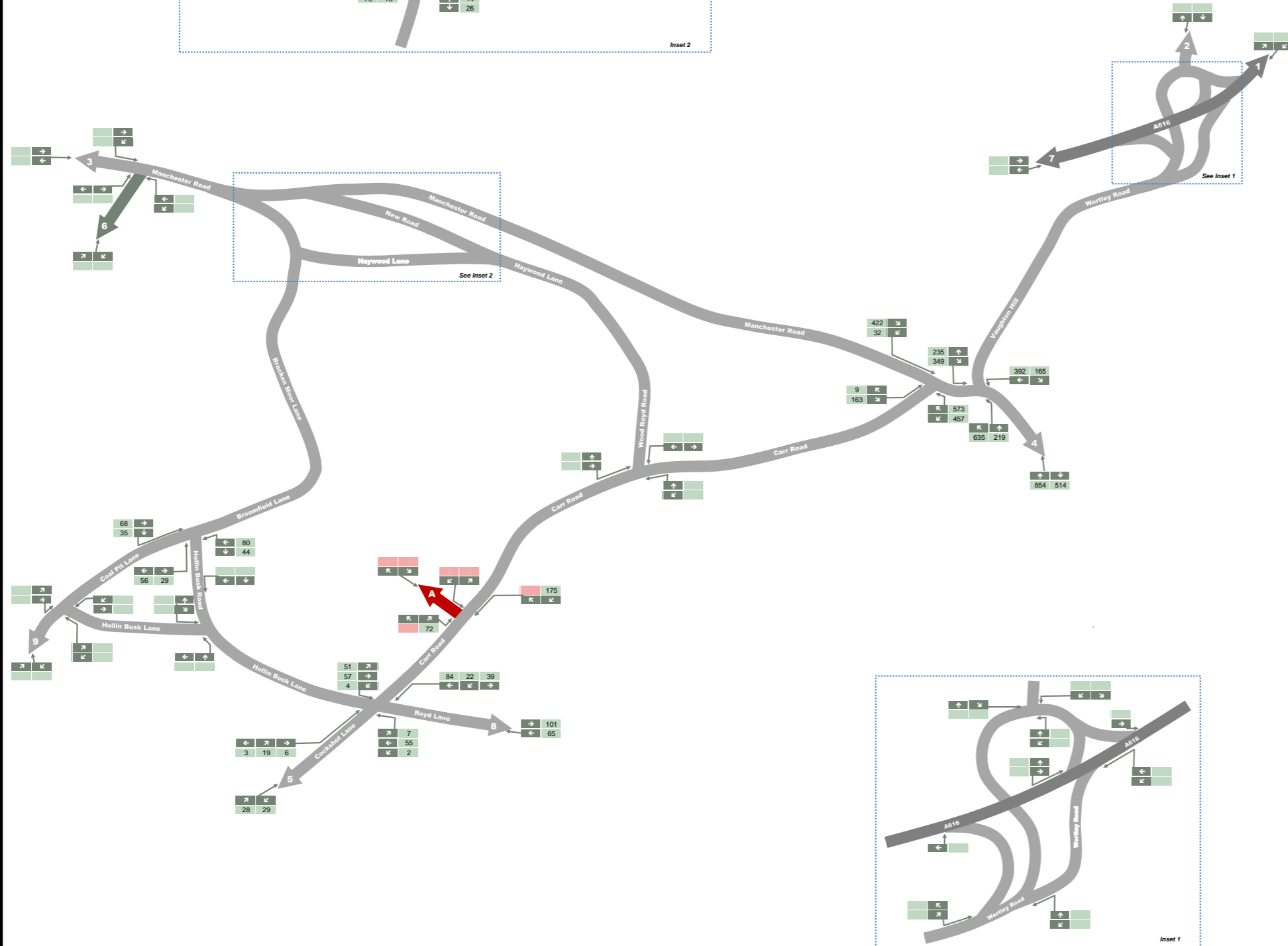
Figure Status:
 Issue

Job Number:
 3421

Figure Number:
 Figure 10



Ref.	Route	Arr.	Dep.
1	A616 (East)		
2	Soughley Lane		
3	Manchester Road (West)		
4	Manchester Road (South)	854	514
5	Cockshott Lane	28	29
6	Sheffield 001 / 002 (MSOA)		
7	A616 (West)		
8	Royd Lane	65	101
9	Coal Pit Lane		
Total Vehicle Trips		947	645



Key:

- Primary Road
- Secondary Road
- Proposed Site Access
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Note: The number in each arrowhead relates to the route reference used in the Vehicle Trip Distribution.

Fore Consulting Limited
 2nd Floor, Queens House
 Wellington Street
 Leeds
 LS1 2DE
 0113 2460204
 enquiries@foreconsulting.co.uk
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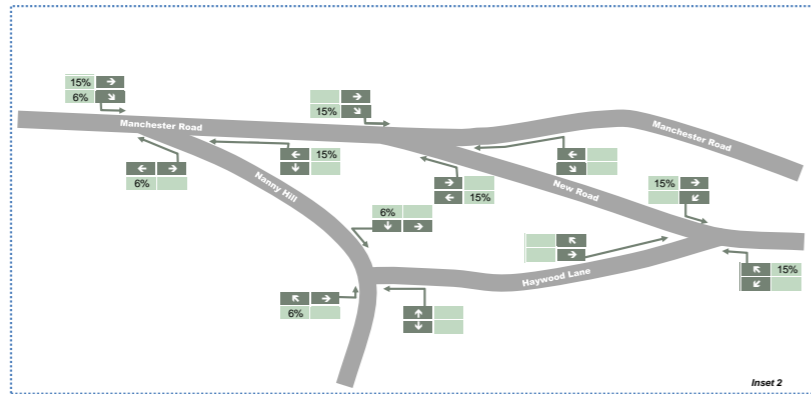
Figure Title:
 Base 2022 (Without Development) Traffic FLOws - Weekday
 PM Peak Hour

Scale:
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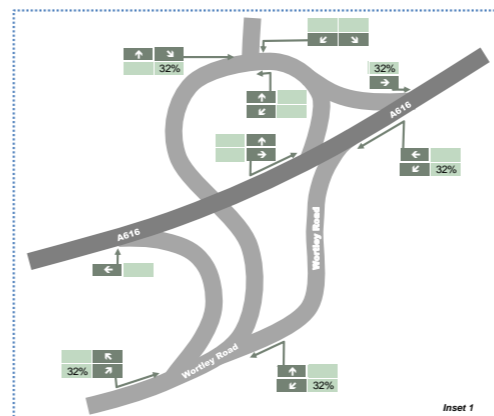
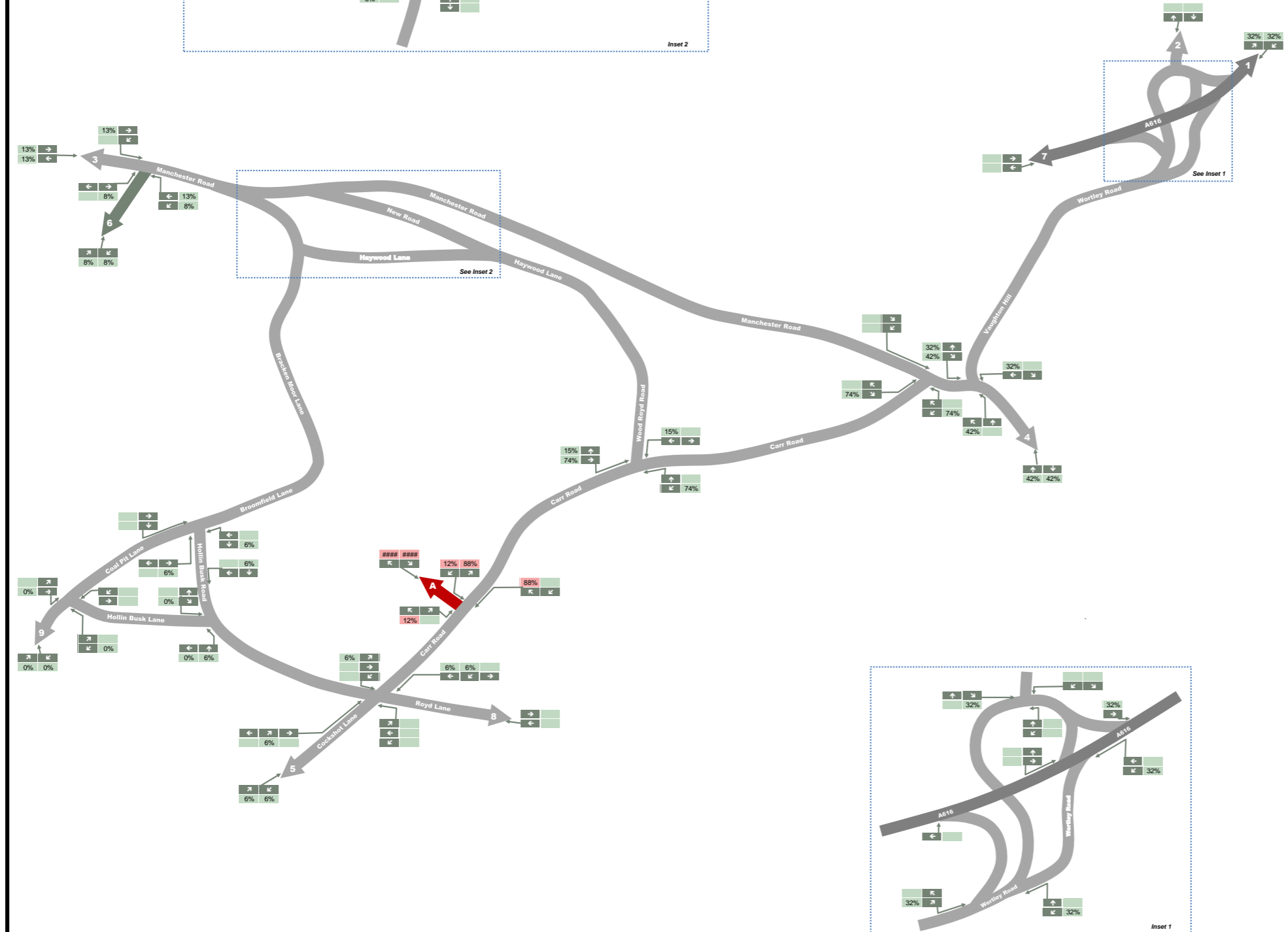
Figure Status:
 Issue

Job Number:
 3421

Figure Number:
 Figure 11



Ref.	Route	Arr.	Dep.
1	A616 (East)	32%	32%
2	Soughley Lane		
3	Manchester Road (West)	13%	13%
4	Manchester Road (South)	42%	42%
5	Cockshott Lane	6%	6%
6	Sheffield 001 / 002 (MSOA)	8%	8%
7	A616 (West)		
8	Royd Lane		
9	Coal Pit Lane	0%	0%
Total Vehicle Trips		100%	100%



Key:

- Primary Road
- Secondary Road
- Proposed Site Access
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Note: The number in each arrowhead relates to the route reference used in the Vehicle Trip Distribution.

Fore Consulting Limited
 2nd Floor, Queens House
 Wellington Street
 Leeds
 LS1 2DE
 0113 2460204
 enquiries@foreconsulting.co.uk
 www.foreconsulting.co.uk



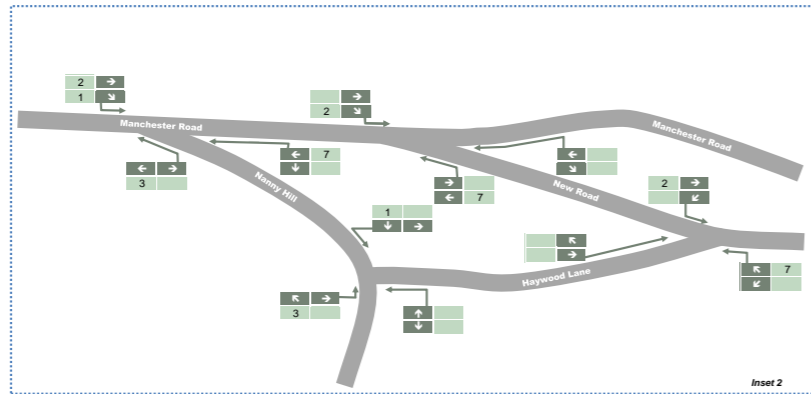
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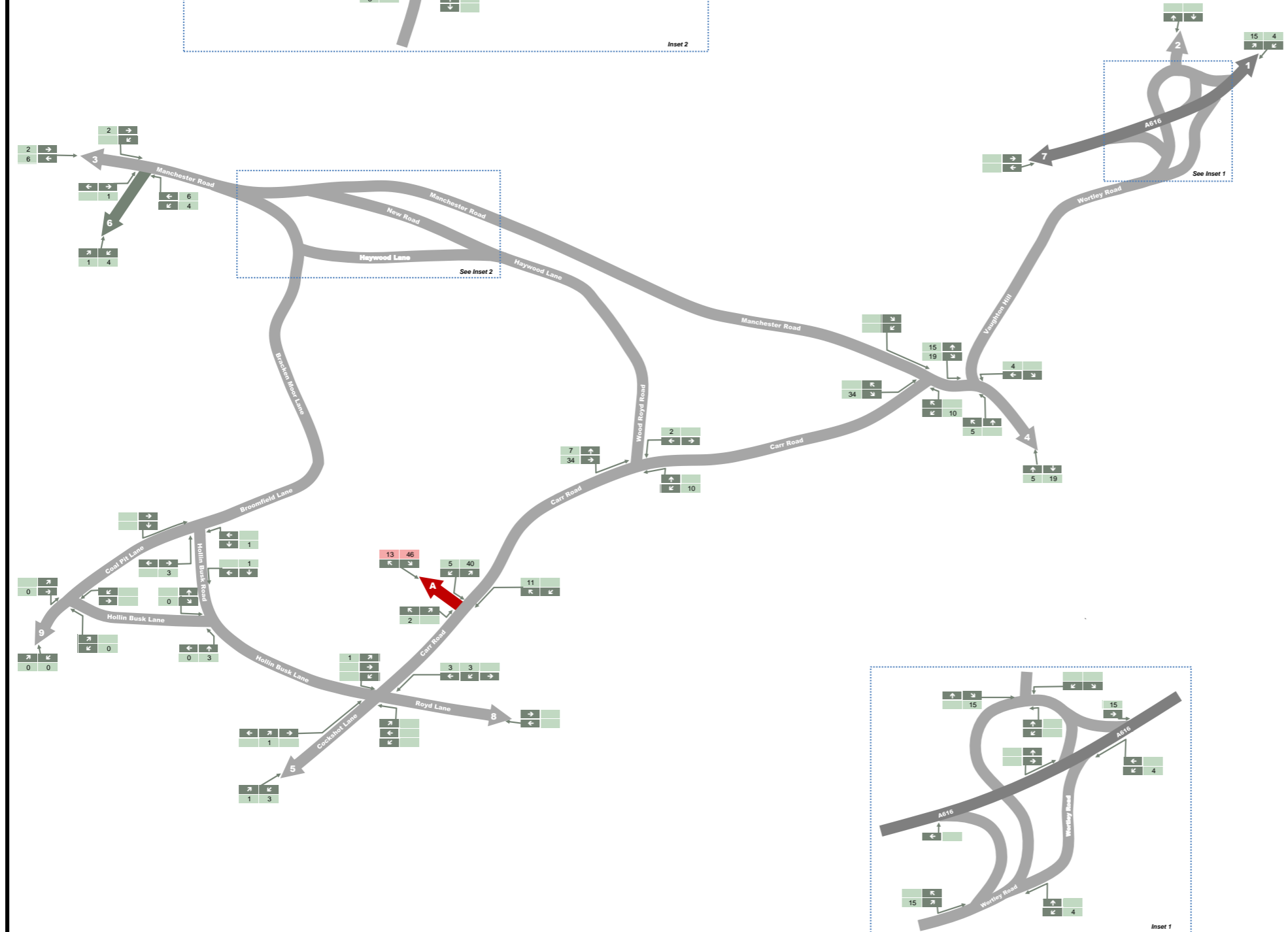
Figure Title:
 Vehicle Trip Distribution

Scale: Not to scale | Figure Status: Issue

Job Number: 3421 | Figure Number: Figure 12



Ref.	Route	Arr.	Dep.
1	A616 (East)	4	15
2	Soughley Lane	2	6
3	Manchester Road (West)	5	19
4	Manchester Road (South)	1	3
5	Cockshott Lane	1	4
6	Sheffield 001 / 002 (MSOA)	0	0
7	A616 (West)	0	0
8	Royd Lane	0	0
9	Coal Pit Lane	0	0
Total Vehicle Trips		13	46



Key:

- Primary Road
- Secondary Road
- Proposed Site Access
- Additional traffic movements not explicitly represented in the network diagram (eg minor and/or accessroads)

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

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 2nd Floor, Queens House
 Wellington Street
 Leeds
 LS1 2DE
 0113 2460204
 enquiries@foreconsulting.co.uk
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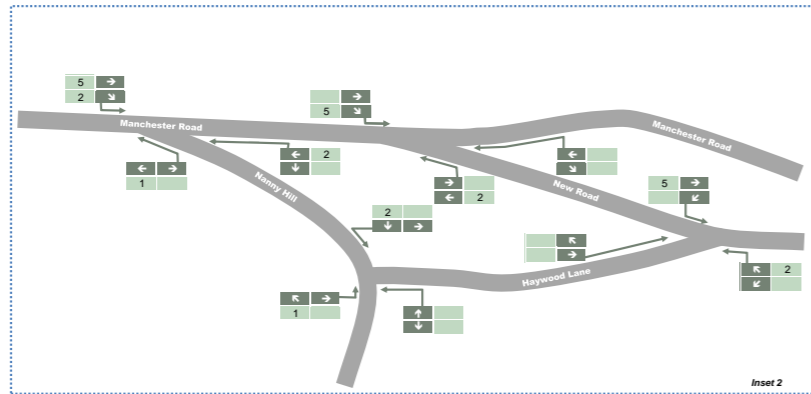
Client:
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Project:
 Proposed Residential Development at Land at Deepcar,
 Stocksbridge

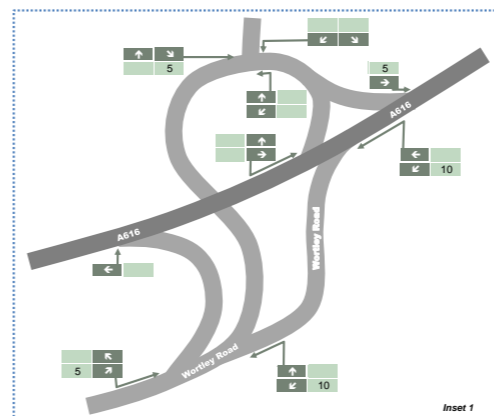
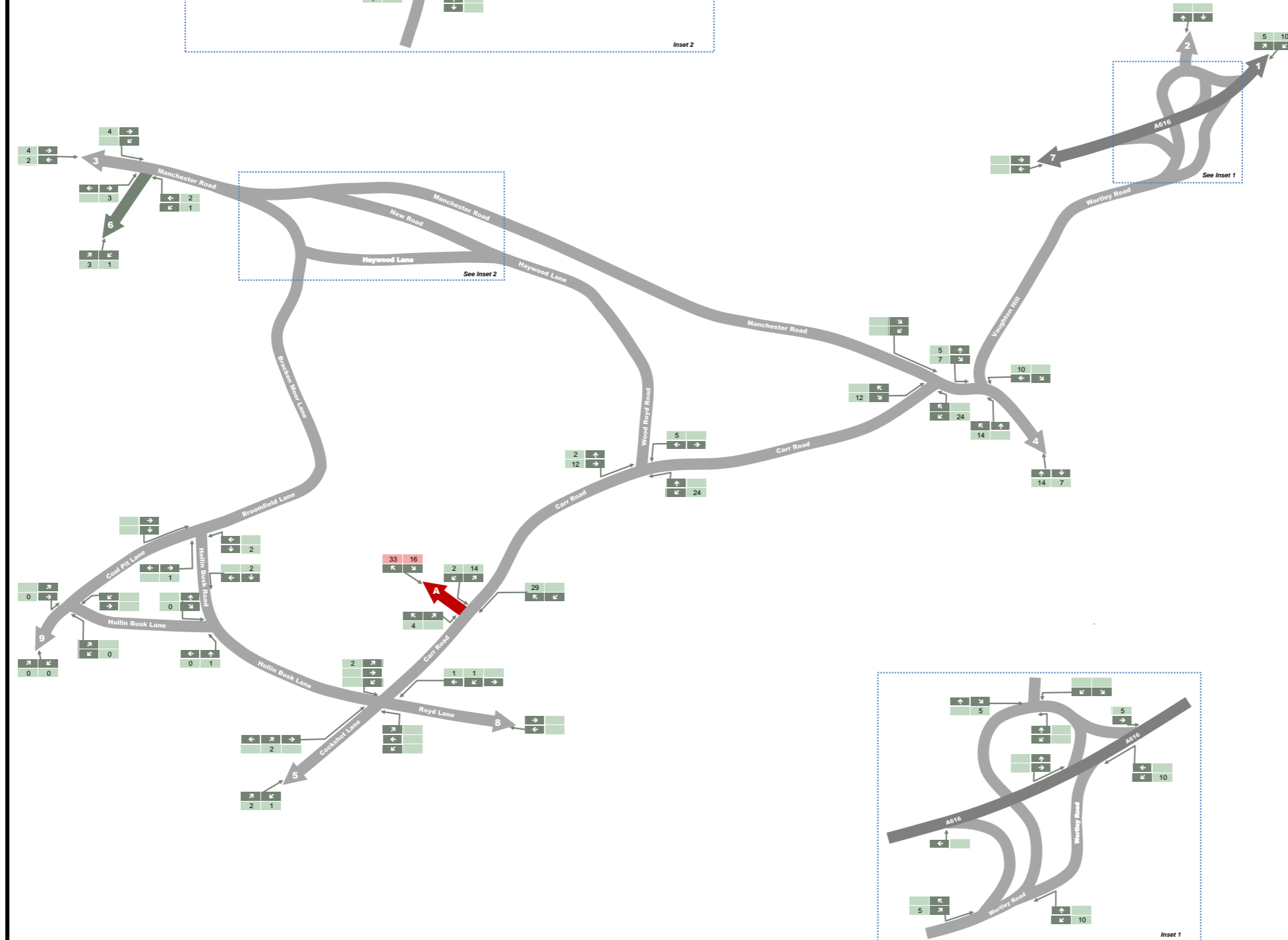
Figure Title:
 Development Traffic Flows - Weekday AM Peak Hour

Scale: Not to scale | Figure Status: Issue





Job Number: 3421 | Figure Number: Figure 13



Ref.	Route	Arr.	Dep.
1	A616 (East)	10	5
2	Soughley Lane		
3	Manchester Road (West)	4	2
4	Manchester Road (South)	14	7
5	Cockshott Lane	2	1
6	Sheffield 001 / 002 (MSOA)	3	1
7	A616 (West)		
8	Royd Lane		
9	Coal Pit Lane	0	0
Total Vehicle Trips		33	16



Key:

-  Primary Road
-  Secondary Road
-  Proposed Site Access
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Note: The number in each arrowhead relates to the route reference used in the Vehicle Trip Distribution.

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 2nd Floor, Queens House
 Wellington Street
 Leeds
 LS1 2DE
 0113 2460204
 enquiries@foreconsulting.co.uk
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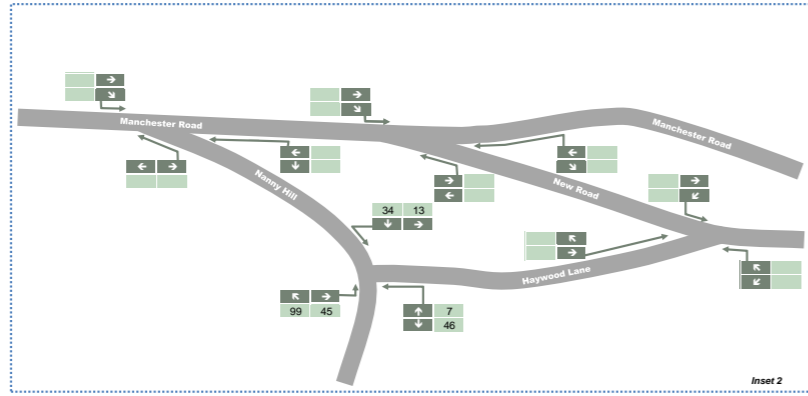
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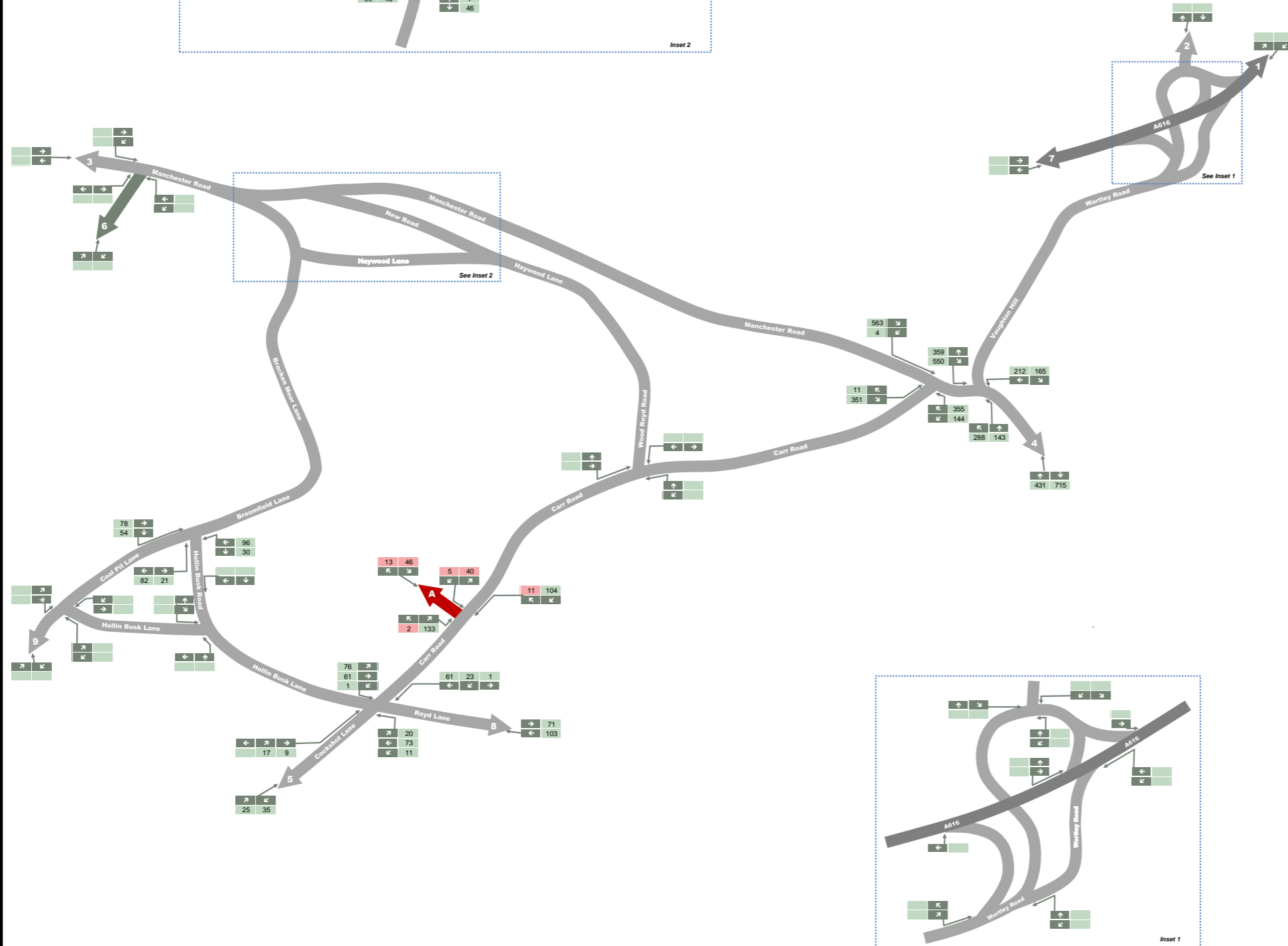
Figure Title:
 Development Traffic Flows - Weekday PM Peak Hour

Scale: Not to scale | Figure Status: Issue

Job Number: 3421 | Figure Number: Figure 14



Ref.	Route	Arr.	Dep.
1	A616 (East)		
2	Soughley Lane		
3	Manchester Road (West)	431	715
4	Manchester Road (South)	25	35
5	Cockshott Lane		
6	Sheffield 001 / 002 (MSOA)		
7	A616 (West)	103	71
8	Royd Lane		
9	Coal Pit Lane		
Total Vehicle Trips		560	821



Key:

- Primary Road
- Secondary Road
- Proposed Site Access
- Additional traffic movements not explicitly represented in the network diagram (eg minor and/or accessroads)

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

Fore Consulting Limited
 2nd Floor, Queens House
 Wellington Street
 Leeds
 LS1 2DE
 0113 2460204
 enquiries@foreconsulting.co.uk
 www.foreconsulting.co.uk



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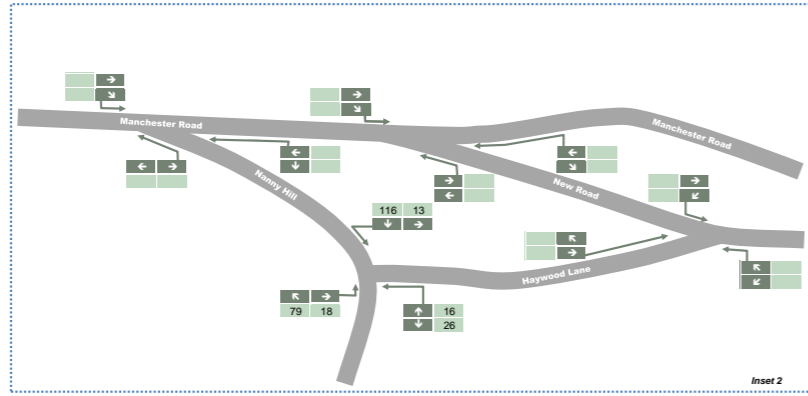
Figure Title:
 Total 2022 (With Development) Traffic Flows - Weekday AM
 Peak Hour

Scale:
 Not to scale

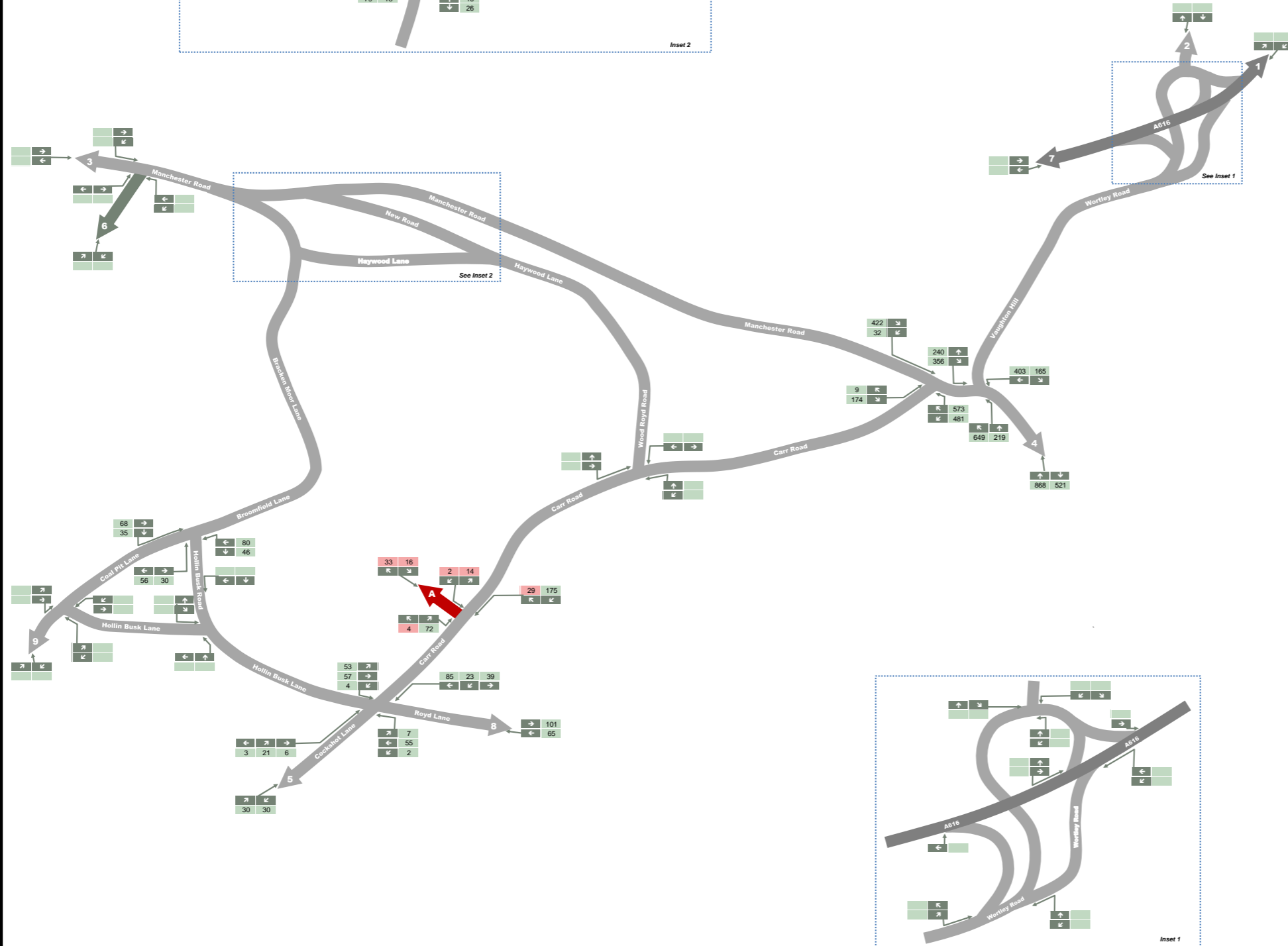
Figure Status:
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Job Number:
 3421





Figure Number:
 Figure 15



Ref.	Route	Arr.	Dep.
1	A616 (East)		
2	Soughley Lane		
3	Manchester Road (West)		
4	Manchester Road (South)	868	521
5	Cockshott Lane	30	30
6	Sheffield 001 / 002 (MSOA)		
7	A616 (West)		
8	Royd Lane	65	101
9	Coal Pit Lane		
Total Vehicle Trips		962	652



Key:

-  Primary Road
-  Secondary Road
-  Proposed Site Access
-  Additional traffic movements not explicitly represented in the network diagram (eg minor and/or accessroads)

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

Fore Consulting Limited
 2nd Floor, Queens House
 Wellington Street
 Leeds
 LS1 2DE
 0113 2460204
 enquiries@foreconsulting.co.uk
 www.foreconsulting.co.uk



Client:
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Project:
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Figure Title:
 Total 2022 (With Development) Traffic Flows - Weekday PM
 Peak Hour

Scale:
 Not to scale

Figure Status:
 Issue

Job Number:
 3421

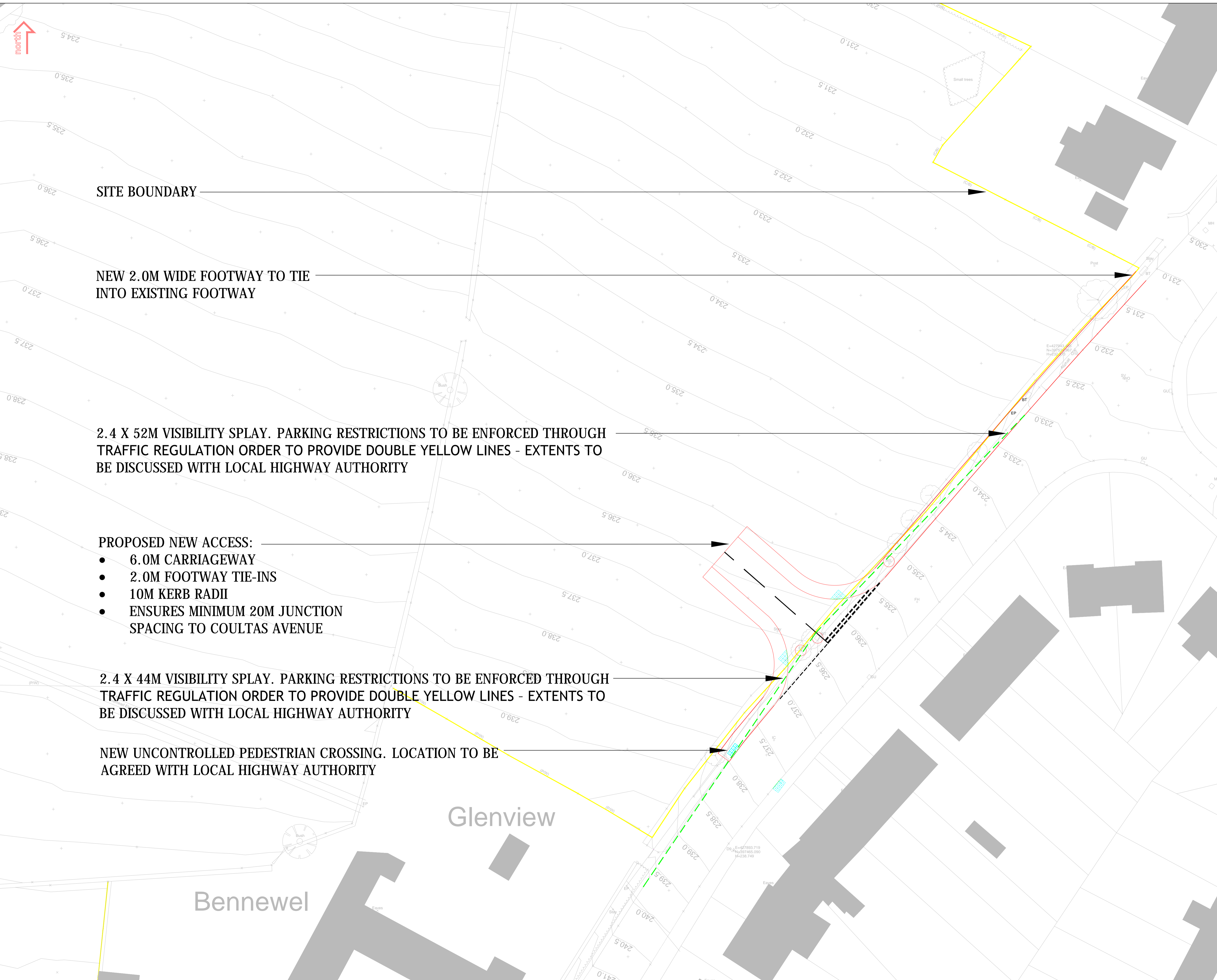
Figure Number:
 Figure 16

Drawings

DO NOT SCALE

NOTES

1. PRELIMINARY LAYOUT SUBJECT TO FULL TOPOGRAPHICAL SURVEY & DETAILED DESIGN INCLUDING CDM COMPLIANCE, STATUTORY UNDERTAKERS SEARCH, DIVERSION REQUIREMENTS, HIGHWAY DRAINAGE PROVISION, LAND AVAILABILITY AND LOCAL AUTHORITY APPROVAL.
2. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL ARCHITECTS, ENGINEERS & SPECIALISTS DRAWINGS AND SPECIFICATIONS.



SITE BOUNDARY

NEW 2.0M WIDE FOOTWAY TO TIE INTO EXISTING FOOTWAY

2.4 X 52M VISIBILITY SPLAY. PARKING RESTRICTIONS TO BE ENFORCED THROUGH TRAFFIC REGULATION ORDER TO PROVIDE DOUBLE YELLOW LINES - EXTENTS TO BE DISCUSSED WITH LOCAL HIGHWAY AUTHORITY

PROPOSED NEW ACCESS:

- 6.0M CARRIAGEWAY
- 2.0M FOOTWAY TIE-INS
- 10M KERB RADII
- ENSURES MINIMUM 20M JUNCTION SPACING TO COULTAS AVENUE

2.4 X 44M VISIBILITY SPLAY. PARKING RESTRICTIONS TO BE ENFORCED THROUGH TRAFFIC REGULATION ORDER TO PROVIDE DOUBLE YELLOW LINES - EXTENTS TO BE DISCUSSED WITH LOCAL HIGHWAY AUTHORITY

NEW UNCONTROLLED PEDESTRIAN CROSSING. LOCATION TO BE AGREED WITH LOCAL HIGHWAY AUTHORITY

REV	DESCRIPTION	DATE	BY
-----	-------------	------	----

CLIENT:
HALLAM LAND MANAGEMENT

PROJECT:
PROPOSED RESIDENTIAL DEVELOPMENT AT LAND AT DEEPCAR, STOCKSBRIDGE

DRAWING TITLE:
PROPOSED ACCESS ARRANGEMENT ONTO CARR ROAD

PRELIMINARY

Fore Consulting Limited
 2nd Floor, Queens House
 34 Wellington Street
 Leeds
 LS1 2DE
 0113 2460204
 enquiries@foreconsulting.co.uk
 www.foreconsulting.co.uk



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HS	GM	2017	1:250	A1
Job Number	Drawing Number			Revision
3421	3421 SK001 004			B

DO NOT SCALE

NOTES

1. PRELIMINARY LAYOUT SUBJECT TO FULL TOPOGRAPHICAL SURVEY & DETAILED DESIGN INCLUDING CDM COMPLIANCE, STATUTORY UNDERTAKERS SEARCH, DIVERSION REQUIREMENTS, HIGHWAY DRAINAGE PROVISION, LAND AVAILABILITY AND LOCAL AUTHORITY APPROVAL.
2. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL ARCHITECTS, ENGINEERS & SPECIALISTS DRAWINGS AND SPECIFICATIONS.



SITE BOUNDARY →

**PEDESTRIAN LINK INTO SITE.
 3.7M WIDE TO ACCOMMODATE EMERGENCY VEHICLE** →

2.0M WIDE FOOTWAY TO TIE INTO EXISTING FOOTWAY →

Hollin Busk Lane newly re-surfaced May 2016

... Road not re-surfaced

Royd Lane not re-surfaced

REV	DESCRIPTION	DATE	BY
-----	-------------	------	----

CLIENT:
HALLAM LAND MANAGEMENT

PROJECT:
PROPOSED RESIDENTIAL DEVELOPMENT AT LAND AT DEEPCAR, STOCKSBRIDGE

DRAWING TITLE:
PROPOSED PEDESTRIAN LINK INTO SITE

PRELIMINARY

Fore Consulting Limited
 2nd Floor, Queens House
 34 Wellington Street
 Leeds
 LS1 2DE
 0113 2460204
 enquiries@foreconsulting.co.uk
 www.foreconsulting.co.uk



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HS	GM	2017	1:200	A1
Job Number	Drawing Number			Revision
3421	3421 SK001 005			-