

Newland Developments
Hoyland Commercial Land

Transport Assessment

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1 Introduction

1.1 Commission

Fore Consulting Limited (Fore) has been commissioned by Newlands Developments to prepare a Transport Assessment and Travel Plan to accompany a hybrid planning application at a site to the west of Hoyland near Barnsley.

The planning application has been prepared further to the completion of the Hoyland West Masterplan Framework. This has been subject to a public consultation exercise in May and June 2020 and will support the development of significant housing and employment growth. The Hoyland West masterplan framework covers:

- Employment site: ES13 - land west of Sheffield Road.
- Housing site: HS57- land at Tankersley Lane.
- Relocation of Rockingham Sports facility to land at Parkside, Hoyland.

The planning application consists of the follow:

Hybrid planning application for a development of employment uses (B1, B2 and B8), new link road, associated works including provision of internal access roads, drainage and landscaping.

- *Outline with all matter reserved apart from means of access for up to 71,515 sq.m of employment uses (B1, B2, B8)*
- *Full application for 31,571 sq.m of B8, new link road including new roundabout to link with Hoyland south Masterplan Area (Local Plan references HS68, HS65, HS61, HS58, HS6, SL5)*

The proposed site is allocated for employment uses in the Barnsley Local Plan which was adopted January 2019, and is identified within the plan as site 'ES13: Land West of Sheffield Road'.

The development proposals are demonstrated on the site plan prepared by pHp Architects, which is provided at Appendix A.

1.2 The Site and Surrounding Area

The location of the development is shown on Figure 1 and described below.

Hoyland West is located on land to the west of the town of Hoyland, approximately 6.0km (direct measurement) south of Barnsley. The site is located directly to the south east of Junction 36 of the M1.

The site currently comprises open fields / agricultural land. The Rockingham Community Centre is located at the north east of the site and comprises a cricket field and football pitch. Tankersley Lane bisects the site from east to west, providing a connection between the A61 Westwood New Road and the A6135 Sheffield Road.

The site is bound by Junction 36 of the M1 (known locally as Tankersley Roundabout) and the Birdwell Roundabout to the north, the A6135 Sheffield Road to the east, open fields / agricultural land and a wooded area to the south, and hedgerows segregating the site from the M1 to the west. To the north east, the site is bound by Hoyland Common Primary School, residential properties along Tankersley Lane, a Shell petrol filling station and a service yard.

1.3 Purpose of this Report

This Transport Assessment provides a full assessment of the transportation impacts of the development proposals, to assist Barnsley Metropolitan Borough Council (BMBC) and Highways England (HE) in determining the planning application.

A Travel Plan has also been prepared by Fore, and this is submitted under separate cover as part of the planning application.

1.4 Structure of the Report

This report is structured as follows:

- Chapter 2 examines the existing conditions on the local transport network.
- Chapter 3 provides an overview of the national and local transport planning policy context in relation to the site and the development proposals.
- Chapter 4 sets out the proposals and describes in detail how the site will be accessed by all modes of transport.
- Chapter 5 details the methodology for estimating the transport impacts of the development.

- Chapter 6 details the trip distribution and assignment.
- Chapter 7 describes the approach to deriving existing traffic flows and estimating future traffic flows.
- Chapter 8 considers the development traffic impact on the highway surrounding the site and presents junction capacity assessments of the proposed access junctions.
- Chapter 9 summaries and concludes the report.

2 Existing Situation

2.1 Site Location and Land Use

The Hoyland West site is located to the west of the town of Hoyland, approximately 6.0km (direct measurement) south of Barnsley. The site is located directly to the south east of Junction 36 of the M1, as shown at Figure 1.

The site currently comprises open fields / agricultural land. The Rockingham Community Centre is located at the north east of the site and comprises a cricket field and football pitch. Tankersley Lane bisects the site from east to west, providing a connection between the A61 Westwood New Road and the A6135 Sheffield Road.

The site is bound by Junction 36 of the M1 (known locally as Tankersley Roundabout) and the Birdwell Roundabout to the north, the A6135 Sheffield Road to the east, open fields / agricultural land and a wooded area to the south, and hedgerows segregating the site from the M1 to the west. To the north east, the site is bound by Hoyland Common Primary School, residential properties along Tankersley Lane, a Shell petrol filling station and a service yard.

2.2 Strategic Road Network

The development is located immediately south east of Junction 36 of the M1, which forms part of the Strategic Road Network and provides connections from the Hoyland District to key regional and national towns and cities such as Barnsley, Sheffield, Rotherham, Leeds, Nottingham, Derby and London.

Junction 36 (Birdwell Interchange) comprises of a roundabout interchange providing connections between the M1 and the A61. The roundabout is signal-controlled and comprises four approaches with three circulating lanes. A shared-use pedestrian and cycle route is provided around the circulating carriageway, linking to uncontrolled crossing points on the slip roads.

2.3 Local Highway Network

The local highway network comprises a number of key links and junctions which are described in the following section and highlighted on Figure 5.

A61 Sheffield Road / A6195 Dearne Valley Parkway - Birdwell Roundabout Junction

Birdwell roundabout junction is an elongated roundabout located to the immediate north of the development site connecting the A6195 and the A61.

The A6195 Dearne Valley Parkway northern arm is separated into segregated entry and exit only arms both of which are signal controlled and provide pedestrian crossing facilities. There is a shared footway / cycleway on the nearside lanes on both the northbound and southbound carriageways.

The A6195 eastern arm is separated into segregated entry and exit lanes. The exit lane is single carriageway approximately 5m in width with a shared cycleway / footpath on the nearside of the carriageway. The A6195 entry lane is a dual carriageway approximately 10m in width, the approach to the roundabout is controlled by a signalised pedestrian crossing. There is a shared pedestrian / cycleway on the nearside lane.

The A61 southbound arm is separated into two segregated entry lanes and one exit lane. The entry left only lane is a single carriageway and the ahead lane is a dual carriageway, access onto the roundabout for all movements is signal controlled. The exit carriageway is exit only and has no pedestrians or cyclist provision in order to restrict access to J36 of the M1.

The A61 Sheffield Road westbound arm has a triple entry carriageway and a single exit carriageway. Access onto the roundabout is signal controlled. There is a shared pedestrian / cycleway on the westbound carriageway.

Cross Keys Roundabout

Cross Keys Roundabout is a 4-arm roundabout located to the north of the development. The roundabout's southern arm will form access to the development site. All arms are single carriageways of approximately 9m in width. Pedestrian islands are provided approximately 5m from the entrance of the roundabout on all arms, except the western arm (A6195) which is segregated into entry and exit lanes and provides no pedestrian crossing facilities.

Fitzwilliam Roundabout

Fitzwilliam Roundabout follows the same alignment as the Cross Keys Roundabout, except that pedestrian islands are provided on all arms of the roundabout. To the north, the roundabout connects towards the Rockingham Roundabout services and the A6195 Dearne Valley Road. The southern arm of roundabout provides access towards the A6135 Sheffield Road. In addition, the eastern and western arms of the roundabout provide access towards development land.

A6135 Sheffield Road

The A6135 runs along the western boundary of the development site. To the north, it provides a link to Cross Keys Roundabout and to the south, the A6135 provides connections

from Hoyland towards the villages of Harley and Hood Hill. The A6135 is generally a single-lane carriageway, with a speed limit of 30mph in the vicinity of the development.

The A6135 Sheffield Road serves as a local distributor road, linking Junction 36 of the M1 with the western fringes of Hoyland. The carriageway is lit, is subject to a 30mph speed limit and is flanked by footways along both sides. The A6135 Sheffield Road forms the northern and southern arms of a four-arm signalised junction with the B6096 Hoyland Road and Tankersley Lane. Waiting restrictions, in the form of double yellow lines, are present along all four approach arms of the junction.

Controlled pedestrian crossings (Pelicans) are provided across the A6135 Sheffield Road (n) and B6096 Hoyland Road arms, located approximately 80m and 65m back from the stoplines respectively. The crossings provide pedestrian connectivity between Hoyland Common Primary School and the eastern side of A6135 Sheffield Road and between the local shops along the B6096 Hoyland Road.

Additionally, uncontrolled pedestrian crossings (dropped kerbs) are provided across all four arms of the junction located in front of the stop lines.

A6195 Dearne Valley Parkway

The A6195 is a two-lane dual carriageway, located to the north of the development site. The A6195 Dearne Valley Parkway is a two-lane dual carriageway, separated by a raised kerbed central reserve. The road is lit and subject to the national speed limit for its entirety.

The A6195 links directly to Junction 36 of the M1 via a four-arm roundabout with the A61 / A6135 Sheffield Road. The A6195 Dearne Valley Parkway serves as the northern bypass to Hoyland, connecting to a number of local distributor roads via a series of three-arm and four-arm roundabouts.

A61 Sheffield Road

The A61 is located to the north of the development site. It is a major trunk road which is closely paralleled by the M1 motorway. In relation to the site, the A61 Sheffield Road provides a local connection (northbound) towards Birdwell, Worsborough and Barnsley Town centre. In the vicinity of the site the road comprises of a single carriageway with a speed limit of 30mph.

To the west of the M1 Junction 36, the A61 continues westward as the A61 Westwood New Road) offering connections towards the villages of Tankersley and Howbrook and the A616.

Tankersley Lane

Tankersley Lane runs directly through the centre of the development (from east to west). Tankersley Lane forms the western arm of the four-arm signalised junction with the A6135 Sheffield Road and the B6096 Hoyland Road. Within the immediate vicinity of the junction, Tankersley Lane provides access to a number of residential driveways, which take direct access onto the carriageway.

Tankersley Lane serves as a local road connecting the B6096 Hoyland Road and A6135 Sheffield Road with Church Lane and ultimately the A61 to the far west. The road heads westwards over the M1, before becoming Church Lane immediately beyond an informal three-arm priority junction with Black Lane.

The road is subject to a 30mph speed limit, which increases to the national speed limit approximately 210m west of the signalised junction with the A6135 Sheffield Road / B6096 Hoyland Road. Within the 30mph limit the road is lit and footways are provided on both sides of the road. Beyond that, due to the rural nature of the road, street lighting is not provided though a continuous footway is present on the northern side of the road.

B6096 Hoyland Road

B6096 Hoyland Road is a single-lane carriageway located to the east of the development. In the vicinity of the site the B6096 has a speed limit of 30mph. The road begins at the crossroad junction with the A6135 Sheffield Road and Tankersley Lane and a local connection through Hoyland towards Wombwell. Street lighting continuous footways are presented on both sides of the road.

2.4 Walking

Walking Catchment

Figure 2 presents an isochrone of a 2.0km walking catchment¹, from an indicative central point within the development site. As can be seen, a number of amenities are located within walking distance of the development, as below:

¹ The Chartered Institution of Highways & Transportation's (CIHT's) 'Guidelines for Providing for Journeys on Foot' (2000) suggests acceptable walking distances for commuting as Desirable (500m), Acceptable (1.0km) and Preferred Maximum (2.0km).

- To the north of the development adjacent to Cross Keys Roundabout along the A6185, there are a number of retail and food outlets including a Petrol Station, Costa Coffee, Greggs, Starbucks, Taco Bell and KFC.
- An Aldi supermarket is located to the north west of the development along the A61 Sheffield Road.
- To the north east of the development, there is a Jet Petrol Garage and a bar and restaurant located on the A6135. In addition there are also a number of retail and facilities located along the A6135.
- Holyand Common Primary School and Children's Centre is located to the immediate east of the development on A6135 Sheffield Road.
- To the east of the development a number of retail, leisure and health amenities including a pharmacy, Co-op supermarket and post office are located along B6096 Hoyland Road.

Bus stops also lie in these catchments, as discussed later in this Chapter.

Pedestrian Facilities

Within the vicinity of the development, all roads which provide key walking routes to the site have footways with street lighting. Road crossings are provided by means of a mixture of formal (signal-controlled crossings with traffic signals) and uncontrolled crossing points (dropped kerbs) located at points on the local highway network where there is an adjacent footway.

In addition, pedestrian facilities within the wider vicinity are indicated on Figure 2 and described as follows:

- A footpath located along the northern edge of Tankersley Lane provides a continuous pedestrian connection between the residential areas of Hoyland and Tankersley.
- To the north, a series of pedestrian footpaths and crossing facilities (signalised crossings and dropped kerbs) are provided surrounding Birdwell Roundabout, allowing for pedestrian connections towards local amenities and bus stops.
- Footways are located along either side of the A6195 Sheffield Road, with a pedestrian crossing point located approximately 90m to the north of the junction with Tankersley Lane. Bus stop infrastructure is also located along the A6195.

A number of Public Rights of Way (PRoW) exist within close proximity the development site, as below:

- Footpath 12 runs along the east of the development, connecting Sheffield Road to Tankersley Lane.
- Footpath 26 runs along the south of the development boundary, connecting the A6135 with Black Lane and Bridleway 25 which runs from Black Lane towards B6090 Dike Hill.
- To the north east of the development Cross Keys Lane provides access to Footpath 10 and Footpath 1 which form part of the pedestrian facilities within the Hoyland North Masterplan.

Additional PRoW's exist within convenient walking distance of the development; however, it is unlikely that employees will use these to access the development.

2.5 Cycling

Figure 3 shows an 8km cycle catchment from the site, which is taken to be the preferred maximum for a commute to work or study², showing that employees living in Hoyland, Tankersley, Worsborough, Barnsley, Wombwell, Wentworth, Chapeltown, High Green and Dodworth can cycle to the development.

National Cycle Network Route 67 is shown on Figure 3 runs to the west of the development site along New Road/ Tankersley Lane and can be accessed from the development land via Tankersley Lane. The route provides a mixture of traffic-free and on-road routes north towards Barnsley, and south towards Sheffield and Rotherham. The route also forms part of the Trans Pennine Trail, which covers a whole network of routes linking the major urban centres of the region.

In addition, local routes are available in the immediate vicinity of the site, with the A6135 Hoyland Common to Elsecar Park & Ride B6097 route runs within close proximity to the eastern boundary of the site, providing a cycle route between Parkside Road towards Elsecar rail station.

² Integrating Cycling into Development Proposals, Cycling England, 2009, p4.

2.6 Public Transport

Bus Network

The development is located to the residential area of Hoyland and as such is served by a number of bus services. There are stops located within the development site along Tankersley Lane, as well as along east of the development site on the A6135 Sheffield Road and to the north along A61 Sheffield Road.

Stops located on Tankersley Lane and the majority of stops located of A6135 Sheffield Road consist of bus stop posts, however a number of stops are sheltered with seating.

Details of the buses serving them are in Table 1 and displayed at Figure 4.

Table 1: Bus Services

No.	Operator	Destinations Served	Daytime Hourly frequency (<i>First/Last Bus</i>)		
			Mon-Fri.	Saturday	Sunday
Tankersley Lane					
72/72a	Stagecoach	Chapeltown - Manvers	1 0608;1846	1 0626;1835	No service
A6135 Sheffield Road					
2/X2	Stagecoach	Barnsley Interchange - Birdwell - Hoyland Common - Ecclesfield - Sheffield	2 0541;2314	2 0754;2314	1 0906;2314
66		Barnsley Centre - Elsecar Circular	4 0640;2356	4 0635;2356	2 0847;2355
67/67a/67c		Barnsley - Tankersley - Wombwell	2 0558;2350	2 0524;2350	1 0900;2305
A61 Sheffield Road					
X17	Stagecoach	Barnsley - Meadowhall - Sheffield - Chesterfield - Matlock	1 0703;2100	1 0729;2100	1 0954;1801
Services per hour			10	10	5

Note: Services correct 17/04/20

In combination the stops mentioned above offer up to 10 services per hour, providing access to destinations such as Barnsley, Ecclesfield, Wombwell and Sheffield. Most of the services offer early morning services and into the night Monday to Sunday.

Rail Network

Rail journeys can be planned at <http://www.nationalrail.co.uk/> or using the National Rail Enquiries app.

Whilst the site is not directly served by rail, connections can be accessed at Elsecar station, which is approximately 3.2km southeast of the site. The station is situated on the Hallam and Penistone lines served by Northern Rail. At peak times, the station provides two direct services per hour services to Barnsley and Sheffield and intermediate local stations, plus one direct hourly service to Leeds. It should be noted that the Number 66,67a,72 and X2 bus services, which stop within close proximity of the site, provides a connection to the station.

2.7 Summary

The development site is well located in relation to the transport network. It is clear that a range of journey purposes by future employees based at the development can be readily undertaken by sustainable transport modes.

3 Transport and Planning Policy

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

3.1 National Policy

National Planning Policy Framework

A revised '*National Planning Policy Framework*' (NPPF) was published by the Ministry of Housing, Communities and Local Government (MHCLG) on 19 February 2019. It sets out national planning policy for England and in particular how the planning system is to contribute to achieving sustainable development through the following interdependent objectives:

- An economic objective, contributing to building a strong, responsive and competitive economy through ensuring that land of the right type is available in the right places and at the right time to support growth, innovation and improved productivity.
- A social role, supporting strong, vibrant and healthy communities by ensuring that a sufficient number and range of homes can be provided to meet the needs of present and future generations; and by fostering a well-designed and safe built environment, with accessible services and open spaces that reflect current and future needs and support communities' health, social and cultural well-being.
- An environmental role, protecting and enhancing the natural, built and historic environment through making effective use of land, helping to improve biodiversity, using natural resources prudently, minimising waste and pollution, and mitigating and adapting to climate change.

The NPPF sets out a presumption in favour of sustainable development. This means that development proposals that accord with the development plan should be approved without delay. Where there are no relevant development plan policies or the most important policies for determining the application are out-of-date, permission should be granted unless policies in the NPPF provide a clear reason for refusing the development proposed, or any adverse impacts of approving a development would demonstrably outweigh the benefits when assessed against the NPPF as a whole.

Specifically, in relation to transport, the NPPF states that the planning system should manage patterns of growth to address potential impacts of development on transport networks; realise opportunities from existing or proposed transport infrastructure and technology; promote walking, cycling and public transport; identify and assess the

environmental impacts of traffic; and integrate transport consideration into the design of schemes.

In relation to considering development proposals, the NPPF states that all developments that generate significant amounts of movement should be supported by a Transport Statement or Transport Assessment to ensure the likely impacts of development are assessed.

Paragraph 108 of the NPPF states that:

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

- *appropriate opportunities to promote sustainable transport modes can be - or have been - taken up depending on the type of development and its location;*
- *safe and suitable access to the site can be achieved for all users; and,*
- *any significant impacts from the development on the transport network (in terms of capacity and congestion), or on highway safety, can be cost effectively mitigated to an acceptable degree.”*

Paragraph 109 states:

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

Planning Practice Guidance

Planning Practice Guidance (PPG) was launched by the Department for Communities and Local Government on 6 March 2014. It provides advice on when Transport Assessments and Transport Statements are required and what they should contain :

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

Furthermore, it states that:

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

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

And:

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

3.2 Local Policy

Background

Barnsley’s Local Plan was adopted by the Council on 3 January 2019, this document, together with the Joint Waste Plan prepared with Doncaster and Rotherham and adopted in March 2012, are the Statutory Development Plan.

The Barnsley Local Plan considers the future use of all land within the borough, including Barnsley town centre, and establishes policies and proposals up to the year 2033. Once adopted, the Local Plan will be used by BMBC when considering planning applications and to coordinate investment decisions that affect the towns, villages and countryside of Barnsley.

Barnsley Local Plan 2019

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

Policy GD1 General Development

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

Policy LG2 The Location of Growth

Policy LG2 states that priority will be given to development to specific locations which include Hoyland (a Principle Town). the Principal Towns will be expected to accommodate significantly more growth than the villages, to accord with their place in the settlement hierarchy.

Policy E2 The Distribution of New Employment Sites

Policy E2 suggests that proposed employment land allocations are considered to provide Barnsley with an appropriate mix of large and small sites. Hoyland is allocated 110.9ha of employment land during the Local Plan period.

The development site is allocated for employment, “ES13 - Land West of Sheffield Road”

Policy T1 Accessibility Priority

Policy T1 states that developers will work with city region partners and other stakeholders transport investment will be set out in Transport Strategy programmes focused on development-transport corridors to:

- A. Improve sustainable transport and circulation in the Accessibility Improvement Zone (AIZ) area particularly between Principal Towns.
- B. Implement transport network improvements as supported by evidence from modelling, feasibility studies, consultation, surveys, community engagement etc.
- C. Facilitate sustainable transport links to and from existing and proposed employment, interchange, community and leisure and tourism facilities in the borough, including provision for car parking and enhancing the non-car role of the transport corridor shown on the Accessibility Priorities diagram as ‘potential enhanced road based public transport corridor’.
- D. Promote high quality public transport linking the AIZ to significant places of business, employment and national / international interchange in the Leeds - Sheffield City Region corridor including neighbouring Wakefield, Kirklees, Doncaster, Sheffield and Rotherham.
- E. Improve direct public transport and freight links to London, Manchester, other Core Cities, national / international interchanges and the Humber ports.

Hoyland is highlighted within the strategy for ‘potential enhanced road based public transport corridor’.

Policy T3 New Development and Sustainable Travel

Policy T3 states that new development will be expected to:

- Be located and designed to reduce the need to travel, be accessible to public transport and meet the needs of pedestrians and cyclists.

- Provide at least the minimum levels of parking for cycles, motorbikes, scooters, mopeds and disabled people set out in the relevant Supplementary Planning Document.
- Provide a Transport Statement or Assessment in line with guidance set out in the National Planning Policy Framework and guidance including where appropriate regard for cross boundary local authority impacts; and
- Provide a Travel Plan Statement or a Travel Plan in accordance with guidance set out in National Planning Policy Framework including where appropriate regard for cross boundary local authority impacts. Travel plans will be secured through a planning obligation or a planning condition.

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

Policy T4 New Development and Transport Safety

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

Policy GS2 Green Ways and Public Rights of Way

Policy GS2 identifies that where development affects an existing Green Way or Public Right of Way it must either protect the existing route within the development or include an equally convenient and attractive alternative route. Where new development is close to a Green Way or Public Right of Way it may be required to:

- Provide a link to the existing route; and/or
- Improve an existing route; and/or
- Contribute to a new route.

In some cases, developers will be asked to make a financial contribution to meet these requirements.

3.3 Summary

This report sets out the transport impacts of the development extension in accordance with national and local planning policy guidance. The proposed development is well situated in relation to existing public transport, walking and cycling networks, ensuring sustainable access within the district and beyond. It therefore accords with the NPPF and relevant local policy.

4 Development Proposals

This Chapter presents a description of the proposed development for which planning consent is being sought, and how it will be accessed by all modes.

4.1 Land Use

The development will comprise of an employment development located directly to the south east of Junction 36 of the M1. The proposals comprise of 3 development plots, with a central link road running through the site, as follows:

- Plot 1 will comprise of a 31,571 sqm warehouse for B8 use. This unit will be applied for in full and occupied by Hermes.
- Plot 2 and Plot 3 incorporates an outline application with all matters reserved apart from means of access for up to 71,515 sq.m of employment uses (B1, B2, B8)

The proposals are demonstrated on the drawings presented at Appendix A.

4.2 Pedestrian and Cycle Access

The development has been designed to ensure that potential users and visitors, regardless of age, gender or any disabilities are able to access and navigate unimpeded through all appropriate areas of each building and surrounding public realm. Appropriate tactile paving, wide footways without obstacles, signage and street lighting will be provided to ensure an attractive pedestrian environment is provided.

New pedestrian infrastructure will be provided throughout the site. The new link road has appropriate pedestrian and cycle facilities, and continuous routes through the development will be accommodated by means of the proposed internal street network.

Covered and secure cycle parking will be provided in accordance with BMBC adopted parking standards³, as detailed in Table 2.

³ Barnsley Parking SPD (2019)

Table 2: Minimum Cycle Parking Standards

Use Class	Minimum Cycle Parking Standards
Offices	1 long stay space per 400m ² Offices gross floor area; and 1 short stay space per 1000m ² gross floor area
General Industry	BMBC to confirm
Storage and Distribution	1 short stay space per 1000m ² gross floor area for visitors; and 1 long stay space per 40 staff

A total of 60 cycle parking spaces will be provided at Plot 1 (Hermes) of the development, which is above the minimum standards based on the expected number of staff (700).

4.3 Vehicular Arrangements

Vehicular Access

The new link road will connect with the existing road network at three locations: at Cross Keys Roundabout to the north, Tankersley Lane to the west and Sheffield Road to the south. The link road has been designed by RPS and is shown on the Link Road General Arrangement Drawing at Appendix B. The link road is a 10.5m wide single carriageway road and provides pedestrian crossing islands and right turning lanes at the specific plot accesses.

Cross Keys Roundabout

The proposed new link road will form a fourth arm on the Cross Keys Roundabout, which will be an extension of the existing stub at the roundabout.

Tankersley Lane

Various options for the future role of Tankersley Lane have been subject to consultation within the Masterplan Development Framework for Hoyland West in May and June 2020.

The preferred solution of the developer as set out within this application is as follows:

- Tankersley Lane East will be closed to vehicular traffic through a Traffic Regulation Order (TRO) to prohibit vehicular traffic. Tankersley Lane East will remain as adopted public highway. However, the road will become a cul de sac from the east at the traffic signal-controlled junction with Sheffield Road.

- Tankersley Lane West should remain open as the minor arm in a new priority junction to be formed with the new link road. This is as shown on the submitted highways drawings that have been prepared by RPS.
- It is noted that the submitted highways drawings would allow a future point closure of Tankersley Lane West for vehicular traffic to be implemented at a future date should BMBC highways choose to pursue this option. The location for this would be to the west of the proposed access to Plot 3, and to east of the M1 motorway overbridge.

The Technical Note (Appendix C) that was previously provided to BMBC sets out the work undertaken on traffic flows and discussions with HE and the Barnsley Bus Partnership to inform the proposed new link road design. Specifically, this considered the future interaction of the new link road with Tankersley Lane, as well as setting out the methodology and assumptions in determining the re-assignment of trips from Sheffield Road onto the new link road.

There are currently 425 and 604 (PCU) two-way trips on Tankersley Lane during the AM and PM peak hour, respectively. The predicted development traffic will directly contribute less than 30 (PCU) peak hour two-way trips along Tankersley Lane. In the event of a closure to Tankersley Lane west, there would need to be an alternative route for the existing vehicle trips. The likelihood is that the majority of trips would be re-routed through J36, causing significant impacts upon the operation of the junction. This scenario is considered unacceptable by Highways England during pre-application discussions, and this option has therefore been discounted by the developer.

Sheffield Road

As shown on the development proposals, Sheffield Road to the south of the link road will be re-aligned into the development site and form the link road. A simple three arm priority junction, with a right-hand turning lane, is formed with Sheffield Road to allow access to and from the settlement of Hoyland. To the south of this junction a new four arm roundabout will be provided allowing access into Plot 2. A stub will be provided on the roundabout to the east, allowing for future access into the Hoyland south allocation site (identified as HS68 in the Local Plan).

Access to Development Plots

The development plot accesses are shown on RPS Drawing 'Link Road General Arrangement' at Appendix B and described in detail below.

Plot 1 (Hermes)

Plot 1 (Hermes), located in the centre of the site, will have two points of access taken from the link road. The car park access will be in the form of a simple three-arm priority-controlled junction, with a ghost island right- turn lane provided along the link road. The proposed access for operational HGV's will be a three-arm priority-controlled roundabout. The plot access will be a two-lane entry and exit, whilst the link roads will provide two-lane flared entries and single lane exits.

Plot 2

Plot 2, located in the south of the site, will take access from the proposed southern roundabout on Sheffield Road. The new four arm roundabout will provide access into plot two and a stub will be provided on the roundabout to the east, allowing for future access into the Hoyland south allocation site (identified as HS68 in the Local Plan). The approaches to the roundabout will be two lane flared entries with single lane exits.

Plot 3

Plot 3, located in the north of the site, will have two points of access, one taken from from Tankersley Lane West, and one taken from the new link road. Both accesses will be simple three-arm priority-controlled junctions, with single carriageway 7.3m wide access roads and 15m radii. Both access junctions will have 40m ghost island right turn lanes.

Car Parking

BMDC's recommended car parking standards for B2/B1c and B8 use for developments Borough wide (excluding Urban Barnsley) are presented below in Table 3.

Table 3: Car Parking Standards

Use Class	Threshold above which standard applies*	Number of spaces recommended Borough wide (excluding Urban Barnsley)
B1	2500m ²	1 space per 30m ²
B2	2500m ²	1 space per 30-50m ²
B8	All developments over 1000m ²	1 space per 3 staff or 1 space per 60m ² gross floor area up to 300m ² then 1 space per 100m ² gross floor area up to 1000m ² and 1 space per 150m ² gross floor area thereafter

In addition, electric vehicle charging points (EVCP), disabled bays and motorcycle parking will be provided in accordance with policy, as shown in Table 4.

Table 4: EVCP, Disabled and Motorcycle Parking Standards

Type	Parking Standard
Disabled	1 space for every employee who is a disabled motorist, plus 5% of the total actual provision for visitors and customers plus a further 4% should be capable of enlargement or laid out as enlarged standard spaces. Spaces designated for disabled parking should be close to the building entrances.
Electric Vehicle Charging Points	A minimum of 10% of parking for industrial/commercial and retail
Motorcycle	1 space per 20 car parking spaces with an absolute minimum provision of 1 space. In some developments it will also be necessary to consider providing good quality storage lockers for equipment and clothing.

Plot 2 and 3 are outline planning applications and parking will be provided in line with BMBC's recommended requirements.

At Plot 1 (Hermes), 650 parking spaces will be provided. This provision is appropriate based on the nature of how the proposed unit will operate. Hermes will employ up to 900 members of staff, with more than 300 employees on shift at any time. This provision of parking allows for a sufficient number of parking spaces to be available to accommodate the proposed shift change overs. It is considered that this provision is appropriate given the end user and operation of the site is known.

Of the 650 parking spaces, 42 disabled parking bays, will be provided close to the building entrance. In addition, 33 motorcycle spaces will be provided close to the building entrance.

Plot 2 and 3 are outline planning applications and EV charging spaces will be provided in line with BMBC's requirements. At Plot 1 (Hermes), 34 electric vehicle charging spaces will be provided and ducting for future potential provision of 130.

4.4 Construction

The construction of the highway and associated works will be undertaken in two phases. Phase 1 will be the infrastructure works and is estimated to take one year to complete. Phase 2 will be solely the buildings works which is estimated to take one year to complete.

Construction works will be undertaken within a 10hr day. The total anticipated duration of the construction works is estimated to be two Years. In terms of trip generation, it is anticipated that on an average weekday phase one will generate a total of 306 two-way daily movements, whilst phase two would vary month to month with a maximum of 318 two-way daily vehicle movements. The expected traffic generation is therefore much lower during construction than operational phase.

A Construction Environmental Management Plan (CEMP) will be required from the contractor in order to control construction activities and to protect road safety and residential amenity. The plan will need to identify measures to mitigate impacts associated with construction traffic on the local and strategic transport networks, which includes the following:

- Scheduling of deliveries to minimise potential disturbance on local residents and conflicts with the highway peak hours.
- Consideration of appropriate routes for construction traffic to access the site.
- Provision of wheel washing facilities at site egress points to minimise the potential for site debris to be transferred to the external highway network.
- Consideration of temporary changes to the speed limit on Sheffield Road in the vicinity of the construction works.

Potential effects would be mitigated, as far as possible, through active community engagement under the considerate constructor's scheme. This will ensure that the public is aware of the construction routes and potential impacts of the construction processes.

4.5 Sustainable Travel

A Framework Travel Plan has been prepared as part of the planning application. This provides a 'framework' within which individual occupiers of the development (who meet the Travel Plan threshold) will formulate their own, occupier-specific Travel Plan. In this way, employees based at the development will be given practical support to encourage the use of sustainable modes of transport when travelling.

5 Vehicle Trip Generation

5.1 Introduction

This Section details the methodology for estimating the Weekday AM and Weekday PM peak hour vehicle trip generations for each development plot within the proposed development.

This Chapter sets out the proposed approach to estimating the Weekday AM and Weekday PM peak traffic demand associated with the development. The methodology was agreed with Highways England during the pre-application scoping and with BMBC during the traffic impact analysis work undertaken by Fore for the Hoyland North and Masterplan Site⁴ and Hoyland West and South Masterplan Site⁵.

For the purposes of the Transport Assessment, traffic demand will be estimated based on the following land use schedule:

- 103,083sqm of employment land use, which comprises:
 - 31,571sqm of Use Class B8 - Plot 1 (Hermes plot).
 - 69,192sqm of Use Class B2 - Plot 2 & 3.
 - 2,323sqm of Use Class B1 - Plot 3

Whilst it is anticipated that plot 2 and 3 will accommodate a combination of B2 and B8 land use, for robustness in the capacity assessments, these have been assessed as being wholly B2 use which is the higher trip generator.

5.2 Trip Generation

The weekday AM and PM peak hour vehicle trip rates identified for the traffic impact analysis work undertaken by Fore for the Hoyland North Masterplan, and the Hoyland West and South Masterplan, were agreed with BMBC and have subsequently been agreed with HE during the pre-application scoping. Given that Hermes is the known end user for Plot 1, then a first principles approach to traffic generation for this plot has been taken, as requested by HE. This approach has been agreed by BMBC.

⁴ *Hoyland North Masterplan - Transport and Access Appraisal Report (Issue v4.0)*, Fore Consulting Limited, 2019.

⁵ *Hoyland West and South Masterplan - Transport Impact Analysis Report (Issue v0.1)*, Fore Consulting Limited, 2019.

Hermes Development

As requested by Highways England a first principles approach has been taken to Plot 1 the Hermes development plot (31,571sqm). The staff trips and operation trips have been broken down separately in the following sections.

Staff Trip Generation

The Hermes development will operate with approximately 950 staff on site, 500 of these will be permanent warehouse roles, 250 temporary staff roles and 150 management staff. The staff working hours are broken down into three shift patterns spread over a 24 hour period as in the current hubs (currently 6am-2pm, 2pm-10pm, 10pm - 6am). It is understood from Hermes that there are no 9am-5pm shifts.

It is assumed all staff will arrive in the hour before starting and depart in the hour following the end of their shift. As such, given the start and end times of the working shifts no trips by staff will be made during the peak hours.

Operational Trip Generation

The operational movements of the Hermes depot, plot 1, have been estimated using data from the Hermes site at Rugby, as agreed with Highways England.

The proposed site will operate in a similar manor to the Hermes site in Rugby (21,177 sqm), albeit on a slightly larger scale (31,571sqm). In order to calculate operational trip generation for the proposed site, data was collected at the Rugby site (Appendix D) recording inbound and outbound traffic which is presented in Table 5 for the weekday peak hours.

Table 5: Hermes Rugby Site Operational Trips - Plot 1

Hour Start		LGV Trips (Veh)			HGV Trips (Veh)			Total Trips (Veh)		
		Arr	Dep	Tot	Arr	Dep	Tot	Arr	Dep	Tot
Weekday AM Peak	07:00-08:00	39	0	39	29	33	62	68	33	101
	08:00-09:00	38	0	38	23	18	41	61	18	79
Weekday PM Peak	16:00-17:00	0	0	0	17	35	52	17	35	52
	17:00-18:00	0	0	0	22	22	44	22	22	44

The trip generation from the existing Hermes site in Rugby (Table 5) has then been factored up to reflect the increase in floor area of the proposed development site. The resulting trip generation is presented in Table 6.

Table 6: Proposed Site Hermes Trip Generation - Plot 1

Hour Start		LGV Trips (Veh)			HGV Trips (Veh)			Total Trips (Veh)		
		Arr	Dep	Tot	Arr	Dep	Tot	Arr	Dep	Tot
Weekday AM Peak	07:00-08:00	49	0	49	36	42	78	85	42	127
	08:00-09:00	48	0	48	29	22	51	76	22	99
	Average	48	0	48	33	32	64	81	32	113
Weekday PM Peak	16:00-17:00	0	0	0	21	44	65	21	44	65
	17:00-18:00	0	0	0	28	27	55	28	27	55
	Average	0	0	0	24	36	60	24	36	60

At the request of BMBC two separate methodologies will be applied to the Hermes trip generation. For the purposes of the local junction modelling the average of the two peak hours will be assessed. Whilst the assessment of the local and strategic highway network using the Hoyland VISSIM model will continue to use the four individual hours across the two modelled peak periods.

Proposed Development Unknown Occupiers

The trip rates that are agreed were derived from the TRICS database, following interrogation of survey sites based on the criteria set out in Table 7. The trips rates used are those as agreed with Highways England and BMDC.

Table 7: TRICS Search Criteria

Proposed Land Use	TRICS Land Use	TRICS Sub-Category	Location
Employment (B2)	02-Employment	D - Industrial Units	Edge of Town / Suburban
Employment (B1)	02-Employment	A - Office	

Vehicle Trip Generation

The agreed vehicle trip rates are set out in Table 8 for the typical Weekday AM (0800-0900 hours) and PM (1700-1800 hours) peak hours.

Table 8: Weekday Vehicle Trip Rates (Total Vehicles)

Time Period	Vehicle Trip Rates (Total Vehicles)		
	Arrivals	Departures	Total
Employment - B2 (per 100 sqm)			
Weekday AM Peak Hour (0800 - 0900)	0.211	0.059	0.270
Weekday PM Peak Hour (1700 - 1800)	0.067	0.194	0.261
Employment - B1 (per 100 sqm)			
Weekday AM Peak Hour (0800 - 0900)	1.164	0.126	1.290
Weekday PM Peak Hour (1700 - 1800)	0.099	1.075	1.174

Table 9 shows the corresponding Weekday AM and PM peak hour vehicle trip generations for each development plot.

Table 9: Vehicle Trip Generation by Development Plot

Development Plot	Vehicle Trips (Veh)					
	Weekday AM Peak Hour			Weekday PM Peak Hour		
	Arr.	Dep.	Total	Arr.	Dep.	Total
Plot 2 - B2 (47,258 sqm)	100	28	128	32	92	123
Plot 3 - B2 (21,934 sqm)	46	13	59	15	43	57
Plot 3 - B1 (2,323 sqm)	27	3	30	2	25	27
Total	173	44	217	49	159	208

Note: Numbers rounded to nearest whole number

HGV Trip Generation

For the employment element of the site, the agreed HGV trip rates are set out in Table 8 for the typical Weekday AM (0800-0900 hours) and PM (1700-1800 hours) peak hours. The B1 office and residential sites will not generate any HGV movements.

Table 10: Weekday HGV Trip Rates (Total HGVs)

Time Period	HGV Trip Rates (Total HGVs)		
	Arrivals	Departures	Total
Employment - B2 (per 100 sqm)			
Weekday AM Peak Hour (0800 - 0900)	0.025	0.026	0.051
Weekday PM Peak Hour (1700 - 1800)	0.006	0.002	0.008

Table 11 shows the corresponding Weekday AM and PM peak hour HGV trip generations for each development plot.

Table 11: HGV Trip Generation by Development Plot

Development Plot	HGV Trips (HGV)					
	Weekday AM Peak Hour			Weekday PM Peak Hour		
	Arr.	Dep.	Total	Arr.	Dep.	Total
Plot 2 - B2 (47,258 sqm)	12	12	24	3	1	4
Plot 3 - B2 (21,934 sqm)	5	6	11	1	0	2
Plot 3 - B1 (2,323 sqm)	-	-	-	-	-	-
Total	17	18	35	4	1	6

Note: Numbers may not total due to rounding.

5.3 Total Development Trip Generation

Table 12 presents the total development vehicle trip generation for the weekday AM and PM peak hour.

Table 12: Total Development Vehicle Trip Generation

Development Plot	Vehicle Trips (Veh)					
	Weekday AM Peak Hour			Weekday PM Peak Hour		
	Arr.	Dep.	Total	Arr.	Dep.	Total
Plot 2 - B2 (47,258 sqm)	100	28	128	32	92	123
Plot 3 - B2 (21,934 sqm)	46	13	59	15	43	57
Plot 3 - B1 (2,323 sqm)	27	3	30	2	25	27
Plot 1 Hermes B8 (31,571 sqm)	81	32	113	24	36	60
Total	254	76	329	73	195	268

Table 13 presents the total development HGV trip generation for the weekday AM and PM peak hour.

Table 13: Total Development HGV Trip Generation

Development Plot	HGV Trips (Veh)					
	Weekday AM Peak Hour			Weekday PM Peak Hour		
	Arr.	Dep.	Total	Arr.	Dep.	Total
Plot 2 - B2 (47,258 sqm)	12	12	24	3	1	4
Plot 3 - B2 (21,934 sqm)	5	6	11	1	0	2
Plot 3 - B1 (2,323 sqm)	-	-	-	-	-	-
Plot 1 Hermes B8 (31,571 sqm)	33	32	64	24	36	60
Total	50	50	100	29	37	66

The Tables above shows that the proposed development is predicted to generate 329 and 268 two-way vehicle trips during the Weekday AM and PM peak hours, respectively. Of this total, the HGV trip generation is 100 and 66 two-way vehicle trips during the Weekday AM and PM peak hours, respectively.

The development trips have been converted into equivalent PCU values⁶.

Table 14: Total Development PCU Trip Generation

Development Plot	Vehicle Trips (PCU)					
	Weekday AM Peak Hour			Weekday PM Peak Hour		
	Arr.	Dep.	Total	Arr.	Dep.	Total
Plot 2 - B2 (47,258 sqm)	112	40	152	35	93	124
Plot 3 - B2 (21,934 sqm)	51	19	70	16	43	59
Plot 3 - B1 (2,323 sqm)	27	3	30	2	25	27
Plot 1 Hermes B8 (31,571 sqm)	114	64	177	48	72	120
Total	304	126	429	102	232	334

⁶ Traffic Modelling Guidelines 'TfL Traffic Manager and Network Performance Best Practice', Version 3.0, 2010.

6 Trip Distribution and Assignment

6.1 Introduction

This Section considers the predicted distribution and route assignment of the vehicle trips onto the study highway network. It should be noted that the assumptions apply equally to the Weekday AM and Weekday PM peak hours and have been agreed at the scoping stage with HE and BMBC.

6.2 Vehicle Trip Distribution

Peak hour trips associated with the development are likely to consist predominantly of commuter journeys. The vehicle trip distribution associated with the development plots has therefore been estimated based on the dataset, WU03EW - Location of usual residence and place of work by method of travel to work (MSOA level), as taken from the 2011 Census.

Separate vehicle trip distributions have been calculated for the residential and employment uses. The residential trip distribution has considered commuter journeys of residents of the Barnsley 028, 029 and 030 middle layer super output areas (MSOAs), whilst the employment trip distribution has considered commuter journeys of those who work in the Barnsley 028, 029 and 30 MSOAs i.e. as per the agreed trip distribution methodology identified as part of Fore's previous work for Hoyland North.

Destinations have been broken down into MSOAs for the districts of Barnsley, Sheffield, Rotherham and Doncaster; for other destinations, the local authority district has been used.

The vehicle trip distribution is summarised in Table 15.

Table 15: Vehicle Trip Distribution

Ref.	Route	Vehicle Trip Distribution
		Employment
1	M1 (South)	10.8%
2	M1 (North)	14.6%
3	The Walk	1.1%
4	A61 Sheffield Road	8.8%
5	A6195 Dearne Valley Parkway (East)	12.2%
6	Hoyland Road	15.5%
7	Parkside Road	4.5%
8	A6135 Sheffield Road	20.4%
9	A616 (East)	0.0%
10	A61 Westwood New Road	3.8%
11	A616 (West)	6.4%
12	Maple Road	0.0%
13	Wentworth Way	1.8%
14	New Road	0.1%
Total		100.0%

HGV Trip Distribution

The distribution of vehicle trips has been estimated using a population-based gravity model, the catchment of which has been set at a driving time of 600 minutes. This is considered appropriate for the development proposals (on the basis that the Hermes depot, whilst predominantly serving the north of England with Rugby serving the south, will be operational to all sites within the UK). The full gravity model as agreed with HE and BMBC is included at Appendix E and summarised in Table 16.

Table 16: HGV Trip Distribution

Ref.	Route	HGV Trip Distribution
1	M1 (North)	35%
2	A6195	10%
3	M1 (South)	22%
4	A616	9%
5	A61 Westwood New Road	17%
6	A61 Sheffield Road	6%
Total		100%

6.3 Route Assignment

The predicted traffic generations for each individual development plot have been assigned onto the highway network. Where a choice of routes is available, the proportion of trips using each route has been estimated to reflect the likely preferred choice of travel time and distance.

The development trips will access the local highway network via the Sheffield Road / A6195 roundabout located at the north of the site, Tankersley Lane (west only) in the centre of the site or Sheffield Road to the south, whichever is the most appropriate location depending on the trip origin/destination.

Vehicle trip generation associated with the proposed development has been assigned to the highway network using the vehicle trip distribution set out in Table 7. The resulting traffic flows are demonstrated in PCU's on Figure 6 and Figure 7 for the weekday development AM and PM peak hour, respectively.

It should be noted that for the purposes of the Figures plot 3 development traffic has been assigned to the access from the link road. However, a sensitivity test is carried out which assumes all of the plot 3 development trips use the second access on Tankersley Lane. The sensitivity test is provided in Chapter 8.

6.4 Link Road Traffic Re-assignment

The proposed new link road will provide a new direct access from Sheffield Road to J36 and the A1695, reducing traffic on Sheffield Road through Hoyland Common. The new link roads will form a priority-controlled junction with Sheffield Road to the south of the

proposed site. The proposed layout encourages through traffic to continue along the new link road and discourages through trips from using Sheffield Road. It is noted that not all traffic will be re-assigned onto the link road, a number of trips will have origins and destinations in the local area and will therefore still seek to access local services and dwellings within Hoyland Common.

In order to establish the level of traffic re-assignment a traffic count undertaken at the Sheffield Road / Hoyland Road / Tankersley Lane junction was used.

Table 17 presents the individual traffic movements at the junction and highlights what assumptions and changes have been made as a result of the proposed link road.

Table 17: Link Road Existing Traffic Re-assignment

Sheffield Road / Hoyland Road / Tankersley Lane		Re-assignment Routes	% Re-assigned
Approach	Turning Movement		
Sheffield Road North	Left	Unaffected	N/A
	Ahead	Diverted onto link road at Sheffield Rd Roundabout	95%
	Right	Diverted onto link road - right turn onto Tankersley Lane	95%
Hoyland Road	Left	Unaffected	N/A
	Ahead	Diverted onto link road via Sheffield Rd Roundabout	95%
	Right	Unaffected	N/A
Sheffield Road South	Left	Diverted onto link road - left turn onto Tankersley Lane	95%
	Ahead	Diverted onto link road at Sheffield Road south	95%
	Right	Unaffected	N/A
Tankersley Lane	Left	Diverted left onto the link road	95%
	Ahead	Diverted left onto the link road - right onto Sheffield Road	95%
	Right	Diverted right onto the link road	95%

The proposed re-assignment accounts for the alternative route options using the link road, whilst still accounting for the small number of trips (5%) that would continue to pass through Hoyland Common for those with origins and destinations in the local area. Figure 8 and Figure 9 present the re-assignment resulting from the proposed link road.

7 Existing and Future Traffic Flows

7.1 Introduction

This chapter describes the approach to deriving existing traffic flows and sets out the methodology for estimating future traffic flows.

7.2 Traffic Surveys

Base traffic flows have been derived from turning count surveys, commissioned by BMBC and undertaken on Wednesday 13th March 2019. Fully classified turning count surveys were undertaken at the following locations:

- Site 1: Westwood Roundabout.
- Site 2: Westwood New Road / Church Lane / Wentworth Way.
- Site 3: A61 / Westwood New Road.
- Site 4: Sheffield Road / A6195.
- Site 5: A6135 Sheffield Road / Hoyland Road / Tankersley Lane.
- Site 6: A61 Sheffield Road / The Walk.
- Site 7: Rockingham Roundabout.
- Site 8: Shortwood Roundabout.
- Site 9: M1 Junction 36.

Further to these surveys a turning count survey was undertaken at the Tankersley Lane / New Road junction on Tuesday 3 March 2020.

The resulting 2019 Base Traffic Flows are set out on Figure 10 and Figure 11 for the weekday AM and PM peak hours, respectively.

The peak hours (the hour with the maximum hourly flow observed) are summarised in Table 18. For robustness, peak hour flows at each junction are used for the purposes of the Transport Assessment.

Table 18: Peak Hour Identification at Surveyed Junctions

Junction	AM Peak Hour	PM Peak Hour
Westwood Roundabout	07:00-08:00	16:15-17:15
Westwood New Road / Church Lane / Wentworth Way	07:00-08:00	16:15-17:15
A61 / Westwood New Road	07:00-08:00	16:15-17:15
Sheffield Road / A6195	07:30-08:30	16:30-17:30
A6135 Sheffield Road / Hoyland Road / Tankersley Lane	07:30-08:30	16:30-17:30
A61 Sheffield Road / The Walk	07:30-08:30	16:30-17:30
Rockingham Roundabout	07:15-08:15	16:15-17:15
Shortwood Roundabout	07:30-08:30	16:15-17:15
M1 Junction 36	07:15-08:15	16:15-17:15
Tankersley Lane / New Road	07:45-08:45	16:45-17:45

7.3 Assessment Periods

The periods considered for this assessment are the weekday AM and PM peak hours - representing the weekday hours with the maximum likely combination of existing traffic and development-associated traffic.

Peak hour flows for the surveyed junctions are used for the purposes of this assessment, as outlined in Table 17. Development traffic flows are considered on the basis of the development peak hours during the AM and PM peak periods, identified as 08:00 to 09:00 and 17:00 to 18:00.

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

7.4 Assessment Years and Traffic Growth

An assessment year of 2029 is considered for the purposes of this assessment as agreed with HE. This reflects the estimated programme for construction and occupation of the full development.

It is proposed that the traffic impacts of the development once completed will be considered for the purposes of capacity analysis of the highway network. This will be based on the base traffic flows identified by the surveys, including appropriate NTEM/TEMPro background growth, as presented in Table 19, and committed developments.

Table 19: local Traffic Growth Factors - Barnsley 028 MSOA

Peak Period	Local Traffic Growth 2019 to 2029
Weekday AM peak period	1.0901
Weekday PM peak period	1.0909

Committed Developments

As agreed with Highways England, the traffic impacts associated with the following committed developments have been considered for the future year assessment scenarios:

- 2018/1039: Land off Lidgett Lane/ Pilley Green, Pilley - residential development of up to 72 dwellings.
- 2017/1341: Land off New Road, Pilley - residential development of up to 56 dwellings.
- 2018/1361: Land off New Road, Tankersley - residential development up to 29 dwellings.
- 2016/1531: Land north of Hawshaw Lane - outline application for residential development up to 100 dwellings.
- 2019/1573: Rockingham Phase 2 and 3, Hoyland - hybrid application for B1C, B2 and B8 employment floorspace with a development quantum of up to 1.1m sqft (102,193sqm).

The total traffic impact, within the agreed development study area, of the committed developments is demonstrated on Figure 12 and Figure 13 for the weekday AM and PM peak hours, respectively.

Assessment Scenarios

The proposed assessment scenarios are set out below.

2019 Base Year

The 2019 Base scenario will be derived from the surveyed traffic flow data, with the peak hours for the highway network adopted. All classified traffic data will be converted into equivalent PCU values.

Future Assessment Year Do Minimum

The Future Year 2029 Do Minimum scenario is considered to represent a future year situation on the local highway network, without the proposed development taking place. In addition to the 2019 Base scenario, all relevant traffic growth, committed developments and planned transport improvements will be implemented.

The resulting Do Minimum Traffic Flows are set out on Figure 14 and Figure 15 for the weekday AM and PM peak hours, respectively.

Future Assessment Year With Development

The Future Year 2029 With Development scenario is considered to represent a future year situation on the local highway network, with the proposed development taking place. The traffic flows will be derived by adding the Development Traffic Flows (which reflect the likely trip generation for the development at maturity) to the link road re-assignment flows and the Future Year Do Minimum Traffic Flows. In addition, changes to the layout of the highway network, as outlined by the proposed development, will be included.

The resulting 'With Development' Traffic Flows are set out on Figure 16 and Figure 17 for the weekday AM and PM peak hours, respectively.

8 Transport Assessment: Highway Network

8.1 Introduction

This chapter provides an assessment of the capacity of the key junctions within the study area.

8.2 VISSIM Modelling

As agreed with HE and BMBC the assessment of the network will be undertaken using Junctions9 software for the site access junctions, whilst the validated VISSIM model for the Birdwell Interchange will be utilised for the assessment of the impact at the other junctions. A report detailing the impact of the development proposals away from the Site accesses will be completed and provided separately.

The assessment scenarios for the VISSIM modelling are as follows:

Future Year Do Minimum Scenario

The Future Year 2029 Do Minimum scenario will be the '2029 Rockingham development + Hoyland North Masterplan without Sherwood Rbt - Hawshaw Lane link road.' As modelled for the Rockingham Phase 2 and 3 development.

This scenario is considered to represent the worst-case scenario and therefore allows a robust assessment. It is noted that the model excludes the Westwood Roundabout where a signalised improvement scheme is under construction. Westwood roundabout is included within the 2019 base model, however on the basis that the new Westwood roundabout has taken into consideration the Local Plan quantum, and the improvements should be able to accommodate the development coming forward, then the removal of the Westwood Roundabout / non-inclusion of the signalised version will not have a material effect on the operation of M1 Junction 36. This approach is considered appropriate and is in line with the modelling work undertaken for the Rockingham planning application, this again will allow direct comparison with the Rockingham modelling.

Future Year With Development Scenario

The Future Year 2029 With Development scenario is considered to represent a future year situation on the local highway network, with the proposed development taking place. The VISSIM model will add the development traffic flows onto the Do Minimum flows and adjust existing traffic flows to account for re-assignment resulting from the new link road. The VISSIM model will not include the proposed link road, as the model study area does not include the relevant areas required to assess the link road. The link road and new local junctions will therefore be assessed separately.

8.3 Link Road Access Junctions

Junctions 9 models have been developed to reflect the proposed layout of the new junctions on the new link road. Amongst other performance indicators and statistics, the 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. However, an RFC in excess of 0.85 does not indicate a situation that is inherently unacceptable; it indicates that further consideration of operating conditions (including impacts on queues and delay) is appropriate.

The model results are shown in Table 20 for the scenario with the development in place and in full at Appendix F.

Table 20: Link Road Access Junctions Modelling Summary

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
Plot 3 Link Road Access - 2029 With Development				
Plot 3 Access LT	0.04	0.1	0.09	0.1
Plot 3 Access RT	0.02	0.0	0.11	0.1
Link Road north	0.10	0.1	0.02	0.0
Hermes Plot Access Rbt - 2029 With Development				
Link Road south	0.33	0.5	0.31	0.5
Hermes Plot Access	0.02	0.0	0.02	0.0
Link Road north	0.31	0.5	0.32	0.5
Plot 2 Link Road Access Rbt - 2029 With Development				
Sheffield Road south	0.36	0.6	0.34	0.5
Plot 2 Access	0.04	0.1	0.09	0.1
Link Road north	0.31	0.5	0.33	0.5
Link Road / Sheffield Road - 2029 With Development				
Sheffield Road LT	0.19	0.2	0.17	0.2
Sheffield Road RT	0.05	0.1	0.00	0.0
Link Road north	0.14	0.2	0.20	0.3
Link Road / Tankersley Lane - 2029 With Development				
Tankersley Lane LT	0.42	0.7	0.47	0.9
Tankersley Lane RT	0.42	0.7	0.46	0.8
Link Road north	0.34	0.5	0.46	0.9

The assessment demonstrates that the access junctions along the link road will operate satisfactorily during the AM and PM peak hours, with negligible queueing.

8.4 Sensitivity Test

As outlined in Chapter 6.3 a sensitivity test has been carried out which assumes that all Plot 3 development traffic will use the access of Tankersley Lane. The two junctions affected by this change are the plot access and the Tankersley Lane / Link Road junction.

The model results are shown in Table 21 for the scenario with the development in place and in full at Appendix G.

Table 21: Plot 3 Sensitivity Test Junctions Modelling Summary

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
Plot 3 Tankersley Lane Access - 2029 With Development				
Plot 3 Access LT	0.03	0.0	0.10	0.1
Plot 3 Access RT	0.00	0.0	0.02	0.0
Link Road north	0.12	0.1	0.03	0.0
Link Road / Tankersley Lane - 2029 With Development Sensitivity				
Link Road south	0.46	0.9	0.61	1.6
Hermes Plot Access	0.47	0.9	0.61	1.5
Link Road north	0.44	0.8	0.49	1.0

The assessment demonstrates that if all traffic used the Plot 3 Tankersley Lane access then the affected junctions will operate satisfactorily during the AM and PM peak hours, with negligible queueing.

8.5 Road Safety

Personal injury accident data has been obtained from www.crashmap.co.uk for the highway network in the vicinity of the site for the most recently available five year period between 1 January 2015 and 31 December 2019 (most recent five year period available).

The study area includes the A6195 Birdwell Roundabout, the M1 J36, and Sheffield Road / Tankersley Lane junction.

A cluster of collisions are shown at Birdwell Roundabout where 9 accidents have been recorded in the most recent 5-year period, one of which resulted in injuries of severe severity. However, it is noted that the roundabout underwent significant improvements which were completed in late 2017. In the two years since the new layout was completed there have been two accidents recorded, one of serious and one of slight severity.

Four accidents have been recorded at the Sheffield Road / Tankersley Lane / Hoyland Road junction. Three of these accidents resulted in injuries of slight severity. One accident resulted in injuries of serious severity.

Eight accidents which resulted in injuries of slight severity were recorded at the M1 Junction 36. All of these incidents were spread across the junction with no clustering.

Having reviewed the accidents in detail there is no evidence to suggest that the proposed development will materially exacerbate the existing situation. The proposed development will reduce traffic on Sheffield Road and at the crossroads. It is considered that the additional traffic generated by the development will not have any significant adverse impact on highway safety and therefore the effect is negligible.

9 Summary and Conclusions

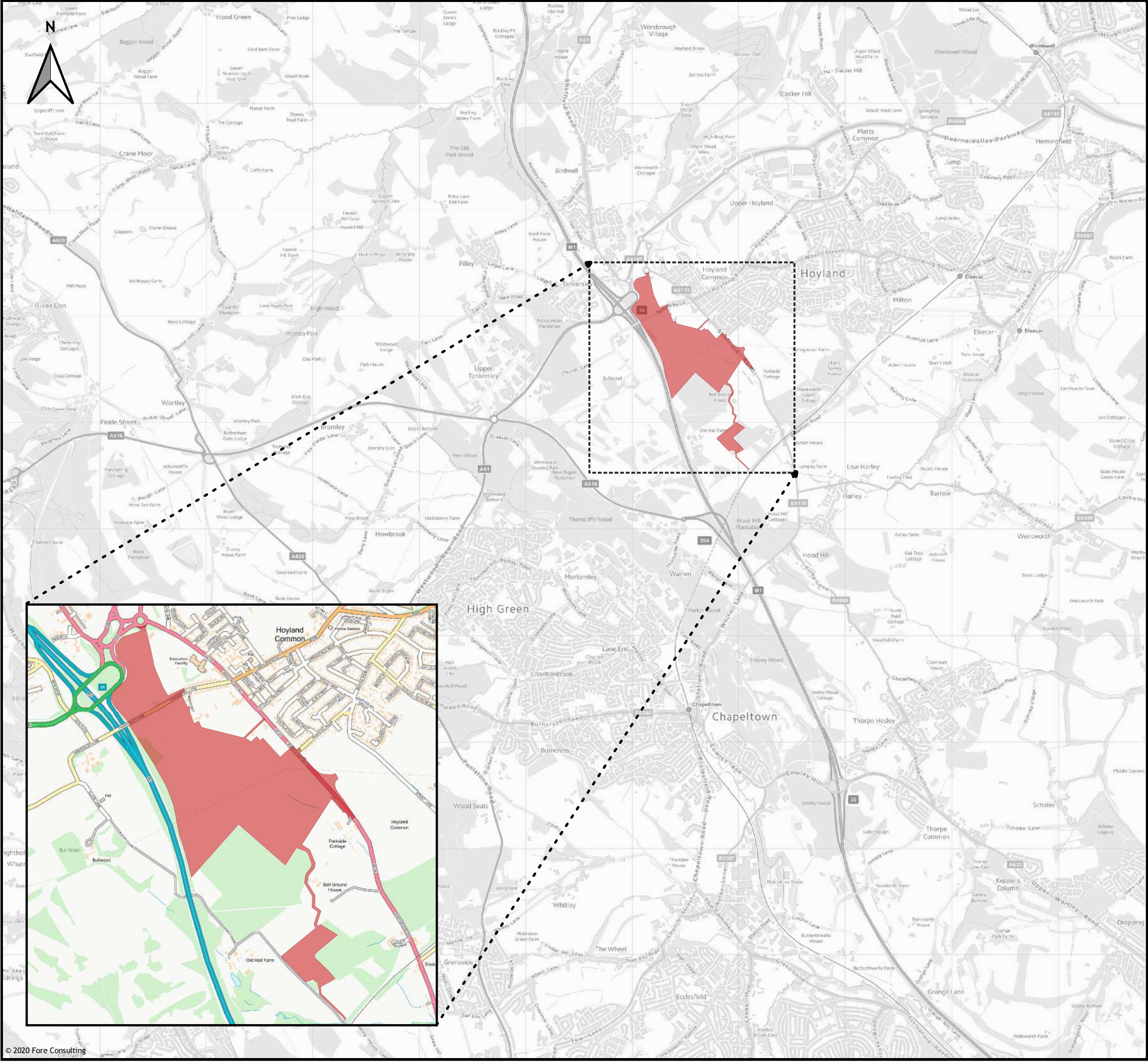
Fore Consulting has prepared this Transport Assessment to be submitted as part of a hybrid planning application for employment development in Hoyland, on land identified as E13 in Barnsley's Local Plan. Planning permission is sought for a new link road through the site and 103,083 sqm of employment land use, comprising a mix of B1, B2 and B8.

This report has examined the existing transport network in the vicinity of the site, considered relevant national and local transport planning policy, outlined the development proposals, and determined the resulting impact on the transport network. The assessment demonstrates the following:

- The proposals fully accord with relevant national and local transport policy.
- The site is well served by public transport. A number of bus stops are located within convenient walking distance of the site, providing frequent services to Barnsley city centre and Sheffield city centre.
- Pedestrian and cycle connections will be provided as part of the link road, which will support the sustainable movement strategy for the proposed development and wider E13 development.
- The proposed link road will reduce traffic through Hoyland and provided a betterment to the local residents on Sheffield Road.
- Vehicular access can be satisfactorily accommodated. The proposed arrangements accord with relevant design standards and are deliverable; either on land under the control of the applicant and/or adopted highway. Junction capacity assessments indicate that the proposed access junctions will be satisfactory in capacity and performance terms.
- Tankersley Lane access arrangements will provide a betterment for the residential dwellings on Tankersley Lane east. The arrangement also has the support of the Barnsley bus partnership and HE, whilst not impacting upon any future closure of Tankersley Lane west should BMBC pursue this option at a future date.

Considering all of the above, it is concluded that the development proposals are acceptable from a transport and highways perspective.

Figures



Key:

Indicative Site Boundary

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Client:

Newlands Developments

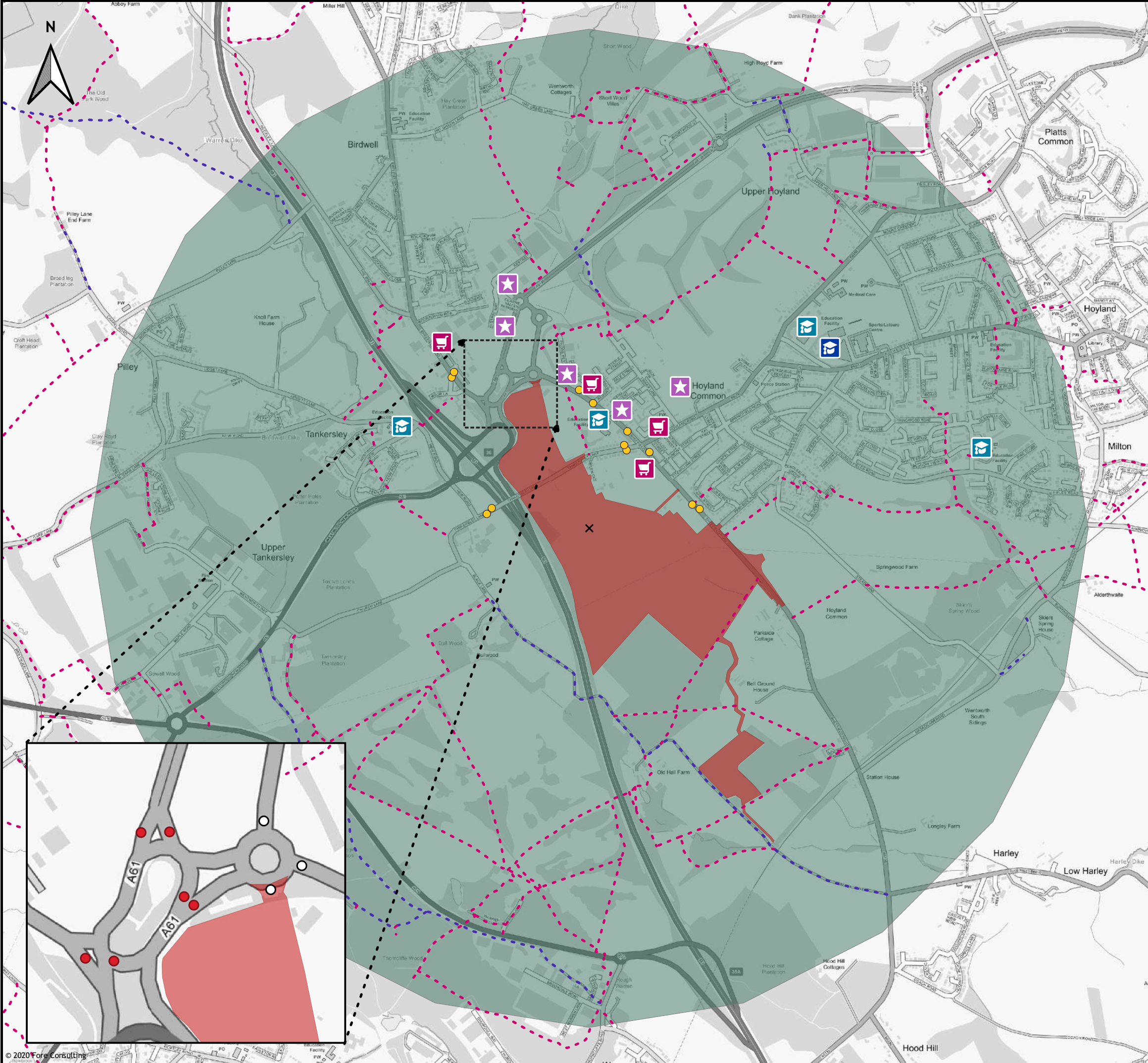
Project:

Hoyland Commercial Land

Figure Title:

Site Location

Scale:	Figure Status:
1:35000	Issue
Job Number:	Figure Number:
3560	Figure 1



Key:

- Indicative Site Boundary
- Walking Catchment Centre Point
- 2.0km Walking Catchment (as the crow flies)

Local Land Use

- Bus Stop
- Leisure
- Primary School
- Retail
- Secondary School
- Dropped Kerbs
- Signalised Crossings

Public Rights of Way

- Bridleway
- Footpath
- Restricted byway
- National Cycle Network Route 67

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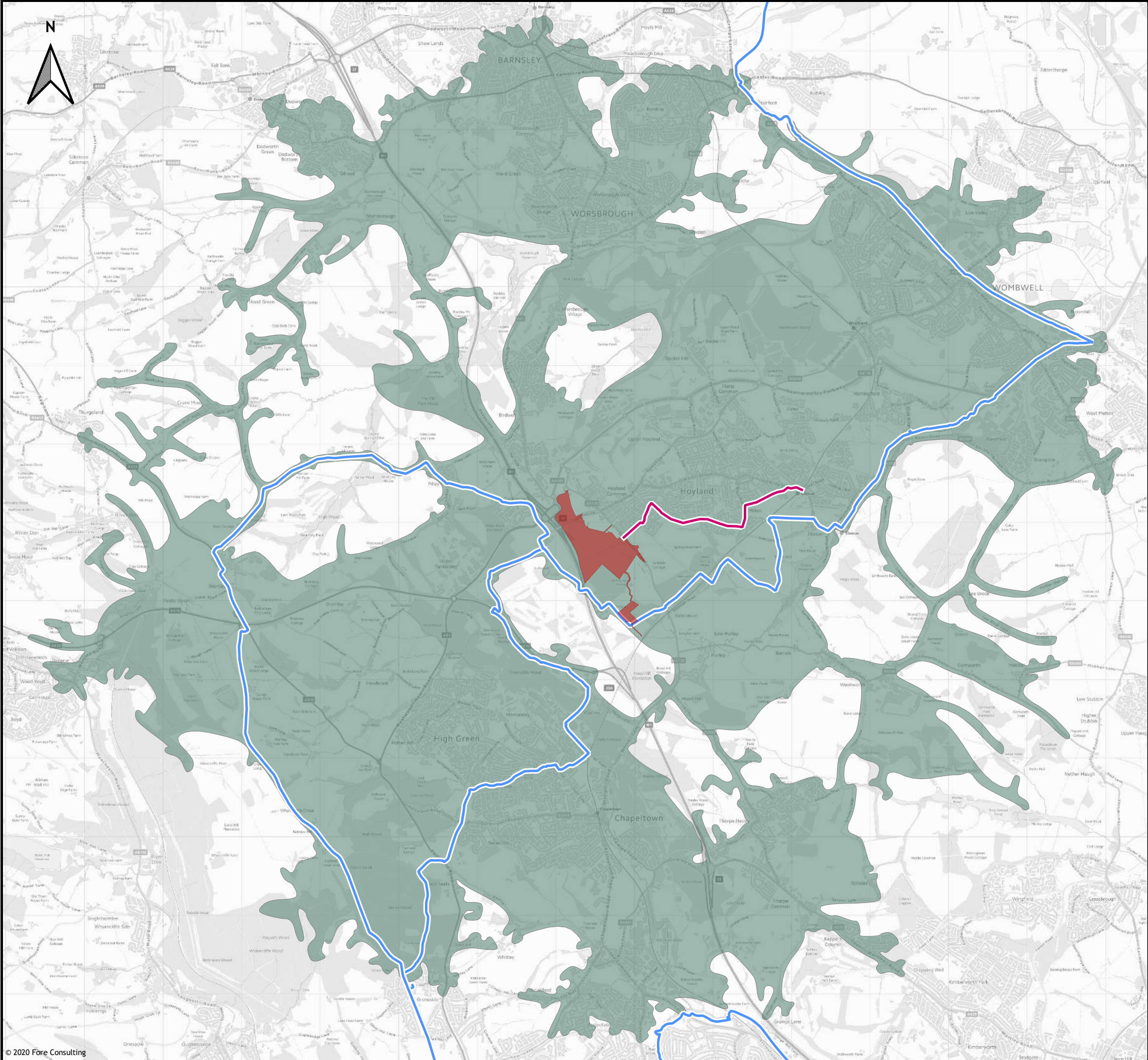
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Client:
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Project:
Hoyland Commercial Land

Figure Title:
Walking Catchment and Local Land Use

Scale: 1:15000	Figure Status: Issue
Job Number: 3560	Figure Number: Figure 2



Key:

- Indicative Site Boundary
- 8.0km Cycle Catchment
- National Cycle Network Route 67
- A6135 Hoyland Common to Elsecar Park & Ride

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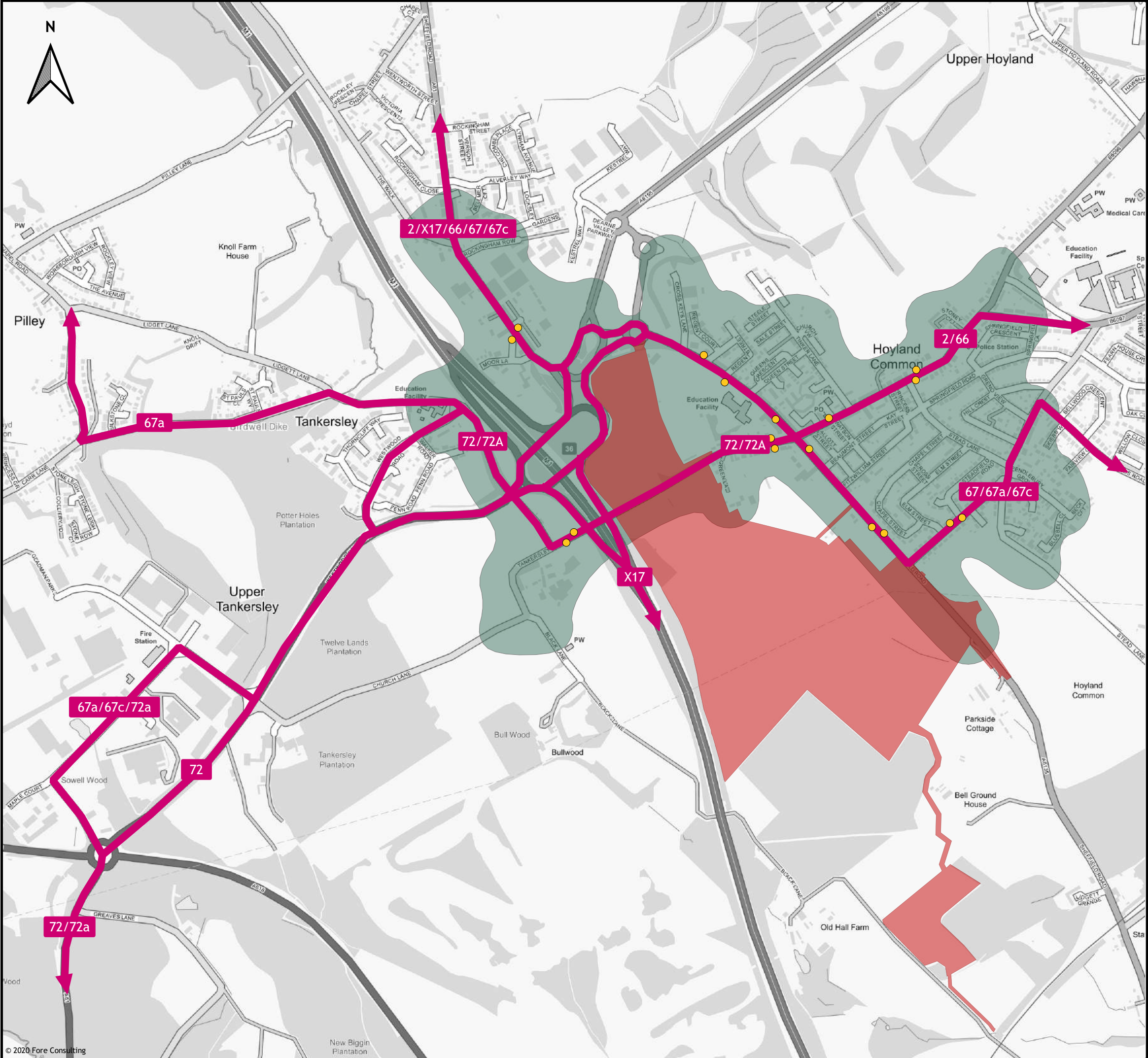
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Client:
Newlands Developments

Project:
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Figure Title:
Cycle Catchment and Long-Distance Cycle Routes

Scale: 1:47500	Figure Status: Issue
Job Number: 3560	Figure Number: Figure 3



Key:

- Indicative Site Boundary
- 400m Bus Stop Walking Catchment
- Bus Route
- Bus Stop

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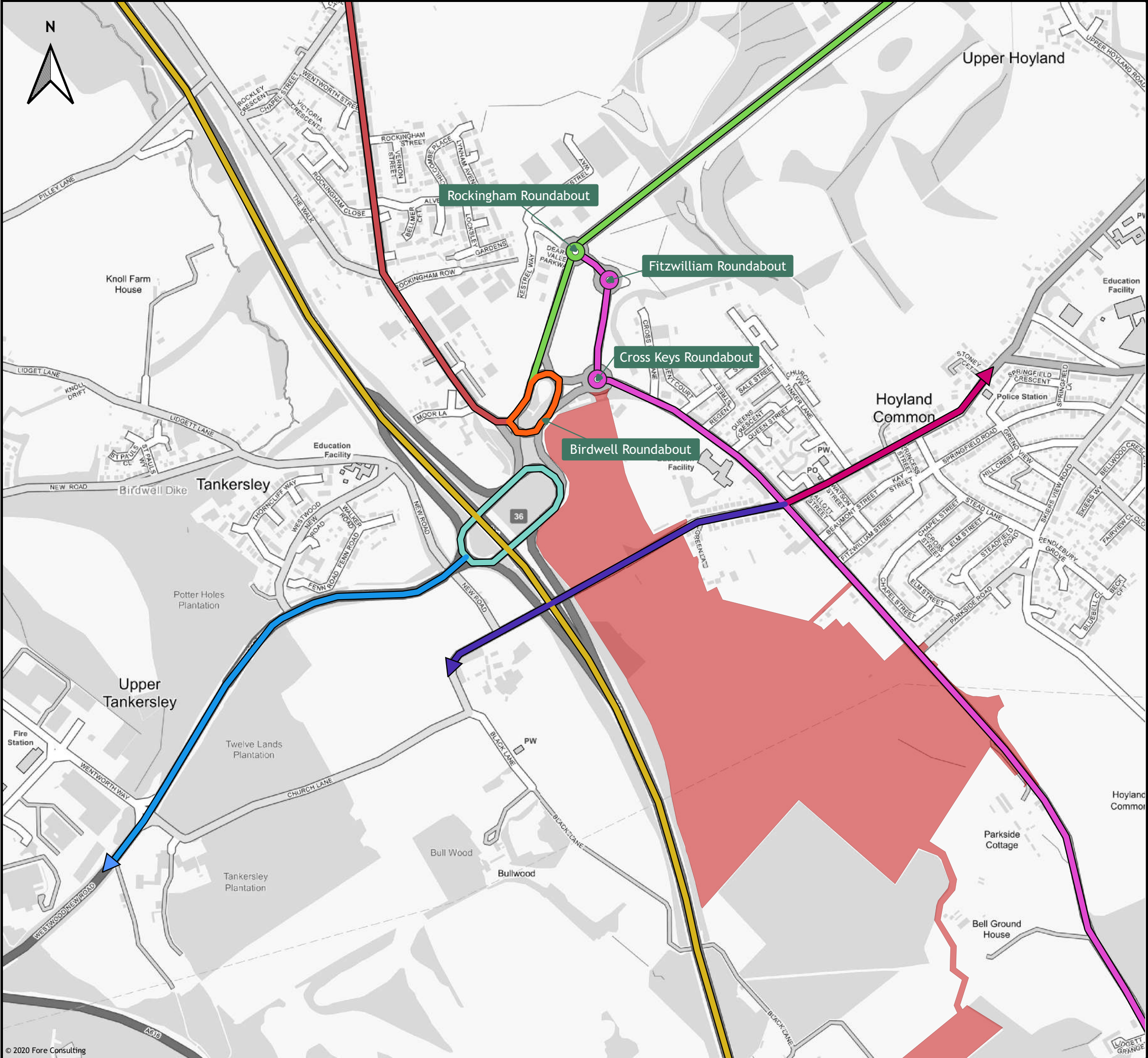
Client:
Newlands Developments

Project:
Hoyland Commerical Land

Figure Title:
Local Public Transport Network

Scale: 1:10000	Figure Status: Issue
Job Number: 3560	Figure Number: Figure 4

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Key:

- Indicative Site Boundary
- Local Highway Network**
 - Birdwell Roundabout
 - A6195 Dearne Valley Parkway
 - A61 Sheffield Road
 - A61 Westwood New Road
 - A6135 Sheffield Road
 - M1 Junction 36
 - B6096 Hoyland Road
 - Tankersley Lane
 - M1

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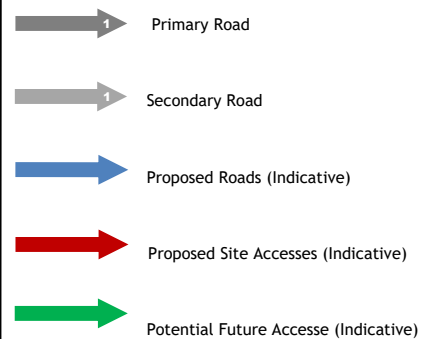
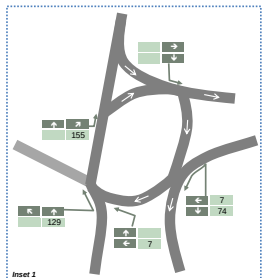
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www.foreconsulting.co.uk

Client:
Newlands Developments

Project:
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Figure Title:
Strategic and Local Highway Network

Scale: 1:8500	Figure Status: Issue
Job Number: 3560	Figure Number: Figure 5



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

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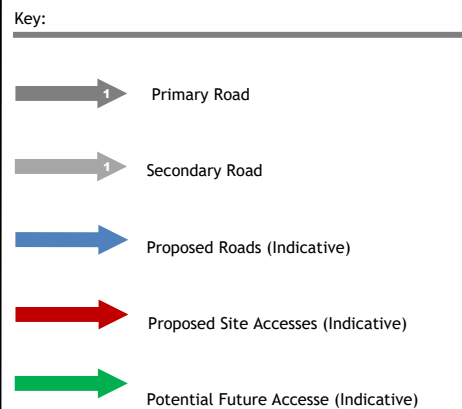
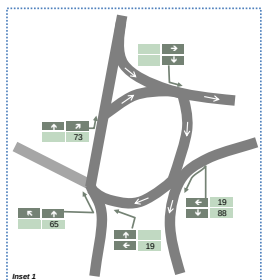
Figure Title:
Total Development Traffic Flows (PCU)
AM Peak Hour

Scale:
Not to scale

Figure Status:
Issue

Job Number:
3560

Figure Number:
Figure 6

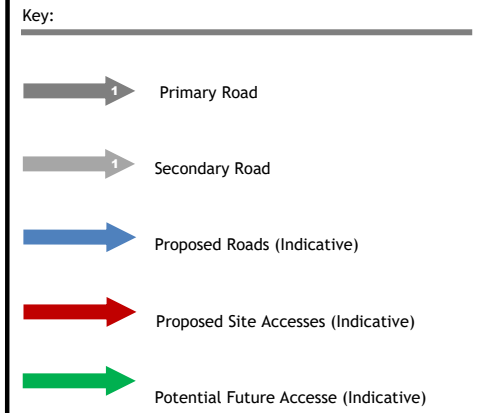
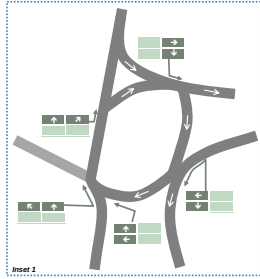


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Figure Number:
Figure 7

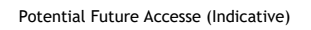
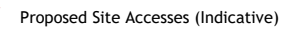
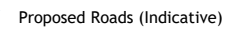
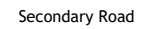
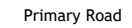
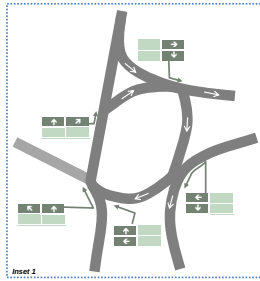


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Figure Number:
Figure 8



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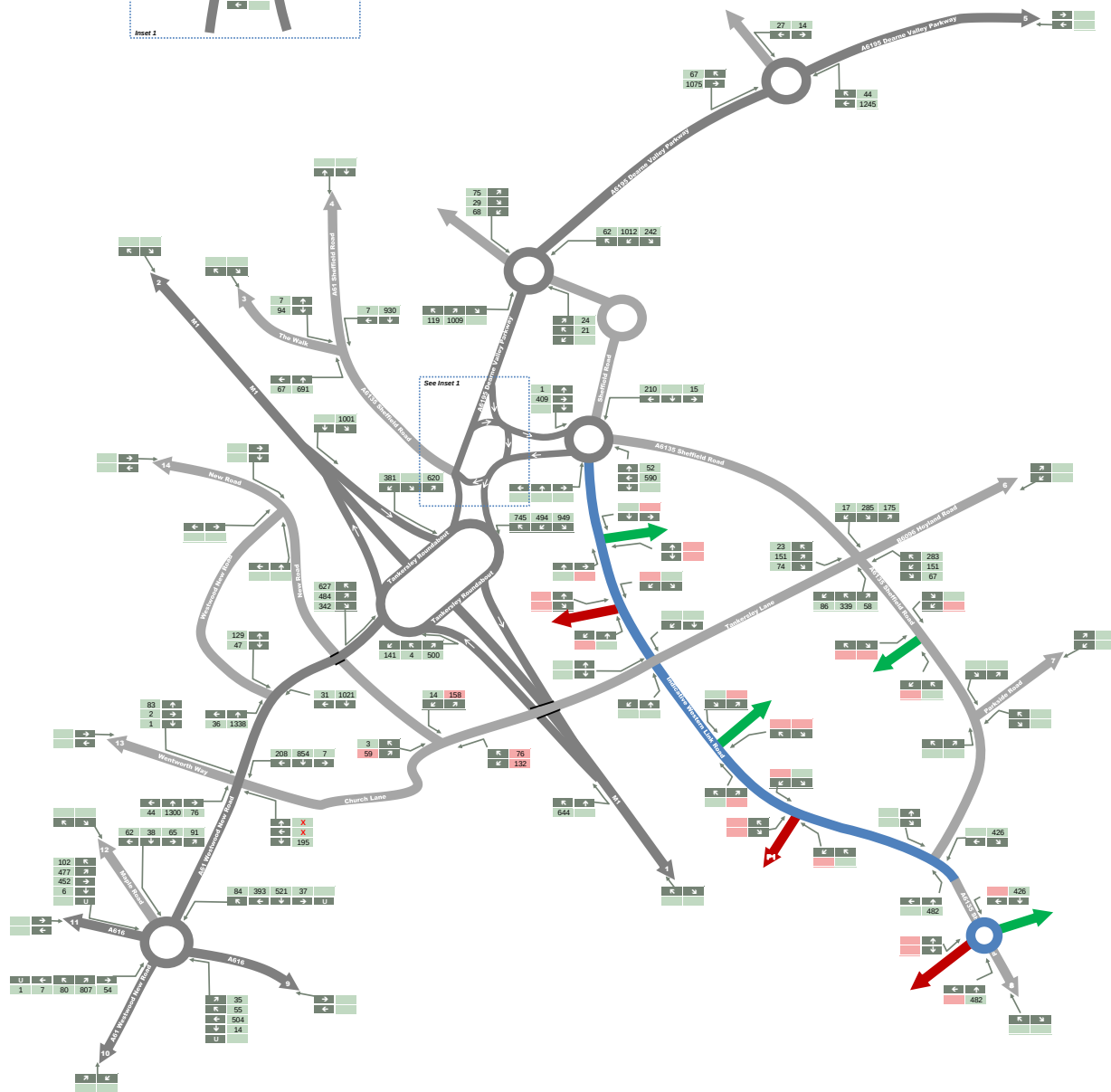
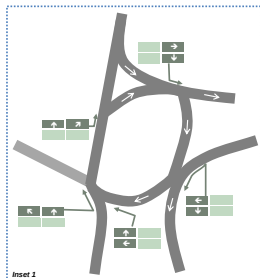
Link Road Re-assignment
PM Peak Hour

Not to scale

Issue

3560

Figure 9



Key:

- Primary Road
- Secondary Road
- Proposed Roads (Indicative)
- Proposed Site Accesses (Indicative)
- Potential Future Accesses (Indicative)

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

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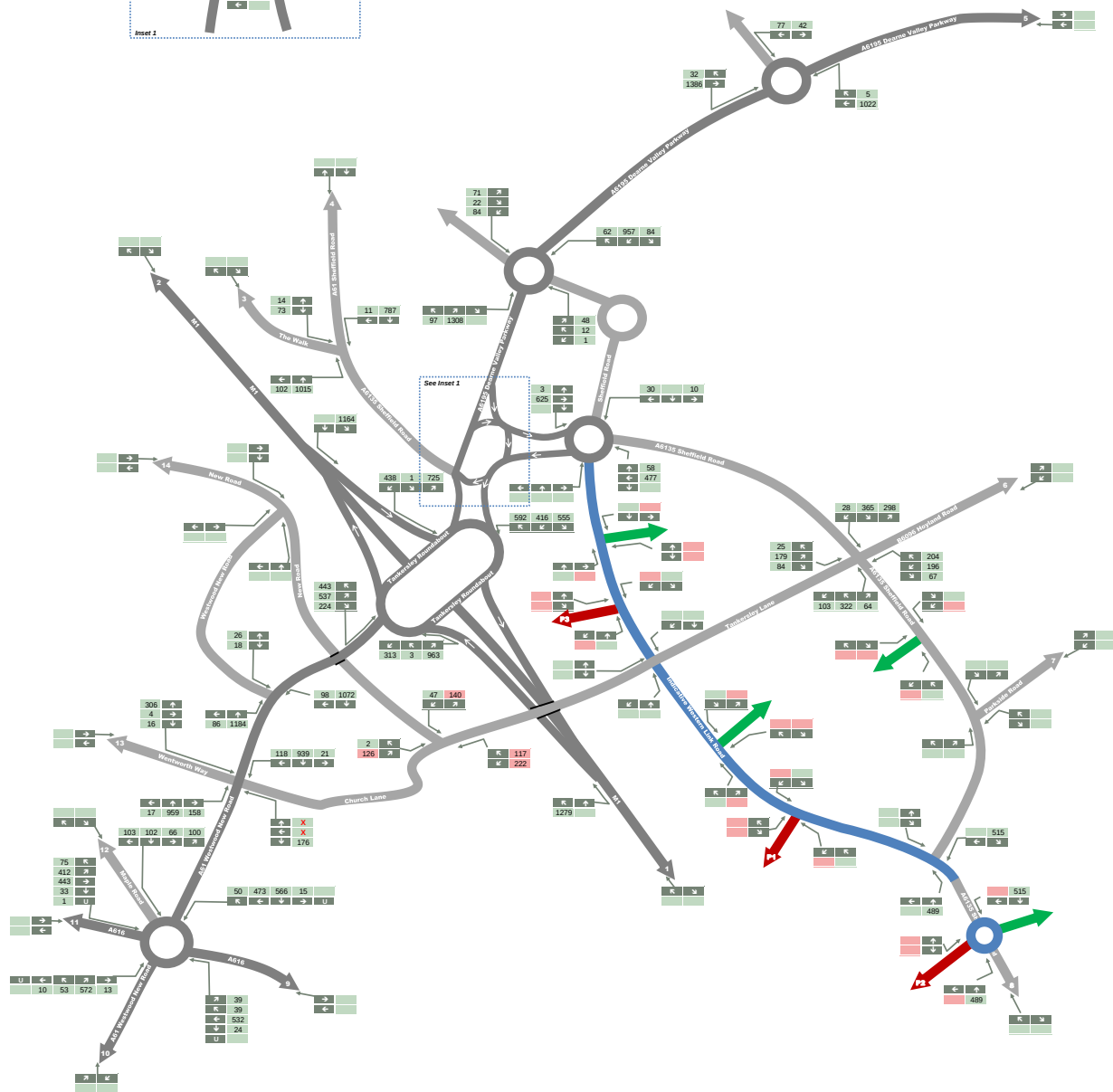
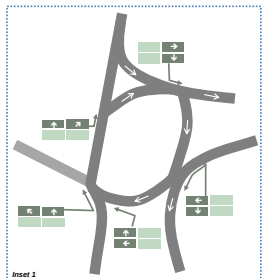
Figure Title:
2019 Base Traffic Flows
AM Peak Hour

Scale:
Not to scale

Figure Status:
Issue

Job Number:
3560

Figure Number:
Figure 10



Key:

- Primary Road
- Secondary Road
- Proposed Roads (Indicative)
- Proposed Site Accesses (Indicative)
- Potential Future Accesses (Indicative)

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

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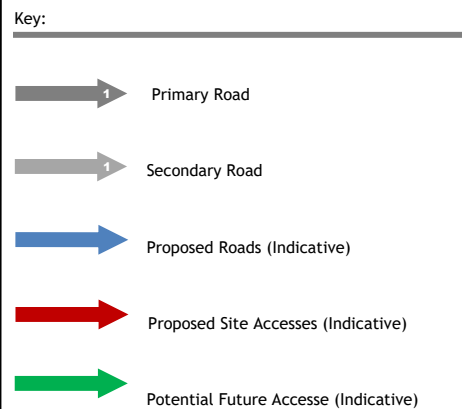
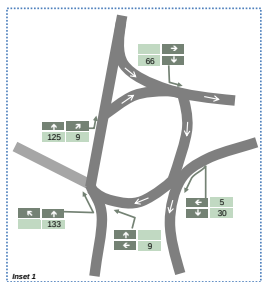
Figure Title:
2019 Base Traffic Flows
PM Peak Hour

Scale:
Not to scale

Figure Status:
Issue

Job Number:
3560

Figure Number:
Figure 11



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

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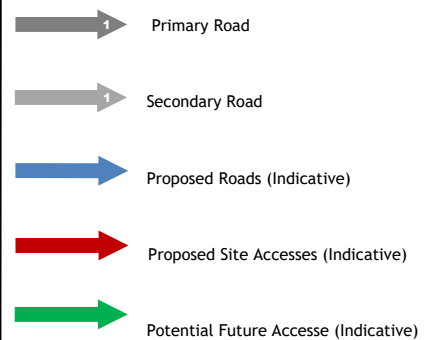
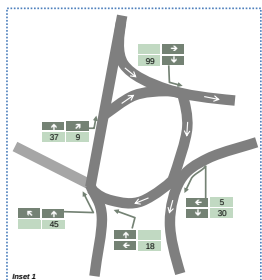
Figure Title:
Total Committed Development Traffic Flows
AM Peak Hour

Scale:
Not to scale

Figure Status:
Issue

Job Number:
3560

Figure Number:
Figure 12



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

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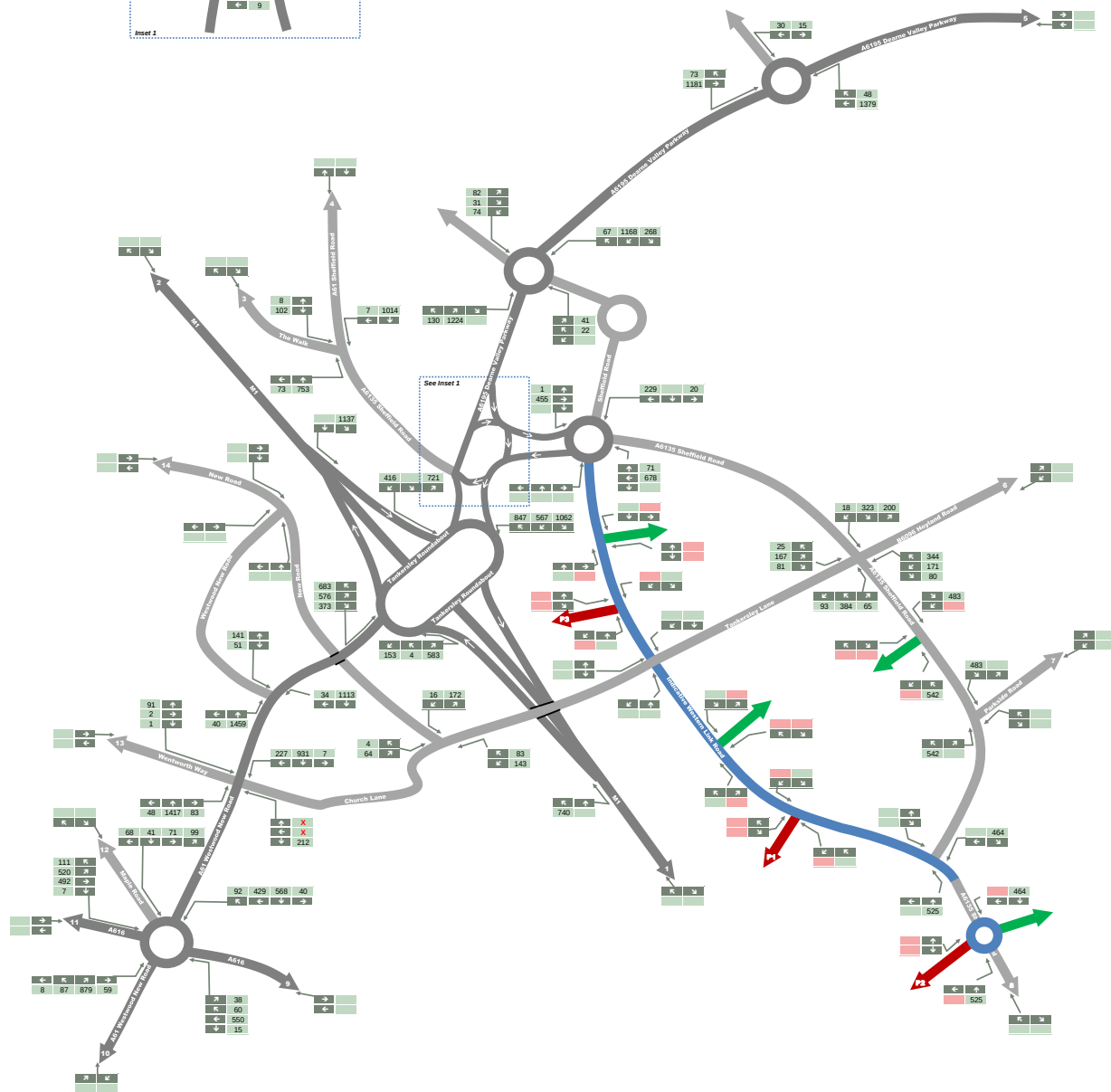
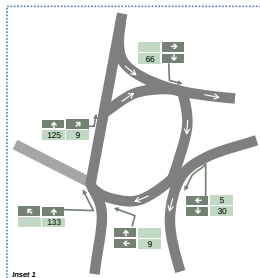
Figure Title:
Total Committed Development Traffic Flows
PM Peak Hour

Scale:
Not to scale

Figure Status:
Issue

Job Number:
3560

Figure Number:
Figure 13



Key:

- Primary Road
- Secondary Road
- Proposed Roads (Indicative)
- Proposed Site Accesses (Indicative)
- Potential Future Accesses (Indicative)

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

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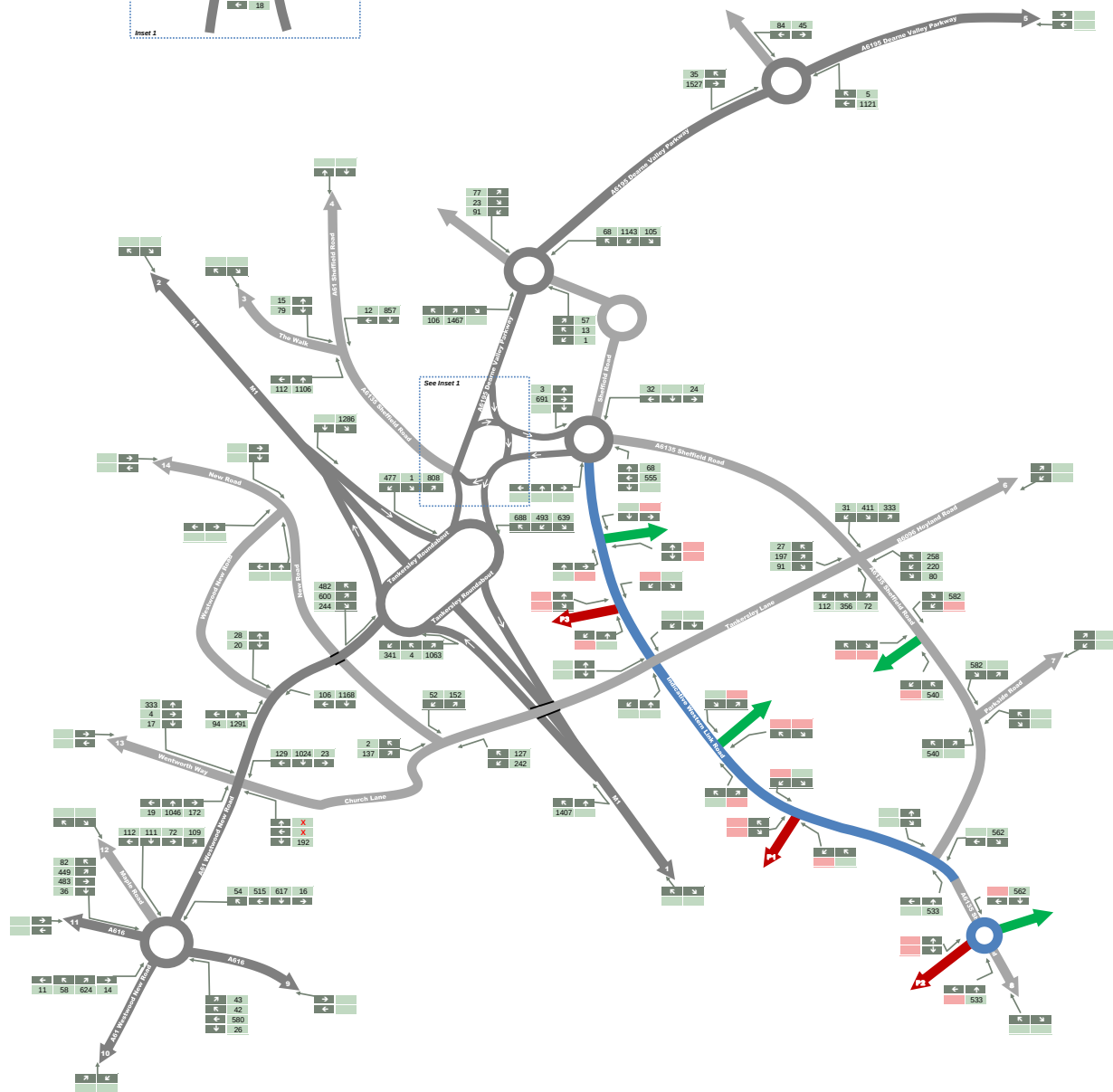
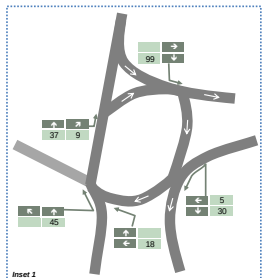
Figure Title:
2029 Do Minimum Traffic Flows
AM Peak Hour

Scale:
Not to scale

Figure Status:
Issue

Job Number:
3560

Figure Number:
Figure 14



Key:

- Primary Road
- Secondary Road
- Proposed Roads (Indicative)
- Proposed Site Accesses (Indicative)
- Potential Future Accesses (Indicative)

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

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Client:
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Project:
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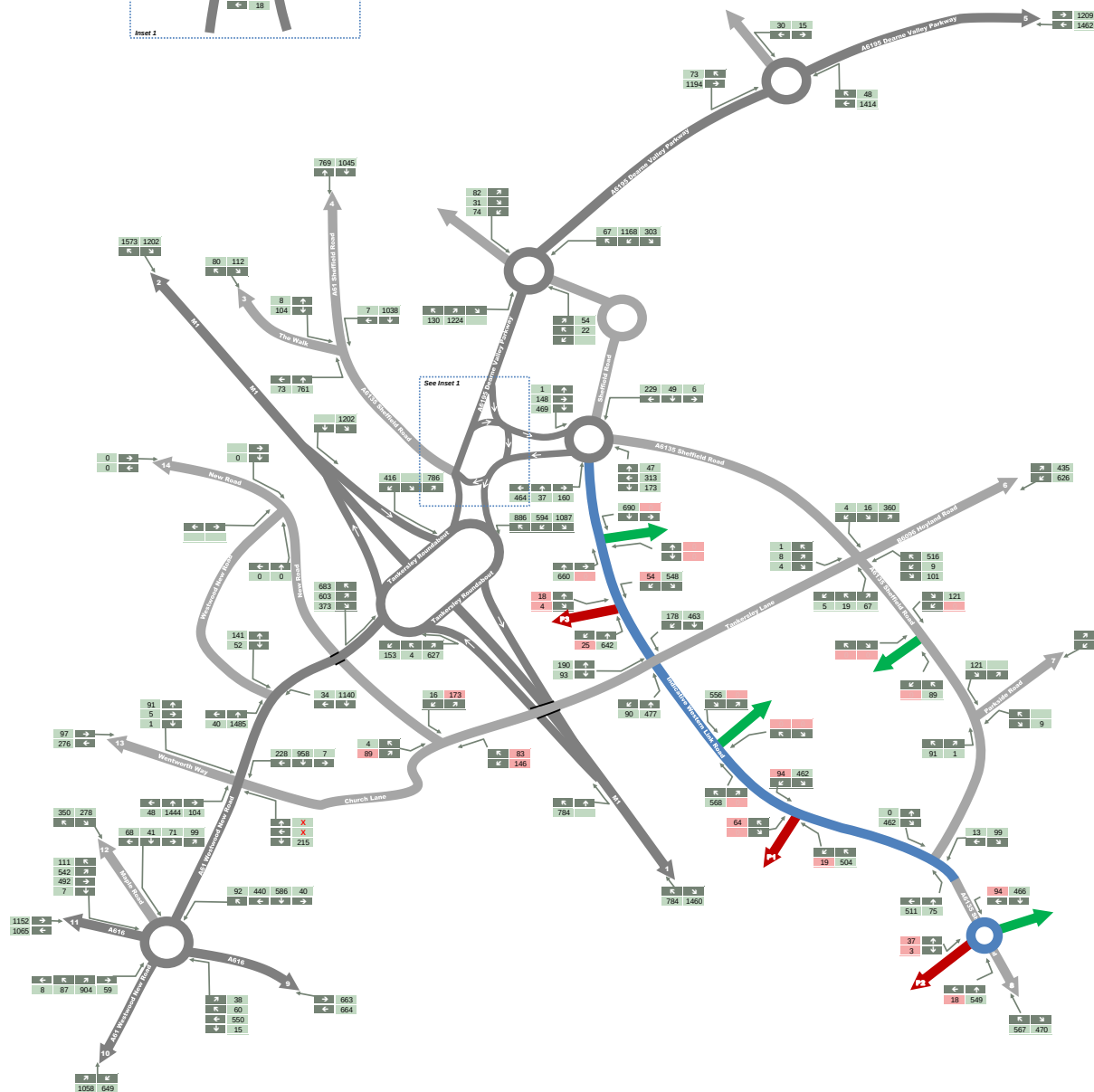
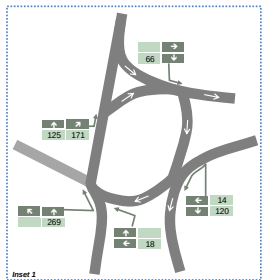
Figure Title:
2029 Do Minimum Traffic Flows
PM Peak Hour

Scale:
Not to scale

Figure Status:
Issue

Job Number:
3560

Figure Number:
Figure 15



Key:

- Primary Road
- Secondary Road
- Proposed Roads (Indicative)
- Proposed Site Accesses (Indicative)
- Potential Future Accesses (Indicative)

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

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Client:
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Project:
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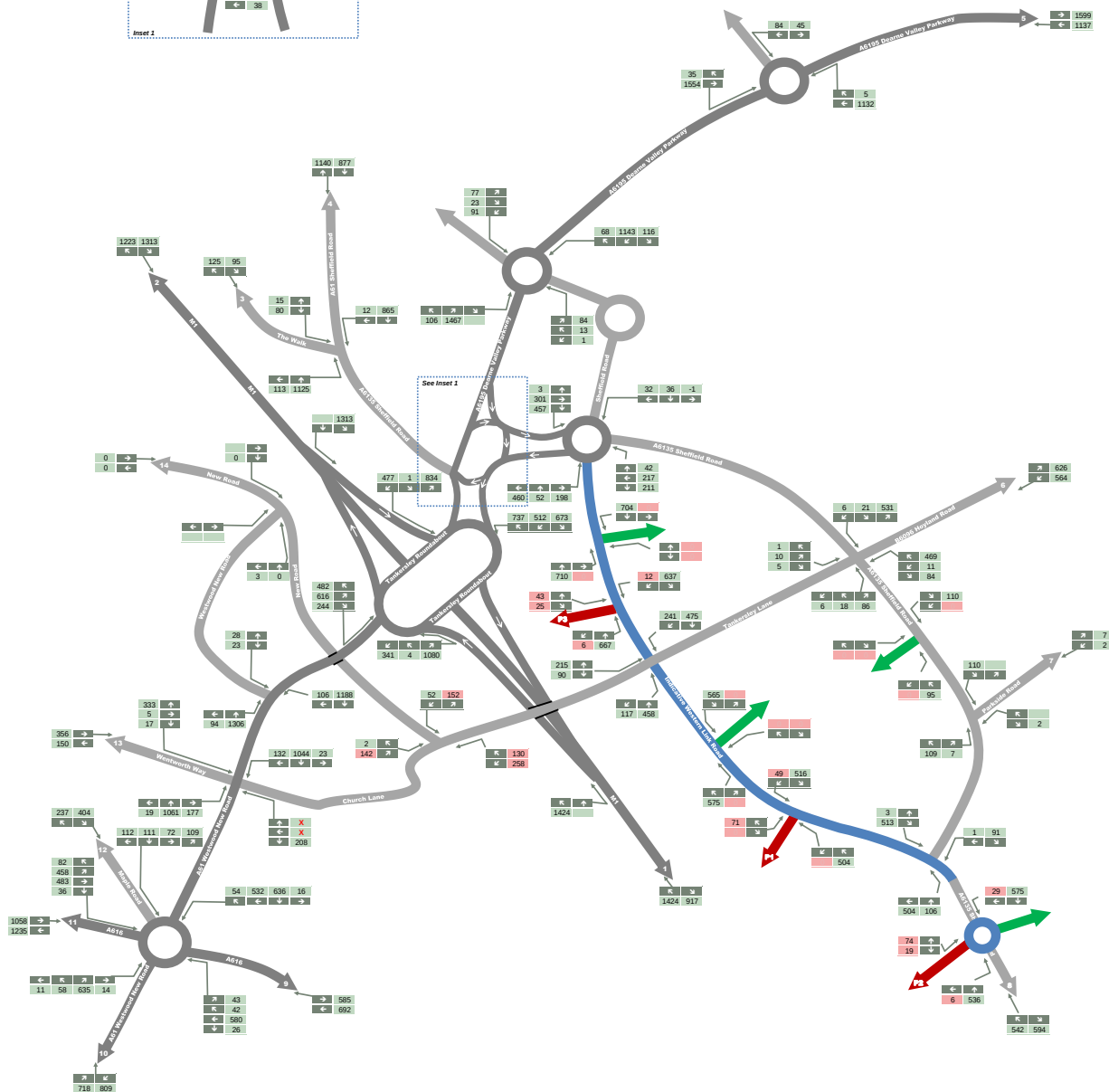
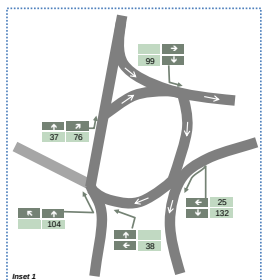
Figure Title:
2029 With Development Traffic Flows
AM Peak Hour

Scale:
Not to scale

Figure Status:
Issue

Job Number:
3560

Figure Number:
Figure 16



Key:

- Primary Road
- Secondary Road
- Proposed Roads (Indicative)
- Proposed Site Accesses (Indicative)
- Potential Future Accesses (Indicative)

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

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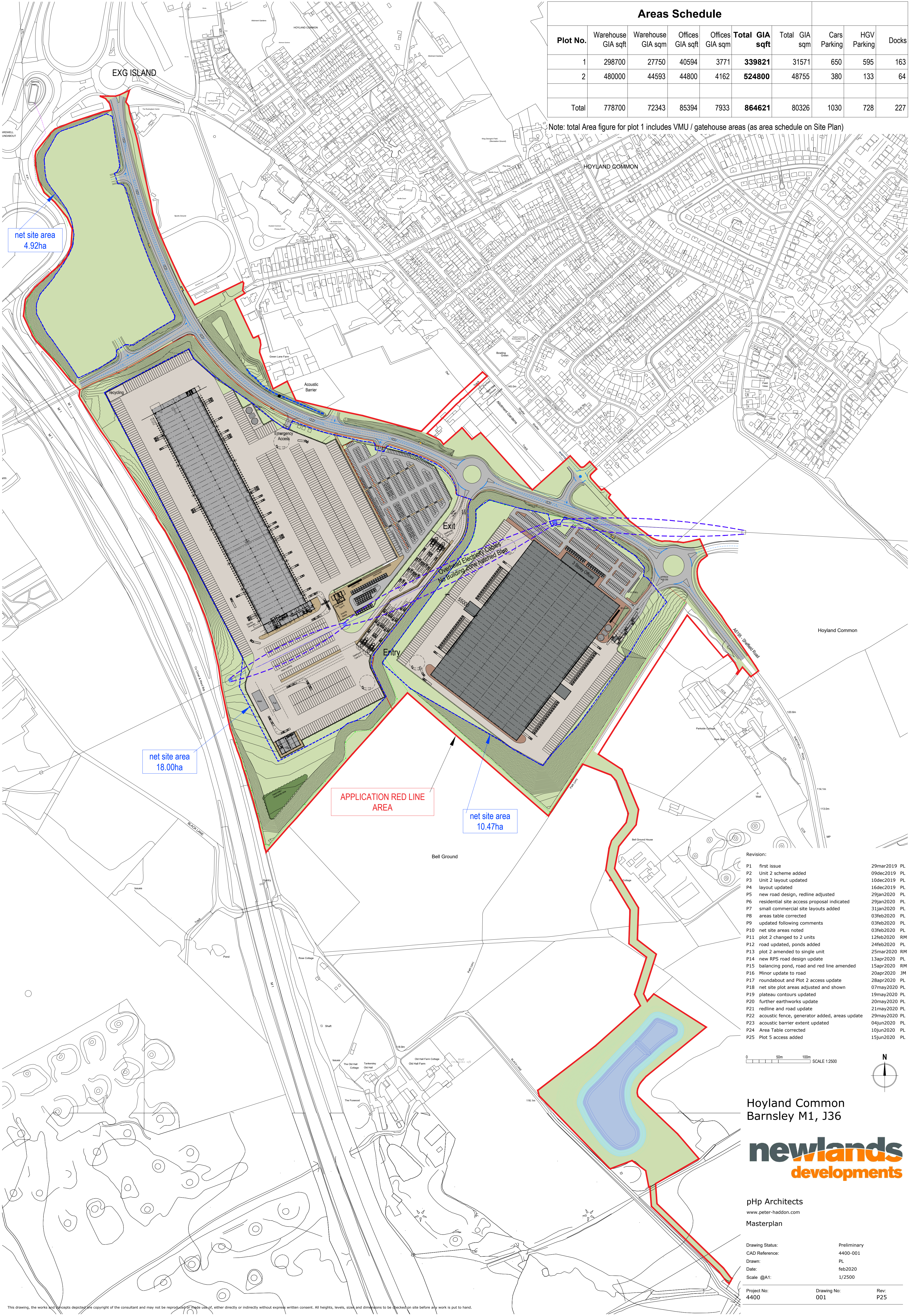
Project:
Hoyland Commercial Land

Figure Title:
2029 With Development Traffic Flows
PM Peak Hour

Scale: Not to scale	Figure Status: Issue
Job Number: 3560	Figure Number: Figure 17

Appendix A

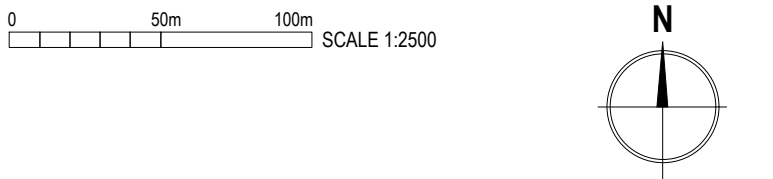
Development Proposals



Areas Schedule									
Plot No.	Warehouse GIA sqft	Warehouse GIA sqm	Offices GIA sqft	Offices GIA sqm	Total GIA sqft	Total GIA sqm	Cars Parking	HGV Parking	Docks
1	298700	27750	40594	3771	339821	31571	650	595	163
2	480000	44593	44800	4162	524800	48755	380	133	64
Total	778700	72343	85394	7933	864621	80326	1030	728	227

Note: total Area figure for plot 1 includes VMU / gatehouse areas (as area schedule on Site Plan)

Revision:	
P1	first issue
P2	Unit 2 scheme added
P3	Unit 2 layout updated
P4	layout updated
P5	new road design, redline adjusted
P6	residential site access proposal indicated
P7	small commercial site layouts added
P8	areas table corrected
P9	updated following comments
P10	net site areas noted
P11	plot 2 changed to 2 units
P12	road updated, ponds added
P13	plot 2 amended to single unit
P14	new RPS road design update
P15	balancing pond, road and red line amended
P16	Minor update to road
P17	roundabout and Plot 2 access update
P18	net site plot areas adjusted and shown
P19	plateau contours updated
P20	further earthworks update
P21	redline and road update
P22	acoustic fence, generator added, areas update
P23	acoustic barrier extent updated
P24	Area Table corrected
P25	Plot 5 access added



Hoyland Common
Barnsley M1, J36



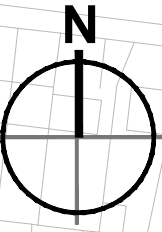
pHp Architects
www.peter-haddon.com
Masterplan

Drawing Status:	Preliminary
CAD Reference:	4400-001
Drawn:	PL
Date:	feb2020
Scale @A1:	1/2500

Project No:	Drawing No:	Rev:
4400	001	P25

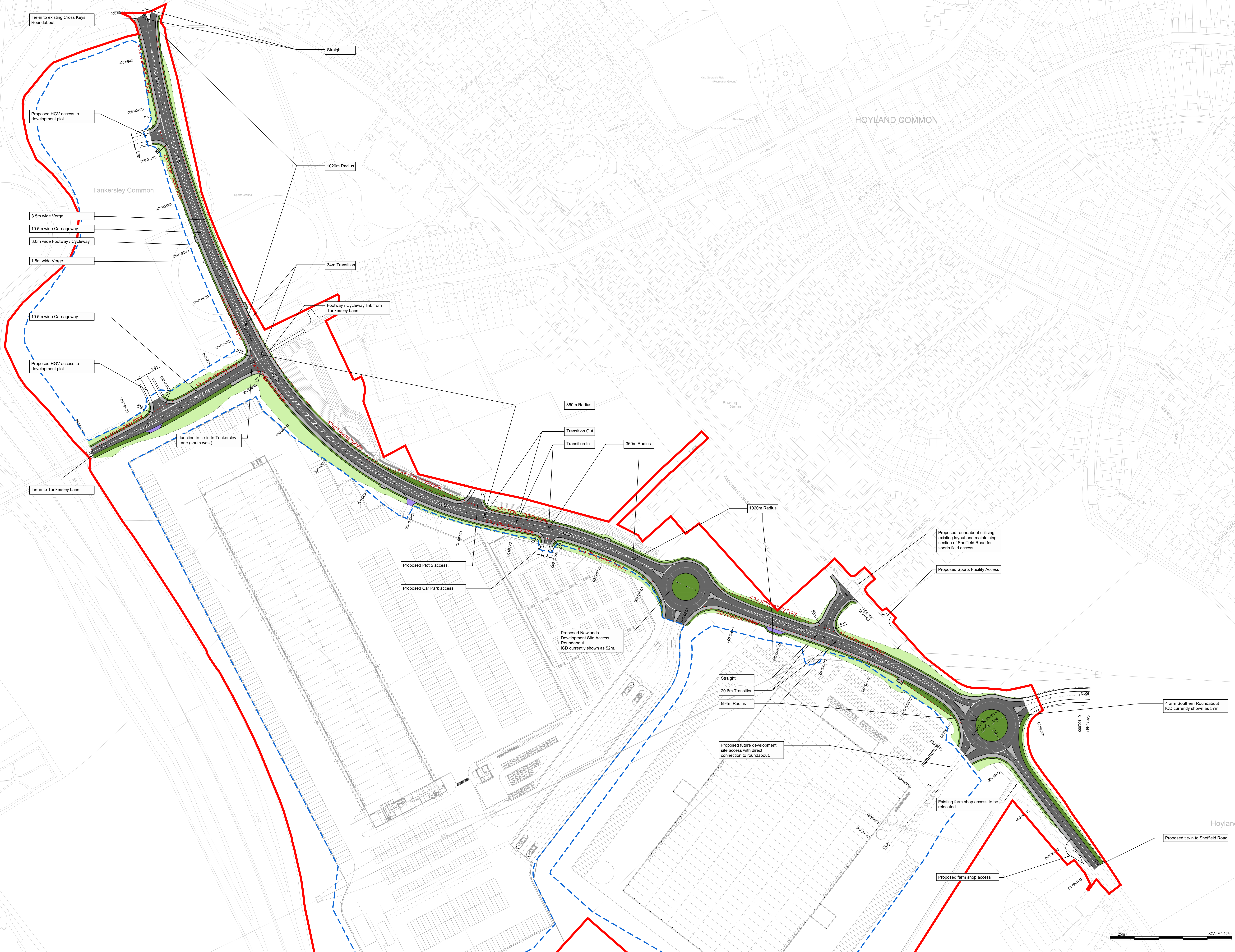
Appendix B

Link Road General Arrangement



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- Notes
1. This drawing has been prepared in accordance with the scope of RPS's appointment with its client and is subject to the terms and conditions of that appointment. RPS accepts no liability for any use of this document other than by its client and only for the purposes for which it was prepared and provided.
 2. If received electronically it is the recipient's responsibility to print to correct scale. Only written dimensions should be used.
 3. This drawing should be read in conjunction with all other relevant drawings and specifications.
 4. Masterplan taken from PHP drawing 4400-001 Rev P25, received 15/09/2020.
 5. All works to be carried out in accordance with the Specification for Highway Works, the South Yorkshire Roadside Design Guide and the requirements of Barnsley Metropolitan Borough Council.

- Key
- Proposed Flexible Carriageway Construction
 - Proposed Flexible Footway Construction
 - Proposed Grassed Verge Construction
 - Proposed Structural Landscaping
 - Proposed Reinforced Grass Maintenance Access
 - Proposed Visibility Splays - 4.5m x 120m (bellmouths), 120m forward visibility to CD 109.



P04	Plot 5 access incorporated as per Client's instruction.	LAM	SG	16.06.20
P03	Platforms for bus shelters added; refuges at footway / cycleways enlarged; issued for Planning.	LAM	SG	11.06.20
P02	Southern Roundabout relocated; footway added to east side of link road; maintenance access points added; drawing renamed.	LAM	SM	22.05.20
P01	First issue	LAM	SG	01.05.20
Rev	Description	By	Chk	Date

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Client **newlands developments**

Project	Hoyland				
Title	Link Road General Arrangement				
RPS Project Number	NK020040	Scale @ A0	1:1250	Date Created	01/05/2020
Task Team Manager	Information Author	Task Information Manager	SG	SG	SG
Status	S2	Revision	P04		
Document Number	HOYLA-RPS-SI-XX-DR-CR-0810				
Project Code	Originator	Zone	Level	Type	Role
Drawing Number					
rpsgroup.com					

Appendix C

Tankersley Lane Position Update

Technical Note

24 April 2020
Version 1.0
Issue



1 Introduction

Fore Consulting Limited (Fore) has been commissioned by Newlands Developments to prepare a Transport Assessment (TA) to be submitted with a forthcoming hybrid planning application for land west of Sheffield Road, Hoyland. The site, which is referred to as “Hoyland West”, is identified as an allocated employment site (Site ES13) in Barnsley’s adopted Local Plan.

This report sets out the work undertaken on traffic flows to inform the proposed new link road design. Specifically, this considers the future interaction of the new link road with Tankersley Lane, as well as setting out the methodology and assumptions in determining the re-assignment of trips from Sheffield Road onto the new link road.

2 Tankersley Lane

The development proposals comprise the closure of Tankersley Lane East to vehicular traffic through a Traffic Regulation Order (TRO) to prohibit vehicular traffic. Tankersley Lane East is to remain as adopted public highway. However the road will become a cul de sac from the east at the traffic signal controlled junction with Sheffield Road. Tankersley Lane West will remain open as the minor arm in a new priority junction to be formed with the new link road. This is as shown on the submitted highways drawings that have been prepared by RPS.

As part of the pre-application design process and consultations, discussions were undertaken with Highways England (4 March 2020) and a meeting was held with the Barnsley Bus Partnership (5 March 2020).

Highway England’s clear preference is for Tankersley Lane West to remain open and connected to the proposed new link road such that existing traffic on Tankersley Lane West would not be diverted through Junction 36.

The bus operators made it clear they would not support any development layout which prohibited bus access from Tankersley Lane West through the site. The existing bus services on Tankersley Lane West are SYPTE supported services that access the various local employment sites around the Dearne Valley. The preferred option for bus operators

and SYPTE was for buses to continue to access via Tankersley Lane West and diverting onto the new link road, therefore enabling buses to take advantage of the potential extra patronage from the proposed employment uses.

3 Existing Traffic Flows

Existing traffic survey data was collected on Tankersley Lane in three separate locations. Junction counts were undertaken at the Sheffield Road / Hoyland Road / Tankersley Lane crossroads by BMBC, and the Tankersley Lane / New Road junction by Fore. In addition to this an ATC was in place for 7 days on Tankersley Lane between these two junctions. The traffic data is provided at Appendix A.

The 2019 Base scenario has been derived from the surveyed traffic flow data, with the peak hours for the highway network adopted. The classified traffic data has been converted into equivalent PCU values.

The results 2019 Base Traffic Flows are set out in Figure 1 and Figure 2 for the weekday AM and PM peak hours, respectively. The figures show that to the west of the proposed link road, there were 425 and 604 two-way vehicle trips (PCU) in the AM and PM peak hours along Tankersley Lane.

4 Potential Impacts of Severing Tankersley Lane West

In the event that Tankersley Lane West was closed to vehicular traffic, there are a limited available choice of alternative routes to pass to the west of the M1 motorway. There are two alternative available routes either via J36, or to the south via Sheffield Road to the south of J35A via Hod Hill to Chapeltown.

Based on the available alternative routes, it is considered to be likely that the majority of this traffic would need to reassign through J36. It follows therefore that this reassigned existing traffic would be likely to have a significant impact upon the operation of the junction. It considered to be unlikely that this reassigned traffic could be readily accommodated at J36 without further mitigation and a lengthy technical approval process with Highways England, and consultation with other stakeholders.

Any potential option to severe Tankersley Lane West would therefore in our view significantly reduce the overall resilience of the local highway network. Particularly in the event of disruptions to J36, emergency services would have significant diversions in order to cross the M1 mainline.

Given the level of vehicular traffic using Tankersley Lane West and the implications of accommodating reassigned traffic elsewhere on the highways the preferred option is for Tankersley Lane West to remain open to traffic. This is supported by the clear feedback received from HE and the Barnsley Bus Partnership (bus operators and BMBC),

Not only does this option have the support of the relevant stakeholders but also ensures resilience is not reduced on the local road network. Tankersley Lane West will form a three-arm priority junction with the new link road. Tankersley Lane East will form a cul-de-sac for the existing residential houses.

5 Link Road Traffic Re-assignment

The proposed new link road will provide a new direct access from Sheffield Road to J36 and the A1695, reducing traffic on Sheffield Road through Hoyland Common. The new link roads will form a priority controlled junction with Sheffield Road to the south of the proposed site.. The proposed layout encourages through traffic to continue along the new link road and discourages through trips from using Sheffield Road. It is noted that not all traffic will be re-assigned onto the link road, a number of trips will have origins and destinations in the local area and will therefore still seek to access local services and dwellings within Hoyland Common.

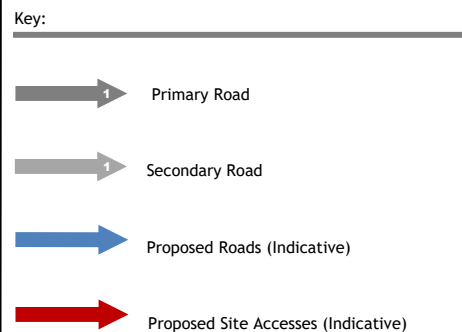
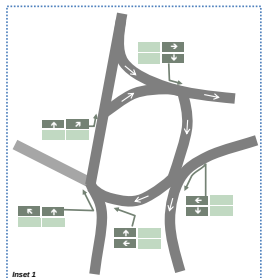
In order to establish the level of traffic re-assignment a traffic count undertaken at the Sheffield Road / Hoyland Road / Tankersley Lane junction was used. Table 1 presents the individual traffic movements at the junction and highlights what assumptions and changes have been made as a result of the proposed link road.

Table 1: Link Road Existing Traffic Re-assignment

Sheffield Road / Hoyland Road / Tankersley Lane		Re-assignment Routes	% Re-assigned
Approach	Turning Movement		
Sheffield Road North	Left	Unaffected	N/A
	Ahead	Diverted onto link road at Sheffield Rd Roundabout	95%
	Right	Diverted onto link road - right turn onto Tankersley Lane	95%
Hoyland Road	Left	Unaffected	N/A
	Ahead	Diverted onto link road via Sheffield Rd Roundabout	95%
	Right	Unaffected	N/A
Sheffield Road South	Left	Diverted onto link road - left turn onto Tankersley Lane	95%
	Ahead	Diverted onto link road at Sheffield Road south	95%
	Right	Unaffected	N/A
Tankersley Lane	Left	Diverted left onto the link road	95%
	Ahead	Diverted left onto the link road - right onto Sheffield Road	95%
	Right	Diverted right onto the link road	95%

The proposed re-assignment accounts for the alternative route options using the link road, whilst still accounting for the small number of trips (5%) that would continue to pass through Hoyland Common for those with origins and destinations in the local area. Figure 3 and Figure 4 present the re-assignment resulting from the proposed link road.

Figures

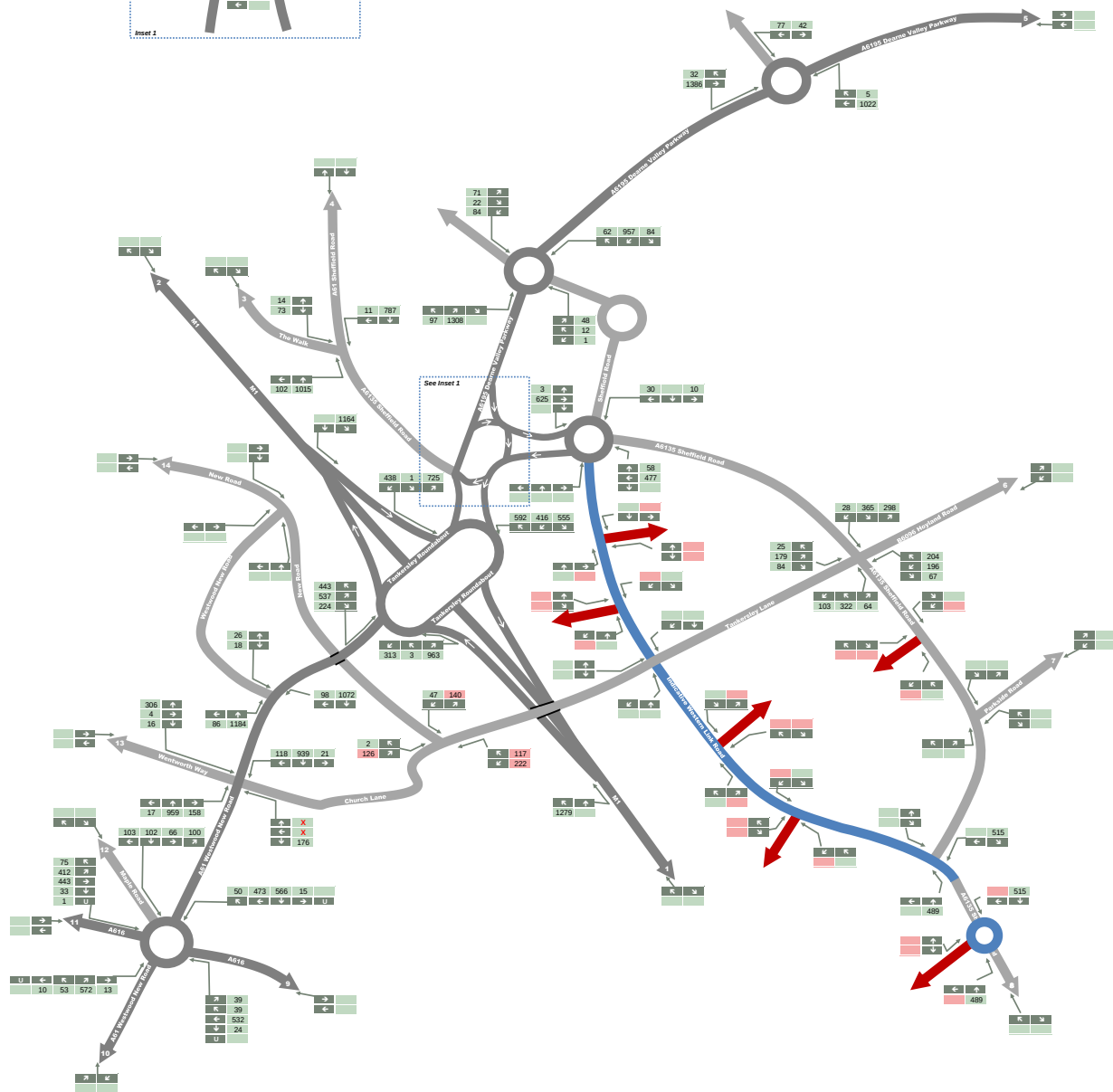
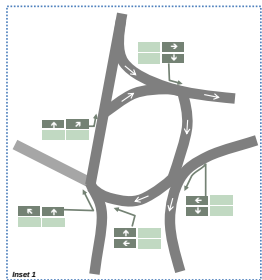


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Figure Number:
Figure 1



Key:

- Primary Road
- Secondary Road
- Proposed Roads (Indicative)
- Proposed Site Accesses (Indicative)

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

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Client:
Newlands Development

Project:
Hoyland Commercial Land

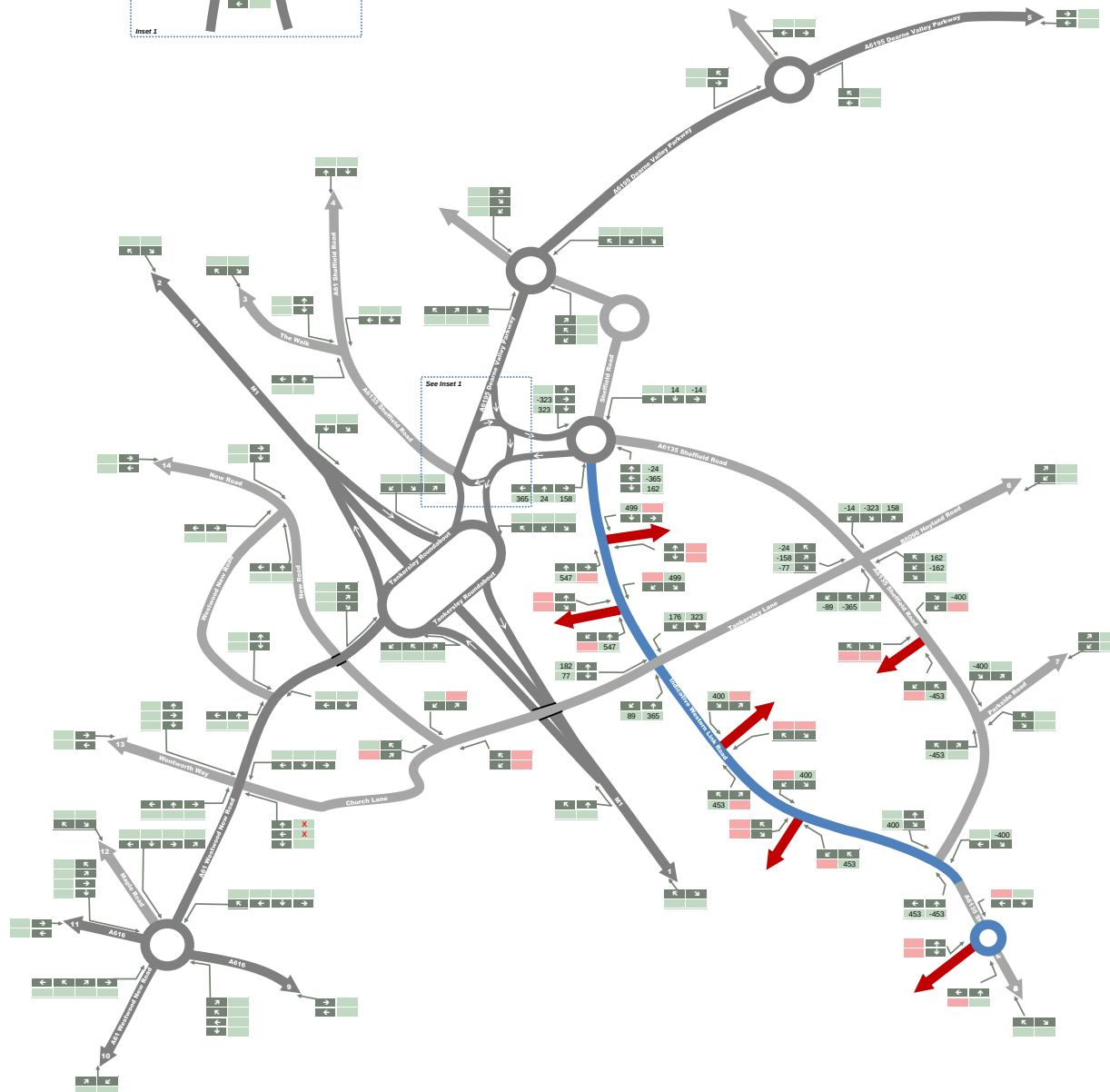
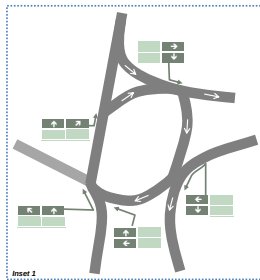
Figure Title:
2019 Base Traffic Flows (PCU)
PM Peak Hour

Scale:
Not to scale

Figure Status:
Issue

Job Number:
3560

Figure Number:
Figure 2



Key:

- Primary Road
- Secondary Road
- Proposed Roads (Indicative)
- Proposed Site Accesses (Indicative)

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

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Client:
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Project:
Hoyland Commercial Land

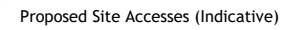
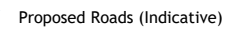
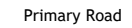
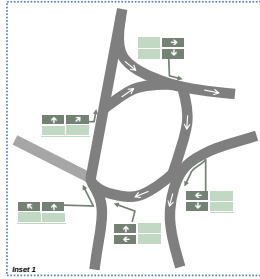
Figure Title:
Link Road Re-assignment (PCU)
AM Peak Hour

Scale:
Not to scale

Figure Status:
Issue

Job Number:
3560

Figure Number:
Figure 3



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Fore

Figure Title:
Link Road Re-assignment (PCU)
PM Peak Hour

Figure Status:
Issue

Figure Number:
Figure 4

Appendix D

Hermes Traffic Survey Data

From	To	Inbound			Outbound			Total In + Out
		Artics	Vans	Inbound Total	Artics	Vans	Outbound Total	
13:00	14:00	20		20	20		20	40
14:00	15:00	16		16	28		28	44
15:00	16:00	21		21	36		36	57
16:00	17:00	17		17	35		35	52
17:00	18:00	22		22	22		22	44
18:00	19:00	41		41	30		30	71
19:00	20:00	24		24	35		35	59
20:00	21:00	45		45	27		27	72
21:00	22:00	32		32	17		17	49
22:00	23:00	43		43	23		23	66
23:00	00:00	48		48	21	34	55	103
00:00	01:00	39		39	18	39	57	96
01:00	02:00	39		39	28	38	66	105
02:00	03:00	33		33	23	45	68	101
03:00	04:00	36		36	27		27	63
04:00	05:00	29		29	23		23	52
05:00	06:00	45		45	23		23	68
06:00	07:00	28	34	62	24		24	86
07:00	08:00	29	39	68	33		33	101
08:00	09:00	23	38	61	18		18	79
09:00	10:00	14	45	59	31		31	90
10:00	11:00	24		24	30		30	54
11:00	12:00	24		24	15		15	39
12:00	13:00	22		22	37		37	59
Total		714	156	870	623	156	779	1,649

Appendix E

HGV Trip Distribution Gravity Model

Population data derived from 2011 Census data

Population data derived from 22m Census data

[illegible]

Route	Route Assumptions					
	A	B	C	D	Total	N
1 All north	20%	0.00%	15.39%	0.00%	35.34%	75%
2 All/PS east	10%	0.00%	0.00%	0.00%	9.94%	10%
3 All south	22%	0.00%	0.00%	0.00%	21.94%	22%
4 All/	9%	0.00%	0.00%	0.00%	9.49%	9%
5 All Westwood New Road	17%	0.00%	0.00%	0.00%	17.23%	17%
6 Sherfield Road	0%	6.15%	0.00%	0.00%	6.15%	6%
Total	1	0	0	0	1.00	100%

Appendix F

Site Access Junctions Modelling Results

Junctions 9							
PICADY 9 - Priority Intersection Module							
Version: 9.5.0.6896							
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Filename: Plot 3 Link Road Access.j9

Path: X:\Jobs\3560 Hoyland Commercial Land\Junction Modelling\Plot 3 Access

Report generation date: 04/06/2020 14:34:45

»2029 With Dev, AM

»2029 With Dev, PM

Summary of junction performance

	AM				PM			
	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS
2029 With Dev								
Stream B-C	0.1	9.21	0.04	A	0.1	7.60	0.09	A
Stream B-A	0.0	14.78	0.02	B	0.1	15.88	0.11	C
Stream C-AB	0.1	7.41	0.10	A	0.0	6.87	0.02	A

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

File summary

File Description

Title	
Location	
Site number	
Date	28/04/2020
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	WEEZYModelling
Description	

Units

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

Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
5.75				0.85	36.00	20.00

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2029 With Dev	AM	ONE HOUR	08:00	09:30	15	✓
D2	2029 With Dev	PM	ONE HOUR	17:00	18:30	15	✓

Analysis Set Details

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

2029 With Dev, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		0.48	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	untitled		Major
B	untitled		Minor
C	untitled		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Width for right turn (m)	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C	7.00		✓	3.50	250.0	✓	7.00

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

Minor Arm Geometry

Arm	Minor arm type	Width at give-way (m)	Width at 5m (m)	Width at 10m (m)	Width at 15m (m)	Width at 20m (m)	Estimate flare length	Flare length (PCU)	Visibility to left (m)	Visibility to right (m)
B	One lane plus flare	10.00	8.40	4.70	3.60	3.60	✓	1.00	44	54

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	523	0.091	0.230	0.145	0.329
1	B-C	738	0.108	0.273	-	-
1	C-B	820	0.304	0.304	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.

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

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2029 With Dev	AM	ONE HOUR	08:00	09:30	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	677	100.000
B		ONE HOUR	✓	22	100.000
C		ONE HOUR	✓	602	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A	B	C
	A	0	25	652
	B	4	0	18
	C	548	54	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
		A	B	C
	A	0	0	9
	B	0	0	32
	C	4	10	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-C	0.04	9.21	0.1	A	17	25
B-A	0.02	14.78	0.0	B	4	6
C-AB	0.10	7.41	0.1	A	50	74
C-A					503	754
A-B					23	34
A-C					598	897

Main Results for each time segment

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	14	3	600	0.023	13	0.0	0.0	8.098	A
B-A	3	0.75	335	0.009	3	0.0	0.0	10.840	B
C-AB	41	10	665	0.061	40	0.0	0.1	6.332	A
C-A	413	103			413				
A-B	19	5			19				
A-C	491	123			491				

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	16	4	573	0.028	16	0.0	0.0	8.531	A
B-A	4	0.90	298	0.012	4	0.0	0.0	12.207	B
C-AB	49	12	635	0.076	48	0.1	0.1	6.747	A
C-A	493	123			493				
A-B	22	6			22				
A-C	586	147			586				

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	20	5	536	0.037	20	0.0	0.1	9.207	A
B-A	4	1	248	0.018	4	0.0	0.0	14.776	B
C-AB	59	15	594	0.100	59	0.1	0.1	7.407	A
C-A	603	151			603				
A-B	28	7			28				
A-C	718	179			718				

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	20	5	536	0.037	20	0.1	0.1	9.207	A
B-A	4	1	248	0.018	4	0.0	0.0	14.777	B
C-AB	59	15	594	0.100	59	0.1	0.1	7.410	A
C-A	603	151			603				
A-B	28	7			28				
A-C	718	179			718				

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	16	4	573	0.028	16	0.1	0.0	8.533	A
B-A	4	0.90	298	0.012	4	0.0	0.0	12.213	B
C-AB	49	12	635	0.076	49	0.1	0.1	6.749	A
C-A	493	123			493				
A-B	22	6			22				
A-C	586	147			586				

09:15 - 09:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	14	3	600	0.023	14	0.0	0.0	8.105	A
B-A	3	0.75	335	0.009	3	0.0	0.0	10.845	B
C-AB	41	10	665	0.061	41	0.1	0.1	6.341	A
C-A	413	103			413				
A-B	19	5			19				
A-C	491	123			491				

2029 With Dev, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		0.58	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D2	2029 With Dev	PM	ONE HOUR	17:00	18:30	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	673	100.000
B		ONE HOUR	✓	68	100.000
C		ONE HOUR	✓	649	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
	A	B	C	
From	A	0	6	667
	B	25	0	43
	C	637	12	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
	A	B	C	
From	A	0	0	6
	B	0	0	1
	C	2	11	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-C	0.09	7.60	0.1	A	39	59
B-A	0.11	15.88	0.1	C	23	34
C-AB	0.02	6.87	0.0	A	11	17
C-A					585	877
A-B					6	8
A-C					612	918

Main Results for each time segment

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	32	8	598	0.054	32	0.0	0.1	6.427	A
B-A	19	5	344	0.055	19	0.0	0.1	11.054	B
C-AB	9	2	666	0.014	9	0.0	0.0	6.078	A
C-A	480	120			480				
A-B	5	1			5				
A-C	502	126			502				

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	39	10	568	0.068	39	0.1	0.1	6.869	A
B-A	22	6	306	0.073	22	0.1	0.1	12.672	B
C-AB	11	3	636	0.017	11	0.0	0.0	6.385	A
C-A	573	143			573				
A-B	5	1			5				
A-C	600	150			600				

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	47	12	526	0.090	47	0.1	0.1	7.592	A
B-A	28	7	254	0.108	27	0.1	0.1	15.858	C
C-AB	13	3	595	0.022	13	0.0	0.0	6.866	A
C-A	701	175			701				
A-B	7	2			7				
A-C	734	184			734				

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	47	12	526	0.090	47	0.1	0.1	7.597	A
B-A	28	7	254	0.108	28	0.1	0.1	15.880	C
C-AB	13	3	595	0.022	13	0.0	0.0	6.866	A
C-A	701	175			701				
A-B	7	2			7				
A-C	734	184			734				

18:00 - 18:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	39	10	568	0.068	39	0.1	0.1	6.874	A
B-A	22	6	306	0.073	23	0.1	0.1	12.694	B
C-AB	11	3	636	0.017	11	0.0	0.0	6.388	A
C-A	573	143			573				
A-B	5	1			5				
A-C	600	150			600				

18:15 - 18:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	32	8	597	0.054	32	0.1	0.1	6.439	A
B-A	19	5	344	0.055	19	0.1	0.1	11.075	B
C-AB	9	2	666	0.014	9	0.0	0.0	6.078	A
C-A	480	120			480				
A-B	5	1			5				
A-C	502	126			502				

Junctions 9							
ARCADY 9 - Roundabout Module							
Version: 9.5.0.6896							
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Filename: Hermes Access.j9

Path: X:\Jobs\3560 Hoyland Commercial Land\Junction Modelling\Hermes Access

Report generation date: 04/06/2020 14:29:29

»2029 With Dev, AM

»2029 With Dev, PM

Summary of junction performance

	AM				PM			
	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS
2029 With Dev								
Arm 1	0.5	3.23	0.33	A	0.5	3.00	0.31	A
Arm 2	0.0	1.98	0.02	A	0.0	2.04	0.02	A
Arm 3	0.5	2.98	0.31	A	0.5	2.93	0.32	A

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

File summary

File Description

Title	
Location	
Site number	
Date	28/04/2020
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	WEEZYModelling
Description	

Units

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

Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
5.75				0.85	36.00	20.00

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2029 With Dev	AM	ONE HOUR	08:00	09:30	15	✓
D2	2029 With Dev	PM	ONE HOUR	17:00	18:30	15	✓

Analysis Set Details

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

2029 With Dev, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3	3.05	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
1	untitled	
2	untitled	
3	untitled	

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	I' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
1	3.36	8.41	14.2	30.7	51.7	21.3	
2	7.89	10.15	11.8	41.7	51.7	21.4	
3	4.19	8.15	11.6	34.1	52.0	21.5	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1	0.636	1816
2	0.855	2972
3	0.657	1935

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2029 With Dev	AM	ONE HOUR	08:00	09:30	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		ONE HOUR	✓	523	100.000
2		ONE HOUR	✓	44	100.000
3		ONE HOUR	✓	548	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
	1	2	3	
From	1	0	19	504
	2	0	0	44
	3	462	86	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
	1	2	3	
From	1	0	0	6
	2	0	0	35
	3	7	31	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.33	3.23	0.5	A	480	720
2	0.02	1.98	0.0	A	40	61
3	0.31	2.98	0.5	A	503	754

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	394	98	65	1775	0.222	393	347	0.0	0.3	2.752	A
2	33	8	378	2649	0.013	33	79	0.0	0.0	1.856	A
3	413	103	0	1935	0.213	411	411	0.0	0.3	2.602	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	470	118	77	1767	0.266	470	415	0.3	0.4	2.936	A
2	40	10	453	2585	0.015	40	94	0.0	0.0	1.908	A
3	493	123	0	1935	0.255	492	492	0.3	0.4	2.748	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	576	144	95	1756	0.328	575	508	0.4	0.5	3.223	A
2	48	12	554	2498	0.019	48	116	0.0	0.0	1.983	A
3	603	151	0	1935	0.312	603	603	0.4	0.5	2.976	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	576	144	95	1756	0.328	576	509	0.5	0.5	3.226	A
2	48	12	555	2498	0.019	48	116	0.0	0.0	1.983	A
3	603	151	0	1935	0.312	603	603	0.5	0.5	2.976	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	470	118	77	1767	0.266	471	416	0.5	0.4	2.938	A
2	40	10	454	2585	0.015	40	94	0.0	0.0	1.908	A
3	493	123	0	1935	0.255	493	493	0.5	0.4	2.752	A

09:15 - 09:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	394	98	65	1775	0.222	394	348	0.4	0.3	2.758	A
2	33	8	380	2648	0.013	33	79	0.0	0.0	1.860	A
3	413	103	0	1935	0.213	413	413	0.4	0.3	2.604	A

2029 With Dev, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3	2.92	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D2	2029 With Dev	PM	ONE HOUR	17:00	18:30	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		ONE HOUR	✓	504	100.000
2		ONE HOUR	✓	54	100.000
3		ONE HOUR	✓	571	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
	1	2	3	
From	1	0	0	504
	2	0	0	54
	3	516	55	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
	1	2	3	
From	1	0	0	2
	2	0	0	38
	3	3	56	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.31	3.00	0.5	A	462	694
2	0.02	2.04	0.0	A	50	74
3	0.32	2.93	0.5	A	524	786

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	379	95	41	1790	0.212	378	387	0.0	0.3	2.601	A
2	41	10	378	2649	0.015	41	41	0.0	0.0	1.903	A
3	430	107	0	1935	0.222	429	419	0.0	0.3	2.541	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	453	113	49	1784	0.254	453	464	0.3	0.3	2.757	A
2	49	12	453	2585	0.019	49	49	0.0	0.0	1.958	A
3	513	128	0	1935	0.265	513	501	0.3	0.4	2.695	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	555	139	61	1777	0.312	554	568	0.3	0.5	3.003	A
2	59	15	554	2498	0.024	59	61	0.0	0.0	2.036	A
3	629	157	0	1935	0.325	628	614	0.4	0.5	2.930	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	555	139	61	1777	0.312	555	568	0.5	0.5	3.003	A
2	59	15	555	2498	0.024	59	61	0.0	0.0	2.036	A
3	629	157	0	1935	0.325	629	614	0.5	0.5	2.933	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	453	113	49	1784	0.254	454	464	0.5	0.3	2.761	A
2	49	12	454	2585	0.019	49	49	0.0	0.0	1.958	A
3	513	128	0	1935	0.265	514	502	0.5	0.4	2.699	A

18:15 - 18:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	379	95	41	1790	0.212	380	389	0.3	0.3	2.604	A
2	41	10	380	2648	0.015	41	41	0.0	0.0	1.907	A
3	430	107	0	1935	0.222	430	420	0.4	0.3	2.548	A

Junctions 9							
ARCADY 9 - Roundabout Module							
Version: 9.5.0.6896							
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Filename: Link Road South Rbt.j9

Path: X:\Jobs\3560 Hoyland Commercial Land\Junction Modelling\Link Road Southern Access rbt

Report generation date: 04/06/2020 14:26:11

»2029 With Dev, AM

»2029 With Dev, PM

Summary of junction performance

	AM				PM			
	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS
2029 With Dev								
Arm 1	0.6	3.36	0.36	A	0.5	3.10	0.34	A
Arm 2	0.1	4.12	0.04	A	0.1	3.35	0.09	A
Arm 3	0.5	2.70	0.31	A	0.5	2.74	0.33	A
Arm 4	0.0	0.00	0.00	A	0.0	0.00	0.00	A

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

File summary

File Description

Title	
Location	
Site number	
Date	28/04/2020
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	WEEZYModelling
Description	

Units

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

Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
5.75				0.85	36.00	20.00

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2029 With Dev	AM	ONE HOUR	08:00	09:30	15	✓
D2	2029 With Dev	PM	ONE HOUR	17:00	18:30	15	✓

Analysis Set Details

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

2029 With Dev, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	3.07	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
1	untitled	
2	untitled	
3	untitled	
4	untitled	

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	I' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
1	3.69	8.54	11.8	31.8	56.7	28.0	
2	3.45	8.35	5.7	40.2	56.5	22.3	
3	4.81	6.90	23.4	36.2	56.7	25.4	
4	3.95	6.79	5.0	33.5	56.6	29.4	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1	0.600	1798
2	0.557	1514
3	0.643	2023
4	0.552	1533

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2029 With Dev	AM	ONE HOUR	08:00	09:30	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		ONE HOUR	✓	567	100.000
2		ONE HOUR	✓	40	100.000
3		ONE HOUR	✓	560	100.000
4		ONE HOUR	✓	0	100.000

Origin-Destination Data

Demand (PCU/hr)

	To				
	1	2	3	4	
From	1	0	18	549	0
	2	3	0	37	0
	3	466	94	0	0
	4	0	0	0	0

Vehicle Mix

Heavy Vehicle Percentages

	To				
	1	2	3	4	
From	1	0	0	4	0
	2	0	0	33	0
	3	4	13	0	0
	4	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.36	3.36	0.6	A	520	780
2	0.04	4.12	0.1	A	37	55
3	0.31	2.70	0.5	A	514	771
4	0.00	0.00	0.0	A	0	0

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	427	107	71	1756	0.243	426	352	0.0	0.3	2.808	A
2	30	8	412	1284	0.023	30	84	0.0	0.0	3.724	A
3	422	105	2	2022	0.209	420	440	0.0	0.3	2.368	A
4	0	0	423	1300	0.000	0	0	0.0	0.0	0.000	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	510	127	84	1747	0.292	509	421	0.3	0.4	3.020	A
2	36	9	493	1239	0.029	36	101	0.0	0.0	3.883	A
3	503	126	3	2022	0.249	503	526	0.3	0.3	2.499	A
4	0	0	506	1254	0.000	0	0	0.0	0.0	0.000	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	624	156	103	1736	0.360	624	516	0.4	0.6	3.359	A
2	44	11	604	1177	0.037	44	123	0.0	0.1	4.122	A
3	617	154	3	2021	0.305	616	645	0.3	0.5	2.700	A
4	0	0	619	1191	0.000	0	0	0.0	0.0	0.000	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	624	156	103	1736	0.360	624	516	0.6	0.6	3.362	A
2	44	11	604	1177	0.037	44	123	0.1	0.1	4.123	A
3	617	154	3	2021	0.305	617	645	0.5	0.5	2.700	A
4	0	0	620	1191	0.000	0	0	0.0	0.0	0.000	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	510	127	85	1747	0.292	510	422	0.6	0.4	3.023	A
2	36	9	494	1238	0.029	36	101	0.1	0.0	3.887	A
3	503	126	3	2022	0.249	504	527	0.5	0.4	2.502	A
4	0	0	507	1254	0.000	0	0	0.0	0.0	0.000	A

09:15 - 09:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	427	107	71	1756	0.243	427	353	0.4	0.3	2.817	A
2	30	8	414	1283	0.023	30	84	0.0	0.0	3.730	A
3	422	105	2	2022	0.209	422	442	0.4	0.3	2.373	A
4	0	0	424	1299	0.000	0	0	0.0	0.0	0.000	A

2029 With Dev, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	2.94	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D2	2029 With Dev	PM	ONE HOUR	17:00	18:30	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		ONE HOUR	✓	542	100.000
2		ONE HOUR	✓	93	100.000
3		ONE HOUR	✓	604	100.000
4		ONE HOUR	✓	0	100.000

Origin-Destination Data

Demand (PCU/hr)

	To				
		1	2	3	4
From	1	0	6	536	0
	2	19	0	74	0
	3	575	29	0	0
	4	0	0	0	0

Vehicle Mix

Heavy Vehicle Percentages

	To				
		1	2	3	4
From	1	0	0	2	0
	2	0	0	1	0
	3	2	10	0	0
	4	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.34	3.10	0.5	A	497	746
2	0.09	3.35	0.1	A	85	128
3	0.33	2.74	0.5	A	554	831
4	0.00	0.00	0.0	A	0	0

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	408	102	22	1785	0.229	407	446	0.0	0.3	2.661	A
2	70	18	402	1290	0.054	70	26	0.0	0.1	2.974	A
3	455	114	14	2014	0.226	454	458	0.0	0.3	2.360	A
4	0	0	468	1275	0.000	0	0	0.0	0.0	0.000	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	487	122	26	1782	0.273	487	534	0.3	0.4	2.833	A
2	84	21	482	1245	0.067	84	31	0.1	0.1	3.122	A
3	543	136	17	2012	0.270	543	548	0.3	0.4	2.507	A
4	0	0	560	1224	0.000	0	0	0.0	0.0	0.000	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	597	149	32	1779	0.335	596	654	0.4	0.5	3.102	A
2	102	26	590	1185	0.086	102	39	0.1	0.1	3.350	A
3	665	166	21	2010	0.331	665	671	0.4	0.5	2.739	A
4	0	0	685	1155	0.000	0	0	0.0	0.0	0.000	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	597	149	32	1779	0.335	597	654	0.5	0.5	3.104	A
2	102	26	590	1185	0.086	102	39	0.1	0.1	3.351	A
3	665	166	21	2010	0.331	665	672	0.5	0.5	2.739	A
4	0	0	686	1155	0.000	0	0	0.0	0.0	0.000	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	487	122	26	1782	0.273	488	534	0.5	0.4	2.838	A
2	84	21	482	1245	0.067	84	31	0.1	0.1	3.124	A
3	543	136	17	2012	0.270	543	549	0.5	0.4	2.510	A
4	0	0	561	1224	0.000	0	0	0.0	0.0	0.000	A

18:15 - 18:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	408	102	22	1785	0.229	408	448	0.4	0.3	2.669	A
2	70	18	404	1289	0.054	70	26	0.1	0.1	2.977	A
3	455	114	14	2014	0.226	455	460	0.4	0.3	2.363	A
4	0	0	469	1274	0.000	0	0	0.0	0.0	0.000	A

Junctions 9							
PICADY 9 - Priority Intersection Module							
Version: 9.5.0.6896							
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Filename: Link Rd_Sheff Rd.j9

Path: X:\Jobs\3560 Hoyland Commercial Land\Junction Modelling\Link Road_Sheffield Road

Report generation date: 04/06/2020 14:27:44

»2029 With Dev, AM

»2029 With Dev, PM

Summary of junction performance

	AM				PM			
	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS
2029 With Dev								
Stream B-C	0.2	7.68	0.19	A	0.2	7.45	0.17	A
Stream B-A	0.1	13.52	0.05	B	0.0	14.24	0.00	B
Stream C-AB	0.2	7.33	0.14	A	0.3	7.89	0.20	A

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

File summary

File Description

Title	
Location	
Site number	
Date	28/04/2020
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	WEEZYModelling
Description	

Units

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

Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
5.75				0.85	36.00	20.00

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2029 With Dev	AM	ONE HOUR	08:00	09:30	15	✓
D2	2029 With Dev	PM	ONE HOUR	17:00	18:30	15	✓

Analysis Set Details

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

2029 With Dev, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		1.28	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	untitled		Major
B	untitled		Minor
C	untitled		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Width for right turn (m)	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C	7.00		✓	3.50	115.0	✓	7.00

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

Minor Arm Geometry

Arm	Minor arm type	Width at give-way (m)	Width at 5m (m)	Width at 10m (m)	Width at 15m (m)	Width at 20m (m)	Estimate flare length	Flare length (PCU)	Visibility to left (m)	Visibility to right (m)
B	One lane plus flare	10.00	7.80	4.90	3.80	3.80	✓	2.00	38	31

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	495	0.086	0.218	0.137	0.311
1	B-C	733	0.107	0.272	-	-
1	C-B	731	0.271	0.271	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.

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

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2029 With Dev	AM	ONE HOUR	08:00	09:30	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	462	100.000
B		ONE HOUR	✓	112	100.000
C		ONE HOUR	✓	586	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A	B	C
	A	0	0	462
	B	13	0	99
	C	511	75	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
		A	B	C
	A	0	0	7
	B	0	0	2
	C	6	4	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-C	0.19	7.68	0.2	A	91	136
B-A	0.05	13.52	0.1	B	12	18
C-AB	0.14	7.33	0.2	A	69	103
C-A					469	703
A-B					0	0
A-C					424	636

Main Results for each time segment

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	75	19	634	0.118	74	0.0	0.1	6.554	A
B-A	10	2	348	0.028	10	0.0	0.0	10.623	B
C-AB	56	14	637	0.089	56	0.0	0.1	6.441	A
C-A	385	96			385				
A-B	0	0			0				
A-C	348	87			348				

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	89	22	614	0.145	89	0.1	0.2	6.987	A
B-A	12	3	320	0.037	12	0.0	0.0	11.676	B
C-AB	67	17	619	0.109	67	0.1	0.1	6.791	A
C-A	459	115			459				
A-B	0	0			0				
A-C	415	104			415				

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	109	27	587	0.186	109	0.2	0.2	7.675	A
B-A	14	4	281	0.051	14	0.0	0.1	13.515	B
C-AB	83	21	593	0.139	82	0.1	0.2	7.326	A
C-A	563	141			563				
A-B	0	0			0				
A-C	509	127			509				

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	109	27	587	0.186	109	0.2	0.2	7.683	A
B-A	14	4	281	0.051	14	0.1	0.1	13.522	B
C-AB	83	21	593	0.139	83	0.2	0.2	7.329	A
C-A	563	141			563				
A-B	0	0			0				
A-C	509	127			509				

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	89	22	614	0.145	89	0.2	0.2	6.997	A
B-A	12	3	320	0.037	12	0.1	0.0	11.685	B
C-AB	67	17	619	0.109	68	0.2	0.1	6.797	A
C-A	459	115			459				
A-B	0	0			0				
A-C	415	104			415				

09:15 - 09:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	75	19	634	0.118	75	0.2	0.1	6.569	A
B-A	10	2	348	0.028	10	0.0	0.0	10.638	B
C-AB	56	14	637	0.089	57	0.1	0.1	6.454	A
C-A	385	96			385				
A-B	0	0			0				
A-C	348	87			348				

2029 With Dev, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		1.25	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D2	2029 With Dev	PM	ONE HOUR	17:00	18:30	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	516	100.000
B		ONE HOUR	✓	92	100.000
C		ONE HOUR	✓	610	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
	A	B	C	
From	A	0	3	513
	B	1	0	91
	C	504	106	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
	A	B	C	
From	A	0	0	3
	B	0	0	0
	C	2	1	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-C	0.17	7.45	0.2	A	84	125
B-A	0.00	14.24	0.0	B	0.92	1
C-AB	0.20	7.89	0.3	A	97	146
C-A					462	694
A-B					3	4
A-C					471	706

Main Results for each time segment

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	69	17	633	0.108	68	0.0	0.1	6.367	A
B-A	0.75	0.19	328	0.002	0.74	0.0	0.0	11.016	B
C-AB	80	20	626	0.128	79	0.0	0.1	6.644	A
C-A	379	95			379				
A-B	2	0.56			2				
A-C	386	97			386				

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	82	20	612	0.134	82	0.1	0.2	6.783	A
B-A	0.90	0.22	297	0.003	0.90	0.0	0.0	12.175	B
C-AB	95	24	605	0.157	95	0.1	0.2	7.122	A
C-A	453	113			453				
A-B	3	0.67			3				
A-C	461	115			461				

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	100	25	584	0.172	100	0.2	0.2	7.439	A
B-A	1	0.28	254	0.004	1	0.0	0.0	14.239	B
C-AB	117	29	577	0.202	116	0.2	0.3	7.884	A
C-A	555	139			555				
A-B	3	0.83			3				
A-C	565	141			565				

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	100	25	584	0.172	100	0.2	0.2	7.445	A
B-A	1	0.28	254	0.004	1	0.0	0.0	14.243	B
C-AB	117	29	577	0.202	117	0.3	0.3	7.894	A
C-A	555	139			555				
A-B	3	0.83			3				
A-C	565	141			565				

18:00 - 18:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	82	20	612	0.134	82	0.2	0.2	6.793	A
B-A	0.90	0.22	296	0.003	0.90	0.0	0.0	12.183	B
C-AB	95	24	605	0.157	96	0.3	0.2	7.132	A
C-A	453	113			453				
A-B	3	0.67			3				
A-C	461	115			461				

18:15 - 18:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	69	17	633	0.108	69	0.2	0.1	6.380	A
B-A	0.75	0.19	327	0.002	0.76	0.0	0.0	11.024	B
C-AB	80	20	626	0.128	80	0.2	0.1	6.661	A
C-A	379	95			379				
A-B	2	0.56			2				
A-C	386	97			386				

Junctions 9							
PICADY 9 - Priority Intersection Module							
Version: 9.5.0.6896							
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Filename: Link Road_Tankersley Lane.j9

Path: X:\Jobs\3560 Hoyland Commercial Land\Junction Modelling\Link Road_Tankersley Lane

Report generation date: 04/06/2020 14:23:28

»2029 With Dev, AM

»2029 With Dev, PM

Summary of junction performance

	AM				PM			
	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS
2029 With Dev								
Stream B-C	0.7	12.75	0.42	B	0.9	13.65	0.47	B
Stream B-A	0.7	26.21	0.42	D	0.8	30.83	0.46	D
Stream C-AB	0.5	9.69	0.34	A	0.9	11.68	0.46	B

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

File summary

File Description

Title	
Location	
Site number	
Date	23/04/2020
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	WEEZYModelling
Description	

Units

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

Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
5.75				0.85	36.00	20.00

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2029 With Dev	AM	ONE HOUR	08:00	09:30	15	✓
D2	2029 With Dev	PM	ONE HOUR	17:00	18:30	15	✓

Analysis Set Details

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

2029 With Dev, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		4.42	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	untitled		Major
B	untitled		Minor
C	untitled		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Width for right turn (m)	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C	7.00		✓	3.50	140.0	✓	7.00

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

Minor Arm Geometry

Arm	Minor arm type	Width at give-way (m)	Width at 5m (m)	Width at 10m (m)	Width at 15m (m)	Width at 20m (m)	Estimate flare length	Flare length (PCU)	Visibility to left (m)	Visibility to right (m)
B	One lane plus flare	10.00	9.00	5.80	5.20	5.00	✓	3.00	48	35

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	503	0.088	0.221	0.139	0.316
1	B-C	720	0.106	0.267	-	-
1	C-B	748	0.277	0.277	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.

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

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2029 With Dev	AM	ONE HOUR	08:00	09:30	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	567	100.000
B		ONE HOUR	✓	283	100.000
C		ONE HOUR	✓	641	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A	B	C
	A	0	90	477
	B	93	0	190
	C	463	178	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
		A	B	C
	A	0	1	10
	B	2	0	4
	C	12	2	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-C	0.42	12.75	0.7	B	174	262
B-A	0.42	26.21	0.7	D	85	128
C-AB	0.34	9.69	0.5	A	163	245
C-A					425	637
A-B					83	124
A-C					438	657

Main Results for each time segment

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	143	36	584	0.245	142	0.0	0.3	8.442	A
B-A	70	18	326	0.215	69	0.0	0.3	14.213	B
C-AB	134	34	629	0.213	133	0.0	0.3	7.378	A
C-A	349	87			349				
A-B	68	17			68				
A-C	359	90			359				

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	171	43	553	0.309	170	0.3	0.5	9.773	A
B-A	84	21	291	0.287	83	0.3	0.4	17.586	C
C-AB	160	40	607	0.264	160	0.3	0.4	8.211	A
C-A	416	104			416				
A-B	81	20			81				
A-C	429	107			429				

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	209	52	504	0.415	208	0.5	0.7	12.611	B
B-A	102	26	242	0.422	101	0.4	0.7	25.765	D
C-AB	196	49	575	0.341	195	0.4	0.5	9.657	A
C-A	510	127			510				
A-B	99	25			99				
A-C	525	131			525				

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	209	52	503	0.416	209	0.7	0.7	12.749	B
B-A	102	26	242	0.423	102	0.7	0.7	26.209	D
C-AB	196	49	575	0.341	196	0.5	0.5	9.689	A
C-A	510	127			510				
A-B	99	25			99				
A-C	525	131			525				

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	171	43	551	0.310	172	0.7	0.5	9.891	A
B-A	84	21	291	0.287	85	0.7	0.4	17.890	C
C-AB	160	40	607	0.264	161	0.5	0.4	8.248	A
C-A	416	104			416				
A-B	81	20			81				
A-C	429	107			429				

09:15 - 09:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	143	36	583	0.245	144	0.5	0.3	8.537	A
B-A	70	18	326	0.215	71	0.4	0.3	14.406	B
C-AB	134	34	629	0.213	134	0.4	0.3	7.421	A
C-A	349	87			349				
A-B	68	17			68				
A-C	359	90			359				

2029 With Dev, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		5.34	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D2	2029 With Dev	PM	ONE HOUR	17:00	18:30	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	575	100.000
B		ONE HOUR	✓	305	100.000
C		ONE HOUR	✓	716	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A	B	C
	A	0	117	458
	B	90	0	215
	C	475	241	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
		A	B	C
	A	0	1	8
	B	1	0	1
	C	9	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-C	0.47	13.65	0.9	B	197	296
B-A	0.46	30.83	0.8	D	83	124
C-AB	0.46	11.68	0.9	B	222	332
C-A					435	653
A-B					107	161
A-C					420	630

Main Results for each time segment

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	162	40	590	0.274	160	0.0	0.4	8.428	A
B-A	68	17	308	0.220	67	0.0	0.3	15.006	C
C-AB	181	45	628	0.289	180	0.0	0.4	8.008	A
C-A	358	89			358				
A-B	88	22			88				
A-C	345	86			345				

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	193	48	558	0.346	193	0.4	0.5	9.934	A
B-A	81	20	270	0.299	80	0.3	0.4	19.094	C
C-AB	217	54	605	0.358	216	0.4	0.6	9.234	A
C-A	427	107			427				
A-B	105	26			105				
A-C	412	103			412				

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	237	59	505	0.469	235	0.5	0.9	13.431	B
B-A	99	25	217	0.457	98	0.4	0.8	30.047	D
C-AB	266	67	575	0.464	265	0.6	0.8	11.593	B
C-A	522	130			522				
A-B	129	32			129				
A-C	504	126			504				

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	237	59	503	0.471	237	0.9	0.9	13.652	B
B-A	99	25	217	0.457	99	0.8	0.8	30.829	D
C-AB	266	67	575	0.464	266	0.8	0.9	11.678	B
C-A	522	130			522				
A-B	129	32			129				
A-C	504	126			504				

18:00 - 18:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	193	48	556	0.348	195	0.9	0.5	10.096	B
B-A	81	20	270	0.300	82	0.8	0.4	19.547	C
C-AB	217	54	605	0.358	218	0.9	0.6	9.333	A
C-A	427	107			427				
A-B	105	26			105				
A-C	412	103			412				

18:15 - 18:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	162	40	589	0.275	162	0.5	0.4	8.541	A
B-A	68	17	307	0.220	68	0.4	0.3	15.249	C
C-AB	181	45	628	0.289	182	0.6	0.4	8.087	A
C-A	358	89			358				
A-B	88	22			88				
A-C	345	86			345				

Appendix G

Sensitivity Test Junction Modelling Results

Junctions 9							
PICADY 9 - Priority Intersection Module							
Version: 9.5.0.6896							
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Filename: Link Road_Tankersley Lane Plot3 Sensitivity.j9

Path: X:\Jobs\3560 Hoyland Commercial Land\Junction Modelling\Plot 3 Sensitivity Test\Link Road_Tankersley Lane

Report generation date: 04/06/2020 15:27:28

»2029 With Dev, AM

»2029 With Dev, PM

Summary of junction performance

	AM				PM			
	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS
2029 With Dev								
Stream B-C	0.9	14.41	0.46	B	1.6	20.24	0.61	C
Stream B-A	0.9	31.01	0.47	D	1.5	44.60	0.61	E
Stream C-AB	0.8	11.65	0.44	B	1.0	12.35	0.49	B

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

File summary

File Description

Title	
Location	
Site number	
Date	23/04/2020
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	WEEZYModelling
Description	

Units

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

Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
5.75				0.85	36.00	20.00

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2029 With Dev	AM	ONE HOUR	08:00	09:30	15	✓
D2	2029 With Dev	PM	ONE HOUR	17:00	18:30	15	✓

Analysis Set Details

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

2029 With Dev, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		5.55	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	untitled		Major
B	untitled		Minor
C	untitled		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Width for right turn (m)	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C	7.00		✓	3.50	140.0	✓	7.00

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

Minor Arm Geometry

Arm	Minor arm type	Width at give-way (m)	Width at 5m (m)	Width at 10m (m)	Width at 15m (m)	Width at 20m (m)	Estimate flare length	Flare length (PCU)	Visibility to left (m)	Visibility to right (m)
B	One lane plus flare	10.00	9.00	5.80	5.20	5.00	✓	3.00	48	35

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	501	0.087	0.221	0.139	0.315
1	B-C	722	0.106	0.268	-	-
1	C-B	748	0.277	0.277	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.

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

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2029 With Dev	AM	ONE HOUR	08:00	09:30	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	568	100.000
B		ONE HOUR	✓	305	100.000
C		ONE HOUR	✓	694	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A	B	C
	A	0	116	452
	B	97	0	208
	C	463	231	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
		A	B	C
	A	0	1	11
	B	2	0	7
	C	12	4	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-C	0.46	14.41	0.9	B	191	286
B-A	0.47	31.01	0.9	D	89	134
C-AB	0.44	11.65	0.8	B	212	318
C-A					425	637
A-B					106	160
A-C					415	622

Main Results for each time segment

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	157	39	586	0.267	155	0.0	0.4	8.911	A
B-A	73	18	315	0.232	72	0.0	0.3	15.039	C
C-AB	174	43	629	0.276	172	0.0	0.4	8.167	A
C-A	349	87			349				
A-B	87	22			87				
A-C	340	85			340				

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	187	47	553	0.338	186	0.4	0.5	10.484	B
B-A	87	22	278	0.314	87	0.3	0.5	19.148	C
C-AB	208	52	607	0.343	207	0.4	0.5	9.363	A
C-A	416	104			416				
A-B	104	26			104				
A-C	406	102			406				

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	229	57	498	0.460	228	0.5	0.9	14.162	B
B-A	107	27	225	0.474	105	0.5	0.9	30.169	D
C-AB	255	64	576	0.443	254	0.5	0.8	11.576	B
C-A	509	127			509				
A-B	128	32			128				
A-C	498	124			498				

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	229	57	496	0.462	229	0.9	0.9	14.408	B
B-A	107	27	225	0.475	107	0.9	0.9	31.006	D
C-AB	255	64	577	0.443	255	0.8	0.8	11.653	B
C-A	509	127			509				
A-B	128	32			128				
A-C	498	124			498				

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	187	47	551	0.339	188	0.9	0.6	10.658	B
B-A	87	22	277	0.314	89	0.9	0.5	19.636	C
C-AB	208	52	607	0.343	209	0.8	0.6	9.441	A
C-A	416	104			416				
A-B	104	26			104				
A-C	406	102			406				

09:15 - 09:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	157	39	584	0.268	157	0.6	0.4	9.035	A
B-A	73	18	314	0.232	74	0.5	0.3	15.300	C
C-AB	174	43	629	0.276	175	0.6	0.4	8.243	A
C-A	349	87			349				
A-B	87	22			87				
A-C	340	85			340				

2029 With Dev, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		8.05	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D2	2029 With Dev	PM	ONE HOUR	17:00	18:30	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	575	100.000
B		ONE HOUR	✓	373	100.000
C		ONE HOUR	✓	729	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
	A	B	C	
From	A	0	123	452
	B	115	0	258
	C	475	254	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
	A	B	C	
From	A	0	1	8
	B	1	0	1
	C	9	1	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-C	0.61	20.24	1.6	C	237	355
B-A	0.61	44.60	1.5	E	106	158
C-AB	0.49	12.35	1.0	B	234	351
C-A					435	653
A-B					113	169
A-C					415	622

Main Results for each time segment

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	194	49	579	0.336	192	0.0	0.5	9.363	A
B-A	87	22	306	0.283	85	0.0	0.4	16.327	C
C-AB	191	48	628	0.305	190	0.0	0.4	8.262	A
C-A	358	89			358				
A-B	93	23			93				
A-C	340	85			340				

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	232	58	541	0.428	231	0.5	0.7	11.678	B
B-A	103	26	267	0.387	102	0.4	0.6	21.993	C
C-AB	229	57	605	0.378	228	0.4	0.6	9.624	A
C-A	427	107			427				
A-B	111	28			111				
A-C	406	102			406				

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	284	71	468	0.607	281	0.7	1.5	19.134	C
B-A	127	32	208	0.609	123	0.6	1.4	41.518	E
C-AB	281	70	576	0.489	280	0.6	0.9	12.238	B
C-A	521	130			521				
A-B	135	34			135				
A-C	498	124			498				

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	284	71	463	0.614	284	1.5	1.6	20.243	C
B-A	127	32	207	0.612	126	1.4	1.5	44.600	E
C-AB	281	70	576	0.489	281	0.9	1.0	12.346	B
C-A	521	130			521				
A-B	135	34			135				
A-C	498	124			498				

18:00 - 18:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	232	58	537	0.432	235	1.6	0.8	12.146	B
B-A	103	26	266	0.388	107	1.5	0.7	23.212	C
C-AB	229	57	605	0.378	230	1.0	0.6	9.729	A
C-A	427	107			427				
A-B	111	28			111				
A-C	406	102			406				

18:15 - 18:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	194	49	577	0.337	195	0.8	0.5	9.563	A
B-A	87	22	306	0.283	88	0.7	0.4	16.749	C
C-AB	191	48	628	0.305	192	0.6	0.4	8.356	A
C-A	358	89			358				
A-B	93	23			93				
A-C	340	85			340				

Junctions 9							
PICADY 9 - Priority Intersection Module							
Version: 9.5.0.6896							
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Filename: Plot 3 Tankersley Lane Access.j9

Path: X:\Jobs\3560 Hoyland Commercial Land\Junction Modelling\Plot 3 Sensitivity Test\Plot 3 Tankersley Lane Access

Report generation date: 04/06/2020 15:55:11

»2029 With Dev, AM

»2029 With Dev, PM

Summary of junction performance

	AM				PM			
	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS
2029 With Dev								
Stream B-C	0.0	5.89	0.03	A	0.1	6.16	0.10	A
Stream B-A	0.0	9.43	0.00	A	0.0	9.55	0.02	A
Stream C-AB	0.1	6.36	0.12	A	0.0	5.66	0.03	A

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

File summary

File Description

Title	
Location	
Site number	
Date	28/04/2020
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	WEEZYModelling
Description	

Units

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

Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
5.75				0.85	36.00	20.00

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2029 With Dev	AM	ONE HOUR	08:00	09:30	15	✓
D2	2029 With Dev	PM	ONE HOUR	17:00	18:30	15	✓

Analysis Set Details

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

2029 With Dev, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		0.93	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	untitled		Major
B	untitled		Minor
C	untitled		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Width for right turn (m)	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C	7.00		✓	3.50	150.0	✓	6.00

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

Minor Arm Geometry

Arm	Minor arm type	Width at give-way (m)	Width at 5m (m)	Width at 10m (m)	Width at 15m (m)	Width at 20m (m)	Estimate flare length	Flare length (PCU)	Visibility to left (m)	Visibility to right (m)
B	One lane plus flare	10.00	8.40	4.70	3.60	3.60	✓	1.00	45	60

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	515	0.090	0.227	0.143	0.324
1	B-C	750	0.110	0.278	-	-
1	C-B	754	0.280	0.280	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.

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

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2029 With Dev	AM	ONE HOUR	08:00	09:30	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	266	100.000
B		ONE HOUR	✓	21	100.000
C		ONE HOUR	✓	335	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A	B	C
	A	0	8	258
	B	1	0	20
	C	264	71	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
		A	B	C
	A	0	0	10
	B	0	0	6
	C	4	5	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-C	0.03	5.89	0.0	A	18	28
B-A	0.00	9.43	0.0	A	0.92	1
C-AB	0.12	6.36	0.1	A	65	98
C-A					242	363
A-B					7	11
A-C					237	355

Main Results for each time segment

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	15	4	695	0.022	15	0.0	0.0	5.610	A
B-A	0.75	0.19	425	0.002	0.75	0.0	0.0	8.486	A
C-AB	53	13	698	0.077	53	0.0	0.1	5.856	A
C-A	199	50			199				
A-B	6	2			6				
A-C	194	49			194				

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	18	4	685	0.026	18	0.0	0.0	5.724	A
B-A	0.90	0.22	407	0.002	0.90	0.0	0.0	8.857	A
C-AB	64	16	687	0.093	64	0.1	0.1	6.060	A
C-A	237	59			237				
A-B	7	2			7				
A-C	232	58			232				

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	22	6	670	0.033	22	0.0	0.0	5.890	A
B-A	1	0.28	383	0.003	1	0.0	0.0	9.424	A
C-AB	78	20	672	0.116	78	0.1	0.1	6.357	A
C-A	291	73			291				
A-B	9	2			9				
A-C	284	71			284				

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	22	6	670	0.033	22	0.0	0.0	5.890	A
B-A	1	0.28	383	0.003	1	0.0	0.0	9.425	A
C-AB	78	20	672	0.116	78	0.1	0.1	6.359	A
C-A	291	73			291				
A-B	9	2			9				
A-C	284	71			284				

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	18	4	684	0.026	18	0.0	0.0	5.725	A
B-A	0.90	0.22	407	0.002	0.90	0.0	0.0	8.858	A
C-AB	64	16	687	0.093	64	0.1	0.1	6.062	A
C-A	237	59			237				
A-B	7	2			7				
A-C	232	58			232				

09:15 - 09:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	15	4	695	0.022	15	0.0	0.0	5.610	A
B-A	0.75	0.19	425	0.002	0.75	0.0	0.0	8.488	A
C-AB	53	13	698	0.077	54	0.1	0.1	5.862	A
C-A	199	50			199				
A-B	6	2			6				
A-C	194	49			194				

2029 With Dev, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		0.74	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D2	2029 With Dev	PM	ONE HOUR	17:00	18:30	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	305	100.000
B		ONE HOUR	✓	68	100.000
C		ONE HOUR	✓	350	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
	A	B	C	
From	A	0	6	299
	B	8	0	60
	C	334	16	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
	A	B	C	
From	A	0	0	4
	B	0	0	0
	C	2	1	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-C	0.10	6.16	0.1	A	55	83
B-A	0.02	9.55	0.0	A	7	11
C-AB	0.03	5.66	0.0	A	15	22
C-A					306	460
A-B					6	8
A-C					274	412

Main Results for each time segment

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	45	11	681	0.066	45	0.0	0.1	5.659	A
B-A	6	2	429	0.014	6	0.0	0.0	8.517	A
C-AB	12	3	690	0.017	12	0.0	0.0	5.361	A
C-A	251	63			251				
A-B	5	1			5				
A-C	225	56			225				

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	54	13	668	0.081	54	0.1	0.1	5.862	A
B-A	7	2	411	0.018	7	0.0	0.0	8.923	A
C-AB	14	4	678	0.021	14	0.0	0.0	5.481	A
C-A	300	75			300				
A-B	5	1			5				
A-C	269	67			269				

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	66	17	650	0.102	66	0.1	0.1	6.161	A
B-A	9	2	386	0.023	9	0.0	0.0	9.552	A
C-AB	18	4	660	0.027	18	0.0	0.0	5.655	A
C-A	368	92			368				
A-B	7	2			7				
A-C	329	82			329				

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	66	17	650	0.102	66	0.1	0.1	6.161	A
B-A	9	2	386	0.023	9	0.0	0.0	9.552	A
C-AB	18	4	660	0.027	18	0.0	0.0	5.655	A
C-A	368	92			368				
A-B	7	2			7				
A-C	329	82			329				

18:00 - 18:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	54	13	668	0.081	54	0.1	0.1	5.864	A
B-A	7	2	411	0.018	7	0.0	0.0	8.926	A
C-AB	14	4	678	0.021	14	0.0	0.0	5.483	A
C-A	300	75			300				
A-B	5	1			5				
A-C	269	67			269				

18:15 - 18:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	45	11	681	0.066	45	0.1	0.1	5.665	A
B-A	6	2	429	0.014	6	0.0	0.0	8.519	A
C-AB	12	3	690	0.017	12	0.0	0.0	5.361	A
C-A	251	63			251				
A-B	5	1			5				
A-C	225	56			225				

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