

Strata Sterling Barnsley West Ltd
Proposed MU1 Residential and Employment Site, Barnsley

Transport Assessment Addendum

10 November 2023
Version 2.1
Issue





Contents

1	Introduction	7
2	Development Proposals	10
3	Residual Vehicle Trip Generation	18
4	Proposed Link Road Traffic Reassignment	29
5	Existing and Future Traffic Flows	31
6	Assessment Scenarios	39
7	Junction Capacity Assessments	42
8	Personal Injury Collision Data Analysis	158
9	Summary and Conclusions	162

Figures

- Figure 1: Residential Phase 1a Residual Vehicle Trips - AM Peak Hour (Without Full Link Road)
- Figure 2: Residential Phase 1a Residual Vehicle Trips - PM Peak Hour (Without Full Link Road)
- Figure 3: Residential Phase 1a Residual Vehicle Trips - AM Peak Hour (With Full Link Road)
- Figure 4: Residential Phase 1a Residual Vehicle Trips - PM Peak Hour (With Full Link Road)
- Figure 5: Total Residential Development Residual Vehicle Trips - AM Peak Hour
- Figure 6: Total Residential Development Residual Vehicle Trips - PM Peak Hour
- Figure 7: Primary School Drop-Off Traffic Flows (On-Site) - AM Peak Hour
- Figure 8: Primary School Drop-Off Traffic Flows (Off-Site) - AM Peak Hour
- Figure 9: Primary School Drop-Off Traffic Flows (Total) - AM Peak Hour
- Figure 10: Employment Residual Traffic Flows (PCU) - AM Peak Hour (Without Full Link Road)
- Figure 11: Employment Residual Traffic Flows (PCU) - PM Peak Hour (Without Full Link Road)
- Figure 12: Employment Residual Traffic Flows (PCU) - AM Peak Hour (With Full Link Road)
- Figure 13: Employment Residual Traffic Flows (PCU) - PM Peak Hour (With Full Link Road)
- Figure 14: Convenience Store Linked Trip Calculations - AM Peak Hour
- Figure 15: Convenience Store Linked Trip Calculations - PM Peak Hour
- Figure 16: Convenience Store Pass By Trip Calculations - AM Peak Hour
- Figure 17: Convenience Store Pass By Trip Calculations - PM Peak Hour
- Figure 18: Convenience Store Traffic Flows - AM Peak Hour
- Figure 19: Convenience Store Traffic Flows - PM Peak Hour
- Figure 20: Total Residential Residual Traffic Flows - A635 Cawthorne Road (AM and PM Peak Hours)
- Figure 21: Employment Residual Traffic Flows - A635 Cawthorne Road (AM and PM Peak Hours)
- Figure 22: Total Residential Residual Traffic Flows - A628 Whinby Road (AM and PM Peak Hours)
- Figure 23: Employment Residual Traffic Flows - A628 Whinby Road (AM and PM Peak Hours)
- Figure 24: Total Residential Residual Traffic Flows - A637 (AM and PM Peak Hours)
- Figure 25: Employment Residual Traffic Flows - A637 (AM and PM Peak Hours)

- Figure 26: Total Residential Residual Traffic Flows - B6428 (AM Peak Hour)
- Figure 27: Total Residential Residual Traffic Flows - B6428 (PM Peak Hour)
- Figure 28: Employment Residual Traffic Flows - B6428 (AM Peak Hour)
- Figure 29: Employment Residual Traffic Flows - B6428 (PM Peak Hour)
- Figure 30: Total Residential Residual Traffic Flows - Town Centre (AM Peak Hour)
- Figure 31: Total Residential Residual Traffic Flows - Town Centre (PM Peak Hour)
- Figure 32: Employment Residual Traffic Flows - Town Centre (AM Peak Hour)
- Figure 33: Employment Residual Traffic Flows - Town Centre (PM Peak Hour)
- Figure 34: Sheffield City Region Transport Model - AECOM Do Minimum Assessment Scenario - AM Peak Hour
- Figure 35: Sheffield City Region Transport Model - AECOM Do Minimum Assessment Scenario - PM Peak Hour
- Figure 36: Sheffield City Region Transport Model - AECOM Do Something 1 Assessment Scenario - AM Peak Hour
- Figure 37: Sheffield City Region Transport Model - AECOM Do Something 1 Assessment Scenario - PM Peak Hour
- Figure 38: Link Road Reassignment - AM Peak Hour
- Figure 39: Link Road Reassignment - PM Peak Hour
- Figure 40: 2022 Base Year Traffic Flows - AM Peak Hour
- Figure 41: 2022 Base Year Traffic Flows - PM Peak Hour
- Figure 42: 2022 Base Year Traffic Flows - A635 Cawthorne Road (AM and PM Peak Hours)
- Figure 43: 2022 Base Year Traffic Flows - A628 Whinby Road (AM and PM Peak Hours)
- Figure 44: 2022 Base Year Traffic Flows - A637 (AM and PM Peak Hours)
- Figure 45: 2022 Base Year Traffic Flows - B6428 (AM Peak Hour)
- Figure 46: 2022 Base Year Traffic Flows - B6428 (PM Peak Hour)
- Figure 47: 2022 Base Year Traffic Flows - Town Centre (AM Peak Hour)
- Figure 48: 2022 Base Year Traffic Flows - Town Centre (PM Peak Hour)
- Figure 49: Committed Development Traffic Flows - AM Peak Hour
- Figure 50: Committed Development Traffic Flows - PM Peak Hour
- Figure 51: Committed Development Traffic Flows - A635 Cawthorne Road (AM and PM Peak Hours)
- Figure 52: Committed Development Traffic Flows - A628 Whinby Road (AM and PM Peak Hours)
- Figure 53: Committed Development Traffic Flows - A637 (AM and PM Peak Hours)
- Figure 54: Committed Development Traffic Flows - B6428 (AM Peak Hour)
- Figure 55: Committed Development Traffic Flows - B6428 (PM Peak Hour)
- Figure 56: Committed Development Traffic Flows - Town Centre (AM Peak Hour)
- Figure 57: Committed Development Traffic Flows - Town Centre (PM Peak Hour)
- Figure 58: 2026 Do Minimum Traffic Flows - AM Peak Hour
- Figure 59: 2026 Do Minimum Traffic Flows - PM Peak Hour
- Figure 60: 2026 Residential Phase1a Development Traffic Flows - AM Peak Hour
- Figure 61: 2026 Residential Phase1a Development Traffic Flows - PM Peak Hour
- Figure 62: 2026 Employment Development Traffic Flows - AM Peak Hour
- Figure 63: 2026 Employment Development Traffic Flows - PM Peak Hour
- Figure 64: 2026 Phase 1 Development (Without Full Link Road) Traffic Flows - AM Peak Hour
- Figure 65: 2026 Phase 1 Development (Without Full Link Road) Traffic Flows - PM Peak Hour
- Figure 66: 2026 Phase 1 Development (With Full Link Road) Traffic Flows - AM Peak Hour
- Figure 67: 2026 Phase 1 Development (With Full Link Road) Traffic Flows - PM Peak Hour
- Figure 68: 2026 With Full Development (National Highway Assessment) Traffic Flows - AM Peak Hour
- Figure 69: 2026 With Full Development (National Highway Assessment) Traffic Flows - PM Peak Hour
- Figure 70: 2033 Do Minimum Traffic Flows - AM Peak Hour

- Figure 71: 2033 Do Minimum Traffic Flows - PM Peak Hour
- Figure 72: 2033 Full Residential Development Traffic Flows - AM Peak Hour
- Figure 73: 2033 Full Residential Development Traffic Flows - PM Peak Hour
- Figure 74: 2033 Full Development Traffic Flows - AM Peak Hour
- Figure 75: 2033 Full Development Traffic Flows - PM Peak Hour
- Figure 76: 2026 Do Minimum Traffic Flows - A635 Cawthorne Road (AM and PM Peak Hours)
- Figure 77: 2026 Residential Phase1a Development Traffic Flows - A635 Cawthorne Road (AM and PM Peak Hours)
- Figure 78: 2026 Employment Development Traffic Flows - A635 Cawthorne Road (AM and PM Peak Hours)
- Figure 79: 2026 Phase 1 Development Traffic Flows - A635 Cawthorne Road (AM and PM Peak Hours)
- Figure 80: 2033 Do Minimum Traffic Flows - A635 Cawthorne Road (AM and PM Peak Hours)
- Figure 81: 2033 Full Residential Development Traffic Flows - A635 Cawthorne Road (AM and PM Peak Hours)
- Figure 82: 2033 Full Development Traffic Flows - A635 Cawthorne Road (AM and PM Peak Hours)
- Figure 83: 2026 Do Minimum Traffic Flows - A628 Whinby Road (AM and PM Peak Hours)
- Figure 84: 2026 Residential Phase1a Development Traffic Flows - A628 Whinby Road (AM and PM Peak Hours)
- Figure 85: 2026 Employment Development Traffic Flows - A628 Whinby Road (AM and PM Peak Hours)
- Figure 86: 2026 Phase 1 Development Traffic Flows - A628 Whinby Road (AM and PM Peak Hours)
- Figure 87: 2033 Do Minimum Traffic Flows - A628 Whinby Road (AM and PM Peak Hours)
- Figure 88: 2033 Full Residential Development Traffic Flows - A628 Whinby Road (AM and PM Peak Hours)
- Figure 89: 2033 Full Development Traffic Flows - A628 Whinby Road (AM and PM Peak Hours)
- Figure 90: 2026 Do Minimum Traffic Flows - A637 (AM and PM Peak Hours)
- Figure 91: 2026 Residential Phase1a Development Traffic Flows - A637 (AM and PM Peak Hours)
- Figure 92: 2026 Employment Development Traffic Flows - A637 (AM and PM Peak Hours)
- Figure 93: 2026 Phase 1 Development Traffic Flows - A637 (AM and PM Peak Hours)
- Figure 94: 2033 Do Minimum Traffic Flows - A637 (AM and PM Peak Hours)
- Figure 95: 2033 Full Residential Development Traffic Flows - A637 (AM and PM Peak Hours)
- Figure 96: 2033 Full Development Traffic Flows - A637 (AM and PM Peak Hours)
- Figure 97: 2026 Do Minimum Traffic Flows - B6428 (AM Peak Hour)
- Figure 98: 2026 Do Minimum Traffic Flows - B6428 (PM Peak Hour)
- Figure 99: 2026 Residential Phase1a Development Traffic Flows - B6428 (AM Peak Hour)
- Figure 100: 2026 Residential Phase1a Development Traffic Flows - B6428 (PM Peak Hour)
- Figure 101: 2026 Employment Development Traffic Flows - B6428 (AM Peak Hour)
- Figure 102: 2026 Employment Development Traffic Flows - B6428 (PM Peak Hour)
- Figure 103: 2026 Phase 1 Development Traffic Flows - B6428 (AM Peak Hour)
- Figure 104: 2026 Phase 1 Development Traffic Flows - B6428 (PM Peak Hour)
- Figure 105: 2033 Do Minimum Traffic Flows - B6428 (AM Peak Hour)
- Figure 105: 2033 Do Minimum Traffic Flows - B6428 (PM Peak Hour)
- Figure 106: 2033 Full Residential Development Traffic Flows - B6428 (AM Peak Hour)
- Figure 107: 2033 Full Residential Development Traffic Flows - B6428 (PM Peak Hour)
- Figure 108: 2033 Full Development Traffic Flows - B6428 (AM Peak Hour)
- Figure 109: 2033 Full Development Traffic Flows - B6428 (PM Peak Hour)
- Figure 110: 2026 Do Minimum Traffic Flows - Town Centre (AM Peak Hour)
- Figure 111: 2026 Do Minimum Traffic Flows - Town Centre (PM Peak Hour)
- Figure 112: 2026 Residential Phase1a Development Traffic Flows - Town Centre (AM Peak Hour)
- Figure 113: 2026 Residential Phase1a Development Traffic Flows - Town Centre (PM Peak Hour)
- Figure 114: 2026 Employment Development Traffic Flows - Town Centre (AM Peak Hour)

Figure 115: 2026 Employment Development Traffic Flows - Town Centre (PM Peak Hour)

Figure 116: 2026 Phase 1 Development Traffic Flows - Town Centre (AM Peak Hour)

Figure 117: 2026 Phase 1 Development Traffic Flows - Town Centre (PM Peak Hour)

Figure 118: 2033 Do Minimum Traffic Flows - Town Centre (AM Peak Hour)

Figure 119: 2033 Do Minimum Traffic Flows - Town Centre (PM Peak Hour)

Figure 120: 2033 Full Residential Development Traffic Flows - Town Centre (AM Peak Hour)

Figure 121: 2033 Full Residential Development Traffic Flows - Town Centre (PM Peak Hour)

Figure 122: 2033 Full Development Traffic Flows - Town Centre (AM Peak Hour)

Figure 123: 2033 Full Development Traffic Flows - Town Centre (PM Peak Hour)

Appendices

Appendix A: Comments Received from BMBC (30 November 2022)

Appendix B: Proposed Site Layout Plans

Appendix C: AECOM Modelling Report

Appendix D: BMBC Correspondence - Study Highway Network Agreement

Appendix E: Traffic Survey Data

Appendix F: 2019/2022 Traffic Survey Data Comparison

Appendix G: M1 Junction 37 WebTRIS Traffic Data

Appendix H: BMBC Correspondence - Committed Developments

Appendix I: NTM/TEMPro Background Traffic Growth Factor Methodology

Appendix J-1: Junction 10 Output - Barugh Green Site Access Roundabout

Appendix J-2: Junction 10 Output - Higham Common Road Site Access Roundabout

Appendix J-3: Junction 10 Output - Internal Roundabout North

Appendix J-4: Junction 10 Output - Internal Roundabout South

Appendix J-5: LinSig Output - M1 Junction 37

Appendix J-6: M1 Junction 37 - Merge and Diverge Assessments

Appendix J-7: Junction 10 Output - Whinby Road / B6449 Roundabout

Appendix J-8: Junction 10 Output - Capitol Close / Whinby Road Roundabout

Appendix J-9: Junction 10 Output - Whinby Road / Higham Lane Roundabout

Appendix J-10: Junction 10 Output - Higham Lane / Capitol Close Roundabout

Appendix J-11: Junction 10 Output - Chestnut Tree Roundabout

Appendix J-12: LinSig Output - Barugh Green Crossroads

Appendix J-13: Junction 10 Output - Redbrook Road / Church Street Junction

Appendix J-14: Junction 10 Output - A635 / Redbrook Road Junction

Appendix J-15: Junction 10 Output - Redbrook Road / Intake Lane Junction

Appendix J-16: Junction 10 Output - Pogmoor Road / Intake Lane Junction

Appendix J-17: Junction 10 Output - Pogmoor Road / Farmhouse Lane

Appendix J-18: Junction 10 Output - Farmhouse Lane / Wharfedale Road

Appendix J-19: Junction 10 Output - A635 / Church Street / Silkstone Lane

Appendix J-20: Junction 10 Output - A635 / Church Street

Appendix J-21: Junction 10 Output - Elmhirst Lane / A628 Whinby Road / B6099 / A628 Barnsley Road Roundabout

Appendix J-22: Junction 10 Output - A637 / B6428 / Dearne Hall Lane Roundabout

Appendix J-23: Junction 10 Output - A635 / Church Street / Churchfield Lane Staggered Junction

Appendix J-24: Junction 10 Output - B6131 Blacker Road / B6428 Spark Lane / B6428 Greenside Staggered Junction

Appendix J-25: LinSig Output - A61 Wakefield Road / B6428 Shaw Lane / B6428 Lee Lane Staggered Crossroads

Appendix J-26: LinSig Output - Old Mill Lane / Victoria Road

Appendix J-27: LinSig Output - Pogmoor Road / Gawber Road

Appendix J-28: Junction 10 Output - Pogmoor Road / Summer Lane Junction

Appendix J-29: Junction 10 Output - Summer Lane / Victoria Crescent West Junction

Appendix J-30: Junction 10 Output - Townend Roundabout

Appendix K: A637 / B6428 / Dearne Hall Lane Roundabout Calculations

1 Introduction

1.1 Commission

Fore Consulting Limited (Fore) has been commissioned by Strata Sterling Barnsley West Limited to provide transport advice in relation to two hybrid planning applications submitted in relation to a proposed development on land south of Barugh Green Road, Barnsley. The two applications cover the majority of the allocated site (MU1) as identified in the Barnsley Local Plan.

1.1.1 Background

Two planning applications have been submitted as follows:

Planning Application Reference 2021/1090

Hybrid planning application for residential development for up to 1,560 dwellings and associated infrastructure.

Planning Application Reference 2021/1089

Hybrid planning application for employment development (Use Classes E, B2 and B8 with ancillary office) and associated infrastructure.

Further details, with full description of development, are provided in Section 2.

A Transport Assessment dated 7 July 2021¹ was prepared by Fore and submitted with the planning applications. A revised Transport Assessment² dated 22 March 2022 was subsequently submitted to incorporate comments received from Barnsley Metropolitan Borough Council Highways Development Control (BMBC) and National Highways (NH), dated October 2021 and 2 November 2021, respectively.

Technical Notes were submitted to BMBC³ and NH⁴ alongside the revised Transport Assessment, setting out responses to specific comments provided by both parties.

¹ *Transport Assessment: Proposed MU1 Residential and Employment Site, Barnsley (Version 1.0)*, Fore Consulting Limited, 7 July 2021.

² *Transport Assessment: Proposed MU1 Residential and Employment Site, Barnsley (Version 2.0)*, Fore Consulting Limited, 22 March 2022.

³ *Technical Note: Response to BMBC Highways Comments, (Version 1.0)*, Fore Consulting Limited, 22 March 2022.

⁴ *Technical Note: Response to National Highways Comments, (Version 1.0)*, Fore Consulting Limited, 22 March 2022.

Further dialogue has been undertaken with both parties as follows:

- **National Highways:** Additional Technical Notes have been submitted to NH, specifically in relation to the operation of M1 Junction 37 and the adjacent Winby Road / B6449 roundabout, located to the south east of the proposed development. NH has confirmed that based on the assessments undertaken, whilst the proposed development is predicted to have a traffic impact on M1 Junction 37, the residual impact is not sufficient to require mitigation. This position is subject to review of this document. The latest response from Jacobs Systra Joint Venture (JSJV) on behalf of NH⁵ recommends conditions relating to the Travel Plans and to cover the topic of boundary treatment.
- **BMBC:** Further comments were received from BMBC on 30 November 2022, relating to the following topics:
 - Scope of Assessment - Network Extents.
 - Trip Generation and Distribution.
 - Assessment Scenarios.
 - Committed Developments.
 - Spine Road Delivery.

The comments received from BMBC are provided to the rear of this report at Appendix A.

1.2 Purpose of this Report

This Transport Assessment Addendum is prepared to address the outstanding comments received from BMBC. Further, since the submission of the planning applications, there has been some refinement to the proposed land uses and quantum of development. This report therefore sets out the updated trip generation associated with the proposed development and undertakes updated assessments of junctions on the identified study highway network, as agreed with BMBC, and on the strategic road network, as agreed with NH.

The predicted vehicle trip generation associated with the proposed development has also been updated in line with the DfT Circular 01/2022⁶ (published December 2022) at the request of NH. This includes outlining the transport vision of the proposed development,

⁵ *Technical Memorandum: AA.23.20.03 Land to the Southeast of Higham Common Road Barnsley*, Jacobs Systra Joint Venture, 3 November 2023.

⁶ *DfT Circular 01/2022: Strategic road network and the delivery of sustainable development*, Department for Transport, 2022.

setting mode shift targets to achieve the vision, and assessing the forecast residual traffic impact of the proposed development.

Framework Residential⁷ and Workplace⁸ Travel Plans have also been prepared by Fore for each of the two hybrid planning applications. The Framework Travel Plans have been submitted to both BMBC and NH.

1.3 Structure of this Report

This Transport Assessment Addendum is structured as follows:

- Section 2 provides a summary of the proposed development following refinement to the proposed land uses and quantum of development. The section also details the transport vision for the proposed development in line with DfT Circular 01/2022, along with the proposed mode shift targets set to achieve the vision.
- Section 3 details the methodology for predicting the residual vehicle trip generation of the proposed development.
- Section 4 details the diversionary impact of the construction of the proposed link road through the development, based on the Sheffield City Region Transport Model.
- Section 5 details the methodology for deriving existing and future traffic flows on the identified study highway network, as agreed with BMBC.
- Section 6 sets out the assessment scenarios for which junction capacity assessments are undertaken.
- Section 7 provides an assessment of the capacity of the junctions comprising the agreed study area.
- Section 8 presents a review of personal injury collision data recorded at the junctions comprising the study highway network.
- Section 9 summarises and concludes the outcomes of the Transport Assessment Addendum.

⁷ Framework Residential Travel Plan (Issue v2.0), Fore Consulting Limited, 7 July 2023.

⁸ Framework Workplace Travel Plan (Issue v2.0), Fore Consulting Limited, 7 July 2023.

2 Development Proposals

2.1 Introduction

This Section provides a summary of the proposed development following refinement to the proposed land uses and quantum of development. The section also details the transport vision for the proposed development in line with DfT Circular 01/2022, along with the proposed mode shift targets set to achieve the vision.

2.2 Development Description

As previously outlined, since the submission of the planning applications, there has been some refinement to the proposed land uses and quantum of development. The updated description of development is as follows:

Planning Application Reference 2021/1090:

Hybrid planning application for residential development for up to 1,560 dwellings, including:

a) Full planning permission for:

- *earthworks to create development platforms;*
- *strategic drainage ponds/dry detention basins and associated drainage infrastructure;*
- *construction of a new link road;*
- *location of strategic landscaping and ecological areas;*
- *demolition of existing buildings;*
- *works to Hermit Lane and;*
- *erection of Phase 1(a) residential development comprising 216 dwellings.*

b) Outline planning permission for:

- *residential development comprising up to 1,344 dwellings;*
- *new primary school;*
- *small shops and community facilities and;*

- *associated infrastructure works.*

Planning Application Reference 2021/1089

Hybrid planning application for employment development, including:

a) Detailed planning permission for:

- *earthworks to create development platforms;*
- *drainage features, including dry detention basin, embankments, bunds;*
- *strategic landscaping, ecological areas and*
- *access.*

b) Outline planning permission for:

- *employment (Use Classes E, B2 and B8 with ancillary office) and;*
- *associated servicing and infrastructure works including car parking, vehicle, pedestrian and cycle circulation, plot landscaping, noise mitigation, drainage features and all associated infrastructure.*

A comparison between the previous and updated development proposals across both planning applications is set out in the Table below.

Table 1: Development Quantum Summary

Uses	Previous Development Proposals	Updated Development Proposals
<u>Planning Application Reference 2021/1090</u>		
Residential (C3) - Full Planning Permission (Phase 1(a))	229 dwellings	216 dwellings
Residential (C3) - Outline Planning Permission	1,531 dwellings	1,344 dwellings
Residential (C3) Planning Application 2021/1090 Total	1,760 dwellings	1,560 dwellings
<u>Planning Application Reference 2021/1089</u>		
Employment (B2 and E (excluding offices))	4,195 sqm	28,045 sqm
Employment (B8)	114,131 sqm	84,136 sqm
Employment Total	118,326 sqm	112,181 sqm
Convenience Store (E and Sui Generis)	418 sqm	418 sqm
Non-Food Retail (E and Sui Generis)	929 sqm	-
Fast-Food (E and Sui Generis)	232 sqm	-
Pub (E and Sui Generis)	836 sqm	-
E and Sui Generis Total	2,416 sqm	418 sqm

It should be noted that 119 dwellings associated with the outline element of planning application 2021/1090 are to be accessed from Farm House Lane to the south east of the proposed development, with the remaining dwellings to be accessed from the proposed link road through the development. 175 dwellings were to be accessed from Farm House Lane as part of the previous development proposals.

The proposed site layout plans are provided at Appendix B.

2.3 The Transport Vision

In subsequent correspondence with NH, it was requested that the calculated trip rates are updated in line with DfT Circular 01/2022. This includes outlining the transport vision of the proposed development, setting mode shift targets to achieve the vision, and assessing the forecast residual traffic impact of the proposed development.

Notwithstanding that the planning applications pre-date publication of the Circular 01/2022 (published December 2022), the transport vision for the proposed development is set out below. The proposed mode shift targets set to achieve the vision, and the subsequent forecast residual traffic impact of the proposed development are set out in Section 3.

2.3.1 Transport Vision - Policy Context (DfT Circular 01/2022)

‘Vision-led’ Approach

Paragraphs 15 and 48 of the Circular set out the criteria for a ‘vision-led’ approach to delivering new and sustainable development. It also:

- Places additional requirements for developments to be demonstrably sustainable in terms of transport: *“...walking, wheeling, cycling and public transport must be the natural first choice for all who can take it” and that “development promoters must put forward clear targets and commitments to manage down the traffic impact of development and maximise the accessibility of and within sites by walking, wheeling, cycling, public transport and shared travel”.*
- Expects *“development promoters to enable a reduction in the need to travel by private car and prioritise sustainable transport opportunities ahead of capacity enhancements and new connections on the SRN, and that “high-powered and open-access EV charge points should be installed where developments include on-street or communal parking to support the government’s objective to end the sale of new conventional petrol and diesel cars/vans by 2030 and HGVs by 2040, and its commitment to decarbonise transport by 2050.”*
- Requires that residential-led developments give due consideration to home working arrangements and high-speed broadband infrastructure. Together, these measures would encourage a reduction in the need to travel.
- States the following with regard to Travel Plans: *“Travel plans are an effective means of incentivising the use of sustainable modes of transport. Where these are required, development promoters must put forward clear targets and commitments to manage down the traffic impact of development and maximise the accessibility of and within sites by walking, wheeling, cycling, public transport and shared travel. Targets for achieving a modal shift to sustainable transport will need to be subject to sustained monitoring and management by an appointed travel plan coordinator.”*

NPPF and the Climate Change Act - The Road to Net Zero

The National Planning Policy Framework (NPPF)⁹ sets out a presumption in favour of sustainable development and accessibility by means other than the private car and “The Climate Change Act - The Road to Net Zero” sets out the UK’s commitment to achieving net zero by 2050 by delivering transport decarbonisation through travelling less, investment in sustainable infrastructure, and accelerating the uptake of electric vehicles.

⁹ National Planning Policy Framework, Ministry of Housing, Communities and Local Government, 2021.

2.3.2 The Transport Vision

In accordance with the requirements of Circular 01/2022, the transport vision for the development is to encourage and maximise active, healthy, and sustainable travel choices to encourage modal shift to active modes and public transport, to assist in delivering transport decarbonisation.

2.3.3 Achieving the Vision

The following sustainable transport measures are proposed to support the transport vision for the proposed development.

Pedestrian and Cycle Access

- It is intended that the number of access points into the site for pedestrians and cyclists is maximised so as to ensure convenient links to the existing walking and cycle networks, and thereby, encouraging journeys to be undertaken on foot or by cycle to the existing community facilities within the surrounding areas.
- Existing PROW routes running through the site will be incorporated into the masterplan layout and enhanced through delivery of the landscape proposals.
- 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.
- The layout of the proposed link road includes paths running adjacent to the link road but set back and shielded from the link road by trees and shrub planting. This ensures there are opportunities for alternative routes away from the link road that are more pleasant to users.
- There will be four crossings across the new link road, as well as crossing points at all of the proposed roundabouts, to ensure the site is well connected across east/west desire lines.
- Phase 1 of the residential development for 216 dwellings, applied for in full, is located to the north west of the site. Phase 1 will have pedestrian and cycle connections to Barugh Green Road, Longley Street and Avon Close ensuring it is highly permeable with the surrounding neighbourhood. The location of the pedestrian access points ensure existing bus stops on Barugh Green Road, Longley Street and Higham Common Road are all located within convenient walking distance of the site.



- Covered and secure cycle parking will be provided in accordance with BMBC adopted parking standards.

Public Transport Access

Residents, employees and visitors at the proposed development will be able to access local bus services. The closest bus stops in relation to the site are on A635 Barugh Green Road, Higham Common Road and Pogmoor Road, providing access to services to Barnsley, Kexborough, Crawthorne, Mapplewell and Wakefield. The services are summarised in the Table below.

Table 2: Bus Services, Destinations and Frequencies

Service Number	Route Summary	Approximate Daytime Service Frequency		
		Mon-Fri.	Saturday	Sunday
22a/22c/43/44	Barnsley - Pogmoor - Dodworth (22a, 22c) - Gilroyd (22a, 22c) - Kingstone - Worsbrough Common	30 minutes	30 minutes	120 minutes
93/95/95a	Barnsley - Gawber - Wilthorpe (95,95a) - Barugh Green - Darton - Kexborough (95,95a) - Bloomhouse Green (93,95a)	15 minutes	20 minutes	60 minutes
94/94a/94b	Barnsley - Gawber - Wilthorpe (94a) - Barugh Green (94, 94a) - Higham (94, 94a) - Cawthorne (94, 94a, 94b) - Denby Dale (94, 94a)	60 minutes	60 minutes	120 minutes
96/96b/96c/97	Barnsley - Gawber -Cawthorne (96c) - Darton (97) - Staincross (97) - Kexborough (96, 96b, 96c) - West Bretton (96, 96b, 96c) - Woolley (97) - Wakefield	60 minutes	60 minutes	60 minutes

Note: Services correct as of October 2023.

The proposed link road and associated junctions have been designed to ensure buses can divert through the development.

Electric Vehicle Charging

Parking at the development will be provided in line with BMBC standards, which are reproduced in the Table below.

Table 3: BMBC 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
C3	All development	1 space for dwellings with 1 or 2 bedrooms 2 spaces for dwellings with 3 or more bedrooms 1 visitor space per 4 dwellings subject to layout. Flexibility for visitor parking will be considered on a site by site basis.

At the residential development, 1 electric vehicle charging point (EVCP) will be provided per residential unit (dwelling with dedicated parking).

EVCP will also be provided at the employment development in line with Approved Document S (2021 edition) of the Building Regulations 2010¹⁰.

With regard to the Phase 1(a) residential development (216 dwellings), which is applied for in full as part of planning application 2021/1090, a total of 478 car parking spaces (including 55 visitor parking spaces) are to be provided. This total is marginally higher than BMBC's recommended guidelines (473 parking spaces (including 54 visitor parking spaces)). Each dwelling will have access to an electric vehicle charging point (EVCP).

2.3.4 Travel Planning

To assist in achieving the vision for the development, Framework Residential and Workplace Travel Plans have been submitted to both BMBC and NH and will be implemented at the development.

The Travel Plan is a method for ensuring that a development can be accessed by a range of modes by communicating with development users (residents, employees and visitors) about their options and special initiatives available, promoting sustainable transport, providing incentives, gathering data about the travel habits, and reporting on this in order to identify room for improvement.

¹⁰ *The Building Regulations 2010: Infrastructure for the charging of electric vehicles (Approved Document S)*, HM Government, 2021.

The Framework Travel Plan documents provide details of the on-site facilities and initiatives that will be made available to support access to the site by all available modes and to promote sustainable transport choices.

2.4 Summary

This Section has provided a summary of the proposed development following refinement to the proposed land uses and quantum of development. The section has also detailed the transport vision for the proposed development in line with DfT Circular 01/2022, along with the proposed mode shift targets set to achieve the vision.

The following sections details the methodology for predicting the residual vehicle trip generation of the proposed development.



3 Residual Vehicle Trip Generation

3.1 Introduction

This Section details the methodology for predicting the residual vehicle trip generation of the proposed development.

The agreed vehicle trip rates, and the resulting vehicle trip generation, for the residential, school, employment and convenience store uses at the proposed development are set out. Mode shift targets are identified, followed by the resulting residual vehicle trip generation.

3.2 Residential Development (Planning Application 2021/1090)

3.2.1 Agreed Vehicle Trip Generation (Residential)

The agreed vehicle trip rates, and the resulting vehicle trip generations for the residential development, are shown in the Table below. The vehicle trip generations for Phase 1(a) (216 dwellings) and the full residential development (1,560 dwellings) are set out separately. Note that the 216 dwellings are included within the 1,560 dwellings (i.e. they are not additional).

Table 4: Agreed Residential Vehicle Trip Generation

Time	Weekday AM Peak Hour (08:00-09:00)			Weekday PM Peak Hour (17:00-18:00)		
	Arr.	Dep.	Total	Arr.	Dep.	Total
Vehicle Trip Rates (per dwelling)	0.083	0.300	0.383	0.312	0.180	0.492
Vehicle Trip Generation - Phase 1(a) (216 dwellings)	18	65	83	67	39	106
Vehicle Trip Generation - Full Residential (1,560 dwellings)	129	468	597	487	281	768

3.2.2 Baseline Person Trip Generation (Residential)

2011 Census¹¹ data has been used to derive the baseline mode share for the residential element of the proposed development. The mode share for the Barnsley 012 Middle Layer Super Output Area (MSOA) has been used. As this is the MSOA within which the site is located, the mode share represents a reasonable proxy for the likely travel characteristics of the proposed development, with regard to the existing accessibility of the site by public transport and the configuration of the local highway network.

¹¹ Dataset reference 'QS701EW - Method of travel to work'. The categories 'Not in employment', 'Underground, metro, light rail, tram', 'Work mainly at or from home' and 'Other method of travel to work' have been excluded for the purposes of this assessment.

By applying the baseline mode share to the agreed vehicle trip generation for the proposed development, the predicted person trip generation by mode has been estimated. This is set out in the Tables below for the Phase 1(a) residential development and the full residential development.

Table 5: Phase 1(a) Residential Person Trip Generation by Mode (Baseline Mode Share)

Mode	Baseline Mode Share (%)	Weekday AM Peak Hour (08:00-09:00)			Weekday PM Peak Hour (17:00-18:00)		
		Arr.	Dep.	Total	Arr.	Dep.	Total
Bus, minibus or coach	4.2%	1	4	5	4	2	6
Taxi	0.5%	0	0	1	0	0	1
Motorcycle, scooter or moped	0.5%	0	0	1	0	0	1
Driving a car or van	76.3%	18	65	83	67	39	106
Passenger in a car or van	6.4%	2	5	7	6	3	9
Bicycle	0.7%	0	1	1	1	0	1
On Foot	11.4%	3	10	12	10	6	16
Total	100%	23	85	108	88	51	139

Table 6: Full Residential Person Trip Generation by Mode (Baseline Mode Share)

Mode	Baseline Mode Share (%)	Weekday AM Peak Hour (08:00-09:00)			Weekday PM Peak Hour (17:00-18:00)		
		Arr.	Dep.	Total	Arr.	Dep.	Total
Bus, minibus or coach	4.2%	7	26	33	27	15	42
Taxi	0.5%	1	3	4	3	2	5
Motorcycle, scooter or moped	0.5%	1	3	4	3	2	5
Driving a car or van	76.3%	129	468	597	487	281	768
Passenger in a car or van	6.4%	11	39	50	41	24	64
Bicycle	0.7%	1	4	5	4	2	7
On Foot	11.4%	19	70	89	73	42	115
Total	100%	170	613	783	638	368	1,006

3.2.3 SMART Travel Plan Targets (Residential)

Section 2 of this report has set out the transport vision for the development along with the travel planning measures to be implemented at the site to achieve this vision.



As part of the Travel Plan process, targets will be set to reduce the proportion of residents travelling alone by car. The targets will be monitored through the use of annual travel surveys, the form of which will be agreed with BMBC.

The setting of targets is essential to understanding whether the Travel Plan has been effective in achieving its objectives. Targets should be SMART, that is:

Specific, Measurable, Achievable, Realistic and Time-bound.

Based on the locality of the site and measures set out in Section 2, it is considered that a target 10% reduction to the number of trips undertaken by car or van drivers will be SMART at the site.

The person trip generation by mode, taking account of a 10% reduction to the number of trips undertaken by car or van drivers is shown in the Tables below for the Phase 1(a) residential development and the full residential development. The number of trips undertaken by bus, bicycle, on foot and as a passenger in a car or van, have been increased accordingly.

Table 7: Phase 1(a) Residential Person Trip Generation by Mode (SMART Travel Plan Target Mode Share)

Mode	Baseline Mode Share (%)	Weekday AM Peak Hour (08:00-09:00)			Weekday PM Peak Hour (17:00-18:00)		
		Arr.	Dep.	Total	Arr.	Dep.	Total
Bus, minibus or coach	4.2%	1	5	7	5	3	8
Taxi	0.5%	0	0	1	0	0	1
Motorcycle, scooter or moped	0.5%	0	0	1	0	0	1
Driving a car or van	76.3%	16	58	74	61	35	96
Passenger in a car or van	6.4%	2	7	9	7	4	12
Bicycle	0.7%	1	2	3	2	1	4
On Foot	11.4%	3	11	14	12	7	19
Total	100%	23	85	108	88	51	139

The Table above shows that following the implementation of the SMART Travel Plan targets to assist in achieving the transport vision for the proposed development, the Phase 1(a) residential element of the proposed development (216 dwellings) is predicted to generate 74 and 96 two-way residual vehicle trips (driving a car or van) during the Weekday AM and PM peak hours, respectively.

The residual vehicle trips associated with the Phase 1(a) residential development are illustrated on the traffic flow diagrams provided at Figures 1 to 4.

Table 8: Full Residential Person Trip Generation by Mode (SMART Travel Plan Target Mode Share)

Mode	Baseline Mode Share (%)	Weekday AM Peak Hour (08:00-09:00)			Weekday PM Peak Hour (17:00-18:00)		
		Arr.	Dep.	Total	Arr.	Dep.	Total
Bus, minibus or coach	4.2%	10	37	48	39	22	61
Taxi	0.5%	1	3	4	3	2	5
Motorcycle, scooter or moped	0.5%	1	3	4	3	2	5
Driving a car or van	76.3%	117	421	538	438	253	691
Passenger in a car or van	6.4%	14	51	65	53	31	84
Bicycle	0.7%	4	16	20	16	9	26
On Foot	11.4%	23	82	104	85	49	134
Total	100%	170	613	783	638	368	1,006

The Table above shows that following the implementation of the SMART Travel Plan targets to assist in achieving the transport vision for the proposed development, the full residential element of the proposed development (1,560 dwellings) is predicted to generate 538 and 691 two-way residual vehicle trips (driving a car or van) during the Weekday AM and PM peak hours, respectively.

The predicted vehicle trips associated with the residential element of the proposed development have been distributed onto the local highway network as per the agreed methodology set out in Section 6 of the Transport Assessment.

The trip distribution has been estimated using 2011 Census data, based on journeys originating from the Barnsley 012 and 019 MSOA. It should be noted that reference was erroneously made to Barnsley 018 MSOA in the Technical Note submitted with the revised Transport Assessment (both dated 22 March 2022).

The residual vehicle trips associated with the full residential development are illustrated on the traffic flow diagrams provided at Figures 5 and 6.

3.2.4 Primary School Drop Off Trips

It has previously been set out by Fore that all vehicle trips associated with the school will be either pass-by, or, given the school is to be constructed to serve the proposed development, will originate from within the proposed development. BMBC has confirmed that that the approach taken in respect of the school-based trips is appropriate but



clarification on certain points is required. The comments¹² regarding the school trips are reproduced below.

“Comments made by HDC in respect of pass by and linked trips and were given including school related journeys. In response, information has been presented and included within the revised TA in this regard. Whilst the approach taken in respect of school based trips is considered appropriate, clarification is sought on what the assumption for a 1.5 primary school pupil occupancy rate is based. Is there empirical evidence to confirm this is an appropriate figure? Furthermore, clarification is sought on whether the 73 trips originating within the development (considered as pass by trips) are additional to the overall development vehicle trips or contained within the full residential generation. It is noted that the technical note states that Figure 61 of the revised TA shows the school drop off trips are now included for the AM peak hour, it appears that the 11 trips originating off site are not shown. Again clarification is sought on that point.”

Table 8 (Proposed Primary School Trip Generation) from the Transport Assessment dated 22 March 2022 is reproduced below.

Table 9: Proposed Primary School Trip Generation - Reproduced from TA dated 22 March 2022

	Active Travel (70%)	Vehicle Passengers	Total
MU1 Site	258	110	368
Located off site	36	16	52
Total	294	126	420

In order to provide a robust assessment, it is assumed that each vehicle will contain one primary school student. In practice, it is likely that on average, each vehicle will contain more than one primary school student e.g. car sharing with other students. As such, the proposed primary school will generate 126 pass-by vehicle trips, with 110 originating from within the MU1 development site (as per the Table above). These trips are treated as pass-by trips and have been distributed on a pro-rata basis across the site, based on the two-way weekday AM peak hour residential trips across the two internal roundabout junctions, as demonstrated in the Table below. The remaining 16 off-site trips are treated as pass-by trips and have been distributed equally along the link road (8 trips travelling southbound and 8 northbound).

¹² Comments received 30 November 2022 - see Appendix A.

Table 10: Proposed Primary School Drop-off Movements - Vehicle Trips

On/Off-Site Origin	Access	Two-Way Development Trips by Access (Residential)	Proportionate Split	Total Vehicle Trips
MU1 Site	Northwest	79	16%	15
	Northeast	197	40%	11
	Southwest	40	8%	8
	Southeast	181	36%	38
	Total	497	100%	73
Originating Off-Site	Link Road Northbound	N/A	50%	8
	Link Road Southbound	N/A	50%	8
	Total	N/A	100%	16
Total		N/A	NA	126

In response to the comments received from BMBC, it is confirmed that the drop-off trips originating within the development are contained within the full residential vehicle trip generation (i.e. they are not additional trips).

The trips originating both on and off-site are presented on Figures 7 and 8, respectively, with the total primary school drop-off trips on Figure 9. It should be noted that the trips originating from the eastern portion of the site (northeast and southeast access roundabout trips) are not explicitly shown on the traffic flow diagrams as they do not divert to/from the link road for pupil drop-off.

3.3 Employment Development (Planning Application 2021/1089)

3.3.1 Agreed Vehicle Trip Generation (Employment)

The agreed total vehicle trip rates, and the resulting total vehicle trip generations for the total employment development (112,181 sqm), are shown in the Table below.

Table 11: Agreed Employment Vehicle Trip Generation

Time	Vehicle Trip Rates (per 100 sqm)			Vehicle Trip Generation		
	Arr.	Dep.	Total	Arr.	Dep.	Total
Employment (B2 and E (excluding offices)) - 28,045 sqm						
Weekday AM Peak Hour (08:00-09:00)	0.309	0.114	0.423	87	32	119
Weekday PM Peak Hour (17:00-18:00)	0.084	0.287	0.371	24	80	104
Employment (B8) - 84,136 sqm						
Weekday AM Peak Hour (08:00-09:00)	0.155	0.061	0.216	130	51	182
Weekday PM Peak Hour (17:00-18:00)	0.054	0.120	0.174	45	101	146
Total - 112,181 sqm						
Weekday AM Peak Hour (08:00-09:00)	N/A			217	83	300
Weekday PM Peak Hour (17:00-18:00)				69	181	250

The agreed HGV trip rates, and the resulting HGV trip generations for the total employment development (112,181 sqm), are shown in the Table below.

Table 12: Agreed Employment HGV Trip Generation

Time	HGV Trip Rates (per 100 sqm)			HGV Trip Generation		
	Arr.	Dep.	Total	Arr.	Dep.	Total
Employment (B2 and E (excluding offices)) - 28,045 sqm						
Weekday AM Peak Hour (08:00-09:00)	0.016	0.018	0.034	4	5	10
Weekday PM Peak Hour (17:00-18:00)	0.007	0.009	0.016	2	3	4
Employment (B8) - 84,136 sqm						
Weekday AM Peak Hour (08:00-09:00)	0.029	0.031	0.06	24	26	50
Weekday PM Peak Hour (17:00-18:00)	0.026	0.022	0.048	22	19	40
Total - 112,181 sqm						
Weekday AM Peak Hour (08:00-09:00)	N/A			29	31	60
Weekday PM Peak Hour (17:00-18:00)				24	21	45

The resulting trip generation by vehicle type is shown in the Table below. For modelling purposes, as per the Transport Assessment and in line with TAG UNIT M3.1¹³, the vehicle trips associated with the employment development have been converted into equivalent passenger car unit (PCU) values. A PCU conversion factor of 2.0 has been applied to HGV

¹³ TAG UNIT M3.1 Highway Assignment Modelling, Department for Transport, May 2020.



trips associated with the proposed development on the local highway network. As agreed with NH, a PCU conversion factor of 2.5 has been applied to HGV trips associated with the proposed development on M1 Junction 37 and the adjacent B6449 / Whinby Road roundabout.

Table 13: Total Employment Trip Generation

Vehicle Type	Weekday AM Peak Hour (08:00-09:00)			Weekday PM Peak Hour (17:00-18:00)		
	Arr.	Dep.	Total	Arr.	Dep.	Total
All Vehicles	217	83	300	69	181	250
HGV	29	31	60	24	21	45
Light Vehicles	188	52	240	45	160	206
Total (PCU)	246	114	360	93	202	295

3.3.2 Baseline Person Trip Generation (Employment)

2011 Census data¹⁴ has been used to derive the baseline mode share for the employment element of the proposed development. The mode share for the Barnsley 012 Middle Layer Super Output Area (MSOA) has been used. As this is the MSOA within which the site is located, the mode share represents a reasonable proxy for the likely travel characteristics of the proposed development, with regard to the existing accessibility of the site by public transport and the configuration of the local highway network.

By applying the baseline mode share to the agreed vehicle trip generation for the proposed development, the predicted person trip generation by mode has been estimated. This is set out in the Table below. It should be noted that the HGV trips have been separated out.

¹⁴ Dataset reference ‘WP703EW - Method of travel to work (2001 specification) (Workplace population)’. The categories ‘Underground, metro, light rail, tram’, ‘train’, ‘Work mainly at or from home’ and ‘Other method of travel to work’ have been excluded for the purposes of this assessment.

Table 14: Employment Person Trip Generation by Mode (Baseline Mode Share)

Mode	Baseline Mode Share (%)	Weekday AM Peak Hour (08:00-09:00)			Weekday PM Peak Hour (17:00-18:00)		
		Arr.	Dep.	Total	Arr.	Dep.	Total
Bus, minibus or coach	6.3%	16	4	21	4	14	18
Taxi	0.5%	1	0	2	0	1	1
Motorcycle, scooter or moped	0.6%	1	0	2	0	1	2
Driving a car or van	73.8%	188	52	240	45	160	206
Passenger in a car or van	7.3%	19	5	24	4	16	20
Bicycle	0.8%	2	1	3	0	2	2
On Foot	10.8%	28	8	35	7	24	30
HGV	N/A	29	31	60	24	21	45
Total	100%	284	102	386	85	238	324

3.3.3 SMART Travel Plan Targets (Employment)

Section 2 of this report has set out the transport vision for the development along with the travel planning measures to be implemented at the site to achieve this vision.

As part of the Travel Plan process, targets will be set to reduce the proportion of employees travelling alone by car. The targets will be monitored through the use of annual travel surveys, the form of which will be agreed with BMBC.

The setting of targets is essential to understanding whether the Travel Plan has been effective in achieving its objectives. Targets should be SMART, that is:

Specific, Measurable, Achievable, Realistic and Time-bound.

Based on the locality of the site and measures set out in Section 2, it is considered that a 10% target reduction to the number of trips undertaken by car or van drivers will be SMART at the site.

The person trip generation by mode, taking account of a 10% reduction to the number of trips undertaken by car or van drivers is shown in the Table below. The number of trips undertaken by bus, bicycle, on foot and as a passenger in a car or van, have been increased accordingly.

Table 15: Employment Person Trip Generation by Mode (SMART Travel Plan Target Mode Share)

Mode	Baseline Mode Share (%)	Weekday AM Peak Hour (08:00-09:00)			Weekday PM Peak Hour (17:00-18:00)		
		Arr.	Dep.	Total	Arr.	Dep.	Total
Bus, minibus or coach	8.2%	21	6	27	5	18	23
Taxi	0.5%	1	0	2	0	1	1
Motorcycle, scooter or moped	0.6%	1	0	2	0	1	2
Driving a car or van	66.4%	169	47	216	41	144	185
Passenger in a car or van	9.1%	23	6	30	6	20	25
Bicycle	2.6%	7	2	9	2	6	7
On Foot	12.7%	32	9	41	8	28	35
HGV	N/A	29	31	60	24	21	45
Total	100%	284	102	386	85	238	324

The Table above shows that following the implementation of the SMART Travel Plan targets to assist in achieving the transport vision for the proposed development, the employment element of the proposed development is predicted to generate 276 and 230 two-way residual vehicle trips (driving a car or van + HGV trips) during the Weekday AM and PM peak hours, respectively.

This equates to 336 and 275 two-way residual PCU trips during the Weekday AM and PM peak hours, respectively.

The predicted vehicle trips associated with the residential element of the proposed development have been distributed onto the local highway network as per the agreed methodology set out in Section 6 of the Transport Assessment.

The trip distribution has been estimated using 2011 Census data, based on journeys originating from the Barnsley 012 and 019 MSOA. It should be noted that reference was erroneously made to Barnsley 018 MSOA in the Technical Note submitted with the revised Transport Assessment (both dated 22 March 2022).

The residual traffic flows associated with the employment development are illustrated on the traffic flow diagrams provided at Figures 10 to 13.

3.3.4 Convenience Store

It has previously been set out by Fore that all trips associated with the convenience store will be either pass-by (70%) or linked (30%).



The total agreed vehicle trip generation for the convenience store is shown in the Table below.

Table 16: Agreed Convenience Store Vehicle Trip Generation

Time	Weekday AM Peak Hour (08:00-09:00)			Weekday PM Peak Hour (17:00-18:00)		
	Dep.	Total	Arr.	Dep.	Total	Total
Vehicle Trip Rates (per 100 sqm)	9.987	9.584	19.571	11.495	11.595	23.09
Vehicle Trip Generation (418 sqm)	42	40	82	48	48	97
Vehicle Trip Generation (Pass-by)	29	28	57	34	34	68
Vehicle Trip Generation (Linked)	13	12	25	14	15	29

The pass-by trips associated with the convenience store have been calculated based on the two-way flows along Higham Common Road at the existing Higham Common Road/Hermit Lane three-arm priority junction.

The linked trips associated with the convenience store have been assumed to be linked to the employment element of the proposed development. These trips have been distributed based on the predicted turning movements associated with the proposed employment development at the proposed Higham Common Road site access roundabout. These trips are essentially treated as diverted trips (employees diverting from the site access roundabout to visit the convenience store on their journey to/from work).

The resulting vehicle trips (including the methodology to derive them) associated with the convenience store are illustrated on the traffic flow diagrams provided at Figures 14 to 19.

3.4 Wider Network Assessment Development Traffic Flows

Through subsequent correspondence with BMBC following submission of the TA dated March 2022, the study highway network has been extended to include junctions along Whinby Road, the A635 Cawthorne Road, the A637 Barnsley Road, the B6428 and towards Barnsley town centre. Further information on the junctions included is provided at Section 5.

Traffic flow diagrams for proposed development trips in these locations are provided at Figures 20 to 33.

4 Proposed Link Road Traffic Reassignment

4.1 Introduction

This Section details the diversionary impact of the construction of the proposed link road through the development, based on the Sheffield City Region Transport Model (SCRTM1) which was updated in 2022 with information to allow the assessment of various schemes across the Barnsley district.

4.2 Sheffield City Region Transport Model (SCRTM1)

Fore has obtained traffic data from AECOM from SCRTM1 to assess the diversionary impact of the construction of the proposed link road through the development. SCRTM1 was updated in 2022 with information to allow the assessment of various schemes across the Barnsley district.

The modelling presented in the previous Transport Assessment was based on a previous iteration of the model and it was determined by Fore that the methodology undertaken overestimated the diversionary impact of the link road and the subsequent impact on M1 Junction 37. As such, it was deemed appropriate to obtain model outputs from the updated model.

AECOM has provided Fore with turning count information from SCRTM1 for the following assessment scenarios:

- **Do Minimum:** This included neither the proposed link road nor the proposed development.
- **Do Something 1:** This included the proposed link road but not the proposed development.
- **Do Something 2:** This included the proposed link road and the proposed development.

Further details of the assessment scenarios and the methodology used by AECOM are provided in the modelling report¹⁵ provided at Appendix C.

The total entry flows (PCU) at M1 Junction 37 for each assessment scenario, as provided by AECOM, are summarised in the Table overleaf (Table references 1-3). Table references 4-6 show the difference in flow between the scenarios, as inferred by Fore.

¹⁵ *Barnsley West Modelling*, AECOM, 2 February 2023.



It should be stressed that the modelling undertaken by AECOM was undertaken purely to assess the diversionary effects of the link road, not to assess the impact of the operational trips associated with the proposed development.

Table 17: SCRTM1 Summary (M1 Junction 37)

Ref.	Assessment Scenario	Weekday AM Peak Hour	Weekday PM Peak Hour
1	Do Minimum (DM)	4,724	4,821
2	Do Something 1 (DS1)	4,738	4,802
3	Do Something 2 (DS2)	4,844	5,115
4	DS1 minus DM (<i>Isolated Link Road Impact</i>)	14	-19
5	DS2 minus DS1 (<i>Isolated Development Impact</i>)	106	313
6	DS2 minus DM (<i>Link Road and Development Impact</i>)	120	294
4+5	Isolated Link Road Impact + Isolated Development Impact	120	294

The reassignment of base traffic as a result of the construction of the proposed link road through the development has been inferred by subtracting the turning counts associated with the ‘Do Minimum’ assessment scenario from those associated with the ‘Do Something 1’ assessment scenario i.e. with and without the proposed link road.

The Table above demonstrates that traffic reassignment is predicted to occur as a result of the link road, but no additional reassignment is to occur as a result of the development itself coming forward i.e. the ‘Link Road and Development Impact’ (Table Ref. 6) is the same as the sum of the ‘Isolated Link Road Impact’ and the ‘Isolated Development Impact’ (Table Refs. 4 and 5).

The traffic flows demonstrating the reassignment of base traffic as a result of the link road construction are shown on Figures 34 to 39.

5 Existing and Future Traffic Flows

5.1 Introduction

This Section details the methodology for deriving existing and future traffic flows on the identified study highway network, as agreed with BMBC.

5.2 Study Highway Network

The following junctions were considered to form the study highway network in the Transport Assessment submitted with the planning applications:

- Higham Common Road / Hermit Lane Junction.
- A635 Cawthorne Road / A635 Barugh Green Road / Higham Common Road / B6428 Junction.
- A635 Barugh Green Road / Cannon Way Junction.
- A635 / A637 Claycliffe Road / Whaley Road Roundabout.
- Whinby Road / Higham Lane Roundabout.
- Whinby Road / Capitol Close Roundabout.
- Whinby Road / B6449 Roundabout.
- M1 Junction 37.

As agreed with BMBC, base traffic flows for the above junctions were derived from fully classified turning count surveys undertaken in 2019. Through correspondence with NH, updated surveys were undertaken at M1 Junction 37 and the adjacent Whinby Road / B6449 roundabout on Thursday 22 September 2022.

Through subsequent correspondence with BMBC, the study highway network has been extended to include the following junctions:

- A635/Redbrook Road Junction.
- Redbrook Road / Church Street Junction.
- Redbrook Road / Intake Lane Junction.
- Pogmoor Road / Intake Lane Junction.

- Pogmoor Road / Farmhouse Lane Junction.
- Farmhouse Lane / Wharfedale Road Junction.
- A635 / Church Street / Silkstone Lane Junction.
- A635 / Church Street Junction.
- B6131 / B6428 Staggered Junction.
- B6428 / A61 Staggered Junction.
- A628 Whinby Road / B6099 / Elmhirst Lane Roundabout.
- Townend Roundabout.
- Old Mill Lane / Victoria Road / A635 Signalised Junction.
- Gawber Road / Pogmoor Road Signalised Junction.
- Pogmoor Road / Summer Lane Signalised Junction.
- Summer Lane / Victoria Crescent West Junction.
- A637 / B6428 / Dearne Hall Lane Roundabout.
- A637 / Church Street / Churchfield Lane Staggered Junction.

Fully classified turning count surveys were undertaken at the above junctions on Tuesday 19 September 2023, except for the A637 / B6428 / Dearne Hall Lane roundabout and the A637 / Church Street / Churchfield Lane Staggered Junction, where the surveys were undertaken on Thursday 22 and Tuesday 13 September 2022, respectively.

The email correspondence between Fore and BMBC relating to the agreement of the study highway network is provided at Appendix D.

The peak hours (the hour with the maximum hourly flow observed) are summarised in the Table below. For robustness, peak hour flows at each junction have been utilised in the junction capacity assessments.

Table 18: Peak Hour Identification at Surveyed Junctions

Junction	AM Peak Hour	PM Peak Hour
Higham Common Road / Hermit Lane	08:00 - 09:00	16:30 - 17:30
A635 Cawthorne Road / A635 Barugh Green Road / Higham Common Road / B6428 Junction	08:00 - 09:00	16:30 - 17:30
A635 Barugh Green Road / Cannon Way Junction	07:30 - 08:30	15:30 - 16:30
A635 / A637 Claycliffe Road / Whaley Road Roundabout	07:45 - 08:45	16:30 - 17:30
Whinby Road / Higham Lane Roundabout	07:30 - 08:30	16:45 - 17:45
Whinby Road / Capitol Close Roundabout	07:30 - 08:30	16:45 - 17:45
Whinby Road / B6449 Roundabout	07:30 - 08:30	16:30 - 17:30
M1 Junction 37	07:15 - 08:15	16:45 - 17:45
A635/Redbrook Road Junction	07:45 - 08:45	16:30 - 17:30
Redbrook Road / Church Street Junction	08:00 - 09:00	16:30 - 17:30
Redbrook Road / Intake Lane Junction	07:30 - 08:30	16:30 - 17:30
Pogmoor Road / Intake Lane Junction	08:00 - 09:00	16:15 - 17:15
Pogmoor Road / Farmhouse Lane Junction	08:00 - 09:00	16:15 - 17:15
Farmhouse Lane / Wharfedale Road Junction	08:00 - 09:00	15:00 - 16:00
A635 / Church Street / Silkstone Lane Junction	07:30 - 08:30	16:30 - 17:30
A635 / Church Street Junction	07:30 - 08:30	16:45 - 17:45
B6131 / B6428 Staggered Junction	08:00 - 09:00	16:30 - 17:30
B6428 / A61 Staggered Junction	07:45 - 08:45	16:15 - 17:15
A628 Whinby Road / B6099 / Elmhirst Lane Roundabout	07:30 - 08:30	16:30 - 17:30
Townend Roundabout	08:00 - 09:00	16:15 - 17:15
Old Mill Lane / Victoria Road / A635 Signalised Junction	08:00 - 09:00	16:15 - 17:15
Gawber Road / Pogmoor Road Signalised Junction	08:00 - 09:00	16:30 - 17:30
Pogmoor Road / Summer Lane Signalised Junction	08:00 - 09:00	16:00 - 17:00
Summer Lane / Victoria Crescent West Junction	08:00 - 09:00	16:00 - 17:00
A637 / B6428 / Dearne Hall Lane Roundabout	07:45 - 08:45	16:45 - 17:45
A637 / Church Street / Churchfield Lane Staggered Junction	07:30 - 08:30	16:30 - 17:30

The traffic survey data is provided at Appendix E.

The majority of fully classified turning count surveys were undertaken in either 2022 or 2023. In cases where a junction surveyed in 2019 is located adjacent to a junction surveyed in 2022, 2019 flows have been manually uplifted, where appropriate.

This has been undertaken at the Whinby Road / Capitol Close and Whinby Road / Higham Lane roundabouts (located to the north and west of the Whinby Road / B6449 roundabout) and the A635 / A635 / A637 Claycliffe Road / Whaley Road roundabout (located to the north west of the A635 / Redbrook Road junction). The calculations undertaken are provided at Appendix F.

Given the above, it is considered that a base year of 2022 is appropriate for the purposes of undertaking the junction capacity assessments. As NTEM/TEMPro background growth factors have been obtained with 2022 as the base year (see Section 5.5) and applied to the surveyed flows, this adds an element of robustness (e.g. an additional year of traffic growth) when applying the identified growth factors to those surveys undertaken in 2023.

The resulting 2022 base year traffic flows are provided on Figures 40 to 48.

5.3 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 in the junction capacity assessments, as outlined in Table 18. Development traffic flows are considered on the basis of the development peak hours during the weekday 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 the predicted development traffic generation and base traffic flows at each junction do not match in all cases. The assessments undertaken therefore represent a robust, 'worst-case' scenario, since traffic flows in practice are therefore likely to be more dispersed than as forecast in this assessment.

In the Technical Note submitted with the revised Transport Assessment (both dated 22 March 2022), in response to a comment received from BMBC regarding the investigation of Saturday peak period traffic impacts, reference was made to an ATC carried out on the local highway network that demonstrated weekday peak hour traffic flows are 30% and 50% higher in the AM and PM peak periods, respectively, than the Saturday peak hour. As such, it was considered by Fore that there should be no requirement to assess the Saturday peak hour given the significant reduction in traffic flows compared to the weekday peak hours.

It was erroneously reported by Fore that the ATC was undertaken on Hermit Lane when it was in fact undertaken on Higham Common Road. This was queried by BMBC as follows:

“Clarification is sought on the location of the ATC - was this on Hermit Lane or Higham Lane? Hermit Lane would not necessarily be representative of the correlation between midweek and weekend peak period flows. In addition, it is considered prudent to undertake a sense check on development related trip generation in the Saturday peak period to ensure the AM and PM peaks do represent the ‘periods of greatest traffic impact’.”

As the ATC was undertaken on Higham Common Road and not Hermit Lane, it is considered by Fore that the analysis presented in the Technical Note remains valid and there should be no requirement to assess the Saturday peak hour.

Notwithstanding, an additional comparison between weekday peak hour and Saturday peak hour traffic flows has been undertaken using traffic data for the slip roads at M1 Junction 37. The data has been obtained from NH’s WebTRIS database for September 2022, this being the month within which the turning counts at M1 Junction 37 were undertaken.

The Table below shows the highest average peak flow on each slip road during the Weekday AM and PM peak periods (07:00-10:00 and 16:00-19:00) and that for a Saturday. The WebTRIS traffic data is provided at Appendix G.

Table 19: M1 Junction 37 Slip Road Traffic Flow Comparison (September 2022)

Time Period	Northbound On-Slip		Southbound Off-Slip		Southbound On-Slip		Northbound Off-Slip	
	Hour Start	Flow	Hour Start	Flow	Hour Start	Flow	Hour Start	Flow
Weekday AM Peak	07:00	854	08:00	582	07:00	1,066	08:00	904
Weekday PM Peak	16:00	494	17:00	778	16:00	891	17:00	1,055
Saturday Peak	12:00	436	12:00	628	12:00	768	12:00	605

It can be seen that:

- On the northbound on-slip, the traffic flow during the Saturday peak hour (436 vehicles) is 51% of the maximum peak hour flow (854 vehicles in the Weekday AM peak hour).
- On the southbound off-slip, the flow during the Saturday peak hour (628 vehicles) is 81% of the maximum peak hour flow (778 vehicles in the Weekday PM peak hour).
- On the southbound on-slip, the flow during the Saturday peak hour (768 vehicles) is 72% of the maximum peak hour flow (1,066 vehicles in the Weekday AM peak hour).

- On the northbound off-slip, the flow during the Saturday peak hour (605 vehicles) is 57% of the maximum peak hour flow (1,055 vehicles in the Weekday AM peak hour), respectively.

It can therefore be seen that the Saturday peak hour traffic flows are lower than the Weekday AM/PM peak hour flow on all slip roads.

Overall, it is considered that there should be no requirement to assess the Saturday peak hour given the reduction in traffic flows compared to the weekday peak hours on both the local and strategic highway networks.

5.4 Future Assessment Years

As per the Transport Assessment, future assessment years of 2026 and 2033 have been considered. A future year of 2033 reflects the estimated programme for construction and occupation of the full development. A future year of 2026 reflects a future year situation where some residential and employment development is built-out and occupied.

As agreed with NH, for the purpose of assessing the traffic impact of the proposed development on M1 Junction 37, an opening year assessment of 2026 has been identified, assuming full build out of the proposed development. This is a theoretical scenario, to meet the requirements of Circular 01/2022, given the full development will not be constructed and operational in 2026. This approach was confirmed to be appropriate by JSJV (on behalf of NH) in their Technical Memorandum dated 31 July 2023¹⁶.

5.5 Future Year Traffic Flows

5.5.1 Committed Development Traffic

Traffic associated with committed developments has been reviewed and incorporated where appropriate in the future traffic flows. The committed developments to be included were confirmed by BMBC on 18 September 2023 and are shown in the Table below. The correspondence between Fore and BMBC is provided at Appendix H.

¹⁶ AA.23.13.01 Land to the Southeast of Higham Common Road Barnsley, Jacobs Systra Joint Venture, 31 July 2023.

Table 10: Committed Developments

Planning Application Reference	Description
2013/0280	Residential development of 175 dwellings at land to the south east of Dearne Hall Road & 1 and 3 Claycliffe Road, Barnsley.
2017/0520	Residential development of 193 dwellings at land to the west of Wakefield Road, Mapplewell, Barnsley.
2017/0990	Residential development of 214 dwellings at land at Bloomhouse Lane/Station Road, Darton, Barnsley.
2017/1451	Residential development of 232 dwellings at land west of Wakefield Road, Barnsley.
2020/0977	Residential development of 140 dwellings at land off Barugh Green Road, Barugh Green, Barnsley.
2021/1405	Residential development of 97 dwellings at the former William Freeman Site, Wakefield Road, Mapplewell, Barnsley.
2021/1631	Erection of a new secondary school at land off Keresforth Close, Barnsley.
2021/1642	Residential development of 198 dwellings at land off Smithywood Lane and Calver Close, Gilroyd, Barnsley.
2022/0016	Residential development of 215 dwellings at land north of Keresforth Road, Dodworth, Barnsley.
2022/0471	Residential development of 249 dwellings at land to the south of Lee Lane, Royston, Barnsley.
2022/0591	Residential development of 51 dwellings at land off Dodworth Green Road, Dodworth, Barnsley.
2022/0619	Residential development of 115 dwellings at Woolley Colliery Road, Darton, Barnsley.
2022/0916	Development of 2 warehouses (9,755 sqm B2 and 7,804 sqm B8 with ancillary office) at Higham Lane, Dodworth, Barnsley.
N/A	Local Plan Allocated Site HS25 (No planning application submitted): Land to the east of Woolley Colliery Road - Indicative number of dwellings 118.

The committed development traffic flows are shown on Figures 49 to 57.

5.5.2 Background Traffic Growth

NTEM/TEMPro background growth factors (2022 to 2026 and 2033) have been obtained from TEMPro version 8.1. The 'Alternative Planning Assumptions' facility within TEMPro has been utilised to take account of the proposed development and the committed



developments that are likely to already be reflected in the TEMPro household and employment projections. This ensures that double counting of proposed and committed development traffic does not occur network wide and avoids the “*default factoring up of baseline traffic*”, as per Paragraph 49 of DfT Circular 01/2022.

The methodology undertaken is shown at Appendix I and the resulting growth factors are shown in the Table below.

Table 21: Traffic Growth Factors - Barnsley (Authority)

Peak Period	Local Traffic Growth (A Road)		Local Traffic Growth (Motorway)	
	2022-2026	2022-2033	2022-2026	2022-2033
Weekday AM peak period	1.0069	1.0679	1.0225	1.1216
Weekday PM peak period	1.0071	1.0683	1.0228	1.1220

As set out previously, for the purpose of assessing the traffic impact of the proposed development on M1 Junction 37, an opening year assessment of 2026 has been identified, assuming full build out of the proposed development.

As such, growth factors to reflect this scenario (2026 opening year with full build out) have been identified, using the methodology as shown in Appendix I. The resulting growth factors are shown in the Table below.

Table 22: Traffic Growth Factors - Barnsley (Authority) - National Highways Assessment

Peak Period	Local Traffic Growth (A Road)	Local Traffic Growth (Motorway)
	2022-2026	
Weekday AM peak period	1.0022	1.0177
Weekday PM peak period	1.0019	1.0174

As agreed with NH, although not all trips on M1 Junction 37 and the adjacent Whinby Road / B6449 roundabout will travel on the motorway, in order to provide a robust assessment, the growth factors for the motorway road type have been applied to all trips across both junctions.

6 Assessment Scenarios

6.1 Introduction

This Section sets out the assessment scenarios for which junction capacity assessments are undertaken. As per the Transport Assessment, the proposed assessment scenarios have been broken down to reflect the two separate planning applications as well as a cumulative assessment.

For the purpose of assessing the traffic impact of the proposed development on M1 Junction 37, an opening year assessment of 2026 has been identified, assuming full build out of the proposed development.

6.2 Without Proposed Development Assessment Scenarios

6.2.1 2022 Base Year

The 2022 Base scenario is derived from the surveyed traffic flow data, as described in the previous section. All classified traffic data has been converted into equivalent PCU values.

6.2.2 2026 Do Minimum

The Future Year 2026 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 2022 Base scenario, background traffic growth and traffic associated with committed developments, as described in the previous section, is included.

6.2.3 2033 Do Minimum

The Future Year 2033 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 2022 Base scenario, background traffic growth and traffic associated with committed developments, as described in the previous section, is included.

6.3 With Proposed Development Assessment Scenarios - Residential (Planning Application 2021/1090)

6.3.1 2026 Residential Phase 1a Development

The Future Year 2026 Phase 1a Development scenario represents a future year situation on the local highway network with the proposed residential Phase 1a development (216 dwellings) taking place. The traffic flows are derived by adding the residential Phase 1a development traffic flows to the 2026 Do Minimum traffic flows. This scenario includes

build out of the first part of the proposed link road, between Barugh Green Road and the northernmost internal roundabout.

6.3.2 2033 Full Residential Development

The Future Year 2033 With Full Residential Development scenario represents a future year situation on the local highway network with the full proposed residential development (1,560 dwellings) taking place. The traffic flows are derived by adding the full residential development traffic flows (including the primary school drop-off trips) and the link road re-assignment flows to the 2033 Do Minimum traffic flows. This scenario includes the full build out of the proposed link road, between Barugh Green Road and Higham Common Road.

6.4 With Proposed Development Assessment Scenarios - Employment (Planning Application 2021/1089)

6.4.1 2026 Employment Development

The Future Year 2026 Employment Development scenario represents a future year situation on the local highway network with the proposed employment development taking place. The traffic flows are derived by adding the employment development traffic flows (including the convenience store linked/pass-by trips) to the 2026 Do Minimum traffic flows. This scenario includes build out of the Higham Common Road proposed site access roundabout.

6.5 With Proposed Development Assessment Scenarios - Cumulative (Planning Applications 2021/1089 and 2021/1090)

6.5.1 2026 Phase 1 Development (Without Full Link Road)

The Future Year 2026 Phase 1 Development (Without Full Link Road) scenario represents a future year situation on the local highway network with the proposed Phase 1a residential development (216 dwellings) and the full employment development taking place, without the full link road provided. The traffic flows are derived by adding the Phase 1a residential development traffic flows and the employment development traffic flows (including the convenience store linked/pass-by trips) to the 2026 Do Minimum traffic flows.

6.5.2 2026 Phase 1 Development (With Full Link Road)

The Future Year 2026 Phase 1 Development (With Full Link Road) scenario is as above but with the full link road between Barugh Green Road and Higham Common Road constructed and operational. The traffic flows are derived by adding the Phase 1a residential development traffic flows, the employment development traffic flows (including the

convenience store linked/pass-by trips) and the link road re-assignment flows to the 2026 Do Minimum traffic flows.

It should be noted that this assessment scenario has been requested for inclusion by BMBC. The link road is not proposed to be delivered in full until after 2026. As such, this is a theoretical scenario only.

6.5.3 2033 With Full Development

The Future Year 2033 With Full Development scenario represents a future year situation on the local highway network with the full proposed development taking place. The traffic flows are derived by adding the full residential development traffic flows (including the primary school drop-off trips), the employment development traffic flows (including the convenience store linked/pass-by trips) and the link road re-assignment flows to the 2033 Do Minimum traffic flows. This scenario includes the full build out of the proposed link road, between Barugh Green Road and Higham Common Road.

6.6 M1 Junction 37

As set out previously, and as agreed with NH, for the purpose of assessing the traffic impact of the proposed development on M1 Junction 37, an opening year assessment of 2026 has been identified, assuming full build out of the proposed development. This is a theoretical scenario, to meet the requirements of Circular 01/2022, given the full development will not be constructed and operational in 2026.

As such, M1 Junction 37 (and the adjacent Whinby Road / B6449 roundabout) has been assessed for the following assessment scenarios:

- 2022 Base Year.
- 2026 Do Minimum.
- 2026 With Full Development.

6.7 Summary

This Section has set out the assessment scenarios for which junction capacity assessments are undertaken. The junction capacity assessments are set out in the following sections.

The traffic flow diagrams for the future year assessment scenarios as described in this Section are presented on Figures 58 to 124.

7 Junction Capacity Assessments

7.1 Introduction

This Section provides an assessment of the capacity of the junctions comprising the agreed study area. The assessments are undertaken for the scenarios outlined in Section 6 and summarised as follows:

Without Proposed Development Scenarios

- 2022 Base Year.
- 2026 Do Minimum.
- 2033 Do Minimum.

With Proposed Development Scenarios - Residential (Planning Application 2021/1090)

- 2026 Residential Phase 1a Development.
- 2033 Full Residential Development.

With Proposed Development Scenarios - Employment (Planning Application 2021/1089)

- 2026 Employment Development.

With Proposed Development Scenarios - Cumulative (Planning Applications 2021/1089 and 2021/1090)

- 2026 Phase 1 Development (Without Full Link Road).
- 2026 Phase 1 Development (With Full Link Road).
- 2033 With Full Development.

As set out previously, and as agreed with NH, for the purpose of assessing the traffic impact of the proposed development on M1 Junction 37, an opening year assessment of 2026 has been identified, assuming full build out of the proposed development. This is a theoretical scenario, to meet the requirements of Circular 01/2022, given the full development will not be constructed and operational in 2026.

As such, M1 Junction 37 has been assessed for the following assessment scenarios:

- 2022 Base Year.

- 2026 Do Minimum.
- 2026 With Full Development.

7.2 Modelling Approach

The priority-controlled junctions have been assessed using the Junctions 10 programme. Amongst other performance indicators and statistics, the programme calculates the maximum Ratio of Flow to Capacity (RFC) and the maximum average queue length (Q) on each approach (measured in PCU).

The RFC is a key indicator of the likely performance of a turning movement at a junction under a given set of traffic flows. An RFC of 0.85 is widely accepted as being at the level at which a junction's 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 signal-controlled junctions have been assessed using LinSig software. LinSig calculates the Degree of Saturation (DoS) and Practical Reserve Capacity (PRC) to indicate the likely performance of links and the overall junction under a given set of traffic flows. The software also calculates the mean maximum queue (MMQ), representing the average position of the furthest vehicle from the stop line in each cycle. A DoS value of 90% represents the normal practical capacity threshold.

7.3 Site Access Junctions

Junctions 10 models have been developed to reflect the approved layout of the access junctions associated with the proposed link road.

7.3.1 Barugh Green Site Access Roundabout

The model results for the Barugh Green site access roundabout are summarised in the Tables below with the model outputs provided in full at Appendix J-1. As the junction will only be built-out should the proposed development go ahead, the assessments have been undertaken for the with development assessment scenarios only.

Residential Development (Planning Application 2021/1090) Assessment

Table 23: Barugh Green Site Access Roundabout - Modelling Summary (Planning Application 2021/1090)

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
2026 Residential Phase 1a Development				
Cannon Way	0.08	0.1	0.13	0.2
Barugh Green Road east	0.23	0.3	0.39	0.7
Site Access	0.05	0.0	0.03	0.0
Barugh Green Road west	0.37	0.6	0.28	0.4
2033 Full Residential Development				
Cannon Way	0.14	0.2	0.19	0.2
Barugh Green Road east	0.42	0.8	0.83	4.6
Site Access	0.45	0.8	0.31	0.5
Barugh Green Road west	0.58	1.4	0.43	0.8

Employment Development (Planning Application 2021/1089) Assessment

Table 24: Barugh Green Site Access Roundabout - Modelling Summary (Planning Application 2021/1089)

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
2026 Employment Development				
Cannon Way	0.08	0.1	0.13	0.2
Barugh Green Road east	0.27	0.4	0.38	0.6
Site Access	0.00	0.0	0.00	0.0
Barugh Green Road west	0.38	0.6	0.29	0.4

Cumulative Development (Planning Applications 2021/1089 and 2021/1090) Assessment

Table 25: Barugh Green Site Access Roundabout - Modelling Summary (Planning Applications 2021/1089 and 2021/1090)

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
2026 Phase 1 Development (Without Full Link Road)				
Cannon Way	0.08	0.1	0.14	0.2
Barugh Green Road east	0.27	0.4	0.40	0.7
Site Access	0.05	0.0	0.03	0.0
Barugh Green Road west	0.39	0.7	0.31	0.5
2026 Phase 1 Development (With Full Link Road)				
Cannon Way	0.12	0.1	0.17	0.2
Barugh Green Road east	0.43	0.8	0.71	2.5
Site Access	0.37	0.6	0.30	0.4
Barugh Green Road west	0.55	1.3	0.40	0.7
2033 With Full Development				
Cannon Way	0.15	0.2	0.20	0.3
Barugh Green Road east	0.47	0.9	0.85	5.4
Site Access	0.49	1.0	0.38	0.6
Barugh Green Road west	0.62	1.7	0.45	0.9

The assessment indicates that the majority of approaches are predicted to operate with RFC values of less than 0.85 during both peak hours. The Barugh Green Road east approach is predicted to operate with an RFC of 0.85 PCUs during the Weekday PM peak hour. The corresponding maximum average queue is 5.4 PCUs which is not considered to be significant.

On this basis, the likely traffic associated with the proposed developments can be satisfactorily accommodated by the approved junction layout.

7.3.2 Higham Common Road Site Access Roundabout

The model results for the Higham Common Road site access roundabout are summarised in the Tables below with the model outputs provided in full at Appendix J-2. As the junction will only be built-out should the proposed development go ahead, the assessments have been undertaken for the with development assessment scenarios only.

Residential Development (Planning Application 2021/1090) Assessment

Table 26: Barugh Green Site Access Roundabout - Modelling Summary (Planning Application 2021/1090)

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
2026 Residential Phase 1a Development				
Higham Common Road north	0.15	0.2	0.27	0.4
Site Access north	0.00	0.0	0.00	0.0
Site Access south	0.00	0.0	0.00	0.0
Higham Common Road south	0.24	0.3	0.21	0.3
Residential Access	0.00	0.0	0.00	0.0
2033 Full Residential Development				
Higham Common Road north	0.06	0.1	0.07	0.1
Site Access north	0.31	0.5	0.45	0.8
Site Access south	0.00	0.0	0.00	0.0
Higham Common Road south	0.27	0.4	0.36	0.6
Residential Access	0.00	0.0	0.00	0.0

Employment Development (Planning Application 2021/1089) Assessment

Table 27: Barugh Green Site Access Roundabout - Modelling Summary (Planning Application 2021/1089)

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
2026 Employment Development				
Higham Common Road north	0.20	0.3	0.29	0.4
Site Access north	0.00	0.0	0.00	0.0
Site Access south	0.05	0.1	0.09	0.1
Higham Common Road south	0.31	0.5	0.23	0.3
Residential Access	0.00	0.0	0.00	0.0

Cumulative Development (Planning Applications 2021/1089 and 2021/1090) Assessment

Table 28: Barugh Green Site Access Roundabout - Modelling Summary (Planning Applications 2021/1089 and 2021/1090)

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
2026 Phase 1 Development (Without Full Link Road)				
Higham Common Road north	0.21	0.3	0.30	0.4
Site Access north	0.00	0.0	0.00	0.0
Site Access south	0.05	0.1	0.09	0.1
Higham Common Road south	0.31	0.5	0.25	0.3
Residential Access	0.00	0.0	0.00	0.0
2026 Phase 1 Development (With Full Link Road)				
Higham Common Road north	0.05	0.1	0.04	0.0
Site Access north	0.27	0.4	0.41	0.7
Site Access south	0.05	0.1	0.09	0.1
Higham Common Road south	0.31	0.5	0.29	0.4
Residential Access	0.00	0.0	0.00	0.0
2033 With Full Development				
Higham Common Road north	0.07	0.1	0.08	0.1
Site Access north	0.39	0.7	0.49	1.0
Site Access south	0.05	0.1	0.10	0.1
Higham Common Road south	0.35	0.6	0.39	0.7
Residential Access	0.00	0.0	0.00	0.0

The assessment indicates that all approaches are predicted to operate with RFC values of less than 0.85 during both peak hours.

On this basis, the likely traffic associated with the proposed developments can be satisfactorily accommodated by the approved junction layout.

7.4 Link Road Roundabout Access Roundabouts

Junctions 10 models have been developed of the two proposed internal roundabouts located on the proposed link road.

7.4.1 Internal Roundabout North

The model results for the northernmost internal link road roundabout are summarised in the Tables below with the model outputs provided in full at Appendix J-3. As the junction will only be built-out should the proposed development go ahead, the assessments have been undertaken for the with development assessment scenarios only.

Residential Development (Planning Application 2021/1090) Assessment

Table 29: Internal Roundabout North - Modelling Summary (Planning Application 2021/1090)

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
2026 Residential Phase 1a Development				
Site Access east	0.00	0.0	0.00	0.0
MU1 Link Road south	0.00	0.0	0.00	0.0
Site Access west	0.05	0.0	0.03	0.0
MU1 Link Road north	0.01	0.0	0.05	0.0
2033 Full Residential Development				
Site Access east	0.16	0.2	0.11	0.1
MU1 Link Road south	0.35	0.5	0.28	0.4
Site Access west	0.07	0.1	0.04	0.0
MU1 Link Road north	0.28	0.4	0.64	1.7

Cumulative Development (Planning Applications 2021/1089 and 2021/1090) Assessment

Table 30: Internal Roundabout North - Modelling Summary (Planning Applications 2021/1089 and 2021/1090)

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
2026 Phase 1 Development (Without Full Link Road)				
Site Access east	0.00	0.0	0.00	0.0
MU1 Link Road south	0.00	0.0	0.00	0.0
Site Access west	0.05	0.0	0.03	0.0
MU1 Link Road north	0.01	0.0	0.05	0.0
2026 Phase 1 Development (With Full Link Road)				
Site Access east	0.00	0.0	0.00	0.0
MU1 Link Road south	0.32	0.5	0.27	0.4
Site Access west	0.06	0.1	0.03	0.0
MU1 Link Road north	0.32	0.5	0.53	1.1
2033 With Full Development				
Site Access east	0.17	0.2	0.11	0.1
MU1 Link Road south	0.39	0.7	0.35	0.6
Site Access west	0.07	0.1	0.04	0.0
MU1 Link Road north	0.36	0.6	0.67	2.0

The assessment indicates that all approaches are predicted to operate with RFC values of less than 0.85 during both peak hours.

On this basis, the likely traffic associated with the proposed developments can be satisfactorily accommodated by the proposed junction layout.

7.4.2 Internal Roundabout South

The model results for the southernmost internal link road roundabout are summarised in the Tables below with the model outputs provided in full at Appendix J-4. As the junction will only be built-out should the proposed development go ahead, the assessments have been undertaken for the with development assessment scenarios only.

Residential Development (Planning Application 2021/1090) Assessment

Table 31: Internal Roundabout South - Modelling Summary (Planning Application 2021/1090)

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
2033 Full Residential Development				
Site Access east	0.16	0.2	0.10	0.1
MU1 Link Road south	0.31	0.4	0.32	0.5
Site Access west	0.03	0.0	0.02	0.0
MU1 Link Road north	0.27	0.4	0.51	1.1

Cumulative Development (Planning Applications 2021/1089 and 2021/1090) Assessment

Table 32: Internal Roundabout South - Modelling Summary (Planning Applications 2021/1089 and 2021/1090)

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
2026 Phase 1 Development (With Full Link Road)				
Site Access east	0.00	0.0	0.00	0.0
MU1 Link Road south	0.30	0.4	0.25	0.3
Site Access west	0.00	0.0	0.00	0.0
MU1 Link Road north	0.29	0.4	0.45	0.8
2033 With Full Development				
Site Access east	0.17	0.2	0.10	0.1
MU1 Link Road south	0.34	0.5	0.38	0.6
Site Access west	0.03	0.0	0.02	0.0
MU1 Link Road north	0.34	0.5	0.54	1.2

The assessment indicates that all approaches are predicted to operate with RFC values of less than 0.85 during both peak hours.

On this basis, the likely traffic associated with the proposed developments can be satisfactorily accommodated by the proposed junction layout.

7.5 Strategic Road Network

As agreed with NH, for the purpose of assessing the traffic impact of the proposed development on M1 Junction 37, an opening year assessment of 2026 has been identified,



assuming full build out of the proposed development. This is a theoretical scenario, to meet the requirements of Circular 01/2022, given the full development will not be constructed and operational in 2026. This approach was confirmed to be appropriate by JSJV (on behalf of NH) in their Technical Memorandum dated 31 July 2023.

7.5.1 M1 Junction 37 - LinSig Assessment

A LinSig model of M1 Junction 37 has been accepted by JSJV (on behalf of NH) for the purposes of determining the operational impact of the proposed development. All technical queries provided by JSJV have now been addressed. The model outputs are summarised in the Tables below and provided in full at Appendix J-5.

2022 Base Year Assessment

The model outputs for the 2022 base year assessments are summarised in the Table below.

Table 33: M1 Junction 37 - LinSig (2022 Base Year Assessment)

Link	AM Peak Hour		PM Peak Hour	
	DoS %	MMQ pcu	DoS %	MMQ pcu
A628	82.1	9.2	81.1	13.9
M1 South	59.5	5.2	68.4	9.0
Whinby Road	76.2	7.8	54.7	5.8
M1 North	56.3	4.1	68.7	7.9
Circulatory North	81.0	8.1	69.3	6.0
Circulatory South	56.4	3.2	69.1	5.3
Circulatory East	52.9	2.9	55.0	5.4
Circulatory West	49.9	3.5	56.1	5.4
Overall PRC (%)	9.6		11.0	
Cycle Time (seconds)	45		60	

The base year capacity assessments indicate that M1 Junction 37 currently operates with a degree of spare capacity in both modelled peak hour scenarios. The DoS on each approach is below the normal practical capacity threshold of 90%.

2026 Future Year Assessments

The model outputs for the 2026 future year assessments are summarised in the Table below.



Table 34: M1 Junction 37 - LinSig (2026 Future Year Assessment)

Link	AM Peak Hour				PM Peak Hour			
	2026 Do Minimum		2026 With Full Development		2026 Do Minimum		2026 With Full Development	
	DoS %	MMQ pcu	DoS %	MMQ pcu	DoS %	MMQ pcu	DoS %	MMQ pcu
A628	84.7	10.1	83.5	9.6	80.1	14.4	96.9	28.9
M1 South	61.7	5.6	77.9	7.5	76.3	10.7	97.1	23.3
Whinby Road	82.5	9.4	79.9	9.5	54.8	6.1	76.2	9.7
M1 North	58.4	4.4	58.9	4.5	74.2	8.9	93.0	14.5
Circulatory North	71.6	6.2	76.4	7.8	74.3	8.8	65.5	10.3
Circulatory South	62.6	4.1	61.5	3.5	74.6	9.2	80.7	10.5
Circulatory East	64.5	4.6	69.3	5.4	63.1	6.1	70.7	8.0
Circulatory West	58.4	3.8	67.5	4.5	58.4	5.2	55.8	6.1
Overall PRC (%)	6.3		7.8		12.3		-7.9	
Cycle Time (seconds)	45		45		60		60	

The model outputs show that the majority of approaches are predicted to operate with modelled degree of saturation (DoS) values within 90% during all future year assessment scenarios.

During the Weekday PM peak hour, in the 2026 With Development assessment scenario, the A628, M1 South and M1 North approaches are predicted to operate with DoS values in excess of 90%.

In relation to the two off-slips from the M1, whilst there are increases in queuing, the queues can be satisfactorily accommodated within the existing geometry, as per the Table below.

Table 35: M1 Off-Slip MMQ Summary

Approach	Lane	Approx. Stacking Space (metres)	Mean Max Queue
M1 South (northbound off-slip)	1	546m	23.3 PCU (134m)
	2	546m	7.7 PCU (44m)
M1 North (southbound off-slip)	1	755m	9.4 PCU (54m)
	2	755m	14.5 PCU (83m)

The A628 approach is predicted to operate with a DoS value in excess of 90% in the 2026 With Development assessment scenario. The approach is predicted to operate with a MMQ



of 28.9 PCUs, representing an increase of 14.5 PCUs when compared to the 2026 Do Minimum assessment scenario. This increase in queueing is not considered to be significant and there is sufficient stacking space to accommodate the modelled queue without impacting on upstream junctions.

In addition, the above assessment of M1 Junction 37 demonstrates that in the 2026 With Development assessment scenarios, there is sufficient stacking space along Whinby Road to accommodate the modelled queues without impacting on the Whinby Road/B6449 Roundabout, as set out in the Table below.

Table 36: Whinby Road MMQ Summary

Approach	Lane	Approx. Stacking Space (metres)	Mean Max Queue	
			AM Peak Hour	PM Peak Hour
Whinby Road	1	52m	4.9 PCU (28m)	6.1 PCU (35m)
	2	150m		
	3	150m	9.5 PCU (55m)	9.7 PCU (56m)

Given the above, it is concluded that the predicted changes in traffic flows associated with the proposed development can be satisfactorily accommodated by the existing layout of M1 Junction 37 and no mitigation measures are required.

This is accepted by NH who have stated:

“And, whilst our review has concluded that there is an impact on our junction the residual impact is not sufficient to require your client to mitigate this. This position remains subject to our being sighted on the final TA to satisfy ourselves that the data previously reviewed aligns with that presented within the TA and that the traffic impact element of this application can be considered closed out.”

7.5.2 M1 Junction 37 - Merge and Diverge Assessments

In addition to the LinSig assessment set out above, assessments of the merge and diverge facilities at the junction have been undertaken.

Mainline traffic flows for use in the assessments have been obtained from WebTRIS sites M1/4777A (Northbound) and M1/4767B (Southbound) for the date on which the surveys at the junction were undertaken (Thursday 22 September 2022). The use of this data has been accepted by JSJV.

Merge Assessments

The existing northbound and southbound merges are Type A taper merges with 2 lanes on the merge and 3 lanes on both the upstream and downstream mainlines.



The merge assessments are set out in the Table overleaf and the motorway merging diagrams are provided at Appendix J-6.

Table 37: M1 Junction 37 - Merge Assessments

Merge	Assessment Scenario	AM Peak Hour				PM Peak Hour			
		M	CL	UM	DM	M	CL	UM	DM
Northbound Merge	<i>Existing Configuration</i>	A	2	3	3	A	2	3	3
	2022 Base	A	1	3	3	D	1	2	3
	2026 Do Minimum	B	1	3	3	D	1	2	3
	2026 With Development	B	1	3	3	D	1	2	3
Southbound Merge	<i>Existing Configuration</i>	A	2	3	3	A	2	3	3
	2022 Base	D	1	2	3	B	1	3	3
	2026 Do Minimum	D	1	2	3	B	1	3	3
	2026 With Development	D	1	2	3	B	1	3	3

Note: M = Merge Type, CL = Number of connector lanes, UM = Number of lanes on the upstream mainline, DM = Number of lanes on the downstream mainline.

The assessment demonstrates that Type B layouts (parallel merge) are recommended in the 2026 Do Minimum assessment scenario. The changes in traffic flows associated with the development do not change the recommended configuration of the merging facility or number of lanes that are recommended around the merge.

On this basis, it is concluded that no changes to the existing merge facilities are required to accommodate the changes in traffic flows associated with the proposed development.

Diverge Assessments

The existing northbound and southbound diverges are Type A taper diverges with 2 lanes on the diverge and 3 lanes on both the upstream and downstream mainlines.

The diverge assessments are set out in the Table overleaf, and the motorway diverging diagrams are provided at Appendix J-6.

Table 38: M1 Junction 37 - Diverge Assessments

Diverge	Assessment Scenario	AM Peak Hour				PM Peak Hour			
		D	CL	UM	DM	D	CL	UM	DM
Northbound Diverge	<i>Existing Configuration</i>	A	2	3	3	A	2	3	3
	2022 Base	A	1	3	3	C	1	3	2
	2026 Do Minimum	A	1	3	3	C	1	3	2
	2026 With Development	A	1	3	3	C	1	3	2
Southbound Diverge	<i>Existing Configuration</i>	A	2	3	3	A	2	3	3
	2022 Base	C	1	3	2	A	1	3	3
	2026 Do Minimum	C	1	3	2	A	1	3	3
	2026 With Development	C	1	3	2	A	1	3	3

Note: D = Diverge Type, CL = Number of connector lanes, UM = Number of lanes on the upstream mainline, DM = Number of lanes on the downstream mainline.

The assessment demonstrates that the existing number of lanes on the mainline around the diverges is in line with that recommended. The number of lanes on the connecting road exceed that recommended.

On this basis, it is concluded that no changes are required to the existing diverge facilities to accommodate the changes in traffic flows associated with the proposed development.

7.5.3 Whinby Road / B6449 Roundabout

As agreed with NH, given the proximity of the junction to M1 Junction 37, an assessment of the Whinby Road / B6449 roundabout has also been undertaken for the 2026 opening year (assuming full build out of the proposed development).

The Junctions 10 model of the Whinby Road / B6449 roundabout has been accepted by NH.

2022 Base Year Assessment

The model outputs for the 2022 base year assessments are summarised in the Table below and provided in full at Appendix J-7.

Table 39: Whinby Road / B6449 Roundabout - Junctions 10 (2022 Base Year Assessment)

Approach	AM Peak Hour		PM Peak Hour	
	RFC	Q	RFC	Q
Whinby Road (North)	0.51	1.1	0.52	1.1
Whinby Road (East)	0.49	1.1	0.77	3.4
B6449	0.70	2.3	0.49	1.0

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

2026 Future Year Assessments

The model outputs for the 2026 opening year assessments are summarised in the Table below.

Table 40: Whinby Road/B6449 Roundabout - Junctions 10 (2026 Opening Year Assessments)

Approach	AM Peak Hour		PM Peak Hour	
	RFC	Q	RFC	Q
2026 Do Minimum				
Whinby Road (North)	0.56	1.4	0.56	1.3
Whinby Road (East)	0.54	1.3	0.84	5.4
B6449	0.89	6.9	0.59	1.4
2026 With Development				
Whinby Road (North)	0.69	2.3	0.63	1.8
Whinby Road (East)	0.65	2.0	0.99	26.4
B6449	1.03	22.7	0.76	3.0

The Table above shows that in the 2026 Do Minimum assessment scenario, all approaches, except for the B6449 approach, are predicted to operate with RFC values of less than 0.85 during both the Weekday AM and PM peak hours. During the Weekday AM peak hour, the B6449 approach is predicted to operate with a modelled RFC value of 0.89 with a corresponding maximum average queue of 6.9 PCUs.

The model outputs show that the B6449 and Whinby Road (East) approaches are predicted to operate with modelled RFCs in excess of 0.85 in the 2026 With Development assessment scenarios during the Weekday AM and Weekday PM peak hours, respectively, as described below.

- The B6449 approach is predicted to operate with an RFC of 1.03. The corresponding maximum average queue is 22.7 PCUs, representing an increase of 15.8 PCUs when compared to the 2026 Do Minimum assessment scenario. It is noted that the B6449 approach is predicted to operate with an RFC in excess of 0.85 irrespective of the proposed development coming forward. Further, it is noted that the B6449 approach is predicted to operate with an RFC in excess of 0.85 for just two 15-minute periods (07:45-08:00 and 08:00-08:15) across both the Weekday AM and PM modelled periods (a total of three hours).
- The Whinby Road (East) approach is predicted to operate with an RFC of 0.99. The corresponding maximum average queue is 26.4 PCUs, representing an increase of 21.0 PCUs when compared to the 2026 Do Minimum assessment scenario. There is sufficient stacking space across both lanes on the approach (at a length of approximately 170 metres for each lane) to accommodate the level of predicted queueing without impacting on the operation of the M1 Junction 37 roundabout. Further, it is noted that the Whinby Road (East) approach is predicted to operate with an RFC in excess of 0.85 for just two 15-minute periods (16:45-17:00 and 17:00-17:15) across both the Weekday AM and PM modelled periods (a total of three hours).

Given the above, it is considered that the predicted traffic associated with the proposed development can be satisfactorily accommodated by the Whinby Road/B6449 roundabout and there is sufficient stacking space across both lanes on the Whinby Road (East) approach to accommodate the level of predicted queueing without impacting on the operation of the M1 Junction 37 roundabout.

In relation to the assessment, JSJV (on behalf of NH) has confirmed¹⁷:

“From review of the assessment we concluded that the queueing on Whinby Road (east) is not forecast to impact on the operation of M1 J37.”

7.6 Local Highway Network

7.6.1 Capitol Close / Whinby Road Roundabout

A Junctions 10 model for the Capitol Close / Whinby Road roundabout has been developed. The model results are summarised in the Tables below with the model outputs provided in full at Appendix J-8. The SCRIF roundabout improvements have been included in the future year modelling scenarios.

¹⁷ Technical Memorandum: AA.23.20.03 Land to the Southeast of Higham Common Road Barnsley, Jacobs Systra Joint Venture, 3 November 2023.

2022 Base Year Assessment

The 2022 Base Year model results are summarised in the Table below.

Table 41: Capitol Close / Whinby Road Roundabout - Modelling Summary (2022 Base Year)

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
2022 Base Year				
Capitol Close	0.05	0.1	0.18	0.2
Whinby Road south	0.42	0.8	0.47	0.9
Whinby Road west	0.79	3.8	0.79	3.9

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

Residential Development (Planning Application 2021/1090) Assessment

An assessment of the impact of the proposed residential development on the future year operation of the junction has been undertaken. The results are summarised in the Table below.

Table 42: Capitol Close / Whinby Road Roundabout - Modelling Summary (Planning Application 2021/1090)

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
2026 Do Minimum				
Capitol Close	0.24	0.3	0.50	1.0
Whinby Road south	0.40	0.7	0.43	0.8
Whinby Road west	0.33	0.5	0.22	0.3
2026 Residential Phase 1a Development				
Capitol Close	0.25	0.4	0.51	1.0
Whinby Road south	0.40	0.7	0.44	0.8
Whinby Road west	0.33	0.5	0.22	0.3
2033 Do Minimum				
Capitol Close	0.25	0.4	0.53	1.1
Whinby Road south	0.42	0.8	0.45	0.9
Whinby Road west	0.35	0.6	0.23	0.3
2033 Full Residential Development				
Capitol Close	0.40	0.7	0.55	1.2
Whinby Road south	0.47	1.0	0.56	1.3
Whinby Road west	0.38	0.6	0.27	0.4

The assessment indicates that with the addition of traffic associated with the proposed residential development, all approaches are predicted to operate with RFC values of less than 0.85 during both peak hours.

Employment Development (Planning Application 2021/1089) Assessment

An assessment of the impact of the proposed employment development on the future year operation of the junction has been undertaken. The results are summarised in the Table below.

Table X: Capitol Close / Whinby Road Roundabout - Modelling Summary (Planning Application 2021/1089)

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
2026 Do Minimum				
Capitol Close	0.24	0.3	0.50	1.0
Whinby Road south	0.40	0.7	0.43	0.8
Whinby Road west	0.33	0.5	0.22	0.3
2026 Employment Development				
Capitol Close	0.28	0.4	0.57	1.4
Whinby Road south	0.45	0.9	0.45	0.9
Whinby Road west	0.34	0.6	0.22	0.3

The assessment indicates that with the addition of traffic associated with the proposed employment development, all approaches are predicted to operate with RFC values of less than 0.85 during both peak hours.

Cumulative Development (Planning Applications 2021/1089 and 2021/1090) Assessment

An assessment of the impact of the proposed residential and employment developments on the future year operation of the junction has been undertaken. The results are summarised in the Table below.

Table 43: Capitol Close / Whinby Road Roundabout - Modelling Summary (Planning Applications 2021/1089 and 2021/1090)

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
2026 Do Minimum				
Capitol Close	0.24	0.3	0.50	1.0
Whinby Road south	0.40	0.7	0.43	0.8
Whinby Road west	0.33	0.5	0.22	0.3
2026 Phase 1 Development (Without Full Link Road)				
Capitol Close	0.30	0.5	0.58	1.4
Whinby Road south	0.45	0.9	0.46	0.9
Whinby Road west	0.34	0.6	0.22	0.3
2026 Phase 1 Development (With Full Link Road)				
Capitol Close	0.30	0.5	0.52	1.1
Whinby Road south	0.48	1.0	0.49	0.9
Whinby Road west	0.37	0.6	0.24	0.3
2033 Do Minimum				
Capitol Close	0.25	0.4	0.53	1.1
Whinby Road south	0.42	0.8	0.45	0.9
Whinby Road west	0.35	0.6	0.23	0.3
2033 With Full Development				
Capitol Close	0.45	0.9	0.62	1.7
Whinby Road south	0.52	1.2	0.57	1.4
Whinby Road west	0.40	0.7	0.27	0.4

The assessment indicates that with the addition of traffic associated with the proposed residential and employment developments, all approaches are predicted to operate with RFC values of less than 0.85 during both peak hours.

Given the assessments undertaken, the proposed development is not predicted to have a significant impact on the future operation of the junction.

7.6.2 Whinby Road / Higham Lane Roundabout

A Junctions 10 model of the Whinby Road / Higham Lane roundabout has been developed. The model results for junction are summarised in the Tables below with the model outputs provided in full at Appendix J-9.

2022 Base Year Assessment

The 2022 Base Year model results are summarised in the Table below.

Table 44: Whinby Road / Higham Lane Roundabout - Modelling Summary (Without Development Scenarios)

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
2022 Base Year				
Higham Lane	0.46	0.9	0.73	2.6
Whinby Road east	0.71	2.6	0.87	6.5
Whinby Road west	0.87	6.3	0.62	1.7

The Table above shows that all approaches operate with RFC values of less than 0.85 during both the Weekday AM and PM peak hours, with the exception of the Whinby Road west and east arms during Weekday AM and PM peak hours, respectively.

Residential Development (Planning Application 2021/1090) Assessment

An assessment of the impact of the proposed residential development on the future year operation of the junction has been undertaken. The results are summarised in the Table below.

Table 45: Whinby Road / Higham Lane Roundabout - Modelling Summary (Planning Application 2021/1090)

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
2026 Do Minimum				
Higham Lane	0.18	0.2	0.18	0.2
Whinby Road east	0.45	0.9	0.49	1.1
Whinby Road west	0.75	3.1	0.55	1.3
2026 Residential Phase 1a Development				
Higham Lane	0.19	0.2	0.19	0.2
Whinby Road east	0.46	0.9	0.49	1.1
Whinby Road west	0.75	3.1	0.56	1.3
2033 Do Minimum				
Higham Lane	0.20	0.3	0.20	0.2
Whinby Road east	0.48	1.0	0.53	1.2
Whinby Road west	0.80	4.0	0.59	1.4
2033 Full Residential Development				
Higham Lane	0.15	0.2	0.26	0.3
Whinby Road east	0.52	1.2	0.53	1.2
Whinby Road west	0.81	4.3	0.64	1.8

The assessment indicates that with the addition of traffic associated with the proposed residential development, all approaches are predicted to operate with RFC values of less than 0.85 during both peak hours.

The RFC values on each arm are predicted to be lower in the future year assessment scenarios than in the 2022 Base Year scenario. This is due to the diversion of base traffic as a result of the construction of the Higham Lane / Capitol Close roundabout.

Employment Development (Planning Application 2021/1089) Assessment

An assessment of the impact of the proposed employment development on the future year operation of the junction has been undertaken. The results are summarised in the Table below.

Table 46: Whinby Road / Higham Lane Roundabout - Modelling Summary (Planning Application 2021/1089)

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
2026 Do Minimum				
Higham Lane	0.18	0.2	0.18	0.2
Whinby Road east	0.45	0.9	0.49	1.1
Whinby Road west	0.75	3.1	0.55	1.3
2026 Employment Development				
Higham Lane	0.20	0.3	0.20	0.3
Whinby Road east	0.46	0.9	0.50	1.1
Whinby Road west	0.77	3.4	0.56	1.3

The assessment indicates that with the addition of traffic associated with the proposed employment development, all approaches are predicted to operate with RFC values of less than 0.85 during both peak hours.

The RFC values on each arm are predicted to be lower in the future year assessment scenarios than in the 2022 Base Year scenario. This is due to the diversion of base traffic as a result of the construction of the Higham Lane / Capitol Close roundabout.

Cumulative Development (Planning Applications 2021/1089 and 2021/1090) Assessment

An assessment of the impact of the proposed residential and employment developments on the future year operation of the junction has been undertaken. The results are summarised in the Table below.

Table 47: Whinby Road / Higham Lane Roundabout - Modelling Summary (Planning Applications 2021/1089 and 2021/1090)

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
2026 Do Minimum				
Higham Lane	0.18	0.2	0.18	0.2
Whinby Road east	0.45	0.9	0.49	1.1
Whinby Road west	0.75	3.1	0.55	1.3
2026 Phase 1 Development (Without Full Link Road)				
Higham Lane	0.20	0.3	0.20	0.3
Whinby Road east	0.46	0.9	0.50	1.1
Whinby Road west	0.77	3.4	0.56	1.3
2026 Phase 1 Development (With Full Link Road)				
Higham Lane	0.10	0.1	0.23	0.3
Whinby Road east	0.48	1.0	0.49	1.1
Whinby Road west	0.77	3.5	0.58	1.4
2033 Do Minimum				
Higham Lane	0.20	0.3	0.20	0.2
Whinby Road east	0.48	1.0	0.53	1.2
Whinby Road west	0.80	4.0	0.59	1.4
2033 With Full Development				
Higham Lane	0.16	0.2	0.28	0.4
Whinby Road east	0.52	1.2	0.53	1.2
Whinby Road west	0.83	4.7	0.65	1.8

The assessment indicates that with the addition of traffic associated with the proposed residential and employment developments, all approaches are predicted to operate with RFC values of less than 0.85 during both peak hours.

Given the assessments undertaken, the proposed development is not predicted to have a significant impact on the future operation of the junction.

7.6.3 Higham Lane / Capitol Close Roundabout

A Junctions 10 model of the future Higham Lane / Capitol Close junction has been developed. The model results for the junction are summarised in the Tables below with the model outputs provided in full at Appendix J-10.

Residential Development (Planning Application 2021/1090) Assessment

An assessment of the impact of the proposed residential development on the future year operation of the junction has been undertaken. The results are summarised in the Table below.

Table 48: Higham Lane / Capitol Close Roundabout - Modelling Summary (Without Development Scenarios)

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
2026 Do Minimum				
Capitol Close	0.26	0.4	0.21	0.3
Higham Lane south	0.11	0.1	0.10	0.1
Higham Lane north	0.31	0.5	0.55	1.2
Capitol Park Access	0.02	0.0	0.06	0.1
2026 Residential Phase 1a Development				
Capitol Close	0.26	0.4	0.22	0.3
Higham Lane south	0.11	0.1	0.11	0.1
Higham Lane north	0.33	0.5	0.56	1.3
Capitol Park Access	0.02	0.0	0.06	0.1
2033 Do Minimum				
Capitol Close	0.27	0.4	0.22	0.3
Higham Lane south	0.12	0.1	0.11	0.1
Higham Lane north	0.32	0.5	0.58	1.4
Capitol Park Access	0.02	0.0	0.07	0.1
2033 Full Residential Development				
Capitol Close	0.31	0.5	0.41	0.7
Higham Lane south	0.10	0.1	0.16	0.2
Higham Lane north	0.42	0.7	0.63	1.7
Capitol Park Access	0.02	0.0	0.07	0.1

The assessment indicates that with the addition of traffic associated with the proposed residential development, all approaches are predicted to operate with RFC values of less than 0.85 during both peak hours.

Employment Development (Planning Application 2021/1089) Assessment

An assessment of the impact of the proposed employment development on the future year operation of the junction has been undertaken. The results are summarised in the Table below.

Table 49: Higham Lane / Capitol Close Roundabout - Modelling Summary (Planning Application 2021/1089)

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
2026 Do Minimum				
Capitol Close	0.26	0.4	0.21	0.3
Higham Lane south	0.11	0.1	0.10	0.1
Higham Lane north	0.31	0.5	0.55	1.2
Capitol Park Access	0.02	0.0	0.06	0.1
2026 Employment Development				
Capitol Close	0.34	0.5	0.24	0.3
Higham Lane south	0.13	0.2	0.11	0.1
Higham Lane north	0.36	0.6	0.64	1.8
Capitol Park Access	0.02	0.0	0.07	0.1

The assessment indicates that with the addition of traffic associated with the proposed employment development, all approaches are predicted to operate with RFC values of less than 0.85 during both peak hours.

Cumulative Development (Planning Applications 2021/1089 and 2021/1090) Assessment

An assessment of the impact of the proposed residential and employment developments on the future year operation of the junction has been undertaken. The results are summarised in the Table below.

Table 50: Higham Lane / Capitol Close Roundabout - Modelling Summary (Planning Applications 2021/1089 and 2021/1090)

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
2026 Do Minimum				
Capitol Close	0.26	0.4	0.21	0.3
Higham Lane south	0.11	0.1	0.10	0.1
Higham Lane north	0.31	0.5	0.55	1.2
Capitol Park Access	0.02	0.0	0.06	0.1
2026 Phase 1 Development (Without Full Link Road)				
Capitol Close	0.34	0.6	0.24	0.3
Higham Lane south	0.13	0.2	0.11	0.1
Higham Lane north	0.38	0.7	0.64	1.8
Capitol Park Access	0.02	0.0	0.07	0.1
2026 Phase 1 Development (With Full Link Road)				
Capitol Close	0.35	0.6	0.32	0.5
Higham Lane south	0.10	0.1	0.12	0.1
Higham Lane north	0.31	0.5	0.60	1.6
Capitol Park Access	0.02	0.0	0.07	0.1
2033 Do Minimum				
Capitol Close	0.27	0.4	0.22	0.3
Higham Lane south	0.12	0.1	0.11	0.1
Higham Lane north	0.32	0.5	0.58	1.4
Capitol Park Access	0.02	0.0	0.07	0.1
2033 With Full Development				
Capitol Close	0.39	0.7	0.44	0.8
Higham Lane south	0.12	0.1	0.17	0.2
Higham Lane north	0.48	1.0	0.73	2.7
Capitol Park Access	0.02	0.0	0.07	0.1

The assessment indicates that with the addition of traffic associated with the proposed residential and employment developments, all approaches are predicted to operate with RFC values of less than 0.85 during both peak hours.

Given the assessments undertaken, the proposed development is not predicted to have a significant impact on the future operation of the junction.

7.6.4 Chestnut Tree Roundabout

A Junctions 10 model of Chestnut Tree roundabout has been developed. The model results for the junction are summarised in the Tables below with the model outputs provided in full at Appendix J-11.

2022 Base Year Assessment

The 2022 Base Year model results are summarised in the Table below.

Table 21: Chestnut Tree Roundabout - Modelling Summary (2022 Base Year)

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
2022 Base Year				
A637 Claycliffe Road	0.71	2.4	0.60	1.5
Whaley Road	0.12	0.2	0.40	0.7
A635 Wilthorpe Road	0.62	1.7	0.75	3.0
A635 Barugh Green Road	0.45	0.8	0.27	0.4

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

Residential Development (Planning Application 2021/1090) Assessment

An assessment of the impact of the proposed residential development on the future year operation of the junction has been undertaken. The results are summarised in the Table below.

Table 52: Chestnut Tree Roundabout - Modelling Summary (Planning Application 2021/1090)

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
2026 Do Minimum				
A637 Claycliffe Road	0.81	4.2	0.65	1.9
Whaley Road	0.14	0.2	0.42	0.7
A635 Wilthorpe Road	0.65	1.9	0.81	4.3
A635 Barugh Green Road	0.50	1.0	0.30	0.4
2026 Residential Phase 1a Development				
A637 Claycliffe Road	0.81	4.2	0.66	2.0
Whaley Road	0.13	0.2	0.43	0.7
A635 Wilthorpe Road	0.64	1.8	0.83	4.8
A635 Barugh Green Road	0.51	1.1	0.31	0.5
2033 Do Minimum				
A637 Claycliffe Road	0.88	6.7	0.70	2.3
Whaley Road	0.16	0.2	0.47	0.9
A635 Wilthorpe Road	0.69	2.2	0.86	6.0
A635 Barugh Green Road	0.54	1.2	0.32	0.5
2033 Full Residential Development				
A637 Claycliffe Road	1.10	47.4	0.82	4.5
Whaley Road	0.20	0.3	0.57	1.3
A635 Wilthorpe Road	0.74	2.8	1.13	116.3
A635 Barugh Green Road	0.87	6.5	0.51	1.1

The assessment indicates that:

- With the addition of traffic associated with the proposed Phase 1a residential development in 2026, all approaches are predicted to operate with RFC values of less than 0.85 during both peak hours.
- In the 2033 Do Minimum assessment scenario, the A637 Claycliffe Road and A635 Wilthorpe Road approaches are predicted to operate with RFC values in excess of 0.85 during the Weekday AM and PM peak hours, respectively. With the addition of traffic associated with the proposed full residential development in 2033, the A637 Claycliffe Road and A635 Wilthorpe Road approaches are predicted to operate with RFC values in excess of 1.00 during the Weekday AM and PM peak hours, respectively.

The A635 Barugh Green Road approach is predicted to operate with an RFC value in excess of 0.85 in the Weekday AM peak hours.

As an additional assessment, and to isolate the impact of the full residential development, an assessment has been undertaken without traffic associated with NTM /TEMPro and committed developments. This is set out in the Table below.

Table 53: Chestnut Tree Roundabout - Modelling Summary (2022 Base Year + Proposed Residential Development)

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
2022 Base Year				
A637 Claycliffe Road	0.71	2.4	0.60	1.5
Whaley Road	0.12	0.2	0.40	0.7
A635 Wilthorpe Road	0.62	1.7	0.75	3.0
A635 Barugh Green Road	0.45	0.8	0.27	0.4
2022 Base Year + Full Residential Development				
A637 Claycliffe Road	0.88	6.3	0.72	2.5
Whaley Road	0.16	0.2	0.48	0.9
A635 Wilthorpe Road	0.67	2.1	1.00	30.4
A635 Barugh Green Road	0.77	3.4	0.47	0.9

With the addition of traffic associated with the full proposed residential development, the A637 Claycliffe Road and A635 Wilthorpe Road approaches are predicted to operate with RFC values in excess of 0.85 during the Weekday AM and PM peak hours, respectively. The modelled queues would be accommodated without impacts on upstream junctions and on this basis the impact of the proposed development on the operation of the junction is not significant.

Employment Development (Planning Application 2021/1089) Assessment

An assessment of the impact of the proposed employment development on the future year operation of the junction has been undertaken. The results are summarised in the Table below.

Table 54: Chestnut Tree Roundabout - Modelling Summary (Planning Application 2021/1089)

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
2026 Do Minimum				
A637 Claycliffe Road	0.81	4.2	0.65	1.9
Whaley Road	0.14	0.2	0.42	0.7
A635 Wilthorpe Road	0.65	1.9	0.81	4.3
A635 Barugh Green Road	0.50	1.0	0.30	0.4
2026 Employment Development				
A637 Claycliffe Road	0.83	4.6	0.67	2.0
Whaley Road	0.14	0.2	0.44	0.8
A635 Wilthorpe Road	0.68	2.2	0.83	4.7
A635 Barugh Green Road	0.52	1.1	0.33	0.5

The assessment indicates that with the addition of traffic associated with the proposed employment development in 2026, all approaches are predicted to operate with RFC values of less than 0.85 during both peak hours.

Cumulative Development (Planning Applications 2021/1089 and 2021/1090) Assessment

An assessment of the impact of the proposed residential and employment developments on the future year operation of the junction has been undertaken. The results are summarised in the Table below.

Table 55: Chestnut Tree Roundabout - Modelling Summary (Planning Applications 2021/1089 and 2021/1090)

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
2026 Do Minimum				
A637 Claycliffe Road	0.81	4.2	0.65	1.9
Whaley Road	0.14	0.2	0.42	0.7
A635 Wilthorpe Road	0.65	1.9	0.81	4.3
A635 Barugh Green Road	0.50	1.0	0.30	0.4
2026 Phase 1 Development (Without Full Link Road)				
A637 Claycliffe Road	0.84	5.0	0.68	2.1
Whaley Road	0.14	0.2	0.44	0.8
A635 Wilthorpe Road	0.69	2.2	0.84	5.2
A635 Barugh Green Road	0.54	1.2	0.35	0.6
2026 Phase 1 Development (With Full Link Road)				
A637 Claycliffe Road	0.94	11.2	0.73	2.7
Whaley Road	0.17	0.2	0.49	1.0
A635 Wilthorpe Road	0.71	2.5	1.00	30.1
A635 Barugh Green Road	0.75	3.0	0.48	0.9
2033 Do Minimum				
A637 Claycliffe Road	0.88	6.7	0.70	2.3
Whaley Road	0.16	0.2	0.47	0.9
A635 Wilthorpe Road	0.69	2.2	0.86	6.0
A635 Barugh Green Road	0.54	1.2	0.32	0.5
2033 With Full Development				
A637 Claycliffe Road	1.13	54.9	0.85	5.2
Whaley Road	0.20	0.3	0.60	1.5
A635 Wilthorpe Road	0.77	3.4	1.14	127.9
A635 Barugh Green Road	0.90	7.8	0.54	1.2

The assessment indicates that:

- With the addition of traffic associated with the proposed Phase 1 development in 2026, all approaches are predicted to operate with RFC values of less than 0.85 during both peak hours.



- With the addition of traffic associated with the proposed Phase 1 development in 2026 (in the with full link road theoretical scenario), the A637 Claycliffe Road and A635 Wilthorpe Road approaches are predicted to operate with RFC values in excess of 0.85 and at 1.00 during the Weekday AM and PM peak hours, respectively.
- In the 2033 Do Minimum assessment scenario, the A637 Claycliffe Road and A635 Wilthorpe Road approaches are predicted to operate with RFC values in excess of 0.85 during the Weekday AM and PM peak hours, respectively. With the addition of traffic associated with the proposed full residential development in 2033, the A637 Claycliffe Road and A635 Wilthorpe Road approaches are predicted to operate with RFC values in excess of 1.00 during the Weekday AM and PM peak hours, respectively. The A635 Barugh Green Road approach is predicted to operate with an RFC value in excess of 0.85 in the Weekday AM peak hours.

As an additional assessment, and to isolate the impact of the full proposed development, an assessment has been undertaken without traffic associated with NTM /TEMPro and committed developments. This is set out in the Table below.

Table 56: Chestnut Tree Roundabout - Modelling Summary (2022 Base Year + Proposed Development)

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
2022 Base Year				
A637 Claycliffe Road	0.71	2.4	0.60	1.5
Whaley Road	0.12	0.2	0.40	0.7
A635 Wilthorpe Road	0.62	1.7	0.75	3.0
A635 Barugh Green Road	0.45	0.8	0.27	0.4
2022 Base Year + Full Development				
A637 Claycliffe Road	0.89	7.2	0.74	2.8
Whaley Road	0.17	0.2	0.50	1.0
A635 Wilthorpe Road	0.70	2.4	1.02	37.2
A635 Barugh Green Road	0.79	3.8	0.50	1.0

With the addition of traffic associated with the full proposed development, the A637 Claycliffe Road and A635 Wilthorpe Road approaches are predicted to operate with modelled RFC values in excess of 0.85 during the Weekday AM and PM peak hours. The modelled queues would be accommodated without affecting the operation of upstream junctions and on this basis the impact of the proposed development is not significant.

Given the assessments undertaken, the proposed development is not predicted to have a significant impact on the future operation of the junction.

7.6.5 Barugh Green Crossroads

A LinSig model of the Barugh Green crossroads has been developed. The model has been developed based on the existing junction layout, plus controller specification and signal timings provided by BMBC. It is understood that the junction operates on a demand-dependent basis, and to replicate this, green times have been optimised using LinSig. A cycle time of 90 seconds is assumed, based on the traffic survey videos and junction signal plan. For the purposes of this assessment, this cycle time is assumed as a common basis for the assessment, with the pedestrian crossing stage assumed to run in every cycle for robustness.

The model results are summarised in the Tables below with the model outputs provided in full at Appendix J-12.

2022 Base Year Assessment

The 2022 Base Year model results are summarised in the Table below.

Table 57: Barugh Green Crossroads - Base Year Modelling Summary

Link	2022 Base Year			
	AM Peak Hour		PM Peak Hour	
	DoS %	MMQ pcu	DoS %	MMQ pcu
B6428	66.1	7.6	79.2	8.6
Barugh Green east	38.9	5.0	77.4	14.8
Higham Common Road	69.9	8.4	60.1	6.8
Cawthorne Road	72.2	12.0	35.9	5.2
Cycle Time (seconds)	90		90	
Overall PRC (%)	24.7		13.6	

The assessment indicates that all junction approaches are predicted to operate with modelled degree of saturation (DoS) values within 90% during both peak hours.

Residential Development (Planning Application 2021/1090) Assessment

An assessment of the impact of the proposed residential development on the future year operation of the junction has been undertaken. The results are summarised in the Table below.

Table X: Barugh Green Crossroads - Future Year Modelling Summary (Residential)

2026 Future Year								
Link	AM Peak Hour				PM Peak Hour			
	Do Minimum		Residential Phase 1a Development		Do Minimum		Residential Phase 1a Development	
	DoS %	MMQ pcu	DoS %	MMQ pcu	DoS %	MMQ Pcu	DoS %	MMQ pcu
B6428	72.7	8.6	69.6	8.3	79.7	9.0	79.9	9.0
Barugh Green east	38.9	5.1	45.5	6.0	80.9	15.6	83.5	16.6
Higham Common Road	72.0	8.6	70.9	8.5	58.9	6.8	66.7	8.0
Cawthorne Road	71.4	12.0	73.9	12.5	39.6	5.8	39.8	5.8
Cycle Time (seconds)	90		90		90		90	
Overall PRC (%)	23.9		21.9		11.2		7.8	

Table 58: Barugh Green Crossroads - Future Year Modelling Summary (Residential)

2033 Future Year								
Link	AM Peak Hour				PM Peak Hour			
	Do Minimum		Full Residential Development		Do Minimum		Full Residential Development	
	DoS %	MMQ pcu	DoS %	MMQ pcu	DoS %	MMQ Pcu	DoS %	MMQ pcu
B6428	76.2	9.3	71.2	9.7	87.9	10.9	89.1	12.7
Barugh Green east	43.2	5.6	87.5	12.2	86.7	18.0	90.9	18.9
Higham Common Road	76.9	9.6	86.0	10.6	61.2	7.4	63.7	7.0
Cawthorne Road	78.1	13.6	73.4	12.7	41.8	6.1	44.1	6.5
Cycle Time (seconds)	90		90		90		90	
Overall PRC (%)	15.2		2.9		2.4		-1.0	

The assessment indicates that:

- With the addition of traffic associated with the proposed Phase 1a residential development in 2026, all junction approaches are predicted to operate with modelled degree of saturation (DoS) values within 90% during both peak hours.
- With the addition of traffic associated with the proposed full residential development in 2033, the Barugh Green Road (east) arm is predicted to operate with a DoS value marginally in excess of 90% during the PM peak hour.

- The corresponding mean maximum queue is 18.9 PCUs, representing an increase of less than 1.0 PCU when compared with the 2033 Do Minimum assessment scenario. This increase in queueing is not considered to be significant.

Employment Development (Planning Application 2021/1089) Assessment

An assessment of the impact of the proposed employment development on the future year operation of the junction has been undertaken. The results are summarised in the Table below.

Table 59: Barugh Green Crossroads - Future Year Modelling Summary (Employment)

Link	2026 Future Year							
	AM Peak Hour				PM Peak Hour			
	Do Minimum		Employment Development		Do Minimum		Employment Development	
	DoS %	MMQ pcu	DoS %	MMQ pcu	DoS %	MMQ Pcu	DoS %	MMQ pcu
B6428	72.7	8.6	69.4	8.7	79.7	9.0	82.1	9.4
Barugh Green east	38.9	5.1	52.2	6.8	80.9	15.6	83.7	16.7
Higham Common Road	72.0	8.6	83.5	11.2	58.9	6.8	82.4	11.3
Cawthorne Road	71.4	12.0	81.3	13.0	39.6	5.8	40.4	5.9
Cycle Time (seconds)	90		90		90		90	
Overall PRC (%)	23.9		7.8		11.2		7.5	

The assessment indicates that with the addition of traffic associated with the proposed employment development, all junction approaches are predicted to operate with modelled degree of saturation (DoS) values within 90% during both peak hours.

Cumulative Development (Planning Applications 2021/1089 and 2021/1090) Assessment

An assessment of the impact of the proposed residential and employment developments on the future year operation of the junction has been undertaken. The results are summarised in the Table below.

Table 60: Barugh Green Crossroads - Future Year Modelling Summary (Cumulative)

2026 Future Year								
Link	AM Peak Hour				PM Peak Hour			
	Do Minimum		Phase 1 Development (Without Full Link Road)		Do Minimum		Phase 1 Development (Without Full Link Road)	
	DoS %	MMQ pcu	DoS %	MMQ pcu	DoS %	MMQ Pcu	DoS %	MMQ pcu
B6428	72.7	8.6	67.6	8.4	79.7	9.0	75.5	8.7
Barugh Green east	38.9	5.1	60.1	8.0	80.9	15.6	88.7	18.8
Higham Common Road	72.0	8.6	81.0	10.8	58.9	6.8	89.1	13.5
Cawthorne Road	71.4	12.0	84.3	14.7	39.6	5.8	42.1	6.0
Cycle Time (seconds)	90		90		90		90	
Overall PRC (%)	23.9		6.7		11.2		1.0	

Table 61: Barugh Green Crossroads - Future Year Modelling Summary (Cumulative)

2026 Future Year								
Link	AM Peak Hour				PM Peak Hour			
	Do Minimum		Phase 1 Development (With Full Link Road)		Do Minimum		Phase 1 Development (With Full Link Road)	
	DoS %	MMQ pcu	DoS %	MMQ pcu	DoS %	MMQ Pcu	DoS %	MMQ pcu
B6428	72.7	8.6	68.9	9.6	79.7	9.0	83.2	10.6
Barugh Green east	38.9	5.1	79.9	10.3	80.9	15.6	82.2	15.8
Higham Common Road	72.0	8.6	79.7	8.6	58.9	6.8	60.4	6.3
Cawthorne Road	71.4	12.0	70.7	12.0	39.6	5.8	38.3	5.7
Cycle Time (seconds)	90		90		90		90	
Overall PRC (%)	23.9		12.6		11.2		8.1	

Table 62: Barugh Green Crossroads - Future Year Modelling Summary (Cumulative)

Link	2033 Future Year							
	AM Peak Hour				PM Peak Hour			
	Do Minimum		With Full Development		Do Minimum		With Full Development	
	DoS %	MMQ pcu	DoS %	MMQ pcu	DoS %	MMQ Pcu	DoS %	MMQ pcu
B6428	76.2	9.3	73.4	10.6	87.9	10.9	93.1	14.9
Barugh Green east	43.2	5.6	101.5	21.8	86.7	18.0	92.2	20.6
Higham Common Road	76.9	9.6	98.9	16.3	61.2	7.4	71.8	7.7
Cawthorne Road	78.1	13.6	75.5	13.4	41.8	6.1	42.4	6.4
Cycle Time (seconds)	90		90		90		90	
Overall PRC (%)	15.2		-12.7		2.4		-3.4	

The assessment indicates that:

- With the addition of traffic associated with the proposed Phase 1 development in 2026 (both with and without the full link road), all approaches are predicted to operate with DoS values within 90% during both peak hours.
- With the addition of traffic associated with the full proposed development in 2033, during the AM peak hour, the Barugh Green Road (east) and the Higham Common Road arms are predicted to operate with DoS values in excess of 90%. The corresponding mean maximum queues are 21.8 and 16.3 PCUs representing increases of 16.2 and 6.7 PCUs when compared with the 2033 Do Minimum assessment scenario. This increase in queueing is not considered to be significant as there is sufficient stacking space to accommodate the modelled queue without impacting on key upstream junctions.
- With the addition of traffic associated with the full proposed development in 2033, during the PM peak hour, the Barugh Green Road (east) arm is predicted to operate with a DoS value in excess of 90%. The corresponding mean maximum queue is 20.6 PCUs representing an increase of 2.6 PCUs when compared with the 2033 Do Minimum assessment scenario. This increase in queueing is not considered to be significant.

Given the assessments undertaken, the proposed development is not predicted to have a significant impact on the future operation of the junction.

7.6.6 Redbrook Road / Church Street Junction

A Junctions 10 model of the Redbrook Road / Church Street junction has been developed. The model results for the junction are summarised in the Tables below with the model outputs provided in full at Appendix J-13.

2022 Base Year Assessment

The 2022 Base Year model results are summarised in the Table below.

Table 63: Redbrook Road / Church Street Junction - Modelling Summary (2022 Base Year)

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
2022 Base				
Church Street	0.24	0.3	0.14	0.2
Redbrook Road west	0.23	0.6	0.18	0.4

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

Residential Development (Planning Application 2021/1090) Assessment

An assessment of the impact of the proposed residential development on the future year operation of the junction has been undertaken. The results are summarised in the Table below.

Table 64: Redbrook Road / Church Street Junction - Modelling Summary (Planning Application 2021/1090)

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
2026 Do Minimum				
Church Street	0.24	0.3	0.14	0.2
Redbrook Road west	0.24	0.6	0.18	0.4
2026 Residential Phase 1a Development				
Church Street	0.24	0.3	0.14	0.2
Redbrook Road west	0.24	0.6	0.18	0.4
2033 Do Minimum				
Church Street	0.26	0.4	0.15	0.2
Redbrook Road west	0.26	0.7	0.20	0.5
2033 Full Residential Development				
Church Street	0.05	0.1	0.08	0.1
Redbrook Road west	0.03	0.0	0.05	0.1

The assessment indicates that with the addition of traffic associated with the proposed residential development, all approaches are predicted to operate with RFC values of less than 0.85 during both peak hours.

Employment Development (Planning Application 2021/1089) Assessment

An assessment of the impact of the proposed employment development on the future year operation of the junction has been undertaken. The results are summarised in the Table below.

Table 65: Redbrook Road / Church Street Junction - Modelling Summary (Planning Application 2021/1089)

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
2026 Do Minimum				
Church Street	0.24	0.3	0.14	0.2
Redbrook Road west	0.24	0.6	0.18	0.4
2026 Employment Development				
Church Street	0.24	0.3	0.14	0.2
Redbrook Road west	0.25	0.6	0.18	0.4

The assessment indicates that with the addition of traffic associated with the proposed employment development, all approaches are predicted to operate with RFC values of less than 0.85 during both peak hours.

Cumulative Development (Planning Applications 2021/1089 and 2021/1090) Assessment

An assessment of the impact of the proposed residential and employment developments on the future year operation of the junction has been undertaken. The results are summarised in the Table below.

Table 66: Redbrook Road / Church Street Junction - Modelling Summary (Planning Applications 2021/1089 and 2021/1090)

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
2026 Do Minimum				
Church Street	0.24	0.3	0.14	0.2
Redbrook Road west	0.24	0.6	0.18	0.4
2026 Phase 1 Development (Without Full Link Road)				
Church Street	0.25	0.3	0.15	0.2
Redbrook Road west	0.25	0.7	0.18	0.4
2026 Phase 1 Development (With Full Link Road)				
Church Street	0.02	0.0	0.05	0.1
Redbrook Road west	0.00	0.0	0.00	0.0
2033 Do Minimum				
Church Street	0.26	0.4	0.15	0.2
Redbrook Road west	0.26	0.7	0.20	0.5
2033 With Full Development				
Church Street	0.05	0.1	0.08	0.1
Redbrook Road west	0.03	0.0	0.05	0.1

The assessment indicates that with the addition of traffic associated with the proposed residential and employment developments, all approaches are predicted to operate with RFC values of less than 0.85 during both peak hours.

Given the assessments undertaken, the proposed development is not predicted to have a significant impact on the future operation of the junction.

7.6.7 A635 / Redbrook Road Junction

A Junctions 10 model of the A635 / Redbrook Road junction has been developed. The model results for the junction are summarised in the Tables below with the model outputs provided in full at Appendix J-14.

2022 Base Year Assessment

The 2022 Base Year model results are summarised in the Table below.

Table 67: A635 / Redbrook Road Junction - Modelling Summary (Without Development Scenarios)

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
2022 Base Year				
Redbrook Road	0.56	1.3	0.69	2.2
A635 Wilthorpe Road (west)	0.65	1.9	0.57	1.3

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

Residential Development (Planning Application 2021/1090) Assessment

An assessment of the impact of the proposed residential development on the future year operation of the junction has been undertaken. The results are summarised in the Table below.

Table 68: A635 / Redbrook Road Junction - Modelling Summary (Planning Application 2021/1090)

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
2026 Do Minimum				
Redbrook Road	0.59	1.5	0.74	2.8
A635 Wilthorpe Road (west)	0.71	2.4	0.62	1.6
2026 Residential Phase 1a Development				
Redbrook Road	0.59	1.5	0.76	3.1
A635 Wilthorpe Road (west)	0.73	2.7	0.63	1.7
2033 Do Minimum				
Redbrook Road	0.63	1.8	0.80	3.8
A635 Wilthorpe Road (west)	0.76	3.1	0.67	2.0
2033 Full Residential Development				
Redbrook Road	0.53	1.2	1.01	19.9
A635 Wilthorpe Road (west)	0.86	5.5	0.86	5.3

The assessment indicates that:

- With the addition of traffic associated with the proposed Phase 1a residential development in 2026, all approaches operate with RFC values of less than 0.85 during both peak hours.



- With the addition of traffic associated with the proposed full residential development in 2033, the Redbrook Road arm is predicted to operate with an RFC value in excess of 1.0 during the PM peak hour and the A635 Wilthorpe Road west arm is predicted to operate with an RFC value in excess of 0.85 during both peak hours.
- The Redbrook Road arm is predicted to operate with an RFC value of 1.01 during the PM peak hour. The corresponding maximum average queue is 19.9 PCUs, representing an increase of 16.1 PCUs when compared with the 2033 Do Minimum assessment scenario. This increase in queueing is not considered to be significant as there is sufficient stacking space to accommodate the modelled queue without impacting on upstream junctions.
- The A635 Wilthorpe Road west arm is predicted to operate with an RFC value of 0.86 during both peak hours. The corresponding maximum average queues are 5.5 and 5.3 PCUs, during the AM and PM peak hours, respectively, representing increases of 2.4 and 3.3 PCUs when compared with the 2033 Do Minimum assessment scenario. This increase in queueing is not considered to be significant as there is sufficient stacking space to accommodate the modelled queue without impacting on the A635/A637/Whaley Road roundabout.

Employment Development (Planning Application 2021/1089) Assessment

An assessment of the impact of the proposed employment development on the future year operation of the junction has been undertaken. The results are summarised in the Table below.

Table 69: A635 / Redbrook Road Junction - Modelling Summary (Planning Application 2021/1089)

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
2026 Do Minimum				
Redbrook Road	0.59	1.5	0.74	2.8
A635 Wilthorpe Road (west)	0.71	2.4	0.62	1.6
2026 Employment Development				
Redbrook Road	0.63	1.7	0.76	3.1
A635 Wilthorpe Road (west)	0.74	2.8	0.65	1.9

The assessment indicates that with the addition of traffic associated with the proposed employment development, all approaches operate with RFC values of less than 0.85 during both peak hours.

Cumulative Development (Planning Applications 2021/1089 and 2021/1090) Assessment

An assessment of the impact of the proposed residential and employment developments on the future year operation of the junction has been undertaken. The results are summarised in the Table below.

Table 70: A635 / Redbrook Road Junction - Modelling Summary (Planning Applications 2021/1089 and 2021/1090)

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
2026 Do Minimum				
Redbrook Road	0.59	1.5	0.74	2.8
A635 Wilthorpe Road (west)	0.71	2.4	0.62	1.6
2026 Phase 1 Development (Without Full Link Road)				
Redbrook Road	0.63	1.7	0.76	3.1
A635 Wilthorpe Road (west)	0.74	2.8	0.65	1.9
2026 Phase 1 Development (With Full Link Road)				
Redbrook Road	0.49	1.0	0.84	5.0
A635 Wilthorpe Road (west)	0.74	2.8	0.75	2.9
2033 Do Minimum				
Redbrook Road	0.63	1.8	0.80	3.8
A635 Wilthorpe Road (west)	0.76	3.1	0.67	2.0
2033 With Full Development				
Redbrook Road	0.57	1.4	1.03	24.4
A635 Wilthorpe Road (west)	0.90	7.0	0.90	7.1

The assessment indicates that:

- With the addition of traffic associated with the proposed Phase 1 development in 2026 (both with and without the full link road), all approaches operate with RFC values of less than 0.85 during both peak hours.
- With the addition of traffic associated with the full proposed development in 2033, the Redbrook Road arm is predicted to operate with an RFC value in excess of 1.0 during the PM peak hour and the A635 Wilthorpe Road west arm is predicted to operate with an RFC value in excess of 0.85 during both peak hours.
 - The Redbrook Road arm is predicted to operate with an RFC value of 1.03 during the PM peak hour. The corresponding maximum average queue is 24.4



PCUs, representing an increase of 20.6 PCUs when compared with the 2033 Do Minimum assessment scenario. This increase in queueing is not considered to be significant as there is sufficient stacking space to accommodate the modelled queue without impacting on upstream junctions.

- The A635 Wilthorpe Road west arm is predicted to operate with an RFC value of 0.90 during both peak hours. The corresponding maximum average queues are 7.0 and 7.1 PCUs, during the AM and PM peak hours, respectively, representing increases of 3.9 and 5.1 PCUs when compared with the 2033 Do Minimum assessment scenario. This increase in queueing is not considered to be significant as there is sufficient stacking space to accommodate the modelled queue without impacting on the A635/A637/Whaley Road roundabout.

Given the assessments undertaken, the proposed development is not predicted to have a significant impact on the future operation of the junction.

7.6.8 Redbrook Road / Intake Lane Junction

A Junctions 10 model of the Redbrook Road / Intake Lane junction has been developed. The model results for the junction are summarised in the Tables below with the model outputs provided in full at Appendix J-15.

2022 Base Year Assessment

The 2022 Base Year model results are summarised in the Table below.

Table 71: Redbrook Road / Intake Lane Junction - Modelling Summary (Without Development Scenarios)

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
2022 Base Year				
Intake Lane	0.46	0.9	0.41	0.7
Redbrook Road (West)	0.33	0.8	0.33	0.7

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

Residential Development (Planning Application 2021/1090) Assessment

An assessment of the impact of the proposed residential development on the future year operation of the junction has been undertaken. The results are summarised in the Table below.

Table 72: Redbrook Road / Intake Lane Junction - Modelling Summary (Planning Application 2021/1090)

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
2026 Do Minimum				
Intake Lane	0.48	0.9	0.44	0.8
Redbrook Road (West)	0.38	1.0	0.35	0.8
2026 Residential Phase 1a Development				
Intake Lane	0.48	0.9	0.46	0.8
Redbrook Road (West)	0.40	1.1	0.36	0.8
2033 Do Minimum				
Intake Lane	0.51	1.1	0.47	0.9
Redbrook Road (West)	0.41	1.2	0.38	0.9
2033 Full Residential Development				
Intake Lane	0.51	1.0	0.26	0.4
Redbrook Road (West)	0.46	1.3	0.38	0.9

The assessment indicates that with the addition of traffic associated with the proposed residential development, all approaches are predicted to operate with RFC values of less than 0.85 during both peak hours.

Employment Development (Planning Application 2021/1089) Assessment

An assessment of the impact of the proposed employment development on the future year operation of the junction has been undertaken. The results are summarised in the Table below.

Table 73: Redbrook Road / Intake Lane Junction - Modelling Summary (Planning Application 2021/1089)

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
2026 Do Minimum				
Intake Lane	0.48	0.9	0.44	0.8
Redbrook Road (West)	0.38	1.0	0.35	0.8
2026 Employment Development				
Intake Lane	0.48	0.9	0.44	0.8
Redbrook Road (West)	0.39	1.1	0.36	0.8

The assessment indicates that with the addition of traffic associated with the proposed employment development, all approaches are predicted to operate with RFC values of less than 0.85 during both peak hours.

Cumulative Development (Planning Applications 2021/1089 and 2021/1090) Assessment

An assessment of the impact of the proposed residential and employment developments on the future year operation of the junction has been undertaken. The results are summarised in the Table below.

Table 74: Redbrook Road / Intake Lane Junction - Modelling Summary (Planning Applications 2021/1089 and 2021/1090)

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
2026 Do Minimum				
Intake Lane	0.48	0.9	0.44	0.8
Redbrook Road (West)	0.38	1.0	0.35	0.8
2026 Phase 1 Development (Without Full Link Road)				
Intake Lane	0.49	1.0	0.46	0.9
Redbrook Road (West)	0.41	1.2	0.37	0.9
2026 Phase 1 Development (With Full Link Road)				
Intake Lane	0.45	0.8	0.18	0.2
Redbrook Road (West)	0.37	0.9	0.32	0.7
2033 Do Minimum				
Intake Lane	0.51	1.1	0.47	0.9
Redbrook Road (West)	0.41	1.2	0.38	0.9
2033 With Full Development				
Intake Lane	0.51	1.1	0.26	0.4
Redbrook Road (West)	0.46	1.3	0.39	0.9

The assessment indicates that with the addition of traffic associated with the proposed residential and employment developments, all approaches are predicted to operate with RFC values of less than 0.85 during both peak hours.

Given the assessments undertaken, the proposed development is not predicted to have a significant impact on the future operation of the junction.



7.6.9 Pogmoor Road / Intake Lane Junction

A Junctions 10 model of the Pogmoor Road / Intake Lane junction has been developed. The model results for the junction are summarised in the Tables below with the model outputs provided in full at Appendix J-16.

2022 Base Year Assessment

The 2022 Base Year model results are summarised in the Table below.

Table 75: Pogmoor Road / Intake Lane Junction - Modelling Summary (2022 Base Year)

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
2022 Base Year				
Intake Lane	0.63	1.6	0.65	1.8
Pogmoor Road (east)	0.16	0.4	0.19	0.5

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

Residential Development (Planning Application 2021/1090) Assessment

An assessment of the impact of the proposed residential development on the future year operation of the junction has been undertaken. The results are summarised in the Table below.

Table 76: Pogmoor Road / Intake Lane Junction - Modelling Summary (Planning Application 2021/1090)

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
2026 Do Minimum				
Intake Lane	0.77	3.0	0.74	2.7
Pogmoor Road (east)	0.16	0.4	0.20	0.6
2026 Residential Phase 1a Development				
Intake Lane	0.81	3.6	0.76	2.9
Pogmoor Road (east)	0.61	0.4	0.21	0.6
2033 Do Minimum				
Intake Lane	0.87	4.9	0.82	3.9
Pogmoor Road (east)	0.18	0.5	0.22	0.7
2033 Full Residential Development				
Intake Lane	1.05	14.2	0.95	8.0
Pogmoor Road (east)	0.20	0.5	0.27	0.9

The assessment indicates that:

- With the addition of background traffic growth and traffic associated with committed developments, the junction is predicted to continue to operate with spare capacity on all approaches during both peak hours. In the 2033 Do Minimum assessment scenario, the Intake Lane arm is predicted to operate with an RFC value in excess of 0.85 during the Weekday AM peak hour.
- With the addition of traffic associated with the proposed Phase 1a residential development in 2026, the junction is predicted to continue to operate with spare capacity on all approaches during both peak hours.
- With the addition of traffic associated with the proposed full residential development in 2033, the Intake Lane arm is predicted to operate with an RFC value in excess of 1.0 during the AM peak hour and in excess of 0.85 during the PM peak hour.
- The Intake Lane arm is predicted to operate with an RFC value of 1.05 during the AM peak hour. The corresponding maximum average queue is 14.2 PCUs, representing an increase of 9.3 PCUs when compared with the 2033 Do Minimum assessment scenario. This increase in queueing is not considered to be significant as there is sufficient stacking space to accommodate the modelled queue without impacting on key upstream junctions.



- The Intake Lane arm is predicted to operate with an RFC value of 0.95 during the PM peak hour. The corresponding maximum average queue is 8.0 PCUs, representing an increase of 4.1 PCUs when compared with the 2033 Do Minimum assessment scenario. This increase in queueing is not considered to be significant as there is sufficient stacking space to accommodate the modelled queue without impacting on key upstream junctions.

Employment Development (Planning Application 2021/1089) Assessment

An assessment of the impact of the proposed employment development on the future year operation of the junction has been undertaken. The results are summarised in the Table below.

Table 77: Pogmoor Road / Intake Lane Junction - Modelling Summary (Planning Application 2021/1089)

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
2026 Do Minimum				
Intake Lane	0.77	3.0	0.74	2.7
Pogmoor Road (east)	0.16	0.4	0.20	0.6
2026 Employment Development				
Intake Lane	0.77	3.1	0.74	2.7
Pogmoor Road (east)	0.16	0.4	0.20	0.6

The assessment indicates that with the addition of traffic associated with the proposed employment development, all approaches are predicted to operate with RFC values of less than 0.85 during both peak hours.

Cumulative Development (Planning Applications 2021/1089 and 2021/1090) Assessment

An assessment of the impact of the proposed residential and employment developments on the future year operation of the junction has been undertaken. The results are summarised in the Table below.

Table 78: Pogmoor Road / Intake Lane Junction - Modelling Summary (Planning Applications 2021/1089 and 2021/1090)

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
2026 Do Minimum				
Intake Lane	0.77	3.0	0.74	2.7
Pogmoor Road (east)	0.16	0.4	0.20	0.6
2026 Phase 1 Development (Without Full Link Road)				
Intake Lane	0.81	3.6	0.76	2.9
Pogmoor Road (east)	0.16	0.4	0.21	0.6
2026 Phase 1 Development (With Full Link Road)				
Intake Lane	0.82	3.9	0.78	3.1
Pogmoor Road (east)	0.17	0.4	0.22	0.7
2033 Do Minimum				
Intake Lane	0.87	4.9	0.82	3.9
Pogmoor Road (east)	0.18	0.5	0.22	0.7
2033 With Full Development				
Intake Lane	1.05	14.2	0.95	8.1
Pogmoor Road (east)	0.20	0.5	0.27	0.9

The assessment indicates that:

- With the addition of background traffic growth and traffic associated with committed developments to 2033, the Intake Lane arm is predicted to operate with an RFC value in excess of 0.85 during the Weekday AM peak hour.
- With the addition of traffic associated with the proposed Phase 1 development in 2026 (both with and without the full link road), the junction is predicted to continue to operate with spare capacity on all approaches during both peak hours.
- With the addition of traffic associated with the full proposed development in 2033, the Redbrook Road arm is predicted to operate with an RFC value in excess of 1.0 during the PM peak hour and the A635 Wilthorpe Road west arm is predicted to operate with an RFC value in excess of 0.85 during both peak hours.
- The Intake Lane arm is predicted to operate with an RFC value of 1.05 during the AM peak hour. The corresponding maximum average queue is 14.2 PCUs, representing an increase of 9.3 PCUs when compared with the 2033 Do Minimum assessment scenario. This increase in queueing is not considered to be



significant, as there is sufficient stacking space to accommodate the modelled queue without impacting on key upstream junctions.

- The Intake Lane arm is predicted to operate with an RFC value of 0.95 during the PM peak hour. The corresponding maximum average queue is 8.1 PCUs, representing an increase of 4.2 PCUs when compared with the 2033 Do Minimum assessment scenario. This increase in queueing is not considered to be significant, as there is sufficient stacking space to accommodate the modelled queue without impacting on key upstream junctions.

Given the assessments undertaken, the proposed development is not predicted to have a significant impact on the future operation of the junction.

7.6.10 Pogmoor Road / Farmhouse Lane

A Junctions 10 model of the Pogmoor Road / Farmhouse Lane roundabout has been developed. The model results for the junction are summarised in the Tables below with the model outputs provided in full at Appendix J-17.

2022 Base Year Assessment

Table 79: Pogmoor Road / Farmhouse Lane Junction - Modelling Summary (2022 Base Year)

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
2022 Base Year				
Farmhouse Lane - LT	0.01	0.0	0.01	0.0
Farmhouse Lane - RT	0.31	0.5	0.12	0.1
Pogmoor Road (East)	0.02	0.0	0.03	0.0

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

Residential Development (Planning Application 2021/1090) Assessment

An assessment of the impact of the proposed residential development on the future year operation of the junction has been undertaken. The results are summarised in the Table below.

Table 80: Pogmoor Road / Farmhouse Lane Junction - Modelling Summary (Planning Application 2021/1090)

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
2026 Do Minimum				
Farmhouse Lane - LT	0.02	0.0	0.01	0.0
Farmhouse Lane - RT	0.34	0.5	0.13	0.2
Pogmoor Road (East)	0.02	0.0	0.03	0.0
2026 Residential Phase 1a Development				
Farmhouse Lane - LT	0.02	0.0	0.01	0.0
Farmhouse Lane - RT	0.35	0.5	0.14	0.2
Pogmoor Road (East)	0.02	0.0	0.03	0.0
2033 Do Minimum				
Farmhouse Lane - LT	0.0	0.02	0.01	0.0
Farmhouse Lane - RT	0.7	0.40	0.15	0.2
Pogmoor Road (East)	0.0	0.02	0.03	0.0
2033 Full Residential Development				
Farmhouse Lane - LT	0.03	0.0	0.02	0.0
Farmhouse Lane - RT	0.52	1.1	0.20	0.2
Pogmoor Road (East)	0.03	0.0	0.03	0.0

The assessment indicates that with the addition of traffic associated with the proposed residential development, all approaches are predicted to operate with RFC values of less than 0.85 during both peak hours.

Employment Development (Planning Application 2021/1089) Assessment

An assessment of the impact of the proposed employment development on the future year operation of the junction has been undertaken.

Table 81: Pogmoor Road / Farmhouse Lane Junction - Modelling Summary (Planning Application 2021/1089)

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
2026 Employment Development				
Farmhouse Lane - LT	0.02	0.0	0.01	0.0
Farmhouse Lane - RT	0.35	0.5	0.13	0.2
Pogmoor Road (East)	0.02	0.0	0.03	0.0

The assessment indicates that with the addition of traffic associated with the proposed employment development, all approaches are predicted to operate with RFC values of less than 0.85 during both peak hours.

Cumulative Development (Planning Applications 2021/1089 and 2021/1090) Assessment

An assessment of the impact of the proposed residential and employment developments on the future year operation of the junction has been undertaken.

Table 82: Pogmoor Road / Farmhouse Lane Junction - Modelling Summary (Planning Applications 2021/1089 and 2021/1090)

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
2026 Phase 1 Development (Without Full Link Road)				
Farmhouse Lane - LT	0.02	0.0	0.01	0.0
Farmhouse Lane - RT	0.35	0.5	0.14	0.2
Pogmoor Road (East)	0.02	0.0	0.03	0.0
2026 Phase 1 Development (With Full Link Road)				
Farmhouse Lane - LT	0.02	0.0	0.01	0.0
Farmhouse Lane - RT	0.36	0.6	0.13	0.1
Pogmoor Road (East)	0.02	0.0	0.02	0.0
2033 With Full Development				
Farmhouse Lane - LT	0.03	0.0	0.02	0.0
Farmhouse Lane - RT	0.52	1.1	0.20	0.2
Pogmoor Road (East)	0.03	0.0	0.03	0.0

The assessment indicates that with the addition of traffic associated with the proposed residential and employment developments, all approaches are predicted to operate with RFC values of less than 0.85 during both peak hours.

Given the assessments undertaken, the proposed development is not predicted to have a significant impact on the future operation of the junction.

7.6.11 Farmhouse Lane / Wharfedale Road

A Junctions 10 model of the Farmhouse Lane / Wharfedale junction has been developed. The model results for the junction are summarised in the Tables below with the model outputs provided in full at Appendix J-18.

2022 Base Year Assessment

The 2022 Base Year model results are summarised in the Table below.

Table 83: Farmhouse Lane / Wharfedale Road Junction - Modelling Summary (2022 Base Year)

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
2022 Base Year				
Farmhouse Lane (West)	0.02	0.0	0.02	0.0
Wharfedale Road	0.03	0.0	0.03	0.0

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

Residential Development (Planning Application 2021/1090) Assessment

An assessment of the impact of the proposed residential development on the future year operation of the junction has been undertaken. The results are summarised in the Table below.

Table 84: Farmhouse Lane / Wharfedale Road Junction - Modelling Summary (Planning Application 2021/1090)

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
2026 Do Minimum				
Farmhouse Lane (West)	0.02	0.0	0.02	0.0
Wharfedale Road	0.03	0.0	0.03	0.0
2026 Residential Phase 1a Development				
Farmhouse Lane (West)	0.02	0.0	0.02	0.0
Wharfedale Road	0.03	0.0	0.03	0.0
2033 Do Minimum				
Farmhouse Lane (West)	0.03	0.0	0.02	0.0
Wharfedale Road	0.03	0.0	0.03	0.0
2033 Full Residential Development				
Farmhouse Lane (West)	0.08	0.1	0.06	0.1
Wharfedale Road	0.04	0.1	0.06	0.1

The assessment indicates that with the addition of traffic associated with the proposed residential development, all approaches are predicted to operate with RFC values of less than 0.85 during both peak hours.

Employment Development (Planning Application 2021/1089) Assessment

An assessment of the impact of the proposed employment development on the future year operation of the junction has been undertaken.



Table 85: Farmhouse Lane / Wharfedale Road Junction - Modelling Summary (Planning Application 2021/1089)

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
2026 Do Minimum				
Farmhouse Lane (West)	0.02	0.0	0.02	0.0
Wharfedale Road	0.03	0.0	0.03	0.0
2026 Employment Development				
Farmhouse Lane (West)	0.02	0.0	0.02	0.0
Wharfedale Road	0.03	0.0	0.03	0.0

The assessment indicates that with the addition of traffic associated with the proposed employment development, all approaches are predicted to operate with RFC values of less than 0.85 during both peak hours.

Cumulative Development (Planning Applications 2021/1089 and 2021/1090) Assessment

An assessment of the impact of the proposed residential and employment developments on the future year operation of the junction has been undertaken.

Table 86: Farmhouse Lane / Wharfedale Road Junction - Modelling Summary (Planning Applications 2021/1089 and 2021/1090)

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
2026 Do Minimum				
Farmhouse Lane (West)	0.02	0.0	0.02	0.0
Wharfedale Road	0.03	0.0	0.03	0.0
2026 Phase 1 Development (Without Full Link Road)				
Farmhouse Lane (West)	0.02	0.0	0.02	0.0
Wharfedale Road	0.03	0.0	0.03	0.0
2026 Phase 1 Development (With Full Link Road)				
Farmhouse Lane (West)	0.02	0.0	0.02	0.0
Wharfedale Road	0.03	0.0	0.03	0.0
2033 Do Minimum				
Farmhouse Lane (West)	0.03	0.0	0.02	0.0
Wharfedale Road	0.03	0.0	0.03	0.0
2033 With Full Development				
Farmhouse Lane (West)	0.08	0.1	0.06	0.1
Wharfedale Road	0.04	0.1	0.06	0.1

The assessment indicates that with the addition of traffic associated with the proposed residential and employment developments, all approaches are predicted to operate with RFC values of less than 0.85 during both peak hours.

Given the assessments undertaken, the proposed development is not predicted to have a significant impact on the future operation of the junction.

7.6.12 A635 / Church Street / Silkstone Lane

A Junctions 10 model of the A635 / Church Street / Silkstone Lane junction has been developed. The model results for the junction are summarised in the Tables below with the model outputs provided in full at Appendix J-19.

2022 Base Year Assessment

The 2022 Base Year model results are summarised in the Table below.

Table 87: A635 / Church Street / Silkstone Lane Junction - Modelling Summary (2022 Base Year)

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
2022 Base Year				
Silkstone Lane - LT, AH	0.11	0.1	0.13	0.2
Silkstone Lane - RT, AH	0.16	0.2	0.17	0.2
A635 Lane Head Road (East)	0.00	0.0	0.00	0.0
Church Street	0.20	0.3	0.23	0.3
A635 Lane Head Road (West)	0.11	0.3	0.08	0.2

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

Residential Development (Planning Application 2021/1090) Assessment

An assessment of the impact of the proposed residential development on the future year operation of the junction has been undertaken. The results are summarised in the Table below.

Table 88: A635 / Church Street / Silkstone Lane Junction - Modelling Summary (Planning Application 2021/1090)

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
2026 Do Minimum				
Silkstone Lane - LT, AH	0.11	0.1	0.14	0.2
Silkstone Lane - RT, AH	0.16	0.2	0.18	0.2
A635 Lane Head Road (East)	0.00	0.0	0.00	0.0
Church Street	0.20	0.3	0.23	0.3
A635 Lane Head Road (West)	0.11	0.3	0.08	0.2
2026 Residential Phase 1a Development				
Silkstone Lane - LT, AH	0.11	0.1	0.14	0.2
Silkstone Lane - RT, AH	0.16	0.2	0.18	0.2
A635 Lane Head Road (East)	0.00	0.0	0.00	0.0
Church Street	0.20	0.3	0.23	0.3
A635 Lane Head Road (West)	0.11	0.3	0.08	0.2
2033 Do Minimum				
Silkstone Lane - LT, AH	0.12	0.1	0.15	0.2
Silkstone Lane - RT, AH	0.18	0.2	0.19	0.2
A635 Lane Head Road (East)	0.00	0.0	0.00	0.0
Church Street	0.22	0.3	0.26	0.4
A635 Lane Head Road (West)	0.13	0.3	0.09	0.2
2033 Full Residential Development				
Silkstone Lane - LT, AH	0.12	0.1	0.15	0.2
Silkstone Lane - RT, AH	0.18	0.2	0.20	0.3
A635 Lane Head Road (East)	0.00	0.0	0.00	0.0
Church Street	0.23	0.3	0.26	0.4
A635 Lane Head Road (West)	0.13	0.3	0.09	0.2

The assessment indicates that with the addition of traffic associated with the proposed residential development, all approaches are predicted to operate with RFC values of less than 0.85 during both peak hours.

Employment Development (Planning Application 2021/1089) Assessment

An assessment of the impact of the proposed employment development on the future year operation of the junction has been undertaken. The results are summarised in the Table below.

Table 89: A635 / Church Street / Silkstone Lane Street Junction - Modelling Summary (Planning Application 2021/1089)

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
2026 Do Minimum				
Silkstone Lane - LT, AH	0.11	0.1	0.14	0.2
Silkstone Lane - RT, AH	0.16	0.2	0.18	0.2
A635 Lane Head Road (East)	0.00	0.0	0.00	0.0
Church Street	0.20	0.3	0.23	0.3
A635 Lane Head Road (West)	0.11	0.3	0.08	0.2
2026 Employment Development				
Silkstone Lane - LT, AH	0.11	0.1	0.14	0.2
Silkstone Lane - RT, AH	0.17	0.2	0.18	0.2
A635 Lane Head Road (East)	0.00	0.0	0.00	0.0
Church Street	0.21	0.3	0.24	0.3
A635 Lane Head Road (West)	0.12	0.3	0.08	0.2

The assessment indicates that with the addition of traffic associated with the proposed employment development, all approaches are predicted to operate with RFC values of less than 0.85 during both peak hours.

Cumulative Development (Planning Applications 2021/1089 and 2021/1090) Assessment

An assessment of the impact of the proposed residential and employment developments on the future year operation of the junction has been undertaken. The results are summarised in the Table below.

Table 90: A635 / Church Street / Silkstone Lane Junction - Modelling Summary (Planning Applications 2021/1089 and 2021/1090)

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
2026 Do Minimum				
Silkstone Lane - LT, AH	0.11	0.1	0.14	0.2
Silkstone Lane - RT, AH	0.16	0.2	0.18	0.2
A635 Lane Head Road (East)	0.00	0.0	0.00	0.0
Church Street	0.20	0.3	0.23	0.3
A635 Lane Head Road (West)	0.11	0.3	0.08	0.2
2026 Phase 1 Development (Without Full Link Road)				
Silkstone Lane - LT, AH	0.11	0.1	0.14	0.2
Silkstone Lane - RT, AH	0.17	0.2	0.18	0.2
A635 Lane Head Road (East)	0.00	0.0	0.00	0.0
Church Street	0.21	0.3	0.24	0.3
A635 Lane Head Road (West)	0.12	0.3	0.08	0.2
2026 Phase 1 Development (With Full Link Road)				
Silkstone Lane - LT, AH	0.11	0.1	0.14	0.2
Silkstone Lane - RT, AH	0.17	0.2	0.18	0.2
A635 Lane Head Road (East)	0.00	0.0	0.00	0.0
Church Street	0.21	0.3	0.24	0.3
A635 Lane Head Road (West)	0.12	0.3	0.08	0.2
2033 Do Minimum				
Silkstone Lane - LT, AH	0.12	0.1	0.15	0.2
Silkstone Lane - RT, AH	0.18	0.2	0.19	0.2
A635 Lane Head Road (East)	0.00	0.0	0.00	0.0
Church Street	0.22	0.3	0.26	0.4
A635 Lane Head Road (West)	0.13	0.3	0.09	0.2
2033 With Full Development				
Silkstone Lane - LT, AH	0.12	0.1	0.15	0.2
Silkstone Lane - RT, AH	0.19	0.2	0.21	0.3
A635 Lane Head Road (East)	0.00	0.0	0.00	0.0
Church Street	0.23	0.3	0.26	0.4



A635 Lane Head Road (West)	0.13	0.3	0.09	0.2
----------------------------	------	-----	------	-----

The assessment indicates that with the addition of traffic associated with the proposed residential and employment developments, all approaches are predicted to operate with RFC values of less than 0.85 during both peak hours.

Given the assessments undertaken, the proposed development is not predicted to have a significant impact on the future operation of the junction.

7.6.13 A635 / Church Street

A Junctions 10 model of the A635 / Church Street junction has been developed. The model results for the junction are summarised in the Tables below with the model outputs provided in full at Appendix J-20.

2022 Base Year Assessment

The 2022 Base Year model results are summarised in the Table below.

Table 91: A635 / Church Street Junction - Modelling Summary (2022 Base Year)

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
2022 Base Year				
Church Street	0.07	0.1	0.06	0.1
A635 Lane Head Road (East)	0.07	0.1	0.16	0.4

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

Residential Development (Planning Application 2021/1090) Assessment

An assessment of the impact of the proposed residential development on the future year operation of the junction has been undertaken. The results are summarised in the Table below.

Table 92: A635 / Church Street Junction - Modelling Summary (Planning Application 2021/1090)

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
2026 Do Minimum				
Church Street	0.07	0.1	0.06	0.1
A635 Lane Head Road (East)	0.08	0.2	0.16	0.4
2026 Residential Phase 1a Development				
Church Street	0.07	0.1	0.06	0.1
A635 Lane Head Road (East)	0.08	0.2	0.16	0.4
2033 Do Minimum				
Church Street	0.07	0.1	0.06	0.1
A635 Lane Head Road (East)	0.09	0.2	0.18	0.4
2033 Full Residential Development				
Church Street	0.07	0.1	0.07	0.1
A635 Lane Head Road (East)	0.09	0.2	0.19	0.5

The assessment indicates that with the addition of traffic associated with the proposed residential development, all approaches are predicted to operate with RFC values of less than 0.85 during both peak hours.

Employment Development (Planning Application 2021/1089) Assessment

An assessment of the impact of the proposed employment development on the future year operation of the junction has been undertaken. The results are summarised in the Table below.

Table 93: A635/ Church Street Junction - Modelling Summary (Planning Application 2021/1089)

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
2026 Do Minimum				
Church Street	0.07	0.1	0.06	0.1
A635 Lane Head Road (East)	0.08	0.2	0.16	0.4
2026 Employment Development				
Church Street	0.07	0.1	0.06	0.1
A635 Lane Head Road (East)	0.08	0.2	0.17	0.4

The assessment indicates that with the addition of traffic associated with the proposed employment development, all approaches are predicted to operate with RFC values of less than 0.85 during both peak hours.

Cumulative Development (Planning Applications 2021/1089 and 2021/1090) Assessment

An assessment of the impact of the proposed residential and employment developments on the future year operation of the junction has been undertaken. The results are summarised in the Table below.

Table 94: A635 / Church Street Junction - Modelling Summary (Planning Applications 2021/1089 and 2021/1090)

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
2026 Do Minimum				
Church Street	0.07	0.1	0.06	0.1
A635 Lane Head Road (East)	0.08	0.2	0.16	0.4
2026 Phase 1 Development (Without Full Link Road)				
Church Street	0.07	0.1	0.06	0.1
A635 Lane Head Road (East)	0.08	0.2	0.17	0.4
2026 Phase 1 Development (With Full Link Road)				
Church Street	0.07	0.1	0.06	0.1
A635 Lane Head Road (East)	0.08	0.2	0.17	0.4
2033 Do Minimum				
Church Street	0.07	0.1	0.06	0.1
A635 Lane Head Road (East)	0.09	0.2	0.18	0.4
2033 With Full Development				
Church Street	0.08	0.1	0.07	0.1
A635 Lane Head Road (East)	0.10	0.2	0.19	0.5

The assessment indicates that with the addition of traffic associated with the proposed residential and employment developments, all approaches are predicted to operate with RFC values of less than 0.85 during both peak hours.

Given the assessments undertaken, the proposed development is not predicted to have a significant impact on the future operation of the junction.

7.6.14 Elmhirst Lane / A628 Whinby Road / B6099 / A628 Barnsley Road Roundabout

A Junctions 10 model of the Elmhirst Lane / A628 Whinby Road / B6099 / A628 Barnsley Road roundabout has been developed. The model results for the junction are summarised in the Tables below with the model outputs provided in full at Appendix J-21.

2022 Base Year Assessment

The 2022 Base Year model results are summarised in the Table below.

Table 95: A628 Whinby Road / B6099 / Elmhirst Lane Roundabout - Modelling Summary (2022 Base Year)

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
2022 Base Year				
Elmhirst Lane	0.04	0.0	0.06	0.1
A28 Whinby Road	0.41	0.8	0.55	1.2
B6099	0.18	0.2	0.23	0.3
A628 Barnsley Road	0.56	1.4	0.44	0.8

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

Residential Development (Planning Application 2021/1090) Assessment

An assessment of the impact of the proposed residential development on the future year operation of the junction has been undertaken. The results are summarised in the Table below.

Table 96: A628 Whinby Road / B6099 / Elmhirst Lane Roundabout - Modelling Summary (Planning Application 2021/1090)

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
2026 Do Minimum				
Elmhirst Lane	0.04	0.0	0.06	0.1
A28 Whinby Road	0.42	0.8	0.56	1.5
B6099	0.19	0.2	0.23	0.3
A628 Barnsley Road	0.57	1.4	0.44	0.9
2026 Residential Phase 1a Development				
Elmhirst Lane	0.04	0.0	0.06	0.1
A28 Whinby Road	0.42	0.8	0.56	1.3
B6099	0.19	0.2	0.23	0.3
A628 Barnsley Road	0.57	1.4	0.45	0.8
2033 Do Minimum				
Elmhirst Lane	0.05	0.1	0.06	0.1
A28 Whinby Road	0.44	0.9	0.60	1.5
B6099	0.20	0.3	0.25	0.3
A628 Barnsley Road	0.61	1.6	0.47	0.9
2033 Full Residential Development				
Elmhirst Lane	0.05	0.1	0.07	0.1
A28 Whinby Road	0.47	1.0	0.62	1.6
B6099	0.21	0.3	0.26	0.4
A628 Barnsley Road	0.62	1.7	0.50	1.0

The assessment indicates that with the addition of traffic associated with the proposed residential development, all approaches are predicted to operate with RFC values of less than 0.85 during both peak hours.

Employment Development (Planning Application 2021/1089) Assessment

An assessment of the impact of the proposed employment development on the future year operation of the junction has been undertaken. The results are summarised in the Table below.

Table 97: A628 Whinby Road / B6099 / Elmhirst Lane Roundabout - Modelling Summary (Planning Application 2021/1089)

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
2026 Do Minimum				
Elmhirst Lane	0.04	0.0	0.06	0.1
A28 Whinby Road	0.42	0.8	0.56	1.5
B6099	0.19	0.2	0.23	0.3
A628 Barnsley Road	0.57	1.4	0.44	0.9
2026 Employment Development				
Elmhirst Lane	0.04	0.0	0.06	0.1
A28 Whinby Road	0.42	0.8	0.57	1.4
B6099	0.19	0.3	0.23	0.3
A628 Barnsley Road	0.58	1.5	0.45	0.8

The assessment indicates that with the addition of traffic associated with the proposed employment development, all approaches are predicted to operate with RFC values of less than 0.85 during both peak hours.

Cumulative Development (Planning Applications 2021/1089 and 2021/1090) Assessment

An assessment of the impact of the proposed residential and employment developments on the future year operation of the junction has been undertaken. The results are summarised in the Table below.

Table 98: A628 Whinby Road / B6099 / Elmhirst Lane Roundabout - Modelling Summary (Planning Applications 2021/1089 and 2021/1090)

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
2026 Do Minimum				
Elmhirst Lane	0.04	0.0	0.06	0.1
A28 Whinby Road	0.42	0.8	0.56	1.5
B6099	0.19	0.2	0.23	0.3
A628 Barnsley Road	0.57	1.4	0.44	0.9
2026 Phase 1 Development (Without Full Link Road)				
Elmhirst Lane	0.04	0.0	0.06	0.1
A28 Whinby Road	0.43	0.8	0.57	1.4
B6099	0.19	0.3	0.24	0.3
A628 Barnsley Road	0.58	1.5	0.45	0.9
2026 Phase 1 Development (With Full Link Road)				
Elmhirst Lane	0.04	0.0	0.06	0.1
A28 Whinby Road	0.43	0.8	0.57	1.4
B6099	0.19	0.3	0.24	0.3
A628 Barnsley Road	0.58	1.5	0.45	0.9
2033 Do Minimum				
Elmhirst Lane	0.05	0.1	0.06	0.1
A28 Whinby Road	0.44	0.9	0.60	1.5
B6099	0.20	0.3	0.25	0.3
A628 Barnsley Road	0.61	1.6	0.47	0.9
2033 With Full Development				
Elmhirst Lane	0.05	0.1	0.07	0.1
A28 Whinby Road	0.48	1.0	0.63	1.7
B6099	0.21	0.3	0.26	0.4
A628 Barnsley Road	0.63	1.8	0.50	1.0

The assessment indicates that with the addition of traffic associated with the proposed residential and employment developments, all approaches are predicted to operate with RFC values of less than 0.85 during both peak hours.

Given the assessments undertaken, the proposed development is not predicted to have a significant impact on the future operation of the junction.

7.6.15 A637 / B6428 / Dearne Hall Lane Roundabout

A Junctions 10 model for the A637 / B6428 / Dearne Hall Lane roundabout has been developed. The model results are summarised in the Tables below with the model outputs provided in full at Appendix J-22.

2022 Base Year Assessment

The 2022 Base Year model results are summarised in the Table below. It should be noted that at the time of the traffic survey, the Dearne Hall Lane arm of the roundabout was not operational. As such, traffic using the roundabout has been re-assigned, as per the Transport Assessment prepared to accompany planning application 2013/0280. The calculations are presented at Appendix K.

Table 99: A637 / B6428 / Dearne Hall Lane Roundabout - Modelling Summary (2022 Base Year)

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
2022 Base Year				
A637 North	0.76	3.1	0.54	1.2
Dearne Hall Lane	0.58	1.4	0.56	1.3
A637 South	0.67	2.1	0.81	4.1
B6428	0.64	1.8	0.80	3.9

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

Residential Development (Planning Application 2021/1090) Assessment

An assessment of the impact of the proposed residential development on the future year operation of the junction has been undertaken. The results are summarised in the Table below.

As per correspondence with BMBC, given the change in priority at the northern end of Dearne Hall Lane, all proposed development trips are assigned to wholly utilise Dearne Hall Lane when travelling towards Mapplewell along the B6428.

Table 100: A637 / B6428 / Dearne Hall Lane Roundabout - Modelling Summary (Planning Application 2021/1090)

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
2026 Do Minimum				
A637 North	0.83	4.6	0.59	1.5
Dearne Hall Lane	0.69	2.2	0.62	1.6
A637 South	0.72	2.6	0.89	7.3
B6428	0.68	2.1	0.92	7.8
2026 Residential Phase 1a Development				
A637 North	0.83	4.7	0.60	1.5
Dearne Hall Lane	0.69	2.2	0.63	1.7
A637 South	0.73	2.7	0.90	7.8
B6428	0.70	2.3	0.93	8.6
2033 Do Minimum				
A637 North	0.88	6.9	0.63	1.7
Dearne Hall Lane	0.75	3.0	0.67	2.0
A637 South	0.77	3.4	0.95	13.1
B6428	0.74	2.9	1.02	16.6
2033 Full Residential Development				
A637 North	0.91	8.9	0.67	2.1
Dearne Hall Lane	0.78	3.4	0.75	3.0
A637 South	0.82	4.4	1.00	21.8
B6428	0.85	5.1	1.08	26.4

The assessment indicates that:

- With the addition of traffic associated with the proposed Phase 1a residential development in 2026, the A637 (south) and B6428 arms are predicted to operate with RFC values in excess of 0.85 during the PM peak hour.
 - The A637 (south) arm is predicted to operate with an RFC value of 0.90 during the PM peak hour. The corresponding maximum average queue is 7.8 PCUs, representing an increase of less than 1 PCU when compared with the 2026 Do Minimum assessment scenario. This increase in queueing is not considered to be significant.

- The A637 (south) arm is predicted to operate with an RFC value of 0.93 during the PM peak hour. The corresponding maximum average queue is 8.6 PCUs, representing an increase of less than 1 PCU when compared with the 2026 Do Minimum assessment scenario. This increase in queueing is not considered to be significant.
- With the addition of traffic associated with the proposed full residential development in 2033, the A637 (north) arm is predicted to operate with an RFC value in excess of 0.85 during the AM peak hour. The A637 (south) and B6428 arms are predicted to operate with RFC values at/in excess of 1.0 during the PM peak hour.
- The A637 (north) arm is predicted to operate with an RFC value of 0.91 during the AM peak hour. The corresponding maximum average queue is 8.9 PCUs, representing an increase 2.0 PCUs when compared with the 2033 Do Minimum assessment scenario. This increase in queueing is not considered to be significant.
- The A637 (south) arm is predicted to operate with an RFC value of 1.00 during the PM peak hour. The corresponding maximum average queue is 21.8 PCUs, representing an increase of 8.7 PCUs when compared with the 2033 Do Minimum assessment scenario. This increase in queueing is not considered to be significant as there is sufficient stacking space to accommodate the modelled queue without impacting on upstream junctions.
- The A637 (south) arm is predicted to operate with an RFC value of 1.08 during the PM peak hour. The corresponding maximum average queue is 26.4 PCUs, representing an increase of 9.8 PCUs when compared with the 2033 Do Minimum assessment scenario. This increase in queueing is not considered to be significant as there is sufficient stacking space to accommodate the modelled queue without impacting on upstream junctions.

Employment Development (Planning Application 2021/1089) Assessment

An assessment of the impact of the proposed employment development on the future year operation of the junction has been undertaken. The results are summarised in the Table below.

As per correspondence with BMBC, given the change in priority at the northern end of Dearne Hall Lane, all proposed development trips are assigned to wholly utilise Dearne Hall Lane when travelling towards Mapplewell along the B6428.

Table 101: A637 / B6428 / Dearne Hall Lane Roundabout - Modelling Summary (Planning Application 2021/1089)

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
2026 Do Minimum				
A637 North	0.83	4.6	0.59	1.5
Dearne Hall Lane	0.69	2.2	0.62	1.6
A637 South	0.72	2.6	0.89	7.3
B6428	0.68	2.1	0.92	7.8
2026 Employment Development				
A637 North	0.84	5.2	0.60	1.5
Dearne Hall Lane	0.72	2.6	0.63	1.7
A637 South	0.73	2.8	0.90	7.7
B6428	0.71	2.5	0.98	12.4

The assessment indicates that:

- With the addition of traffic associated with the proposed employment development in 2026, the A637 (south) and B6428 arms are predicted to operate with RFC values in excess of 0.85 during the PM peak hour.
 - The A637 (south) arm is predicted to operate with an RFC value of 0.90 during the PM peak hour. The corresponding maximum average queue is 7.7 PCUs, representing an increase of less than 1 PCU when compared with the 2026 Do Minimum assessment scenario. This increase in queueing is not considered to be significant.
 - The A637 (south) arm is predicted to operate with an RFC value of 0.98 during the PM peak hour. The corresponding maximum average queue is 12.4 PCUs, representing an increase of 4.6 PCUs when compared with the 2026 Do Minimum assessment scenario. This increase in queueing is not considered to be significant.

Cumulative Development (Planning Applications 2021/1089 and 2021/1090) Assessment

An assessment of the impact of the proposed residential and employment developments on the future year operation of the junction has been undertaken. The results are summarised in the Table below.

As per correspondence with BMBC, given the change in priority at the northern end of Dearne Hall Lane, all proposed development trips are assigned to wholly utilise Dearne Hall Lane when travelling towards Mapplewell along the B6428.

Table 102: A637 / B6428 / Dearne Hall Lane Roundabout - Modelling Summary (Planning Applications 2021/1089 and 2021/1090)

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
2026 Do Minimum				
A637 North	0.83	4.6	0.59	1.5
Dearne Hall Lane	0.69	2.2	0.62	1.6
A637 South	0.72	2.6	0.89	7.3
B6428	0.68	2.1	0.92	7.8
2026 Phase 1 Development				
A637 North	0.85	5.4	0.61	1.6
Dearne Hall Lane	0.73	2.7	0.64	1.8
A637 South	0.74	2.9	0.90	8.2
B6428	0.72	2.6	0.99	13.8
2033 Do Minimum				
A637 North	0.88	6.9	0.63	1.7
Dearne Hall Lane	0.75	3.0	0.67	2.0
A637 South	0.77	3.4	0.95	13.1
B6428	0.74	2.9	1.02	16.6
2033 Full Development				
A637 North	0.93	10.7	0.68	2.1
Dearne Hall Lane	0.82	4.3	0.76	3.2
A637 South	0.83	4.8	1.00	23.5
B6428	0.88	6.3	1.14	37.5

The assessment indicates that:

- With the addition of traffic associated with the proposed Phase 1 development in 2026, the A637 (south) and B6428 arms are predicted to operate with RFC values in excess of 0.85 during the PM peak hour.

- The A637 (south) arm is predicted to operate with an RFC value of 0.90 during the PM peak hour. The corresponding maximum average queue is 8.2 PCUs, representing an increase of less than 1 PCU when compared with the 2026 Do Minimum assessment scenario. This increase in queueing is not considered to be significant.
- The A637 (south) arm is predicted to operate with an RFC value of 0.99 during the PM peak hour. The corresponding maximum average queue is 13.8 PCUs, representing an increase of 6.0 PCUs when compared with the 2026 Do Minimum assessment scenario. This increase in queueing is not considered to be significant.
- With the addition of traffic associated with the full proposed development in 2033, the A637 (north) and B6428 arms are predicted to operate with RFC values in excess of 0.85 during the AM peak hour. The A637 (south) and B6428 arms are predicted to operate with RFC values at/in excess of 1.0 during the PM peak hour.
 - The A637 (north) arm is predicted to operate with an RFC value of 0.93 during the AM peak hour. The corresponding maximum average queue is 10.7 PCUs, representing an increase 3.8 PCUs when compared with the 2033 Do Minimum assessment scenario. This increase in queueing is not considered to be significant.
 - The B6428 arm is predicted to operate with an RFC value of 0.88 during the AM peak hour. The corresponding maximum average queue is 6.3 PCUs, representing an increase 3.4 PCUs when compared with the 2033 Do Minimum assessment scenario. This increase in queueing is not considered to be significant.
 - The A637 (south) arm is predicted to operate with an RFC value of 1.00 during the PM peak hour. The corresponding maximum average queue is 23.5 PCUs, representing an increase of 10.4 PCUs when compared with the 2033 Do Minimum assessment scenario. This increase in queueing is not considered to be significant as there is sufficient stacking space to accommodate the modelled queue without impacting on key upstream junctions.
 - The A637 (south) arm is predicted to operate with an RFC value of 1.14 during the PM peak hour. The corresponding maximum average queue is 37.5 PCUs, representing an increase of 20.9 PCUs when compared with the 2033 Do Minimum assessment scenario. This increase in queueing is not considered to be significant as there is sufficient stacking space to accommodate the modelled queue without impacting on key upstream junctions.

Given the assessments undertaken, the proposed development is not predicted to have a significant impact on the future operation of the junction.

7.6.16 A635 / Church Street / Churchfield Lane Staggered Junction

A Junctions 10 model of the A635 / Church Street / Churchfield Lane staggered junction has been developed. The model results for the junction are summarised in the Tables below with the model outputs provided in full at Appendix J-23.

2022 Base Year Assessment

The 2022 Base Year model results are summarised in the Table below.

Table 103: A635 / Church Street / Churchfield Lane Staggered Junction - Modelling Summary (2022 Base Year)

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
2022 Base Year				
Church St LT	0.97	6.5	0.48	0.9
Church St RT	0.95	9.0	0.75	2.8
A637 RT to Churchfield Ln	0.00	0.0	0.01	0.0
Churchfield Ln LT	0.02	0.0	0.02	0.0
Churchfield Ln RT	0.52	1.1	0.44	0.8
A637 RT to Church St	0.26	0.4	0.64	1.7

The Table above shows that all approaches, except for the Church Street approach, operate with RFC values of less than 0.85 during both the Weekday AM and PM peak hours.

The Church Street left and right-turn approaches operate with RFC values of 0.97 and 0.95, respectively. The corresponding maximum average queues are 6.5 and 9.0 PCUs.

Residential Development (Planning Application 2021/1090) Assessment

An assessment of the impact of the proposed residential development on the future year operation of the junction has been undertaken. The results are summarised in the Table below.

Table 104: A635 / Church Street / Churchfield Lane Staggered Junction - Modelling Summary (Planning Application 2021/1090)

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
2026 Do Minimum				
Church St LT	1.26	29.2	1.03	11.5
Church St RT	1.24	39.1	1.03	11.3
A637 RT to Churchfield Ln	0.00	0.0	0.01	0.0
Churchfield Ln LT	0.02	0.0	0.02	0.0
Churchfield Ln RT	0.60	1.5	0.49	0.9
A637 RT to Church St	0.33	0.5	0.83	4.3
2026 Residential Phase 1a				
Church St LT	1.27	29.7	1.04	11.9
Church St RT	1.24	39.7	1.04	11.8
A637 RT to Churchfield Ln	0.00	0.0	0.01	0.0
Churchfield Ln LT	0.02	0.0	0.02	0.0
Churchfield Ln RT	0.60	1.5	0.49	0.9
A637 RT to Church St	0.33	0.5	0.83	4.3
2033 Do Minimum				
Church St LT	1.38	40.8	1.19	22.2
Church St RT	1.36	55.4	1.19	21.9
A637 RT to Churchfield Ln	0.00	0.0	0.01	0.0
Churchfield Ln LT	0.03	0.0	0.03	0.0
Churchfield Ln RT	0.69	2.1	0.54	1.2
A637 RT to Church St	0.35	0.6	0.89	6.5
2033 Full Residential Development				
Church St LT	1.40	43.2	1.24	25.8
Church St RT	1.39	58.5	1.24	25.4
A637 RT to Churchfield Ln	0.00	0.0	0.01	0.0
Churchfield Ln LT	0.03	0.0	0.03	0.0
Churchfield Ln RT	0.72	2.4	0.56	1.2
A637 RT to Church St	0.35	0.6	0.91	7.1

The assessment indicates that:

- In the 2026 future year, in both peak hours, the Church Street approaches are predicted to operate with RFC values in excess of 1.00 both with and without traffic associated with the proposed residential Phase 1a development. The corresponding maximum average queues are predicted to increase by less than 1 PCU when compared with the 2026 Do Minimum assessment scenario. This increase in queueing is not considered to be significant.
- In the 2033 future year, in both peak hours, the Church Street approaches are predicted to operate with RFC values in excess of 1.00 both with and without traffic associated with the proposed full residential development. The corresponding maximum average queues are predicted to increase by a maximum of 3.6 PCUs when compared with the 2033 Do Minimum assessment scenario. This increase in queueing is not considered to be significant.

Employment Development (Planning Application 2021/1089) Assessment

An assessment of the impact of the proposed employment development on the future year operation of the junction has been undertaken. The results are summarised in the Table below.

Table 105: A635 / Church Street / Churchfield Lane Staggered Junction - Modelling Summary (Planning Application 2021/1089)

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
2026 Do Minimum				
Church St LT	1.26	29.2	1.03	11.5
Church St RT	1.24	39.1	1.03	11.3
A637 RT to Churchfield Ln	0.00	0.0	0.01	0.0
Churchfield Ln LT	0.02	0.0	0.02	0.0
Churchfield Ln RT	0.60	1.5	0.49	0.9
A637 RT to Church St	0.33	0.5	0.83	4.3
2026 Employment Development				
Church St LT	1.28	31.1	1.04	12.3
Church St RT	1.25	40.8	1.04	12.0
A637 RT to Churchfield Ln	0.00	0.0	0.01	0.0
Churchfield Ln LT	0.02	0.0	0.02	0.0
Churchfield Ln RT	0.61	1.5	0.49	0.9
A637 RT to Church St	0.33	0.5	0.84	4.5

The assessment indicates that:

- In the 2026 future year, in both peak hours, the Church Street approaches are predicted to operate with RFC values in excess of 1.00 both with and without traffic associated with the proposed employment development. The corresponding maximum average queues on are predicted to increase by less than 2 PCUs when compared with the 2026 Do Minimum assessment scenario. This increase in queueing is not considered to be significant.

Cumulative Development (Planning Applications 2021/1089 and 2021/1090) Assessment

An assessment of the impact of the proposed residential and employment developments on the future year operation of the junction has been undertaken. The results are summarised in the Table below.

Table 106: A635 / Church Street / Churchfield Lane Staggered Junction - Modelling Summary (Planning Applications 2021/1089 and 2021/1090)

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
2026 Do Minimum				
Church St LT	1.26	29.2	1.03	11.5
Church St RT	1.24	39.1	1.03	11.3
A637 RT to Churchfield Ln	0.00	0.0	0.01	0.0
Churchfield Ln LT	0.02	0.0	0.02	0.0
Churchfield Ln RT	0.60	1.5	0.49	0.9
A637 RT to Church St	0.33	0.5	0.83	4.3
2026 Phase 1 Development				
Church St LT	1.28	31.5	1.05	12.8
Church St RT	1.26	41.4	1.05	12.5
A637 RT to Churchfield Ln	0.00	0.0	0.01	0.0
Churchfield Ln LT	0.03	0.0	0.02	0.0
Churchfield Ln RT	0.61	1.6	0.49	1.0
A637 RT to Church St	0.33	0.5	0.84	4.6
2033 Do Minimum				
Church St LT	1.38	40.8	1.19	22.2
Church St RT	1.36	55.4	1.19	21.9
A637 RT to Churchfield Ln	0.00	0.0	0.01	0.0
Churchfield Ln LT	0.03	0.0	0.03	0.0
Churchfield Ln RT	0.69	2.1	0.54	1.2
A637 RT to Church St	0.35	0.6	0.89	6.5
2033 Full Development				
Church St LT	1.41	45.7	1.26	27.2
Church St RT	1.41	60.7	1.26	26.5
A637 RT to Churchfield Ln	0.00	0.0	0.01	0.0
Churchfield Ln LT	0.04	0.0	0.03	0.0
Churchfield Ln RT	0.73	2.5	0.56	1.3
A637 RT to Church St	0.36	0.6	0.92	7.6

The assessment indicates that:

- In the 2026 future year, in both peak hours, the Church Street approaches are predicted to operate with RFC values in excess of 1.00 both with and without traffic associated with the proposed residential Phase 1a development. The corresponding maximum average queues are predicted to increase by a maximum of 2.3 PCUs when compared with the 2026 Do Minimum assessment scenario. This increase in queueing is not considered to be significant.
- In the 2033 future year, in both peak hours, the Church Street approaches are predicted to operate with RFC values in excess of 1.00 both with and without traffic associated with the proposed full residential development. The corresponding maximum average queues are predicted to increase by a maximum of 5.3 PCUs when compared with the 2033 Do Minimum assessment scenario. This increase in queueing is not considered to be significant.

It can be seen from the above assessments that in the 2026 and 2033 future years, the Church Street left-turn and right-turn approaches are predicted to operate with RFC values in excess of 1.00 both with and without traffic associated with the proposed development. The increase in queues is primarily a result of NTM /TEMPro traffic growth and traffic associated with committed developments. To isolate the impact of the proposed development, an additional assessment has been undertaken without traffic associated with NTM /TEMPro and committed developments. This is set out in the Table below.

Table 107: A635 / Church Street / Churchfield Lane Staggered Junction - Modelling Summary (2022 Base Year + Proposed Development)

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
2022 Base Year				
Church St LT	0.97	6.5	0.48	0.9
Church St RT	0.95	9.0	0.75	2.8
A637 RT to Churchfield Ln	0.00	0.0	0.01	0.0
Churchfield Ln LT	0.02	0.0	0.02	0.0
Churchfield Ln RT	0.52	1.1	0.44	0.8
A637 RT to Church St	0.26	0.4	0.64	1.7
2022 Base Year + Full Development				
Church St LT	1.00	8.2	0.53	1.1
Church St RT	0.99	11.1	0.79	3.3
A637 RT to Churchfield Ln	0.00	0.0	0.01	0.0
Churchfield Ln LT	0.02	0.0	0.02	0.0
Churchfield Ln RT	0.55	1.2	0.46	0.8
A637 RT to Church St	0.27	0.4	0.66	1.9

The assessment indicates that with the proposed development considered in isolation, the maximum average queues on the Church Street approach are predicted to increase by 1.7 and 2.1 PCUs on the left and right-turn approaches, respectively. This increase in queueing is not considered to be significant.

Given the assessments undertaken, the proposed development is not predicted to have a significant impact on the future operation of the junction.

7.6.17 B6131 Blacker Road / B6428 Spark Lane / B6428 Greenside Staggered Junction

A Junctions 10 model of the B6131 Blacker Road / B6428 Spark Lane / B6428 Greenside staggered junction has been developed. The model results for the junction are summarised in the Tables below with the model outputs provided in full at Appendix J-24.

2022 Base Year Assessment

The 2022 Base Year model results are summarised in the Table below.

Table 108: B6131 Blacker Road / B6428 Spark Lane / B6428 Greenside Staggered Junction - Modelling Summary (2022 Base Year)

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
2022 Base Year				
B6428 Spark Lane	0.71	2.4	0.86	5.0
B6131 Blacker Road (East)	0.32	0.8	0.23	0.6
B6428 Greenside - LT	0.15	0.2	0.38	0.6
B6428 Greenside - RT	0.56	1.3	0.75	2.7
B6131 Blacker Road (West)	0.19	0.5	0.17	0.4

The Table above shows that all approaches operate with RFC values of less than 0.85 during both the Weekday AM and PM peak hours, with the exception of the B6428 Spark Lane arm during the Weekday PM peak hour.

Residential Development (Planning Application 2021/1090) Assessment

An assessment of the impact of the proposed residential development on the future year operation of the junction has been undertaken. The results are summarised in the Table below.

Table 109: B6131 Blacker Road / B6428 Spark Lane / B6428 Greenside Staggered Junction - Modelling Summary (Planning Application 2021/1090)

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
2026 Do Minimum				
B6428 Spark Lane	0.72	2.7	0.87	5.3
B6131 Blacker Road (East)	0.32	0.8	0.24	0.6
B6428 Greenside - LT	0.15	0.2	0.39	0.7
B6428 Greenside - RT	0.57	1.3	0.76	2.8
B6131 Blacker Road (West)	0.19	0.5	0.17	0.4
2026 Residential Phase 1a Development				
B6428 Spark Lane	0.74	2.7	0.88	5.7
B6131 Blacker Road (East)	0.32	0.8	0.24	0.6
B6428 Greenside - LT	0.15	0.2	0.41	0.7
B6428 Greenside - RT	0.57	1.3	0.77	3.1
B6131 Blacker Road (West)	0.19	0.5	0.17	0.5
2033 Do Minimum				
B6428 Spark Lane	0.79	3.5	0.96	9.4
B6131 Blacker Road (East)	0.36	1.0	0.27	0.8
B6428 Greenside - LT	0.19	0.2	0.62	1.6
B6428 Greenside - RT	0.64	1.7	0.86	4.8
B6131 Blacker Road (West)	0.21	0.6	0.19	0.5
2033 Full Residential Development				
B6428 Spark Lane	0.92	7.8	1.06	19.1
B6131 Blacker Road (East)	0.37	1.1	0.28	0.8
B6428 Greenside - LT	0.21	0.3	0.99	6.3
B6428 Greenside - RT	0.68	2.0	1.01	11.6
B6131 Blacker Road (West)	0.22	0.6	0.20	0.6

The assessment indicates that:

- With the addition of background traffic growth and traffic associated with committed developments, the B6428 Spark Lane arm is predicted to continue to operate with an RFC value in excess of 0.85 during the Weekday PM peak hour in the 2026 and 2033 Do Minimum assessment scenarios. The B6428 Greenside (right-turn) approach is

predicted to operate with an RFC value in excess of 0.85 during the Weekday PM peak hour in the 2033 Do Minimum assessment scenario.

- With the addition of traffic associated with the proposed Phase 1a residential development in 2026, the B6428 Spark Lane arm is predicted to continue to operate with an RFC value in excess of 0.85 during the Weekday PM peak hour.
- With the addition of traffic associated with the proposed full residential development in 2033, the B6428 Spark Lane arm is predicted to operate with RFC values in excess of 0.85 and 1.0 during the AM and PM peak hours, respectively. During the PM peak hour, the B6428 Greenside left-turn and right-turn approaches are predicted to operate with RFC values in excess of 0.85 and 1.0, respectively.
 - The B6428 Spark Lane arm is predicted to operate with RFC values of 0.92 and 1.06 during the AM and PM peak hours, respectively. The corresponding maximum average queues are 7.8 and 19.1 PCUs, representing increases of 4.3 and 9.7 PCUs when compared with the 2033 Do Minimum assessment scenario. This increase in queueing is not considered to be significant as there is sufficient stacking space to accommodate the modelled queue without impacting on upstream junctions.
 - The B6428 Greenside left-turn and right-turn approaches are predicted to operate with RFC values of 0.99 and 1.01 during the PM peak hour. The corresponding maximum average queues are 6.3 and 11.6 PCUs, representing increases of 4.7 and 6.8 PCUs when compared with the 2033 Do Minimum assessment scenario. This increase in queueing is not considered to be significant as there is sufficient stacking space to accommodate the modelled queue without impacting on upstream junctions.

Employment Development (Planning Application 2021/1089) Assessment

An assessment of the impact of the proposed employment development on the future year operation of the junction has been undertaken. The results are summarised in the Table below.

Table 110: B6131 Blacker Road / B6428 Spark Lane / B6428 Greenside Staggered Junction - Modelling Summary (Planning Application 2021/1089)

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
2026 Do Minimum				
B6428 Spark Lane	0.72	2.7	0.87	5.3
B6131 Blacker Road (East)	0.32	0.8	0.24	0.6
B6428 Greenside - LT	0.15	0.2	0.39	0.7
B6428 Greenside - RT	0.57	1.3	0.76	2.8
B6131 Blacker Road (West)	0.19	0.5	0.17	0.4
2026 Employment Development				
B6428 Spark Lane	0.74	2.8	0.91	7.0
B6131 Blacker Road (East)	0.32	0.9	0.24	0.6
B6428 Greenside - LT	0.16	0.2	0.42	0.7
B6428 Greenside - RT	0.60	1.5	0.78	3.2
B6131 Blacker Road (West)	0.20	0.5	0.17	0.5

The assessment indicates that:

- With the addition of background traffic growth and traffic associated with committed developments, the B6428 Spark Lane arm is predicted to continue to operate with an RFC value in excess of 0.85 during the Weekday PM peak hour in the 2026 Do Minimum assessment scenario.
- With the addition of traffic associated with the proposed employment development, the B6428 Spark Lane arm is predicted to continue to operate with an RFC value in excess of 0.85 during the Weekday PM peak hour.
 - The B6428 Spark Lane arm is predicted to operate with RFC value of 0.91 during the PM peak hour. The corresponding maximum average queue is 7.0 PCUs, representing an increase of 1.7 PCUs when compared with the 2026 Do Minimum assessment scenario. This increase in queueing is not considered to be significant as there is sufficient stacking space to accommodate the modelled queue without impacting on key upstream junctions.

Cumulative Development (Planning Applications 2021/1089 and 2021/1090) Assessment

An assessment of the impact of the proposed residential and employment developments on the future year operation of the junction has been undertaken. The results are summarised in the Table below.

Table 111: B6131 Blacker Road / B6428 Spark Lane / B6428 Greenside Staggered Junction - Modelling Summary (Planning Applications 2021/1089 and 2021/1090)

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
2026 Do Minimum				
B6428 Spark Lane	0.72	2.7	0.87	5.3
B6131 Blacker Road (East)	0.32	0.8	0.24	0.6
B6428 Greenside - LT	0.15	0.2	0.39	0.7
B6428 Greenside - RT	0.57	1.3	0.76	2.8
B6131 Blacker Road (West)	0.19	0.5	0.17	0.4
2026 Phase 1 Development				
B6428 Spark Lane	0.76	3.1	0.92	7.5
B6131 Blacker Road (East)	0.33	0.9	0.24	0.7
B6428 Greenside - LT	0.16	0.2	0.44	0.8
B6428 Greenside - RT	0.61	1.5	0.79	3.4
B6131 Blacker Road (West)	0.20	0.5	0.17	0.5
2033 Do Minimum				
B6428 Spark Lane	0.79	3.5	0.96	9.4
B6131 Blacker Road (East)	0.36	1.0	0.27	0.8
B6428 Greenside - LT	0.19	0.2	0.62	1.6
B6428 Greenside - RT	0.64	1.7	0.86	4.8
B6131 Blacker Road (West)	0.21	0.6	0.19	0.5
2033 With Full Development				
B6428 Spark Lane	0.95	9.4	1.10	24.8
B6131 Blacker Road (East)	0.37	1.1	0.28	0.8
B6428 Greenside - LT	0.23	0.3	1.01	6.9
B6428 Greenside - RT	0.72	2.4	1.04	13.5
B6131 Blacker Road (West)	0.22	0.6	0.21	0.6

The assessment indicates that:

- With the addition of background traffic growth and traffic associated with committed developments, the B6428 Spark Lane arm is predicted to continue to operate with an RFC value in excess of 0.85 during the Weekday PM peak hour in the 2026 and 2033 Do Minimum assessment scenarios. The B6428 Greenside (right-turn) approach is

predicted to operate with an RFC value in excess of 0.85 during the Weekday PM peak hour in the 2033 Do Minimum assessment scenario.

- With the addition of traffic associated with the proposed Phase 1 development in 2026, the B6428 Spark Lane arm is predicted to continue to operate with an RFC value in excess of 0.85 during the Weekday PM peak hour.
 - The B6428 Spark Lane arm is predicted to operate with RFC value of 0.92 during the PM peak hour. The corresponding maximum average queue is 7.5 PCUs, representing an increase of 2.2 PCUs when compared with the 2026 Do Minimum assessment scenario. This increase in queueing is not considered to be significant, as there is sufficient stacking space to accommodate the modelled queue without impacting on key upstream junctions.
- With the addition of traffic associated with the full proposed development in 2033, the B6428 Spark Lane arm is predicted to operate with RFC values in excess of 0.85 and 1.0 during the AM and PM peak hours, respectively. During the PM peak hour, the B6428 Greenside left-turn and right-turn approaches are predicted to operate with RFC values in excess of 1.0.
 - The B6428 Spark Lane arm is predicted to operate with RFC values of 0.95 and 1.10 during the AM and PM peak hours, respectively. The corresponding maximum average queues are 9.4 and 24.8 PCUs, representing increases of 5.9 and 15.4 PCUs when compared with the 2033 Do Minimum assessment scenario. This increase in queueing is not considered to be significant as there is sufficient stacking space to accommodate the modelled queue without impacting on upstream junctions.
 - The B6428 Greenside left-turn and right-turn approaches are predicted to operate with RFC values of 1.01 and 1.04 during the PM peak hour. The corresponding maximum average queues are 6.9 and 13.5 PCUs, representing increases of 5.3 and 8.7 PCUs when compared with the 2033 Do Minimum assessment scenario. This increase in queueing is not considered to be significant as there is sufficient stacking space to accommodate the modelled queue without impacting on upstream junctions.

Given the assessments undertaken, the proposed development is not predicted to have a significant impact on the future operation of the junction.

7.6.18 A61 Wakefield Road / B6428 Shaw Lane / B6428 Lee Lane Staggered Crossroads

A LinSig model of the A61 Wakefield Road / B6428 Shaw Lane / B6428 Lee Lane Staggered crossroads has been developed based on the identified mitigation scheme associated with planning application 2022/0471.

The model results for the junction are summarised in the Tables below with the model outputs provided in full at Appendix J-25.

Residential Development (Planning Application 2021/1090) Assessment

An assessment of the impact of the proposed residential development on the future year operation of the junction has been undertaken. The results are summarised in the Table below.

Table 112: A61 Wakefield Road / B6428 Shaw Lane / B6428 Lee Lane Staggered crossroads - Future Year Modelling Summary (Residential)

Link	2026 Future Year							
	AM Peak Hour				PM Peak Hour			
	Do Minimum		Residential Phase 1a Development		Do Minimum		Residential Phase 1a Development	
DoS %	MMQ pcu	DoS %	MMQ pcu	DoS %	MMQ Pcu	DoS %	MMQ pcu	
Wakefield Road (South) - 1/1	78.6	12.8	78.6	12.8	67.7	9.6	67.7	9.6
Lee Lane Left Turn 2/1	80.1	9.6	80.3	9.6	53.1	5.2	53.3	5.2
Lee Lane Right Turn	80.1	9.6	80.3	9.6	53.1	5.2	53.3	5.2
Wakefield Road (North East) - 3/1	33.1	4.0	33.2	4.0	63.5	9.4	63.9	9.5
Shaw Lane Left Turn - Arm 4/1	73.3	7.8	74.1	8.0	68.6	7.6	69.1	7.7
Shaw Lane Right Turn- Arm 4/2	73.3	7.8	74.1	8.0	68.6	7.6	69.1	7.7
Wakefield Road Inner (South East) - Arm 9	41.2	3.4	41.5	3.4	23.8	1.5	24.0	1.6
Wakefield Road Inner Left Turn - Arm 10/1	19.3	0.2	19.4	0.2	19.7	0.3	20.0	0.3
Wakefield Road Inner Straight - Arm 10/2	35.0	5.6	35.0	5.6	43.1	2.7	43.1	2.7
Wakefield Left Turn (Arm 11)	23.9	0.6	24.0	0.6	47.0	6.1	47.2	6.1
Shaw Lane (Pedestrian) - Arm 12	54.0	5.2	54.2	5.3	47.6	3.0	48.0	3.1
Cycle Time (seconds)	72		72		72		72	
Overall PRC (%)	12.3		12.1		31.3		30.3	

Table 113: A61 Wakefield Road / B6428 Shaw Lane / B6428 Lee Lane Staggered crossroads - Future Year Modelling Summary (Residential)

2033 Future Year								
Link	AM Peak Hour				PM Peak Hour			
	Do Minimum		Full Residential Development		Do Minimum		Full Residential Development	
	DoS %	MMQ pcu	DoS %	MMQ pcu	DoS %	MMQ Pcu	DoS %	MMQ pcu
Wakefield Road (South) - 1/1	83.2	14.4	83.2	14.4	71.3	10.4	73.9	10.7
Lee Lane Left Turn 2/1	84.6	10.9	84.8	11.0	56.1	5.6	55.2	5.6
Lee Lane Right Turn	84.6	10.9	84.8	11.0	56.1	5.6	55.2	5.6
Wakefield Road (North East) - 3/1	35.0	4.2	35.6	4.3	67.0	10.2	71.3	11.3
Shaw Lane Left Turn - Arm 4/1	77.6	8.8	82.5	10.0	72.5	8.4	72.4	8.6
Shaw Lane Right Turn - Arm 4/2	77.6	8.8	82.5	10.0	72.5	8.4	72.4	8.6
Wakefield Road Inner (South East) - Arm 9	43.4	3.6	45.4	4.1	25.2	1.7	27.2	1.9
Wakefield Road Inner Left Turn - Arm 10/1	0.2	0.2	20.8	0.2	20.9	0.3	22.5	0.4
Wakefield Road Inner Straight - Arm 10/2	6.1	6.1	36.9	5.9	45.3	3.1	46.6	2.8
Wakefield Left Turn (Arm 11)	25.8	0.9	26.3	0.9	50.6	6.7	51.8	6.9
Shaw Lane (Pedestrian) - Arm 12	57.1	5.8	57.7	5.8	50.5	3.4	52.9	3.5
Cycle Time (seconds)	72		72		72		72	
Overall PRC (%)	6.4		6.1		24.2		21.9	

The assessment indicates that with the addition of traffic associated with the proposed residential development, all junction approaches are predicted to operate with modelled degree of saturation (DoS) values within 90% during both peak hours.

Employment Development (Planning Application 2021/1089) Assessment

An assessment of the impact of the proposed employment development on the future year operation of the junction has been undertaken. The results are summarised in the Table below.

Table 114: A61 Wakefield Road / B6428 Shaw Lane / B6428 Lee Lane Staggered crossroads - Future Year Modelling Summary (Employment)

2026 Future Year								
Link	AM Peak Hour				PM Peak Hour			
	Do Minimum		Employment Development		Do Minimum		Employment Development	
	DoS %	MMQ pcu	DoS %	MMQ pcu	DoS %	MMQ Pcu	DoS %	MMQ pcu
Wakefield Road (South) - 1/1	78.6	12.8	78.6	12.8	67.7	9.6	67.7	9.6
Lee Lane Left Turn 2/1	80.1	9.6	80.3	9.6	53.1	5.2	53.3	5.2
Lee Lane Right Turn	80.1	9.6	80.3	9.6	53.1	5.2	53.3	5.2
Wakefield Road (North East) - 3/1	33.1	4.0	33.7	4.1	63.5	9.4	63.7	9.4
Shaw Lane Left Turn - Arm 4/1	73.3	7.8	73.9	7.9	68.6	7.6	69.6	7.8
Shaw Lane Right Turn - Arm 4/2	73.3	7.8	73.9	7.9	68.6	7.6	69.6	7.8
Wakefield Road Inner (South East) - Arm 9	41.2	3.4	41.4	3.4	23.8	1.5	24.3	1.7
Wakefield Road Inner Left Turn - Arm 10/1	19.3	0.2	19.6	0.2	19.7	0.3	19.9	0.3
Wakefield Road Inner Straight - Arm 10/2	35.0	5.6	35.0	5.6	43.1	2.7	43.1	2.7
Wakefield Left Turn (Arm 11)	23.9	0.6	24.1	0.6	47.0	6.1	47.2	6.1
Shaw Lane (Pedestrian) - Arm 12	54.0	5.2	54.5	5.3	47.6	3.0	47.8	3.1
Cycle Time (seconds)	72		72		72		72	
Overall PRC (%)	12.3		12.1		31.3		29.3	

The assessment indicates that with the addition of traffic associated with the proposed employment development, all junction approaches are predicted to operate with modelled degree of saturation (DoS) values within 90% during both peak hours.

Cumulative Development (Planning Applications 2021/1089 and 2021/1090) Assessment

An assessment of the impact of the proposed residential and employment developments on the future year operation of the junction has been undertaken. The results are summarised in the Table below.

Table 115: A61 Wakefield Road / B6428 Shaw Lane / B6428 Lee Lane Staggered crossroads - Future Year Modelling Summary (Cumulative)

2026 Future Year								
Link	AM Peak Hour				PM Peak Hour			
	Do Minimum		Phase 1		Do Minimum		Phase 1	
	DoS %	MMQ pcu	DoS %	MMQ pcu	DoS %	MMQ Pcu	DoS %	MMQ pcu
Wakefield Road (South) - 1/1	78.6	12.8	78.6	12.8	67.7	9.6	67.7	9.6
Lee Lane Left Turn 2/1	80.1	9.6	80.5	9.6	53.1	5.2	53.5	5.3
Lee Lane Right Turn	80.1	9.6	80.5	9.6	53.1	5.2	53.5	5.3
Wakefield Road (North East) - 3/1	33.1	4.0	33.8	4.1	63.5	9.4	64.0	9.5
Shaw Lane Left Turn - Arm 4/1	73.3	7.8	74.4	8.0	68.6	7.6	69.9	7.8
Shaw Lane Right Turn- Arm 4/2	73.3	7.8	74.4	8.0	68.6	7.6	69.9	7.8
Wakefield Road Inner (South East) - Arm 9	41.2	3.4	41.6	3.5	23.8	1.5	24.4	1.7
Wakefield Road Inner Left Turn - Arm 10/1	19.3	0.2	19.8	0.2	19.7	0.3	20.1	0.3
Wakefield Road Inner Straight - Arm 10/2	35.0	5.6	35.0	5.6	43.1	2.7	43.1	2.7
Wakefield Left Turn (Arm 11)	23.9	0.6	24.1	0.6	47.0	6.1	47.4	6.1
Shaw Lane (Pedestrian) - Arm 12	54.0	5.2	54.7	5.3	47.6	3.0	48.2	3.1
Cycle Time (seconds)	72		72		72		72	
Overall PRC (%)	12.3		11.8		31.3		28.7	

Table 116: A61 Wakefield Road / B6428 Shaw Lane / B6428 Lee Lane Staggered crossroads - Future Year Modelling Summary (Cumulative)

Link	2033 Future Year							
	AM Peak Hour				PM Peak Hour			
	Do Minimum		With Full Development		Do Minimum		With Full Development	
DoS %	MMQ pcu	DoS %	MMQ pcu	DoS %	MMQ Pcu	DoS %	MMQ pcu	
Wakefield Road (South) - 1/1	83.2	14.4	83.2	14.4	71.3	10.4	73.9	10.7
Lee Lane Left Turn 2/1	84.6	10.9	85.0	11.0	56.1	5.6	55.2	5.6
Lee Lane Right Turn	84.6	10.9	85.0	11.0	56.1	5.6	55.2	5.6
Wakefield Road (North East) - 3/1	35.0	4.2	36.1	4.4	67.0	10.2	71.6	11.3
Shaw Lane Left Turn - Arm 4/1	77.6	8.8	83.3	10.4	72.5	8.4	73.3	8.8
Shaw Lane Right Turn - Arm 4/2	77.6	8.8	83.3	10.4	72.5	8.4	73.3	8.8
Wakefield Road Inner (South East) - Arm 9	43.4	3.6	45.7	4.1	25.2	1.7	27.6	2.0
Wakefield Road Inner Left Turn - Arm 10/1	0.2	0.2	21.2	0.2	20.9	0.3	22.6	0.4
Wakefield Road Inner Straight - Arm 10/2	6.1	6.1	36.9	5.9	45.3	3.1	46.6	2.8
Wakefield Left Turn (Arm 11)	25.8	0.9	26.5	0.9	50.6	6.7	52.0	7.0
Shaw Lane (Pedestrian) - Arm 12	57.1	5.8	58.2	6.1	50.5	3.4	53.1	3.6
Cycle Time (seconds)	72		72		72		72	
Overall PRC (%)	6.4		5.9		24.2		21.9	

The assessment indicates that with the addition of traffic associated with the proposed residential and employment developments, all junction approaches are predicted to operate with modelled degree of saturation (DoS) values within 90% during both peak hours.

Given the assessments undertaken, the proposed development is not predicted to have a significant impact on the future operation of the junction.

7.6.19 Old Mill Lane / Victoria Road

A LinSig model of the Old Mill Lane / Victoria Road junction has been developed. The model has been developed based on the existing junction layout, plus controller specification and signal timings provided by BMBC. It is understood that the junction

operates on a demand-dependent basis, and to replicate this, green times have been optimised using LinSig. Cycle times of 100 seconds and 90 seconds are assumed for the AM and PM peak hours, respectively, based on the traffic survey videos and junction signal plan. For the purposes of this assessment, this cycle time is assumed as a common basis for the assessment, with the pedestrian crossing stage assumed to run in every cycle.

The model results are summarised in the Tables below with the model outputs provided in full at Appendix J-26.

2022 Base Year Assessment

The 2022 Base Year model results are summarised in the Table below.

Table 117: Old Mill Lane / Victoria Road - Base Year Modelling Summary

Link	2022 Base Year			
	AM Peak Hour		PM Peak Hour	
	DoS %	MMQ pcu	DoS %	MMQ pcu
A635 Old Mill Lane (Inner Lane)	53.0	4.8	53.4	3.9
A635 Old Mill Lane (Outer Lane)	67.8	11.0	70.2	9.3
Huddersfield Road inbound internal Old Mill Lane	35.4	3.9	32.7	3.6
Huddersfield Road (South) - Inner Lane	53.3	7.5	59.8	7.5
Huddersfield Road (South) - Outer Lane	69.1	11.4	71.1	10.2
Victoria Road Exit	66.2	6.8	69.0	8.0
Church Lane Ahead and Left	50.3	9.2	62.8	12.4
Church Lane Right Turn	28.0	3.3	62.4	6.4
Cycle Times (Sec)	100		90	
Overall PRC (%)	30.2		26.6	

The assessment indicates that all junction approaches are operate with modelled degree of saturation (DoS) values within 90% during both peak hours.

Residential Development (Planning Application 2021/1090) Assessment

An assessment of the impact of the proposed residential development on the future year operation of the junction has been undertaken. The results are summarised in the Table below.

Table 118: Old Mill Lane / Victoria Road - Future Year Modelling Summary (Residential)

2026 Future Year								
Link	AM Peak Hour				PM Peak Hour			
	Do Minimum		Residential Phase 1a Development		Do Minimum		Residential Phase 1a Development	
	DoS %	MMQ pcu	DoS %	MMQ pcu	DoS %	MMQ Pcu	DoS %	MMQ pcu
A635 Old Mill Lane (Inner Lane)	66.0	6.2	66.3	6.3	62.9	4.7	64.7	4.9
A635 Old Mill Lane (Outer Lane)	67.6	10.8	67.8	10.8	69.9	9.0	70.7	9.2
Huddersfield Road inbound internal Old Mill Lane	35.4	3.9	35.5	3.9	32.5	3.5	32.5	3.5
Huddersfield Road (South) - Inner Lane	57.5	8.4	58.4	8.7	57.9	7.4	58.4	7.4
Huddersfield Road (South) - Outer Lane	67.9	11.4	68.0	11.4	68.9	10.0	68.9	10.0
Victoria Road (East)	67.2	7.1	68.1	7.2	69.5	8.1	70.0	8.2
Church Lane Ahead and Left	51.8	9.7	52.0	9.8	63.2	12.5	63.9	12.9
Church Lane Right Turn	30.7	3.6	30.9	3.6	66.8	6.7	66.8	6.7
Cycle Times (Sec)	100		100		90		90	
Overall PRC (%)	32.6		32.2		28.7		27.2	

Table 119: Old Mill Lane / Victoria Road - Future Year Modelling Summary (Residential)

Link	2033 Future Year							
	AM Peak Hour				PM Peak Hour			
	Do Minimum		Full Residential Development		Do Minimum		Full Residential Development	
DoS %	MMQ pcu	DoS %	MMQ pcu	DoS %	MMQ Pcu	DoS %	MMQ pcu	
A635 Old Mill Lane (Inner Lane)	70.2	6.9	72.0	6.6	68.3	5.3	65.2	5.3
A635 Old Mill Lane (Outer Lane)	71.3	11.6	73.2	12.0	73.4	9.6	77.6	11.4
Huddersfield Road inbound internal Old Mill Lane	37.5	4.2	38.1	4.3	34.4	3.8	35.9	4.2
Huddersfield Road (South) - Inner Lane	60.6	9.0	69.1	10.7	61.4	8.0	70.8	9.2
Huddersfield Road (South) - Outer Lane	72.0	12.3	75.0	12.9	73.0	11.0	79.6	11.8
Victoria Road (East)	71.2	7.7	74.0	8.6	73.9	8.9	77.3	9.5
Church Lane Ahead and Left	54.9	10.5	57.0	11.5	67.0	14.0	72.5	16.4
Church Lane Right Turn	32.6	3.8	33.4	3.9	70.9	7.3	63.7	6.9
Cycle Times (Sec)	100		100		90		90	
Overall PRC (%)	25.0		19.9		21.8		13.0	

The assessment indicates that with the addition of traffic associated with the proposed residential development, all junction approaches are predicted to operate with modelled degree of saturation (DoS) values within 90% during both peak hours.

Employment Development (Planning Application 2021/1089) Assessment

An assessment of the impact of the proposed employment development on the future year operation of the junction has been undertaken. The results are summarised in the Table below.

Table 120: Old Mill Lane / Victoria Road - Future Year Modelling Summary (Employment)

Link	2026 Future Year							
	AM Peak Hour				PM Peak Hour			
	Do Minimum		Employment Development		Do Minimum		Employment Development	
	DoS %	MMQ pcu	DoS %	MMQ pcu	DoS %	MMQ Pcu	DoS %	MMQ pcu
A635 Old Mill Lane (Inner Lane)	66.0	6.2	48.4	4.4	62.9	4.7	43.6	3.1
A635 Old Mill Lane (Outer Lane)	67.6	10.8	73.1	13.0	69.9	9.0	74.6	10.6
Huddersfield Road inbound internal Old Mill Lane	35.4	3.9	37.2	4.3	32.5	3.5	33.6	3.8
Huddersfield Road (South) - Inner Lane	57.5	8.4	63.7	9.3	57.9	7.4	66.9	8.5
Huddersfield Road (South) - Outer Lane	67.9	11.4	72.5	11.9	68.9	10.0	74.6	10.6
Victoria Road (East)	67.2	7.1	72.6	7.6	69.5	8.1	71.1	8.4
Church Lane Ahead and Left	51.8	9.7	53.5	10.0	63.2	12.5	64.2	12.9
Church Lane Right Turn	30.7	3.6	27.4	3.4	66.8	6.7	59.6	6.3
Cycle Times (Sec)	100		100		90		90	
Overall PRC (%)	32.6		23.1		28.7		20.6	

The assessment indicates that with the addition of traffic associated with the proposed employment development, all junction approaches are predicted to operate with modelled degree of saturation (DoS) values within 90% during both peak hours.

Cumulative Development (Planning Applications 2021/1089 and 2021/1090) Assessment

An assessment of the impact of the proposed residential and employment developments on the future year operation of the junction has been undertaken. The results are summarised in the Table below.

Table 121: Old Mill Lane / Victoria Road - Future Year Modelling Summary (Cumulative)

2026 Future Year								
Link	AM Peak Hour				PM Peak Hour			
	Do Minimum		Phase 1		Do Minimum		Phase 1	
	DoS %	MMQ pcu	DoS %	MMQ pcu	DoS %	MMQ Pcu	DoS %	MMQ pcu
A635 Old Mill Lane (Inner Lane)	66.0	6.2	56.7	5.3	62.9	4.7	55.4	4.1
A635 Old Mill Lane (Outer Lane)	67.6	10.8	72.1	12.4	69.9	9.0	74.0	10.1
Huddersfield Road inbound internal Old Mill Lane	35.4	3.9	36.6	4.1	32.5	3.5	33.0	3.6
Huddersfield Road (South) - Inner Lane	57.5	8.4	64.6	9.5	57.9	7.4	64.8	8.4
Huddersfield Road (South) - Outer Lane	67.9	11.4	72.7	11.9	68.9	10.0	71.6	10.3
Victoria Road (East)	67.2	7.1	69.2	7.4	69.5	8.1	71.6	8.4
Church Lane Ahead and Left	51.8	9.7	54.4	10.4	63.2	12.5	65.0	13.3
Church Lane Right Turn	30.7	3.6	28.5	3.5	66.8	6.7	53.1	6.5
Cycle Times (Sec)	100		100		90		90	
Overall PRC (%)	32.6		23.8		28.7		21.6	

Table 122: Old Mill Lane / Victoria Road - Future Year Modelling Summary (Cumulative)

Link	2033 Future Year							
	AM Peak Hour				PM Peak Hour			
	Do Minimum		With Full Development		Do Minimum		With Full Development	
DoS %	MMQ pcu	DoS %	MMQ pcu	DoS %	MMQ Pcu	DoS %	MMQ pcu	
A635 Old Mill Lane (Inner Lane)	70.2	6.9	53.8	5.1	68.3	5.3	53.2	4.1
A635 Old Mill Lane (Outer Lane)	71.3	11.6	78.2	14.5	73.4	9.6	82.3	13.1
Huddersfield Road inbound internal Old Mill Lane	37.5	4.2	40.0	4.8	34.4	3.8	36.6	4.4
Huddersfield Road (South) - Inner Lane	60.6	9.0	76.3	11.8	61.4	8.0	78.3	10.5
Huddersfield Road (South) - Outer Lane	72.0	12.3	80.4	13.7	73.0	11.0	83.1	12.5
Victoria Road (East)	71.2	7.7	79.5	9.2	73.9	8.9	78.9	9.9
Church Lane Ahead and Left	54.9	10.5	58.7	11.8	67.0	14.0	73.5	16.7
Church Lane Right Turn	32.6	3.8	29.8	3.8	70.9	7.3	60.6	6.7
Cycle Times (Sec)	100		100		90		90	
Overall PRC (%)	25.0		11.9		21.8		8.3	

The assessment indicates that with the addition of traffic associated with the proposed residential and employment developments, all junction approaches are predicted to operate with modelled degree of saturation (DoS) values within 90% during both peak hours.

Given the assessments undertaken, the proposed development is not predicted to have a significant impact on the future operation of the junction.

7.6.20 Pogmoor Road/ Gawber Road

A LinSig model of the Pogmoor Road / Gawber Road junction has been developed. The model has been developed based on the existing junction layout, plus controller specification and signal timings provided by BMBC. It is understood that the junction operates on a demand-dependent basis, and to replicate this, green times have been optimised using LinSig. Cycle times of 100 seconds and 120 seconds are assumed for the AM and PM peak hours, respectively, based on the traffic survey videos and junction signal plan. For the purposes of this assessment, this cycle time is assumed as a common basis for the assessment, with the pedestrian crossing stage assumed to run in every cycle for robustness.

2022 Base Year Assessment

The 2022 Base Year model results are summarised in the Table below with the model outputs provided in full at Appendix J-27.

Table 123: Pogmoor Road / Gawber Road - Base Year Modelling Summary

Link	2022 Base Year			
	AM Peak Hour		PM Peak Hour	
	DoS %	MMQ pcu	DoS %	MMQ pcu
Greenfoot Lane	28.2	4.1	17.6	2.6
Gawber Road (west)	62.4	10.7	59.1	10.2
Pogmoor Road	63.8	11.1	60.8	14.4
Gawber Road (east)	28.4	4.1	34.2	5.4
Cycle Time (seconds)	100		120	
Overall PRC (%)	41.0		48.1	

The assessment indicates that all junction approaches operate with modelled degree of saturation (DoS) values within 90% during both peak hours.

Residential Development (Planning Application 2021/1090) Assessment

An assessment of the impact of the proposed residential development on the future year operation of the junction has been undertaken. The results are summarised in the Table below.

Table 124: Pogmoor Road / Gawber Road - Future Year Modelling Summary (Residential)

2026 Future Year								
Link	AM Peak Hour				PM Peak Hour			
	Do Minimum		Residential Phase 1a Development		Do Minimum		Residential Phase 1a Development	
	DoS %	MMQ pcu	DoS %	MMQ pcu	DoS %	MMQ Pcu	DoS %	MMQ pcu
Greenfoot Lane	28.7	4.1	28.8	4.2	18.1	2.6	18.1	2.6
Gawber Road (west)	64.1	11.1	64.7	11.3	61.0	10.4	61.5	10.6
Pogmoor Road	64.5	11.3	64.6	11.3	61.3	14.5	61.5	14.6
Gawber Road (east)	28.9	4.1	29.0	34.1	35.2	5.5	34.9	5.5
Cycle Time (seconds)	100		100		120		120	
Overall PRC (%)	39.5		39.0		46.8		46.3	

Table 125: Pogmoor Road / Gawber Road - Future Year Modelling Summary (Residential)

2033 Future Year								
Link	AM Peak Hour				PM Peak Hour			
	Do Minimum		Full Residential Development		Do Minimum		Full Residential Development	
	DoS %	MMQ pcu	DoS %	MMQ pcu	DoS %	MMQ Pcu	DoS %	MMQ pcu
Greenfoot Lane	30.5	4.4	32.1	4.6	20.2	2.8	21.8	2.9
Gawber Road (west)	69.6	12.3	72.4	13.4	64.7	11.4	68.1	12.2
Pogmoor Road	69.1	12.5	71.7	12.9	64.8	15.8	68.0	16.9
Gawber Road (east)	30.6	4.4	30.6	4.4	36.3	5.8	39.1	6.4
Cycle Time (seconds)	100		100		120		120	
Overall PRC (%)	29.3		24.2		38.8		32.1	

The assessment indicates that with the addition of traffic associated with the proposed residential development, all junction approaches are predicted to operate with modelled degree of saturation (DoS) values within 90% during both peak hours.

Employment Development (Planning Application 2021/1089) Assessment

An assessment of the impact of the proposed employment development on the future year operation of the junction has been undertaken. The results are summarised in the Table below.

Table 126: Pogmoor Road / Gawber Road - Future Year Modelling Summary (Employment)

2026 Future Year								
Link	AM Peak Hour				PM Peak Hour			
	Do Minimum		Employment Development		Do Minimum		Employment Development	
	DoS %	MMQ pcu	DoS %	MMQ pcu	DoS %	MMQ Pcu	DoS %	MMQ pcu
Greenfoot Lane	28.7	4.1	28.8	4.2	18.1	2.6	18.5	2.7
Gawber Road (west)	64.1	11.1	67.1	11.7	61.0	10.4	62.6	11.0
Pogmoor Road	64.5	11.3	65.7	11.7	61.3	14.5	62.8	14.9
Gawber Road (east)	28.9	4.1	30.8	4.4	35.2	5.5	34.3	5.5
Cycle Time (seconds)	100		100		120		120	
Overall PRC (%)	39.5		34.1		46.8		43.4	

The assessment indicates that with the addition of traffic associated with the proposed employment development, all junction approaches are predicted to operate with modelled degree of saturation (DoS) values within 90% during both peak hours.

Cumulative Development (Planning Applications 2021/1089 and 2021/1090) Assessment

An assessment of the impact of the proposed residential and employment developments on the future year operation of the junction has been undertaken. The results are summarised in the Table below.

Table 127: Pogmoor Road / Gawber Road - Future Year Modelling Summary (Cumulative)

2026 Future Year								
Link	AM Peak Hour				PM Peak Hour			
	Do Minimum		Phase 1		Do Minimum		Phase 1	
	DoS %	MMQ pcu	DoS %	MMQ pcu	DoS %	MMQ Pcu	DoS %	MMQ pcu
Greenfoot Lane	28.7	4.1	29.7	4.2	18.1	2.6	18.6	2.7
Gawber Road (west)	64.1	11.1	66.1	11.6	61.0	10.4	63.1	11.2
Pogmoor Road	64.5	11.3	67.8	11.9	61.3	14.5	63.1	15.0
Gawber Road (east)	28.9	4.1	30.1	4.4	35.2	5.5	34.8	5.6
Cycle Time (seconds)	100		100		120		120	
Overall PRC (%)	39.5		32.8		46.8		42.6	

Table 128: Pogmoor Road / Gawber Road - Future Year Modelling Summary (Cumulative)

Link	2033 Future Year							
	AM Peak Hour				PM Peak Hour			
	Do Minimum		With Full Development		Do Minimum		With Full Development	
	DoS %	MMQ pcu	DoS %	MMQ pcu	DoS %	MMQ Pcu	DoS %	MMQ pcu
Greenfoot Lane	30.5	4.4	32.2	4.6	20.2	2.8	22.5	3.0
Gawber Road (west)	69.6	12.3	73.8	13.9	64.7	11.4	69.6	12.8
Pogmoor Road	69.1	12.5	72.9	13.3	64.8	15.8	69.6	17.4
Gawber Road (east)	30.6	4.4	32.6	4.8	36.3	5.8	38.9	6.5
Cycle Time (seconds)	100		100		120		120	
Overall PRC (%)	29.3		21.9		38.8		29.2	

The assessment indicates that with the addition of traffic associated with the proposed residential and employment developments, all junction approaches are predicted to operate with modelled degree of saturation (DoS) values within 90% during both peak hours.

Given the assessments undertaken, the proposed development is not predicted to have a significant impact on the future operation of the junction.

7.6.21 Pogmoor Road / Summer Lane Junction

A LinSig model of the Pogmoor Road / Summer Lane junction has been developed. The model has been developed based on the existing junction layout, plus controller specification and signal timings provided by BMBC. It is understood that the junction operates on a demand-dependent basis, and to replicate this, green times have been optimised using LinSig. Cycle times of 60 seconds and 90 seconds are assumed for the AM and PM peak hours, respectively, based on the traffic survey videos and junction signal plan. For the purposes of this assessment, this cycle time is assumed as a common basis for the assessment, with the pedestrian crossing stage assumed to run in every cycle for robustness.

The 2022 Base Year model results are summarised in the Table below with the model outputs provided in full at Appendix J-28.

2022 Base Year Assessment

Table 129: Pogmoor Road / Summer Lane - Base Year Modelling Summary

Link	2022 Base Year			
	AM Peak Hour		PM Peak Hour	
	DoS %	MMQ pcu	DoS %	MMQ pcu
Pogmoor Road (North)	65.1	7.2	61.4	9.1
Pogmoor Road (South)	61.2	8.0	56.8	9.6
Summer Lane	67.4	5.8	63.4	11.2
Cycle Time (seconds)	60		90	
Overall PRC (%)	33.5		42.0	

The assessment indicates that all junction approaches operate with modelled degree of saturation (DoS) values within 90% during both peak hours.

Residential Development (Planning Application 2021/1090) Assessment

An assessment of the impact of the proposed residential development on the future year operation of the junction has been undertaken. The results are summarised in the Table below.

Table 130: Pogmoor Road / Summer Lane - Future Year Modelling Summary (Residential)

Link	2026 Future Year							
	AM Peak Hour				PM Peak Hour			
	Do Minimum		Residential Phase 1a Development		Do Minimum		Residential Phase 1a Development	
DoS %	MMQ pcu	DoS %	MMQ pcu	DoS %	MMQ Pcu	DoS %	MMQ pcu	
Pogmoor Road (North)	66.5	7.6	66.8	7.6	61.7	9.1	64.0	9.3
Pogmoor Road (South)	61.9	8.1	62.0	8.1	57.2	9.7	60.7	10.2
Summer Lane	68.4	5.9	68.7	6.0	63.8	11.3	62.5	11.1
Cycle Time (seconds)	60		60		90		90	
Overall PRC (%)	31.5		31.1		41.2		40.7	

Table 131: Pogmoor Road / Summer Lane - Future Year Modelling Summary (Residential)

2033 Future Year								
Link	AM Peak Hour				PM Peak Hour			
	Do Minimum		Full Residential Development		Do Minimum		Full Residential Development	
	DoS %	MMQ pcu	DoS %	MMQ pcu	DoS %	MMQ Pcu	DoS %	MMQ pcu
Pogmoor Road (North)	70.4	8.3	72.8	8.7	65.6	9.9	69.4	10.5
Pogmoor Road (South)	67.9	9.3	71.5	9.7	64.3	11.0	67.1	11.5
Summer Lane	72.7	6.6	73.9	6.7	67.8	12.4	68.8	12.8
Cycle Time (seconds)	60		60		90		90	
Overall PRC (%)	23.9		21.8		32.7		29.6	

The assessment indicates that with the addition of traffic associated with the proposed residential development, all junction approaches are predicted to operate with modelled degree of saturation (DoS) values within 90% during both peak hours.

Employment Development (Planning Application 2021/1089) Assessment

An assessment of the impact of the proposed employment development on the future year operation of the junction has been undertaken. The results are summarised in the Table below.

Table 132: Pogmoor Road / Summer Lane - Future Year Modelling Summary (Employment)

2026 Future Year								
Link	AM Peak Hour				PM Peak Hour			
	Do Minimum		Employment Development		Do Minimum		Employment Development	
	DoS %	MMQ pcu	DoS %	MMQ pcu	DoS %	MMQ Pcu	DoS %	MMQ pcu
Pogmoor Road (North)	66.5	7.6	70.4	7.9	61.7	9.1	62.9	9.3
Pogmoor Road (South)	61.9	8.1	66.6	8.8	57.2	9.7	59.2	10.0
Summer Lane	68.4	5.9	66.2	5.9	63.8	11.3	64.4	11.4
Cycle Time (seconds)	60		60		90		90	
Overall PRC (%)	31.5		27.8		41.2		39.8	

The assessment indicates that with the addition of traffic associated with the proposed employment development, all junction approaches are predicted to operate with modelled degree of saturation (DoS) values within 90% during both peak hours.

Cumulative Development (Planning Applications 2021/1089 and 2021/1090) Assessment

An assessment of the impact of the proposed residential and employment developments on the future year operation of the junction has been undertaken. The results are summarised in the Table below.

Table 133: Pogmoor Road / Summer Lane - Future Year Modelling Summary (Cumulative)

2026 Future Year								
Link	AM Peak Hour				PM Peak Hour			
	Do Minimum		Phase 1		Do Minimum		Phase 1	
	DoS %	MMQ pcu	DoS %	MMQ pcu	DoS %	MMQ Pcu	DoS %	MMQ pcu
Pogmoor Road (North)	66.5	7.6	70.7	8.0	61.7	9.1	63.1	9.3
Pogmoor Road (South)	61.9	8.1	66.7	8.8	57.2	9.7	59.2	10.0
Summer Lane	68.4	5.9	66.4	6.0	63.8	11.3	64.9	11.5
Cycle Time (seconds)	60		60		90		90	
Overall PRC (%)	31.5		27.3		41.2		38.7	

Table 134: Pogmoor Road / Summer Lane - Future Year Modelling Summary (Cumulative)

2033 Future Year								
Link	AM Peak Hour				PM Peak Hour			
	Do Minimum		With Full Development		Do Minimum		With Full Development	
	DoS %	MMQ pcu	DoS %	MMQ pcu	DoS %	MMQ Pcu	DoS %	MMQ pcu
Pogmoor Road (North)	70.4	8.3	73.4	8.8	65.6	9.9	85.4	9.6
Pogmoor Road (South)	67.9	9.3	71.6	10.6	64.3	11.0	61.3	7.4
Summer Lane	72.7	6.6	76.4	7.1	67.8	12.4	85.5	11.7
Cycle Time (seconds)	60		60		90		90	
Overall PRC (%)	23.9		17.7		32.7		5.3	

The assessment indicates that with the addition of traffic associated with the proposed residential and employment developments, all junction approaches are predicted to operate with modelled degree of saturation (DoS) values within 90% during both peak hours.

Given the assessments undertaken, the proposed development is not predicted to have a significant impact on the future operation of the junction.



7.6.22 Summer Lane / Victoria Crescent West Junction

A Junctions 10 model of the Summer Lane / Victoria Crescent West junction has been developed. The model results for the junction are summarised in the Tables below with the model outputs provided in full at Appendix J-29.

2022 Base Year Assessment

Table 135: Summer Lane / Victoria Crescent West Junction - Modelling Summary (2022 Base Year)

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
2022 Base Year				
Victoria Crescent West - LT	0.16	0.2	0.14	0.2
Victoria Crescent West - RT	0.13	0.2	0.15	0.2
Summer Lane (South)	0.24	0.5	0.27	0.6

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

Residential Development (Planning Application 2021/1090) Assessment

An assessment of the impact of the proposed residential development on the future year operation of the junction has been undertaken. The results are summarised in the Table below.

Table 136: Summer Lane / Victoria Crescent West Junction - Modelling Summary (Planning Application 2021/1090)

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
2026 Do Minimum				
Victoria Crescent West - LT	0.17	0.2	0.14	0.2
Victoria Crescent West - RT	0.14	0.2	0.15	0.2
Summer Lane (South)	0.25	0.5	0.27	0.6
2026 Residential Phase 1a Development				
Victoria Crescent West - LT	0.17	0.2	0.14	0.2
Victoria Crescent West - RT	0.14	0.2	0.16	0.2
Summer Lane (South)	0.25	0.5	0.27	0.7
2033 Do Minimum				
Victoria Crescent West - LT	0.18	0.2	0.15	0.2
Victoria Crescent West - RT	0.15	0.2	0.17	0.2
Summer Lane (South)	0.27	0.6	0.29	0.7
2033 Full Residential Development				
Victoria Crescent West - LT	0.18	0.2	0.15	0.2
Victoria Crescent West - RT	0.16	0.2	0.19	0.2
Summer Lane (South)	0.28	0.6	0.30	0.7

The assessment indicates that with the addition of traffic associated with the proposed residential development, all approaches are predicted to operate with RFC values of less than 0.85 during both peak hours.

Employment Development (Planning Application 2021/1089) Assessment

An assessment of the impact of the proposed employment development on the future year operation of the junction has been undertaken. The results are summarised in the Table below.

Table 137: Summer Lane / Victoria Crescent West Junction - Modelling Summary (Planning Application 2021/1089)

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
2026 Do Minimum				
Victoria Crescent West - LT	0.17	0.2	0.14	0.2
Victoria Crescent West - RT	0.14	0.2	0.15	0.2
Summer Lane (South)	0.25	0.5	0.27	0.6
2026 Employment Development				
Victoria Crescent West - LT	0.17	0.2	0.14	0.2
Victoria Crescent West - RT	0.14	0.2	0.15	0.2
Summer Lane (South)	0.25	0.5	0.27	0.6

The assessment indicates that with the addition of traffic associated with the proposed employment development, all approaches are predicted to operate with RFC values of less than 0.85 during both peak hours.

Cumulative Development (Planning Applications 2021/1089 and 2021/1090) Assessment

An assessment of the impact of the proposed residential and employment developments on the future year operation of the junction has been undertaken. The results are summarised in the Table below.

Table 138: Summer Lane / Victoria Crescent West Junction - Modelling Summary (Planning Applications 2021/1089 and 2021/1090)

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
2026 Do Minimum				
Victoria Crescent West - LT	0.17	0.2	0.14	0.2
Victoria Crescent West - RT	0.14	0.2	0.15	0.2
Summer Lane (South)	0.25	0.5	0.27	0.6
2026 Phase 1 Development (Without Full Link Road)				
Victoria Crescent West - LT	0.17	0.2	0.14	0.2
Victoria Crescent West - RT	0.14	0.2	0.16	0.2
Summer Lane (South)	0.25	0.5	0.27	0.6
2026 Phase 1 Development (With Full Link Road)				
Victoria Crescent West - LT	0.17	0.2	0.14	0.2
Victoria Crescent West - RT	0.14	0.2	0.16	0.2
Summer Lane (South)	0.25	0.5	0.27	0.6
2033 Do Minimum				
Victoria Crescent West - LT	0.18	0.2	0.15	0.2
Victoria Crescent West - RT	0.15	0.2	0.17	0.2
Summer Lane (South)	0.27	0.6	0.29	0.7
2033 With Full Development				
Victoria Crescent West - LT	0.18	0.2	0.15	0.2
Victoria Crescent West - RT	0.16	0.2	0.19	0.2
Summer Lane (South)	0.28	0.6	0.30	0.7

The assessment indicates that with the addition of traffic associated with the proposed residential and employment developments, all approaches are predicted to operate with RFC values of less than 0.85 during both peak hours.

Given the assessments undertaken, the proposed development is not predicted to have a significant impact on the future operation of the junction.

7.6.23 Townend Roundabout

The Townend roundabout is located on the edge of the town centre, and signal-controlled pedestrian crossings exist on approaches. Consequently, traffic conditions and interactions

with junctions in the immediate vicinity are complex. For the purposes of this assessment, a Junctions 10 model of Townend roundabout has therefore been developed to assess the impact of the development on the future operation of the roundabout, in isolation. The model results for the junction are summarised in the Tables below with the model outputs provided in full at Appendix J-30.

2022 Base Year Assessment

The 2022 Base Year model results are summarised in the Table below.

Table 139: Townend Roundabout - Modelling Summary (2022 Base Year)

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
2022 Base Year				
Shambles Street	0.41	0.7	0.53	1.1
Peel Street	0.17	0.2	0.46	0.9
A628 West Way	0.62	1.7	0.57	1.4
Racecommon Road	0.65	1.9	0.58	1.4
A628 Dodworth Road	0.45	0.9	0.55	1.2
Summer Lane	0.36	0.6	0.59	1.4

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

Residential Development (Planning Application 2021/1090) Assessment

An assessment of the impact of the proposed residential development on the future year operation of the junction has been undertaken. The results are summarised in the Table below.

Table 140: Townend Roundabout- Modelling Summary (Planning Application 2021/1090)

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
2026 Do Minimum				
Shambles Street	0.43	0.8	0.53	1.2
Peel Street	0.17	0.2	0.47	0.9
A628 West Way	0.64	1.8	0.58	1.4
Racecommon Road	0.68	2.1	0.58	1.4
A628 Dodworth Road	0.49	1.0	0.55	1.3
Summer Lane	0.38	0.6	0.60	1.5
2026 Residential Phase 1 (No Link)				
Shambles Street	0.43	0.8	0.54	1.2
Peel Street	0.17	0.2	0.47	0.9
A628 West Way	0.64	1.8	0.58	1.4
Racecommon Road	0.68	2.1	0.58	1.4
A628 Dodworth Road	0.49	1.0	0.56	1.4
Summer Lane	0.39	0.6	0.60	1.5
2033 Do Minimum				
Shambles Street	0.46	0.9	0.59	1.5
Peel Street	0.19	0.2	0.53	1.2
A628 West Way	0.69	2.2	0.62	1.7
Racecommon Road	0.76	3.0	0.64	1.8
A628 Dodworth Road	0.54	1.2	0.61	1.7
Summer Lane	0.42	0.7	0.66	1.9
2033 Full Residential Development (With Link)				
Shambles Street	0.47	0.9	0.60	1.6
Peel Street	0.19	0.2	0.55	1.2
A628 West Way	0.69	2.3	0.64	1.8
Racecommon Road	0.76	3.1	0.66	1.9
A628 Dodworth Road	0.56	1.4	0.63	1.8
Summer Lane	0.44	0.8	0.68	2.1

The assessment indicates that with the addition of traffic associated with the proposed residential development, all approaches are predicted to operate with RFC values of less than 0.85 during both peak hours.

Employment Development (Planning Application 2021/1089) Assessment

An assessment of the impact of the proposed employment development on the future year operation of the junction has been undertaken. The results are summarised in the Table below.

Table 141: Townend Roundabout - Modelling Summary (Planning Application 2021/1089)

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
2026 Do Minimum				
Shambles Street	0.43	0.8	0.53	1.2
Peel Street	0.17	0.2	0.47	0.9
A628 West Way	0.64	1.8	0.58	1.4
Racecommon Road	0.68	2.1	0.58	1.4
A628 Dodworth Road	0.49	1.0	0.55	1.3
Summer Lane	0.38	0.6	0.60	1.5
2026 Employment Development				
Shambles Street	0.43	0.8	0.54	1.2
Peel Street	0.17	0.2	0.48	0.9
A628 West Way	0.66	2.0	0.58	1.4
Racecommon Road	0.69	2.2	0.58	1.4
A628 Dodworth Road	0.50	1.1	0.57	1.4
Summer Lane	0.39	0.6	0.61	1.6

The assessment indicates that with the addition of traffic associated with the proposed employment development, all approaches are predicted to operate with RFC values of less than 0.85 during both peak hours.

Cumulative Development (Planning Applications 2021/1089 and 2021/1090) Assessment

An assessment of the impact of the proposed residential and employment developments on the future year operation of the junction has been undertaken. The results are summarised in the Table below.

Table 142: Townend Roundabout - Modelling Summary (Planning Applications 2021/1089 and 2021/1090)

Approach	Weekday AM Peak Hour		Weekday PM Peak Hour	
	RFC	Q	RFC	Q
2026 Do Minimum				
Shambles Street	0.43	0.8	0.53	1.2
Peel Street	0.17	0.2	0.47	0.9
A628 West Way	0.64	1.8	0.58	1.4
Racecommon Road	0.68	2.1	0.58	1.4
A628 Dodworth Road	0.49	1.0	0.55	1.3
Summer Lane	0.38	0.6	0.60	1.5
2026 Phase 1 Development				
Shambles Street	0.43	0.8	0.54	1.2
Peel Street	0.17	0.2	0.48	0.9
A628 West Way	0.66	2.0	0.59	1.5
Racecommon Road	0.69	2.2	0.59	1.4
A628 Dodworth Road	0.50	1.1	0.57	1.4
Summer Lane	0.39	0.6	0.61	1.6
2033 Do Minimum				
Shambles Street	0.46	0.9	0.59	1.5
Peel Street	0.19	0.2	0.53	1.2
A628 West Way	0.69	2.2	0.62	1.7
Racecommon Road	0.76	3.0	0.64	1.8
A628 Dodworth Road	0.54	1.2	0.61	1.7
Summer Lane	0.42	0.7	0.66	1.9
2033 Full Development				
Shambles Street	0.47	0.9	0.61	1.6
Peel Street	0.19	0.2	0.56	1.3
A628 West Way	0.71	2.5	0.65	1.9
Racecommon Road	0.78	3.4	0.67	2.0
A628 Dodworth Road	0.57	1.4	0.64	1.9
Summer Lane	0.44	0.8	0.70	2.3

The assessment indicates that with the addition of traffic associated with the proposed residential and employment developments, all approaches are predicted to operate with RFC values of less than 0.85 during both peak hours.

Given the assessments undertaken, the proposed development is not predicted to have a significant impact on the future operation of the junction.

7.7 Summary and Conclusion

This Section has provided assessments of the existing and future capacity of the junctions comprising the agreed study area.

It has been demonstrated that the likely changes in traffic flows associated with the proposed developments can be satisfactorily accommodated by the approved site access roundabouts onto Barugh Green Road and Higham Common Lane, by the proposed internal link road roundabouts and on wider local and strategic highway networks.



8 Personal Injury Collision Data Analysis

8.1 Introduction

This Section presents a review of personal injury collision data recorded at the junctions comprising the study highway network.

8.2 Personal Injury Collision Data

A review of personal injury collision data recorded at the junctions comprising the study highway network over the period covering 2016 to 2022 has been undertaken.

The personal injury collision data is summarised in the Table below and is described in further detail below.

Table 143: Personal Injury Collision Data Summary

Ref.	Junction / Link	Collision Severity			
		Slight	Serious	Fatal	Total
1	Barugh Green Road / Cannon Way Junction	0	0	0	0
2	Higham Common Road / Hermit Lane	0	0	0	0
3	Barugh Green Road/ Cawthorne Road, B6428 Higham Common Road	5	1	0	6
4	Barugh Green Road	0	2	0	2
5	Chestnut Tree Roundabout (A635 Barugh Green Road / Whaley Road/ A637 Claycliffe Road)	4	0	0	4
6	Barnsley Road / B6449 Roundabout	0	1	0	1
7	Whinby Road / Capitol Close Roundabout	1	0	0	1
8	Whinby Road / B6449 Roundabout	0	0	0	0
9	Whinby Road/ Higham Lane Roundabout	0	1	0	1
10	M1 Junction 37 Roundabout	5	1	0	6
11	M1 J37 Southbound off slip	2	1	0	3
12	M1 J37 Northbound off slip	2	0	0	2
13	M1 J37 Southbound on slip	1	0	0	1
14	M1 J37 Northbound on slip	0	0	0	0
15	A635/ Redbrook Road Junction	2	0	0	2
16	Redbrook Road/ Church Street Junction	0	0	0	0
17	Redbrook Road/ Intake Lane Junction	1	0	0	1

Ref.	Junction / Link	Collision Severity			
		Slight	Serious	Fatal	Total
18	Pogmoor Road/ Farmhouse Lane Junction	1	0	0	1
19	Pogmoor Road/ Intake Lane Junction	1	0	0	1
20	Farmhouse Lane/ Wharfedale Road Junction	0	0	0	0
21	A635/ Church Street/ Silkstone Lane Junction	3	1	0	4
22	A635/ Church Street Junction	0	0	1	1
23	B6131/ B6248 Staggered Junction	4	0	0	4
24	B6428/ A61 Staggered Junction	2	3	0	5
25	A628 Whinby Road/ B6099/ Elmhirst Lane Roundabout	2	0	0	2
26	Townend Roundabout	12	6	0	18
27	Old Mill Lane/ Victori Road/ A625 Signalised Junction	3	1	1	5
28	Gawber Road/ Pogmoor Road Signalised Junction	2	1	0	3
29	Pogmoor Road/ Summer Lane Signalised Junction	1	0	0	1
30	Summer Lane/ Victoria Crescent West Junction	0	0	0	0
Total		54	19	2	75

- There have been no recorded collisions in the most recent seven-year period (2016 to 2022) in the vicinity of the proposed roundabout on Higham Common Road or at the Higham Common Road / Hermit Lane junction in the vicinity of the committed site access junction.
- There have been no recorded collisions in the most recent seven-year period (2016 to 2022) in the vicinity of the Barugh Green Road and Cannon Way Junction.
- At the B6428 Higham Common Road, A635 Barugh Green Road and Cawthorne Road junction, there has been a total of five slight collisions and one serious collision within the search period.
- Along Barugh Green Road, there has been a total of two slight collisions within the search period.
- At the Chestnut Tree roundabout northeast of the site, there has been a total of four slight severity collisions within the search period. The collisions are not clustered by location or date. One collision involved a pedestrian and one collision involved a motorcyclist.

- At the four Whinby Road roundabouts there have been a total of three collisions. A collision resulting in injuries of slight severity occurred at the Whinby Road / Capitol Close roundabout, whilst the other collision occurred at the Higham Lane / Whinby Road roundabout and resulting in injuries of serious severity. The third collision resulting in slight severity meanwhile occurred at the Barnsley Road / B6449 Roundabout.
- Improvement works at Junction 37 (including installation of signal controls) were completed in late 2015. In the last four years there has been a total of five collisions resulting in injuries of slight severity and one resulting in injuries of serious severity.
- Along the four M1 Junction 37 slip roads there has been a total of five slight collisions and one serious collision within the most recent seven-year period (2016 to 2022). The collisions are not clustered by location or date.
- At the A635 / Redbrook Road Junction, there have been a total of two collisions of slight severity within the seven-year search period.
- At the junction between Redbrook Road and Intake Lane, there have been a total of 1 collision of slight severity recorded between the search period. No collisions were recorded between Redbrook Road and Church Street junction during the search period.
- One collision of slight severity was recorded at the Pogmoor Road and Farmhouse Lane junction during the seven-year search period between 2016 and 2022. There was also another collision of slight severity recorded at the Pogmoor Road and Intake Lane junction during the same search period. Meanwhile, no collision data were recorded at the Farmhouse / Wharfedale Road Junction.
- For the junction at Church Street, a collision resulting in a fatality was recorded between the Church Street and A635 junction during the seven-year search period (2016-2022). Within the same time period, three collision of slight severity and one collision of serious severity was recorded between the A635/ Church Street and Silkstone Lane junction.
- Four collision of slight severity was recorded at the B6131 / B6248 Staggered Junction during the seven-year search period. The collisions are not clustered by location or date. On the other hand, a total of two slight severity collisions and three serious severity collisions were recorded at the B6428/ A61 Staggered Junction between 2016 and 2022.
- At the A628 Whinby Road/ B6099/ Elmhirst Lane roundabout, two collisions of slight severity were recorded in 2022. The collisions were not clustered by location or date.

- At the Townend Roundabout, a total of twelve slight severity collisions and six serious severity collisions were reported during the seven-year period between 2016 and 2022. The collisions were not clustered by location or date.
- A total of three slight severity collisions, one serious severity collisions and one fatal severity collisions was recorded at the Old Mill Lane / Victoria Road and A625 Signalised Junction between the seven-year search period of 2016- 2022.
- For the Gawber Road / Pogmoor Road Signalised junction, two cases of slight severity collision and one serious severity collisions was reported between the seven-year search period of 2016-2022. Meanwhile, one slight severity collision was recorded at the Pogmoor Road / Summer Lane Signalised junction during the same search period. No collision was reported at the Summer Lane / Victoria Crescent West Junction.

Overall, it is considered there are no discernible patterns of collisions indicating a specific site-related issue that would need to be addressed to safely accommodate the changes in traffic flows associated with the development.

9 Summary and Conclusions

Fore Consulting Limited (Fore) has been commissioned by Strata Sterling Barnsley West Limited to provide transport advice in relation to two hybrid planning applications submitted in relation to a proposed development on land south of Barugh Green Road, Barnsley (Planning application references 2021/1090 and 2021/1089).

This Transport Assessment Addendum has been prepared to address the outstanding comments received from BMBC following submission of a revised Transport Assessment dated 22 March 2022 which incorporated comments received from BMBC and NH.

Further, since the submission of the planning applications, there has been some refinement to the proposed land uses and quantum of development. This report therefore sets out the updated trip generation associated with the proposed development and undertakes updated assessments of junctions on the identified study highway network, as agreed with BMBC, and on the strategic road network, as agreed with NH.

Further dialogue has been undertaken with both parties. Additional Technical Notes have been submitted to NH, specifically in relation to the operation of M1 Junction 37 and the adjacent Whinby Road / B6449 roundabout, located to the south east of the proposed development. NH has confirmed that based on the assessments undertaken, whilst the proposed development is predicted to have a traffic impact on M1 Junction 37, the residual impact is not sufficient to require mitigation. This position is subject to review of this document. The latest response from Jacobs Systra Joint Venture (JSJV) on behalf of NH recommends conditions relating to the Travel Plans and to cover the topic of boundary treatment.

Further comments were received from Barnsley relating to the scope of assessment (network extents), trip generation and distribution, assessment scenarios, committed development and spine road delivery. It is considered that this report has suitably addressed these comments.

This report has:

- Provided a summary of the proposed development following refinement to the proposed land uses and quantum of development.
- Set out the transport vision for the proposed development in line with DfT Circular 01/2022, along with the proposed mode shift targets set to achieve the vision.
- Set out the predicted residual vehicle trip generation of the proposed development.
- Detailed the diversionary impact of the construction of the proposed link road through the development, based on the Sheffield City Region Transport Model.

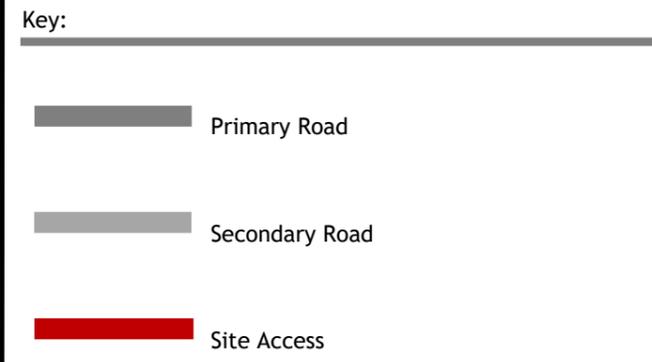
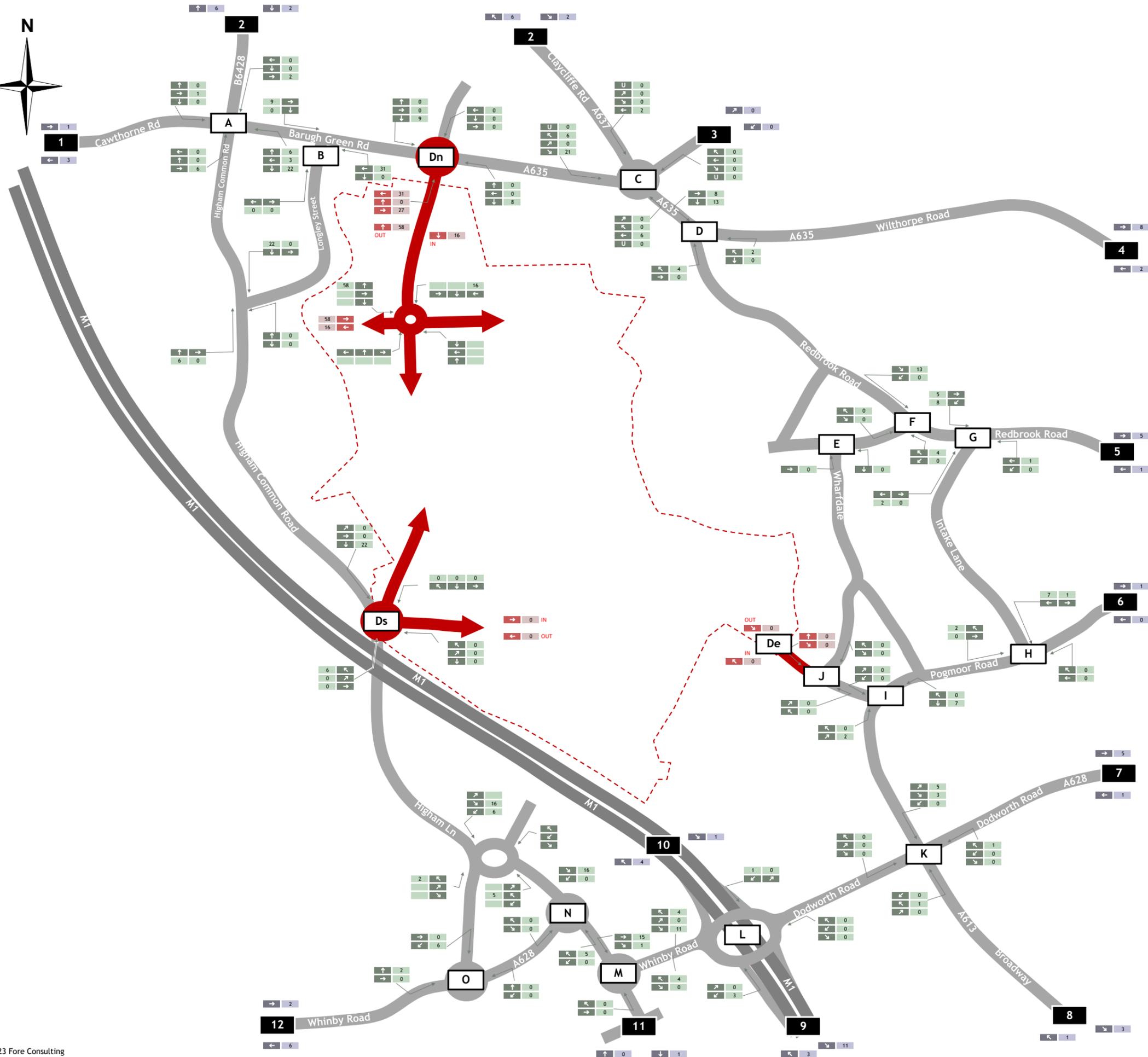
- Undertaken assessments of the capacity of the junctions comprising the agreed study area on both the local and strategic road networks.
- Undertaken a review of personal injury collision data recorded at the junctions comprising the study highway network.

It is concluded that:

- The likely changes in traffic flows associated with the proposed developments can be satisfactorily accommodated by the approved site access roundabouts onto Barugh Green Road and Higham Common Lane, by the proposed internal link road roundabouts and on wider local and strategic highway networks.
- There are no discernible patterns of collisions indicating a specific site-related issue that would need to be addressed to safely accommodate the changes in traffic flows associated with the development.

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

Figures



Fore Consulting Limited
1st Floor, 15 St Paul's Street
Leeds
LS1 2JG
enquiries@foreconsulting.co.uk
www.foreconsulting.co.uk



Client:
Strata Sterling Barnsley West Ltd

Project:
Proposed MU1 Residential and Employment Site, Barnsley

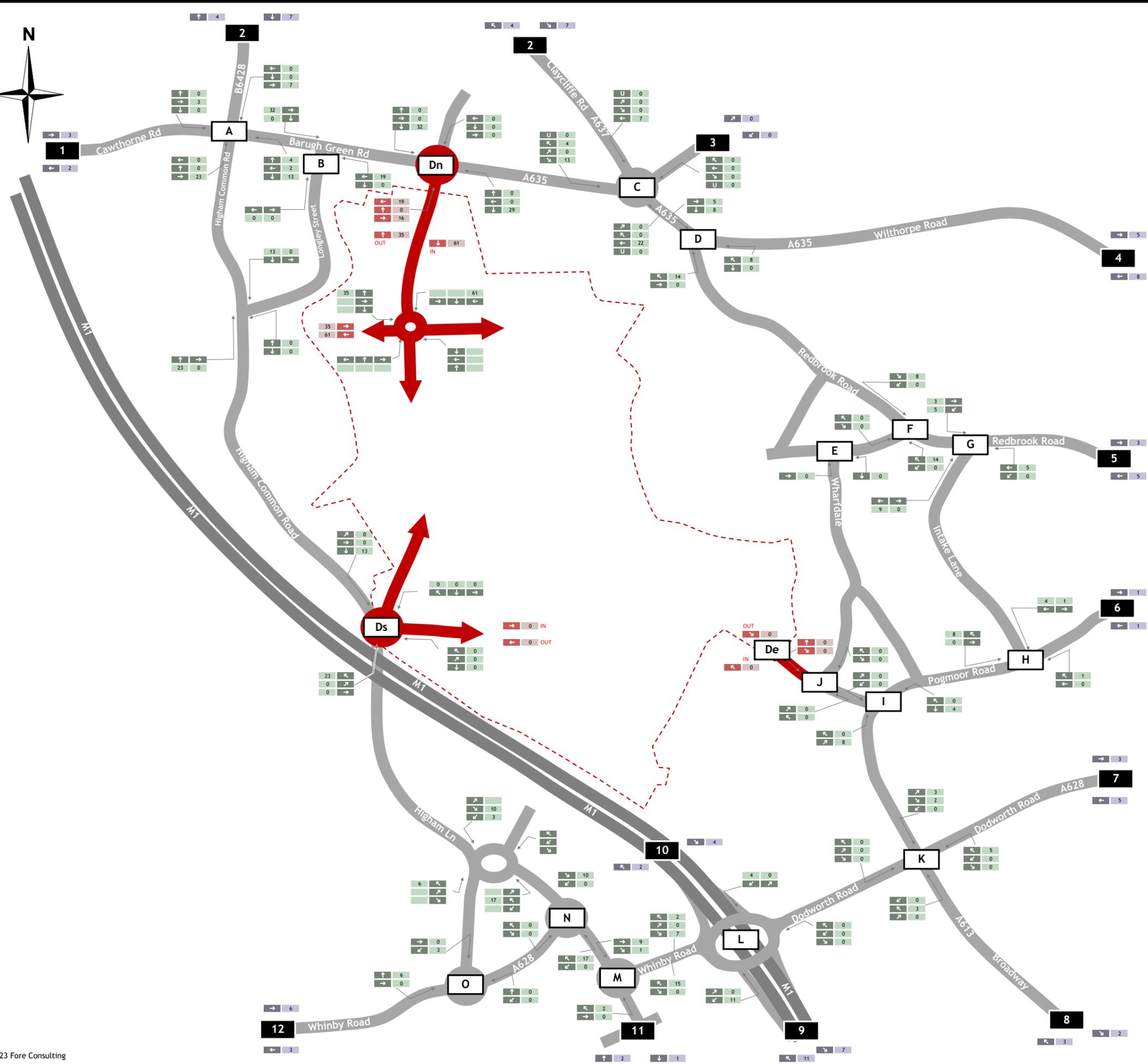
Figure Title:
Residential Phase 1a Residual Vehicle Trips - AM Peak Hour
(Without Full Link Road)

Scale:
Not to scale

Figure Status:
Issue

Job Number:
3062

Figure Number:
Figure 1



Key:

-  Primary Road
-  Secondary Road
-  Site Access

Fore Consulting Limited
1st Floor, 15 St Paul's Street
Leeds
LS1 2JG
enquiries@foreconsulting.co.uk
www.foreconsulting.co.uk



Client:

Strata Sterling Barnsley West Ltd

Project:

Proposed MU1 Residential and Employment Site, Barnsley

Figure Title:

Residential Phase 1a Residual Vehicle Trips - PM Peak Hour
(Without Full Link Road)

Scale:

Not to scale

Figure Status:

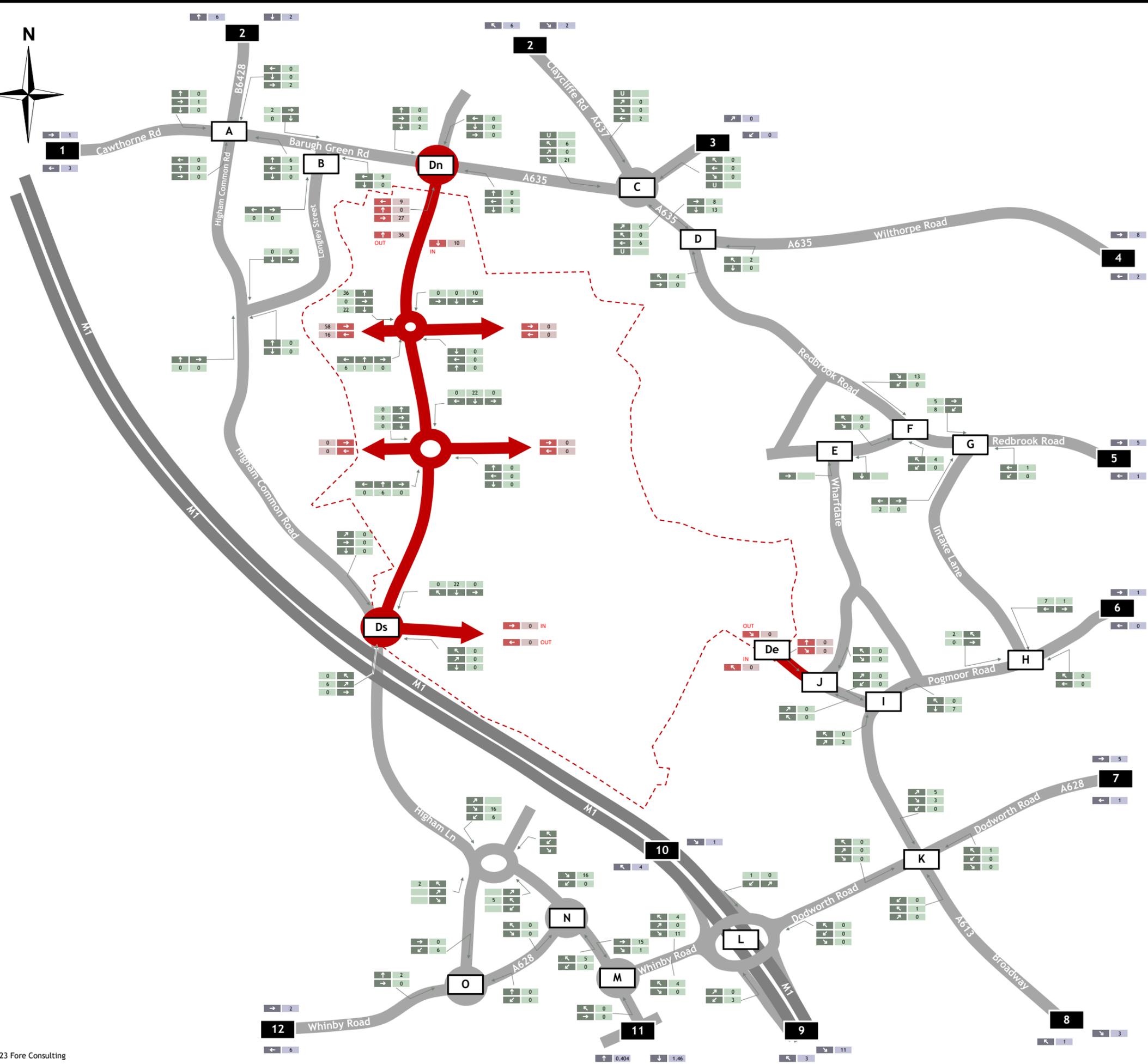
Issue

Job Number:

3062

Figure Number:

Figure 2



Key:

- Primary Road
- Secondary Road
- Site Access

Fore Consulting Limited
1st Floor, 15 St Paul's Street
Leeds
LS1 2JG
enquiries@foreconsulting.co.uk
www.foreconsulting.co.uk



Client:
Strata Sterling Barnsley West Ltd

Project:
Proposed MU1 Residential and Employment Site, Barnsley

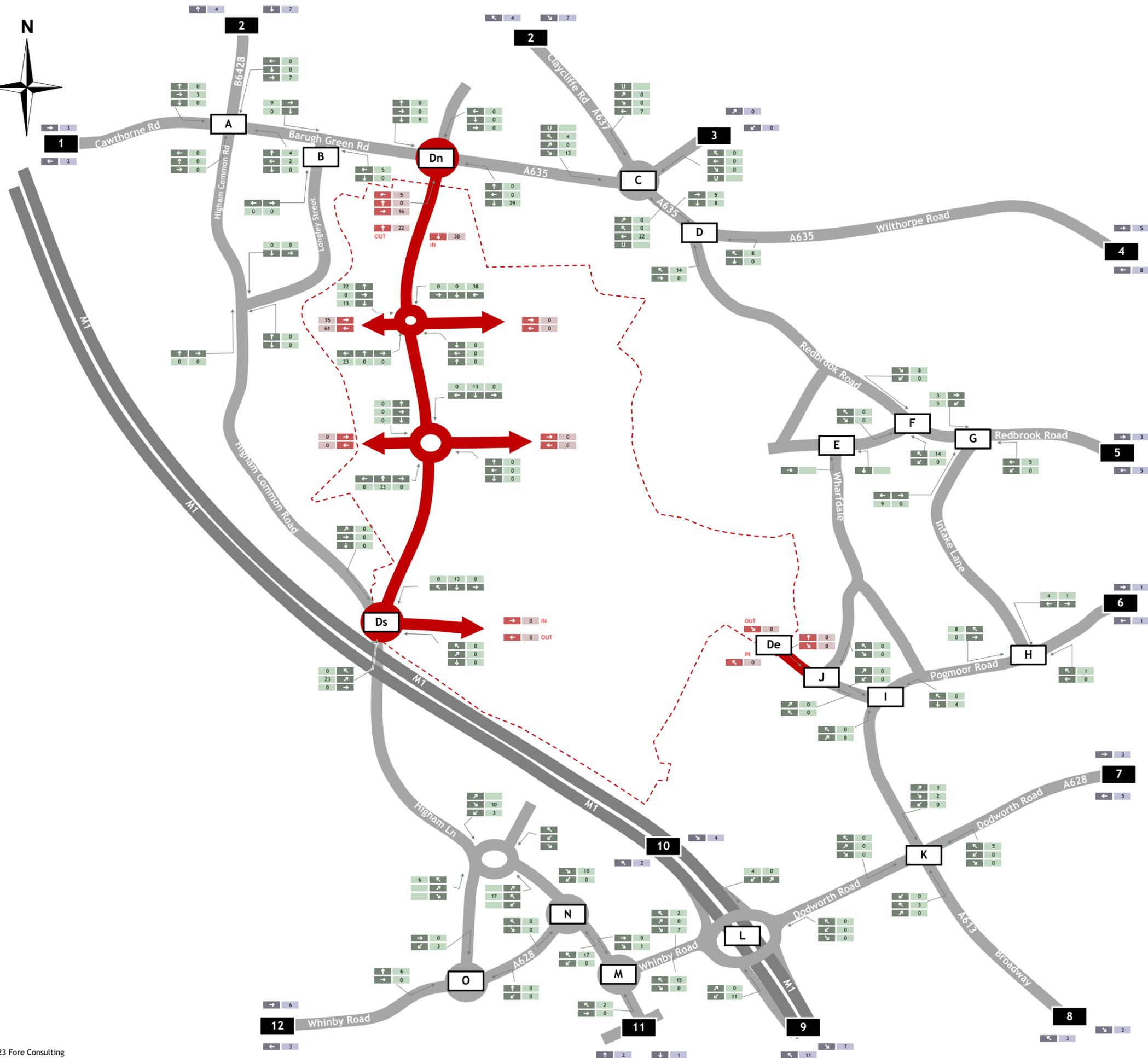
Figure Title:
Residential Phase 1a Residual Vehicle Trips - AM Peak Hour
(With Full Link Road)

Scale:
Not to scale

Figure Status:
Issue

Job Number:
3062

Figure Number:
Figure 3



Key:

- Primary Road
- Secondary Road
- Site Access

Fore Consulting Limited
1st Floor, 15 St Paul's Street
Leeds
LS1 2JG
enquiries@foreconsulting.co.uk
www.foreconsulting.co.uk



Client:
Strata Sterling Barnsley West Ltd

Project:
Proposed MU1 Residential and Employment Site, Barnsley

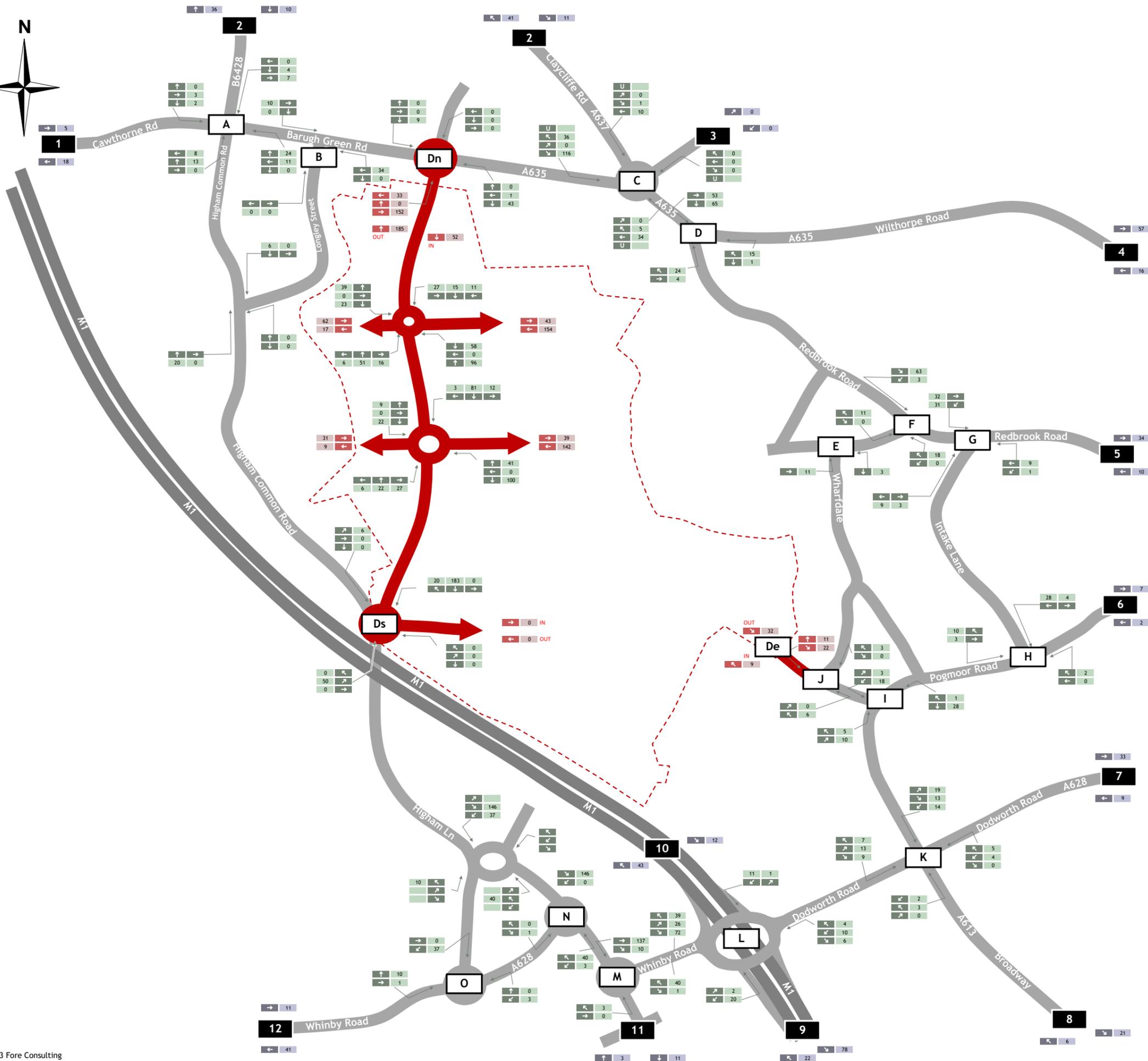
Figure Title:
Residential Phase 1a Residual Vehicle Trips - PM Peak Hour
(With Full Link Road)

Scale:
Not to scale

Figure Status:
Issue

Job Number:
3062

Figure Number:
Figure 4



Key:

- Primary Road
- Secondary Road
- Site Access

Fore Consulting Limited
1st Floor, 15 St Paul's Street
Leeds
LS1 2JG

enquiries@foreconsulting.co.uk
www.foreconsulting.co.uk



Client:

Strata Sterling Barnsley West Ltd

Project:

Proposed MU1 Residential and Employment Site, Barnsley

Figure Title:

Total Residential Development Residual Vehicle Trips - AM Peak Hour

Scale:

Not to scale

Figure Status:

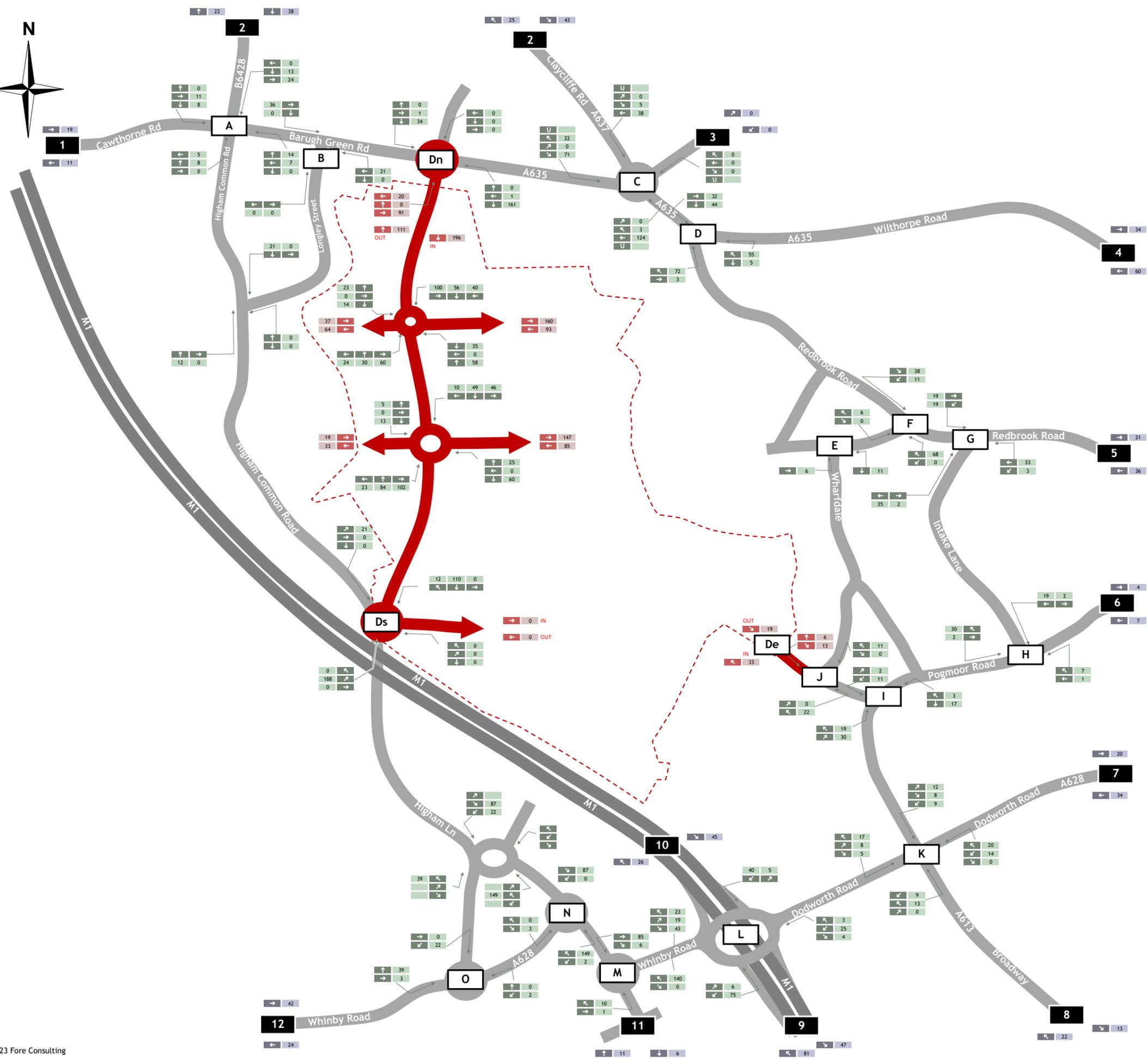
Issue

Job Number:

3062

Figure Number:

Figure 5



Key:

- Primary Road
- Secondary Road
- Site Access

Fore Consulting Limited
1st Floor, 15 St Paul's Street
Leeds
LS1 2JG
enquiries@foreconsulting.co.uk
www.foreconsulting.co.uk

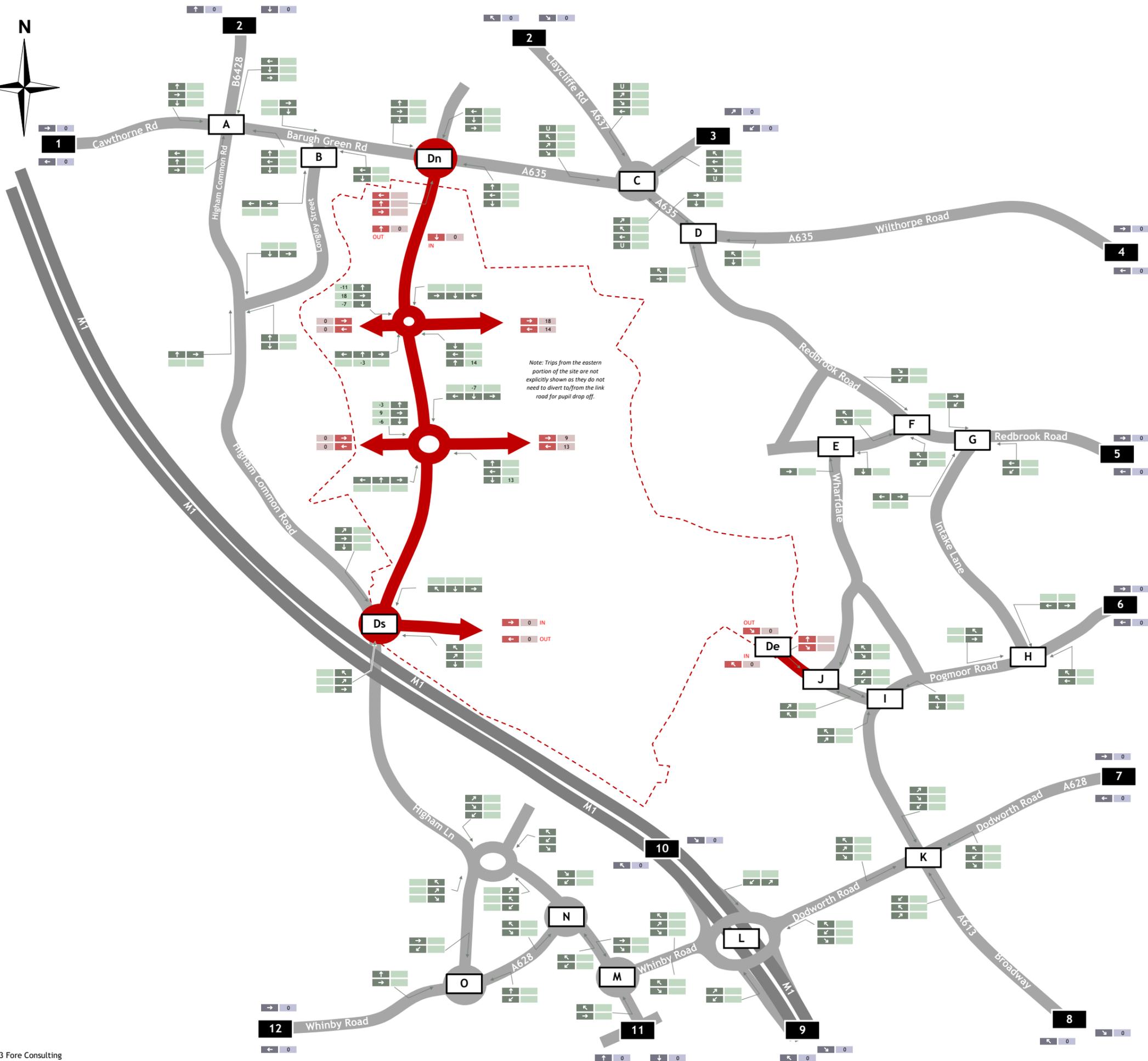


Client:
Strata Sterling Barnsley West Ltd

Project:
Proposed MU1 Residential and Employment Site, Barnsley

Figure Title:
Total Residential Development Residual Vehicle Trips - PM Peak Hour

Scale: Not to scale	Figure Status: Issue
Job Number: 3062	Figure Number: Figure 6



Key:

- Primary Road
- Secondary Road
- Site Access

Fore Consulting Limited
1st Floor, 15 St Paul's Street
Leeds
LS1 2JG

enquiries@foreconsulting.co.uk
www.foreconsulting.co.uk



Client:

Strata Sterling Barnsley West Limited

Project:

Proposed MU1 Residential and Employment Site, Barnsley

Figure Title:

Primary School Drop-Off Traffic Flows (On-Site) - AM Peak Hour

Scale:

Not to scale

Figure Status:

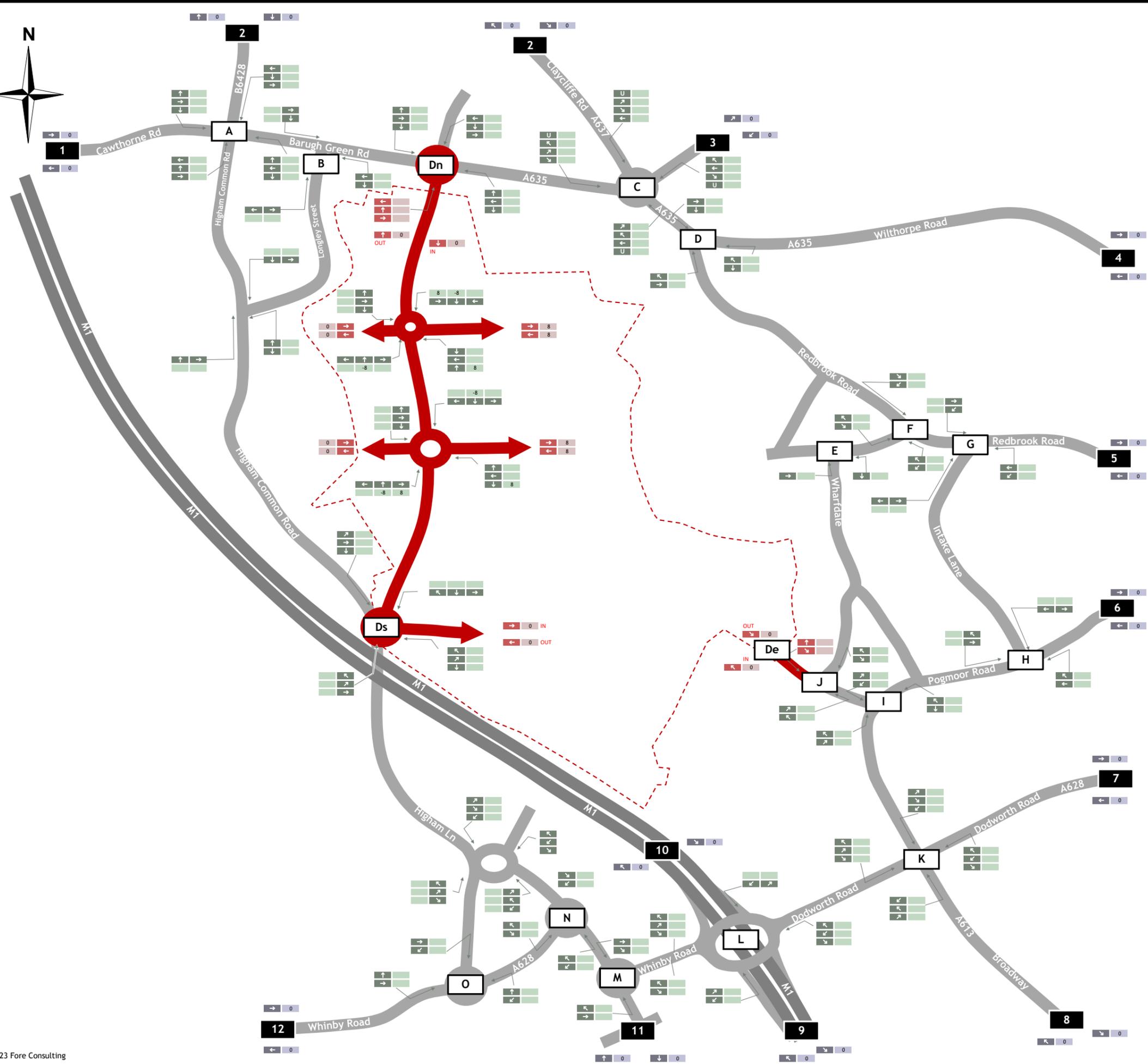
Issue

Job Number:

3062

Figure Number:

Figure 7



Key:

- Primary Road
- Secondary Road
- Site Access

Fore Consulting Limited
1st Floor, 15 St Paul's Street
Leeds
LS1 2JG

enquiries@foreconsulting.co.uk
www.foreconsulting.co.uk



Client:

Strata Sterling Barnsley West Limited

Project:

Proposed MU1 Residential and Employment Site, Barnsley

Figure Title:

Primary School Drop-Off Traffic Flows (Off-Site) - AM Peak Hour

Scale:

Not to scale

Figure Status:

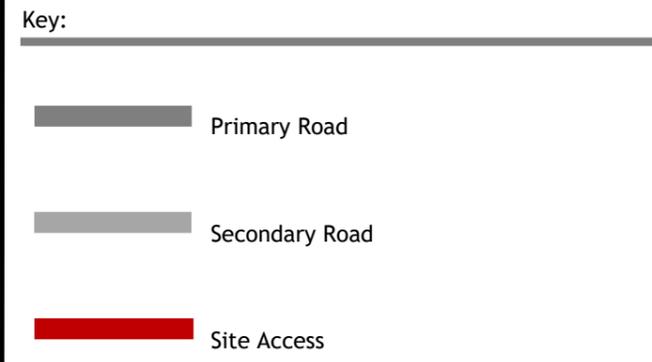
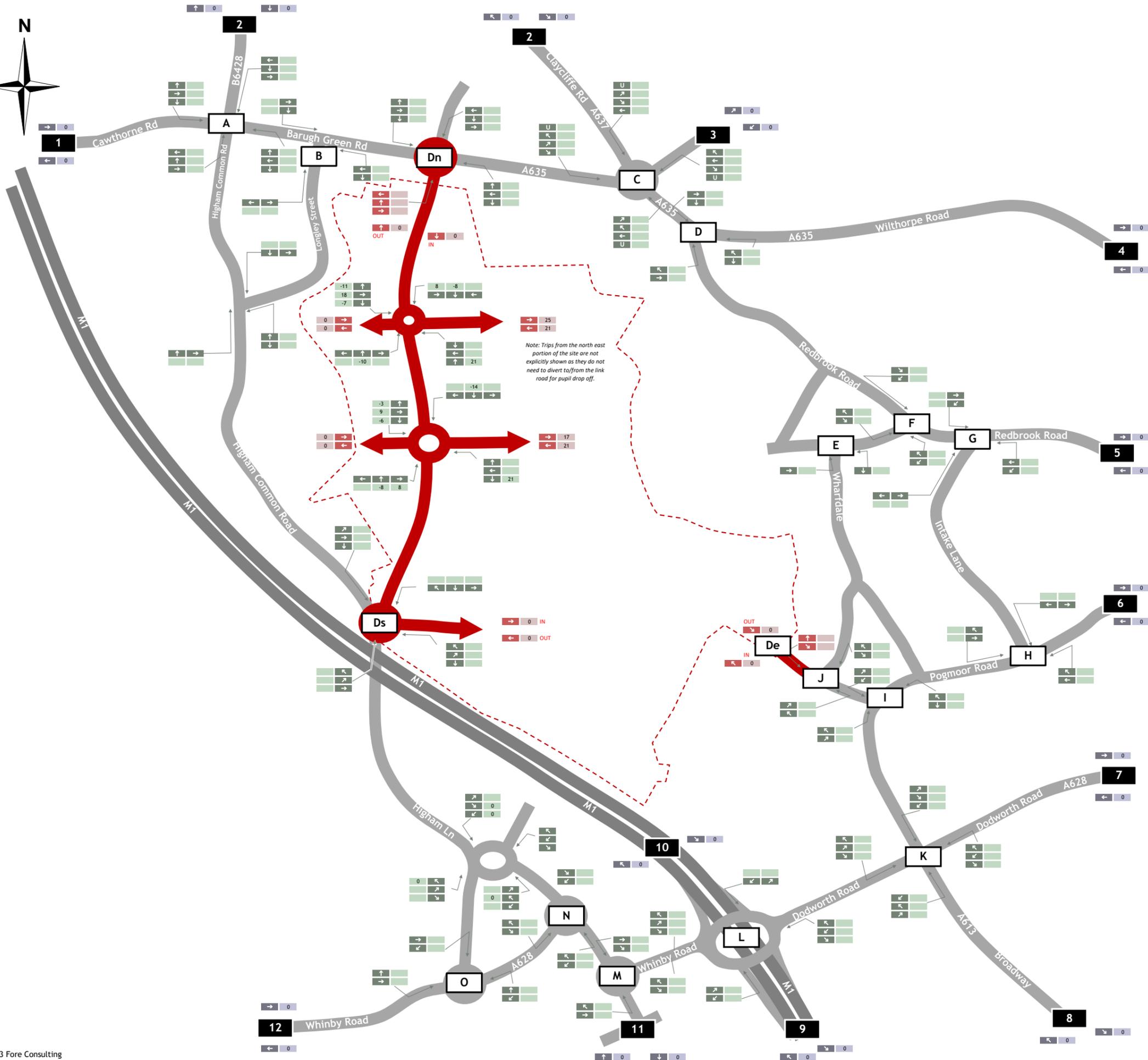
Issue

Job Number:

3062

Figure Number:

Figure 8



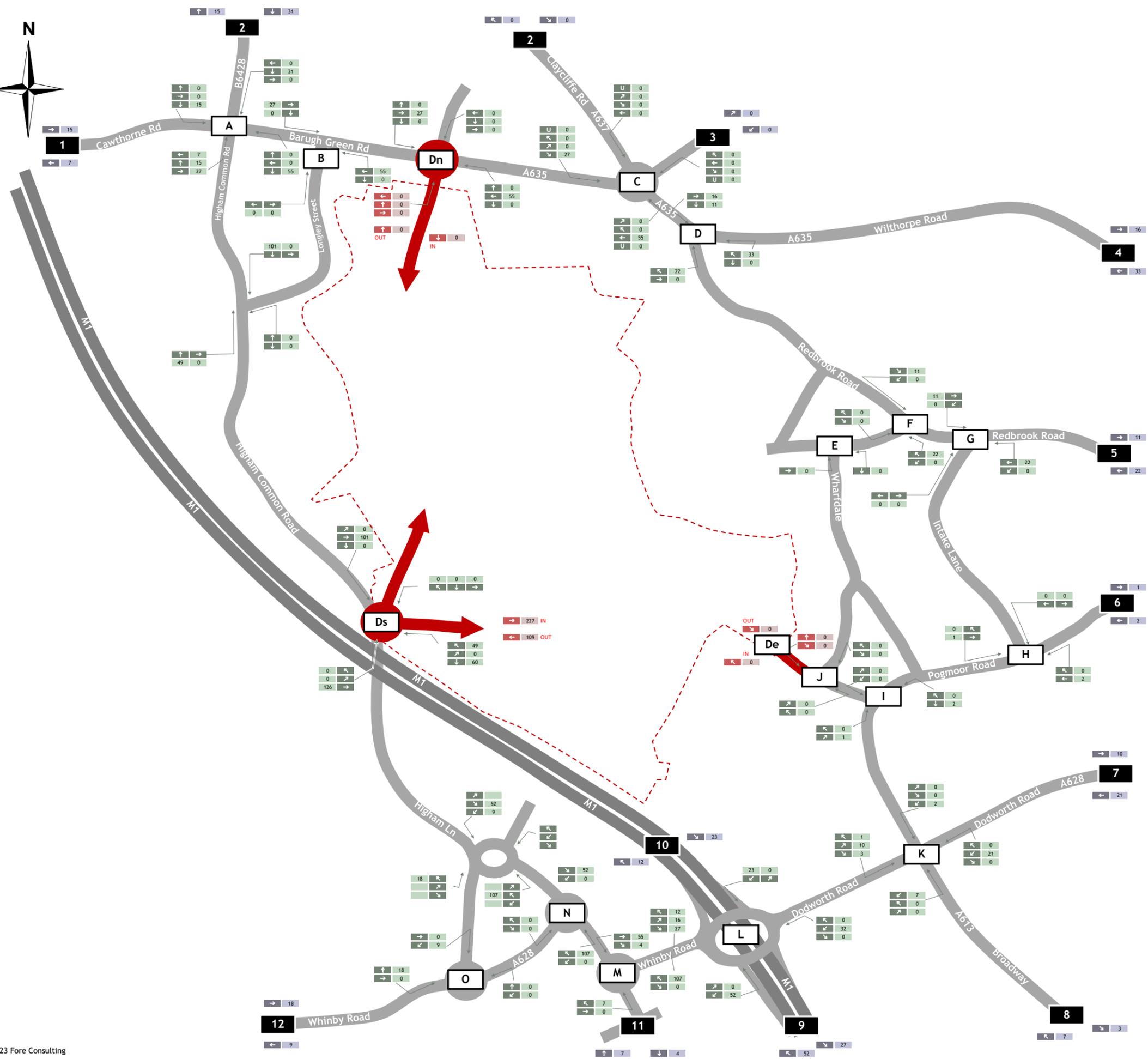
Fore Consulting Limited
1st Floor, 15 St Paul's Street
Leeds
LS1 2JG
enquiries@foreconsulting.co.uk
www.foreconsulting.co.uk

Client:
Strata Sterling Barnsley West Limited

Project:
Proposed MU1 Residential and Employment Site, Barnsley

Figure Title:
Primary School Drop-Off Traffic Flows (Total) - AM Peak Hour

Scale: Not to scale	Figure Status: Issue
Job Number: 3062	Figure Number: Figure 9



Key:

- Primary Road
- Secondary Road
- Site Access

Fore Consulting Limited
1st Floor, 15 St Paul's Street
Leeds
LS1 2JG
enquiries@foreconsulting.co.uk
www.foreconsulting.co.uk



Client:
Strata Sterling Barnsley West Limited

Project:
Proposed MU1 Residential and Employment Site, Barnsley

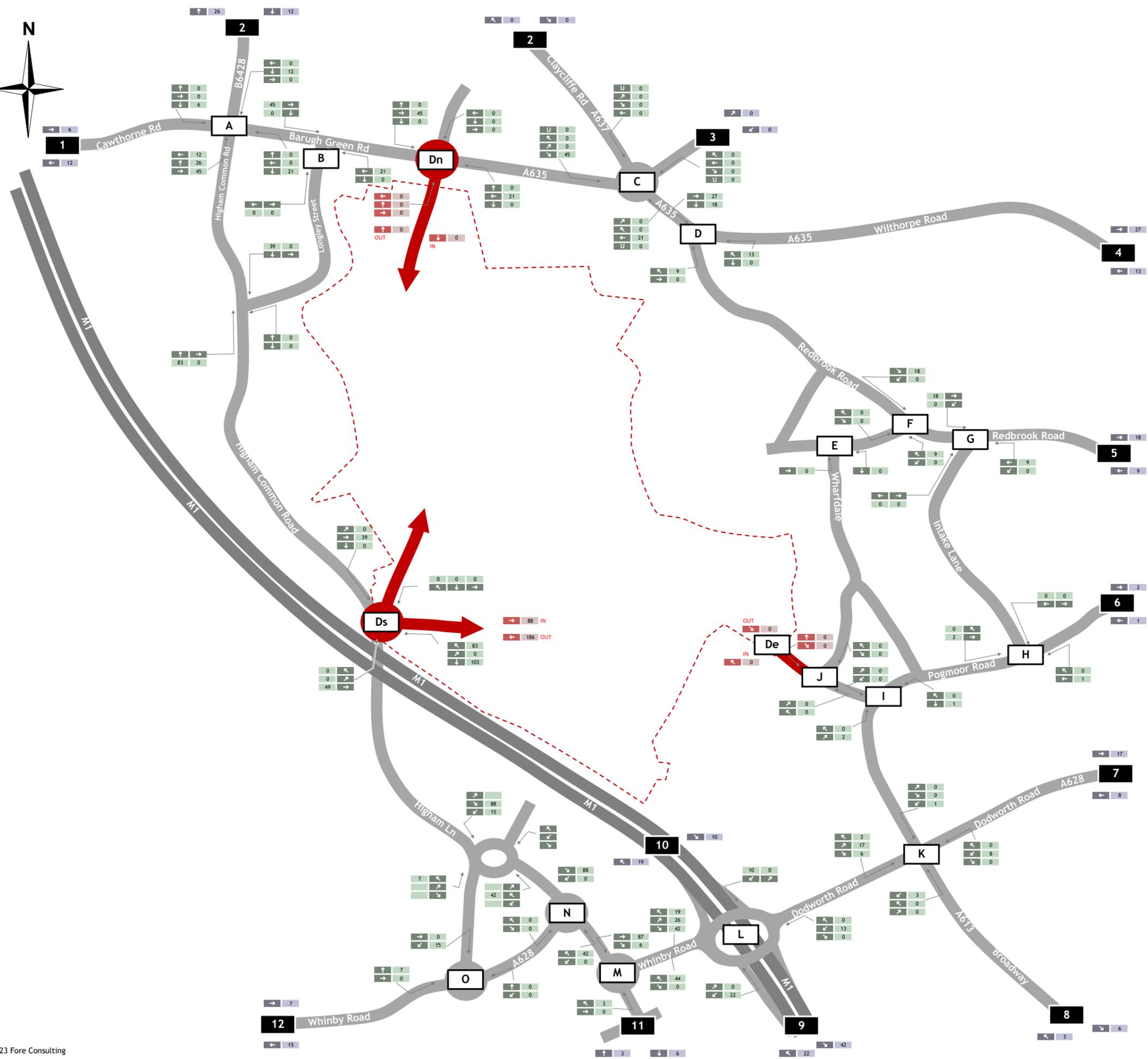
Figure Title:
Employment Residual Traffic Flows (PCU) - AM Peak Hour
(Without Full Link Road)

Scale:
Not to scale

Figure Status:
Issue

Job Number:
3062

Figure Number:
Figure 10



Key:

- Primary Road
- Secondary Road
- Site Access

Fore Consulting Limited
1st Floor, 15 St Paul's Street
Leeds
LS1 2JG

enquiries@foreconsulting.co.uk
www.foreconsulting.co.uk



Client:

Strata Sterling Barnsley West Limited

Project:

Proposed MU1 Residential and Employment Site, Barnsley

Figure Title:

Employment Residual Traffic Flows (PCU) - PM Peak Hour
(Without Full Link Road)

Scale:

Not to scale

Figure Status:

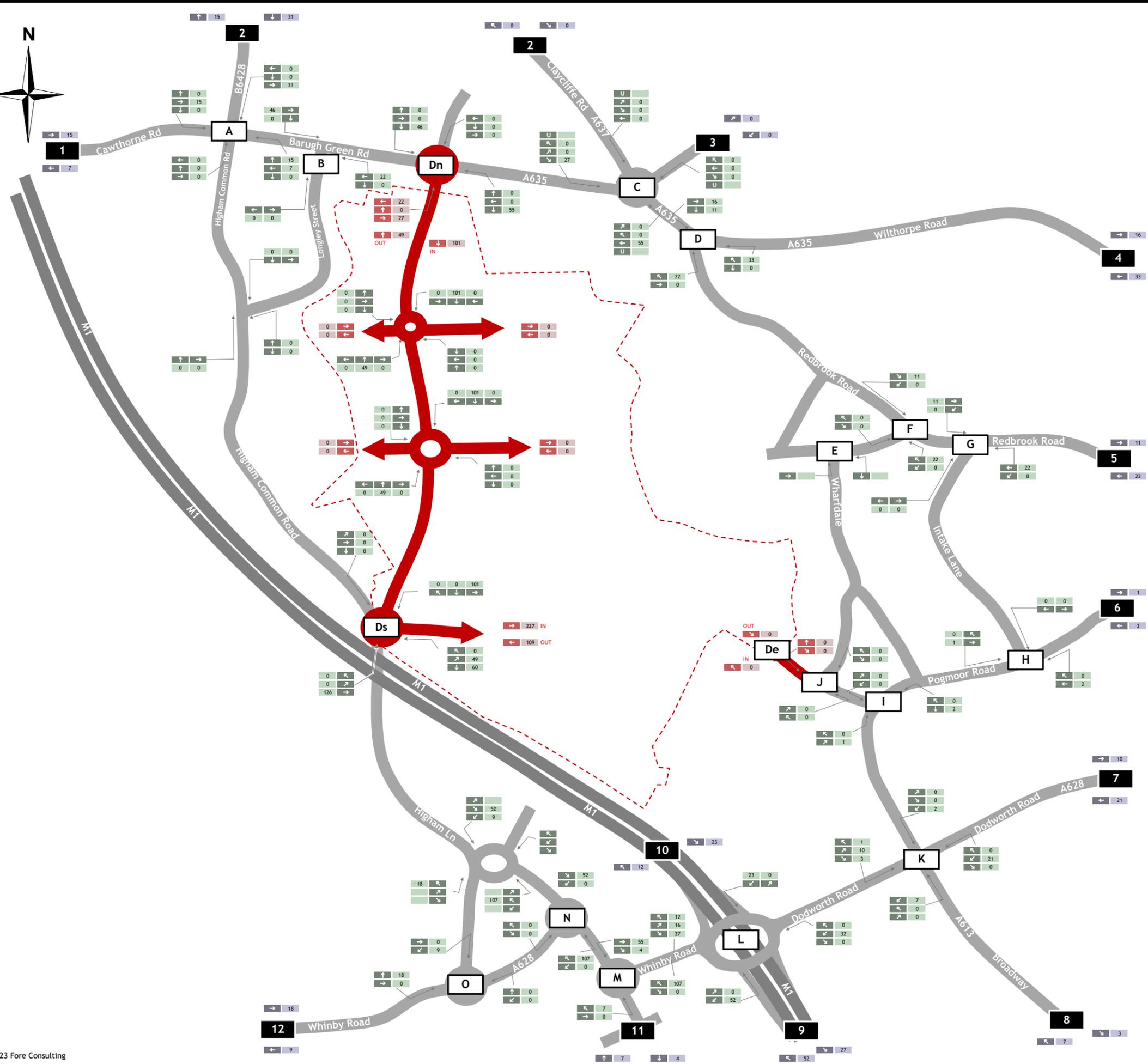
Issue

Job Number:

3062

Figure Number:

Figure 11



Key:

-  Primary Road
-  Secondary Road
-  Site Access

Fore Consulting Limited
1st Floor, 15 St Paul's Street
Leeds
LS1 2JG

enquiries@foreconsulting.co.uk
www.foreconsulting.co.uk



Client:

Strata Sterling Barnsley West Limited

Project:

Proposed MU1 Residential and Employment Site, Barnsley

Figure Title:

Employment Residual Traffic Flows (PCU) - AM Peak Hour
(With Full Link Road)

Scale:

Not to scale

Figure Status:

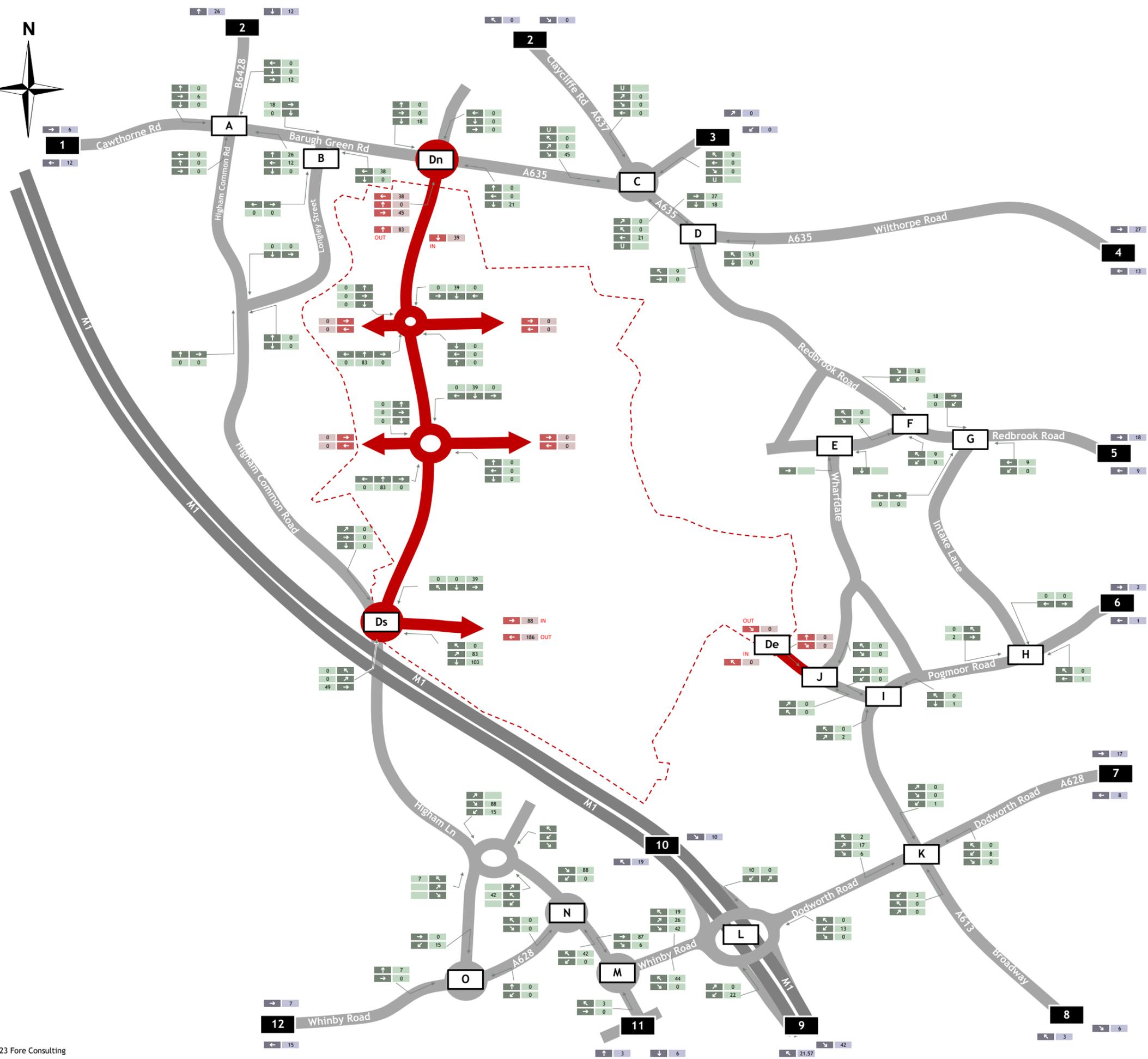
Issue

Job Number:

3062

Figure Number:

Figure 12



Key:

- Primary Road
- Secondary Road
- Site Access

Fore Consulting Limited
1st Floor, 15 St Paul's Street
Leeds
LS1 2JG

enquiries@foreconsulting.co.uk
www.foreconsulting.co.uk



Client:

Strata Sterling Barnsley West Limited

Project:

Proposed MU1 Residential and Employment Site, Barnsley

Figure Title:

Employment Residual Traffic Flows (PCU) - PM Peak Hour
(With Full Link Road)

Scale:

Not to scale

Figure Status:

Issue

Job Number:

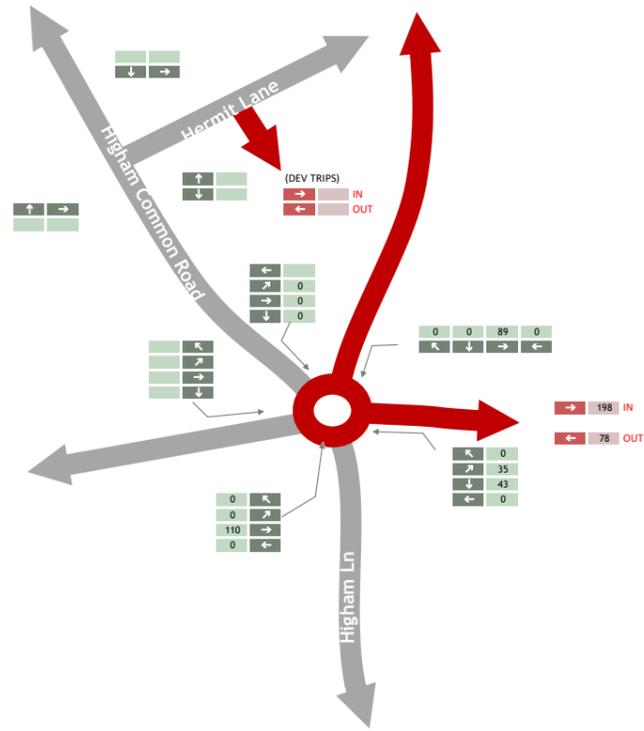
3062

Figure Number:

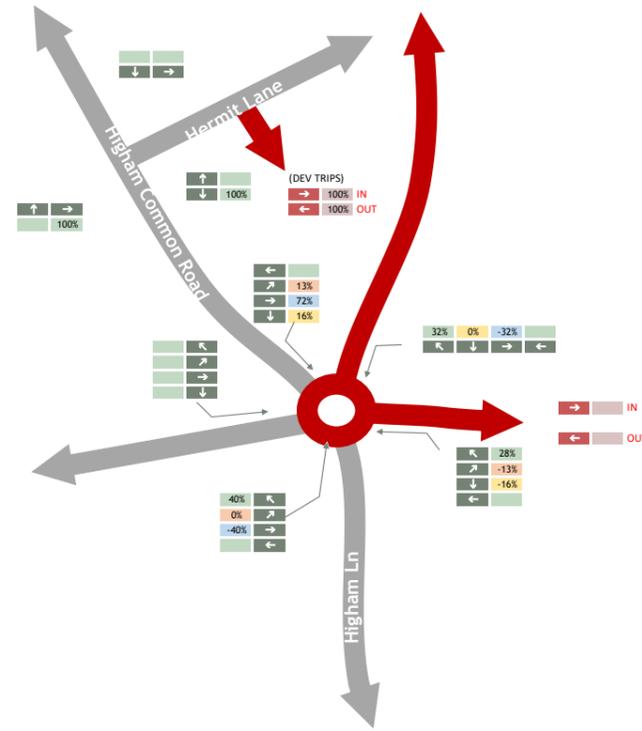
Figure 13



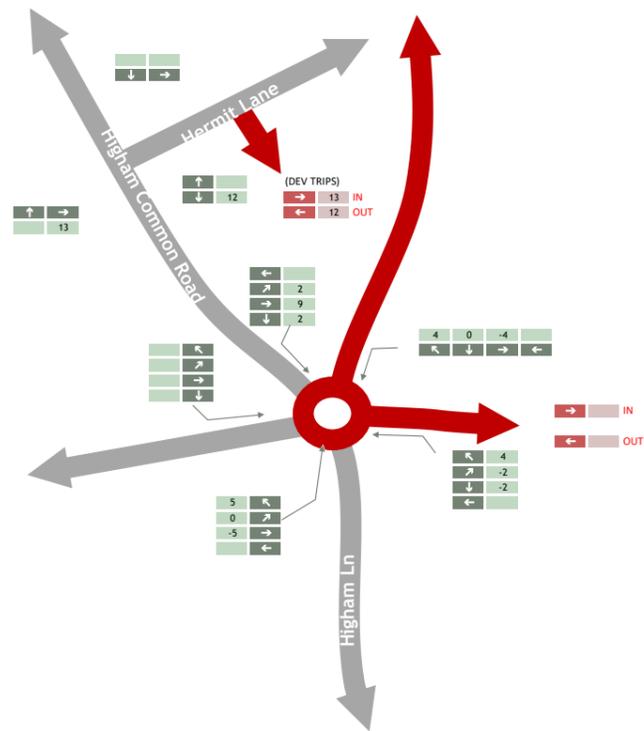
Employment Trip Generation (AM Peak Hour)



Convenience Store Linked Distribution Based on Employment Flows (AM Peak Hour)



Resulting Convenience Store Linked Trips (AM Peak Hour)



Key:

- Primary Road
- Secondary Road
- Site Access

Fore Consulting Limited
1st Floor, 15 St Paul's Street
Leeds
LS1 2JG

enquiries@foreconsulting.co.uk
www.foreconsulting.co.uk



Client:

Strata Sterling Barnsley West Ltd

Project:

Proposed MU1 Residential and Employment Site, Barnsley

Figure Title:

Convenience Store Linked Trip Calculations - AM Peak Hour

Scale:

Not to scale

Figure Status:

Issue

Job Number:

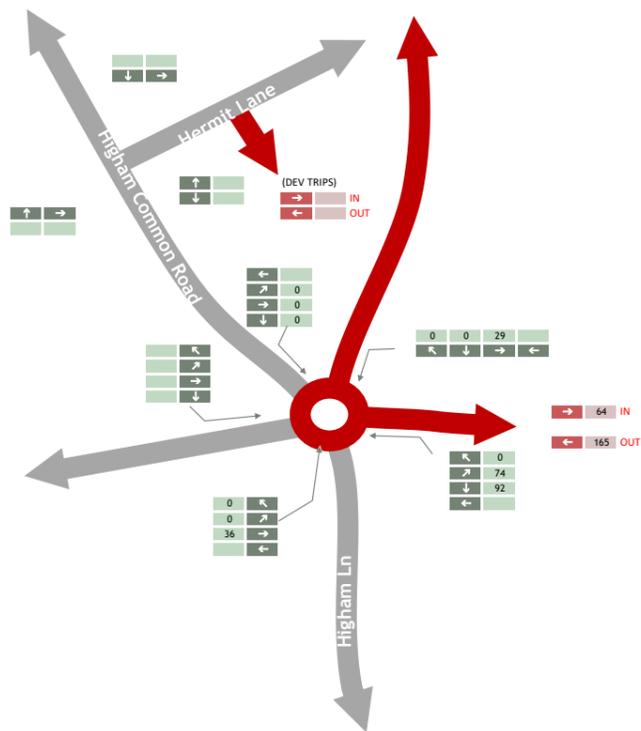
3062

Figure Number:

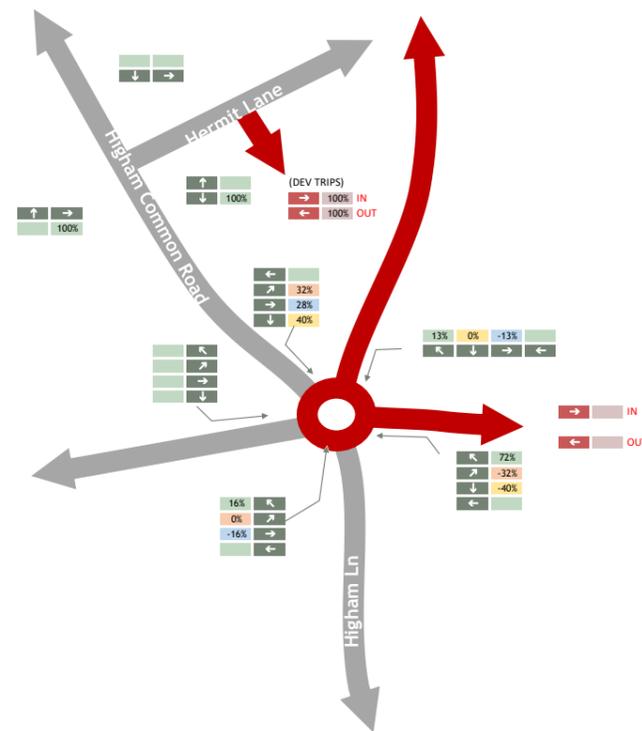
Figure 14



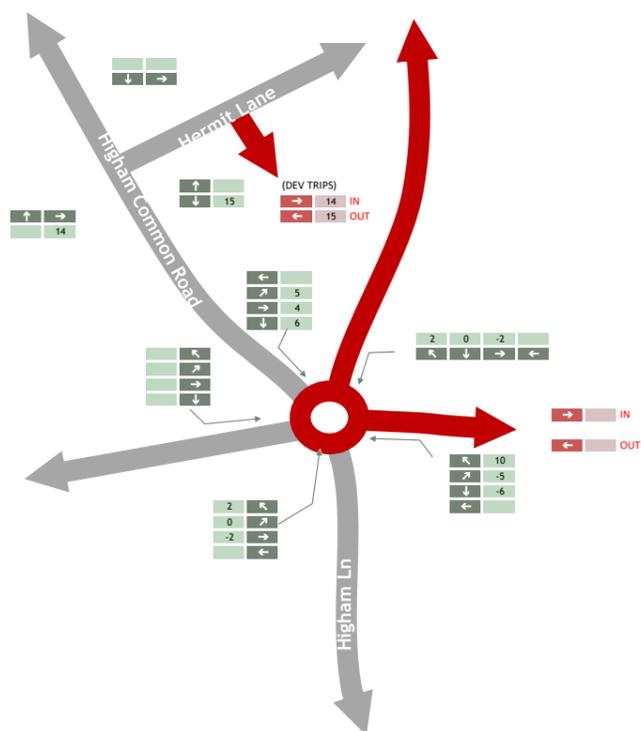
Employment Trip Generation (PM Peak Hour)



Convenience Store Linked Distribution Based on Employment Flows (PM Peak Hour)



Resulting Convenience Store Linked Trips (PM Peak Hour)



Key:

- Primary Road
- Secondary Road
- Site Access

Fore Consulting Limited
1st Floor, 15 St Paul's Street
Leeds
LS1 2JG

enquiries@foreconsulting.co.uk
www.foreconsulting.co.uk



Client:

Strata Sterling Barnsley West Ltd

Project:

Proposed MU1 Residential and Employment Site, Barnsley

Figure Title:

Convenience Store Linked Trip Calculations - PM Peak Hour

Scale:

Not to scale

Figure Status:

Issue

Job Number:

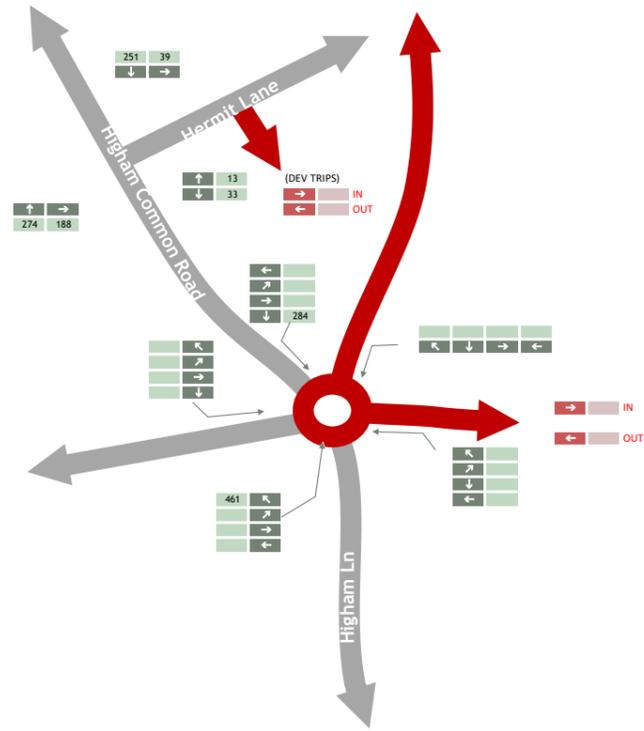
3062

Figure Number:

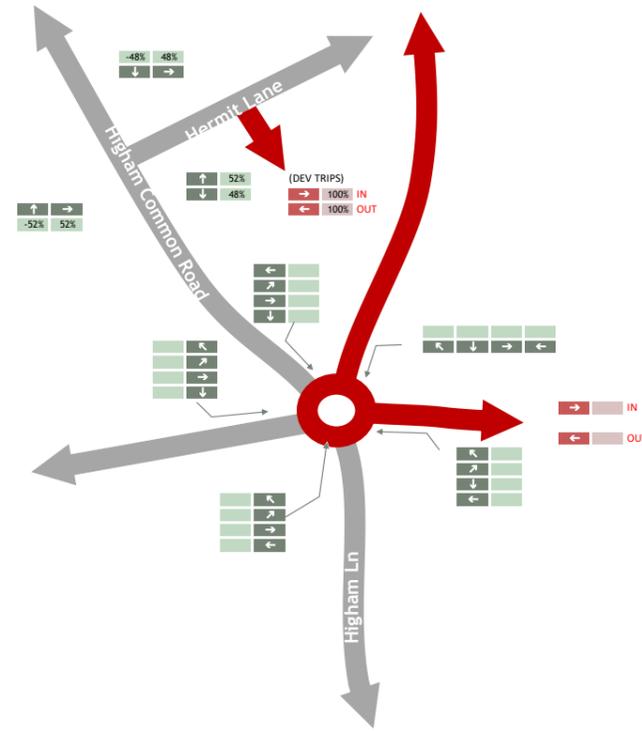
Figure 15



2019 Base Year (AM Peak Hour)



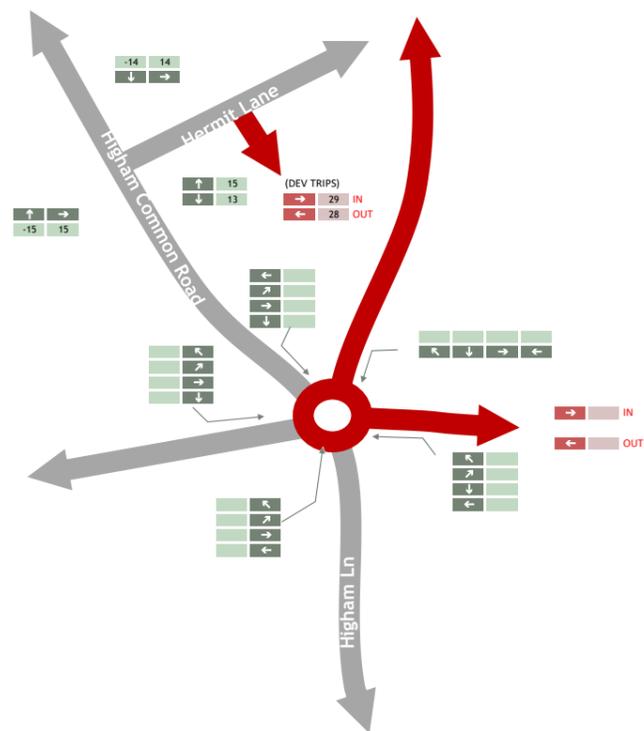
Convenience Store Pass-By Distribution Based on 2019 Base Year Flows (AM Peak Hour)



Key:

- Primary Road
- Secondary Road
- Site Access

Resulting Convenience Store Pass-By Trips (AM Peak Hour)



Fore Consulting Limited
 1st Floor, 15 St Paul's Street
 Leeds
 LS1 2JG

enquiries@foreconsulting.co.uk
 www.foreconsulting.co.uk



Client:

Strata Sterling Barnsley West Ltd

Project:

Proposed MU1 Residential and Employment Site, Barnsley

Figure Title:

Convenience Store Pass By Trip Calculations - AM Peak Hour

Scale:

Not to scale

Figure Status:

Issue

Job Number:

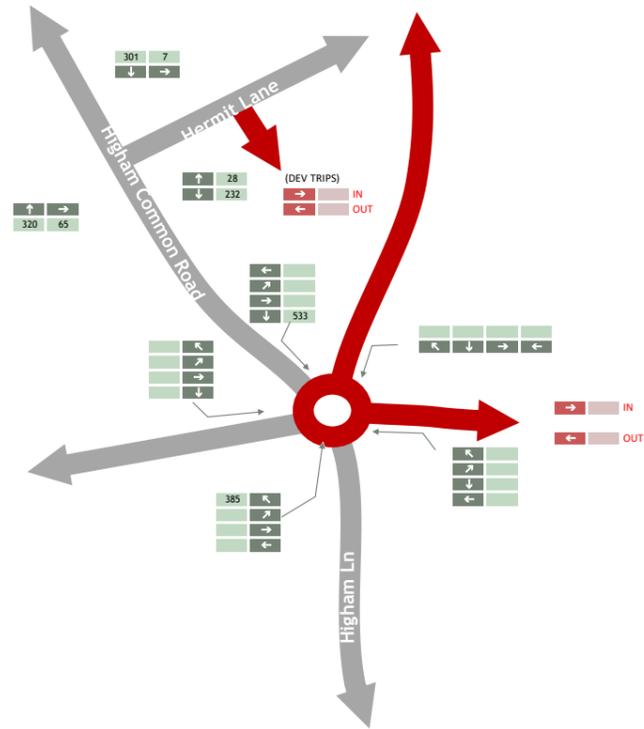
3062

Figure Number:

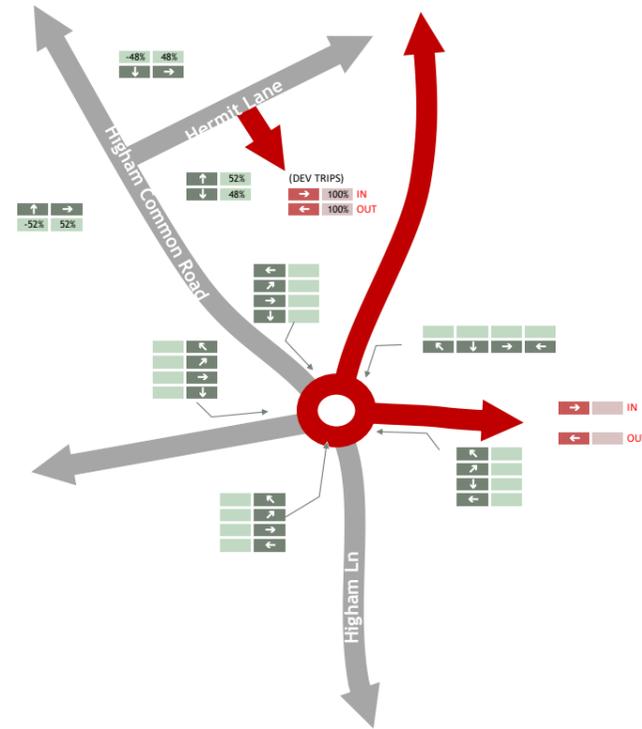
Figure 16



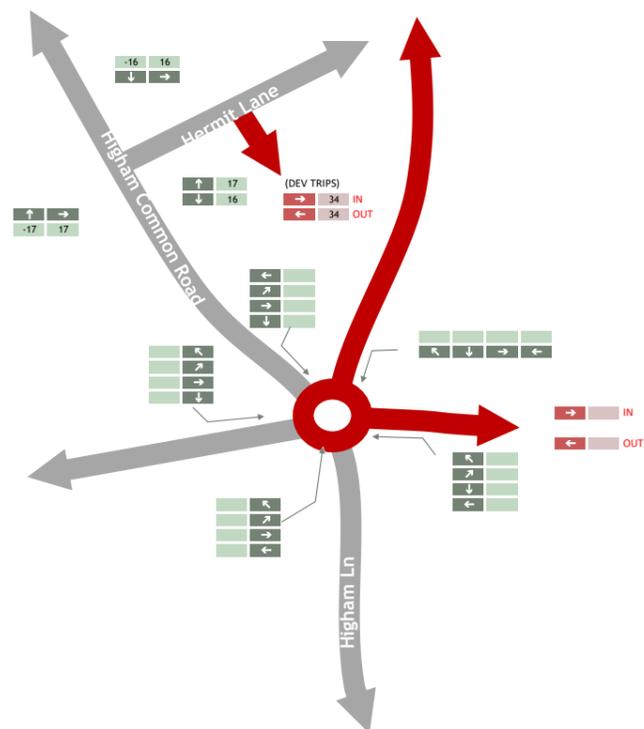
2019 Base Year (PM Peak Hour)



Convenience Store Pass-By Distribution Based on 2019 Base Year Flows (PM Peak Hour)



Resulting Convenience Store Pass-By Trips (PM Peak Hour)



Fore Consulting Limited
 1st Floor, 15 St Paul's Street
 Leeds
 LS1 2JG

enquiries@foreconsulting.co.uk
 www.foreconsulting.co.uk



Client:

Strata Sterling Barnsley West Ltd

Project:

Proposed MU1 Residential and Employment Site, Barnsley

Figure Title:

Convenience Store Pass By Trip Calculations - PM Peak Hour

Scale:

Not to scale

Figure Status:

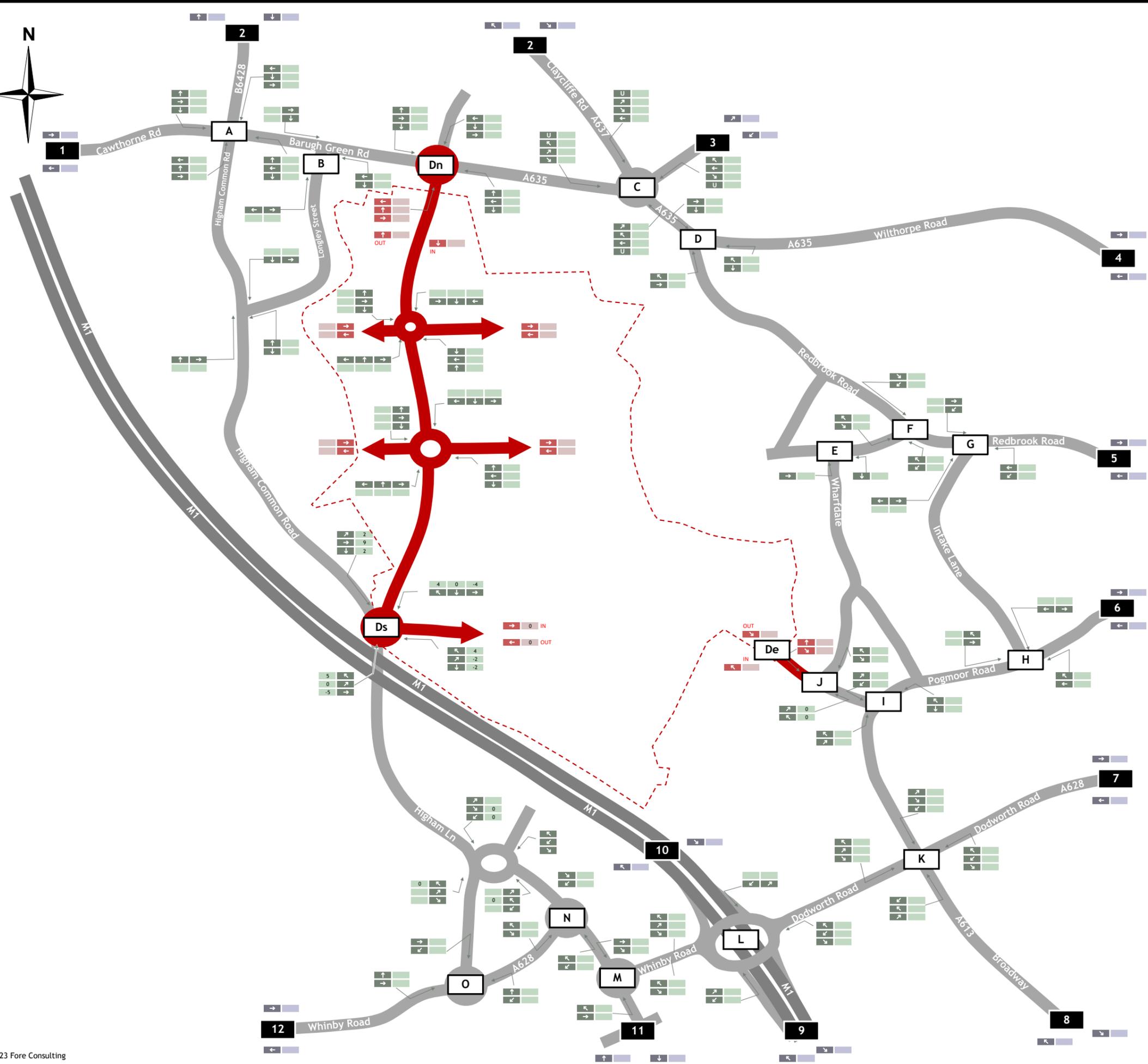
Issue

Job Number:

3062

Figure Number:

Figure 17



Key:

-  Primary Road
-  Secondary Road
-  Site Access

Fore Consulting Limited
1st Floor, 15 St Paul's Street
Leeds
LS1 2JG

enquiries@foreconsulting.co.uk
www.foreconsulting.co.uk



Client:

Strata Sterling Barnsley West Limited

Project:

Proposed MU1 Residential and Employment Site, Barnsley

Figure Title:

Convenience Store Traffic Flows - AM Peak Hour

Scale:

Not to scale

Figure Status:

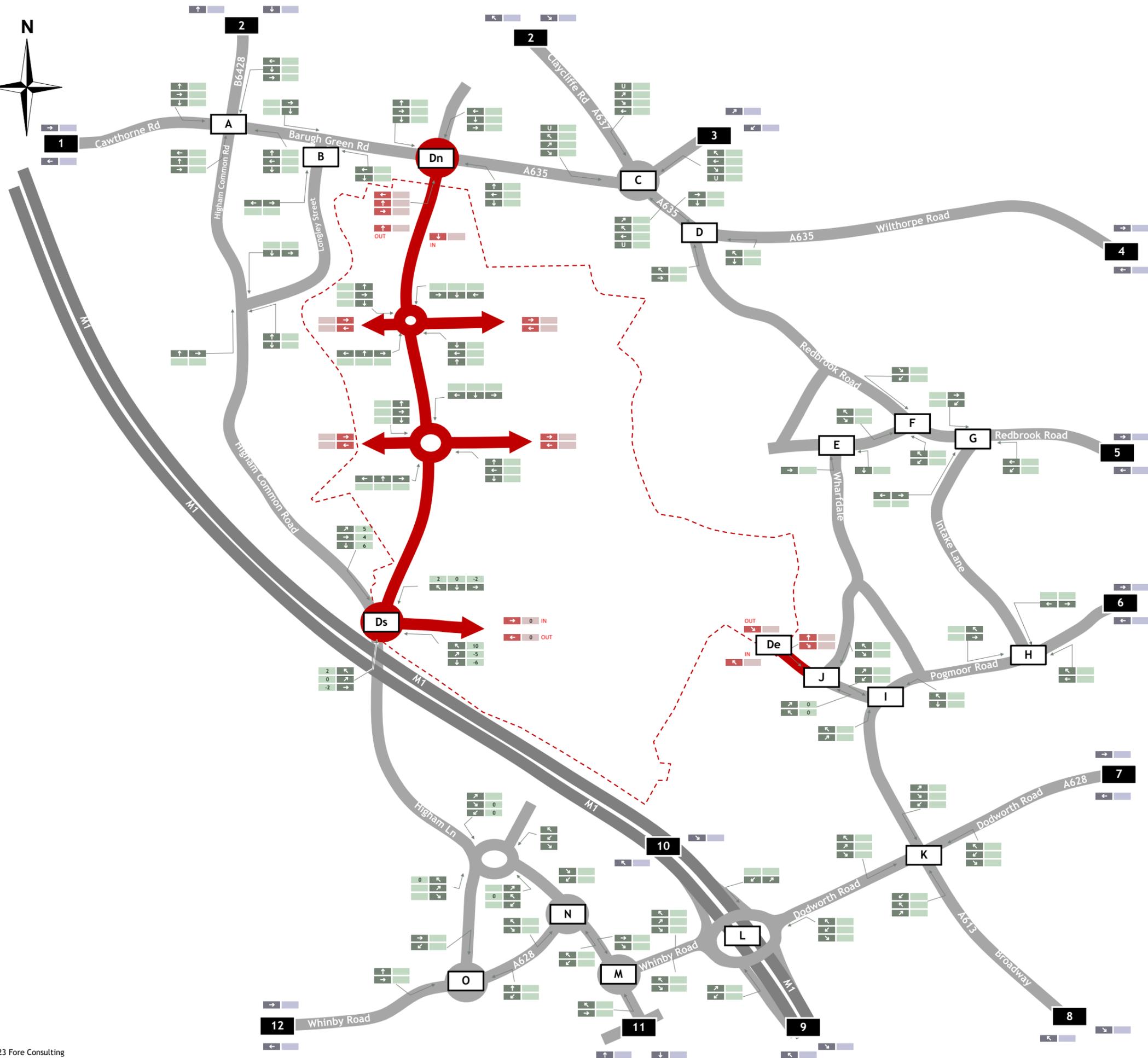
Issue

Job Number:

3062

Figure Number:

Figure 18



Key:

- Primary Road
- Secondary Road
- Site Access

Fore Consulting Limited
1st Floor, 15 St Paul's Street
Leeds
LS1 2JG

enquiries@foreconsulting.co.uk
www.foreconsulting.co.uk



Client:
Strata Sterling Barnsley West Limited

Project:
Proposed MU1 Residential and Employment Site, Barnsley

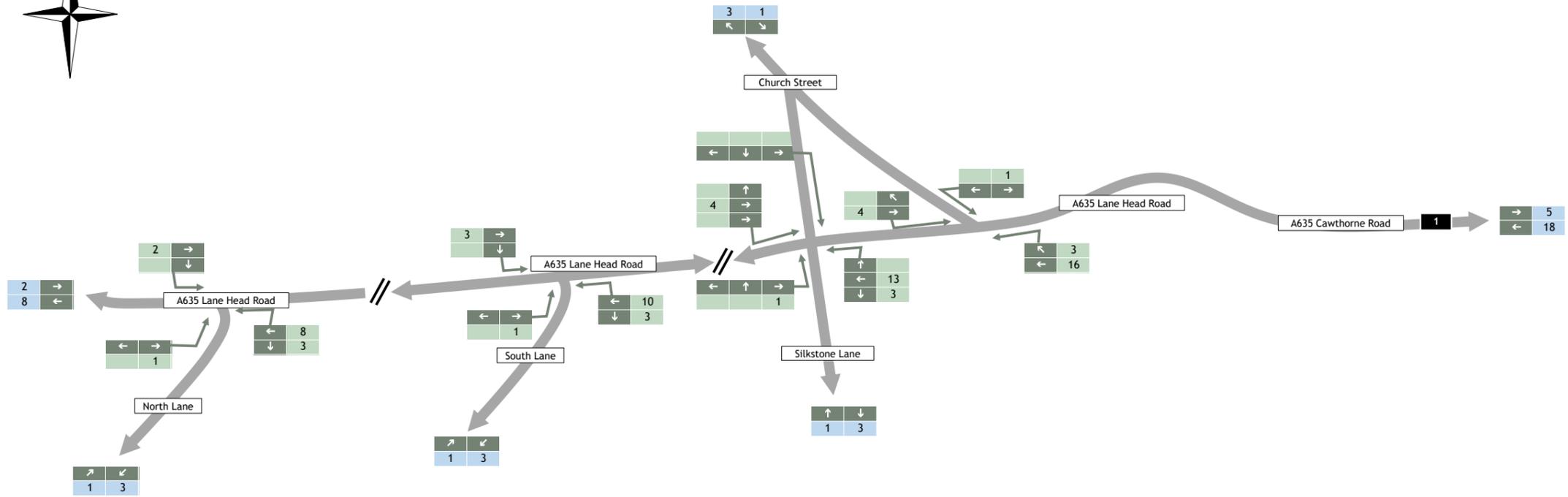
Figure Title:
Convenience Store Traffic Flows - PM Peak Hour

Scale:
Not to scale

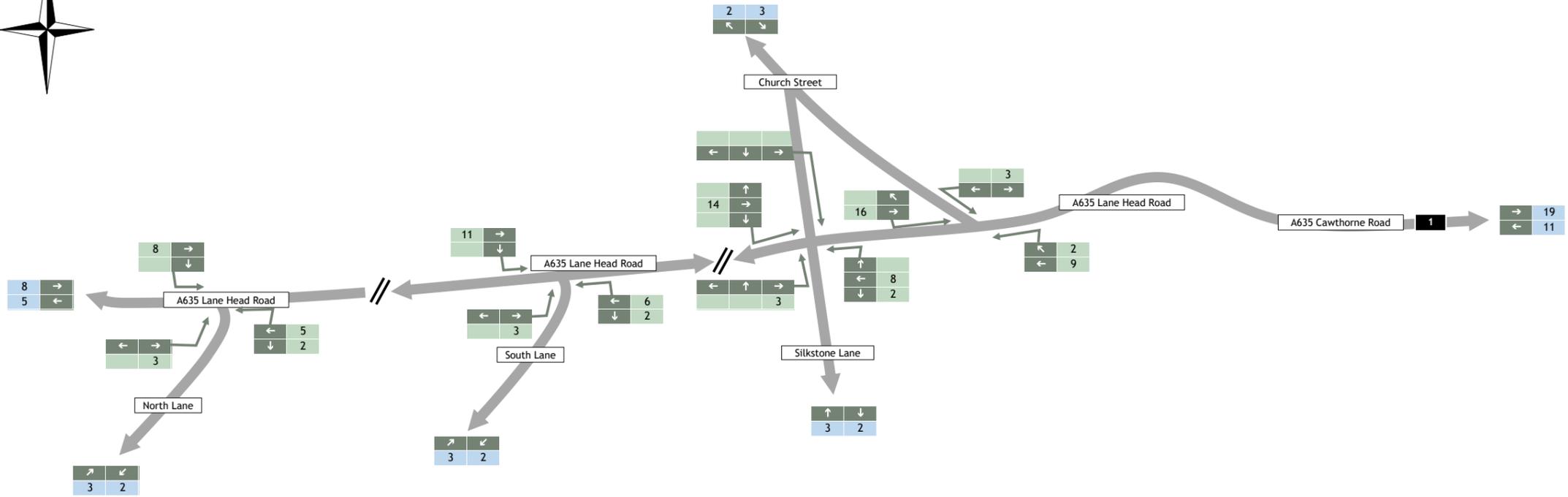
Figure Status:
Issue

Job Number:
3062

Figure Number:
Figure 19



A635 Cawthorne Road Impact - Weekday AM Peak Hour



A635 Cawthorne Road Impact - Weekday PM Peak Hour

Key:

1 End Point (as per the primary network traffic flow diagram)

→ Highway Network

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



Client:
 Strata Sterling Barnsley West Limited

Project:
 Proposed MU1 Residential and Employment Site, Barnsley

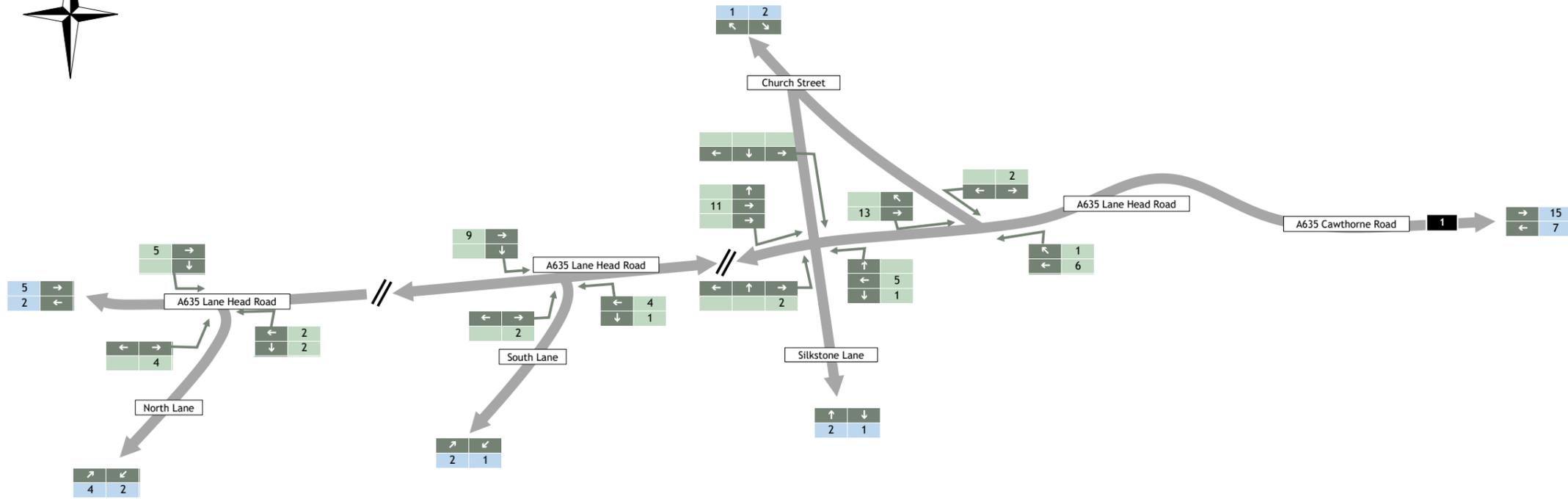
Figure Title:
 Total Residential Residual Traffic Flows - A635 Cawthorne Road (AM and PM Peak Hours)

Scale:
 Not to scale

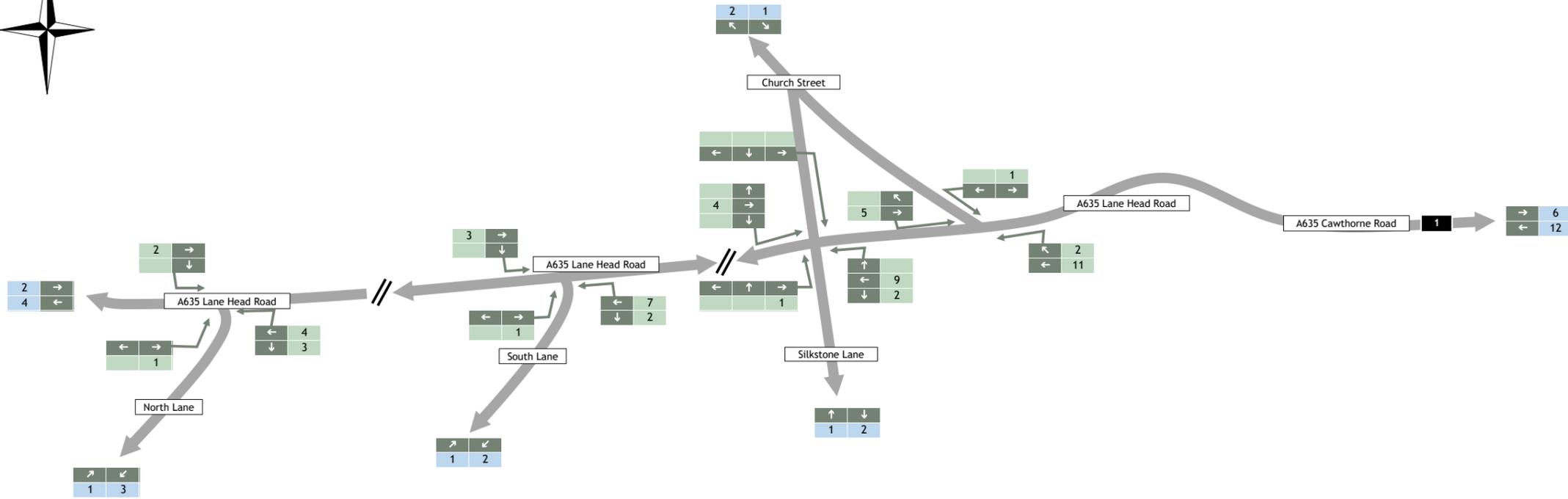
Figure Status:
 Issue

Job Number:
 3062

Figure Number:
 Figure 20



A635 Cawthorne Road Impact - Weekday AM Peak Hour



A635 Cawthorne Road Impact - Weekday PM Peak Hour

Key:

1 End Point (as per the primary network traffic flow diagram)

→ Highway Network

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



Client:
 Strata Sterling Barnsley West Limited

Project:
 Proposed MU1 Residential and Employment Site, Barnsley

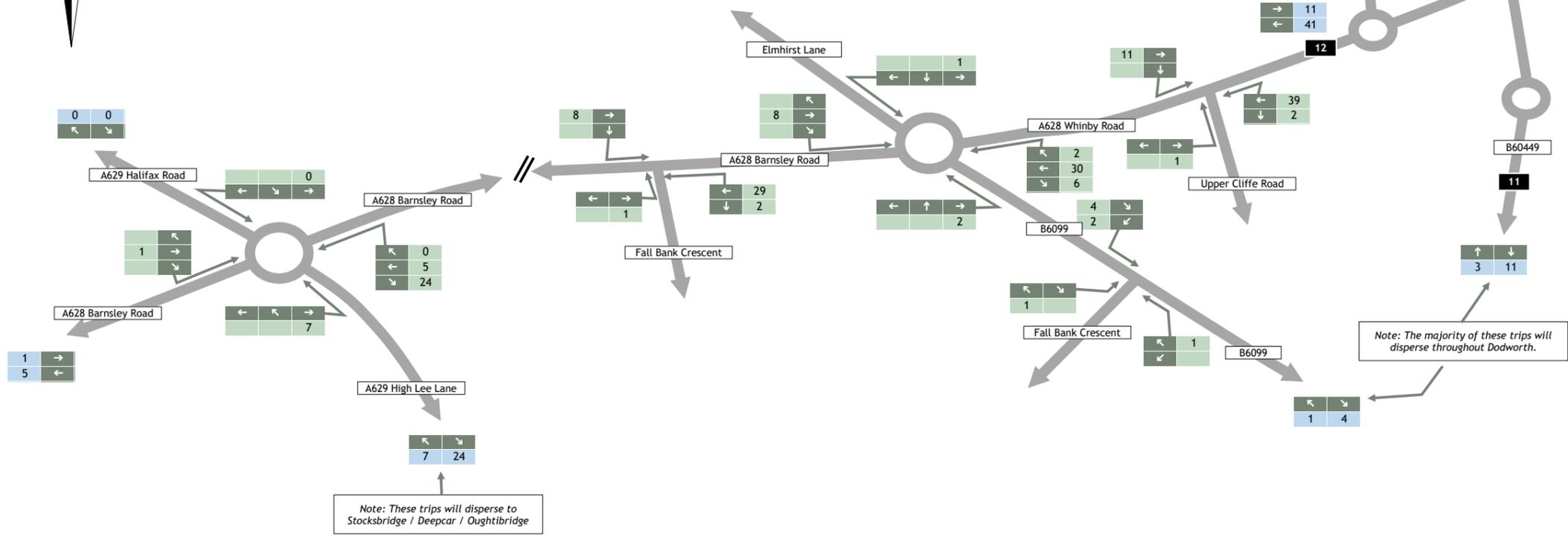
Figure Title:
 Employment Residual Traffic Flows (PCU) - A635 Cawthorne Road (AM and PM Peak Hours)

Scale:
 Not to scale

Figure Status:
 Issue

Job Number:
 3062

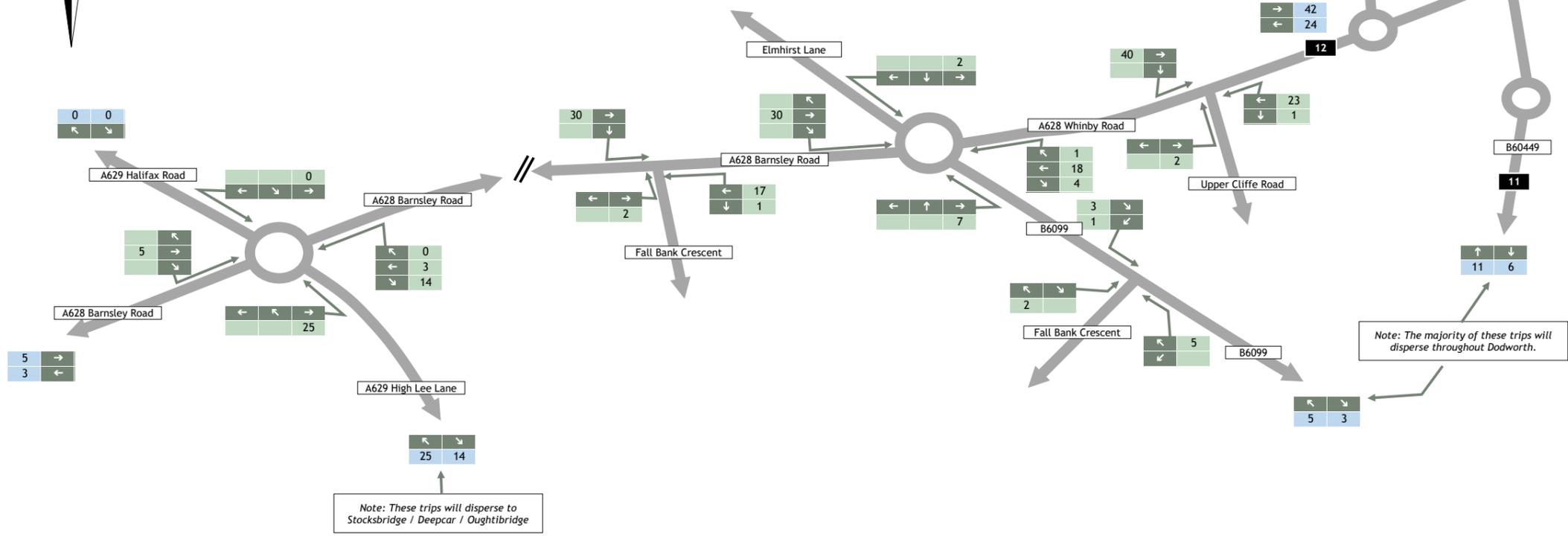
Figure Number:
 Figure 21



A628 Whinby Road Impact - Weekday AM Peak Hour

Key:

- End Point (as per the primary network traffic flow diagram)
- Highway Network



A628 Whinby Road Impact - Weekday PM Peak Hour

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



Client:
 Strata Sterling Barnsley West Limited

Project:
 Proposed MU1 Residential and Employment Site, Barnsley

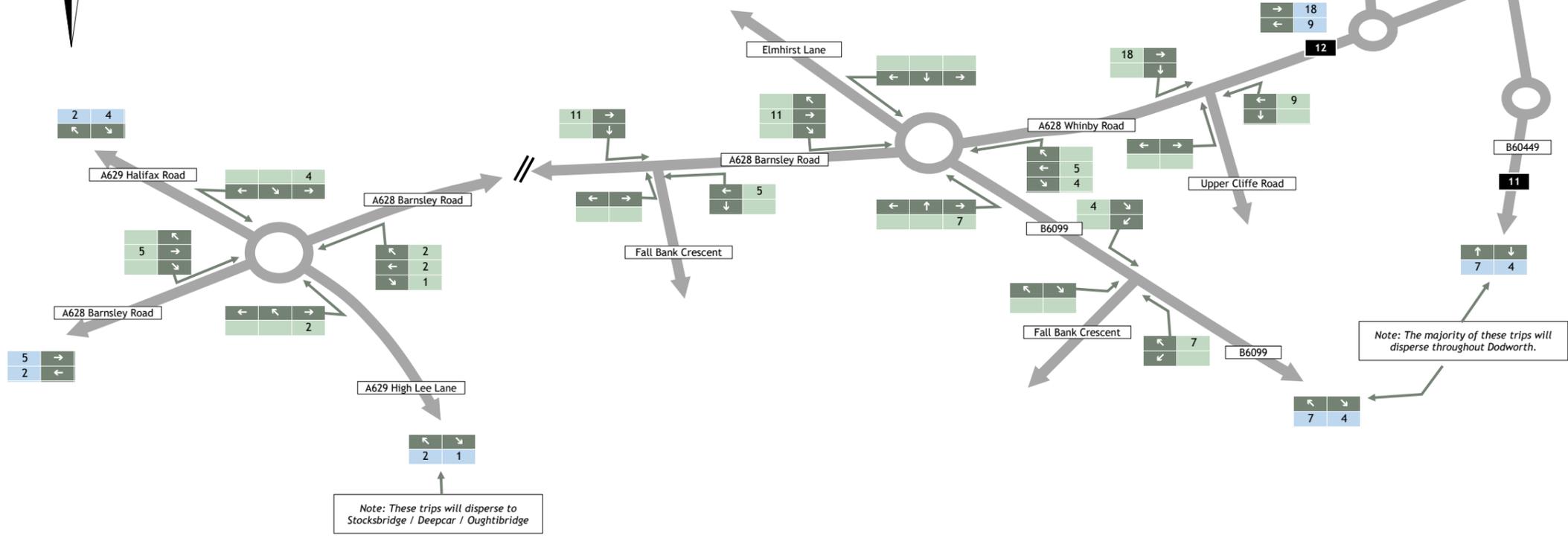
Figure Title:
 Total Residential Residual Traffic Flows - A628 Whinby Road (AM and PM Peak Hours)

Scale:
 Not to scale

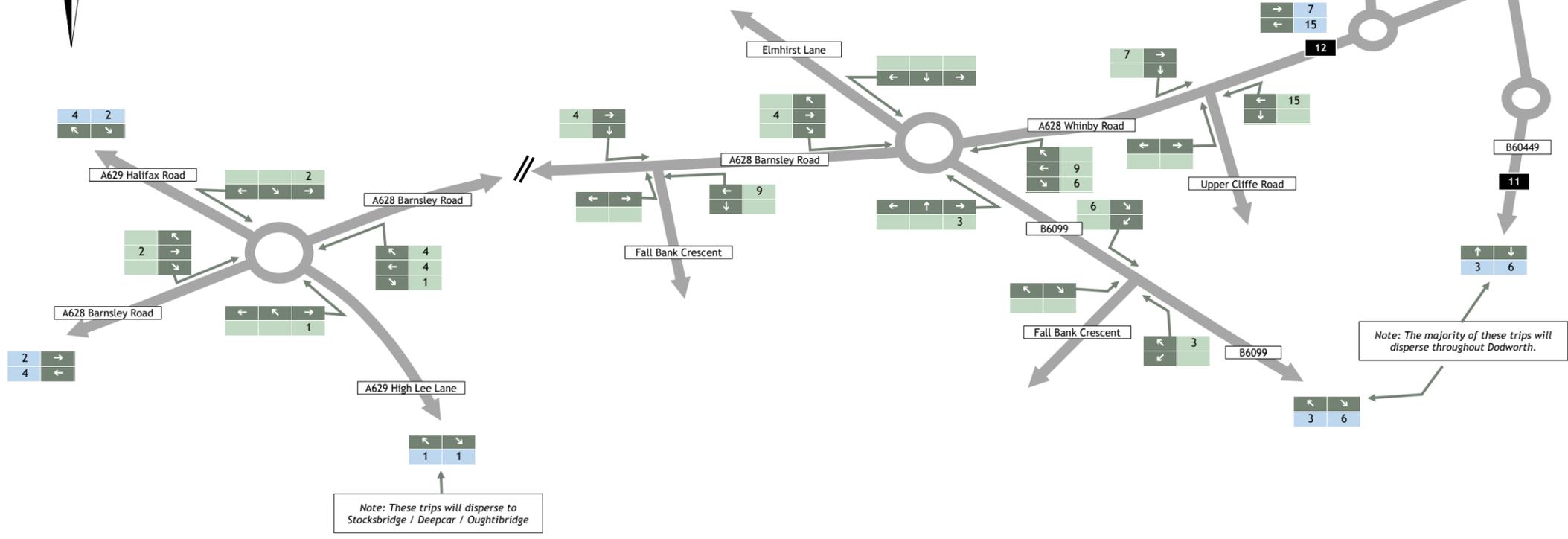
Figure Status:
 Issue

Job Number:
 3062

Figure Number:
 Figure 22



A628 Whinby Road Impact - Weekday AM Peak Hour



A628 Whinby Road Impact - Weekday PM Peak Hour

Key:

1 End Point (as per the primary network traffic flow diagram)

→ Highway Network

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



Client:
 Strata Sterling Barnsley West Limited

Project:
 Proposed MU1 Residential and Employment Site, Barnsley

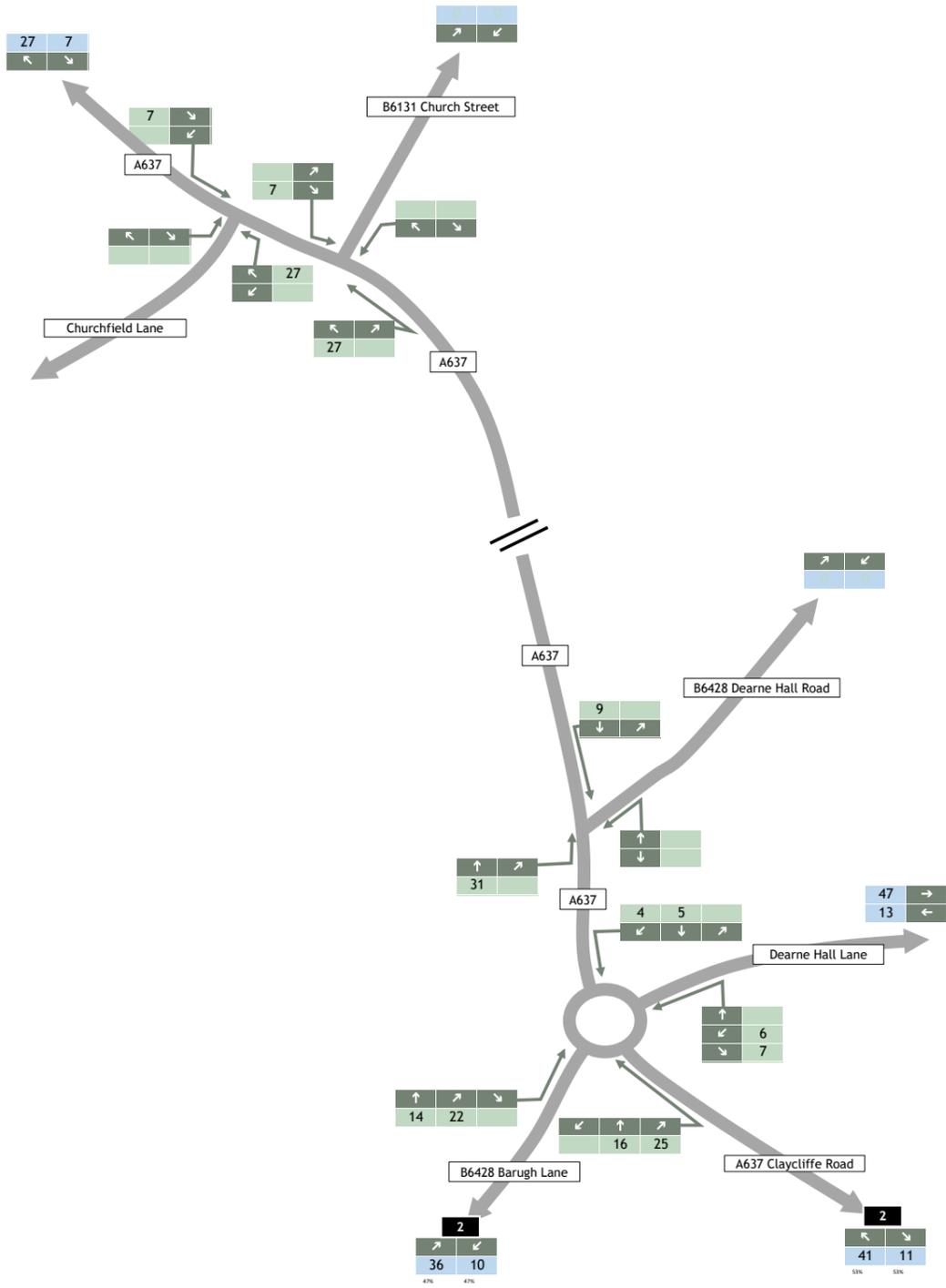
Figure Title:
 Employment Residual Traffic Flows - A628 Whinby Road (AM and PM Peak Hours)

Scale:
 Not to scale

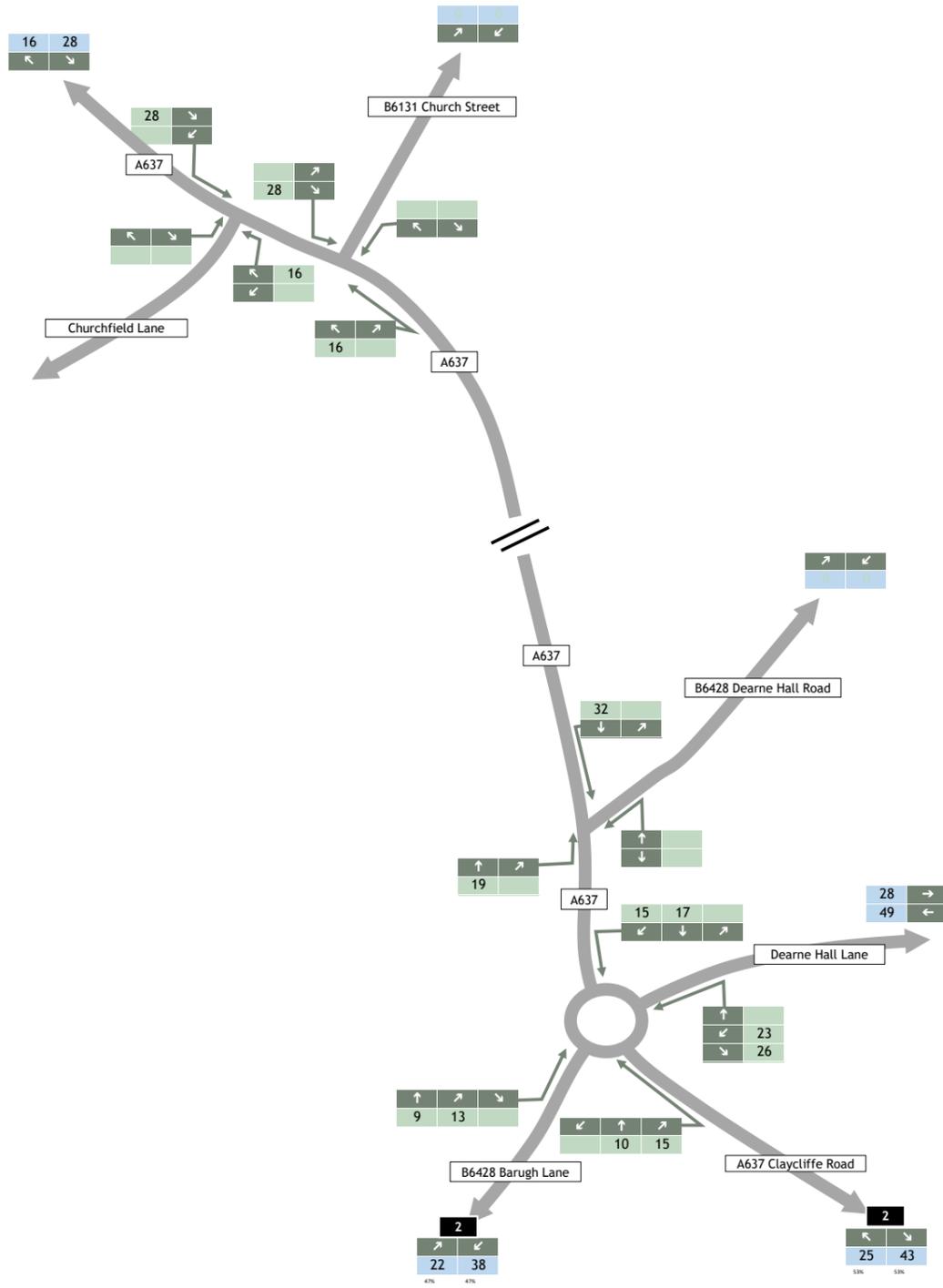
Figure Status:
 Issue

Job Number:
 3062

Figure Number:
 Figure 23



A637 Corridor (North) - Weekday AM Peak Hour



A637 Corridor (North) - Weekday PM Peak Hour

Key:

-  End Point (As per the study area extent of the Transport Assessment)
-  Highway Network

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



Client:
 Strata Sterling Barnsley West Limited

Project:
 Proposed MU1 Residential and Employment Site, Barnsley

Figure Title:
 Total Residential Residual Traffic Flows - A637 (AM and PM Peak Hours)

Scale:
 Not to scale

Figure Status:
 Issue

Job Number:
 3062

Figure Number:
 Figure 24



A637 Corridor (North) - Weekday AM Peak Hour



A637 Corridor (North) - Weekday PM Peak Hour

Key:

 End Point (As per the study area extent of the Transport Assessment)

 Highway Network

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



Client:
 Strata Sterling Barnsley West Limited

Project:
 Proposed MU1 Residential and Employment Site, Barnsley

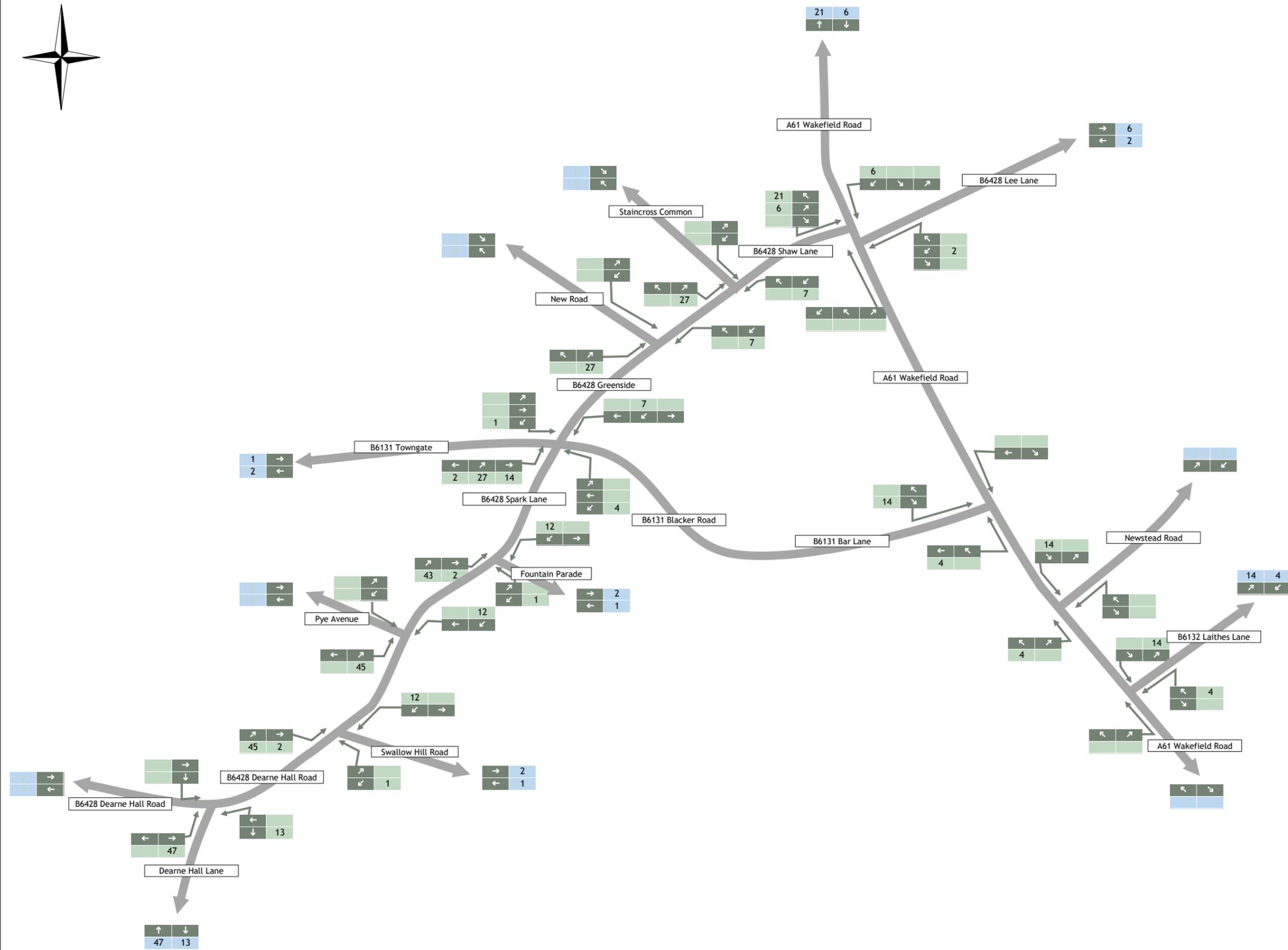
Figure Title:
 Employment Traffic Flows - A637 (AM and PM Peak Hours)

Scale:
 Not to scale

Figure Status:
 Issue

Job Number:
 3062

Figure Number:
 Figure 25



Key:

1 End Point (As per the study area extent of the Transport Assessment)

→ Highway Network

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



Client:
 Strata Sterling Barnsley West Limited

Project:
 Proposed MU1 Residential and Employment Site, Barnsley

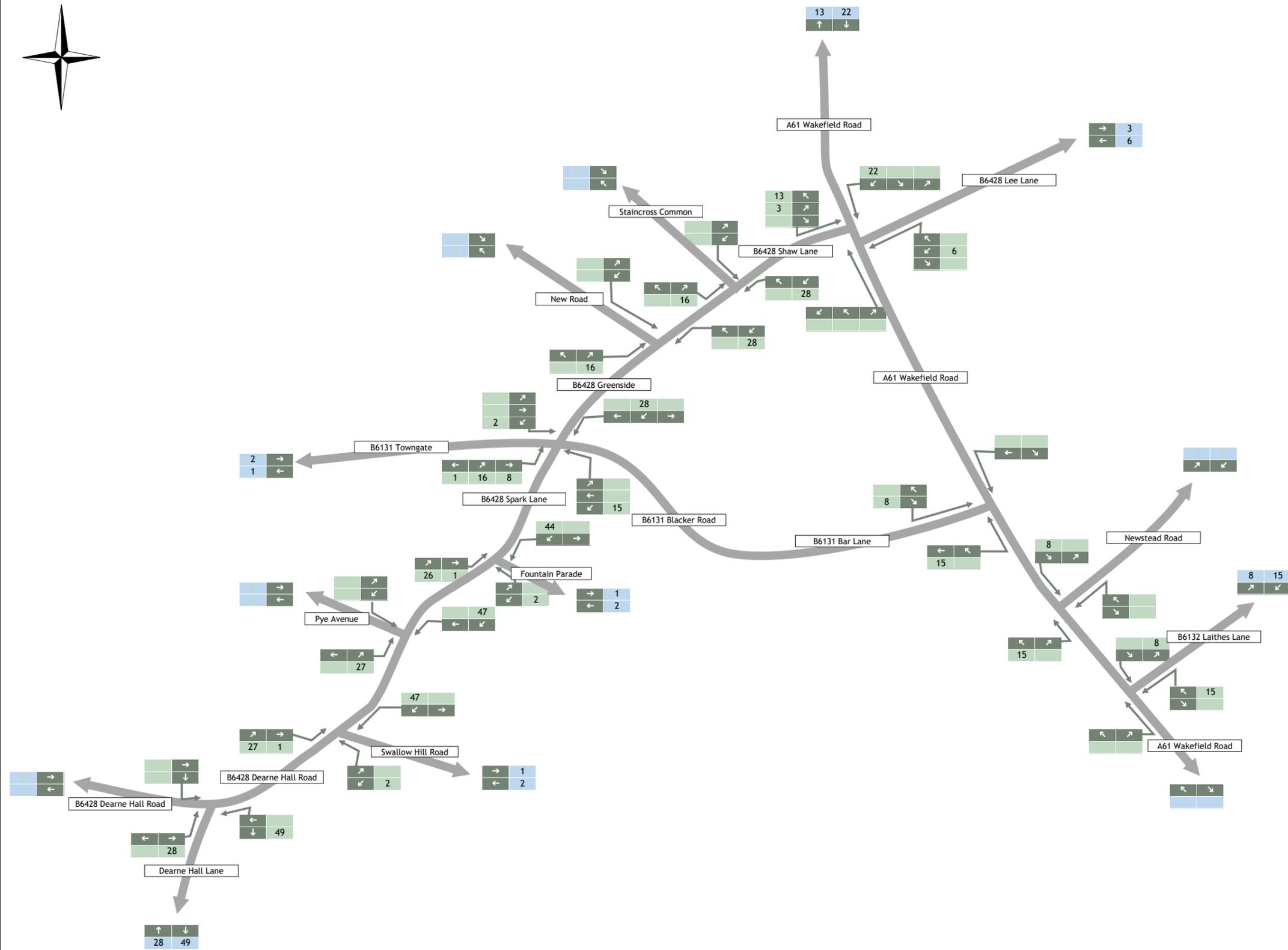
Figure Title:
 Total Residential Residual Traffic Flows - B6428 (AM Peak Hour)

Scale:
 Not to scale

Figure Status:
 Issue

Job Number:
 3062

Figure Number:
 Figure 26



Key:

1 End Point (As per the study area extent of the Transport Assessment)

→ Highway Network

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



Client:
Strata Sterling Barnsley West Limited

Project:
Proposed MU1 Residential and Employment Site, Barnsley

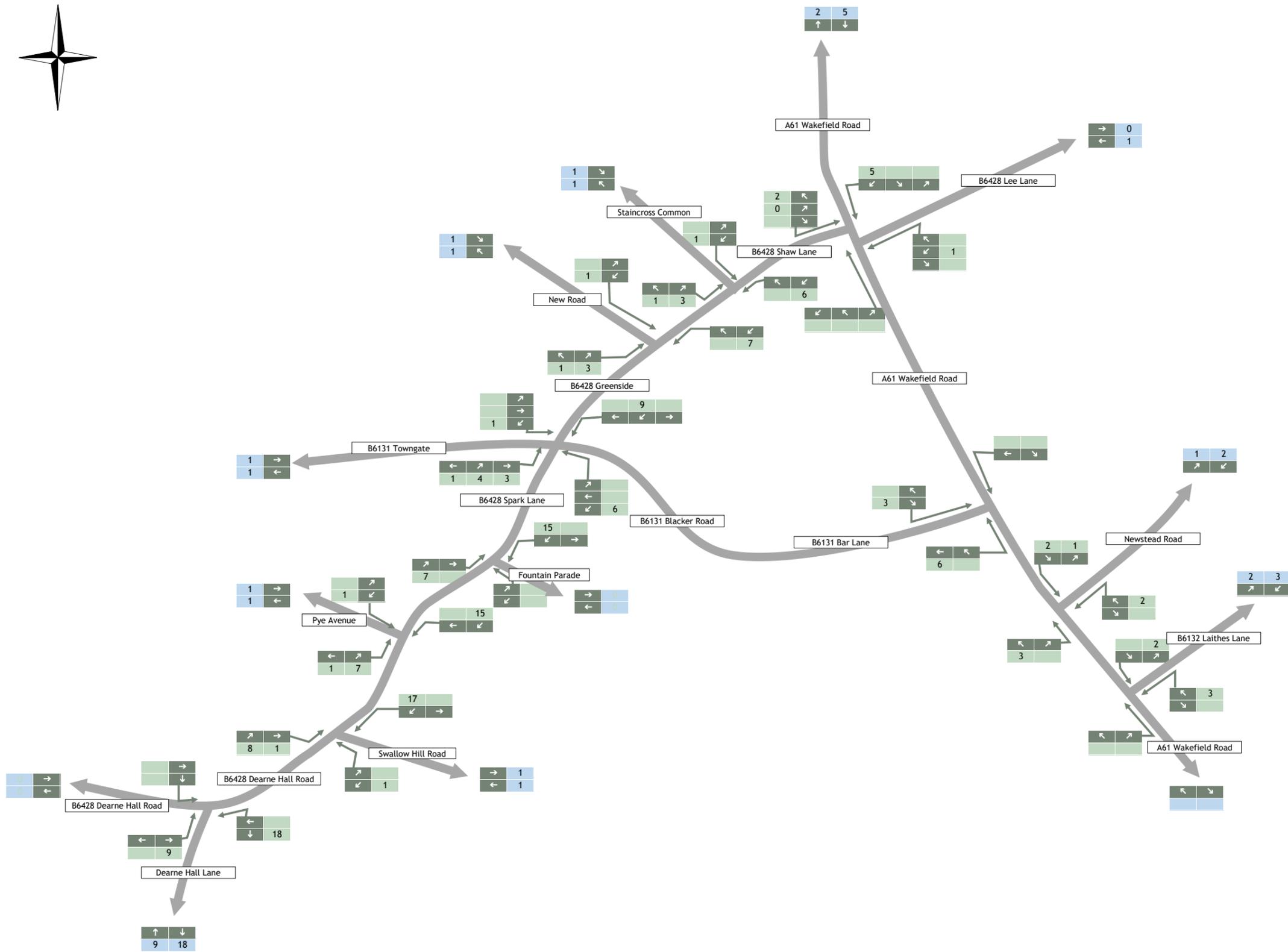
Figure Title:
Total Residential Residual Traffic Flows - B6428 (PM Peak Hour)

Scale:
Not to scale

Figure Status:
Issue

Job Number:
3062

Figure Number:
Figure 27



Key:

- 1 End Point (As per the study area extent of the Transport Assessment)
- Highway Network

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



Client:
 Strata Sterling Barnsley West Limited

Project:
 Proposed MU1 Residential and Employment Site, Barnsley

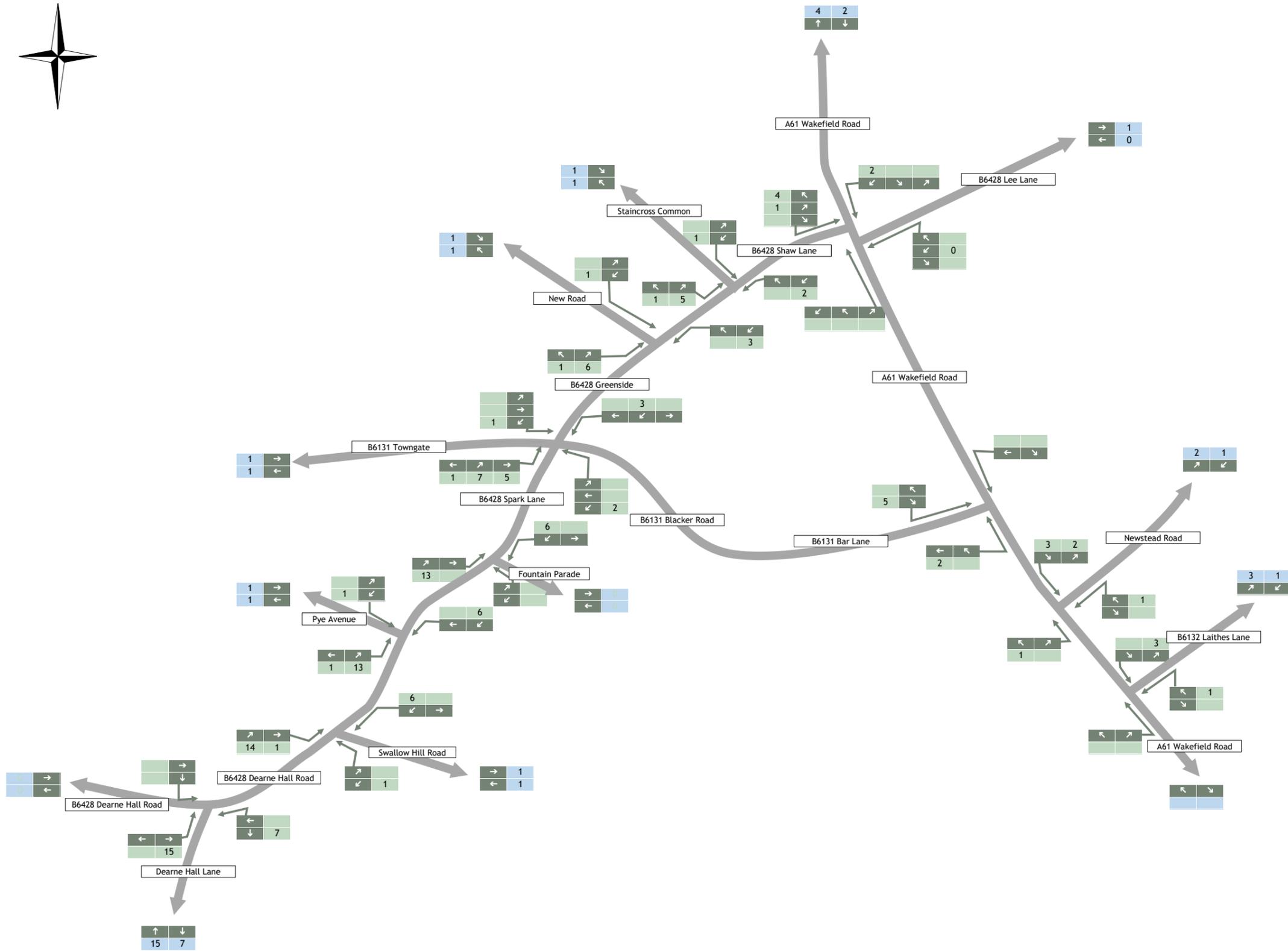
Figure Title:
 Employment Residual Traffic Flows - B6428 (AM Peak Hour)

Scale:
 Not to scale

Figure Status:
 Issue

Job Number:
 3062

Figure Number:
 Figure 28



Key:

1 End Point (As per the study area extent of the Transport Assessment)

→ Highway Network

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



Client:
 Strata Sterling Barnsley West Limited

Project:
 Proposed MU1 Residential and Employment Site, Barnsley

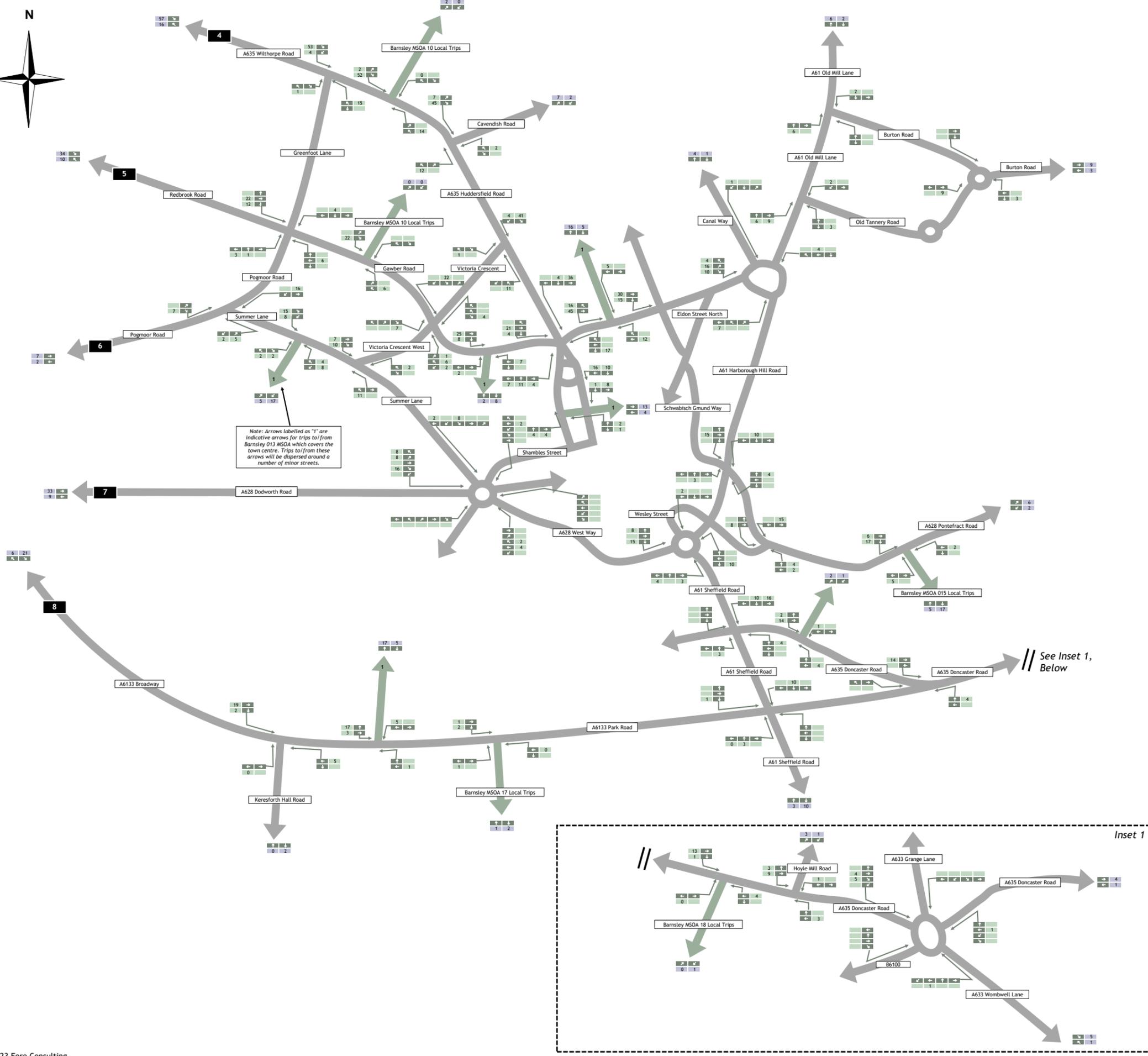
Figure Title:
 Employment Residual Traffic Flows - B6428 (PM Peak Hour)

Scale:
 Not to scale

Figure Status:
 Issue

Job Number:
 3062

Figure Number:
 Figure 29



Key:

- 1 End Point (As per the study area extent of the Transport Assessment)
- Highway Network
- Indicative End Points (These are trips that may be split between one or more routes (e.g. a number of minor roads)).

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

Client:
 Strata Sterling Barnsley West Limited

Project:
 Proposed MU1 Residential and Employment Site, Barnsley

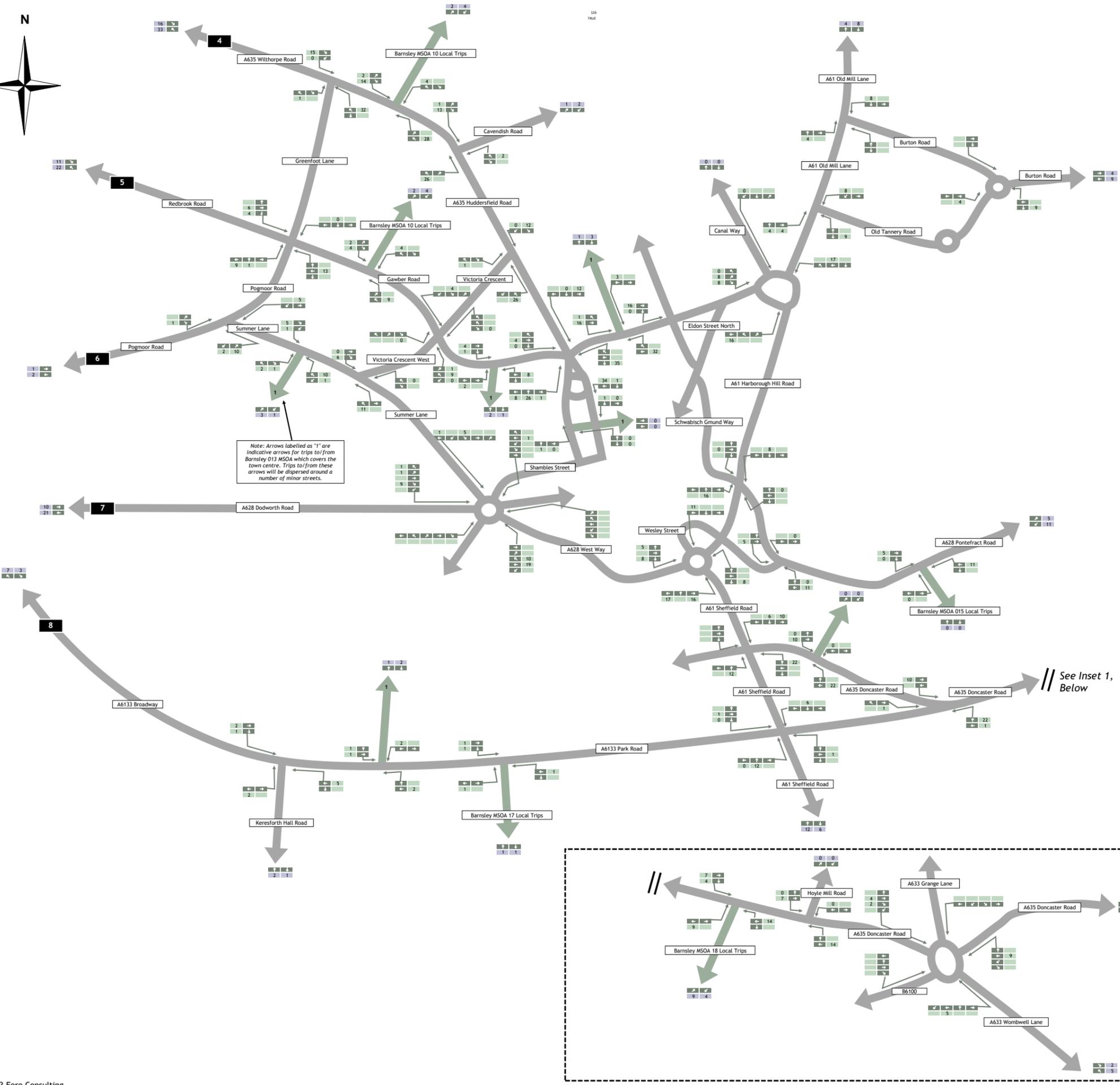
Figure Title:
 Total Residential Residual Traffic Flows - Town Centre (AM Peak Hour)

Scale:
 Not to scale

Figure Status:
 Issue

Job Number:
 3062

Figure Number:
 Figure 30



Key:

- 1 End Point (As per the study area extent of the Transport Assessment)
- Highway Network
- Indicative End Points (These are trips that may be split between one or more routes (e.g. a number of minor roads)).

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

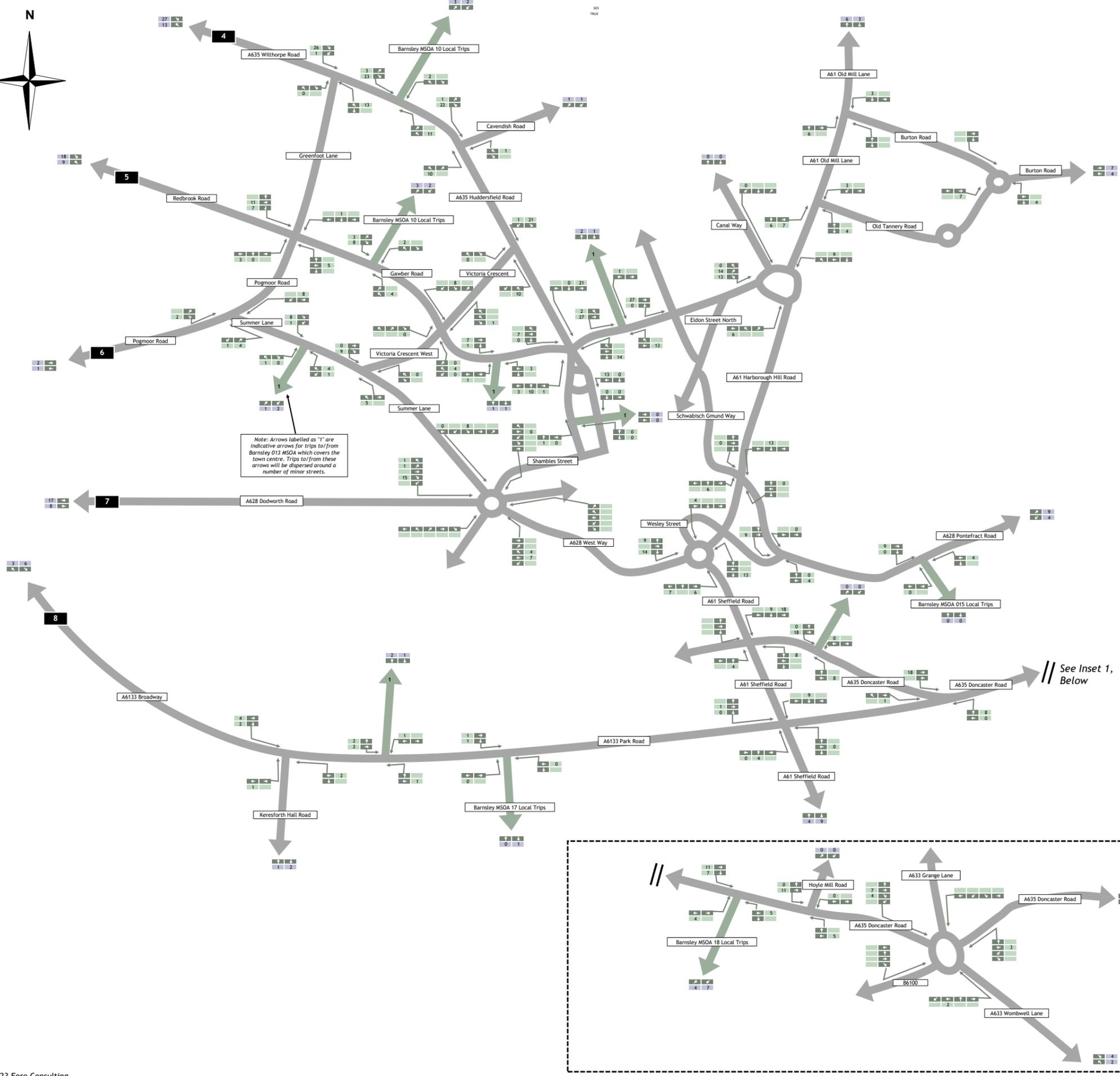


Client:

Project:
Proposed MU1 Residential and Employment Site, Barnsley

Figure Title:
Employment Residual Traffic Flows - Town Centre (AM Peak Hour)

Scale: Not to scale	Figure Status: Issue
Job Number: 3062	Figure Number: Figure 32



Key:

- End Point (As per the study area extent of the Transport Assessment)
- Highway Network
- Indicative End Points (These are trips that may be split between one or more routes (e.g. a number of minor roads)).

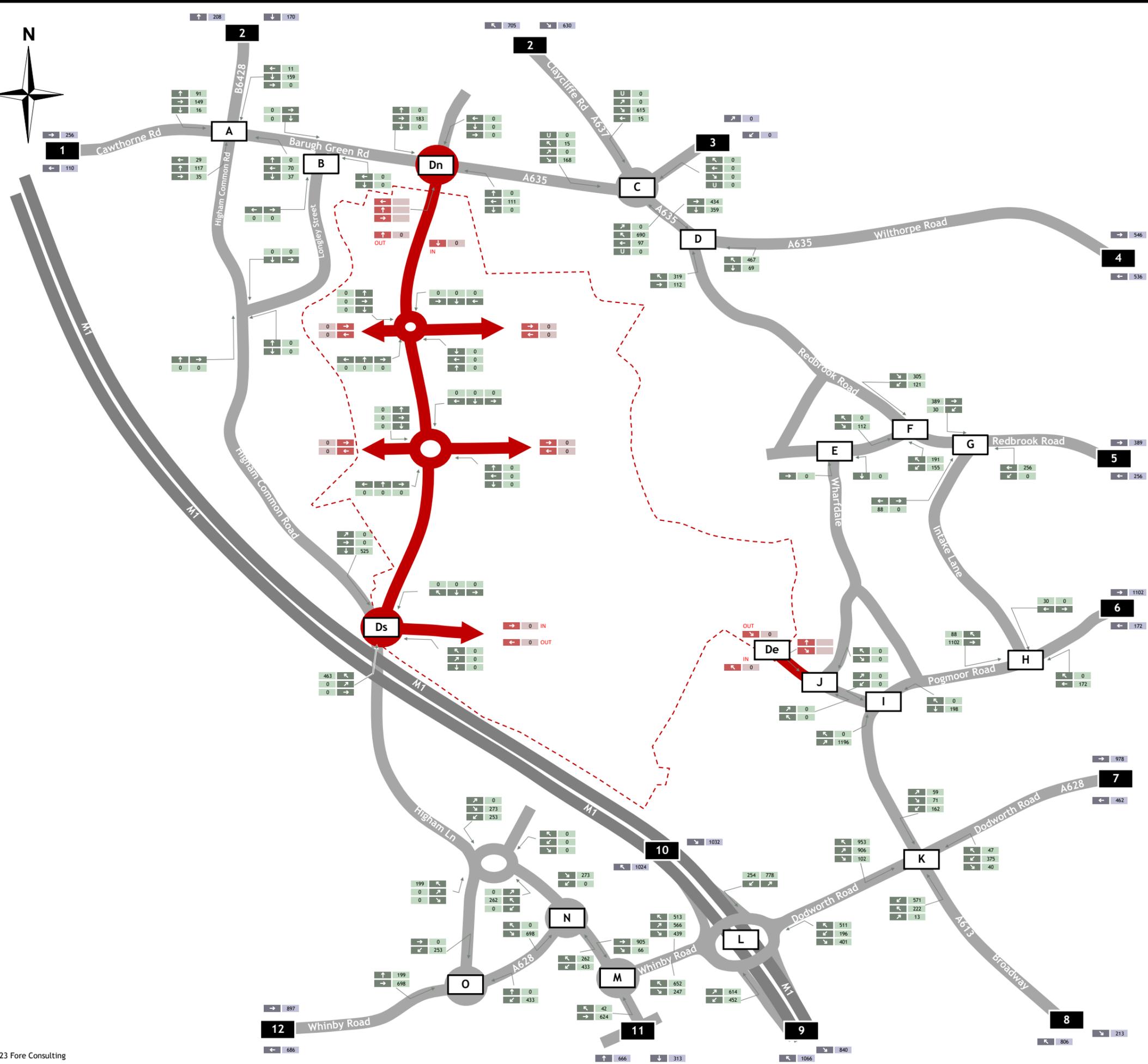
Fore Consulting Limited
 Suite 18, City Quadrant
 11 Waterloo Square
 Newcastle upon Tyne
 NE1 4DP
 0191 255 7778
 enquiries@foreconsulting.co.uk
 www.foreconsulting.co.uk

Client:
 Strata Sterling Barnsley West Limited

Project:
 Proposed MU1 Residential and Employment Site, Barnsley

Figure Title:
 Employment Residual Traffic Flows - Town Centre (PM Peak Hour)

Scale: Not to scale	Figure Status: Issue
Job Number: 3062	Figure Number: Figure 33



Key:

- Primary Road
- Secondary Road
- Site Access

Fore Consulting Limited
1st Floor, 15 St Paul's Street
Leeds
LS1 2JG

enquiries@foreconsulting.co.uk
www.foreconsulting.co.uk



Client:

Strata Sterling Barnsley West Limited

Project:

Proposed MU1 Residential and Employment Site, Barnsley

Figure Title:

Sheffield City Region Transport Model - AECOM Do Minimum Assessment Scenario - AM Peak Hour

Scale:

Not to scale

Figure Status:

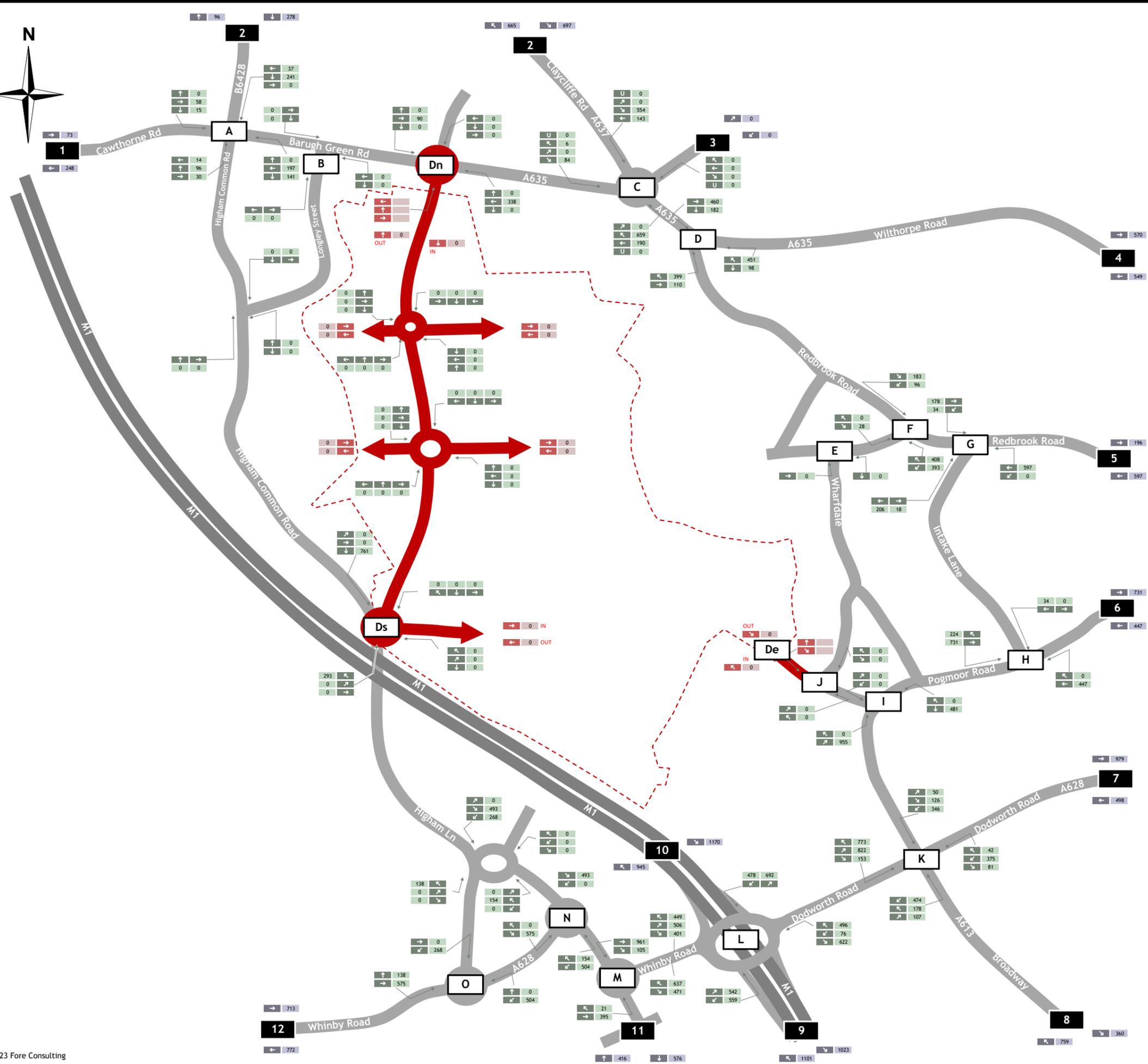
Issue

Job Number:

3062

Figure Number:

Figure 34



Key:

- Primary Road
- Secondary Road
- Site Access

Fore Consulting Limited
1st Floor, 15 St Paul's Street
Leeds
LS1 2JG
enquiries@foreconsulting.co.uk
www.foreconsulting.co.uk



Client:
Strata Sterling Barnsley West Limited

Project:
Proposed MU1 Residential and Employment Site, Barnsley

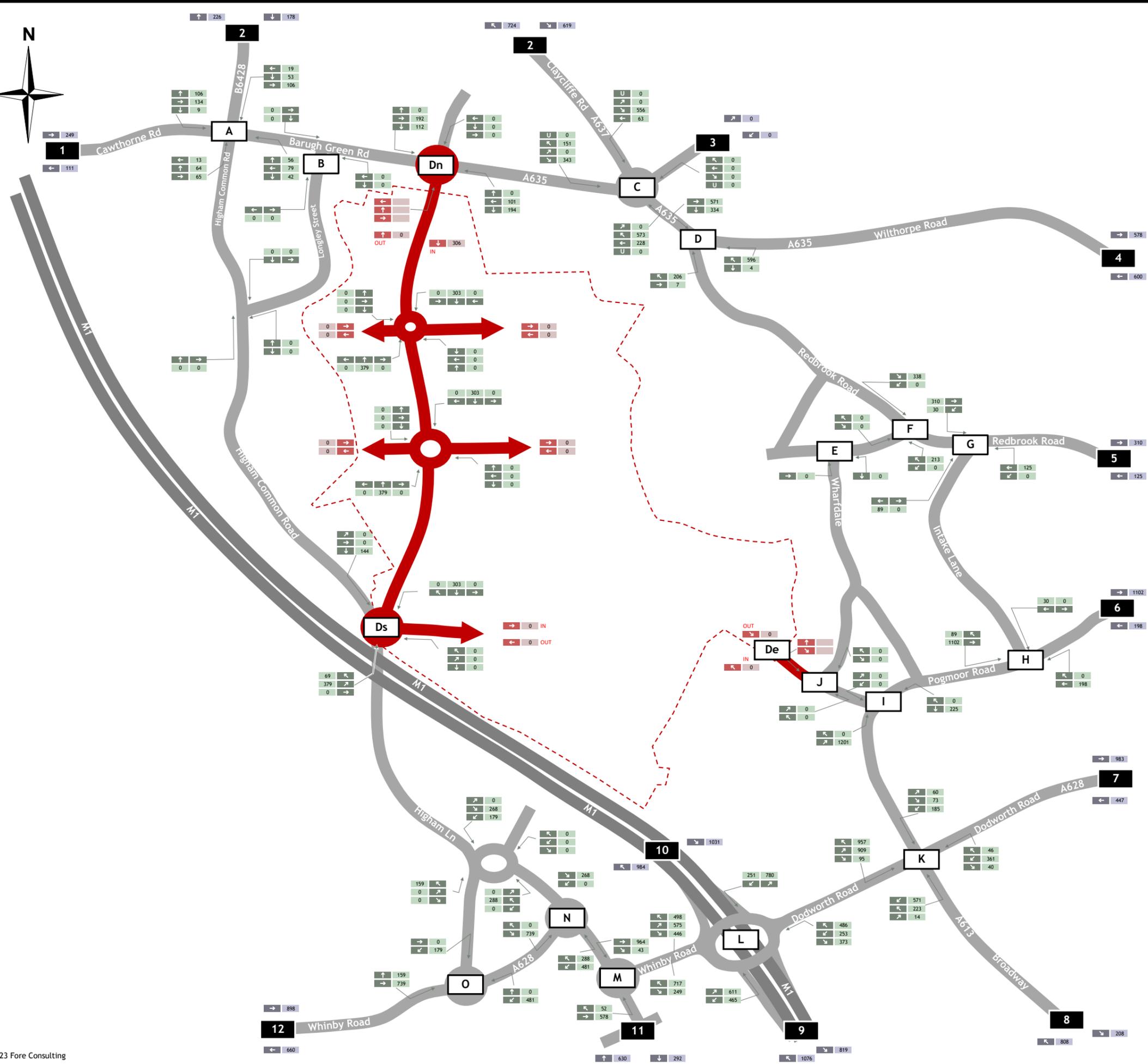
Figure Title:
Sheffield City Region Transport Model - AECOM Do Minimum Assessment Scenario - PM Peak Hour

Scale:
Not to scale

Figure Status:
Issue

Job Number:
3062

Figure Number:
Figure 35



Key:

- Primary Road
- Secondary Road
- Site Access

Fore Consulting Limited
1st Floor, 15 St Paul's Street
Leeds
LS1 2JG

enquiries@foreconsulting.co.uk
www.foreconsulting.co.uk



Client:

Strata Sterling Barnsley West Limited

Project:

Proposed MU1 Residential and Employment Site, Barnsley

Figure Title:

Sheffield City Region Transport Model - AECOM Do
Something 1 Assessment Scenario - AM Peak Hour

Scale:

Not to scale

Figure Status:

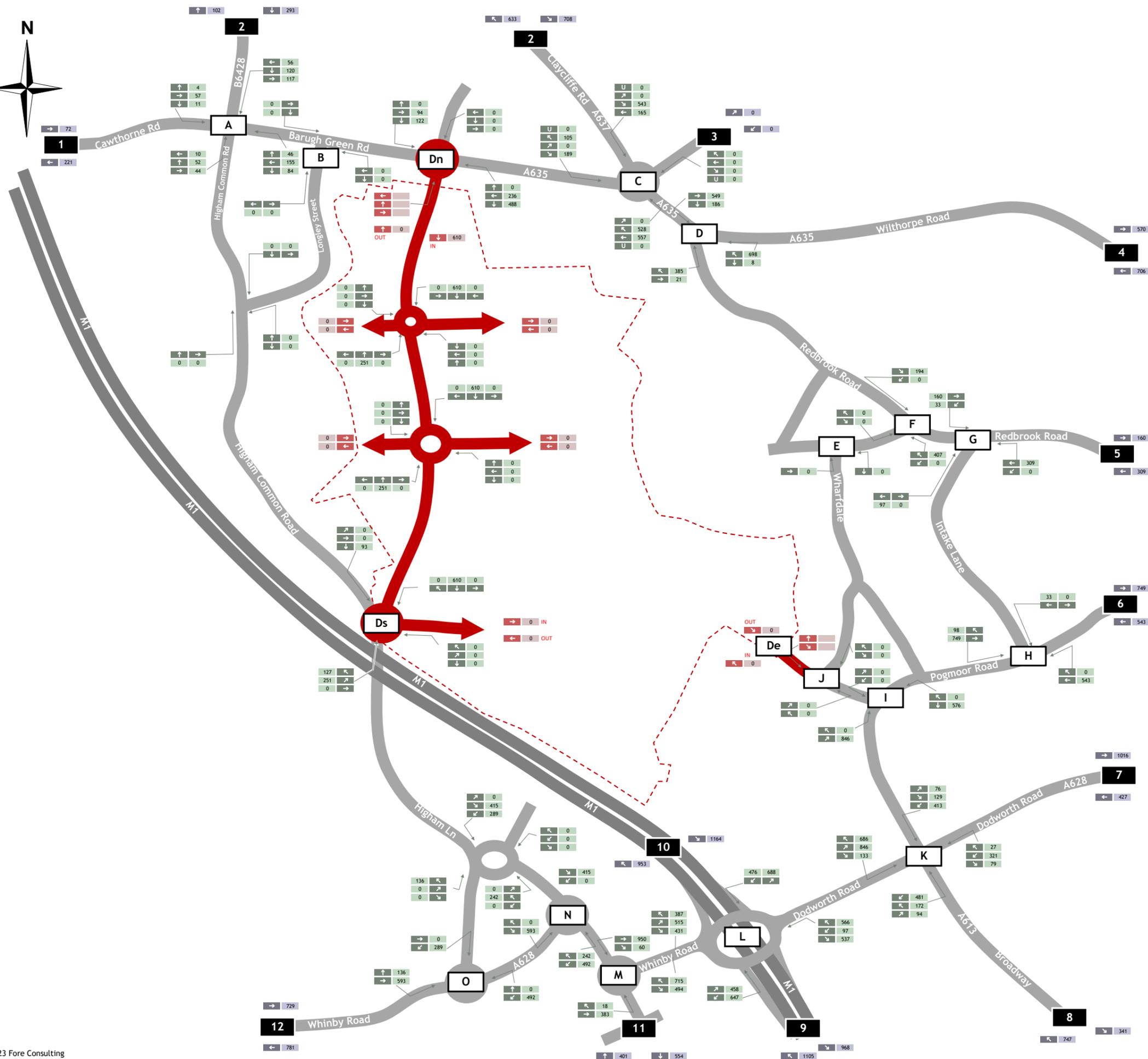
Issue

Job Number:

3062

Figure Number:

Figure 36



Key:

-  Primary Road
-  Secondary Road
-  Site Access

Fore Consulting Limited
1st Floor, 15 St Paul's Street
Leeds
LS1 2JG

enquiries@foreconsulting.co.uk
www.foreconsulting.co.uk



Client:

Strata Sterling Barnsley West Limited

Project:

Proposed MU1 Residential and Employment Site, Barnsley

Figure Title:

Sheffield City Region Transport Model - AECOM Do
Something 1 Assessment Scenario - PM Peak Hour

Scale:

Not to scale

Figure Status:

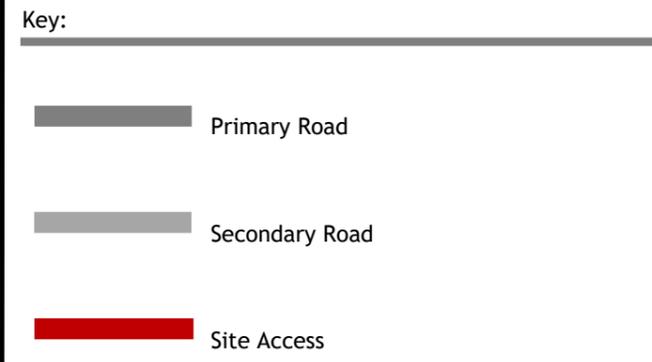
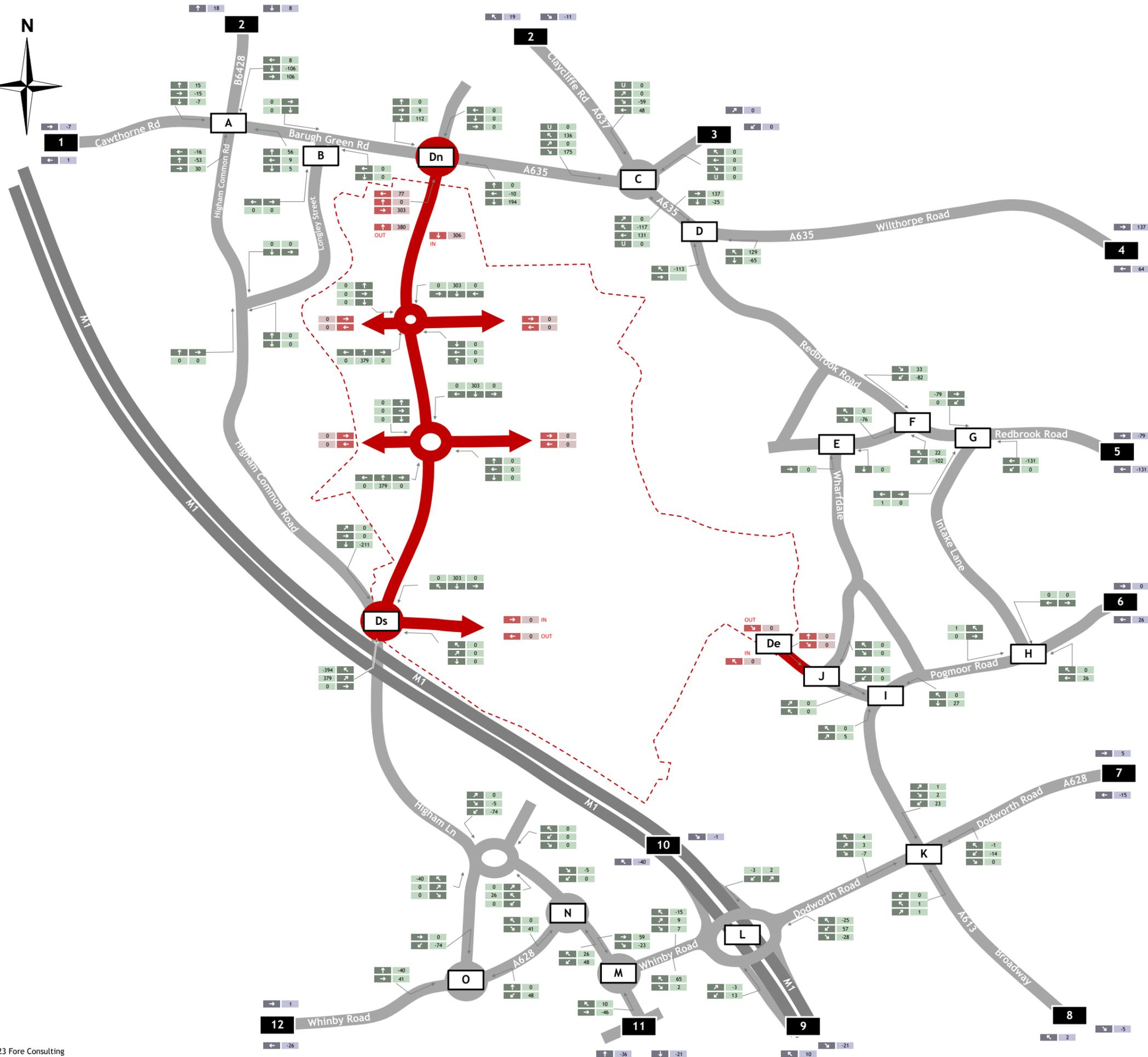
Issue

Job Number:

3062

Figure Number:

Figure 37



Fore Consulting Limited
1st Floor, 15 St Paul's Street
Leeds
LS1 2JG
enquiries@foreconsulting.co.uk
www.foreconsulting.co.uk

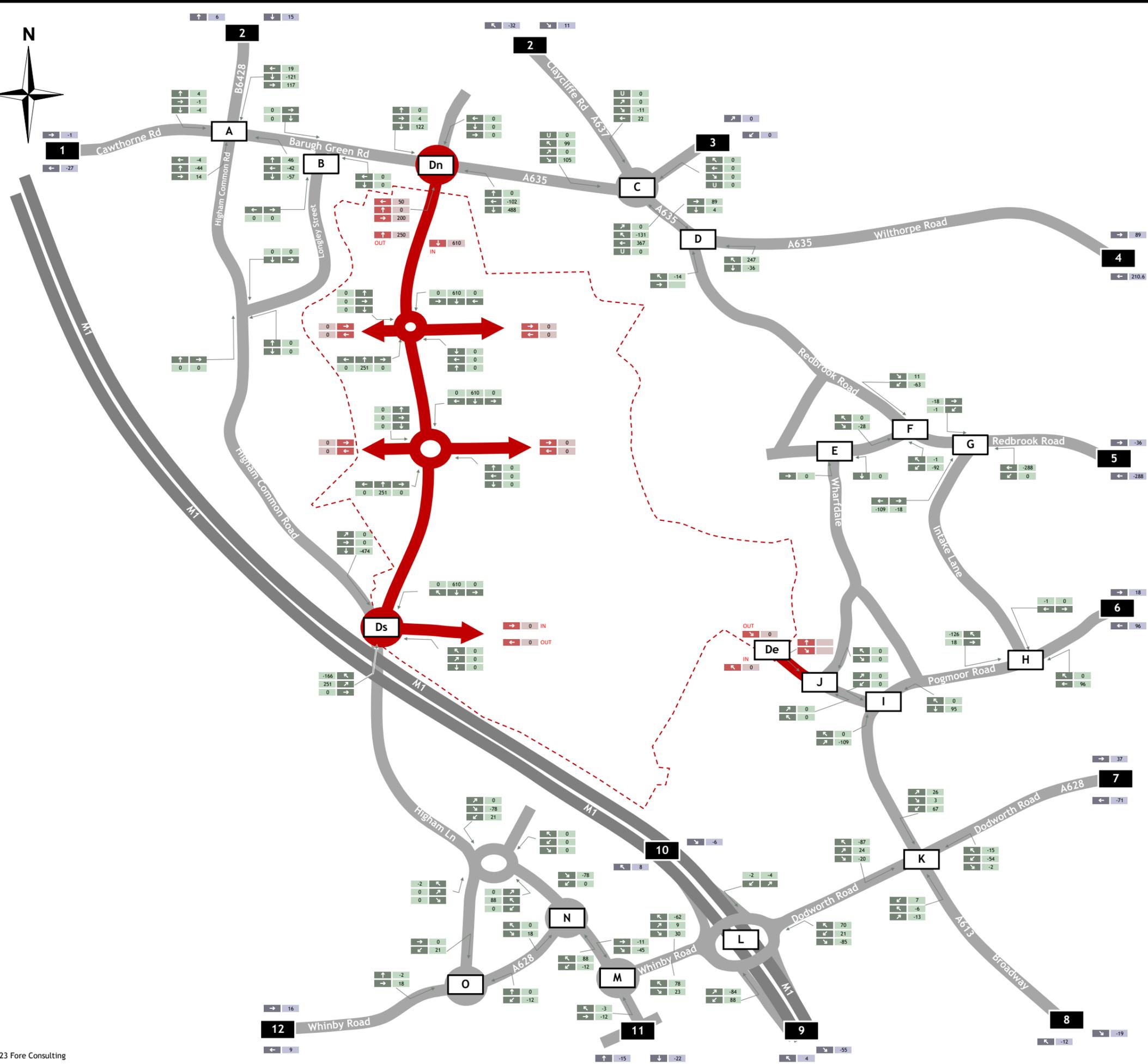
Client:
Strata Sterling Barnsley West Limited

Project:
Proposed MU1 Residential and Employment Site, Barnsley

Figure Title:
Link Road Reassignment - AM Peak Hour

Scale: Not to scale
Job Number: 3062

Figure Status: Issue
Figure Number: Figure 38



Key:

- Primary Road
- Secondary Road
- Site Access

Fore Consulting Limited
1st Floor, 15 St Paul's Street
Leeds
LS1 2JG

enquiries@foreconsulting.co.uk
www.foreconsulting.co.uk



Client:

Strata Sterling Barnsley West Limited

Project:

Proposed MU1 Residential and Employment Site, Barnsley

Figure Title:

Link Road Reassignment - PM Peak Hour

Scale:

Not to scale

Figure Status:

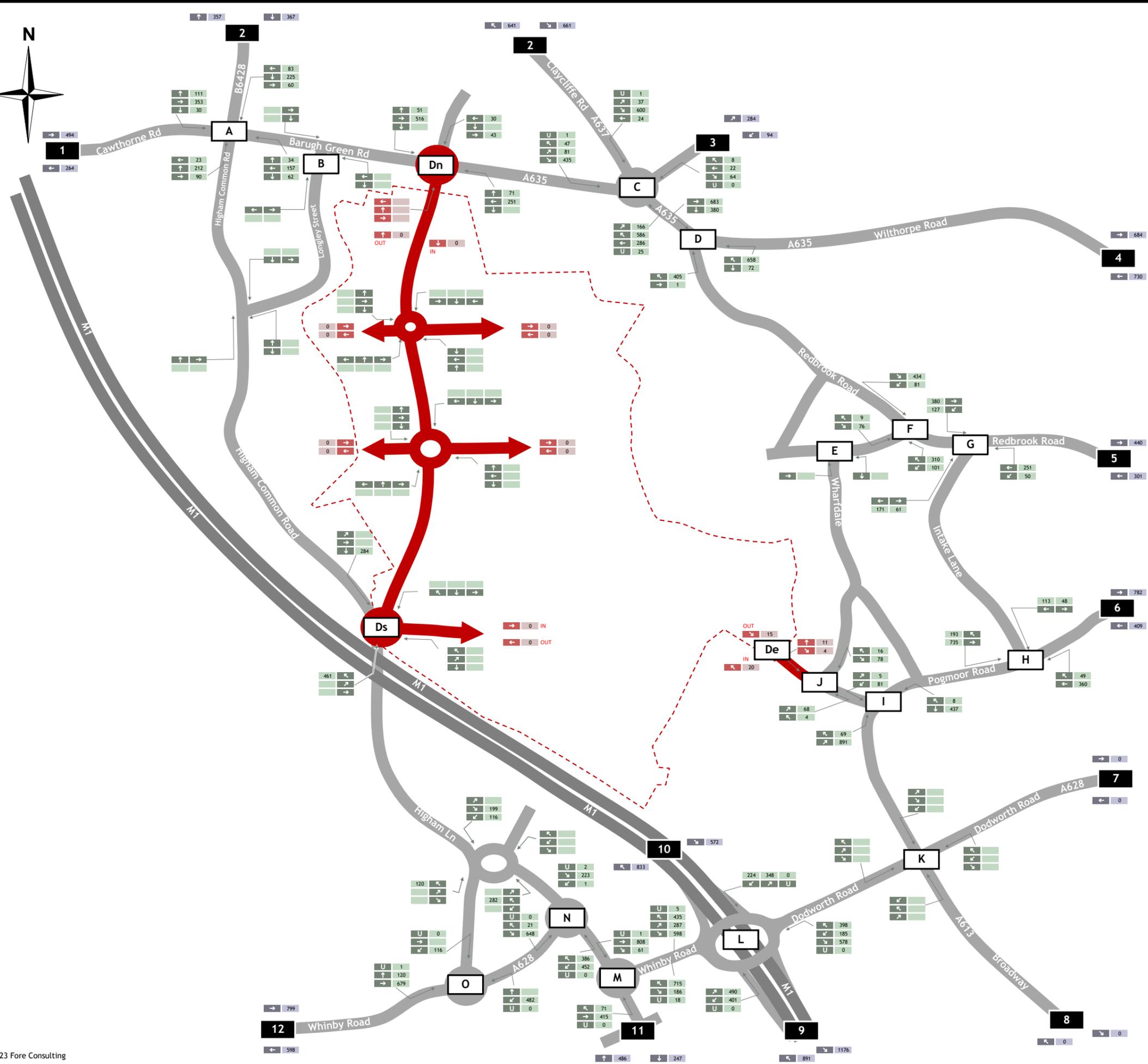
Issue

Job Number:

3062

Figure Number:

Figure 39



Key:

- Primary Road
- Secondary Road
- Site Access

Fore Consulting Limited
1st Floor, 15 St Paul's Street
Leeds
LS1 2JG

enquiries@foreconsulting.co.uk
www.foreconsulting.co.uk



Client:

Strata Sterling Barnsley West Limited

Project:

Proposed MU1 Residential and Employment Site, Barnsley

Figure Title:

2022 Base Year Traffic Flows - AM Peak Hour

Scale:

Not to scale

Figure Status:

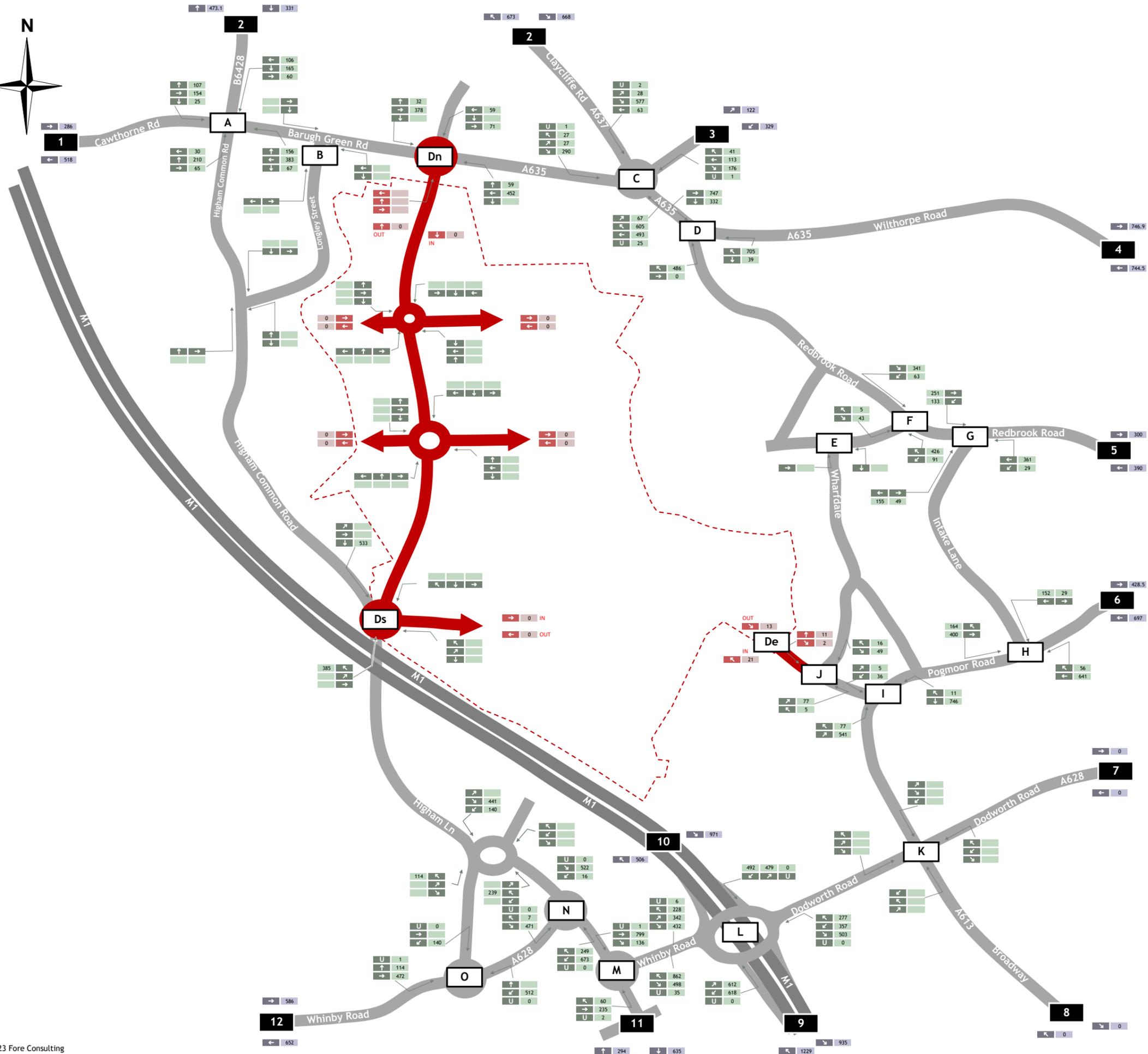
Issue

Job Number:

3062

Figure Number:

Figure 40



Key:

-  Primary Road
-  Secondary Road
-  Site Access

Fore Consulting Limited
1st Floor, 15 St Paul's Street
Leeds
LS1 2JG
enquiries@foreconsulting.co.uk
www.foreconsulting.co.uk



Client:
Strata Sterling Barnsley West Limited

Project:
Proposed MU1 Residential and Employment Site, Barnsley

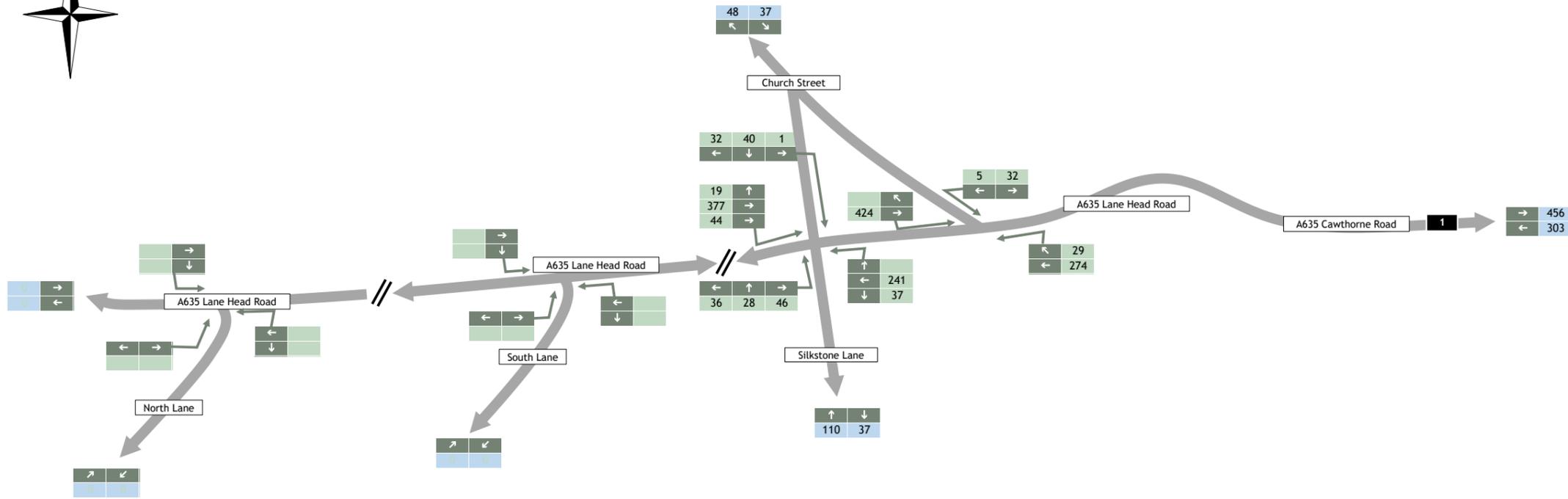
Figure Title:
2022 Base Year Traffic Flows - PM Peak Hour

Scale:
Not to scale

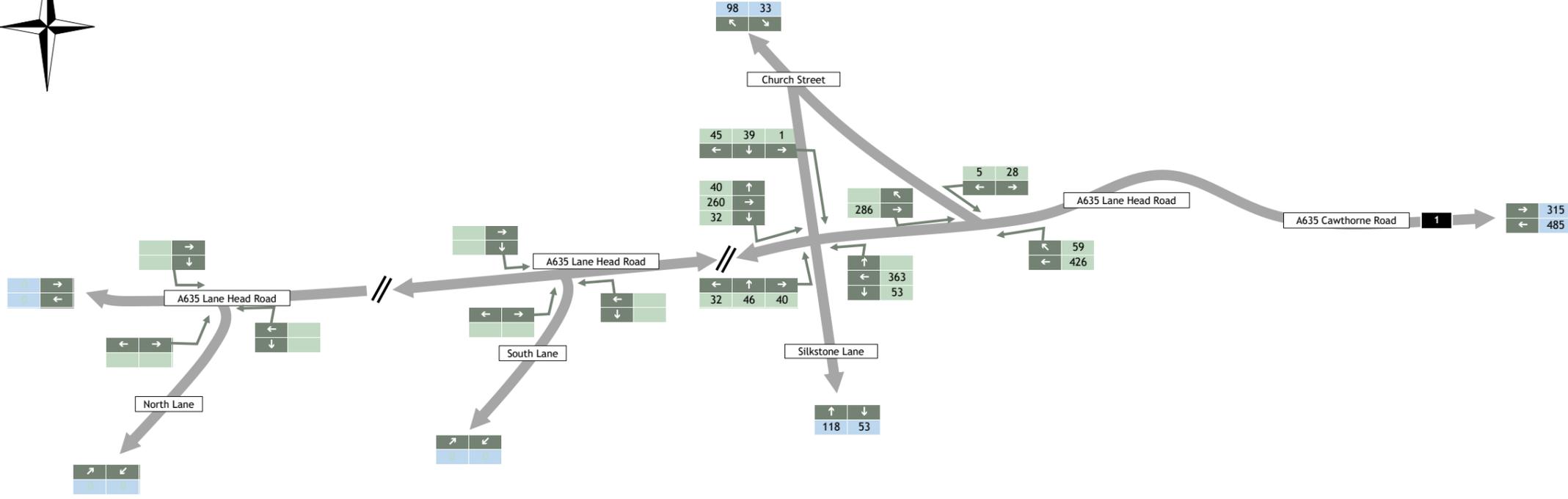
Figure Status:
Issue

Job Number:
3062

Figure Number:
Figure 41



A635 Cawthorne Road Impact - Weekday AM Peak Hour



A635 Cawthorne Road Impact - Weekday PM Peak Hour

Key:

- 1** End Point (As per the study area extent of the Transport Assessment)
- Highway Network

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



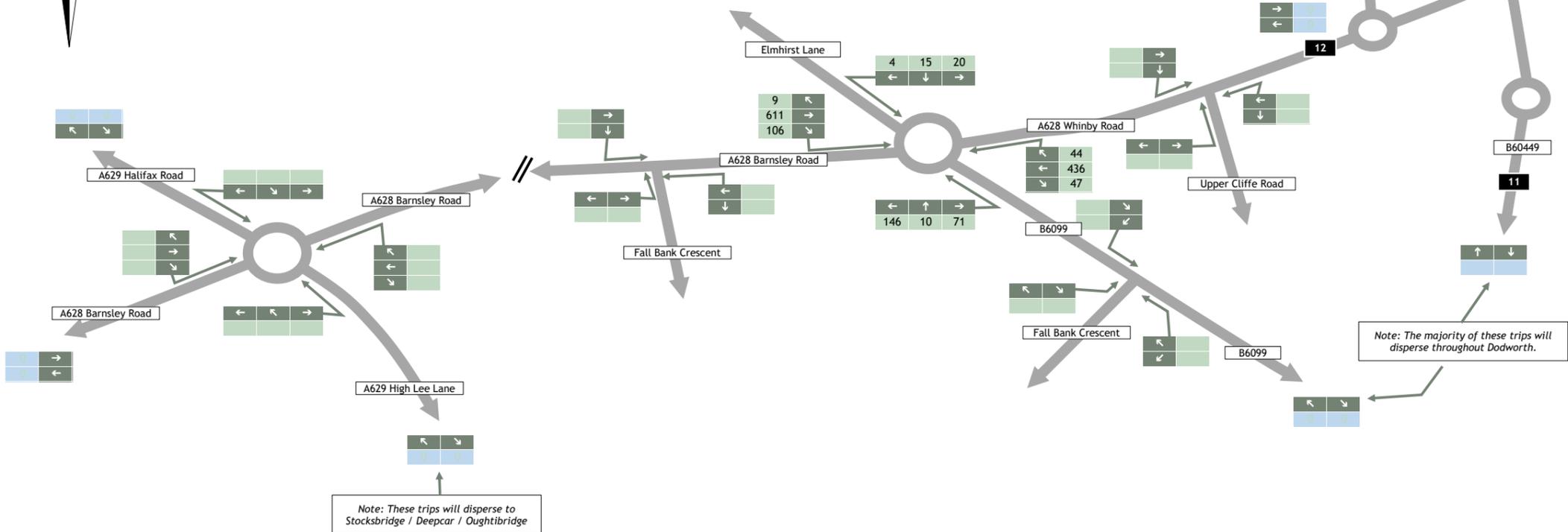
Client: Strata Sterling Barnsley West Limited

Project: Proposed MU1 Residential and Employment Site, Barnsley

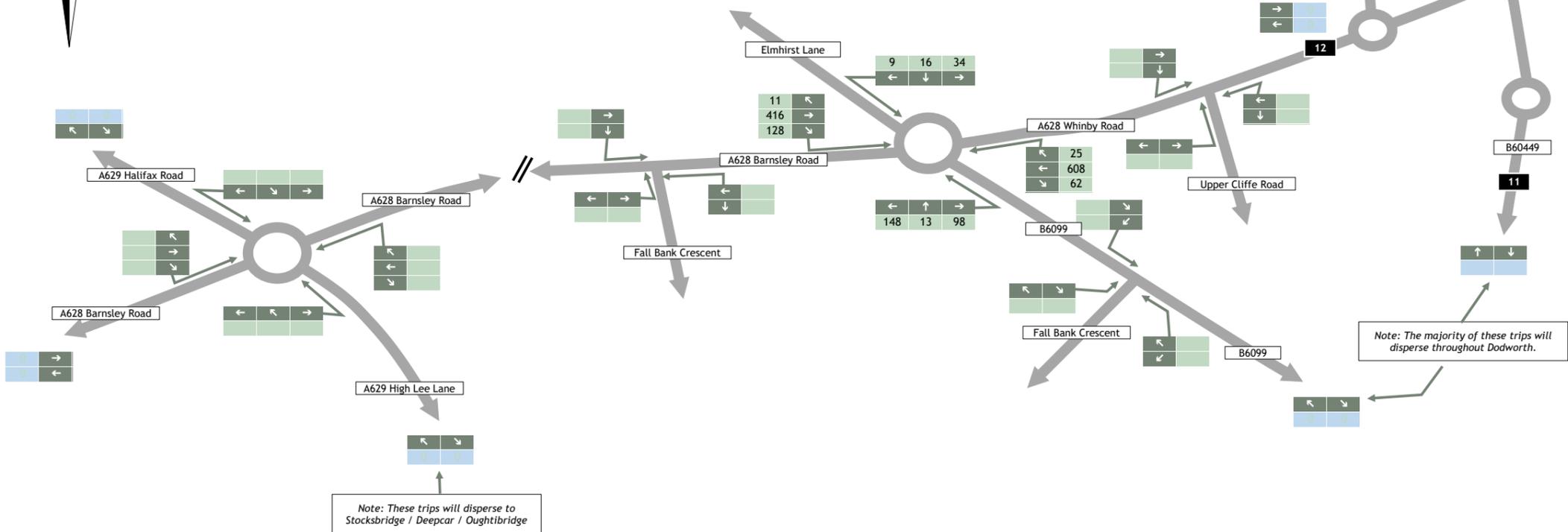
Figure Title: 2022 Base Year Traffic Flows - A635 Cawthorne Road (AM and PM Peak Hours)

Scale: Not to scale	Figure Status: Issue
------------------------	-------------------------

Job Number: 3062	Figure Number: Figure 42
---------------------	-----------------------------



A628 Whinby Road Impact - Weekday AM Peak Hour



A628 Whinby Road Impact - Weekday PM Peak Hour

Key:

1 End Point (As per the study area extent of the Transport Assessment)

Highway Network

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



Client:
 Strata Sterling Barnsley West Limited

Project:
 Proposed MU1 Residential and Employment Site, Barnsley

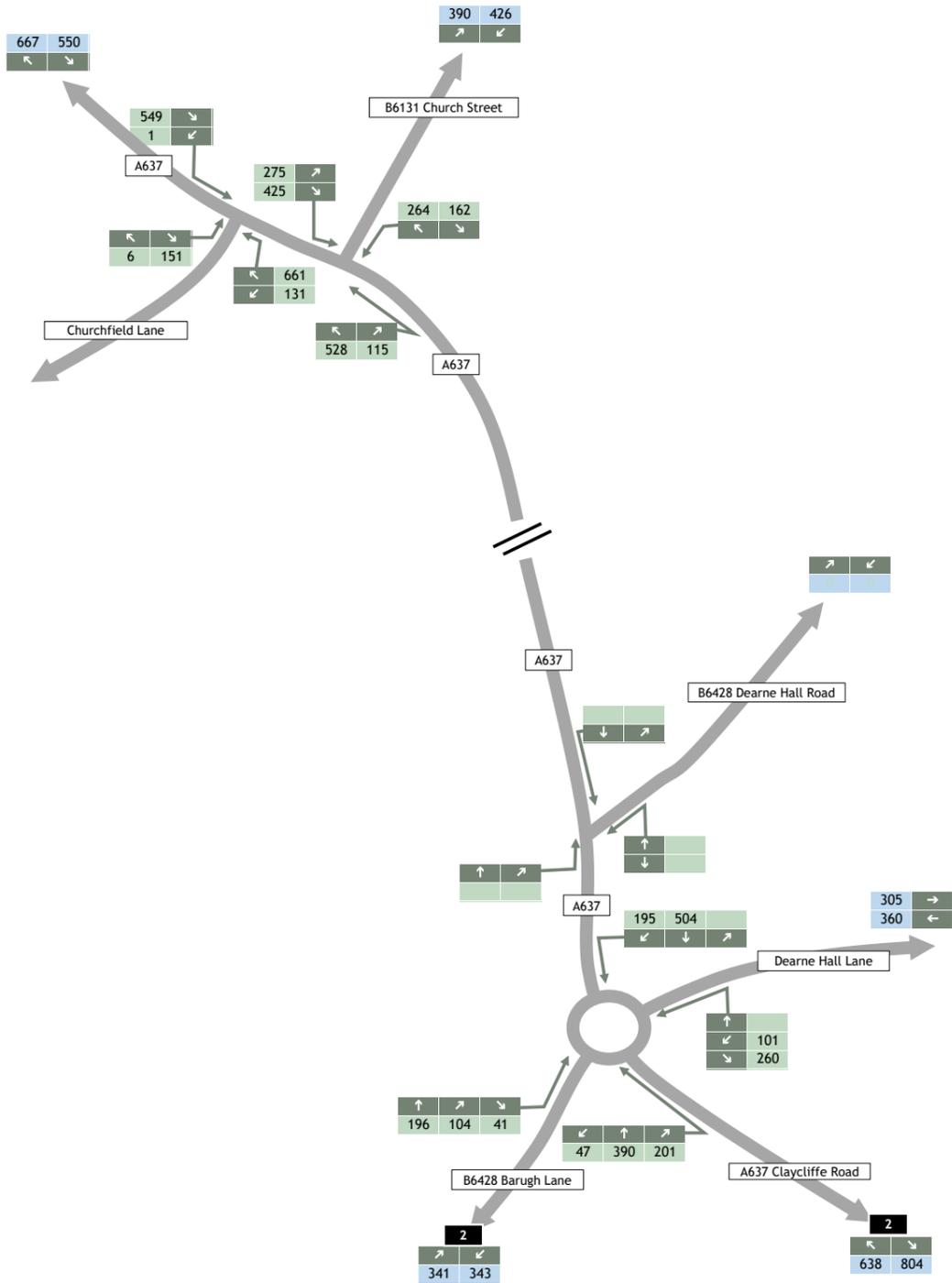
Figure Title:
 2022 Base Year Traffic Flows - A628 Whinby Road (AM and PM Peak Hours)

Scale:
 Not to scale

Figure Status:
 Issue

Job Number:
 3062

Figure Number:
 Figure 43



A637 Corridor (North) - Weekday AM Peak Hour



A637 Corridor (North) - Weekday PM Peak Hour

Key:

- End Point (As per the study area extent of the Transport Assessment)
- Highway Network

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



Client:
 Strata Sterling Barnsley West Limited

Project:
 Proposed MU1 Residential and Employment Site, Barnsley

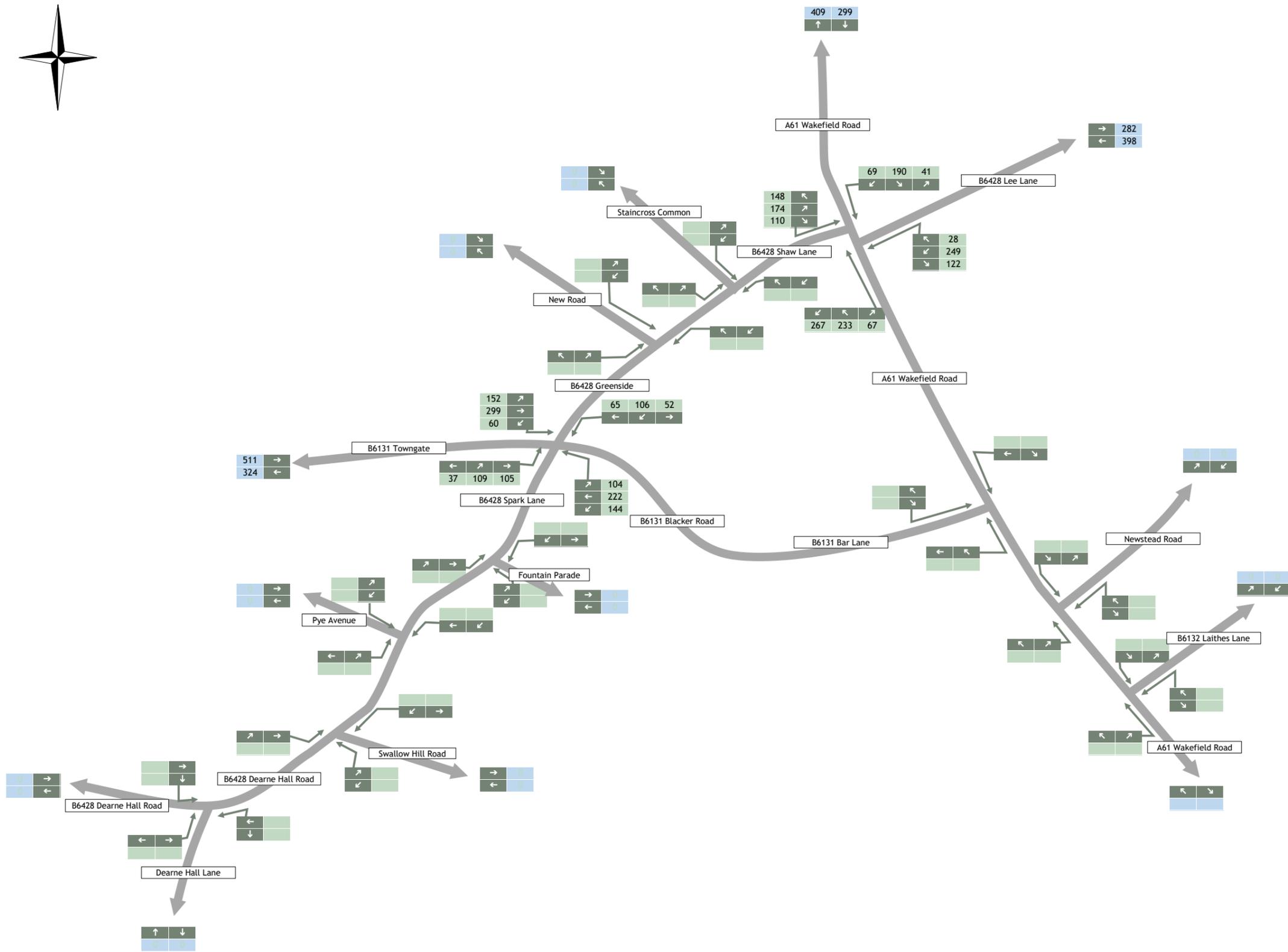
Figure Title:
 2022 Base Year Traffic Flows - A637 (AM and PM Peak Hours)

Scale:
 Not to scale

Figure Status:
 Issue

Job Number:
 3062

Figure Number:
 Figure 44



Key:

1 End Point (As per the study area extent of the Transport Assessment)

Highway Network

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



Client:
 Strata Sterling Barnsley West Limited

Project:
 Proposed MU1 Residential and Employment Site, Barnsley

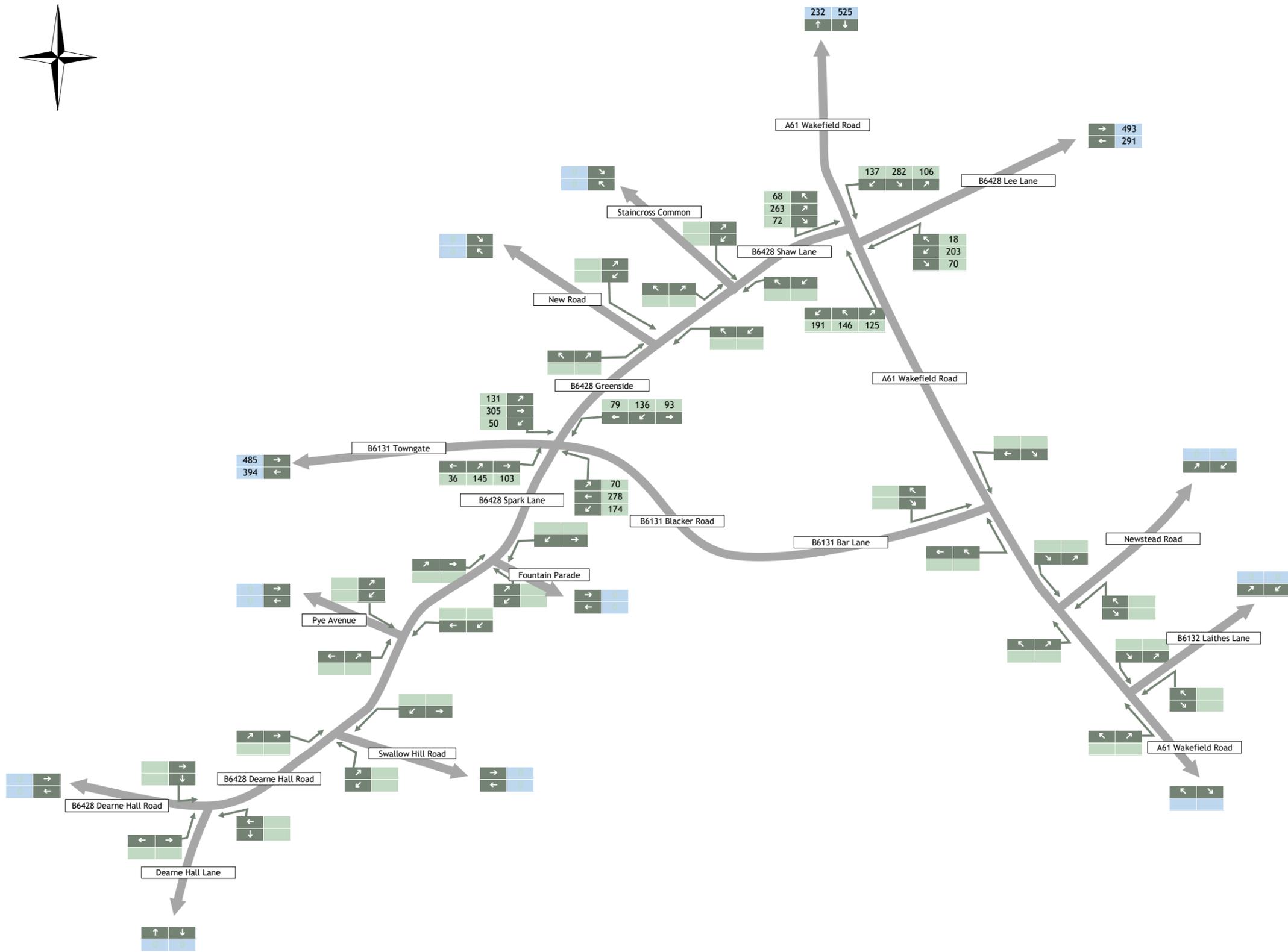
Figure Title:
 2022 Base Year Traffic Flows - B6428 (AM Peak Hour)

Scale:
 Not to scale

Figure Status:
 Issue

Job Number:
 3062

Figure Number:
 Figure 45



Key:

1 End Point (As per the study area extent of the Transport Assessment)

→ Highway Network

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



Client:
 Strata Sterling Barnsley West Limited

Project:
 Proposed MU1 Residential and Employment Site, Barnsley

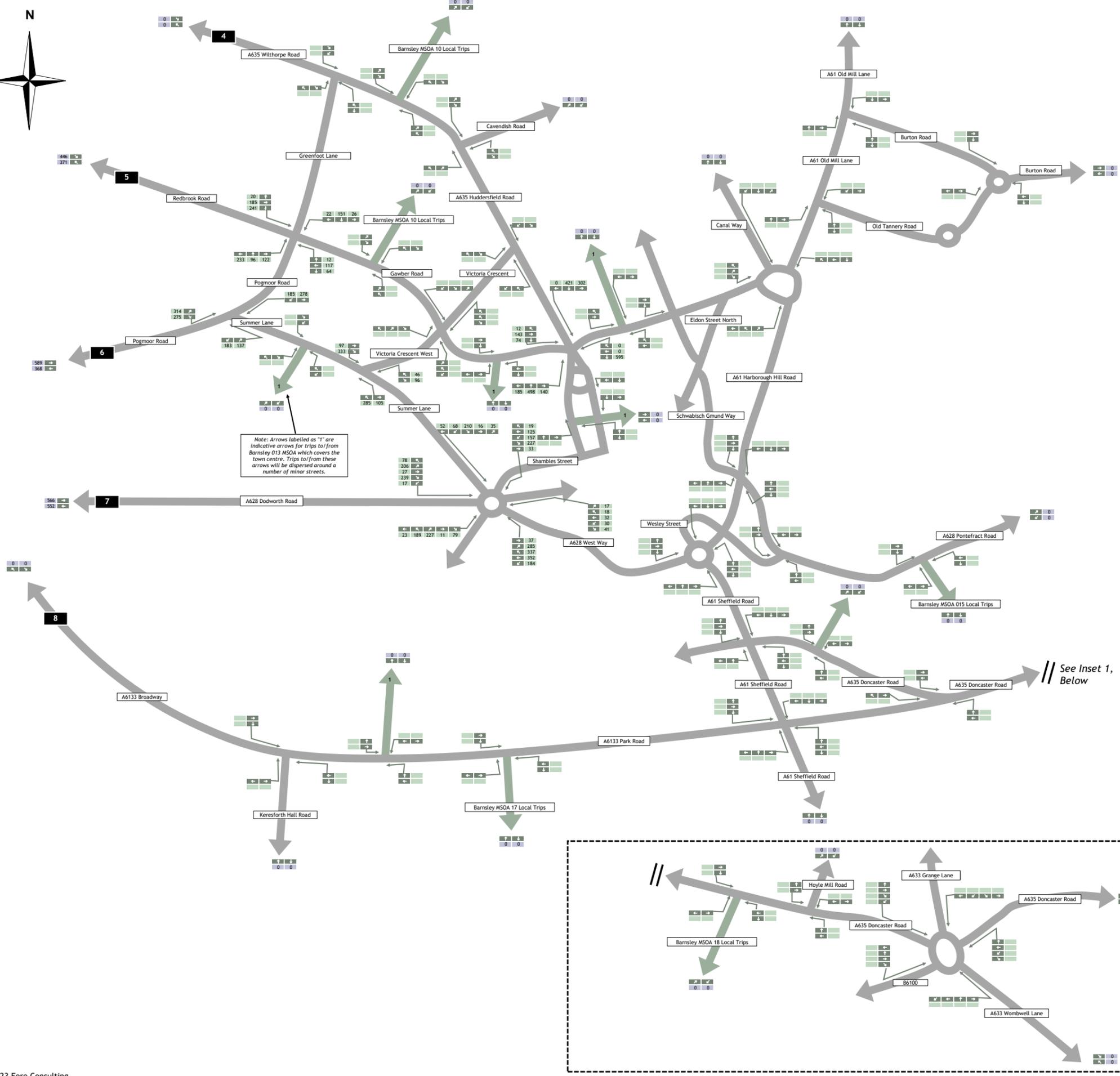
Figure Title:
 2022 Base Year Traffic Flows - B6428 (PM Peak Hour)

Scale:
 Not to scale

Figure Status:
 Issue

Job Number:
 3062

Figure Number:
 Figure 46



Note: Arrows labelled as "1" are indicative arrows for trips to/from Barnsley 013 MSOA which covers the town centre. Trips to/from these arrows will be dispersed around a number of minor streets.

Key:

- End Point (as per the primary network traffic flow diagram)
- Highway Network
- Indicative End Points (These are trips that may be split between one or more routes (e.g. a number of minor roads)).

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

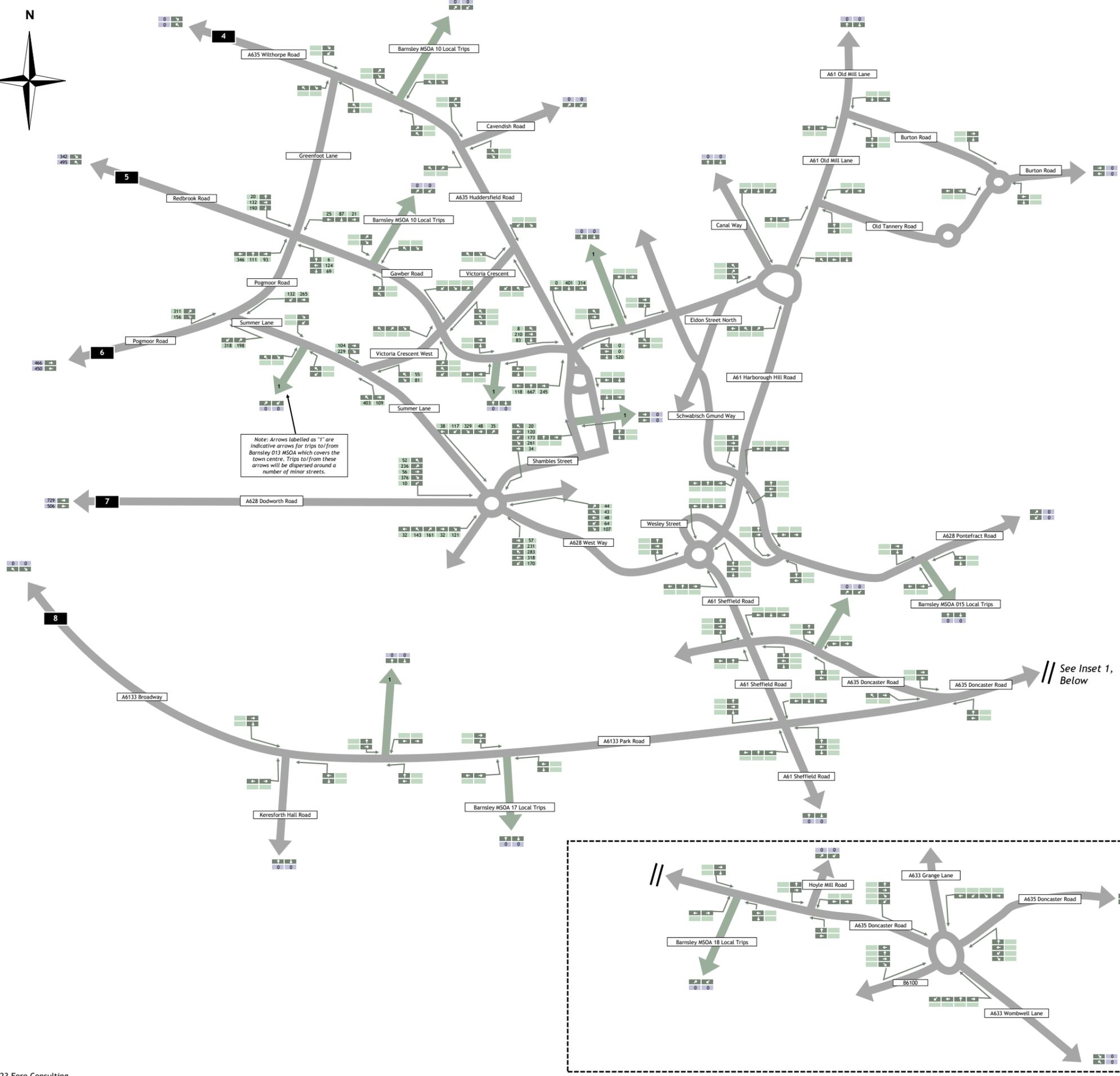


Client:
 Strata Sterling Barnsley West Limited

Project:
 Proposed MU1 Residential and Employment Site, Barnsley

Figure Title:
 2022 Base Year Traffic Flows - Town Centre (AM Peak Hour)

Scale: Not to scale	Figure Status: Issue
Job Number: 3062	Figure Number: Figure 47



Key:

- End Point (as per the primary network traffic flow diagram)
- Highway Network
- Indicative End Points (These are trips that may be split between one or more routes (e.g. a number of minor roads).)

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

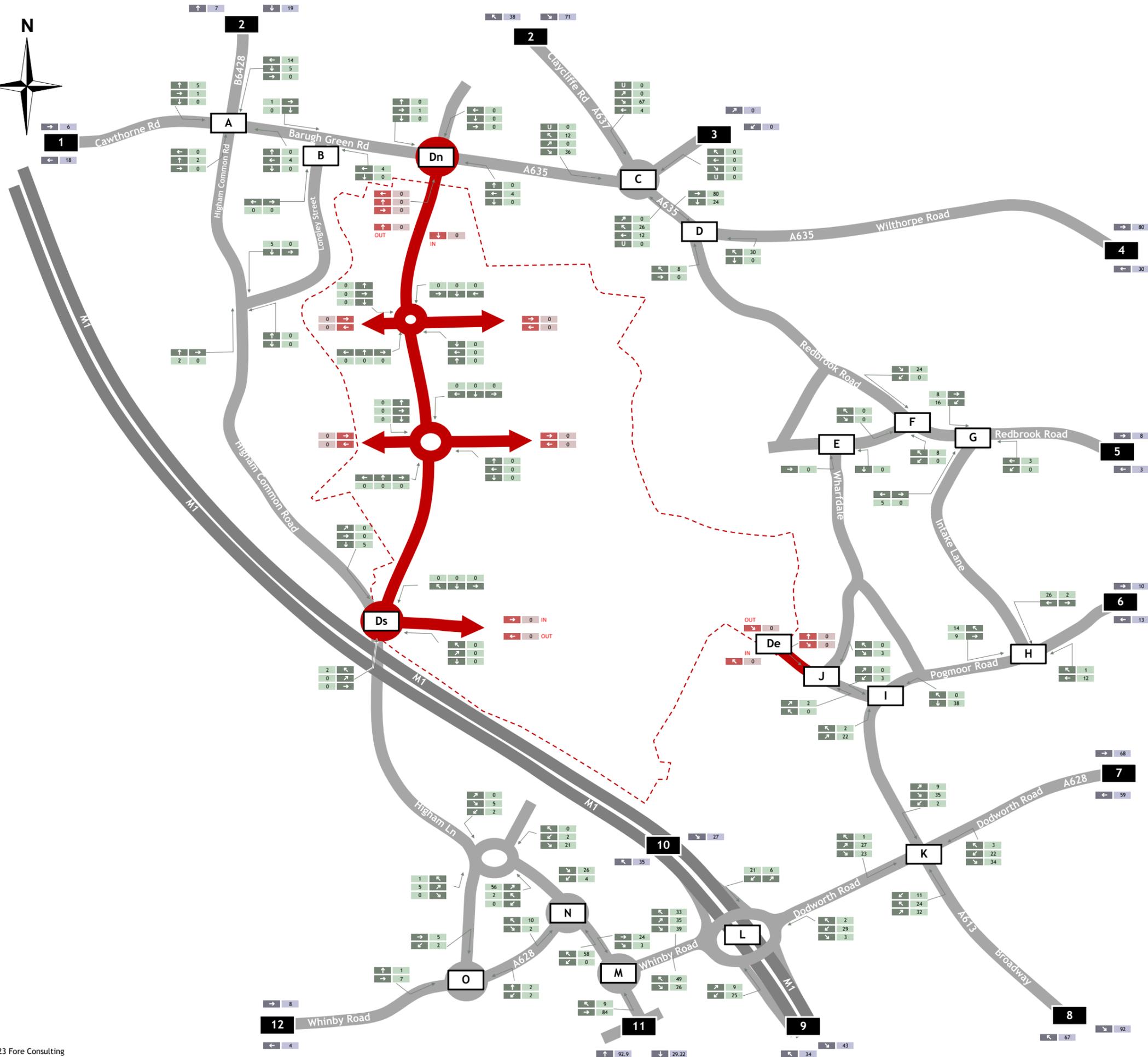


Client:
 Strata Sterling Barnsley West Limited

Project:
 Proposed MU1 Residential and Employment Site, Barnsley

Figure Title:
 2022 Base Year Traffic Flows - Town Centre (PM Peak Hour)

Scale: Not to scale	Figure Status: Issue
Job Number: 3062	Figure Number: Figure 48



Key:

-  Primary Road
-  Secondary Road
-  Site Access

Fore Consulting Limited
1st Floor, 15 St Paul's Street
Leeds
LS1 2JG
0113 246 0204
enquiries@foreconsulting.co.uk
www.foreconsulting.co.uk



Client:
Strata Sterling Barnsley West Limited

Project:
Proposed MU1 Residential and Employment Site, Barnsley

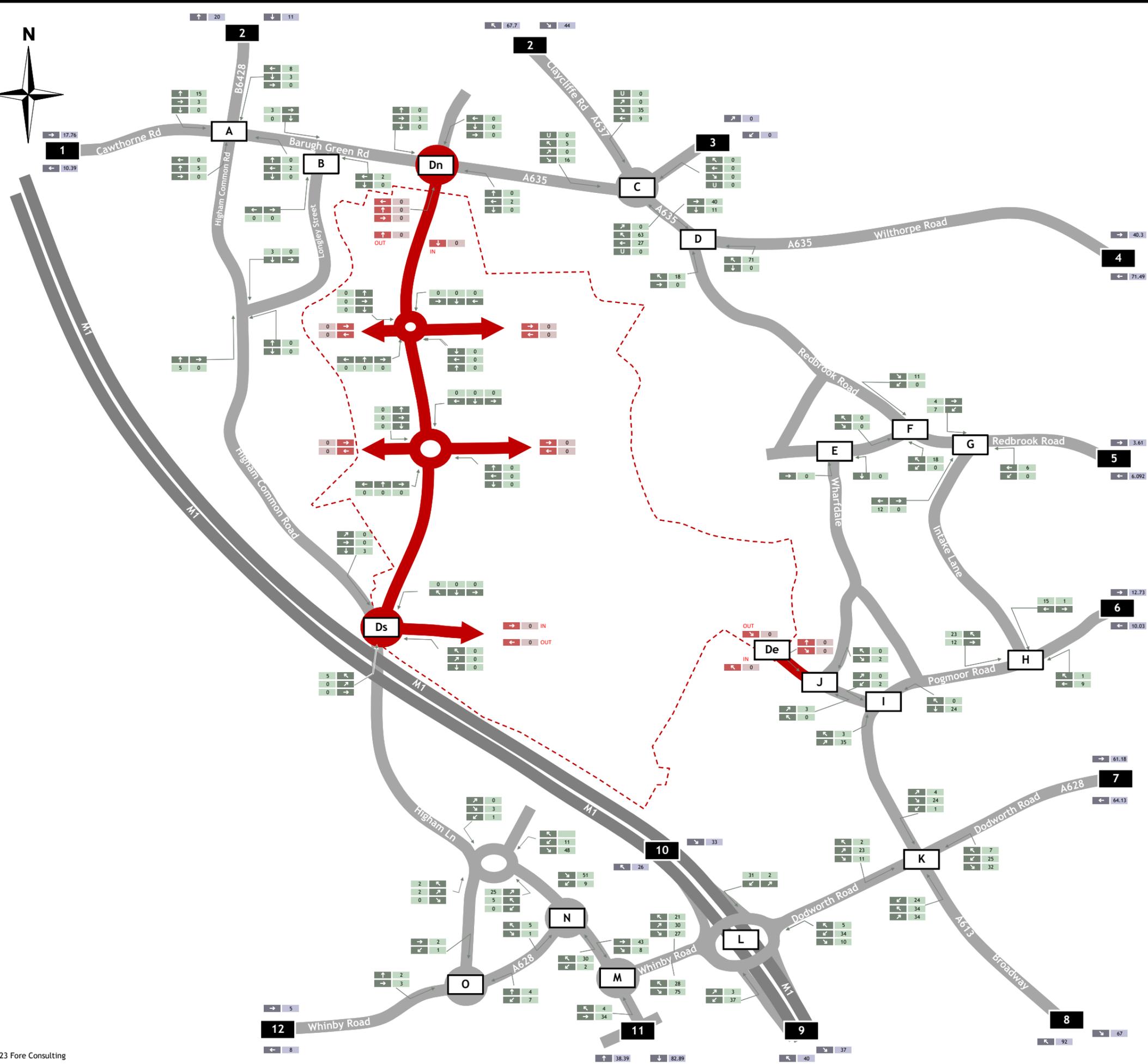
Figure Title:
Committed Development Traffic Flows - AM Peak Hour

Scale:
Not to scale

Figure Status:
Issue

Job Number:
3062

Figure Number:
Figure 49



Key:

- Primary Road
- Secondary Road
- Site Access

Fore Consulting Limited
1st Floor, 15 St Paul's Street
Leeds
LS1 2JG

0113 246 0204
enquiries@foreconsulting.co.uk
www.foreconsulting.co.uk



Client:
Strata Sterling Barnsley West Limited

Project:
Proposed MU1 Residential and Employment Site, Barnsley

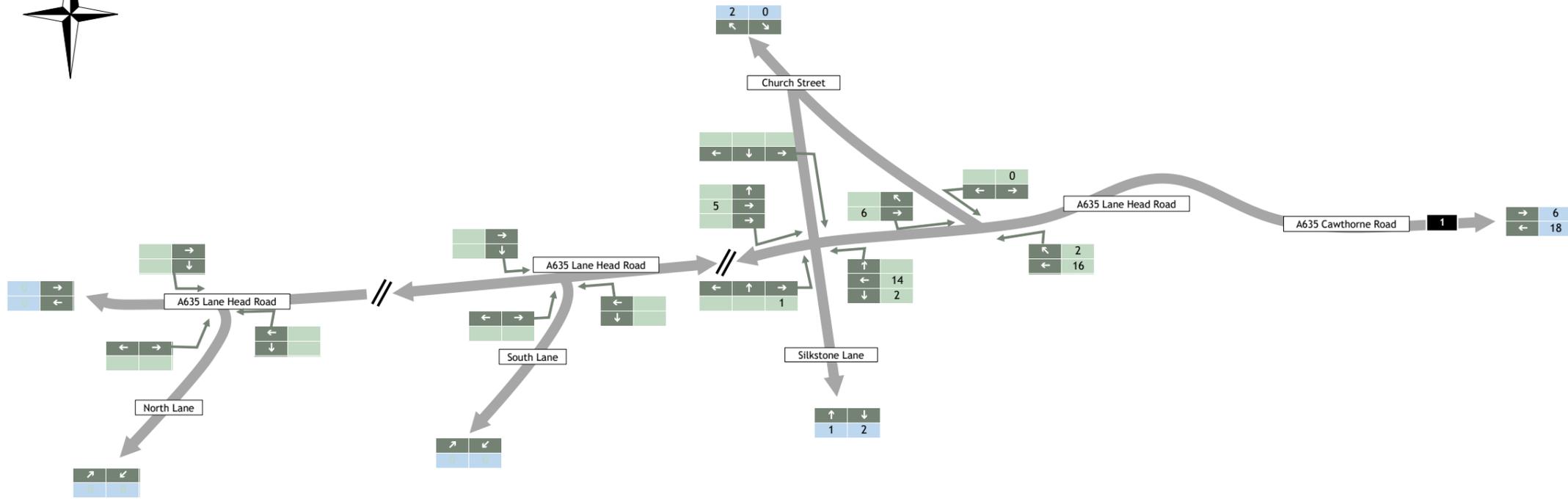
Figure Title:
Committed Development Traffic Flows - PM Peak Hour

Scale:
Not to scale

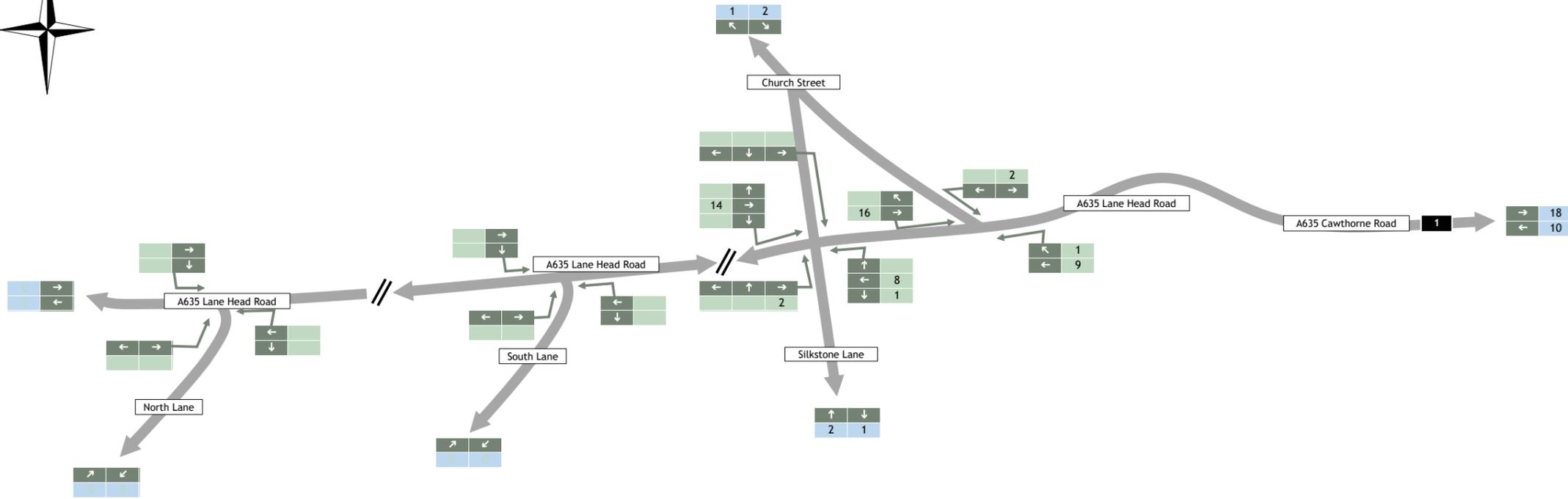
Figure Status:
Issue

Job Number:
3062

Figure Number:
Figure 50



A635 Cawthorne Road Impact - Weekday AM Peak Hour



A635 Cawthorne Road Impact - Weekday PM Peak Hour

Key:

1 End Point (As per the study area extent of the Transport Assessment)

Highway Network

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



Client:
 Strata Sterling Barnsley West Limited

Project:
 Proposed MU1 Residential and Employment Site, Barnsley

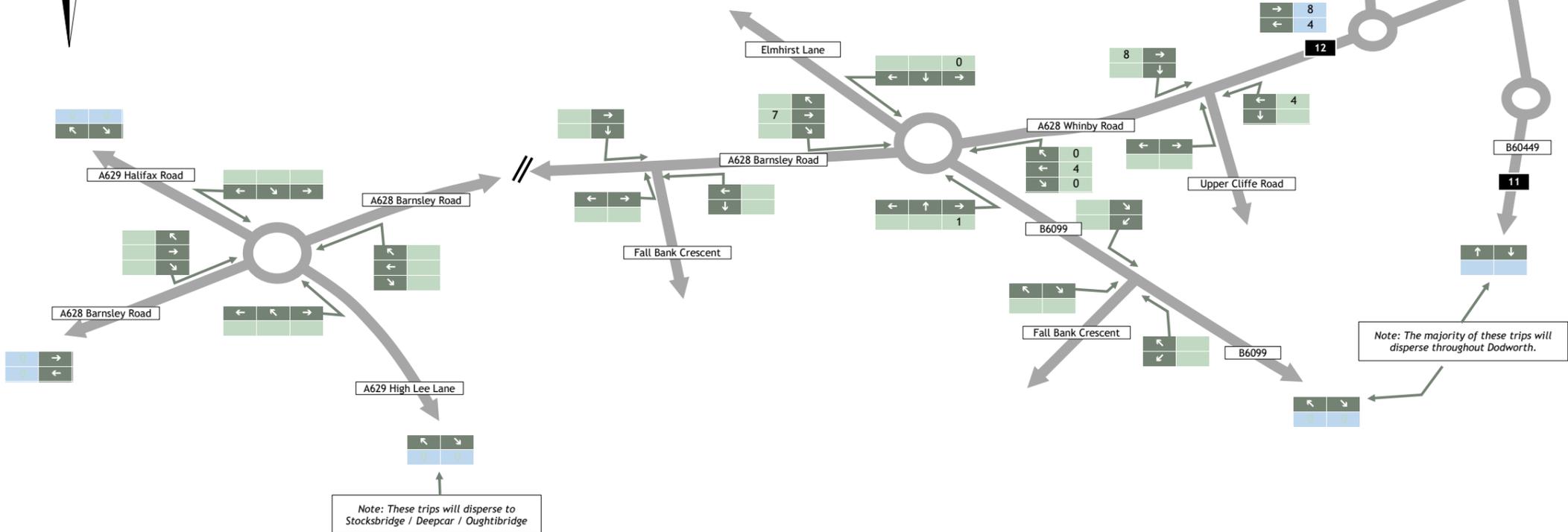
Figure Title:
 Committed Development Traffic Flows - A635 Cawthorne Road (AM and PM Peak Hours)

Scale:
 Not to scale

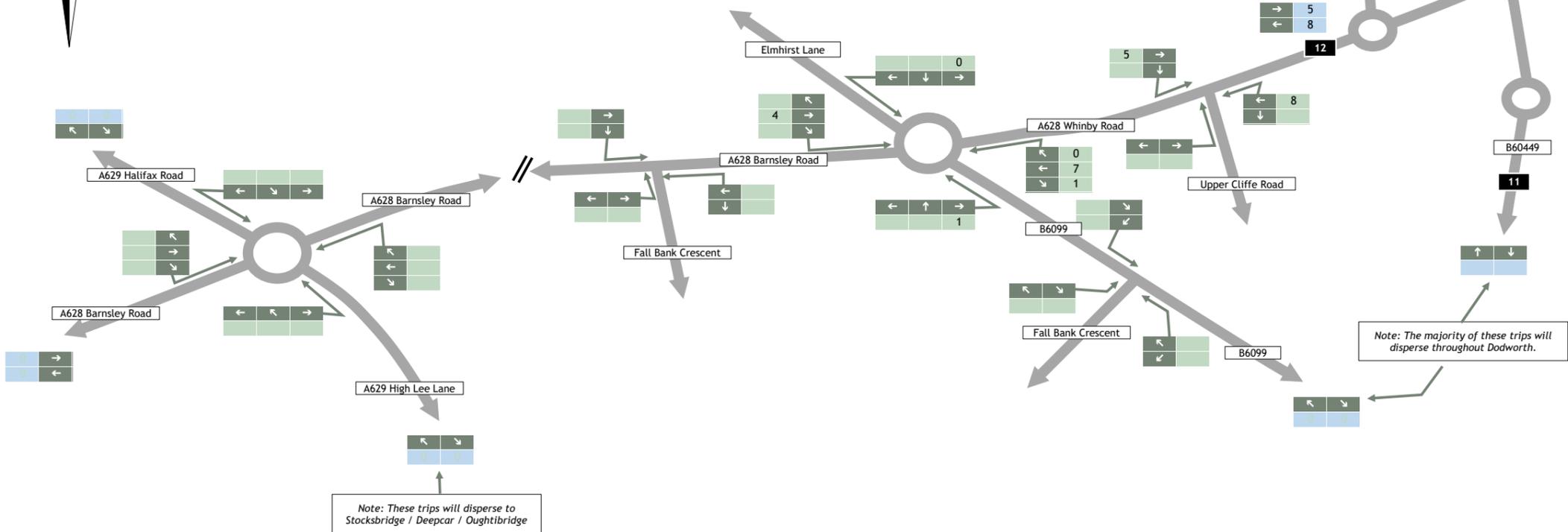
Figure Status:
 Issue

Job Number:
 3062

Figure Number:
 Figure 51



A628 Whinby Road Impact - Weekday AM Peak Hour



A628 Whinby Road Impact - Weekday PM Peak Hour

Key:

- End Point (As per the study area extent of the Transport Assessment)
- Highway Network

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



Client:
 Strata Sterling Barnsley West Limited

Project:
 Proposed MU1 Residential and Employment Site, Barnsley

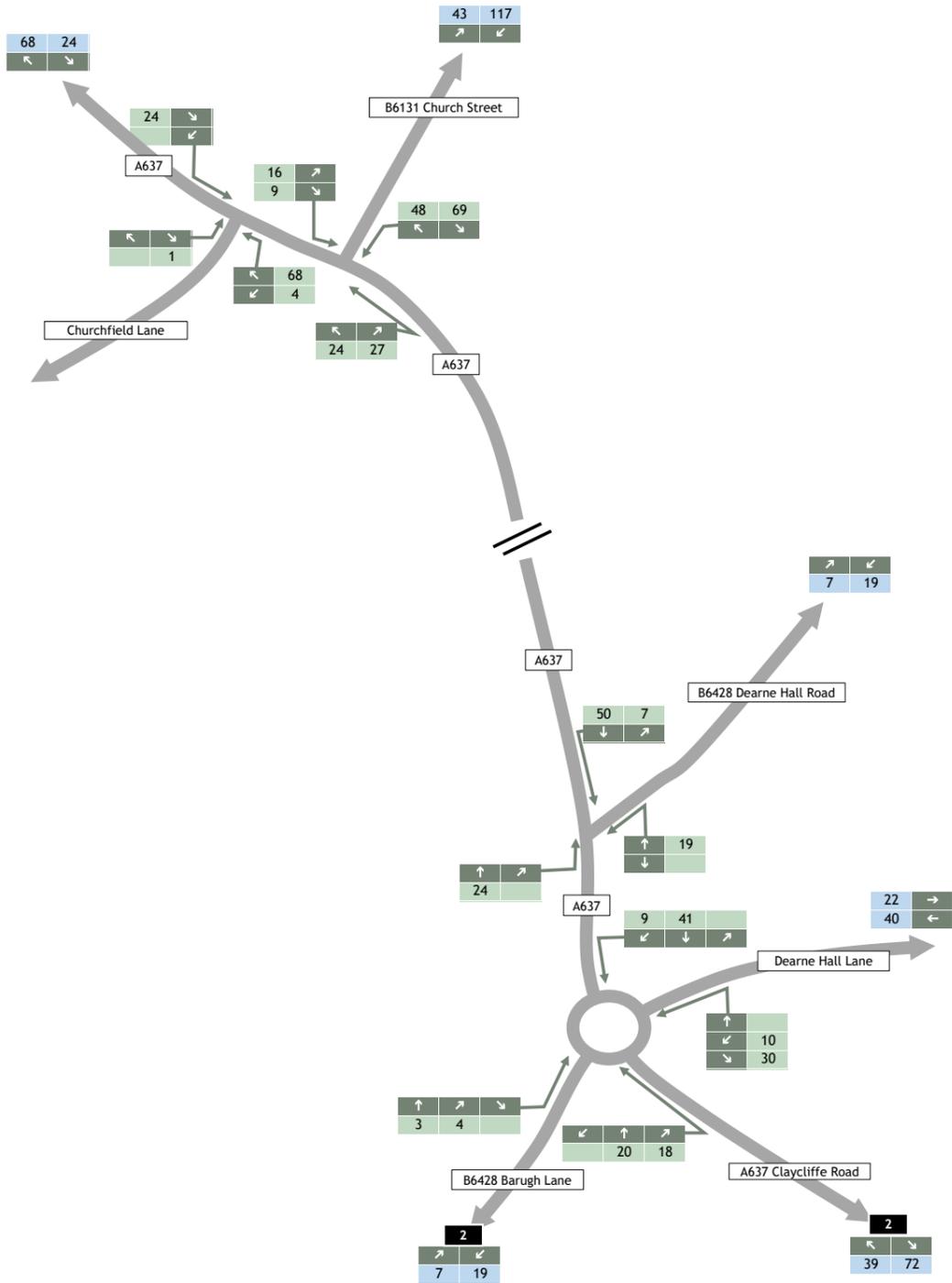
Figure Title:
 Committed Development Traffic Flows - A628 Whinby Road (AM and PM Peak Hours)

Scale:
 Not to scale

Figure Status:
 Issue

Job Number:
 3062

Figure Number:
 Figure 52



A637 Corridor (North) - Weekday AM Peak Hour



A637 Corridor (North) - Weekday PM Peak Hour

Key:

-  End Point (As per the study area extent of the Transport Assessment)
-  Highway Network

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



Client:
 Strata Sterling Barnsley West Limited

Project:
 Proposed MU1 Residential and Employment Site, Barnsley

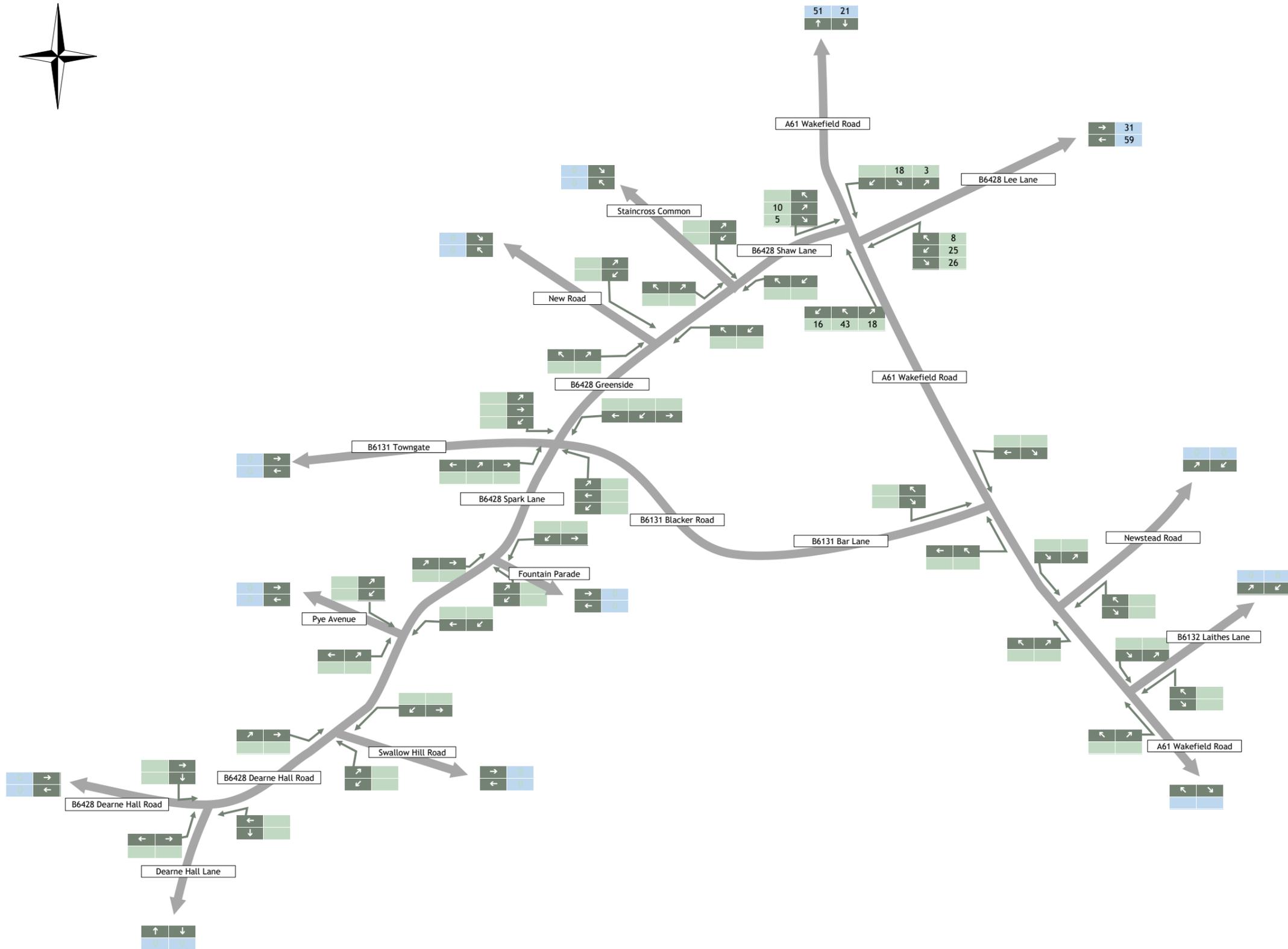
Figure Title:
 Committed Development Traffic Flows - A637 (AM and PM Peak Hours)

Scale:
 Not to scale

Figure Status:
 Issue

Job Number:
 3062

Figure Number:
 Figure 53



Key:

1 End Point (As per the study area extent of the Transport Assessment)

Highway Network

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



Client:
 Strata Sterling Barnsley West Limited

Project:
 Proposed MU1 Residential and Employment Site, Barnsley

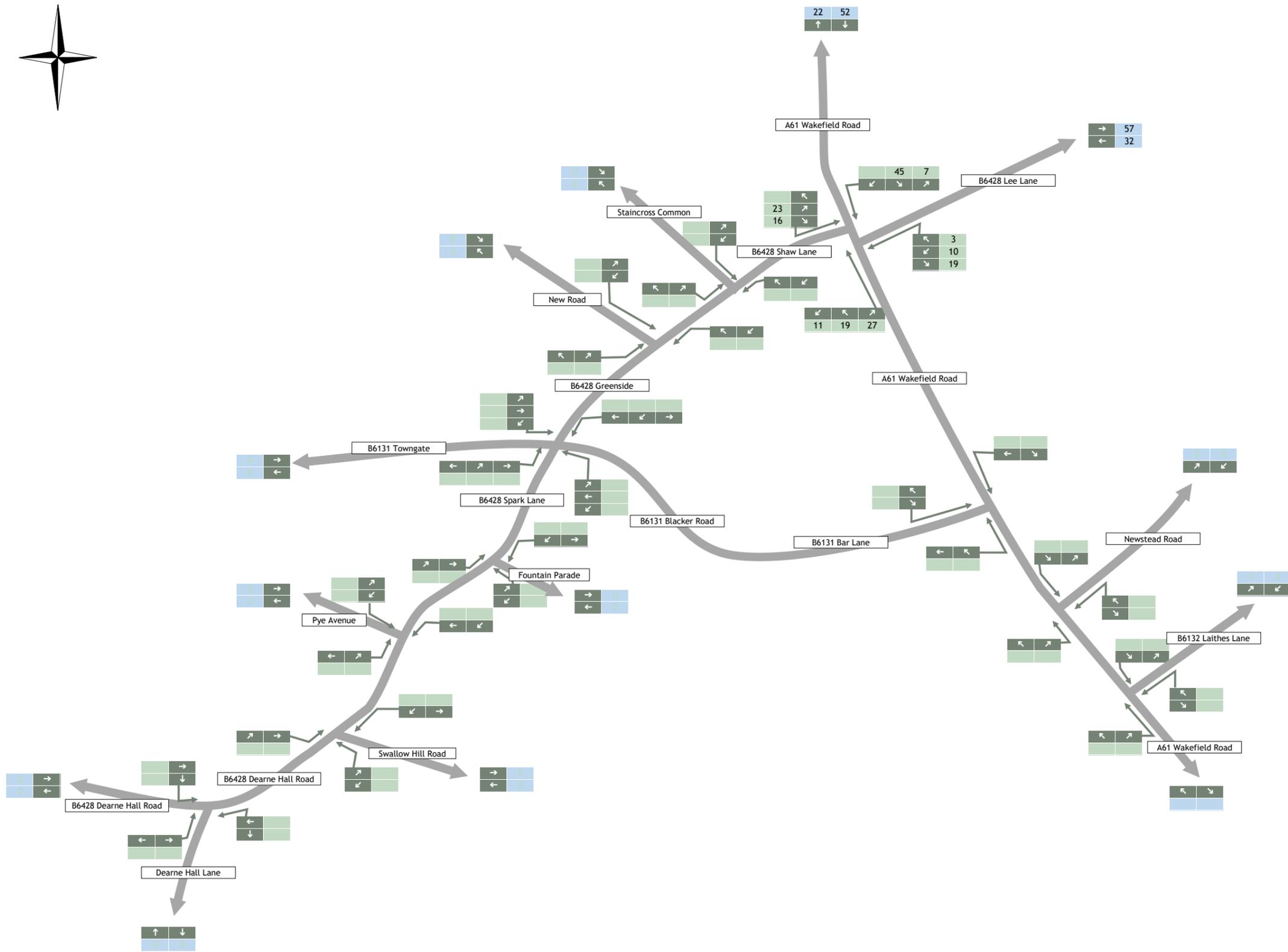
Figure Title:
 Committed Development Traffic Flows - B6428 (AM Peak Hour)

Scale:
 Not to scale

Figure Status:
 Issue

Job Number:
 3062

Figure Number:
 Figure 54



Key:

 End Point (As per the study area extent of the Transport Assessment)

 Highway Network

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



Client:
Strata Sterling Barnsley West Limited

Project:
Proposed MU1 Residential and Employment Site, Barnsley

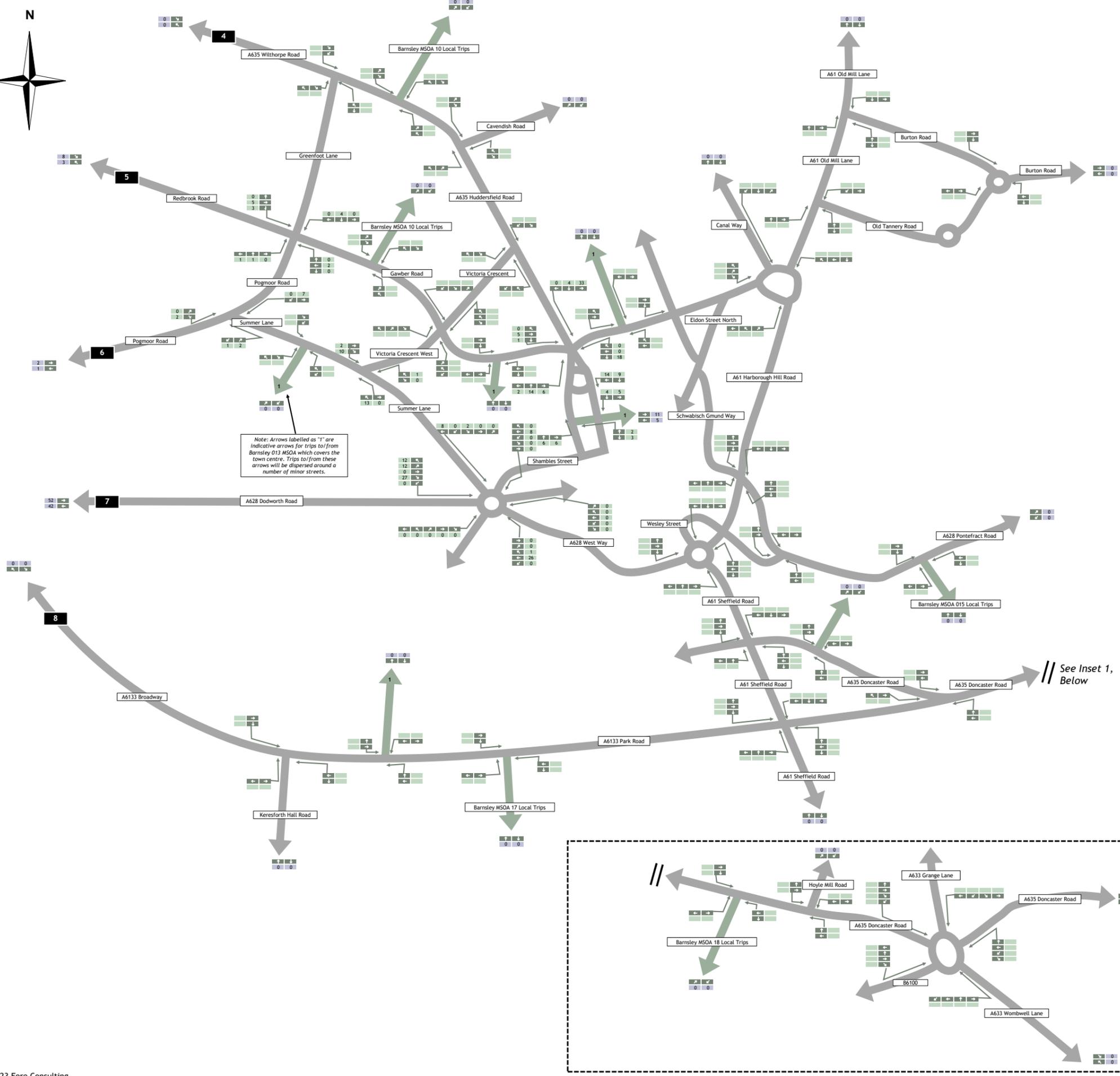
Figure Title:
Committed Development Traffic Flows - B6428 (PM Peak Hour)

Scale:
Not to scale

Figure Status:
Issue

Job Number:
3062

Figure Number:
Figure 55



Key:

- End Point (As per the study area extent of the Transport Assessment)
- Highway Network
- Indicative End Points (These are trips that may be split between one or more routes (e.g. a number of minor roads)).

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



Client:
 Strata Sterling Barnsley West Limited

Project:
 Proposed MU1 Residential and Employment Site, Barnsley

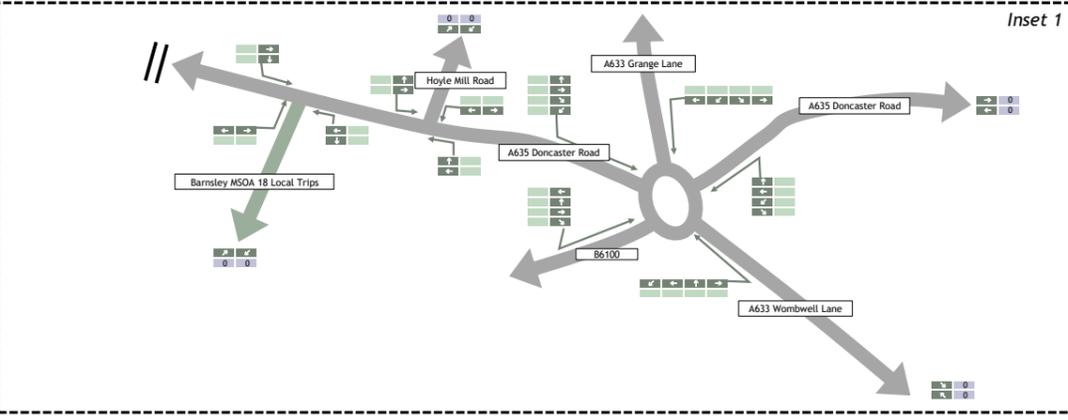
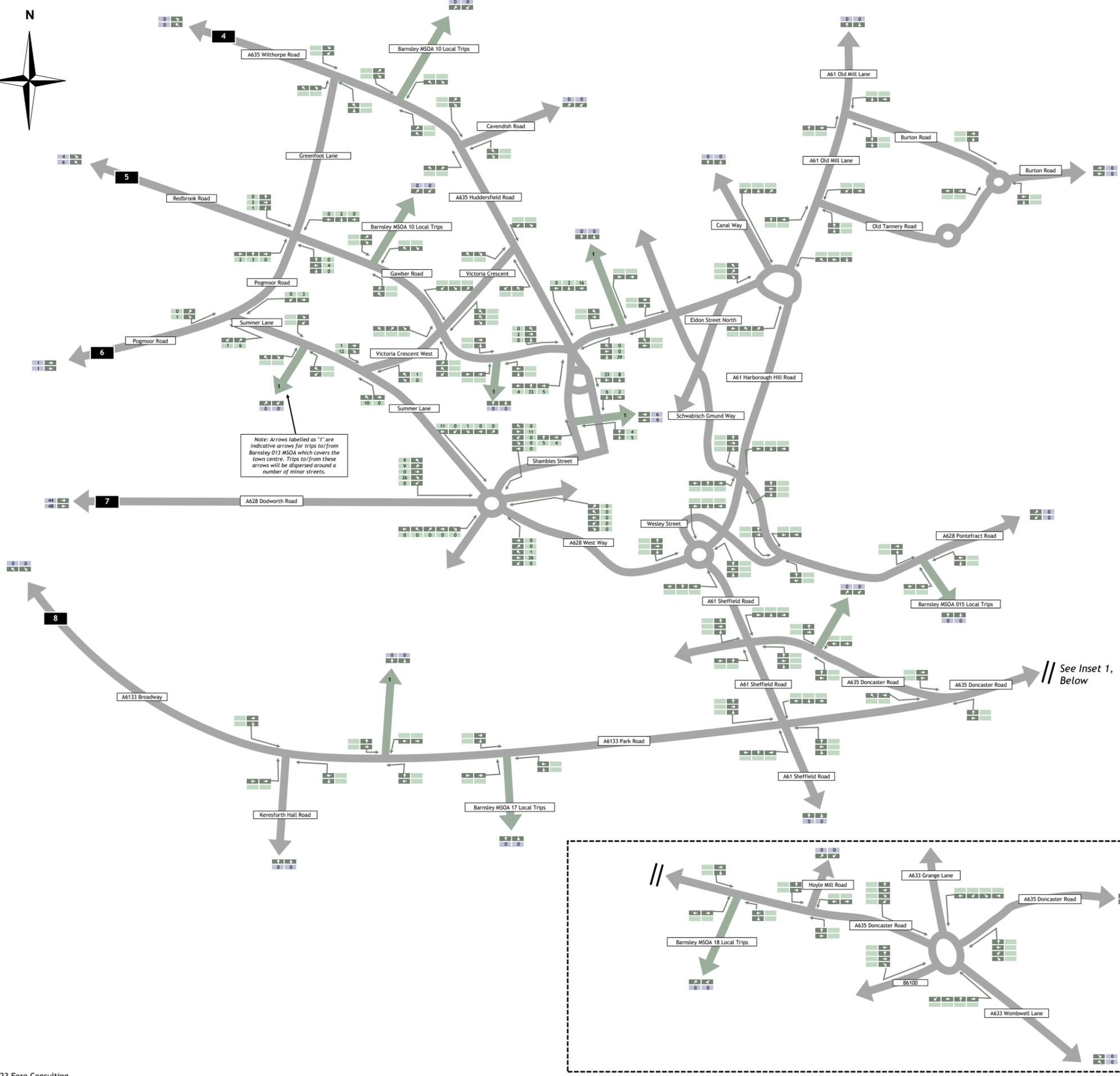
Figure Title:
 Committed Development Traffic Flows - Town Centre (AM Peak Hour)

Scale:
 Not to scale

Figure Status:
 Issue

Job Number:
 3062

Figure Number:
 Figure 56



Key:

- 1 End Point (As per the study area extent of the Transport Assessment)
- Highway Network
- Indicative End Points (These are trips that may be split between one or more routes (e.g. a number of minor roads)).

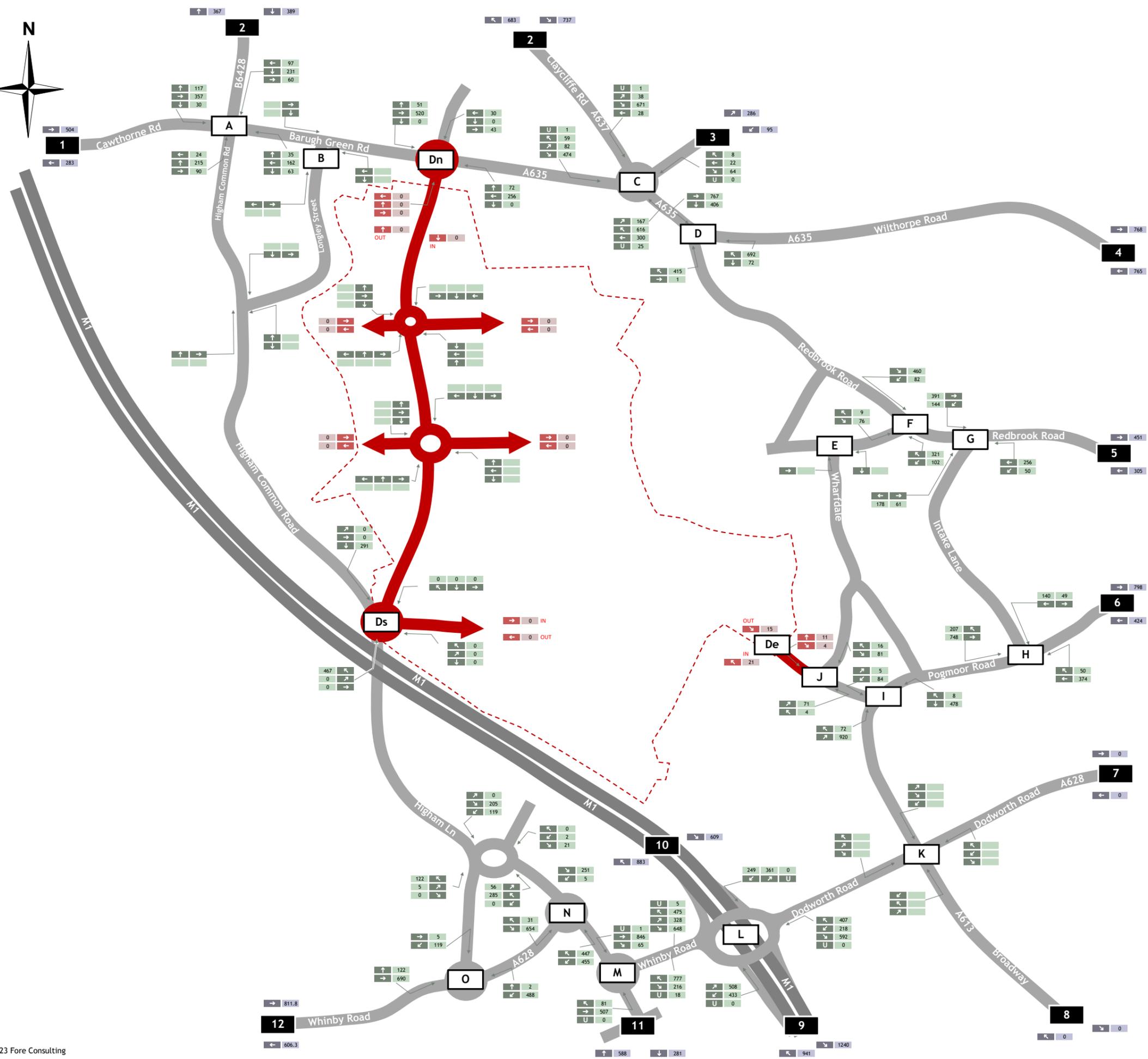
Fore Consulting Limited
 Suite 18, City Quadrant
 11 Waterloo Square
 Newcastle upon Tyne
 NE1 4DP
 0191 255 7778
 enquiries@foreconsulting.co.uk
 www.foreconsulting.co.uk

Client:
 Strata Sterling Barnsley West Limited

Project:
 Proposed MU1 Residential and Employment Site, Barnsley

Figure Title:
 Committed Development Traffic Flows - Town Centre (PM Peak Hour)

Scale: Not to scale	Figure Status: Issue
Job Number: 3062	Figure Number: Figure 57



Key:

- Primary Road
- Secondary Road
- Site Access

Fore Consulting Limited
1st Floor, 15 St Paul's Street
Leeds
LS1 2JG
0113 246 0204
enquiries@foreconsulting.co.uk
www.foreconsulting.co.uk



Client:
Strata Sterling Barnsley West Limited

Project:
Proposed MU1 Residential and Employment Site, Barnsley

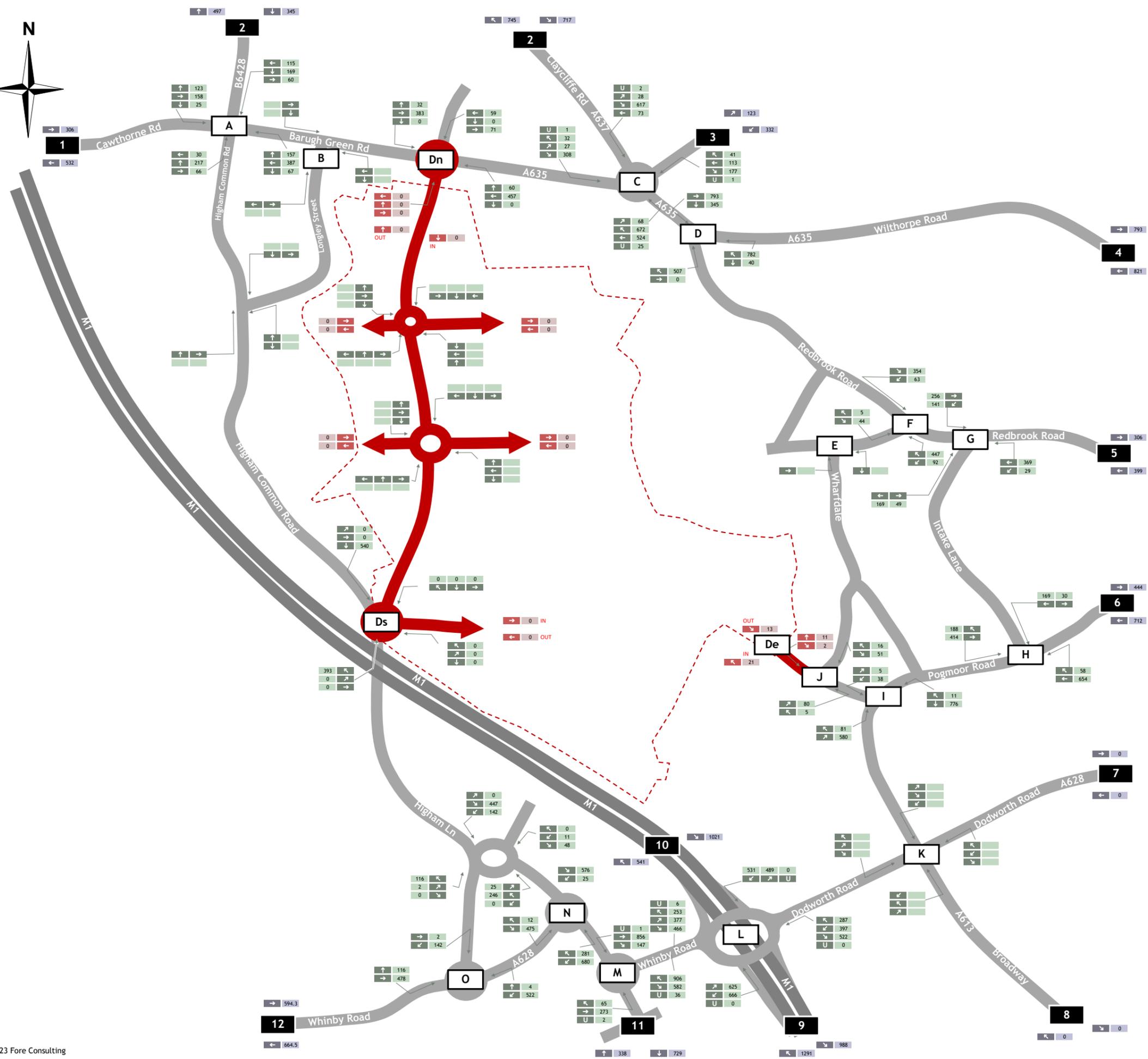
Figure Title:
2026 Do Minimum Traffic Flows - AM Peak Hour

Scale:
Not to scale

Figure Status:
Issue

Job Number:
3062

Figure Number:
Figure 58



Key:

- Primary Road
- Secondary Road
- Site Access

Fore Consulting Limited
1st Floor, 15 St Paul's Street
Leeds
LS1 2JG
0113 246 0204
enquiries@foreconsulting.co.uk
www.foreconsulting.co.uk



Client:
Strata Sterling Barnsley West Limited

Project:
Proposed MU1 Residential and Employment Site, Barnsley

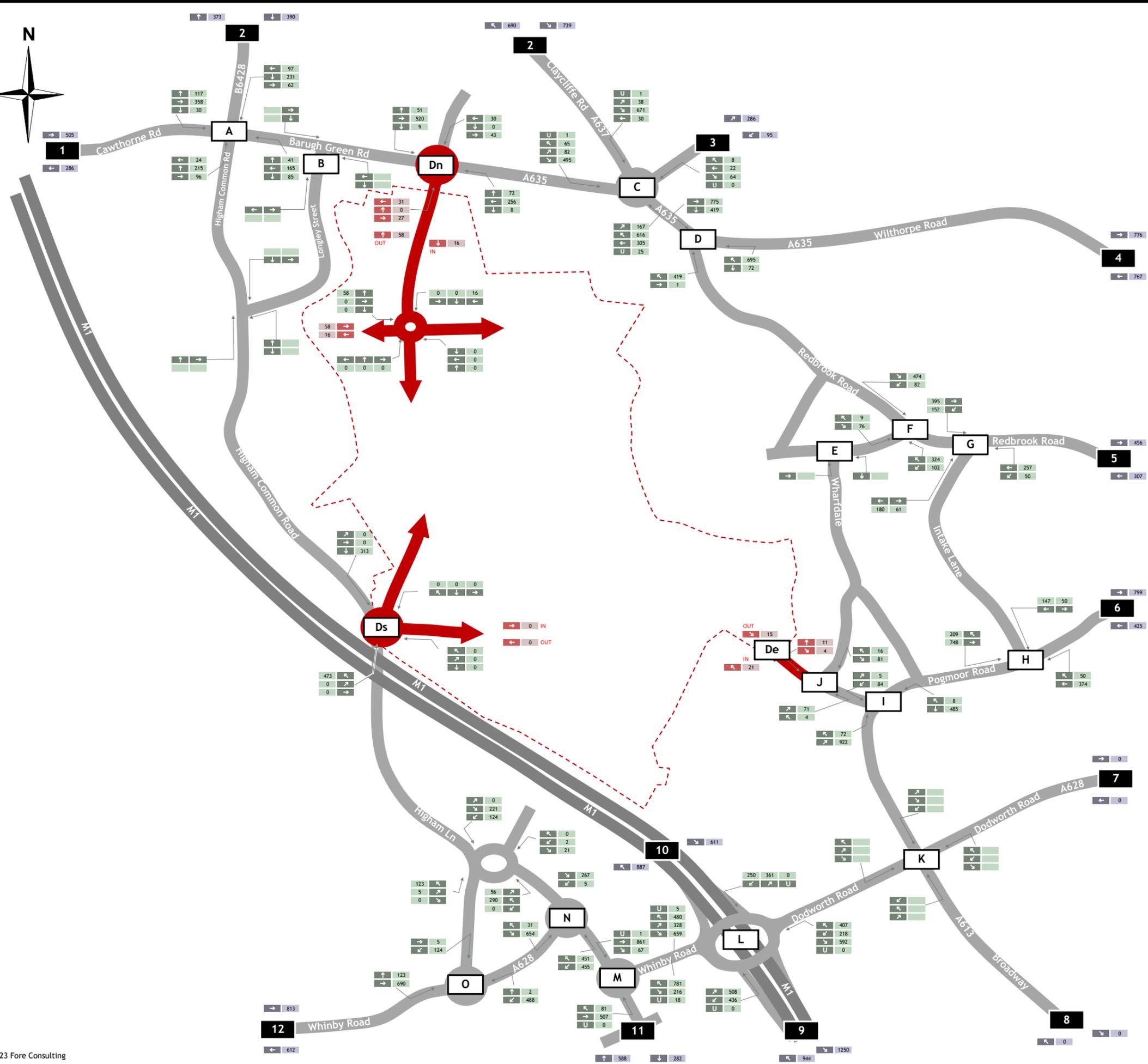
Figure Title:
2026 Do Minimum Traffic Flows - PM Peak Hour

Scale:
Not to scale

Figure Status:
Issue

Job Number:
3062

Figure Number:
Figure 59



Key:

- Primary Road
- Secondary Road
- Site Access

Fore Consulting Limited
1st Floor, 15 St Paul's Street
Leeds
LS1 2JG
enquiries@foreconsulting.co.uk
www.foreconsulting.co.uk

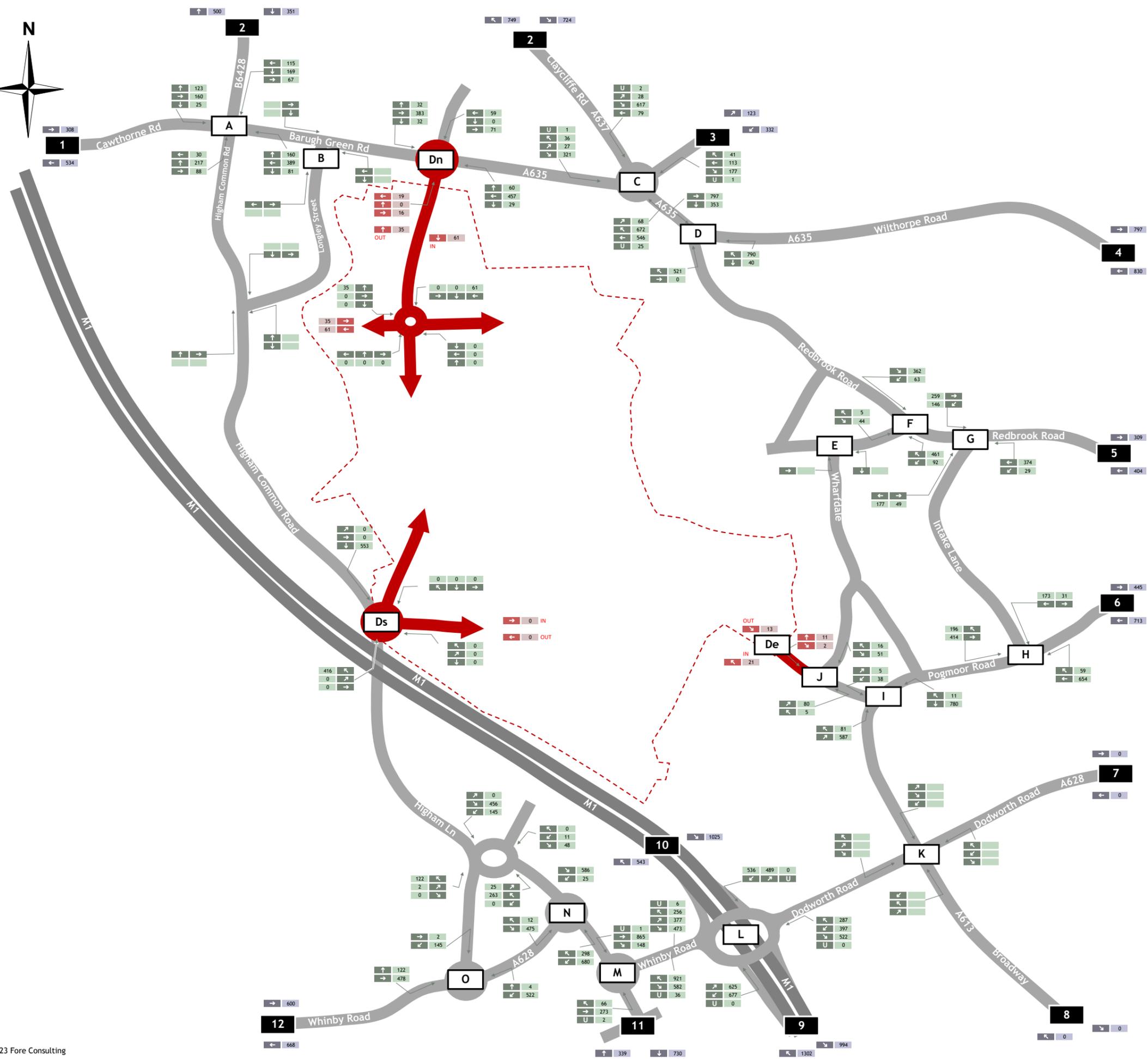


Client:
Strata Sterling Barnsley West Limited

Project:
Proposed MU1 Residential and Employment Site, Barnsley

Figure Title:
2026 Residential Phase1a Development Traffic Flows - AM Peak Hour

Scale: Not to scale
Job Number: 3062
Figure Status: Issue
Figure Number: Figure 60



Key:

- Primary Road
- Secondary Road
- Site Access

Fore Consulting Limited
1st Floor, 15 St Paul's Street
Leeds
LS1 2JG

enquiries@foreconsulting.co.uk
www.foreconsulting.co.uk



Client:

Strata Sterling Barnsley West Limited

Project:

Proposed MU1 Residential and Employment Site, Barnsley

Figure Title:

2026 Residential Phase1a Development Traffic Flows - PM Peak Hour

Scale:

Not to scale

Figure Status:

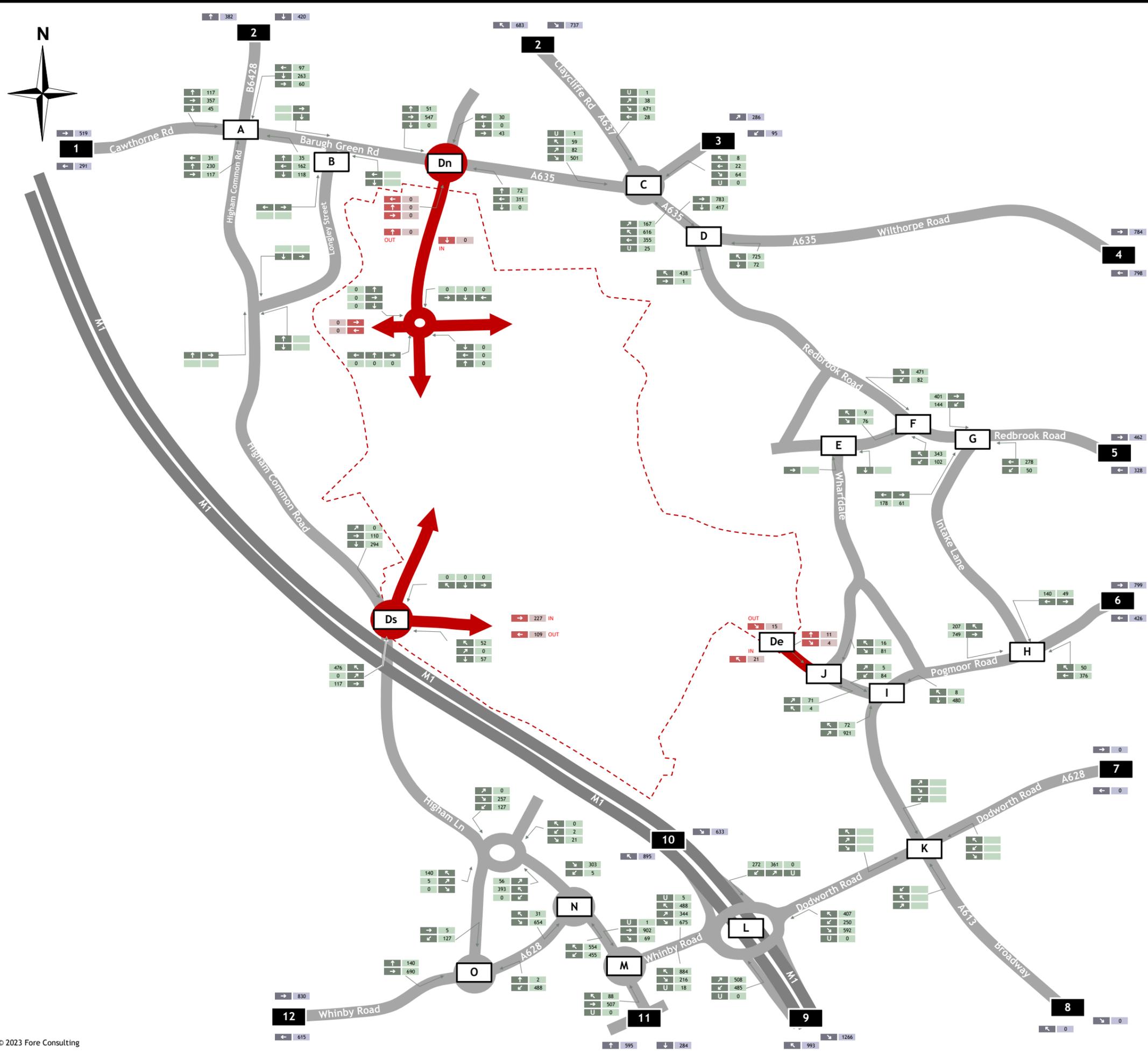
Issue

Job Number:

3062

Figure Number:

Figure 61



Key:

- Primary Road
- Secondary Road
- Site Access

Fore Consulting Limited
 1st Floor, 15 St Paul's Street
 Leeds
 LS1 2JG

enquiries@foreconsulting.co.uk
 www.foreconsulting.co.uk



Client:
 Strata Sterling Barnsley West Limited

Project:
 Proposed MU1 Residential and Employment Site, Barnsley

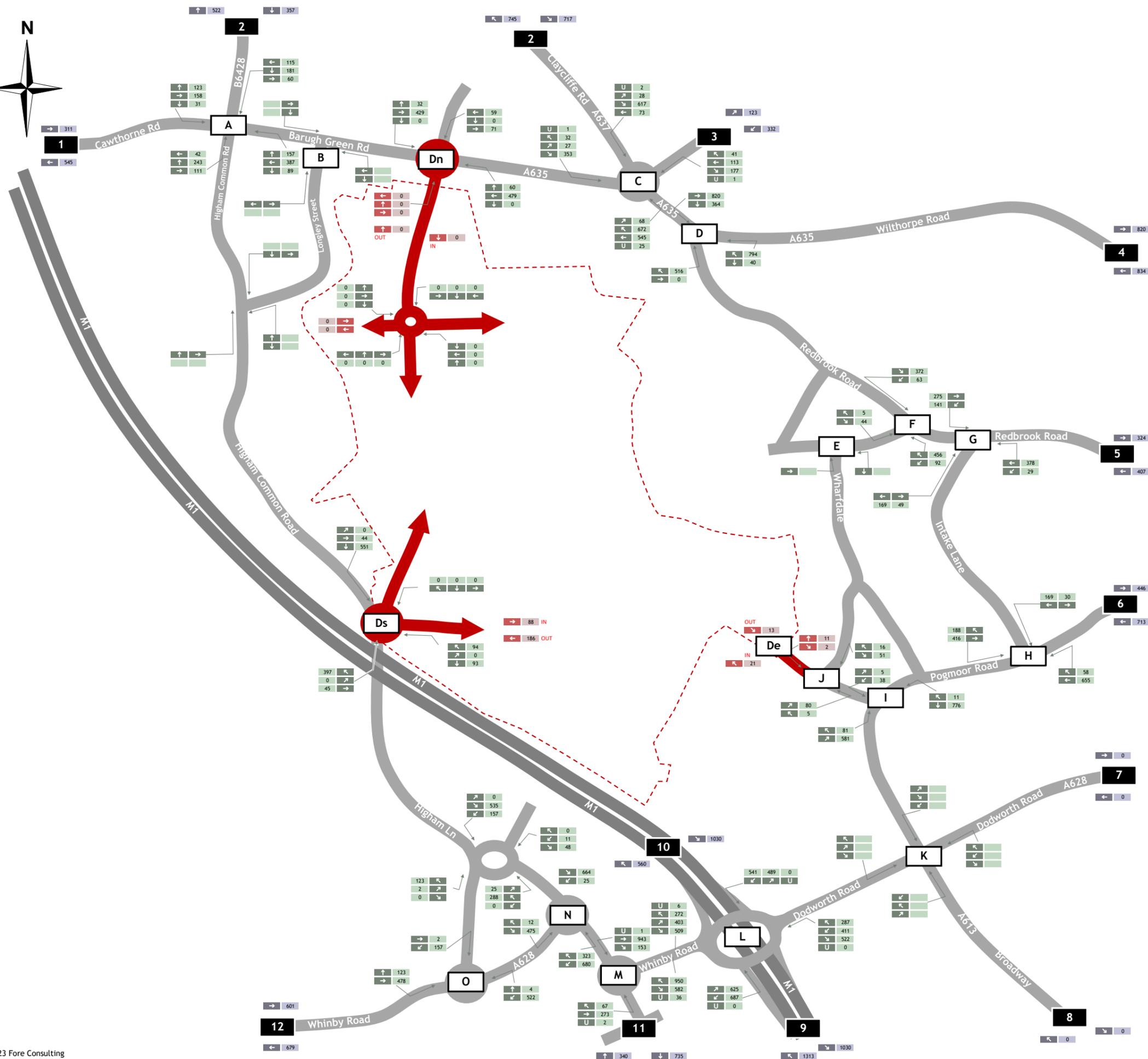
Figure Title:
 2026 Employment Development Traffic Flows - AM Peak Hour

Scale:
 Not to scale

Figure Status:
 Issue

Job Number:
 3062

Figure Number:
 Figure 62



Key:

-  Primary Road
-  Secondary Road
-  Site Access

Fore Consulting Limited
1st Floor, 15 St Paul's Street
Leeds
LS1 2JG

enquiries@foreconsulting.co.uk
www.foreconsulting.co.uk



Client:

Strata Sterling Barnsley West Limited

Project:

Proposed MU1 Residential and Employment Site, Barnsley

Figure Title:

2026 Employment Development Traffic Flows - PM Peak Hour

Scale:

Not to scale

Figure Status:

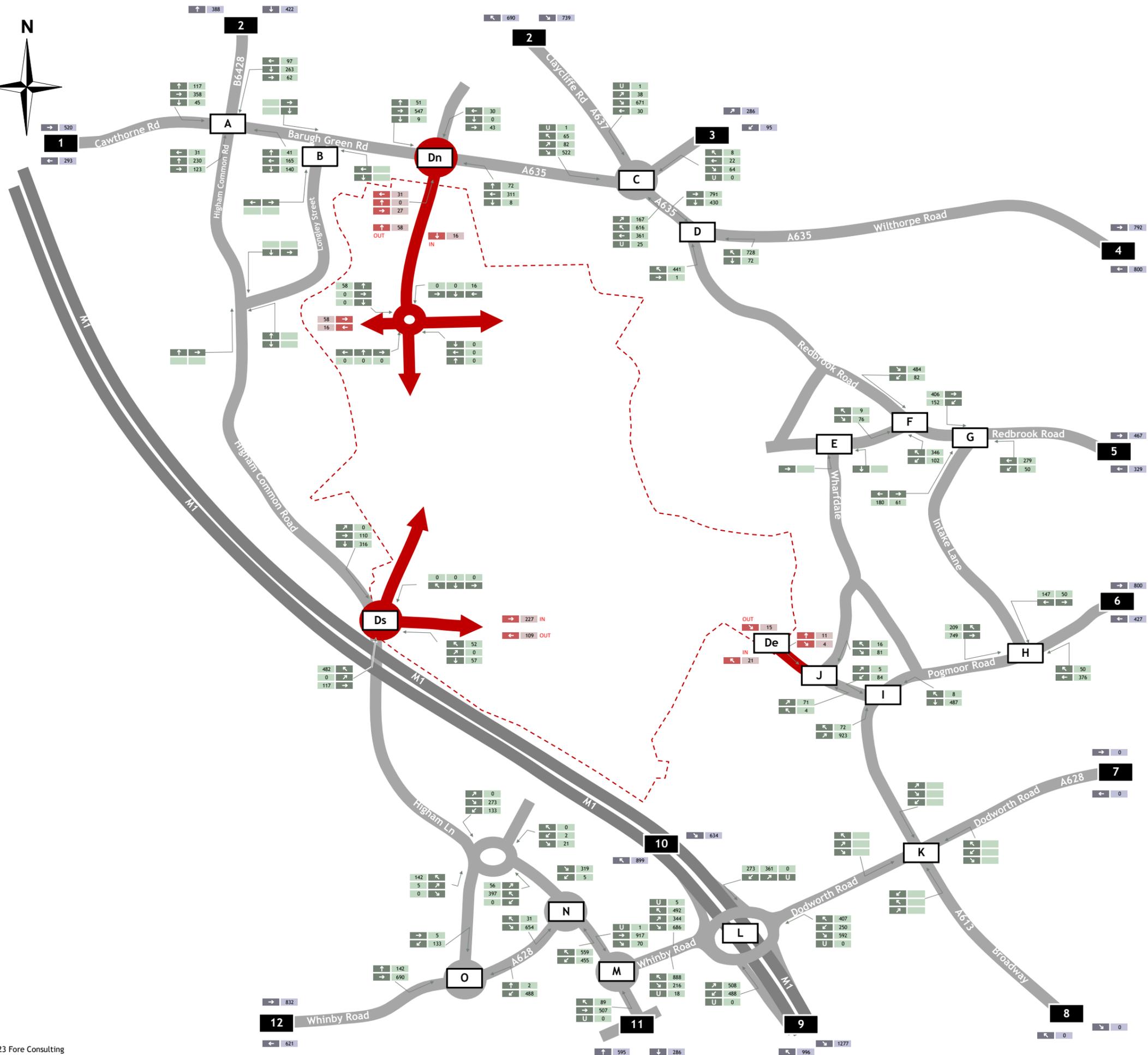
Issue

Job Number:

3062

Figure Number:

Figure 63



Key:

- Primary Road
- Secondary Road
- Site Access

Fore Consulting Limited
1st Floor, 15 St Paul's Street
Leeds
LS1 2JG
enquiries@foreconsulting.co.uk
www.foreconsulting.co.uk



Client:
Strata Sterling Barnsley West Limited
trata Homes Ltd

Project:
Proposed MU1 Residential and Employment Site, Barnsley

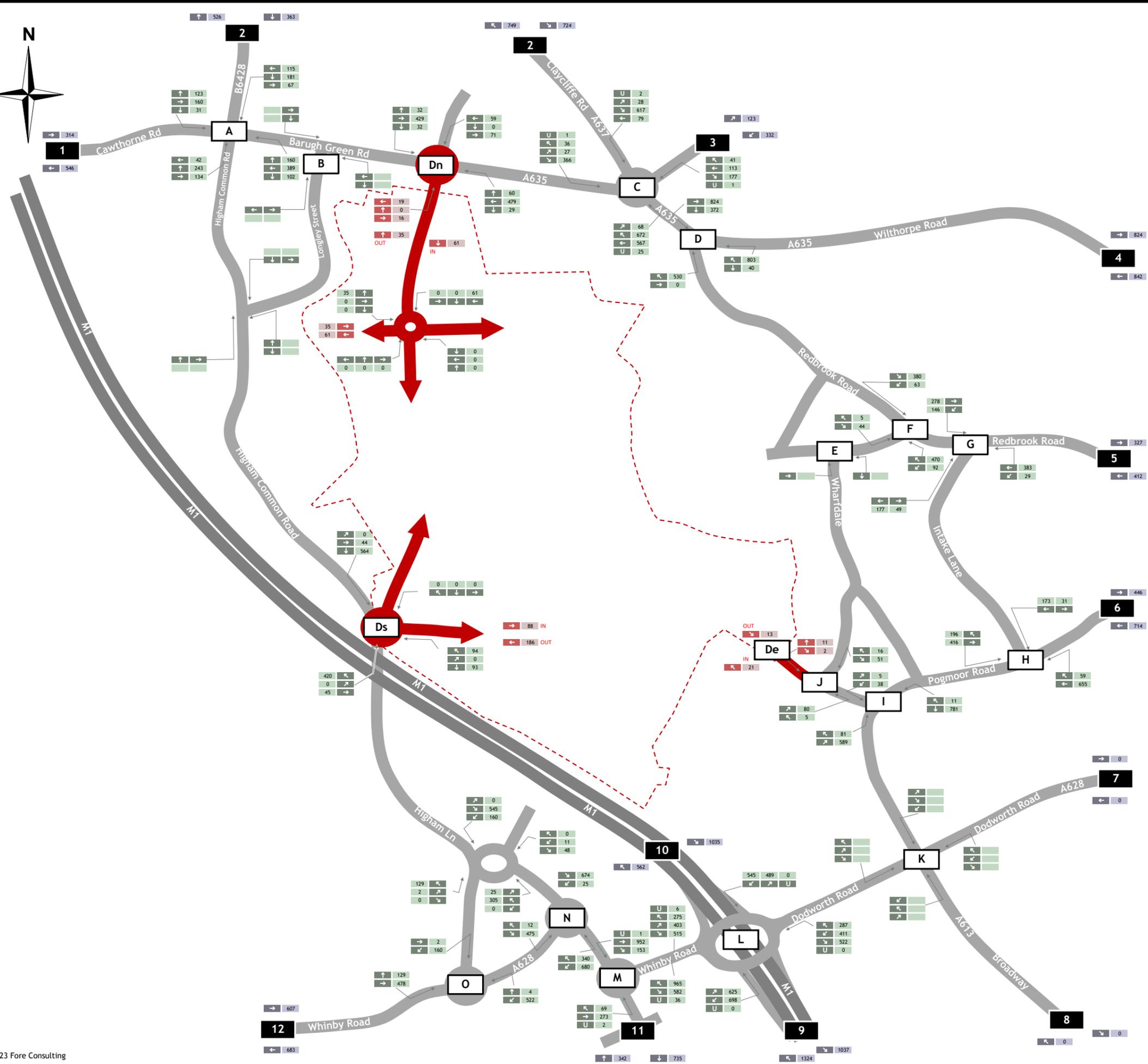
Figure Title:
2026 Phase 1 Development (Without Full Link Road) Traffic Flows - AM Peak Hour

Scale:
Not to scale

Figure Status:
Issue

Job Number:
3062

Figure Number:
Figure 64



Key:

- Primary Road
- Secondary Road
- Site Access

Fore Consulting Limited
1st Floor, 15 St Paul's Street
Leeds
LS1 2JG

enquiries@foreconsulting.co.uk
www.foreconsulting.co.uk



Client:

Strata Sterling Barnsley West Limited

Project:

Proposed MU1 Residential and Employment Site, Barnsley

Figure Title:

2026 Phase 1 Development (Without Full Link Road) Traffic Flows - PM Peak Hour

Scale:

Not to scale

Figure Status:

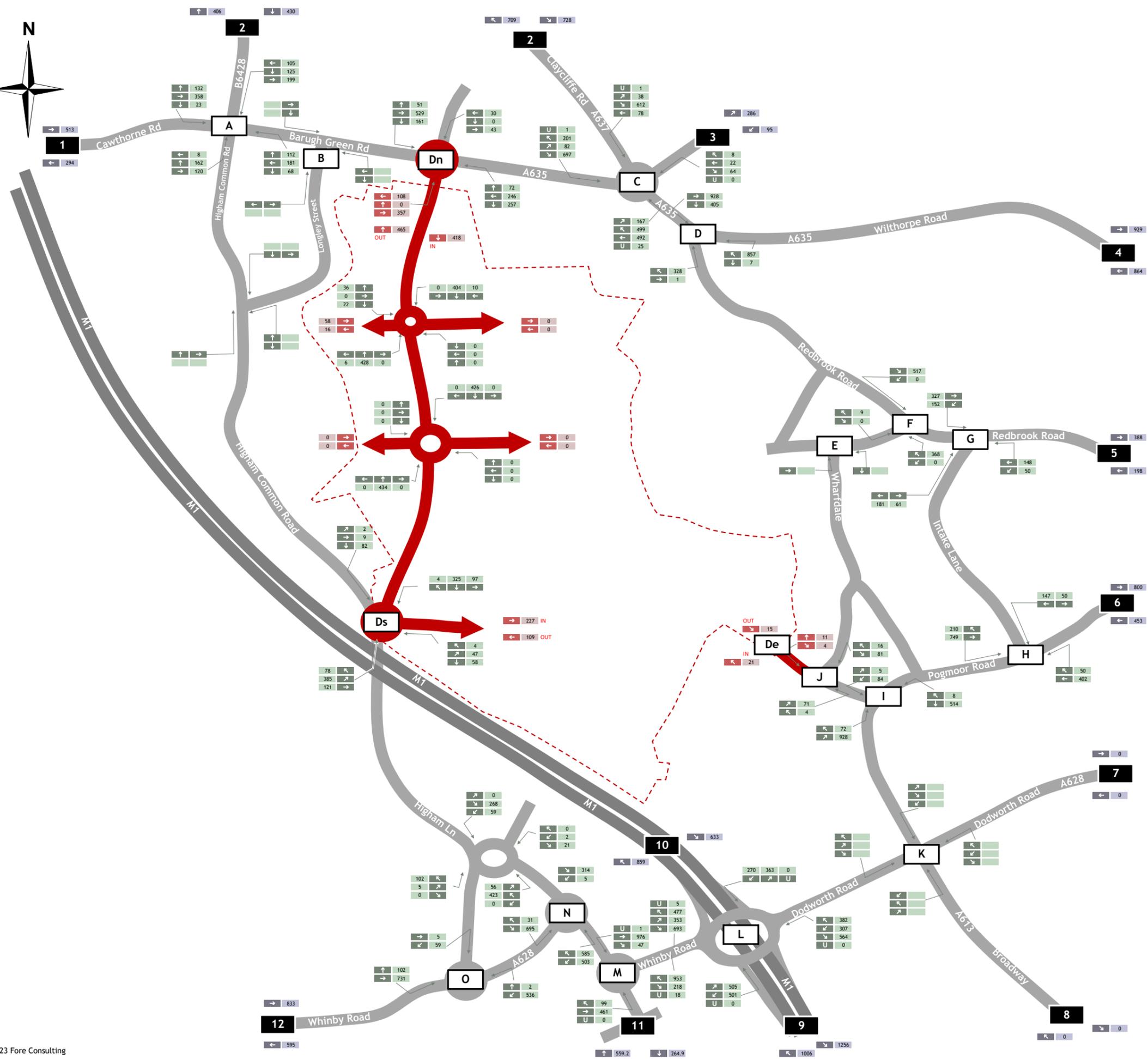
Issue

Job Number:

3062

Figure Number:

Figure 65



Key:

- Primary Road
- Secondary Road
- Site Access

Fore Consulting Limited
1st Floor, 15 St Paul's Street
Leeds
LS1 2JG
enquiries@foreconsulting.co.uk
www.foreconsulting.co.uk



Client:
Strata Sterling Barnsley West Limited

Project:
Proposed MU1 Residential and Employment Site, Barnsley

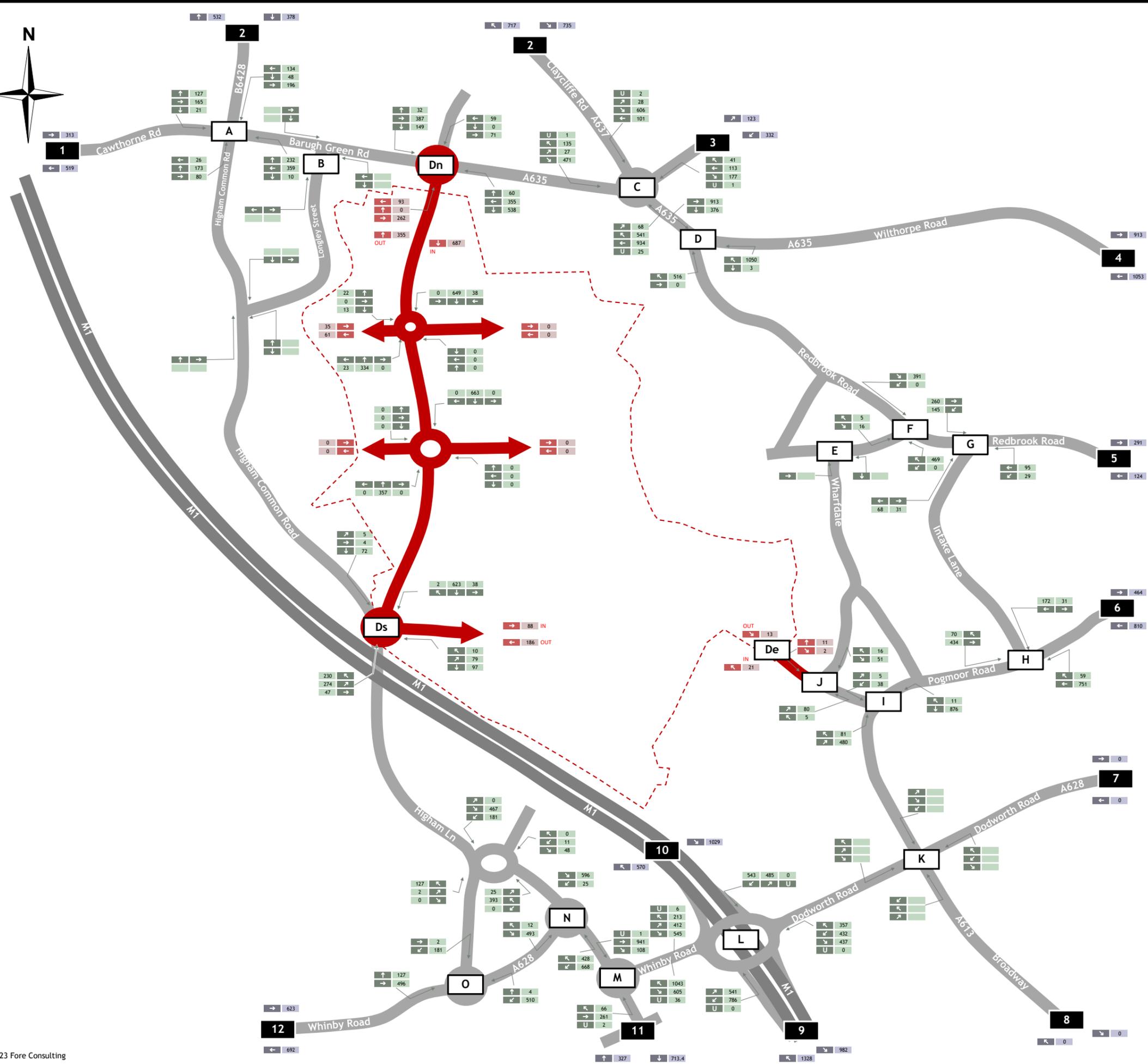
Figure Title:
2026 Phase 1 Development (With Full Link Road) Traffic Flows - AM Peak Hour

Scale:
Not to scale

Figure Status:
Issue

Job Number:
3062

Figure Number:
Figure 66



Key:

- Primary Road
- Secondary Road
- Site Access

Fore Consulting Limited
1st Floor, 15 St Paul's Street
Leeds
LS1 2JG

enquiries@foreconsulting.co.uk
www.foreconsulting.co.uk



Client:

Strata Sterling Barnsley West Limited

Project:

Proposed MU1 Residential and Employment Site, Barnsley

Figure Title:

2026 Phase 1 Development (With Full Link Road) Traffic Flows - PM Peak Hour

Scale:

Not to scale

Figure Status:

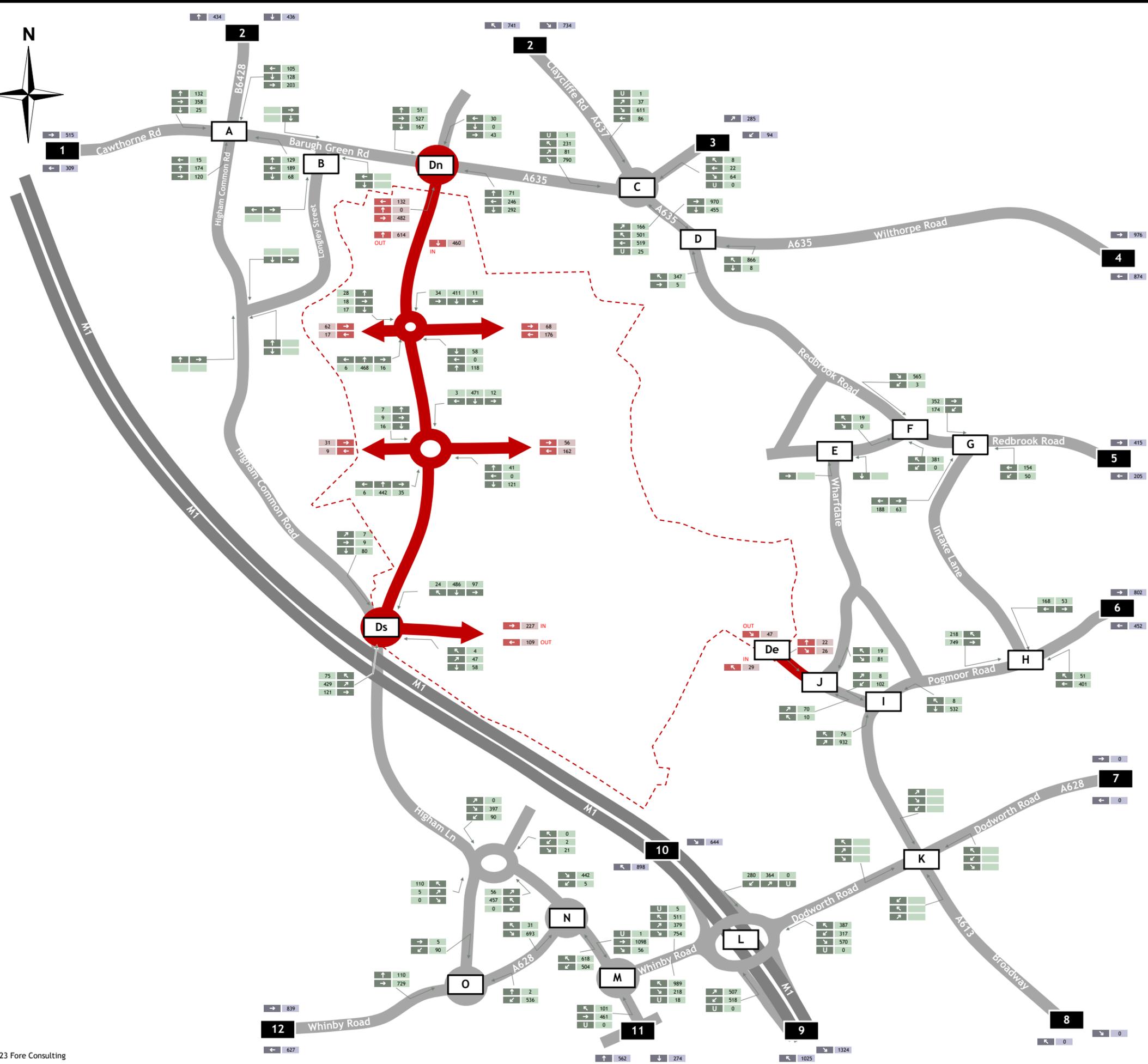
Issue

Job Number:

3062

Figure Number:

Figure 67



Key:

- Primary Road
- Secondary Road
- Site Access

Fore Consulting Limited
1st Floor, 15 St Paul's Street
Leeds
LS1 2JG
enquiries@foreconsulting.co.uk
www.foreconsulting.co.uk



Client:
Strata Sterling Barnsley West Limited

Project:
Proposed MU1 Residential and Employment Site, Barnsley

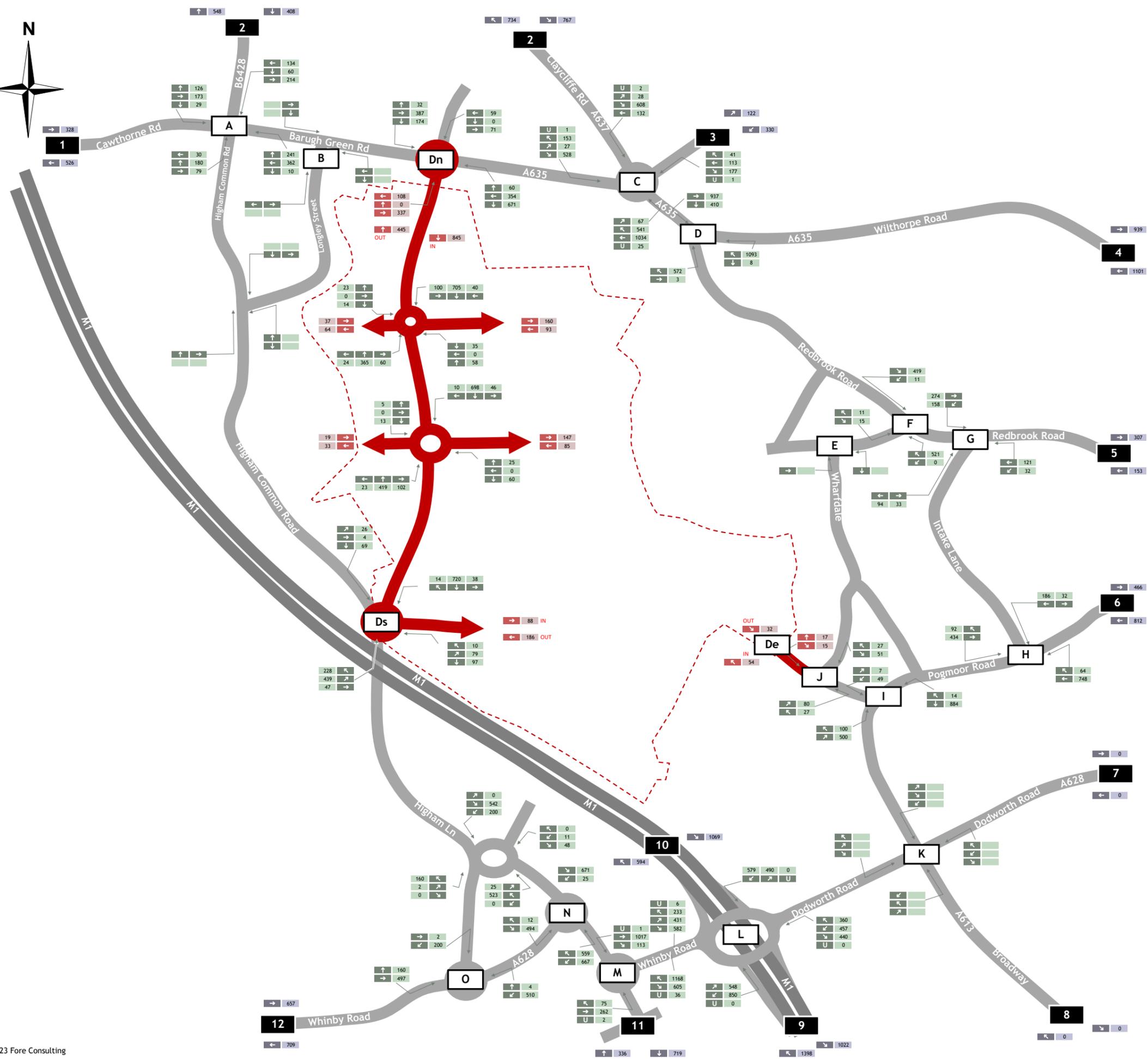
Figure Title:
2026 With Full Development (National Highway Assessment)
Traffic Flows - AM Peak Hour

Scale:
Not to scale

Figure Status:
Issue

Job Number:
3062

Figure Number:
Figure 68



Key:

- Primary Road
- Secondary Road
- Site Access

Fore Consulting Limited
1st Floor, 15 St Paul's Street
Leeds
LS1 2JG
enquiries@foreconsulting.co.uk
www.foreconsulting.co.uk



Client:
Strata Sterling Barnsley West Limited

Project:
Proposed MU1 Residential and Employment Site, Barnsley

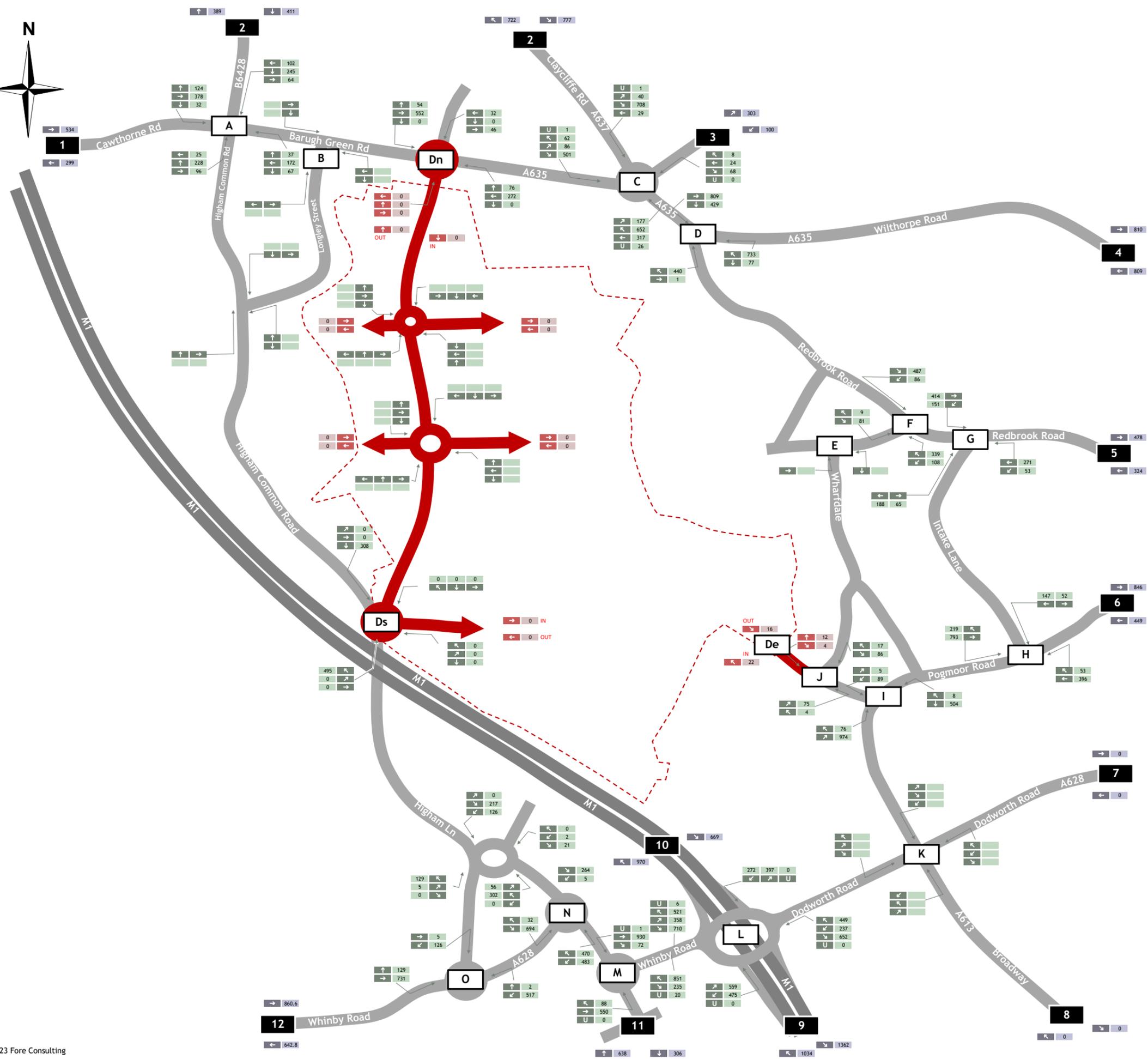
Figure Title:
2026 With Full Development (National Highway Assessment)
Traffic Flows - PM Peak Hour

Scale:
Not to scale

Figure Status:
Issue

Job Number:
3062

Figure Number:
Figure 69



Key:

-  Primary Road
-  Secondary Road
-  Site Access

Fore Consulting Limited
1st Floor, 15 St Paul's Street
Leeds
LS1 2JG
0113 246 0204
enquiries@foreconsulting.co.uk
www.foreconsulting.co.uk



Client:
Strata Sterling Barnsley West Limited

Project:
Proposed MU1 Residential and Employment Site, Barnsley

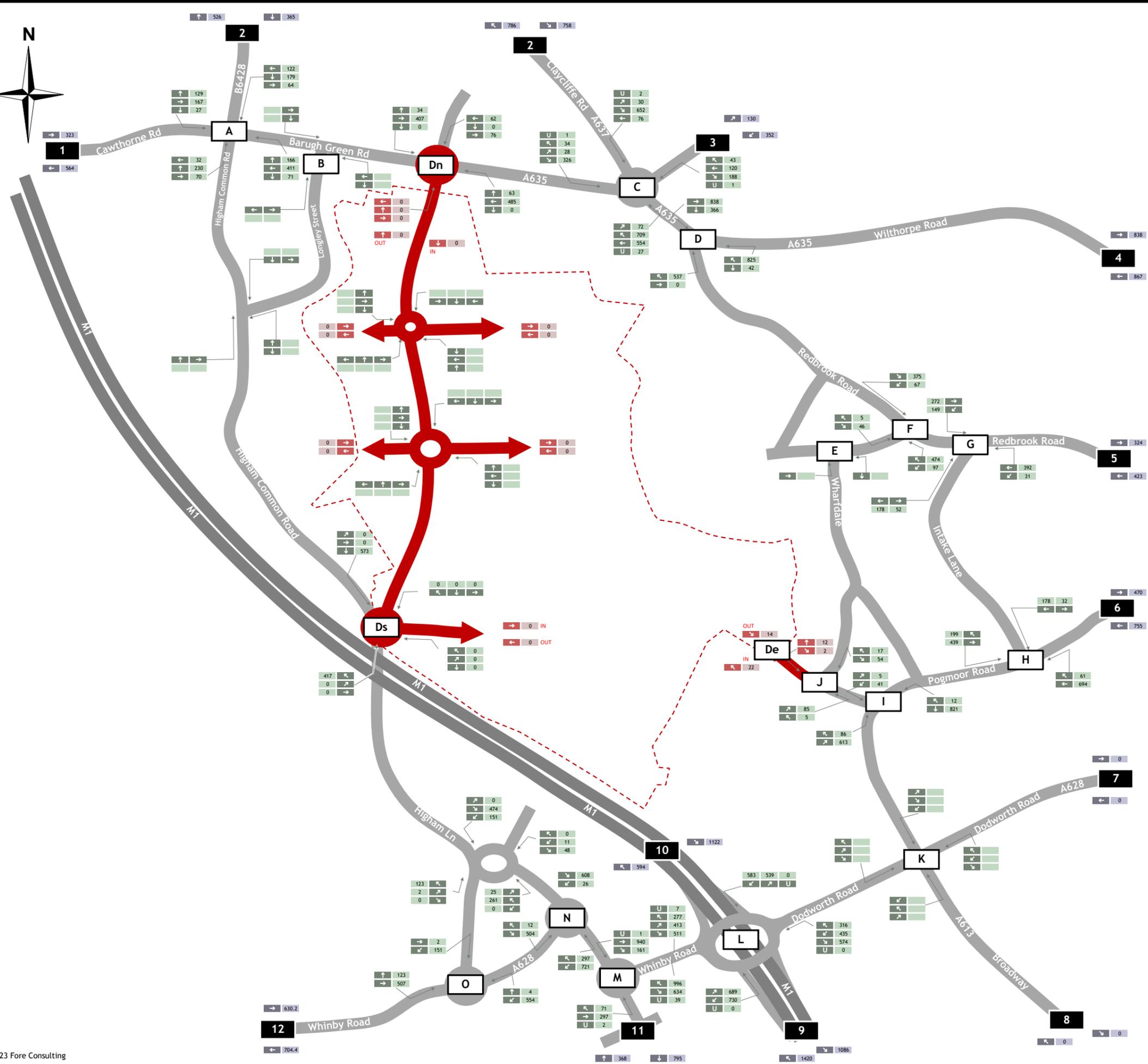
Figure Title:
2033 Do Minimum Traffic Flows - AM Peak Hour

Scale:
Not to scale

Figure Status:
Issue

Job Number:
3062

Figure Number:
Figure 70



Key:

-  Primary Road
-  Secondary Road
-  Site Access

Fore Consulting Limited
1st Floor, 15 St Paul's Street
Leeds
LS1 2JG

enquiries@foreconsulting.co.uk
www.foreconsulting.co.uk



Client:

Strata Sterling Barnsley West Limited

Project:

Proposed MU1 Residential and Employment Site, Barnsley

Figure Title:

2033 Do Minimum Traffic Flows - PM Peak Hour

Scale:

Not to scale

Figure Status:

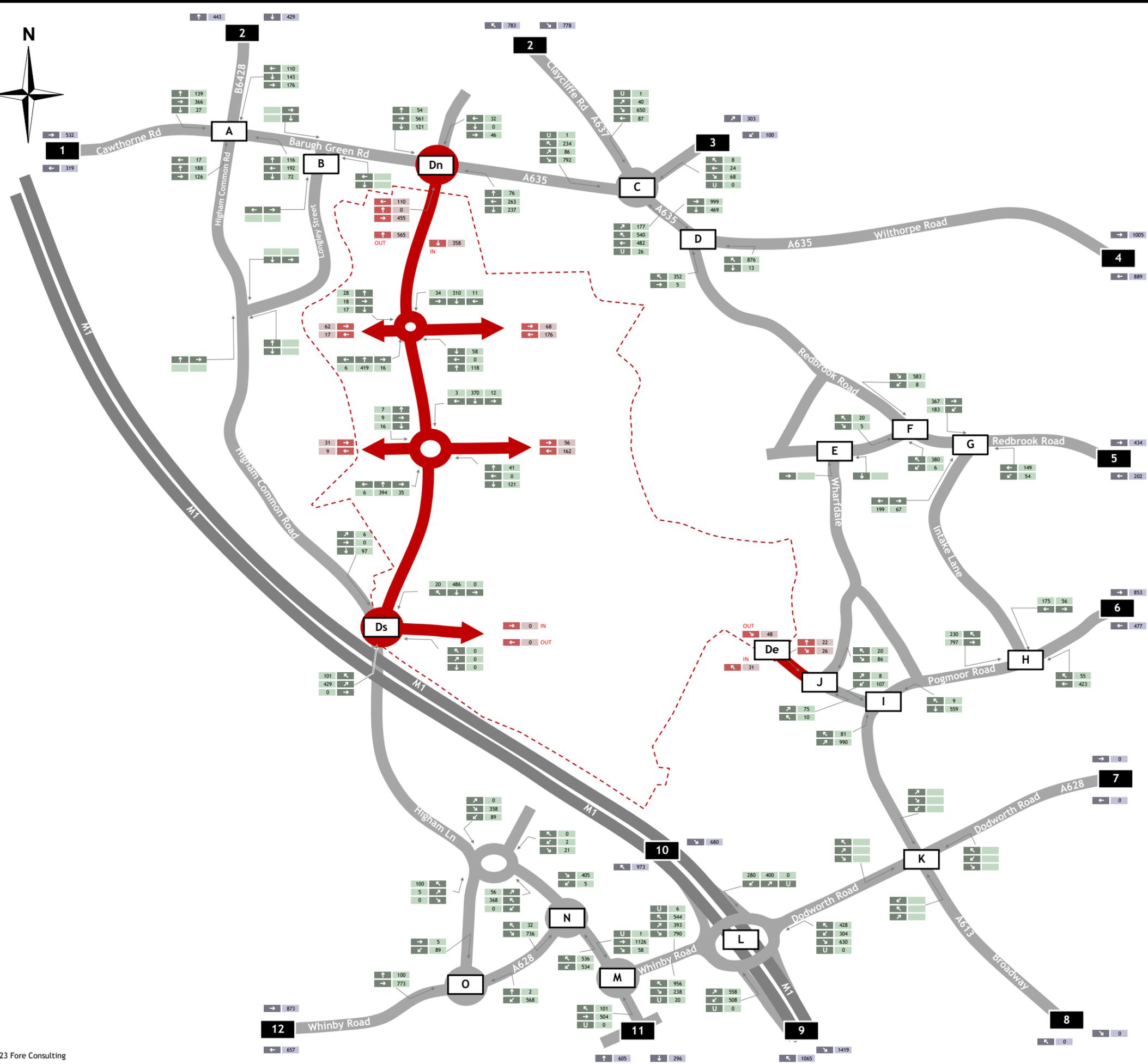
Issue

Job Number:

3062

Figure Number:

Figure 71



Key:

-  Primary Road
-  Secondary Road
-  Site Access

Fore Consulting Limited
1st Floor, 15 St Paul's Street
Leeds
LS1 2JG
enquiries@foreconsulting.co.uk
www.foreconsulting.co.uk



Client:
Strata Sterling Barnsley West Limited

Project:
Proposed MU1 Residential and Employment Site, Barnsley

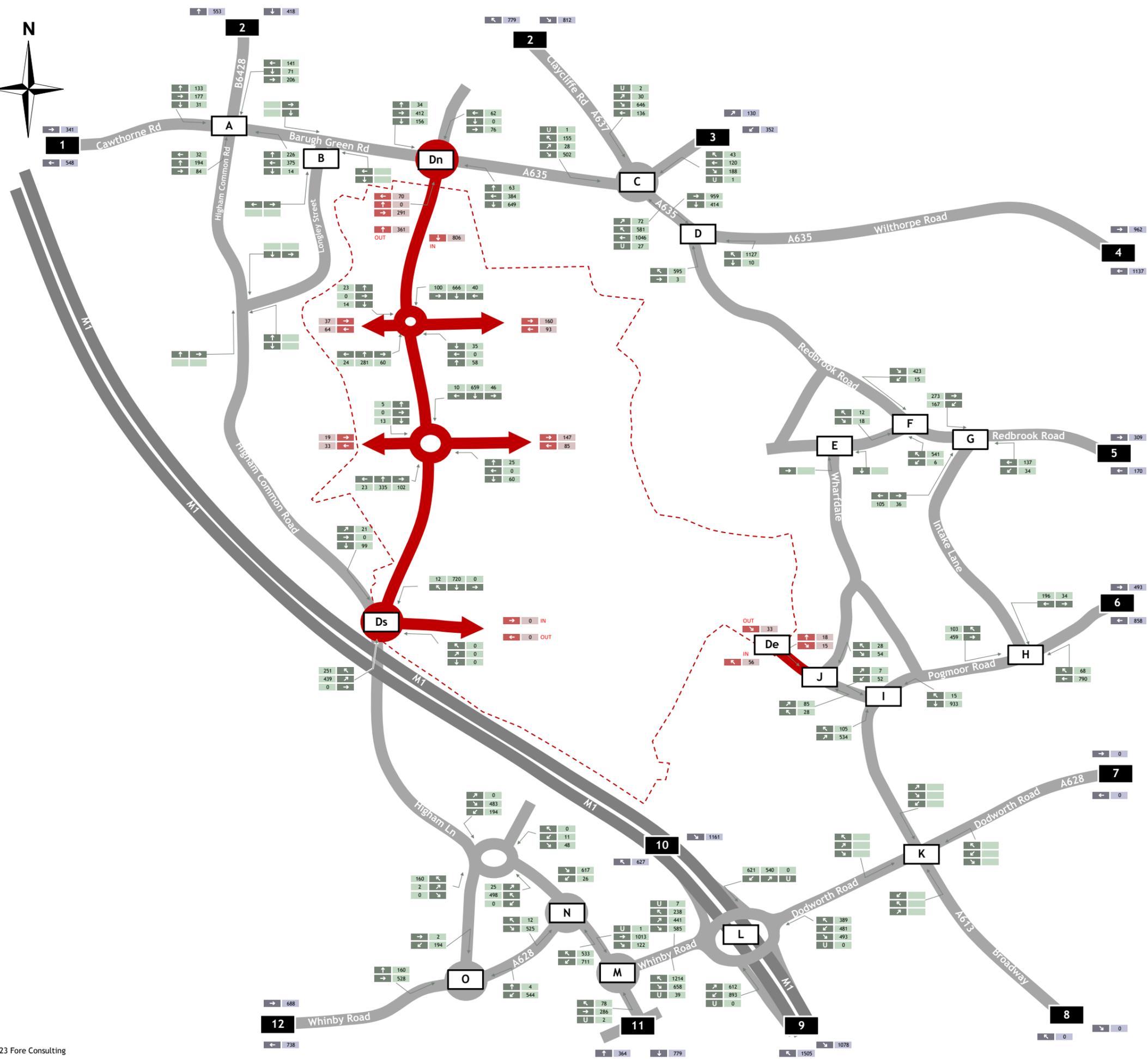
Figure Title:
2033 Full Residential Development Traffic Flows - AM Peak Hour

Scale:
Not to scale

Figure Status:
Issue

Job Number:
3062

Figure Number:
Figure 72



Key:

- Primary Road
- Secondary Road
- Site Access

Fore Consulting Limited
1st Floor, 15 St Paul's Street
Leeds
LS1 2JG
enquiries@foreconsulting.co.uk
www.foreconsulting.co.uk



Client:
Strata Sterling Barnsley West Limited

Project:
Proposed MU1 Residential and Employment Site, Barnsley

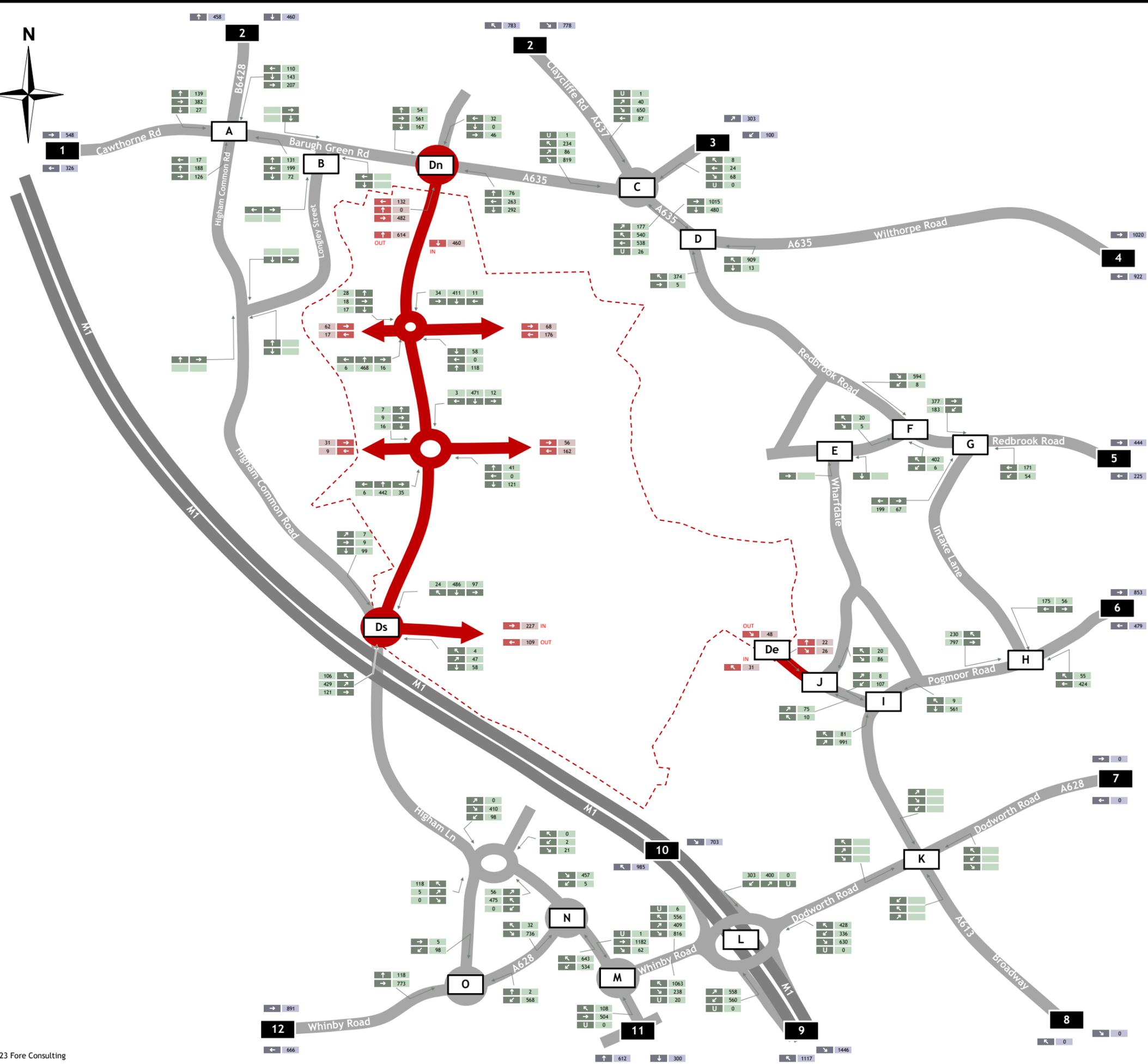
Figure Title:
2033 Full Residential Development Traffic Flows - PM Peak Hour

Scale:
Not to scale

Figure Status:
Issue

Job Number:
3062

Figure Number:
Figure 73



Key:

-  Primary Road
-  Secondary Road
-  Site Access

Fore Consulting Limited
1st Floor, 15 St Paul's Street
Leeds
LS1 2JG

enquiries@foreconsulting.co.uk
www.foreconsulting.co.uk



Client:
Strata Sterling Barnsley West Limited

Project:
Proposed MU1 Residential and Employment Site, Barnsley

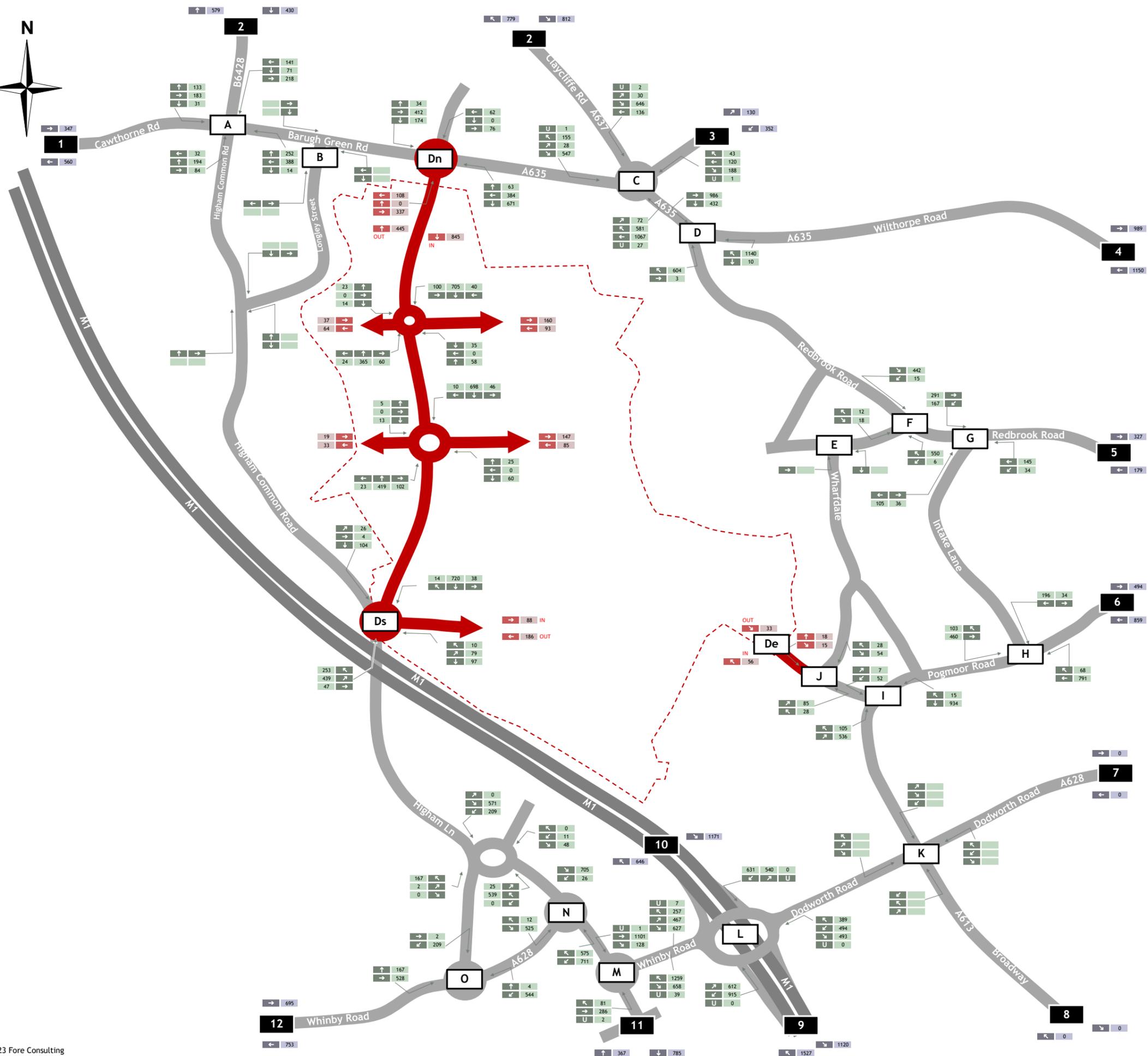
Figure Title:
2033 Full Development Traffic Flows - AM Peak Hour

Scale:
Not to scale

Figure Status:
Issue

Job Number:
3062

Figure Number:
Figure 74



Key:

-  Primary Road
-  Secondary Road
-  Site Access

Fore Consulting Limited
1st Floor, 15 St Paul's Street
Leeds
LS1 2JG

enquiries@foreconsulting.co.uk
www.foreconsulting.co.uk



Client:

Strata Sterling Barnsley West Limited

Project:

Proposed MU1 Residential and Employment Site, Barnsley

Figure Title:

2033 Full Development Traffic Flows - PM Peak Hour

Scale:

Not to scale

Figure Status:

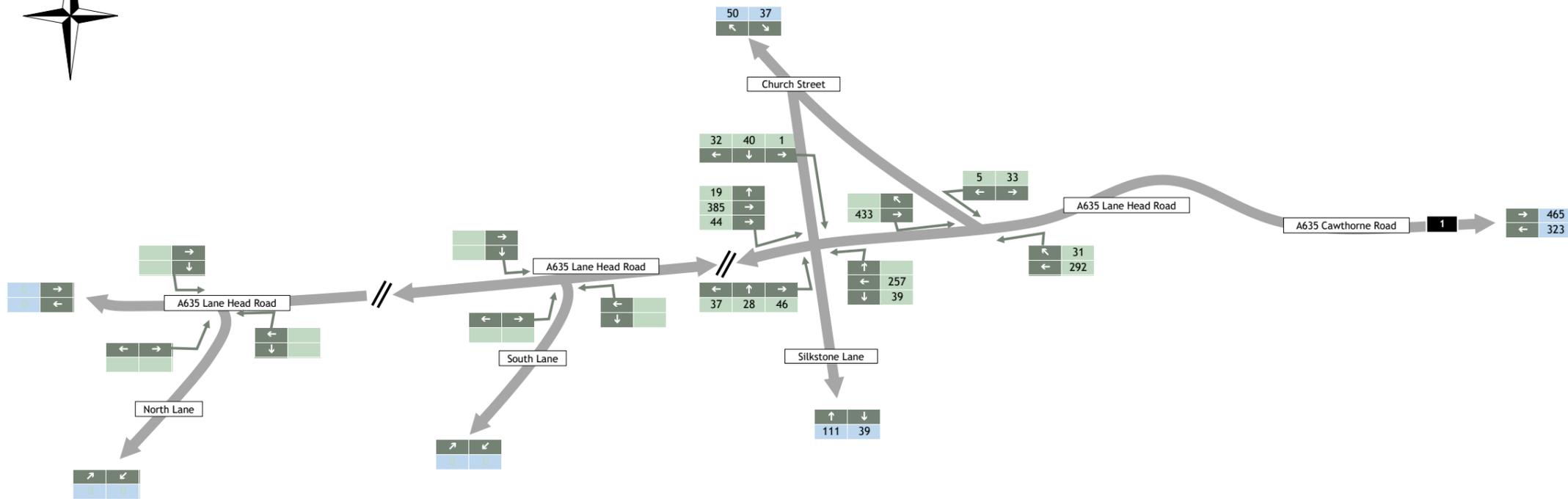
Issue

Job Number:

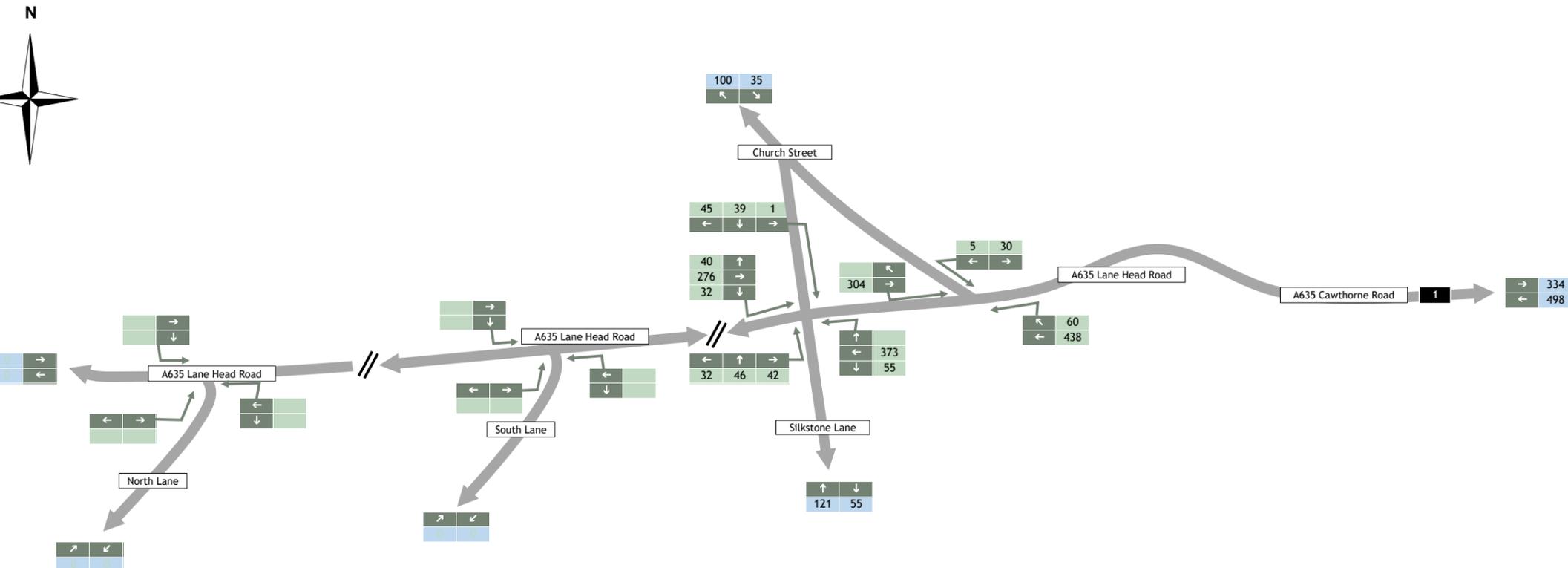
3062

Figure Number:

Figure 75



A635 Cawthorne Road Impact - Weekday AM Peak Hour



A635 Cawthorne Road Impact - Weekday PM Peak Hour

Key:

- 1** End Point (As per the study area extent of the Transport Assessment)
- Highway Network

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



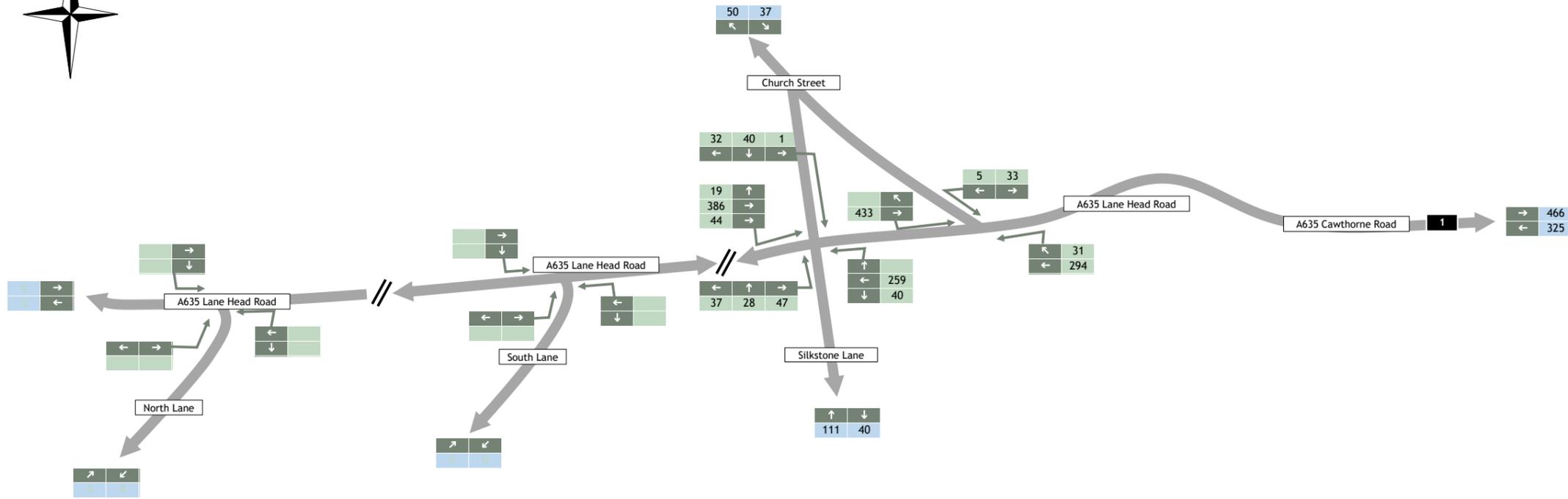
Client:
 Strata Sterling Barnsley West Limited

Project:
 Proposed MU1 Residential and Employment Site, Barnsley

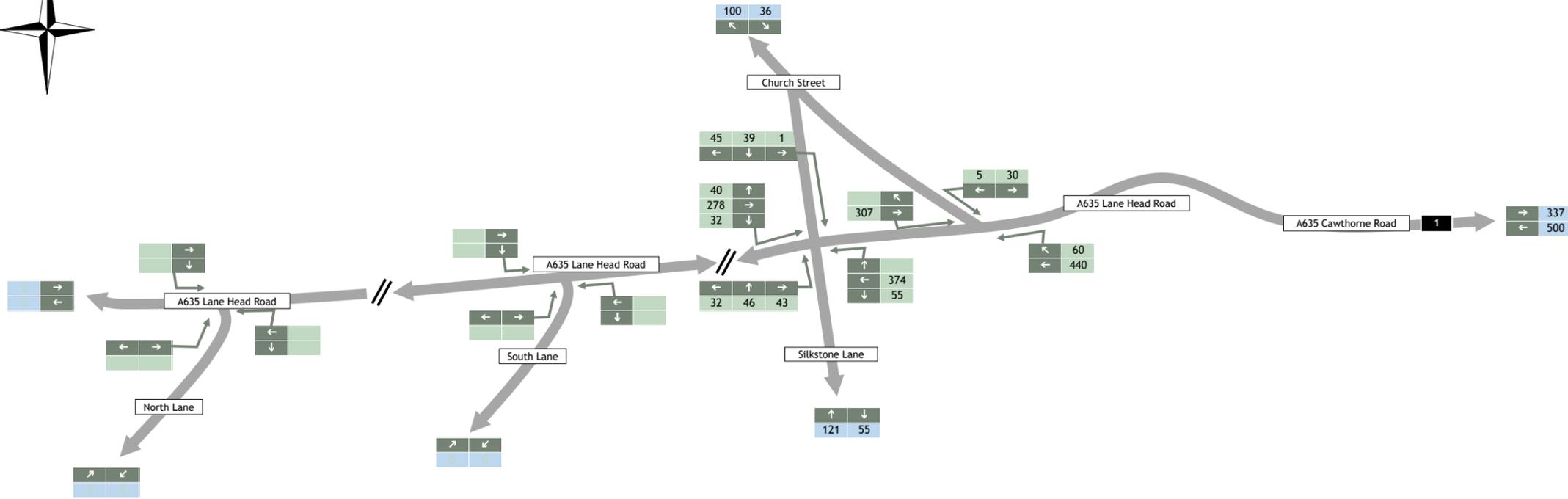
Figure Title:
 2026 Do Minimum Traffic Flows - A635 Cawthorne Road (AM and PM Peak Hours)

Scale: Not to scale | Figure Status: Issue

Job Number: 3062 | Figure Number: Figure 76



A635 Cawthorne Road Impact - Weekday AM Peak Hour



A635 Cawthorne Road Impact - Weekday PM Peak Hour

Key:

- 1** End Point (As per the study area extent of the Transport Assessment)
- Highway Network

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



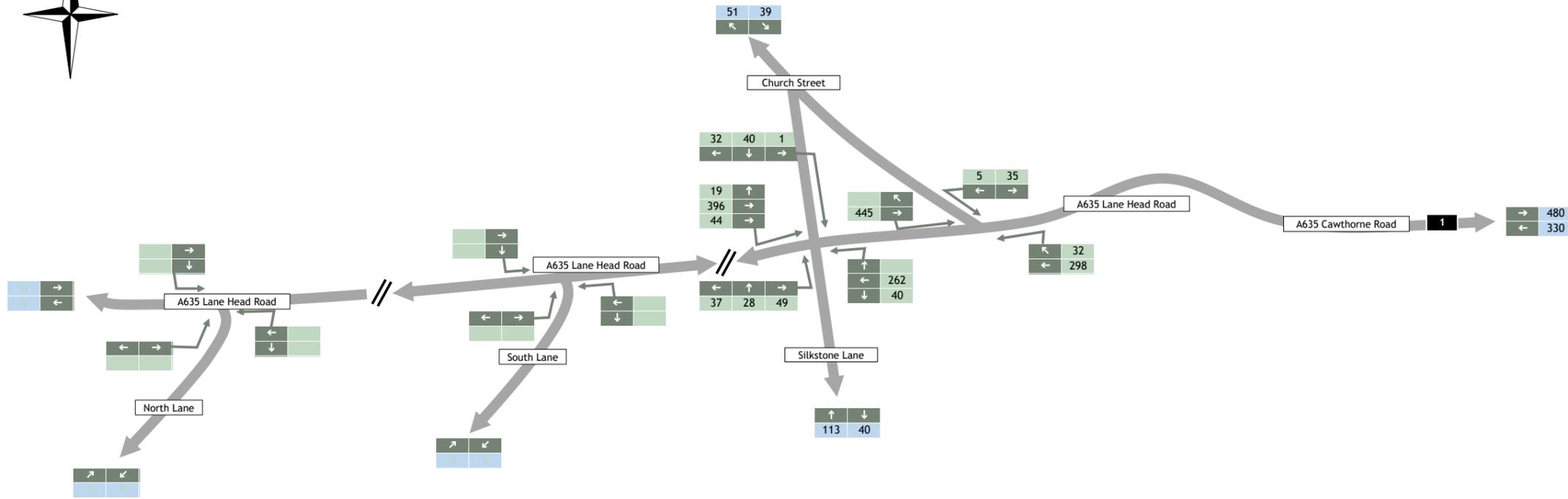
Client:
 Strata Sterling Barnsley West Limited

Project:
 Proposed MU1 Residential and Employment Site, Barnsley

Figure Title:
 2026 Residential Phase1a Development Traffic Flows - A635 Cawthorne Road (AM and PM Peak Hours)

Scale: Not to scale | Figure Status: Issue

Job Number: 3062 | Figure Number: Figure 77

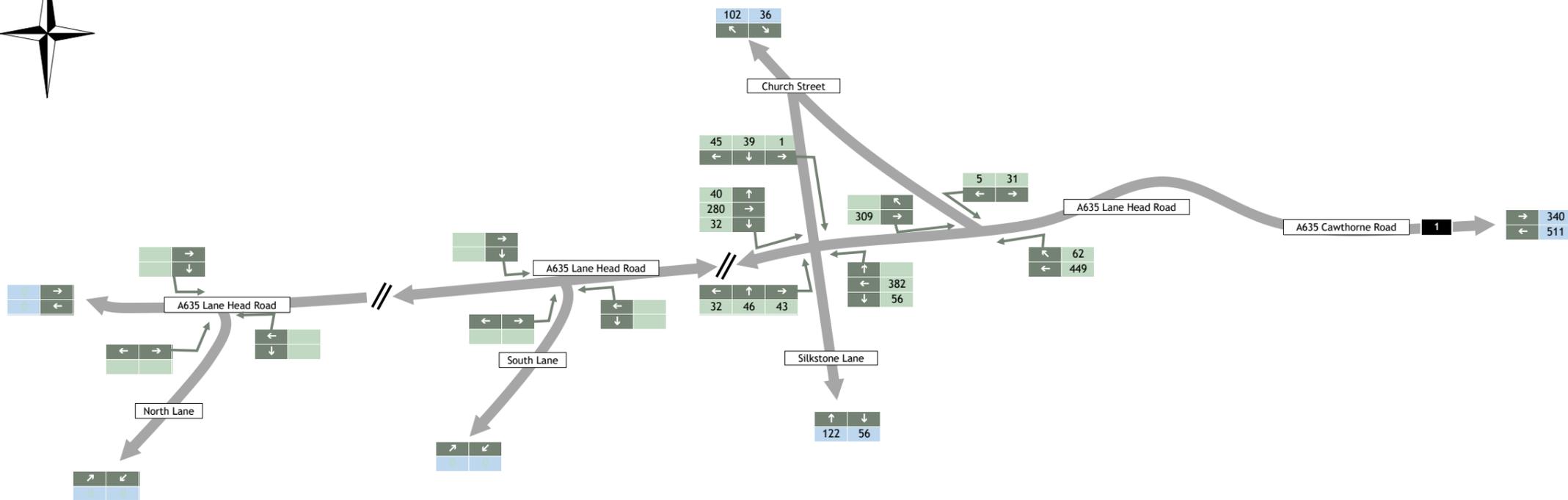


A635 Cawthorne Road Impact - Weekday AM Peak Hour

Key:

1 End Point (As per the study area extent of the Transport Assessment)

→ Highway Network



A635 Cawthorne Road Impact - Weekday PM Peak Hour

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



Client:
 Strata Sterling Barnsley West Limited

Project:
 Proposed MU1 Residential and Employment Site, Barnsley

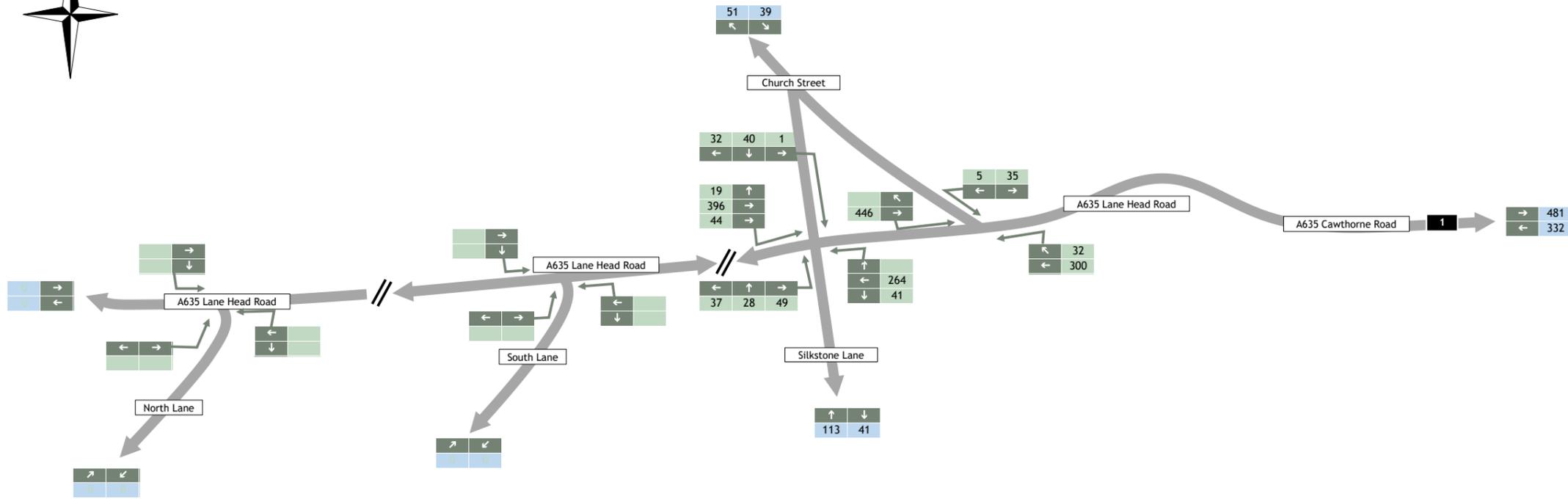
Figure Title:
 2026 Employment Development Traffic Flows - A635 Cawthorne Road (AM and PM Peak Hours)

Scale:
 Not to scale

Figure Status:
 Issue

Job Number:
 3062

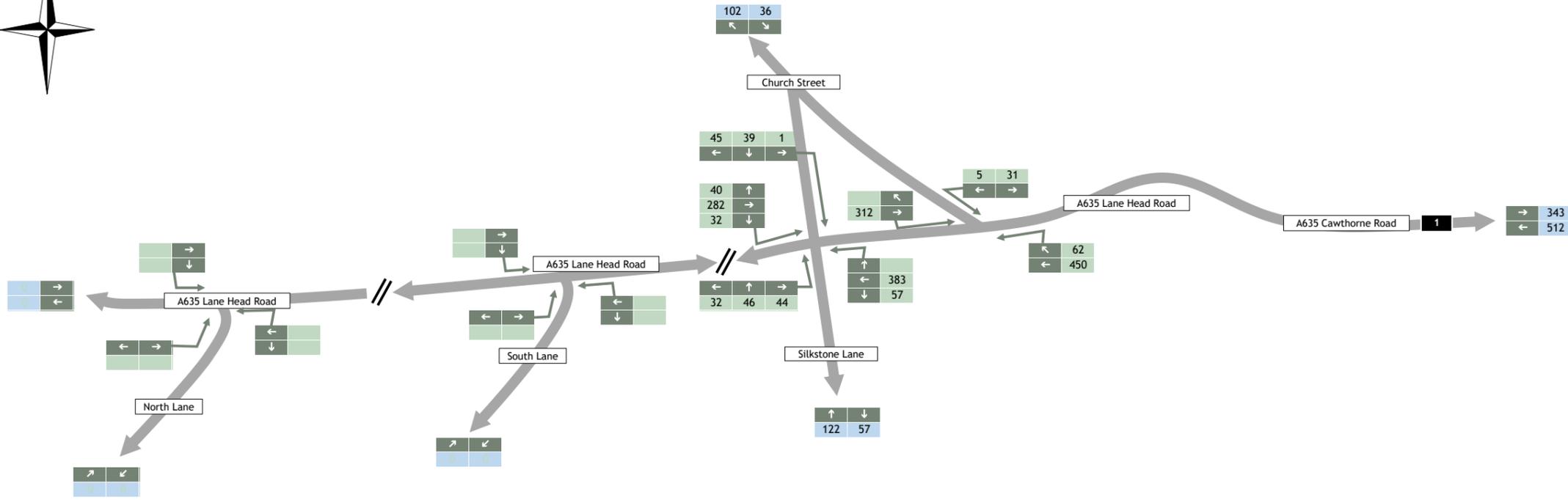
Figure Number:
 Figure 78



A635 Cawthorne Road Impact - Weekday AM Peak Hour

Key:

- 1** End Point (As per the study area extent of the Transport Assessment)
- Highway Network



A635 Cawthorne Road Impact - Weekday PM Peak Hour

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



Client:
 Strata Sterling Barnsley West Limited

Project:
 Proposed MU1 Residential and Employment Site, Barnsley

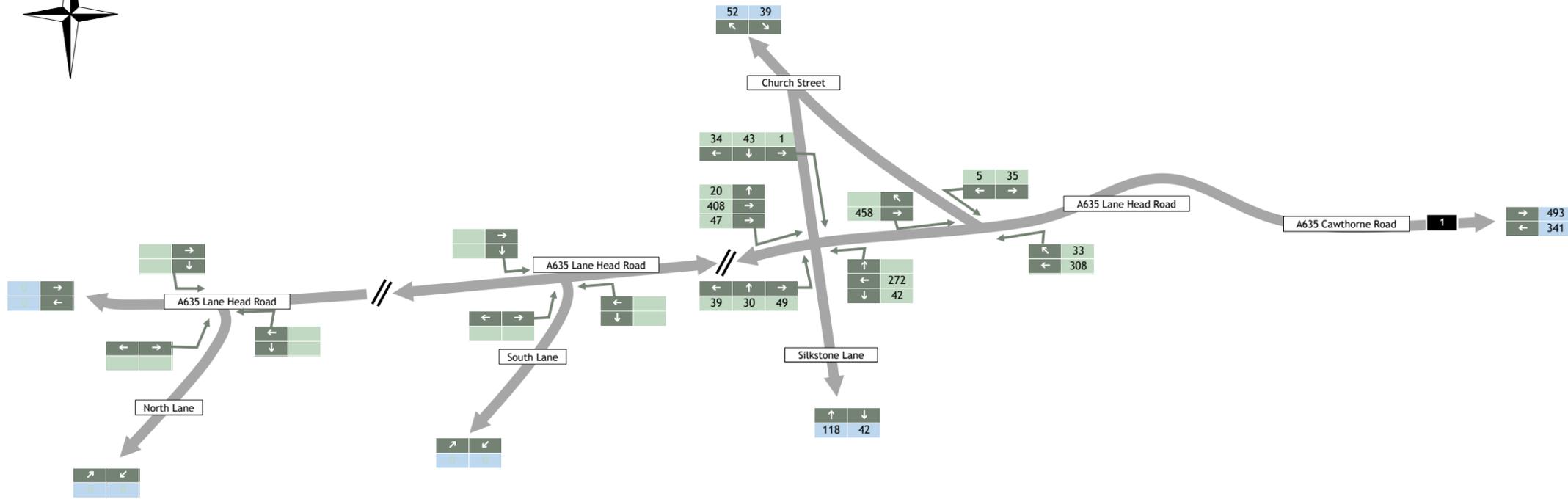
Figure Title:
 2026 Phase 1 Development Traffic Flows - A635 Cawthorne Road (AM and PM Peak Hours)

Scale:
 Not to scale

Figure Status:
 Issue

Job Number:
 3062

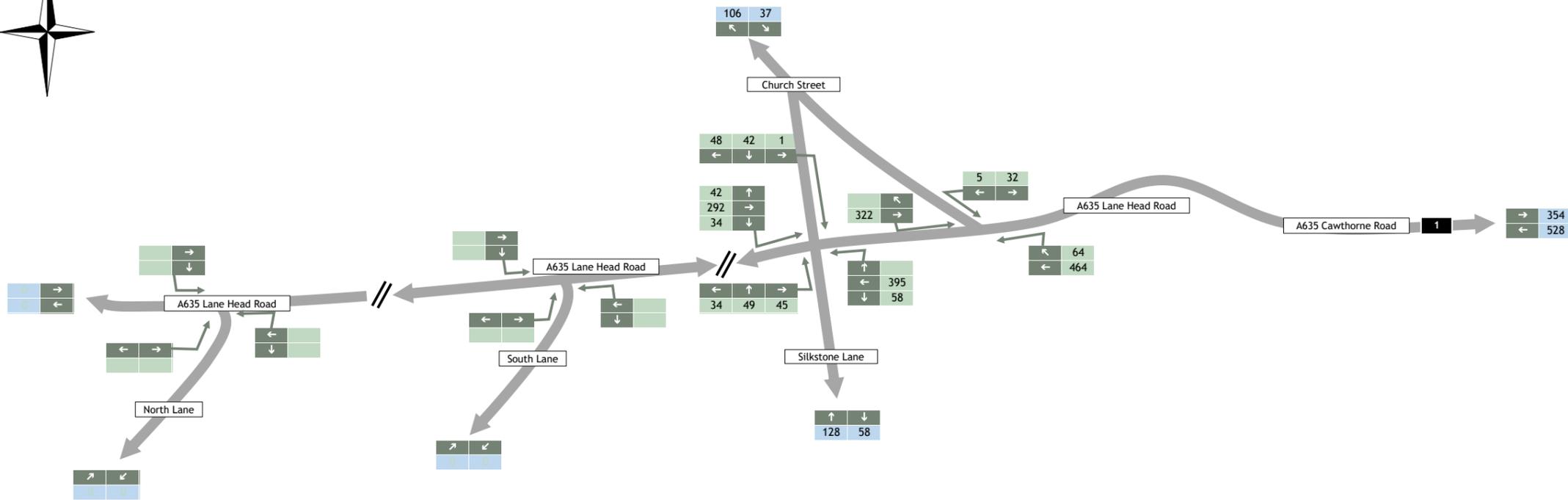
Figure Number:
 Figure 79



A635 Cawthorne Road Impact - Weekday AM Peak Hour

Key:

- 1** End Point (As per the study area extent of the Transport Assessment)
- Highway Network



A635 Cawthorne Road Impact - Weekday PM Peak Hour

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

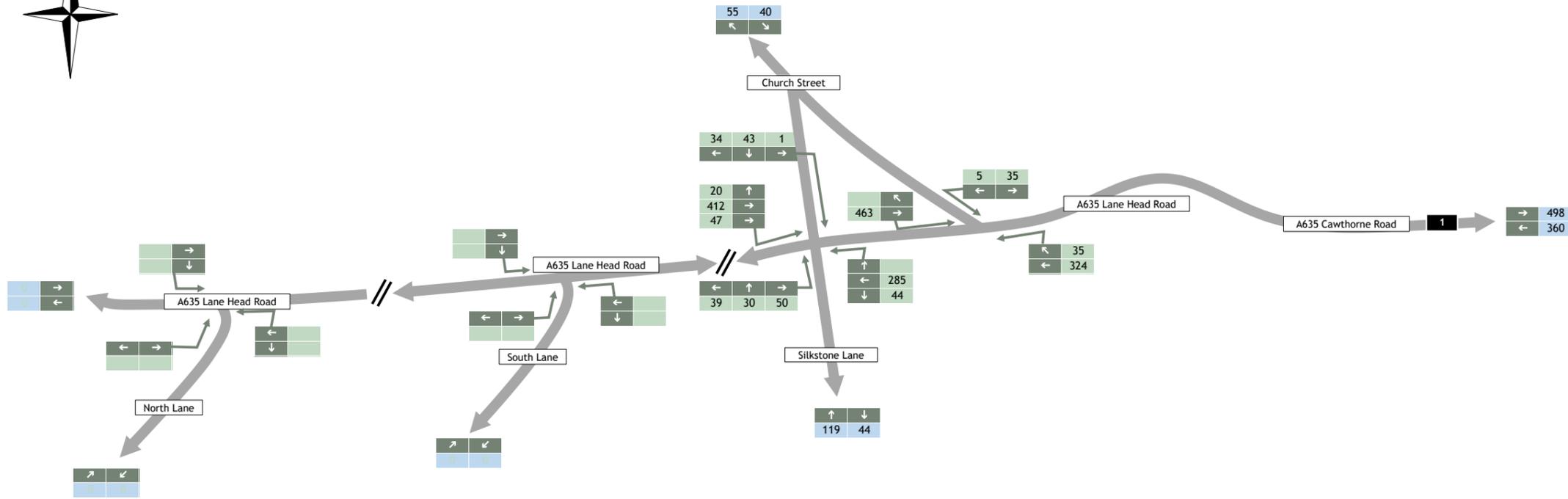
Client: Strata Sterling Barnsley West Limited

Project: Proposed MU1 Residential and Employment Site, Barnsley

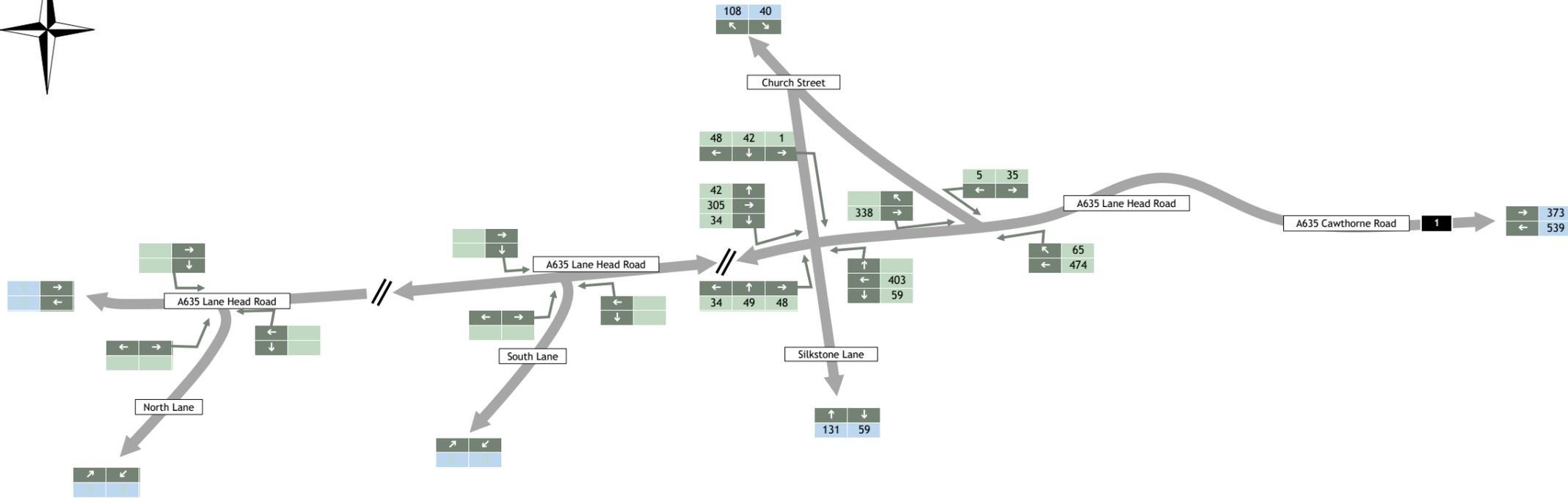
Figure Title: 2033 Do Minimum Traffic Flows - A635 Cawthorne Road (AM and PM Peak Hours)

Scale: Not to scale	Figure Status: Issue
---------------------	----------------------

Job Number: 3062	Figure Number: Figure 80
------------------	--------------------------



A635 Cawthorne Road Impact - Weekday AM Peak Hour



A635 Cawthorne Road Impact - Weekday PM Peak Hour

Key:

1 End Point (As per the study area extent of the Transport Assessment)

Highway Network

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



Client:
 Strata Sterling Barnsley West Limited

Project:
 Proposed MU1 Residential and Employment Site, Barnsley

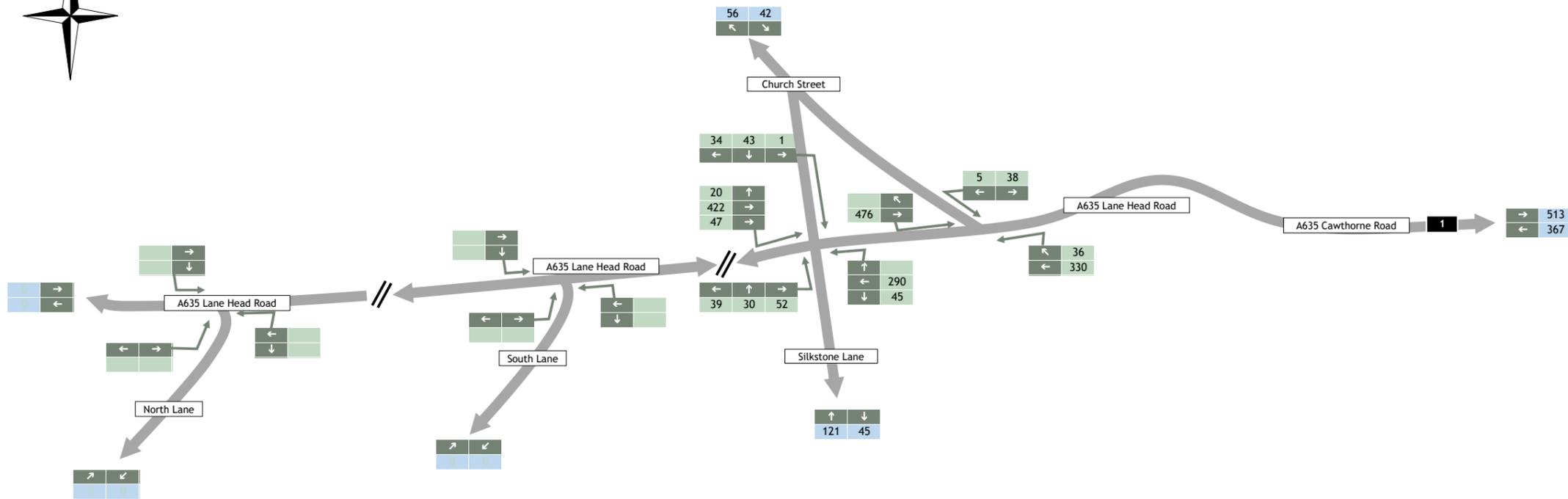
Figure Title:
 2033 Full Residential Development Traffic Flows - A635 Cawthorne Road (AM and PM Peak Hours)

Scale:
 Not to scale

Figure Status:
 Issue

Job Number:
 3062

Figure Number:
 Figure 81



A635 Cawthorne Road Impact - Weekday AM Peak Hour

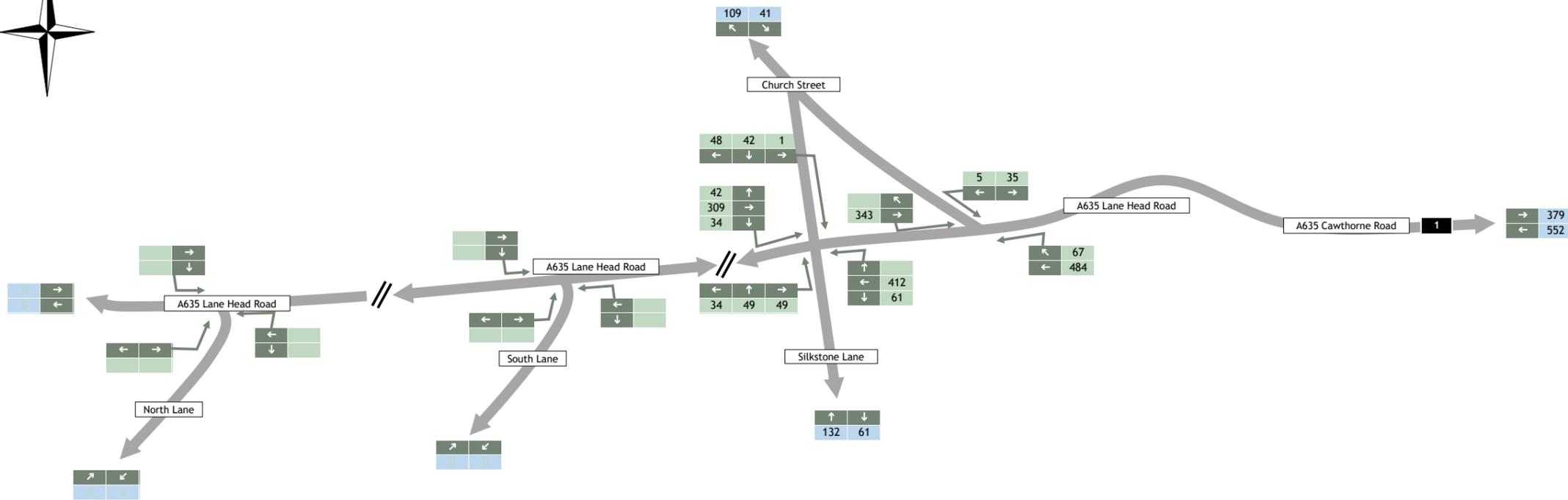
Key:



End Point (As per the study area extent of the Transport Assessment)



Highway Network



A635 Cawthorne Road Impact - Weekday PM Peak Hour

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



Client:

Strata Sterling Barnsley West Limited

Project:

Proposed MU1 Residential and Employment Site, Barnsley

Figure Title:

2033 Full Development Traffic Flows - A635 Cawthorne Road (AM and PM Peak Hours)

Scale:

Not to scale

Figure Status:

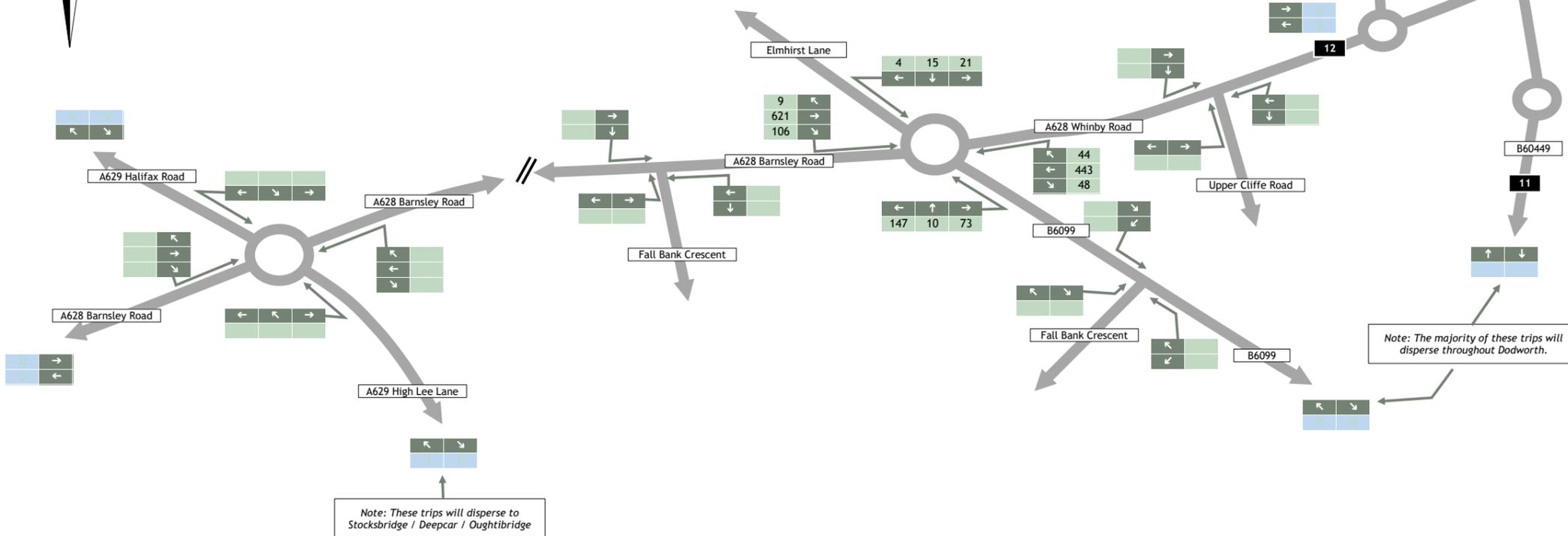
Issue

Job Number:

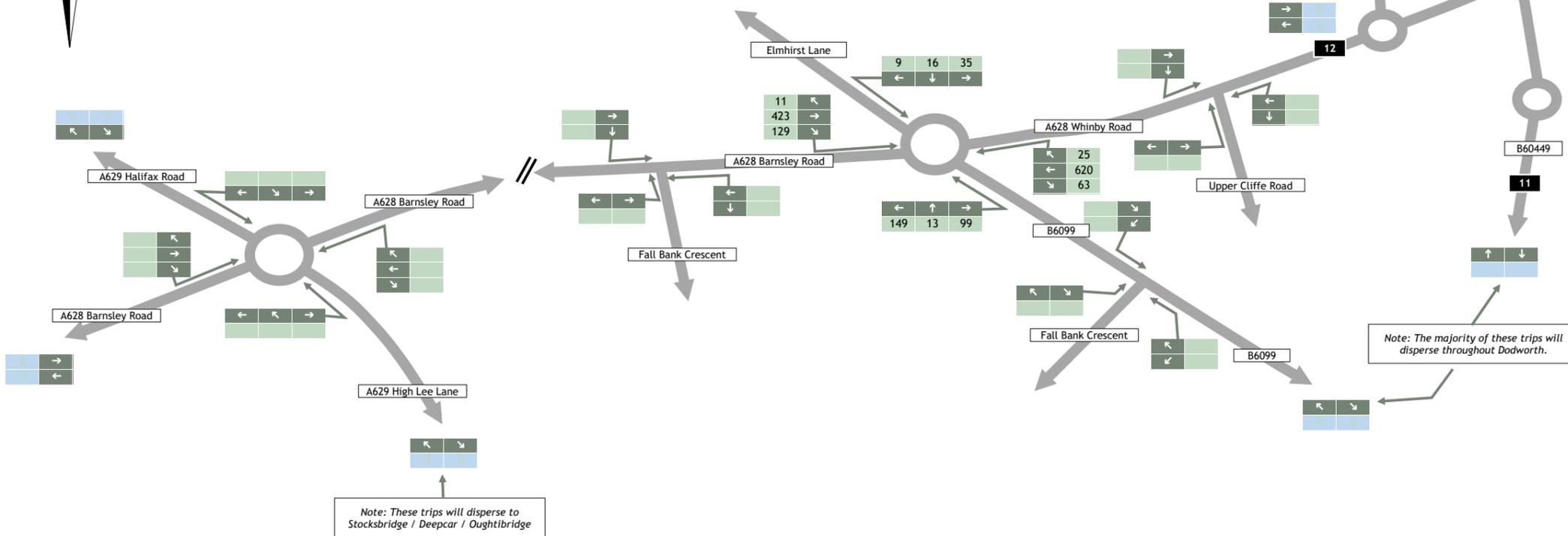
3062

Figure Number:

Figure 82



A628 Whinby Road Impact - Weekday AM Peak Hour



A628 Whinby Road Impact - Weekday PM Peak Hour

Key:

1 End Point (As per the study area extent of the Transport Assessment)

Highway Network

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



Client:
 Strata Sterling Barnsley West Limited

Project:
 Proposed MU1 Residential and Employment Site, Barnsley

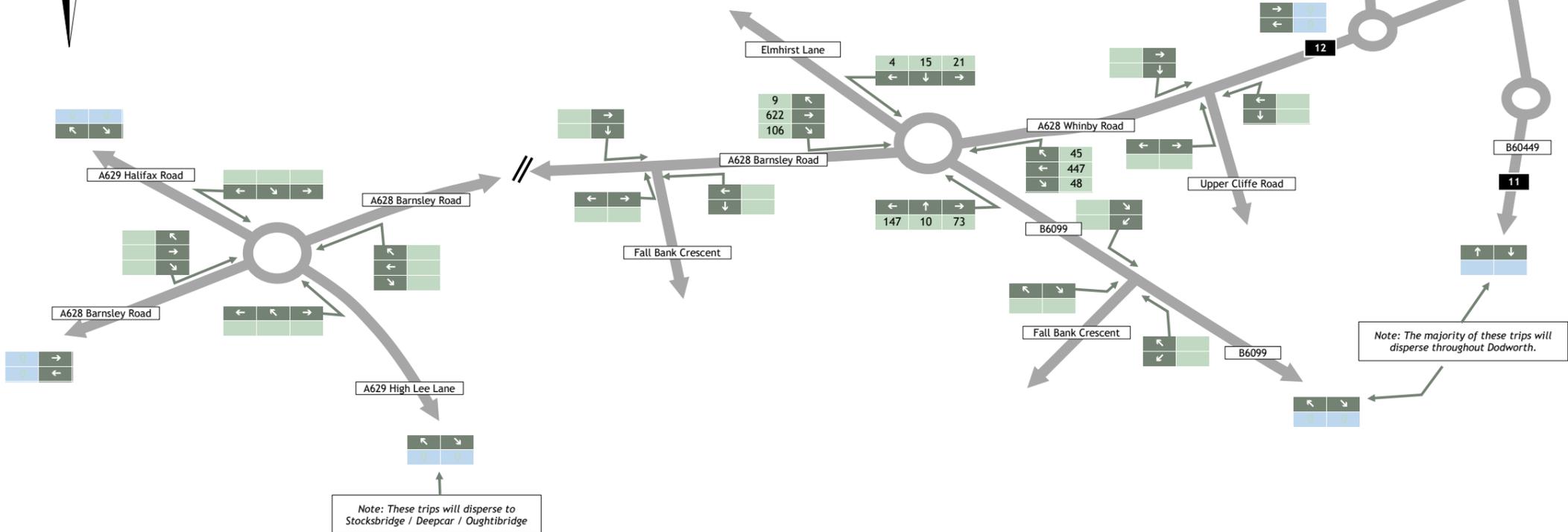
Figure Title:
 2026 Do Minimum Traffic Flows - A628 Whinby Road (AM and PM Peak Hours)

Scale:
 Not to scale

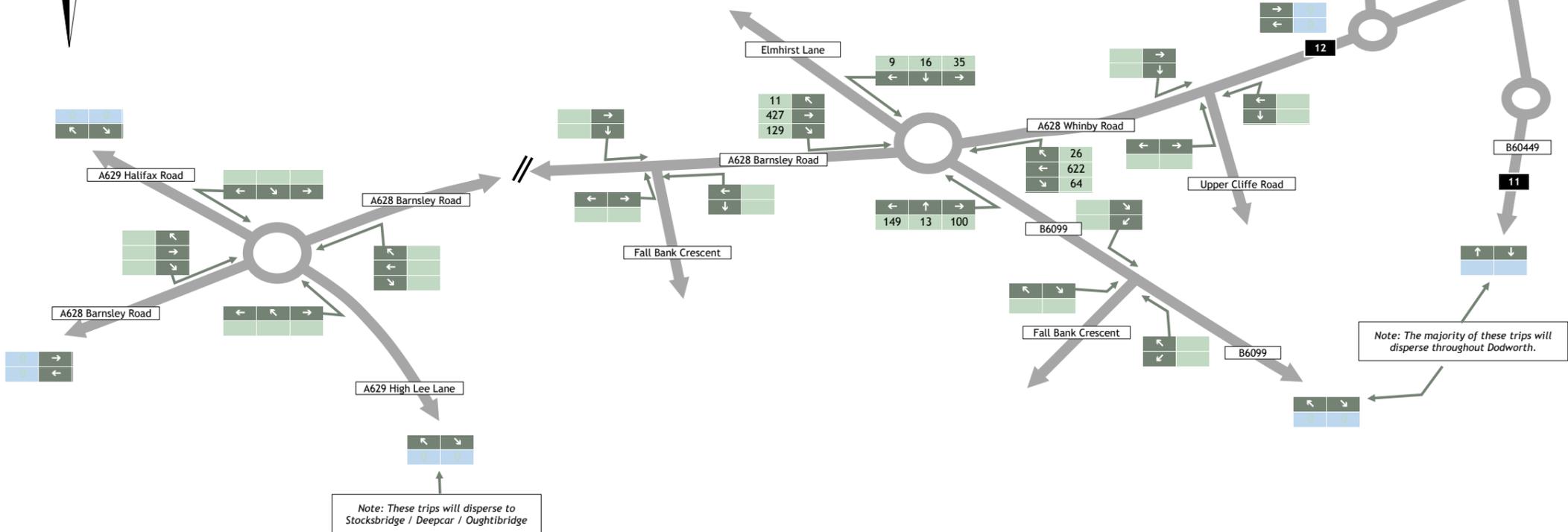
Figure Status:
 Issue

Job Number:
 3062

Figure Number:
 Figure 83



A628 Whinby Road Impact - Weekday AM Peak Hour



A628 Whinby Road Impact - Weekday PM Peak Hour

Key:

1 End Point (As per the study area extent of the Transport Assessment)

Highway Network

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



Client:
 Strata Sterling Barnsley West Limited

Project:
 Proposed MU1 Residential and Employment Site, Barnsley

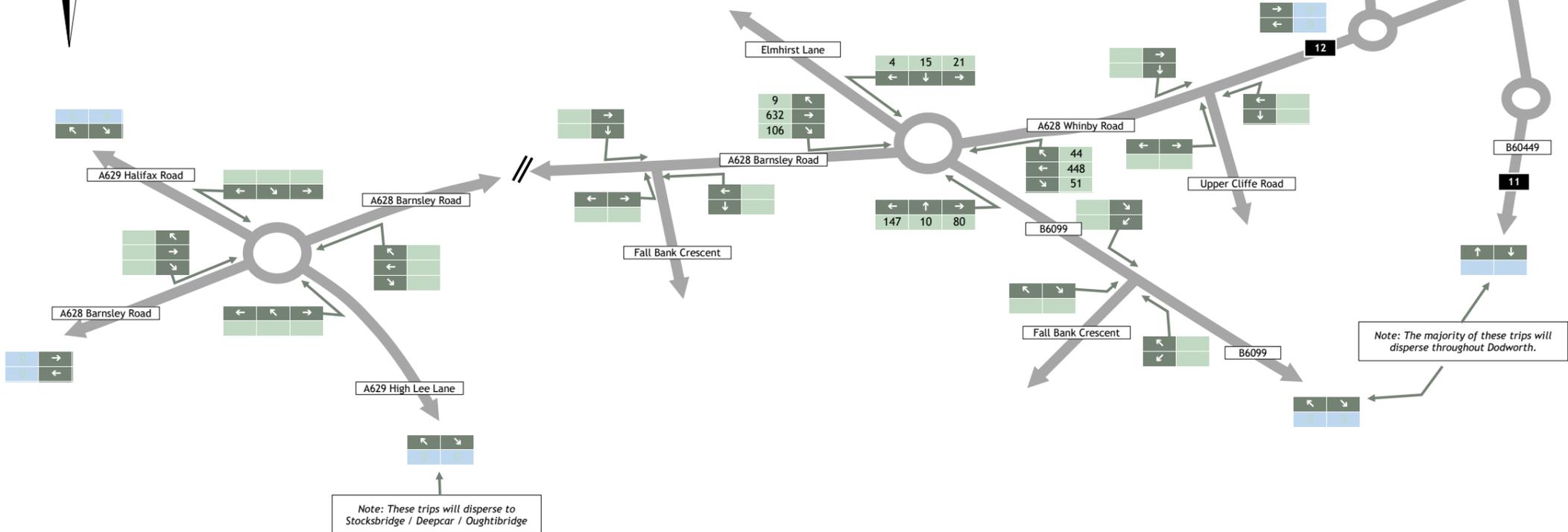
Figure Title:
 2026 Residential Phase1a Development Traffic Flows - A628 Whinby Road (AM and PM Peak Hours)

Scale:
 Not to scale

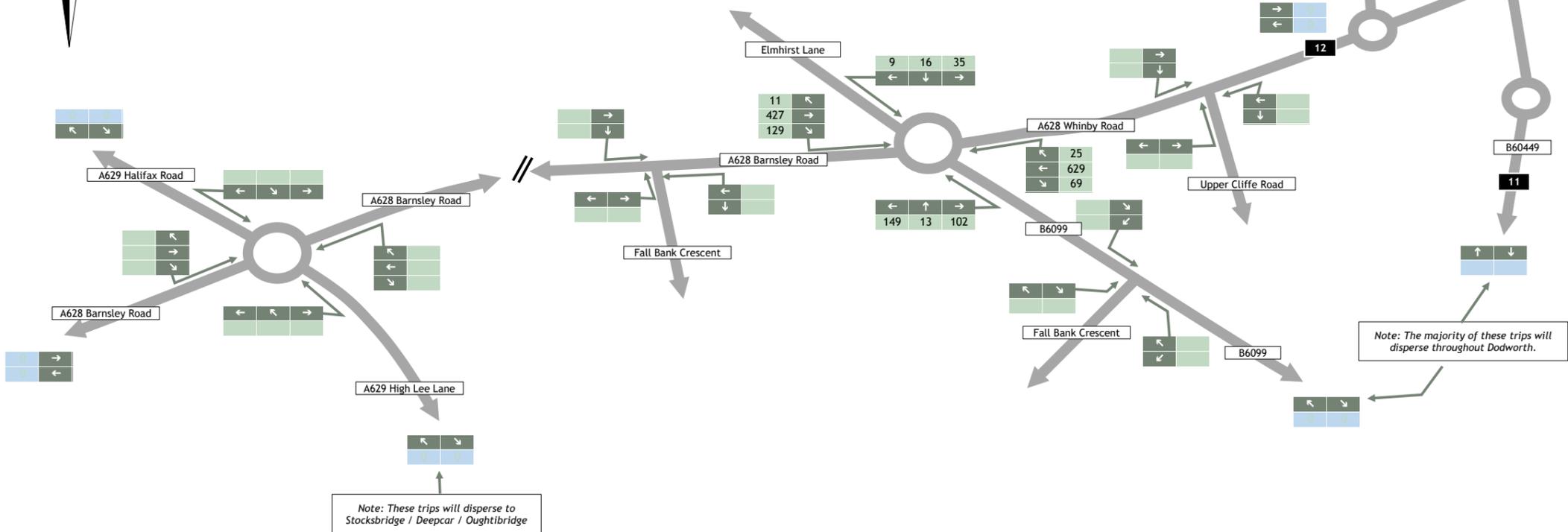
Figure Status:
 Issue

Job Number:
 3062

Figure Number:
 Figure 84



A628 Whinby Road Impact - Weekday AM Peak Hour



A628 Whinby Road Impact - Weekday PM Peak Hour

Key:

- End Point (As per the study area extent of the Transport Assessment)
- Highway Network

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



Client:
 Strata Sterling Barnsley West Limited

Project:
 Proposed MU1 Residential and Employment Site, Barnsley

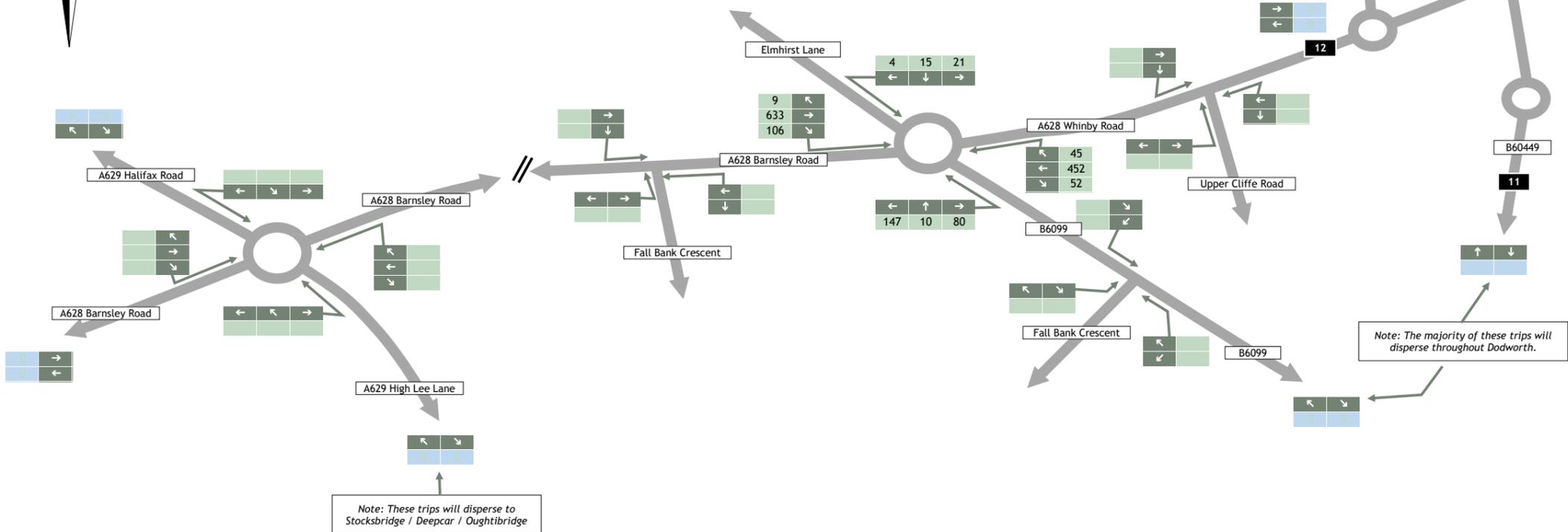
Figure Title:
 2026 Employment Development Traffic Flows - A628 Whinby Road (AM and PM Peak Hours)

Scale:
 Not to scale

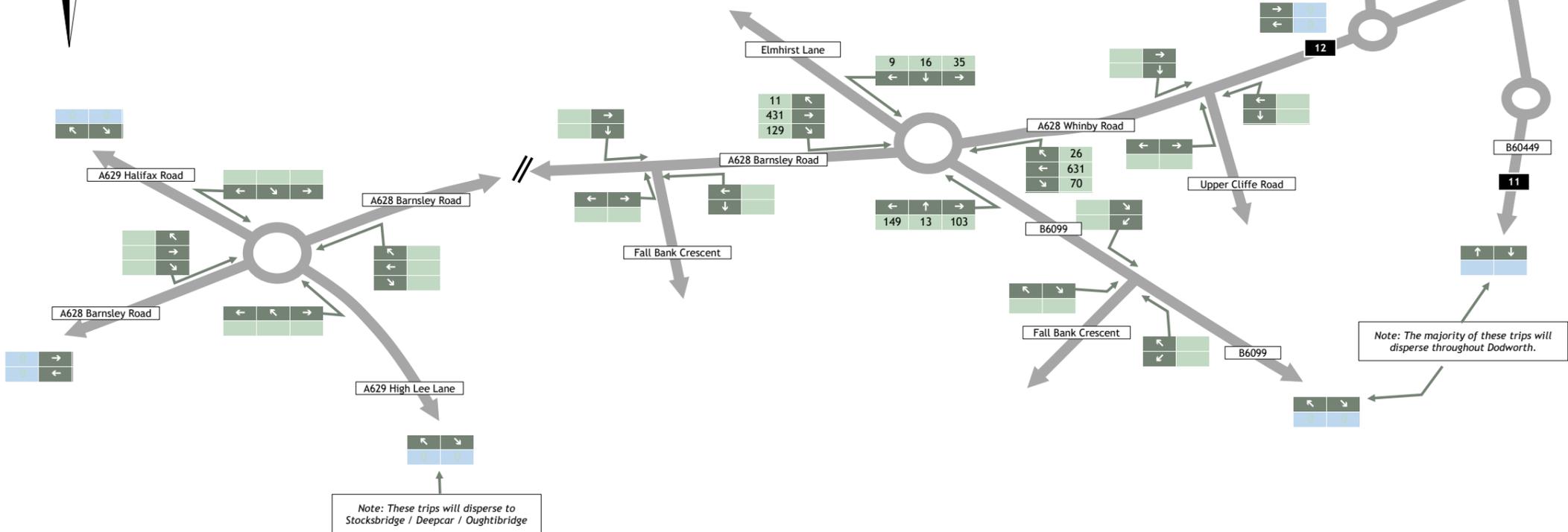
Figure Status:
 Issue

Job Number:
 3062

Figure Number:
 Figure 85



A628 Whinby Road Impact - Weekday AM Peak Hour



A628 Whinby Road Impact - Weekday PM Peak Hour

Key:

1 End Point (As per the study area extent of the Transport Assessment)

→ Highway Network

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



Client:
 Strata Sterling Barnsley West Limited

Project:
 Proposed MU1 Residential and Employment Site, Barnsley

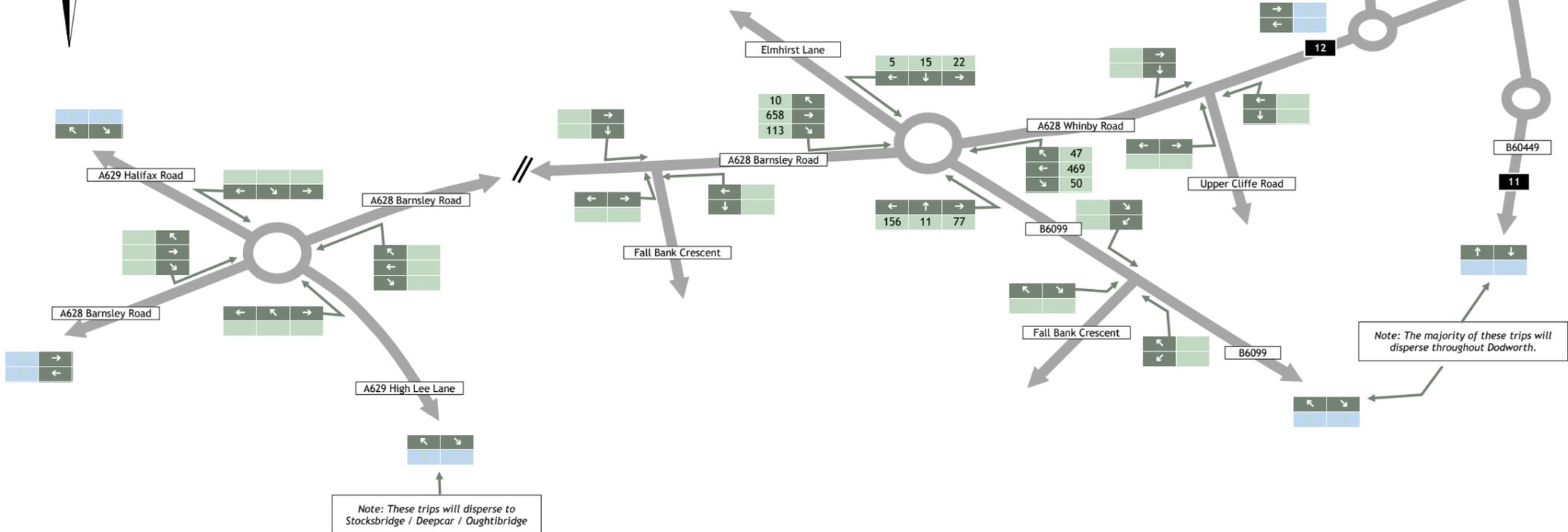
Figure Title:
 2026 Phase 1 Development Traffic Flows - A628 Whinby Road (AM and PM Peak Hours)

Scale:
 Not to scale

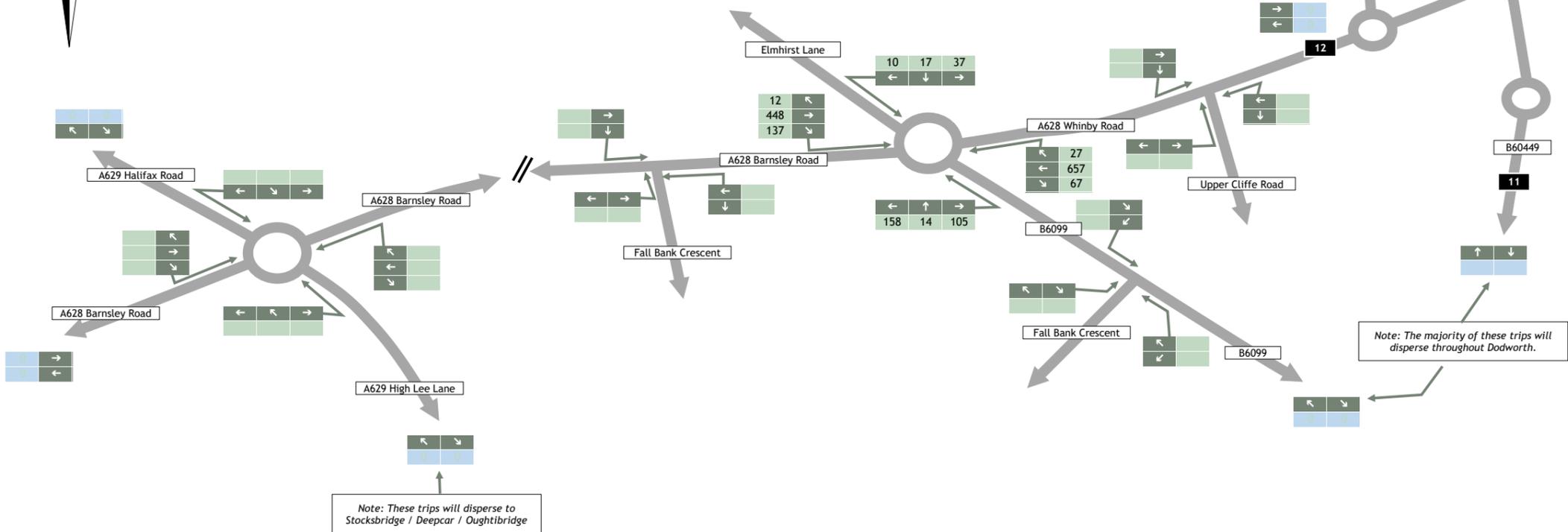
Figure Status:
 Issue

Job Number:
 3062

Figure Number:
 Figure 86



A628 Whinby Road Impact - Weekday AM Peak Hour



A628 Whinby Road Impact - Weekday PM Peak Hour

Key:

- End Point (As per the study area extent of the Transport Assessment)
- Highway Network

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



Client:
 Strata Sterling Barnsley West Limited

Project:
 Proposed MU1 Residential and Employment Site, Barnsley

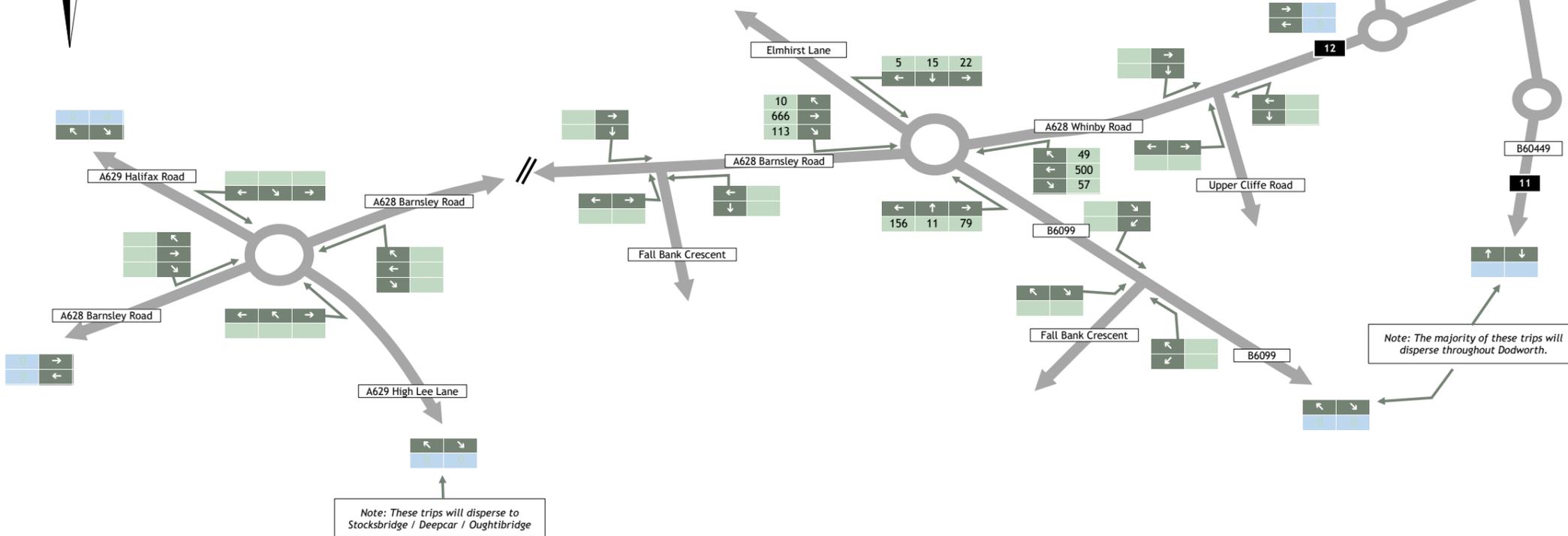
Figure Title:
 2033 Do Minimum Traffic Flows - A628 Whinby Road (AM and PM Peak Hours)

Scale:
 Not to scale

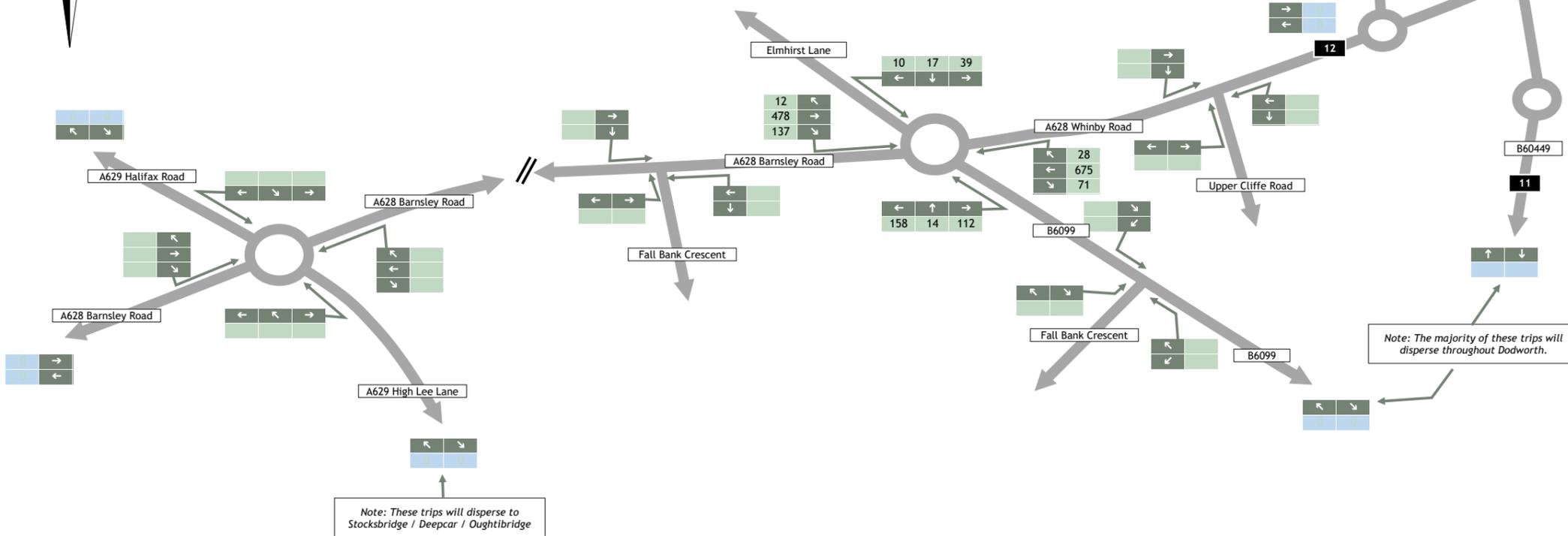
Figure Status:
 Issue

Job Number:
 3062

Figure Number:
 Figure 87



A628 Whinby Road Impact - Weekday AM Peak Hour



A628 Whinby Road Impact - Weekday PM Peak Hour

Key:

1 End Point (As per the study area extent of the Transport Assessment)

→ Highway Network

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



Client:
 Strata Sterling Barnsley West Limited

Project:
 Proposed MU1 Residential and Employment Site, Barnsley

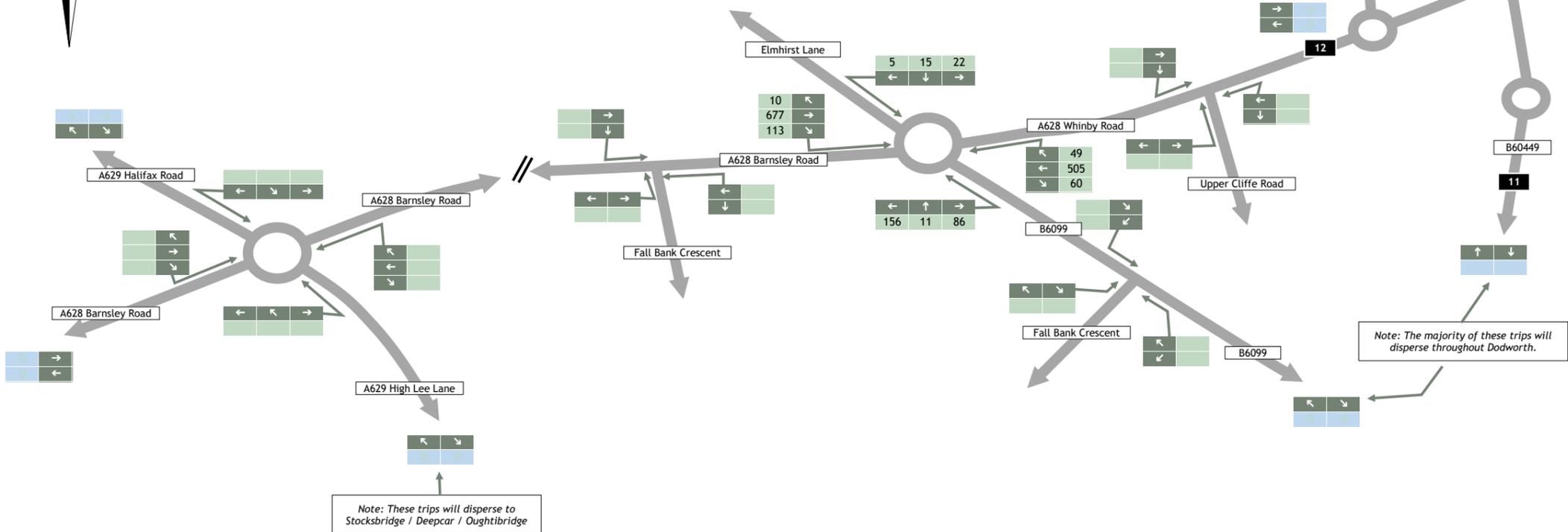
Figure Title:
 2033 Full Residential Development Traffic Flows - A628 Whinby Road (AM and PM Peak Hours)

Scale:
 Not to scale

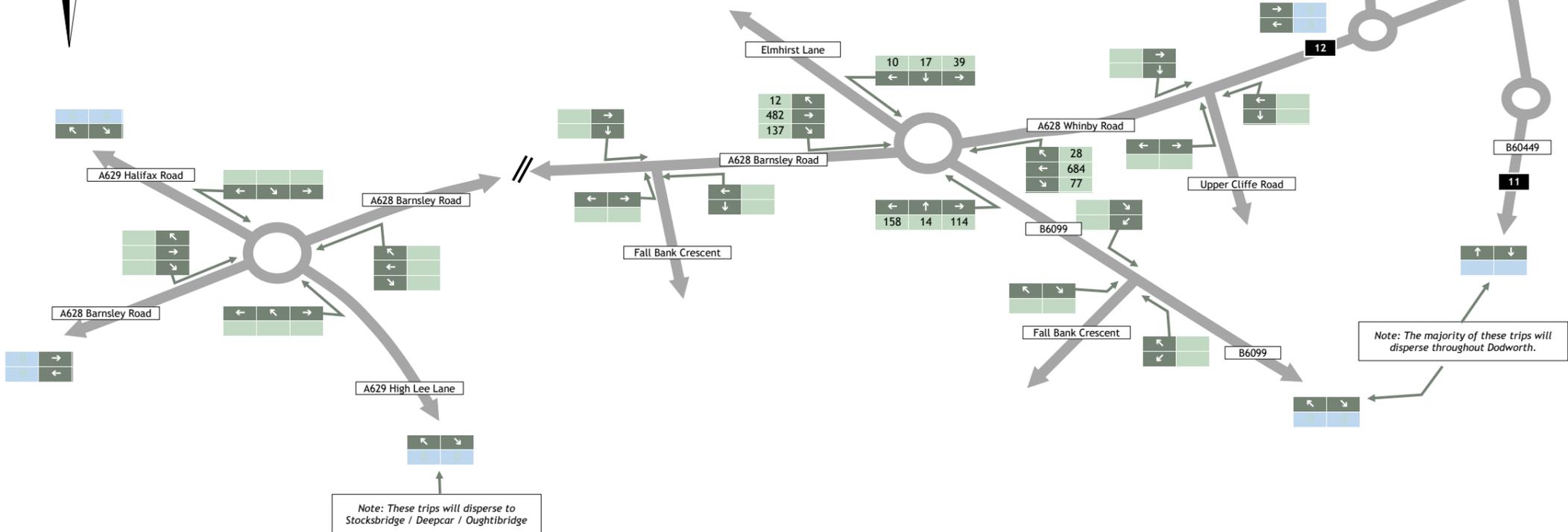
Figure Status:
 Issue

Job Number:
 3062

Figure Number:
 Figure 88



A628 Whinby Road Impact - Weekday AM Peak Hour



A628 Whinby Road Impact - Weekday PM Peak Hour

Key:

- End Point (As per the study area extent of the Transport Assessment)
- Highway Network

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



Client:
 Strata Sterling Barnsley West Limited

Project:
 Proposed MU1 Residential and Employment Site, Barnsley

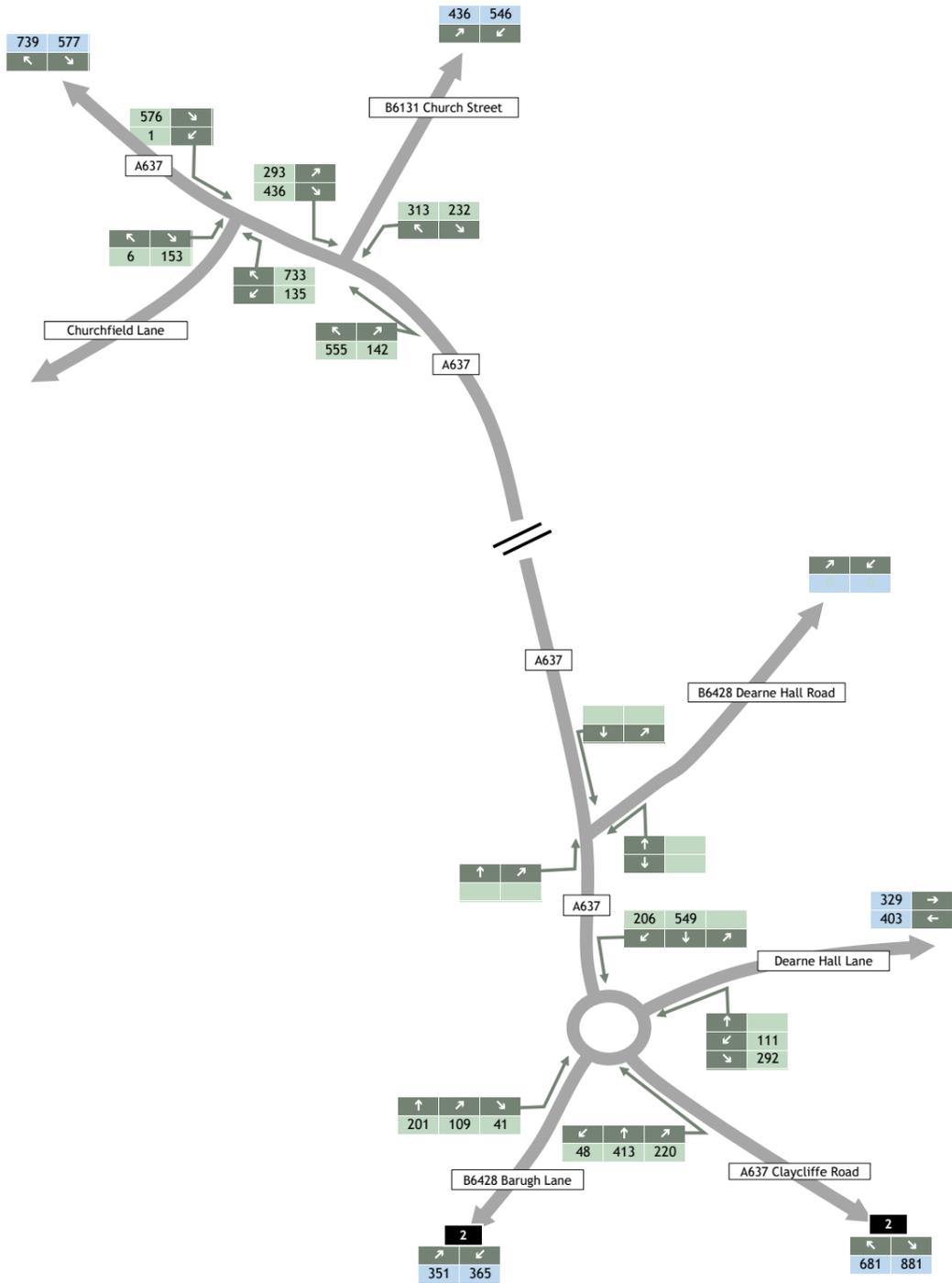
Figure Title:
 2033 Full Development Traffic Flows - A628 Whinby Road (AM and PM Peak Hours)

Scale:
 Not to scale

Figure Status:
 Issue

Job Number:
 3062

Figure Number:
 Figure 89



A637 Corridor (North) - Weekday AM Peak Hour



A637 Corridor (North) - Weekday PM Peak Hour

Key:

- End Point (As per the study area extent of the Transport Assessment)
- Highway Network

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



Client:
 Strata Sterling Barnsley West Ltd

Project:
 Proposed MU1 Residential and Employment Site, Barnsley

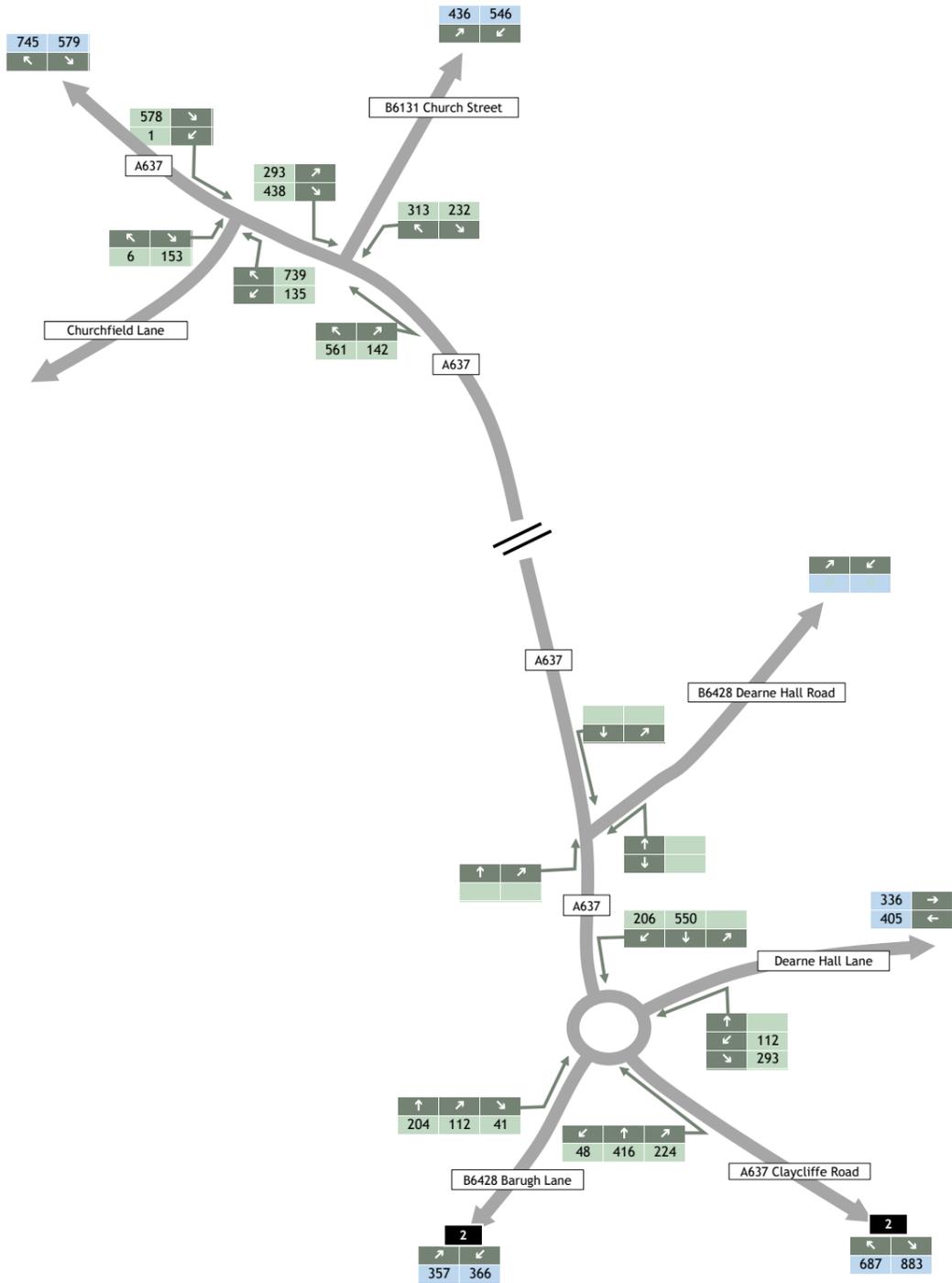
Figure Title:
 2026 Do Minimum Traffic Flows - A637 (AM and PM Peak Hours)

Scale:
 Not to scale

Figure Status:
 Issue

Job Number:
 3062

Figure Number:
 Figure 90



A637 Corridor (North) - Weekday AM Peak Hour



A637 Corridor (North) - Weekday PM Peak Hour

Key:

- End Point (As per the study area extent of the Transport Assessment)
- Highway Network

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



Client:
 Strata Sterling Barnsley West Ltd

Project:
 Proposed MU1 Residential and Employment Site, Barnsley

Figure Title:
 2026 Residential Phase1a Development Traffic Flows - A637
 (AM and PM Peak Hours)

Scale:
 Not to scale

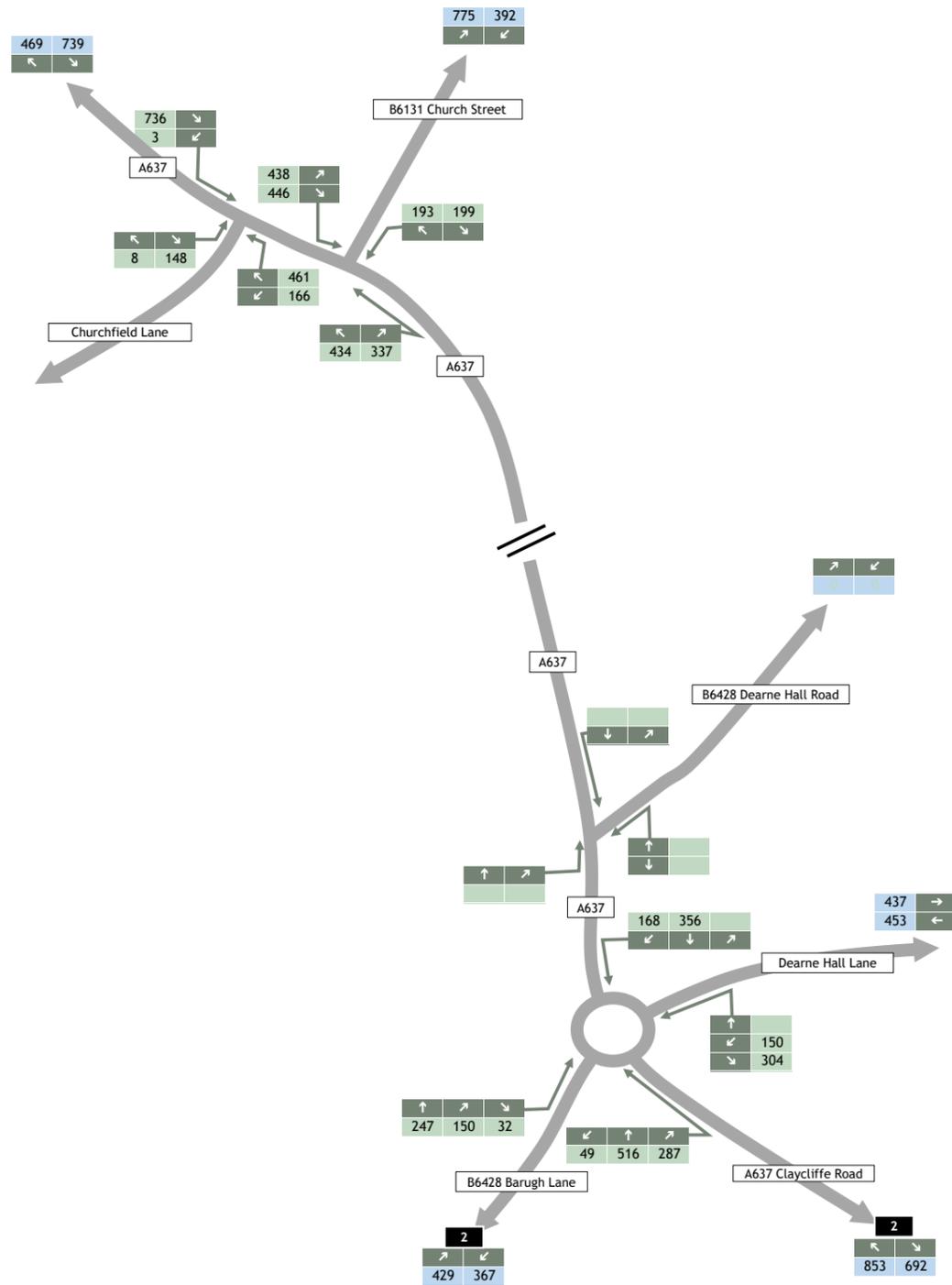
Figure Status:
 Issue

Job Number:
 3062

Figure Number:
 Figure 91



A637 Corridor (North) - Weekday AM Peak Hour



A637 Corridor (North) - Weekday PM Peak Hour

Key:



End Point (As per the study area extent of the Transport Assessment)



Highway Network

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



Client:

Strata Sterling Barnsley West Ltd

Project:

Proposed MU1 Residential and Employment Site, Barnsley

Figure Title:

2026 Employment Development Traffic Flows - A637 (AM and PM Peak Hours)

Scale:

Not to scale

Figure Status:

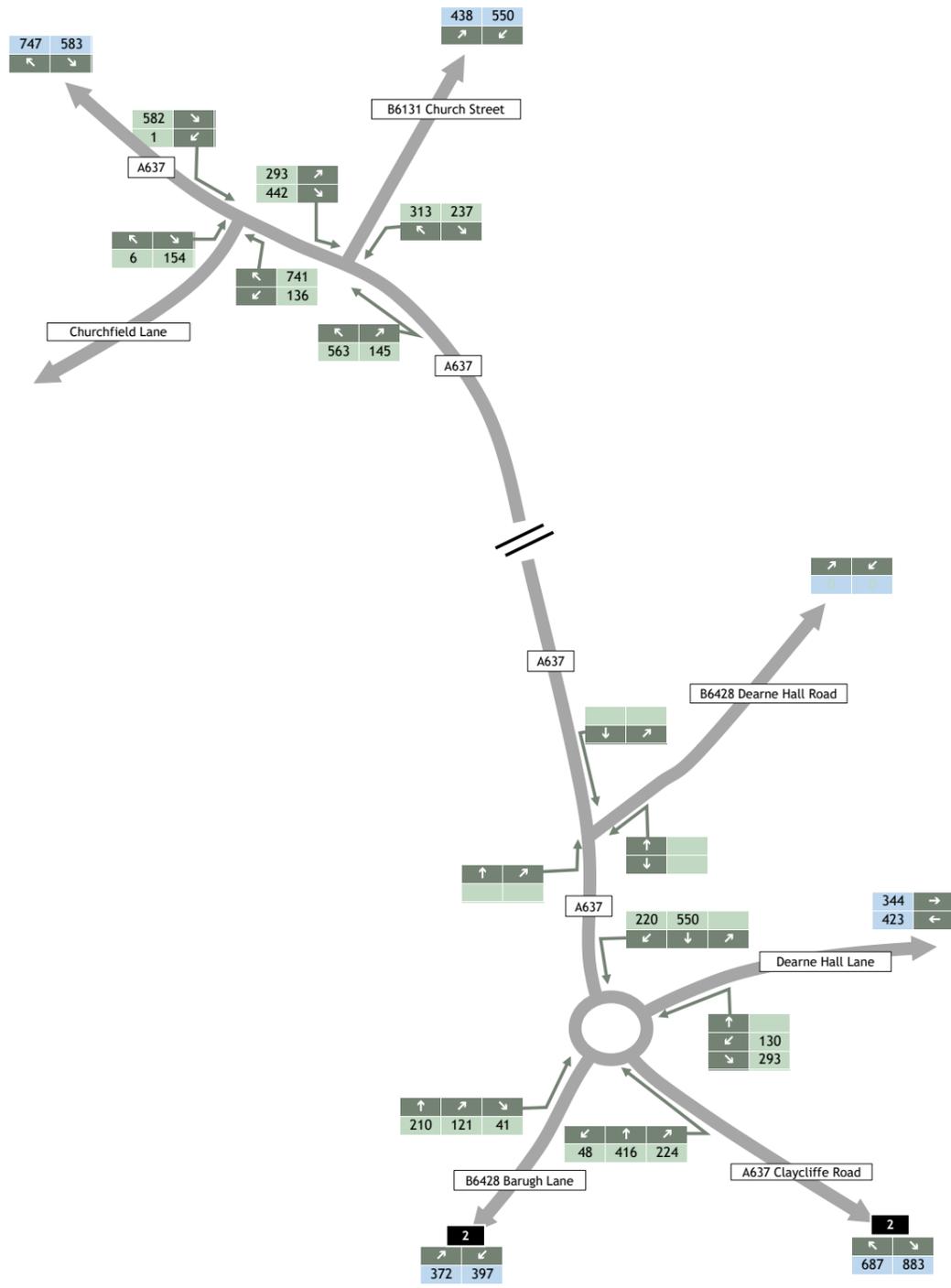
Issue

Job Number:

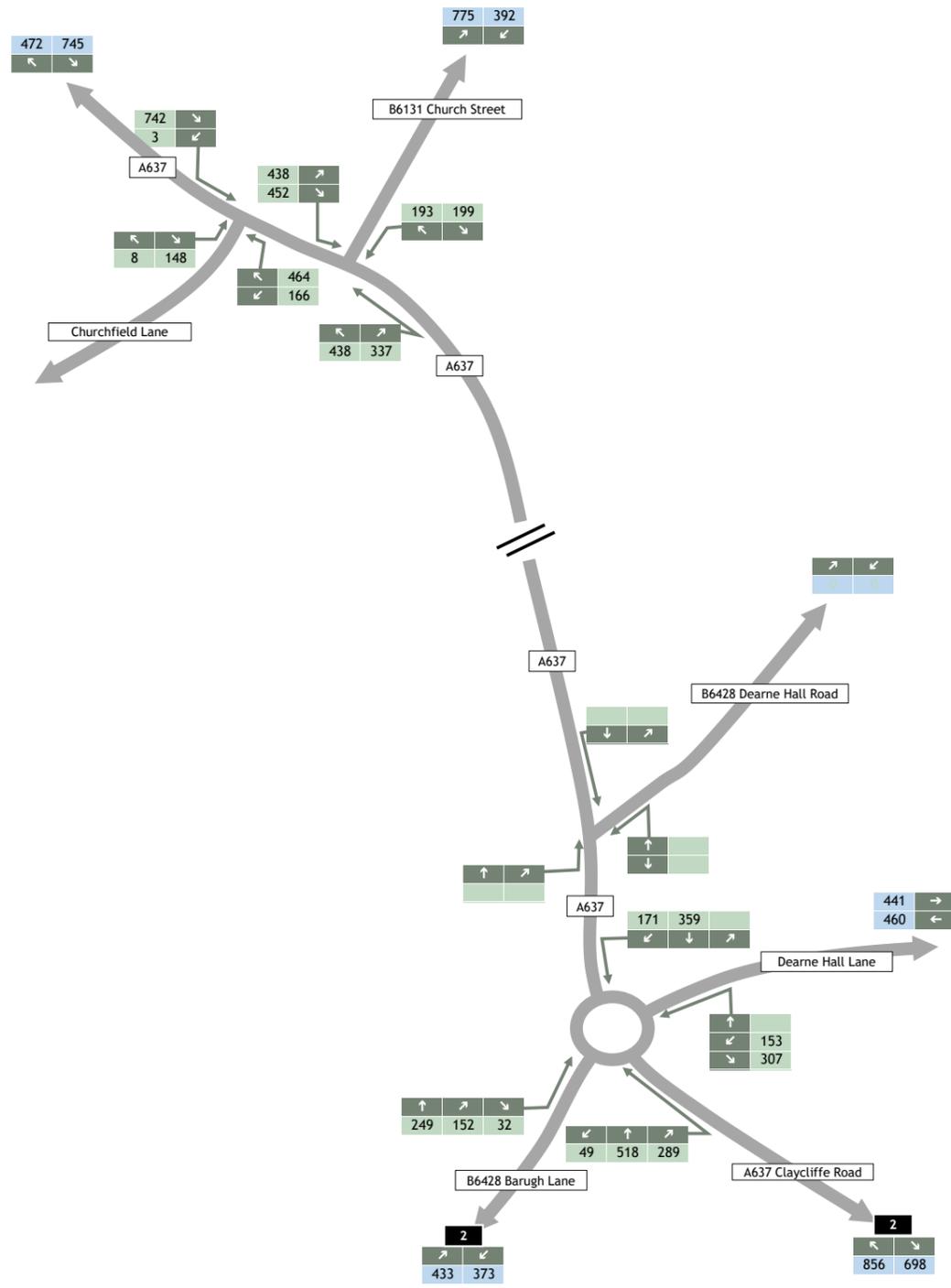
3062

Figure Number:

Figure 92



A637 Corridor (North) - Weekday AM Peak Hour



A637 Corridor (North) - Weekday PM Peak Hour

Key:

- End Point (As per the study area extent of the Transport Assessment)
- Highway Network

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



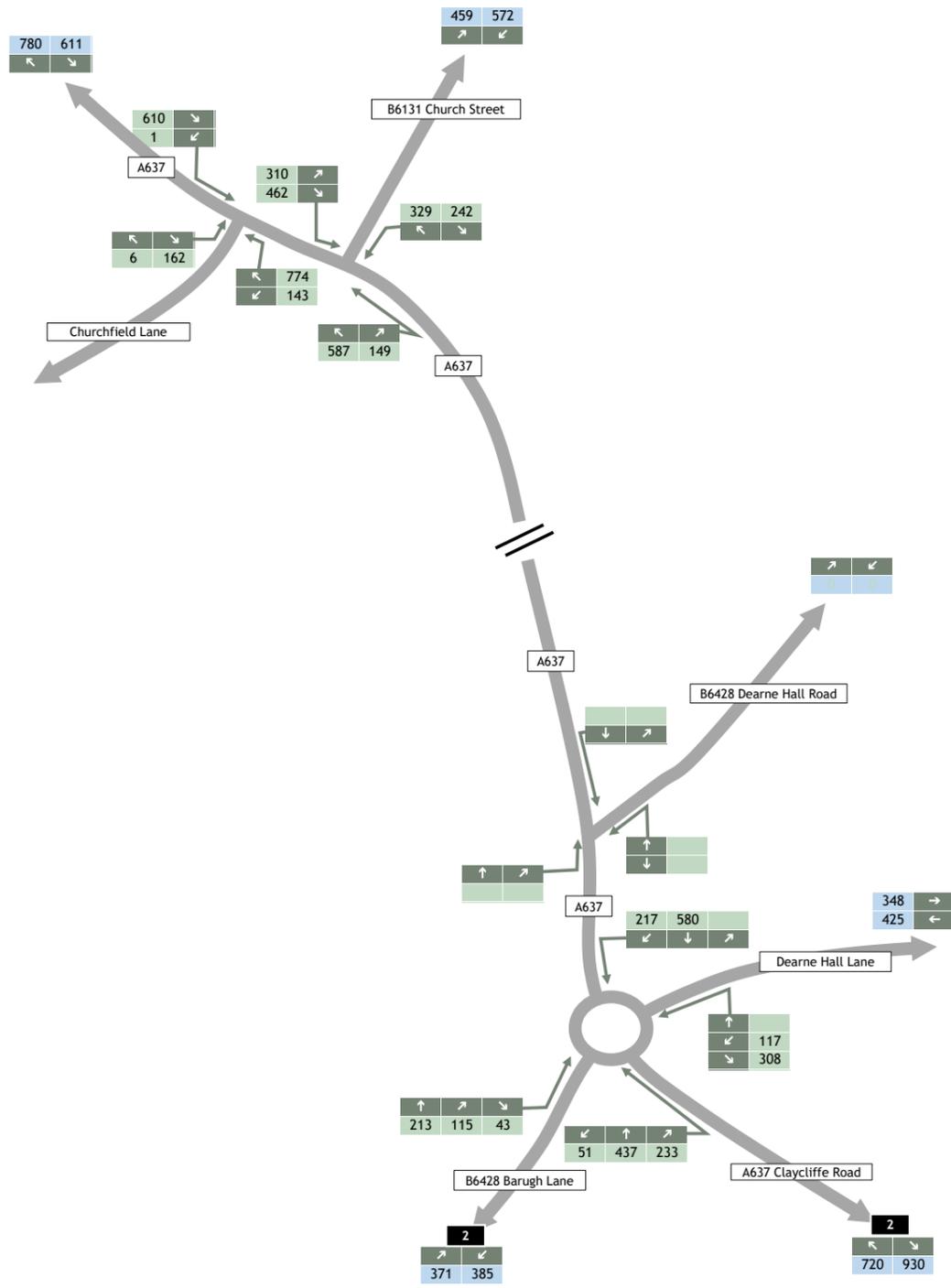
Client: Strata Sterling Barnsley West Ltd

Project: Proposed MU1 Residential and Employment Site, Barnsley

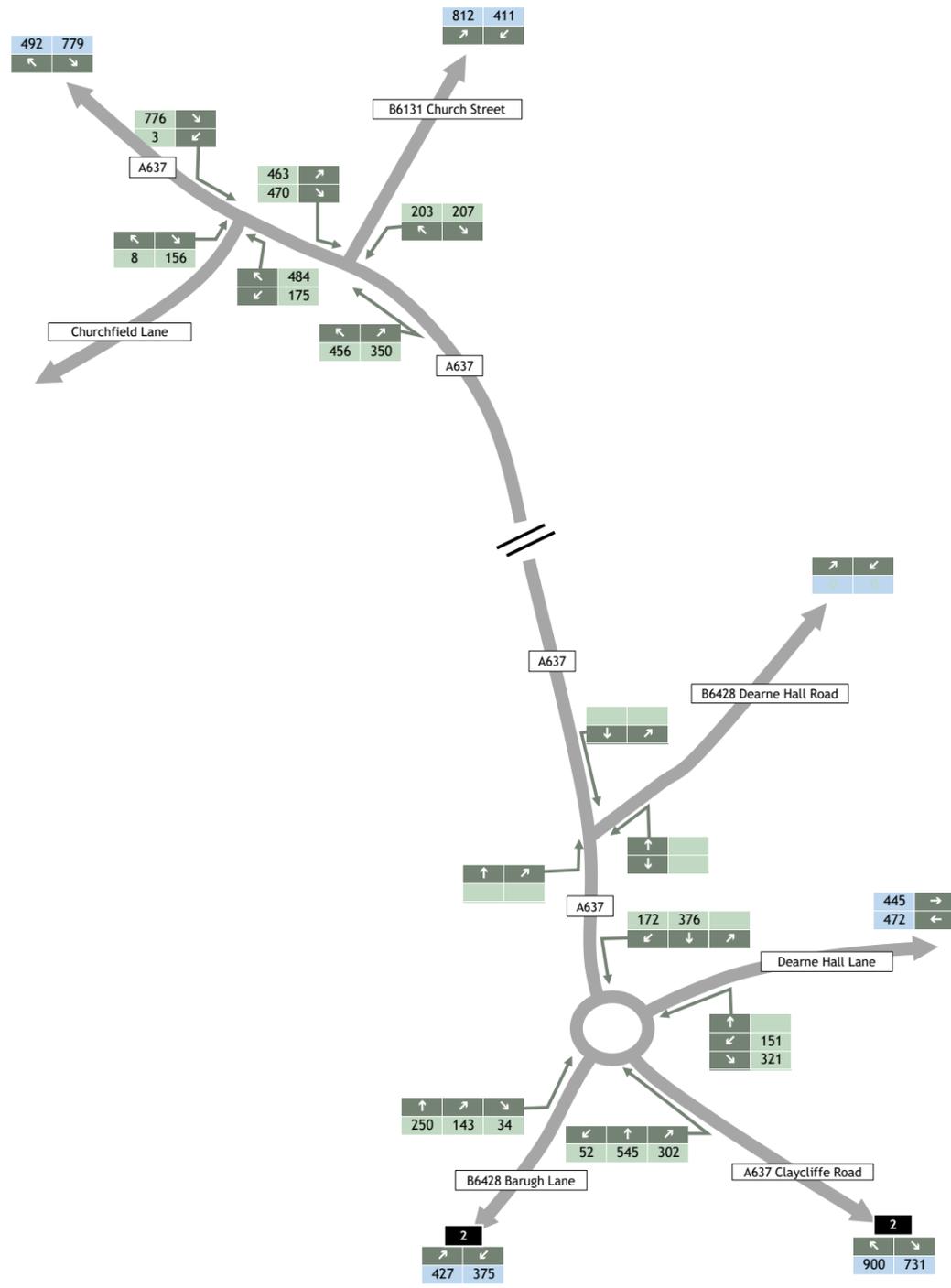
Figure Title: 2026 Phase 1 Development Traffic Flows - A637 (AM and PM Peak Hours)

Scale: Not to scale | Figure Status: Issue

Job Number: 3062 | Figure Number: Figure 93



A637 Corridor (North) - Weekday AM Peak Hour



A637 Corridor (North) - Weekday PM Peak Hour

Key:

- 1** End Point (As per the study area extent of the Transport Assessment)
- Highway Network

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

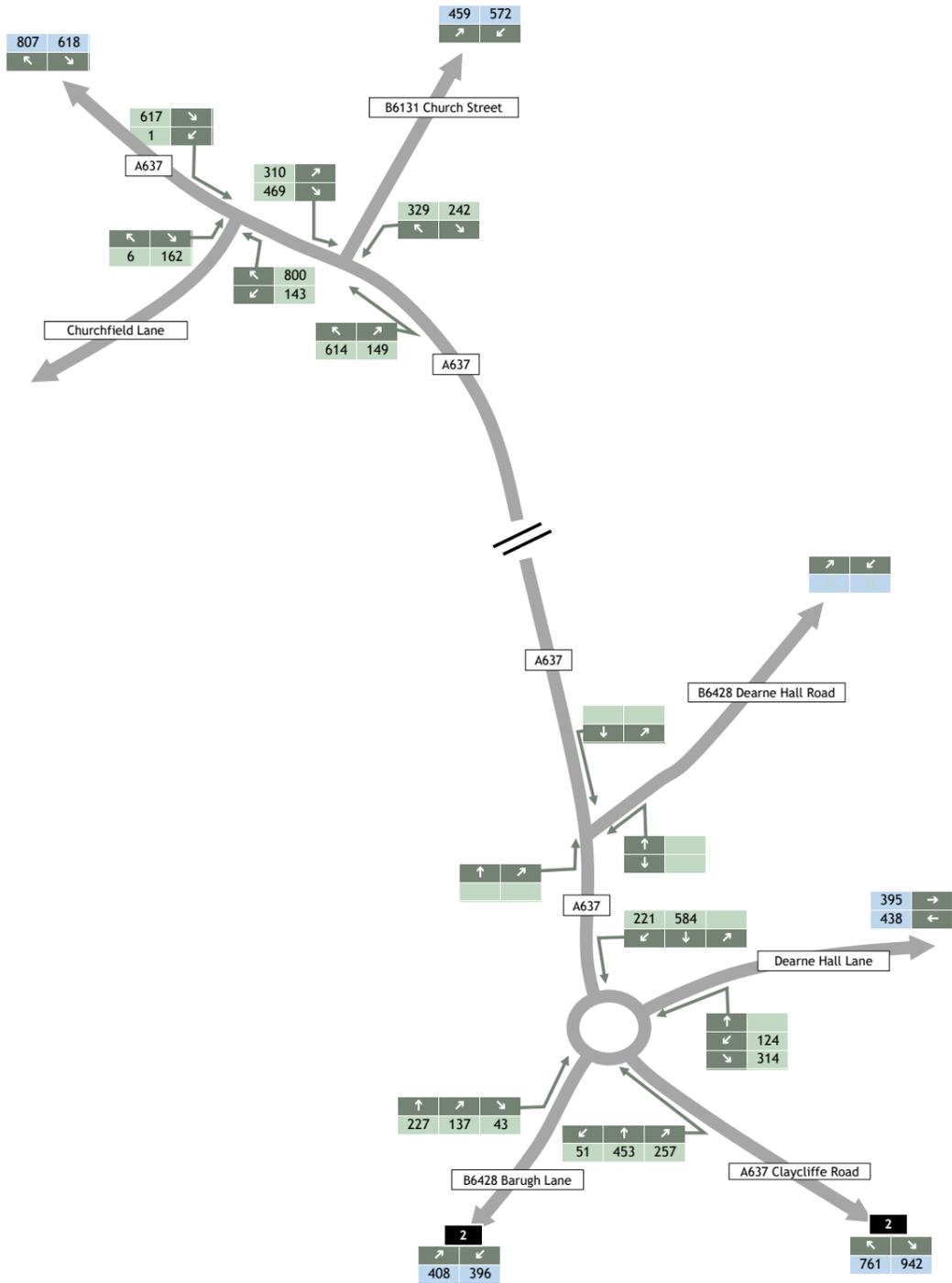
Client: Strata Sterling Barnsley West Ltd

Project: Proposed MU1 Residential and Employment Site, Barnsley

Figure Title: 2033 Do Minimum Traffic Flows - A637 (AM and PM Peak Hours)

Scale: Not to scale	Figure Status: Issue
------------------------	-------------------------

Job Number: 3062	Figure Number: Figure 94
---------------------	-----------------------------



A637 Corridor (North) - Weekday AM Peak Hour



A637 Corridor (North) - Weekday PM Peak Hour

Key:

- 1** End Point (As per the study area extent of the Transport Assessment)
- Highway Network

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



Client:
 Strata Sterling Barnsley West Ltd

Project:
 Proposed MU1 Residential and Employment Site, Barnsley

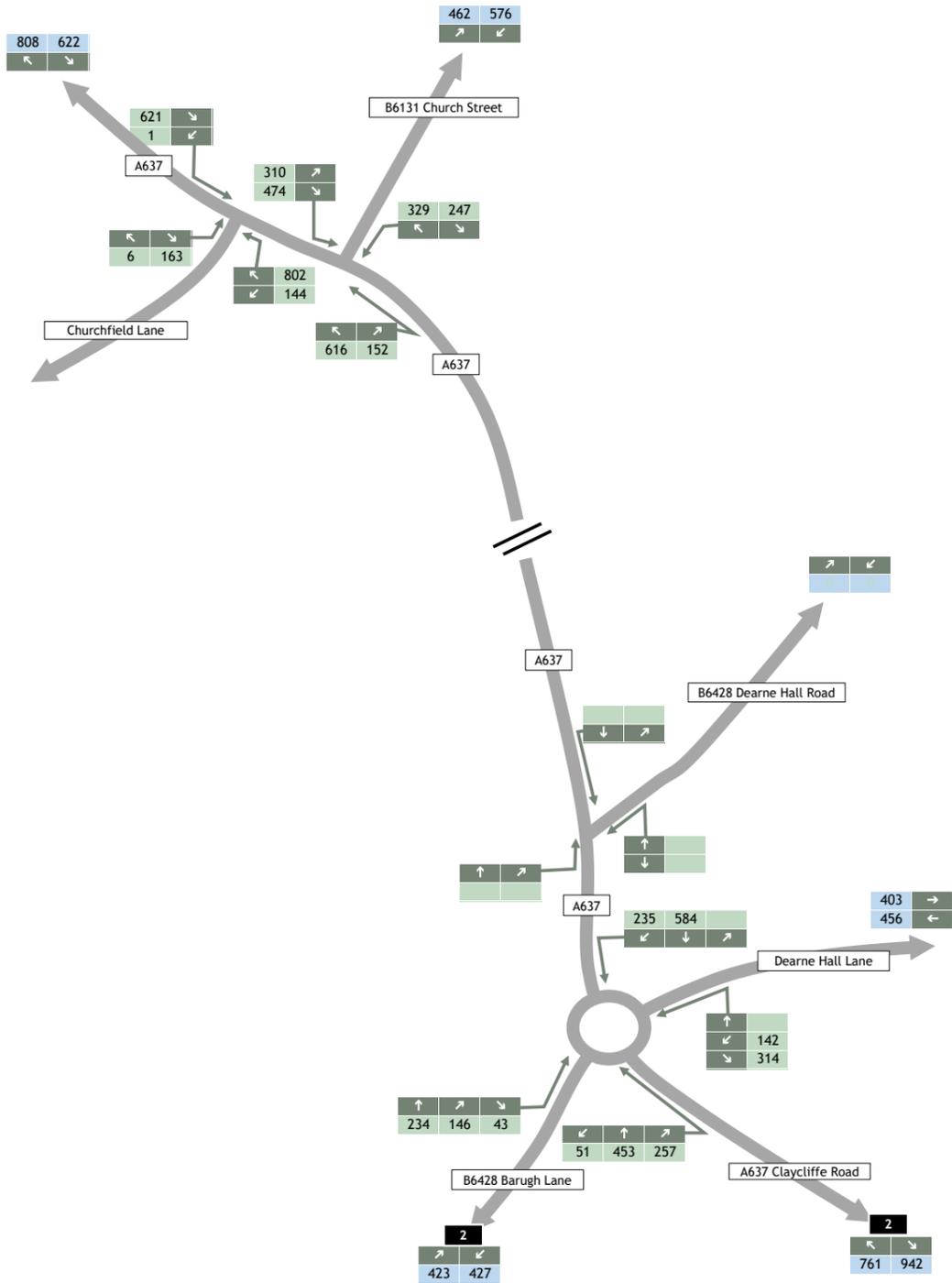
Figure Title:
 2033 Full Residential Development Traffic Flows - A637 (AM and PM Peak Hours)

Scale:
 Not to scale

Figure Status:
 Issue

Job Number:
 3062

Figure Number:
 Figure 95



A637 Corridor (North) - Weekday AM Peak Hour



A637 Corridor (North) - Weekday PM Peak Hour

Key:

- End Point (As per the study area extent of the Transport Assessment)
- Highway Network

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



Client:
 Strata Sterling Barnsley West Ltd

Project:
 Proposed MU1 Residential and Employment Site, Barnsley

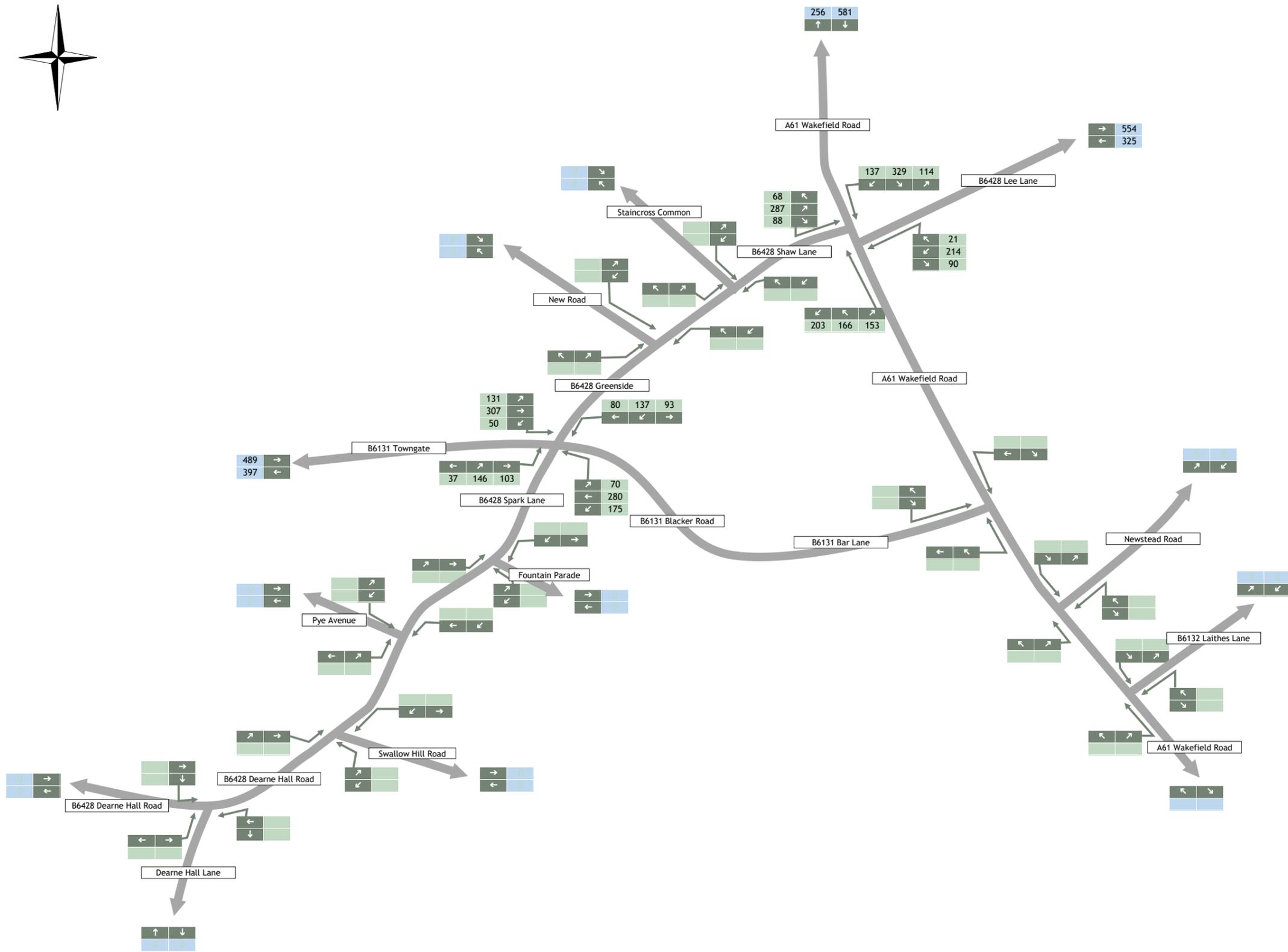
Figure Title:
 2033 Full Development Traffic Flows - A637 (AM and PM Peak Hours)

Scale:
 Not to scale

Figure Status:
 Issue

Job Number:
 3062

Figure Number:
 Figure 96



Key:

1 End Point (As per the study area extent of the Transport Assessment)

Highway Network

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



Client:
 Strata Sterling Barnsley West Ltd

Project:
 Proposed MU1 Residential and Employment Site, Barnsley

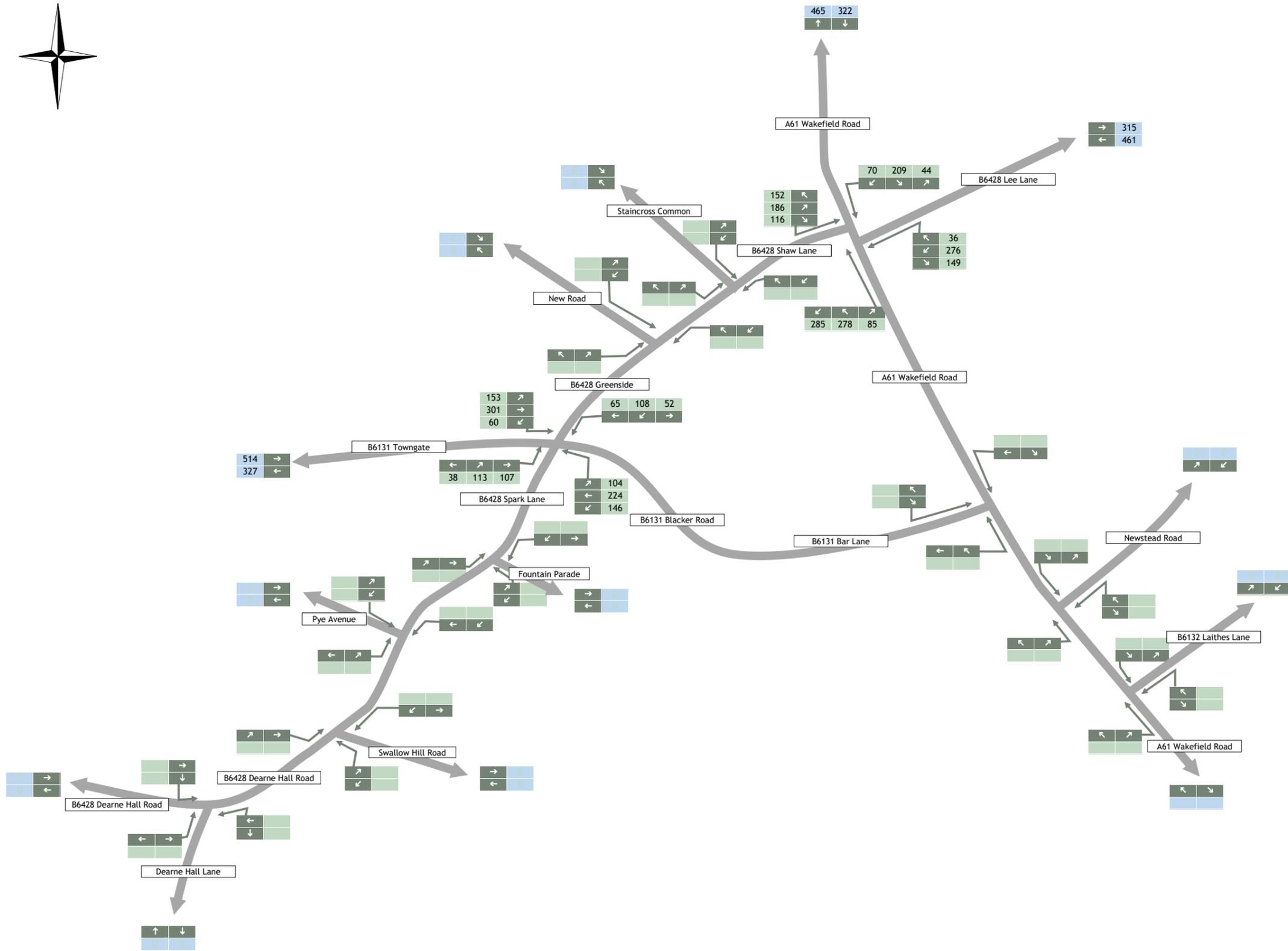
Figure Title:
 2026 Do Minimum Traffic Flows - B6428 (PM Peak Hour)

Scale:
 Not to scale

Figure Status:
 Issue

Job Number:
 3062

Figure Number:
 Figure 98



Key:

1 End Point (As per the study area extent of the Transport Assessment)

→ Highway Network

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



Client:
 Strata Sterling Barnsley West Ltd

Project:
 Proposed MU1 Residential and Employment Site, Barnsley

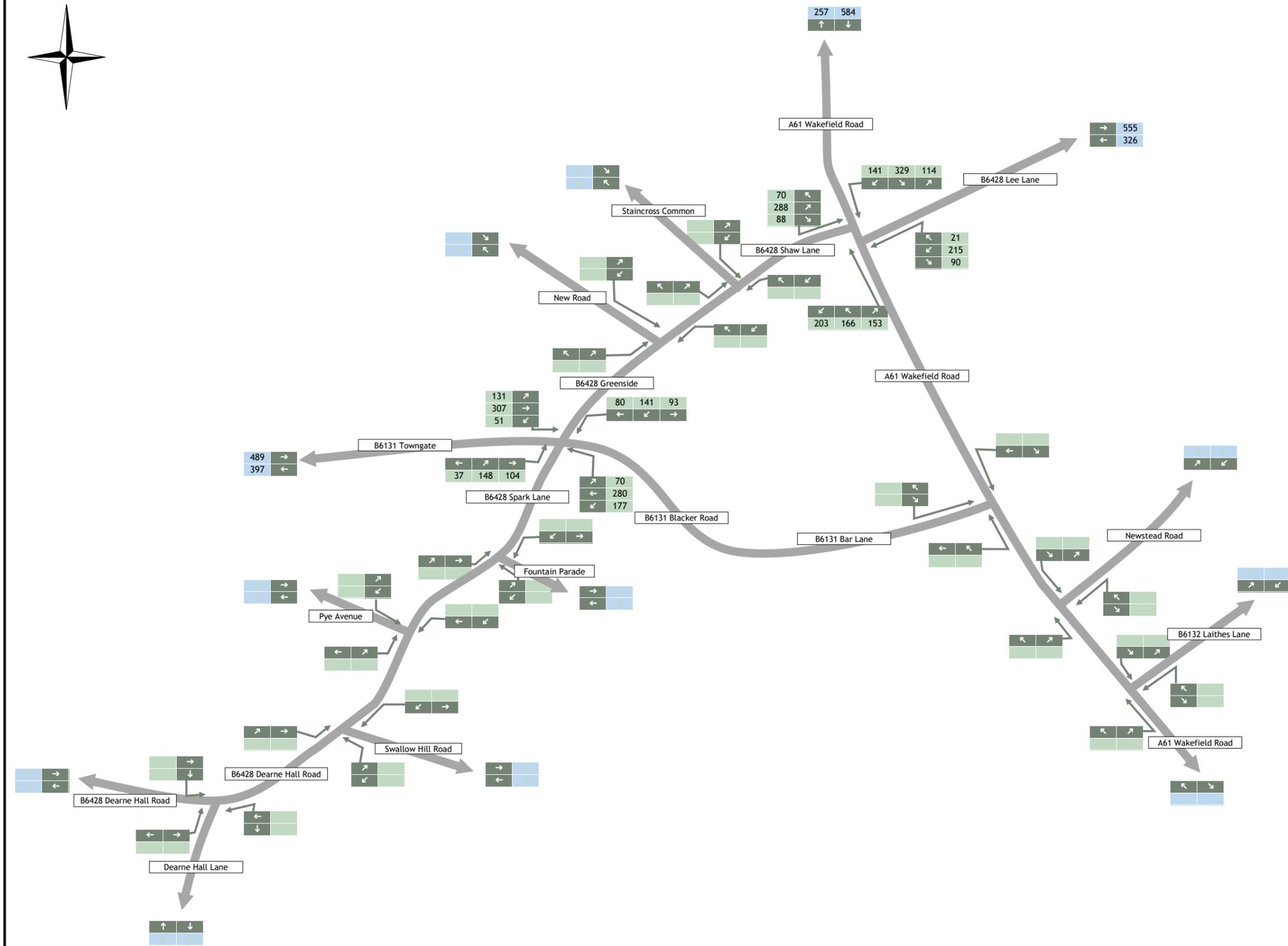
Figure Title:
 2026 Residential Phase1a Development Traffic Flows - B6428 (AM Peak Hour)

Scale:
 Not to scale

Figure Status:
 Issue

Job Number:
 3062

Figure Number:
 Figure 99



Key:

1 End Point (As per the study area extent of the Transport Assessment)

→ Highway Network

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



Client:
Strata Sterling Barnsley West Ltd

Project:
Proposed MU1 Residential and Employment Site, Barnsley

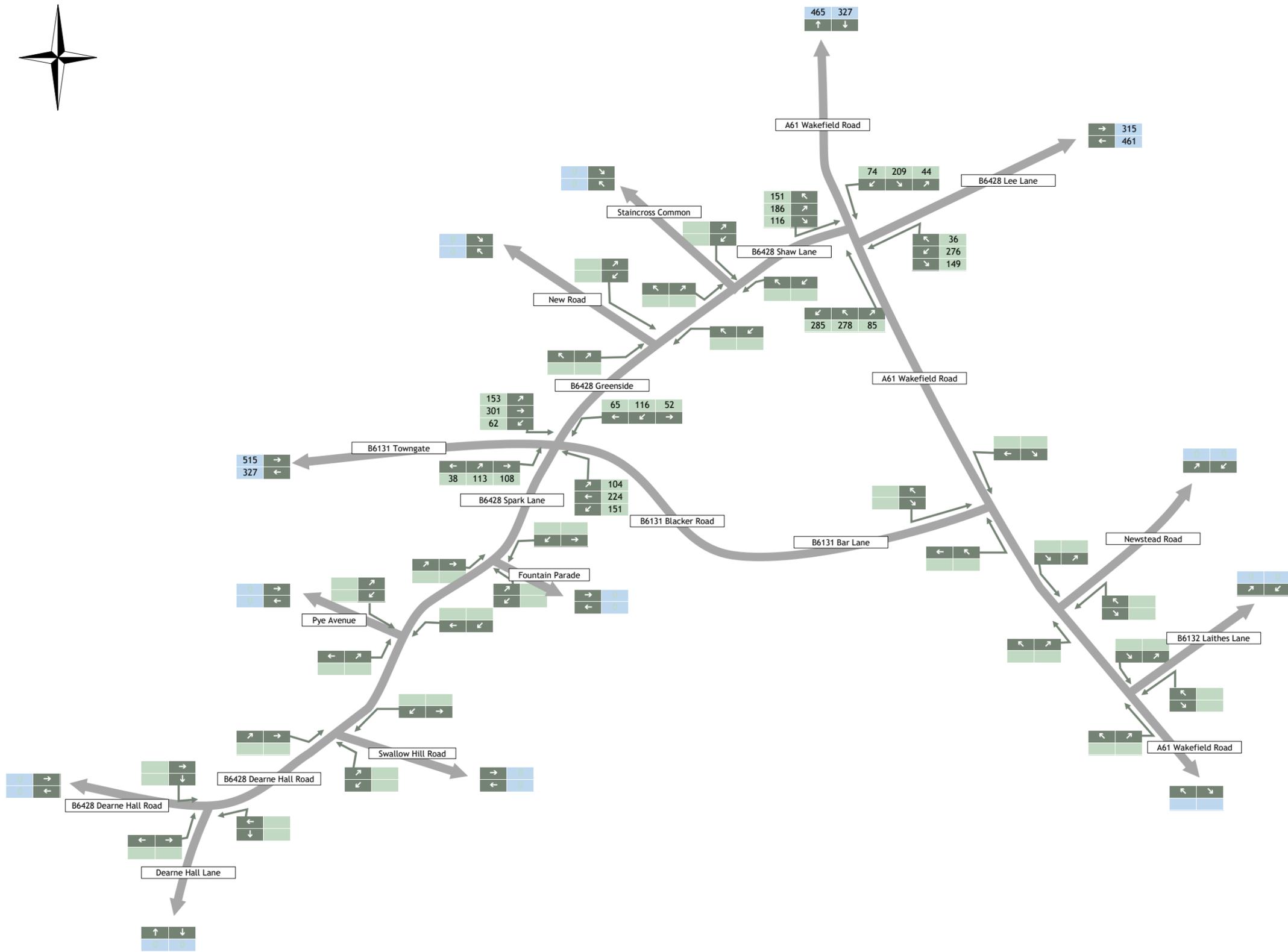
Figure Title:
2026 Residential Phase1a Development Traffic Flows - B6428 (AM Peak Hour)

Scale:
Not to scale

Figure Status:
Issue

Job Number:
3062

Figure Number:
Figure 100



Key:

1 End Point (As per the study area extent of the Transport Assessment)

→ Highway Network

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



Client:
 Strata Sterling Barnsley West Ltd

Project:
 Proposed MU1 Residential and Employment Site, Barnsley

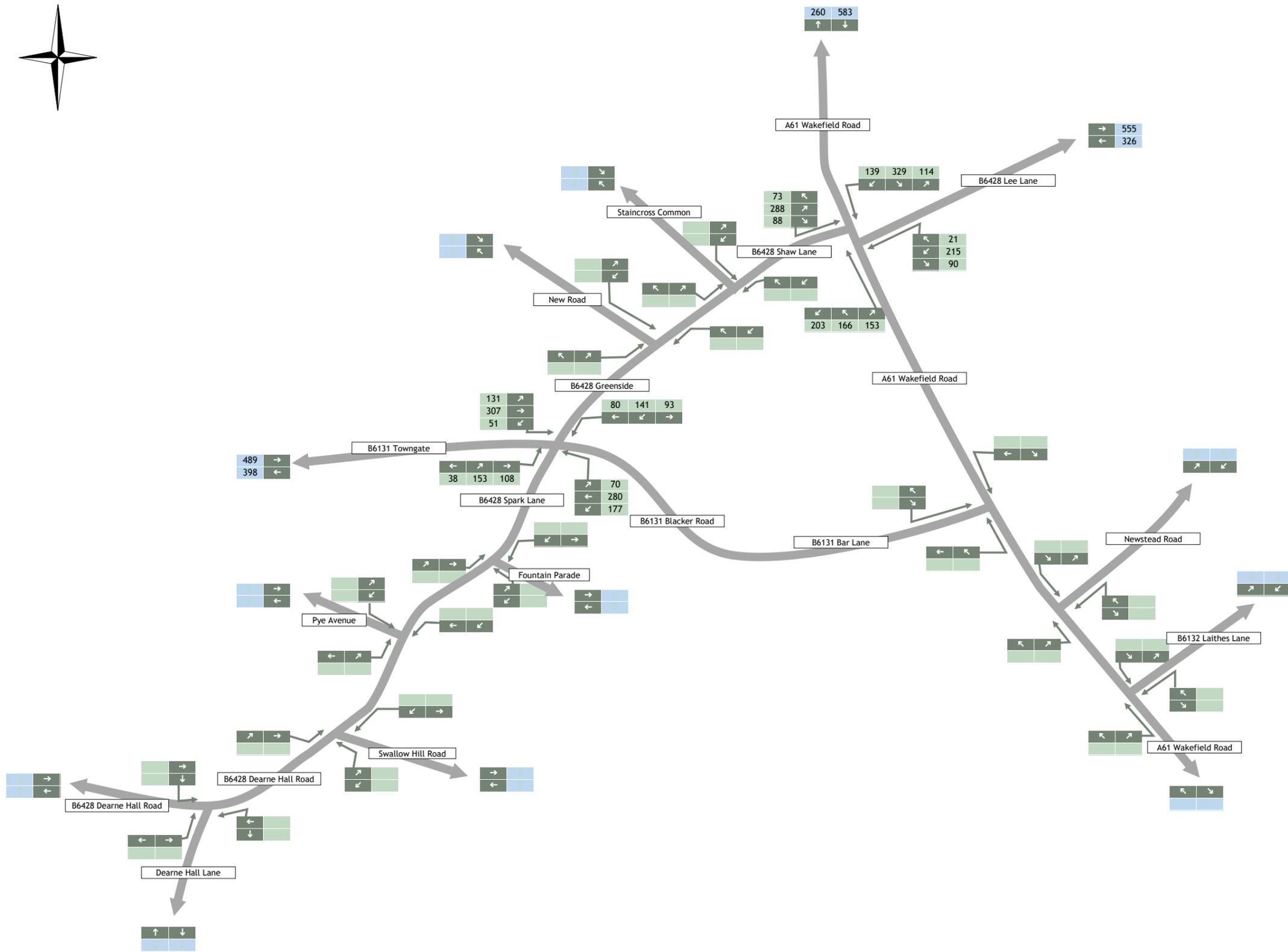
Figure Title:
 2026 Employment Development Traffic Flows - B6428 (AM Peak Hour)

Scale:
 Not to scale

Figure Status:
 Issue

Job Number:
 3062

Figure Number:
 Figure 101



Key:

1 End Point (As per the study area extent of the Transport Assessment)

Highway Network

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



Client:
 Strata Sterling Barnsley West Ltd

Project:
 Proposed MU1 Residential and Employment Site, Barnsley

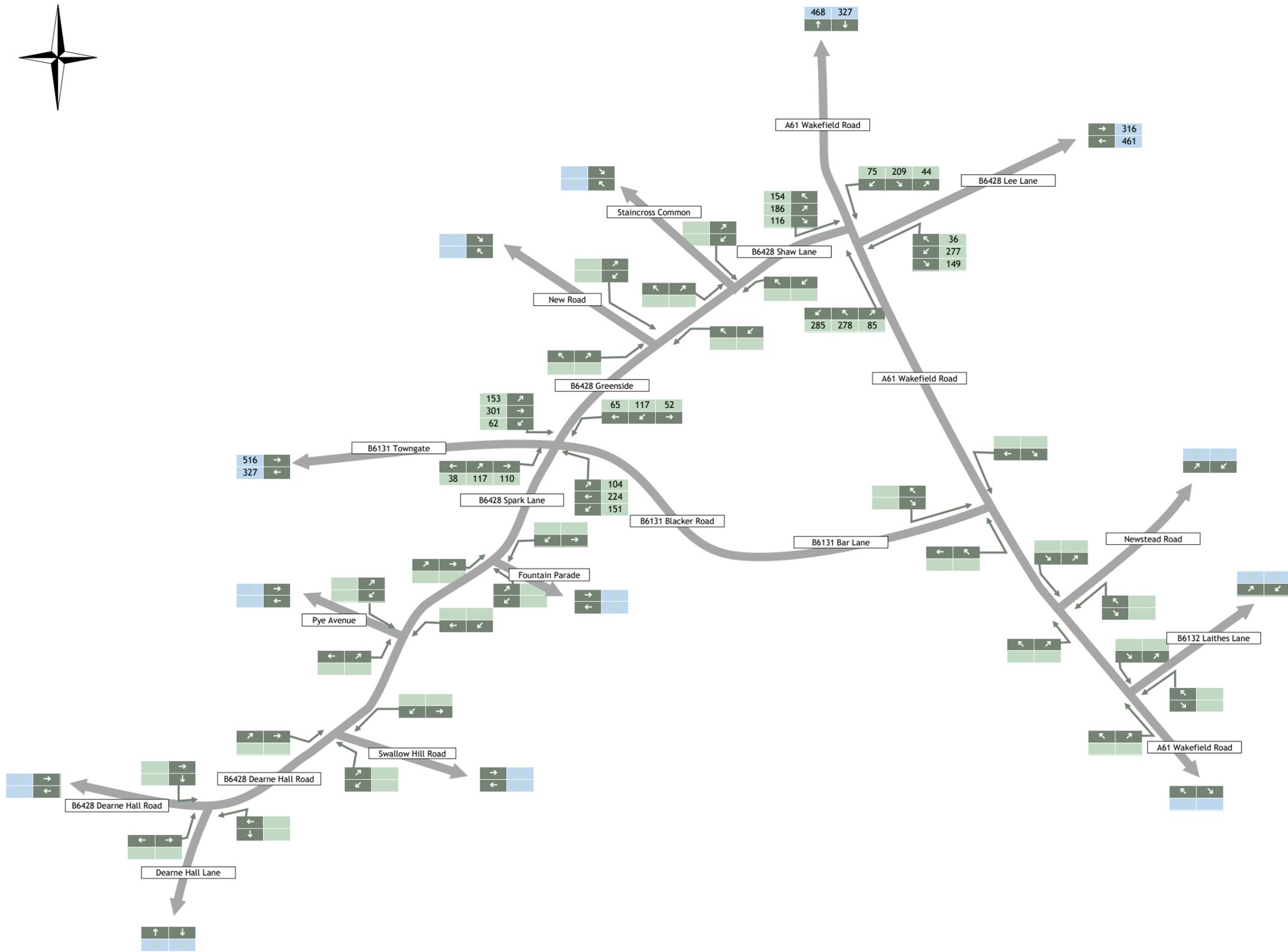
Figure Title:
 2026 Employment Development Traffic Flows - B6428 (PM Peak Hour)

Scale:
 Not to scale

Figure Status:
 Issue

Job Number:
 3062

Figure Number:
 Figure 102



Key:

1 End Point (As per the study area extent of the Transport Assessment)

→ Highway Network

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



Client:
 Strata Sterling Barnsley West Ltd

Project:
 Proposed MU1 Residential and Employment Site, Barnsley

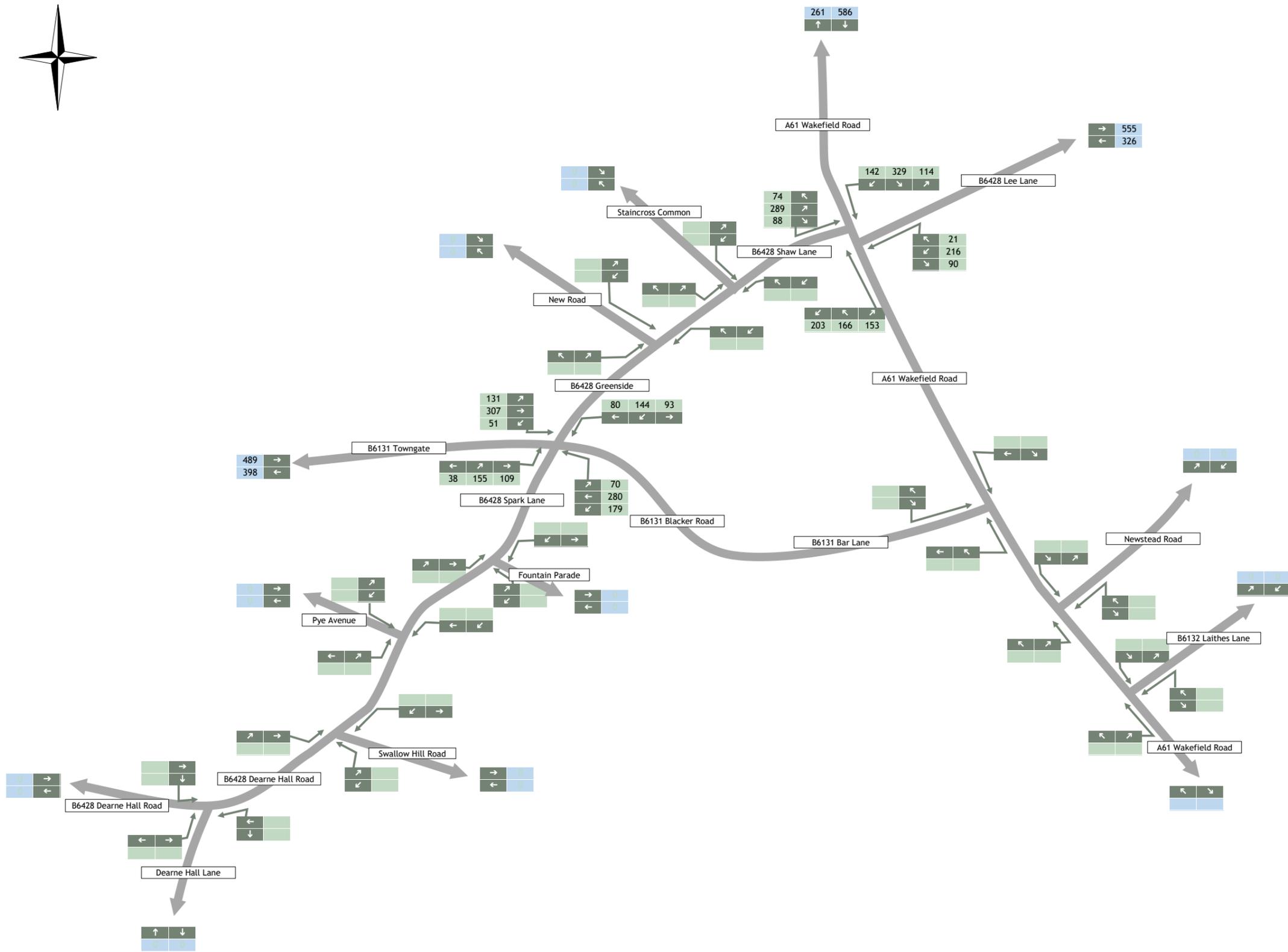
Figure Title:
 2026 Phase 1 Development Traffic Flows - B6428 (AM Peak Hour)

Scale:
 Not to scale

Figure Status:
 Issue

Job Number:
 3062

Figure Number:
 Figure 103



Key:

1 End Point (As per the study area extent of the Transport Assessment)

→ Highway Network

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



Client:
 Strata Sterling Barnsley West Ltd

Project:
 Proposed MU1 Residential and Employment Site, Barnsley

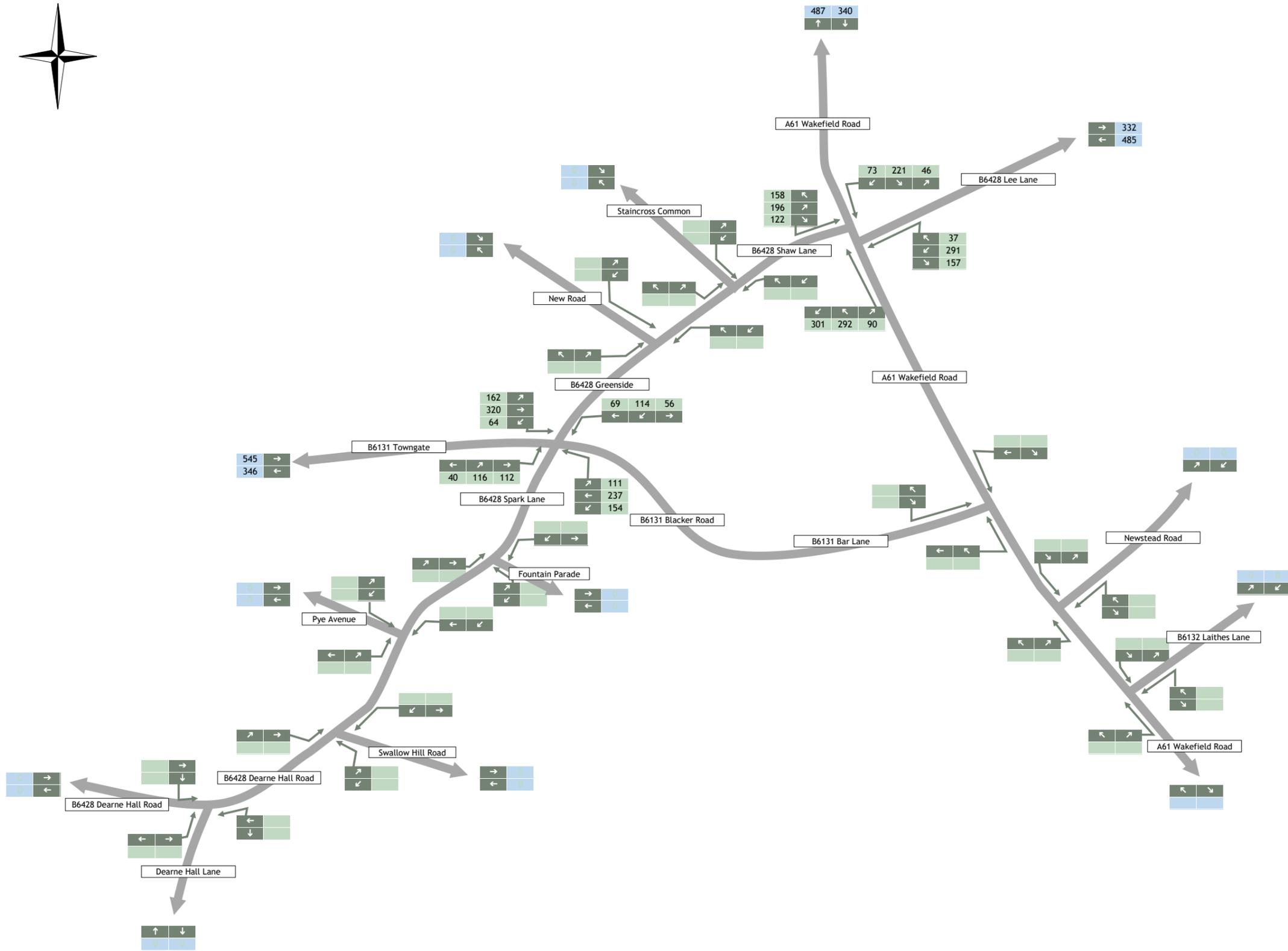
Figure Title:
 2026 Phase 1 Development Traffic Flows - B6428 (PM Peak Hour)

Scale:
 Not to scale

Figure Status:
 Issue

Job Number:
 3062

Figure Number:
 Figure 104



Key:

End Point (As per the study area extent of the Transport Assessment)

Highway Network

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



Client:
 Strata Sterling Barnsley West Ltd

Project:
 Proposed MU1 Residential and Employment Site, Barnsley

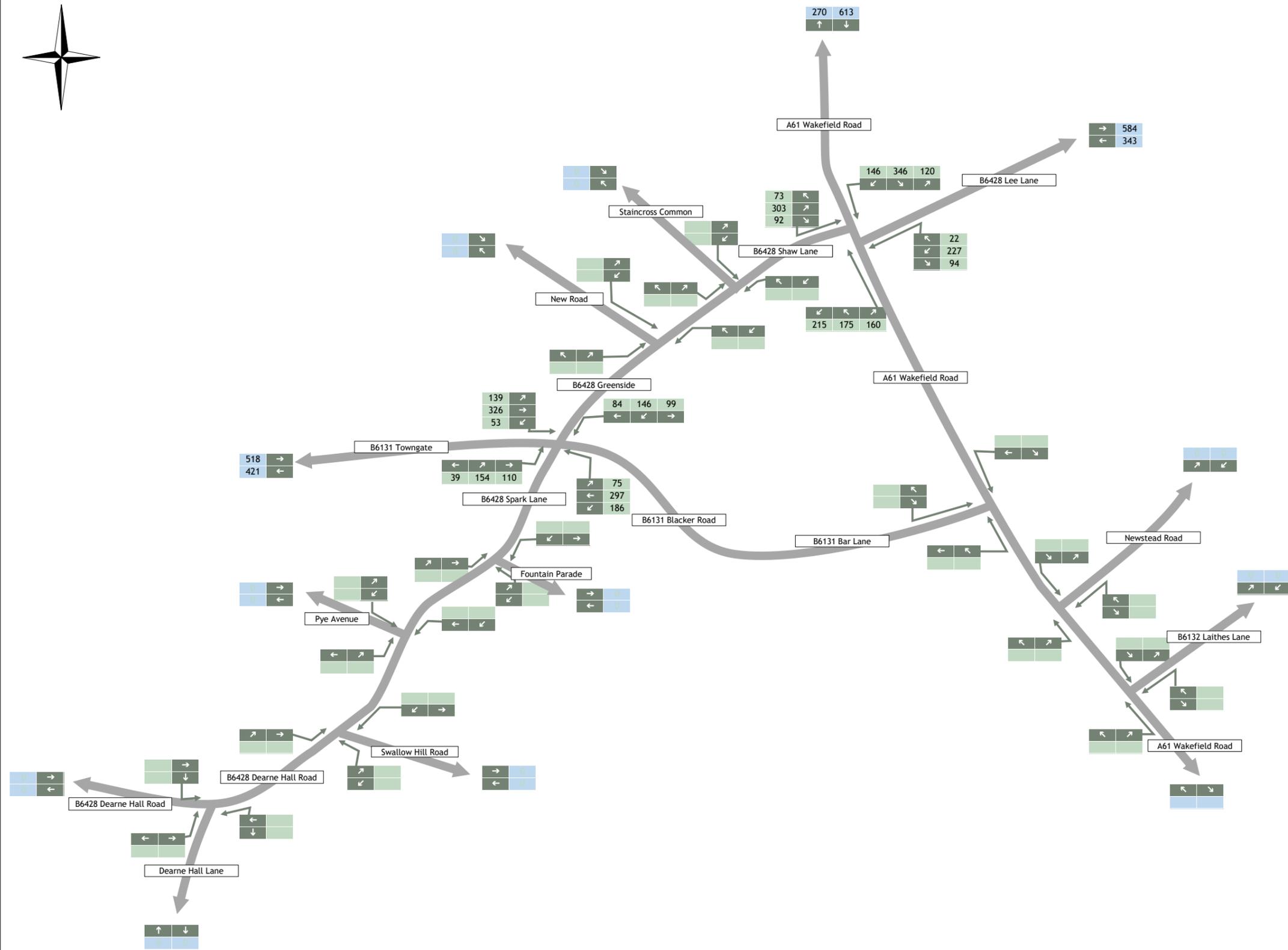
Figure Title:
 2033 Do Minimum Traffic Flows - B6428 (AM Peak Hour)

Scale:
 Not to scale

Figure Status:
 Issue

Job Number:
 3062

Figure Number:
 Figure 105



Key:

1 End Point (As per the study area extent of the Transport Assessment)

→ Highway Network

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



Client:
 Strata Sterling Barnsley West Ltd

Project:
 Proposed MU1 Residential and Employment Site, Barnsley

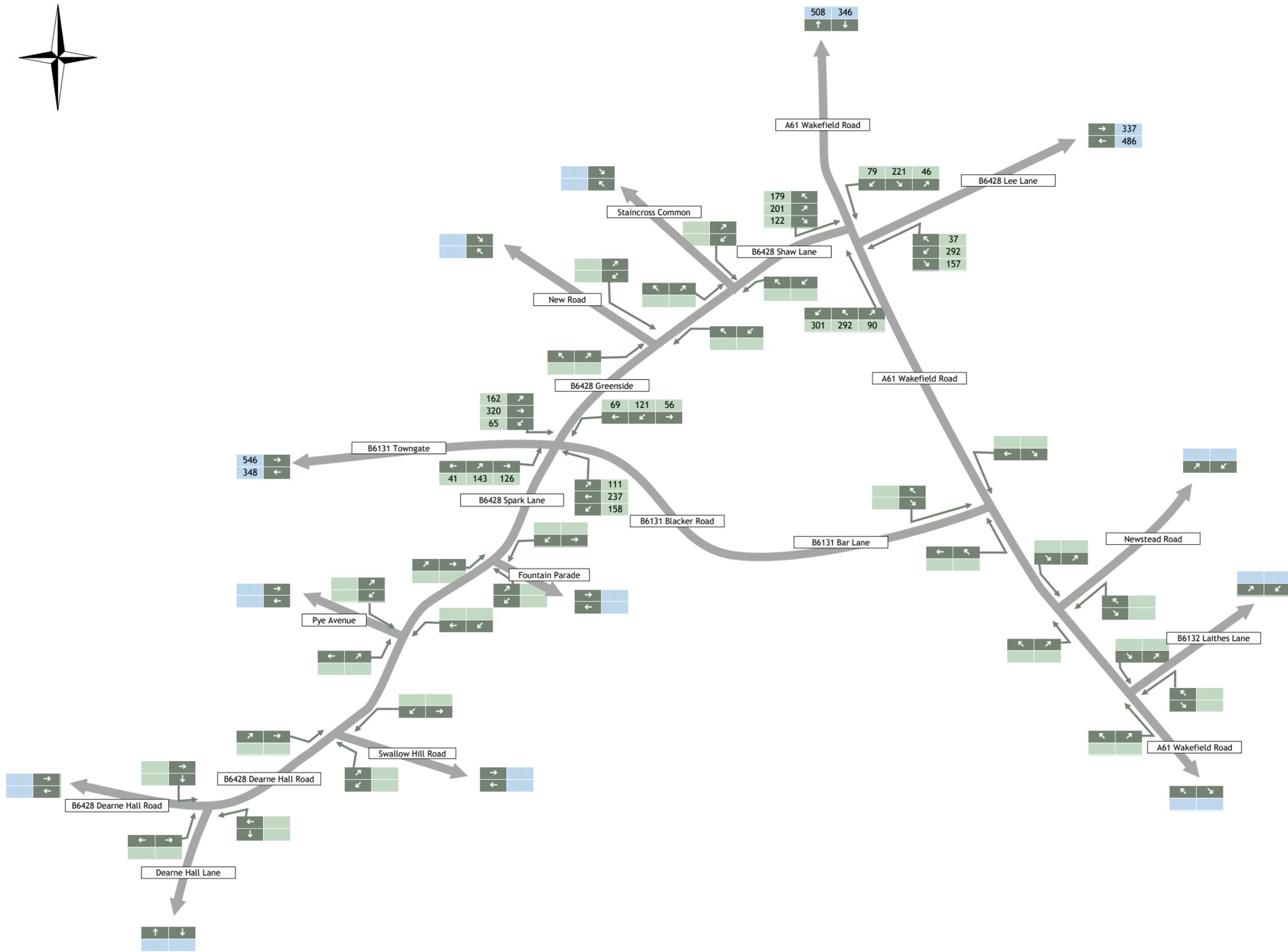
Figure Title:
 2033 Do Minimum Traffic Flows - B6428 (PM Peak Hour)

Scale:
 Not to scale

Figure Status:
 Issue

Job Number:
 3062

Figure Number:
 Figure 106



Key:

1 End Point (As per the study area extent of the Transport Assessment)

Highway Network

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



Client:
 Strata Sterling Barnsley West Ltd

Project:
 Proposed MU1 Residential and Employment Site, Barnsley

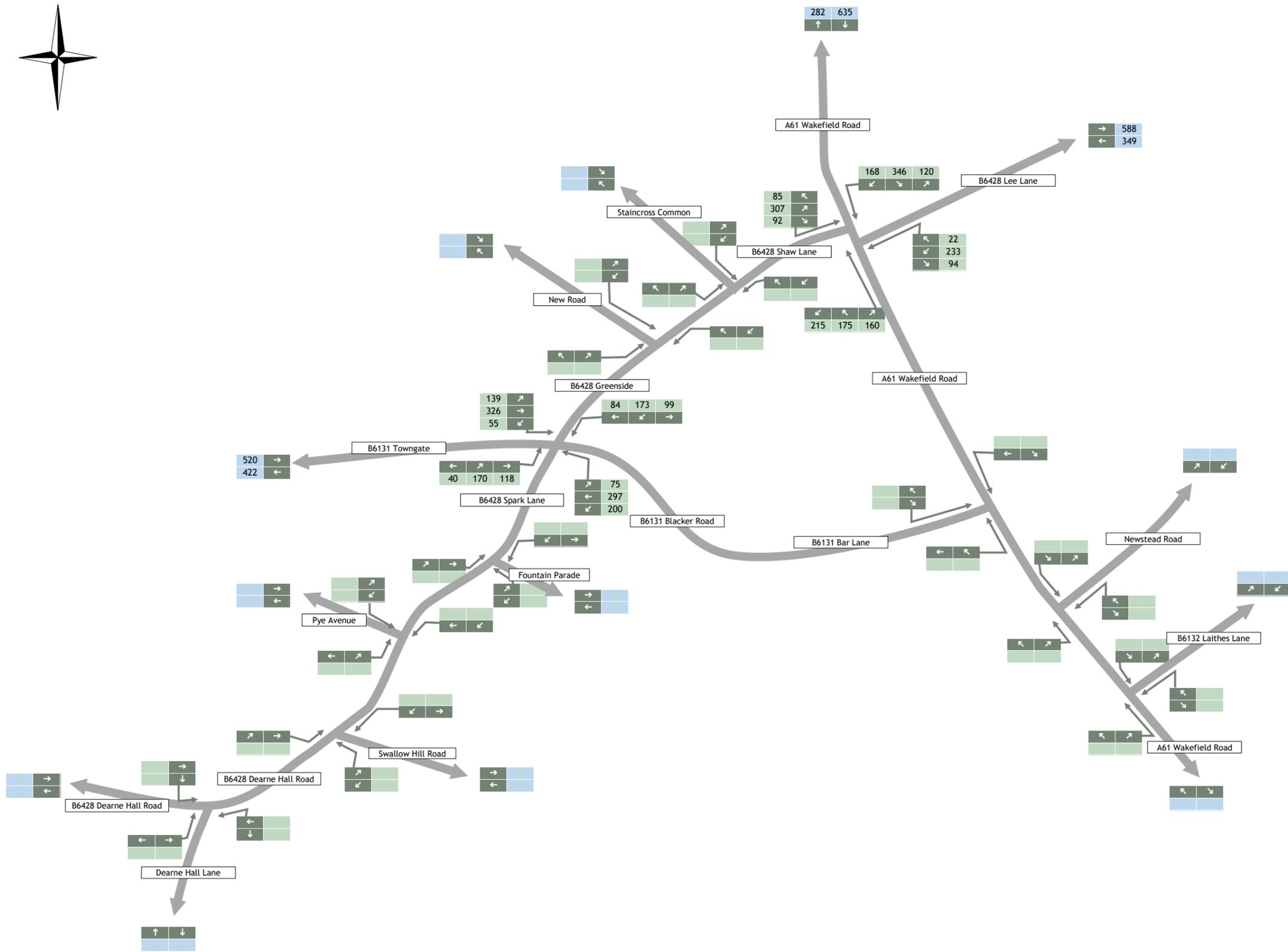
Figure Title:
 2033 Full Residential Development Traffic Flows - B6428 (AM Peak Hour)

Scale:
 Not to scale

Figure Status:
 Issue

Job Number:
 3062

Figure Number:
 Figure 107



Key:

End Point (As per the study area extent of the Transport Assessment)

Highway Network

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



Client:
 Strata Sterling Barnsley West Ltd

Project:
 Proposed MU1 Residential and Employment Site, Barnsley

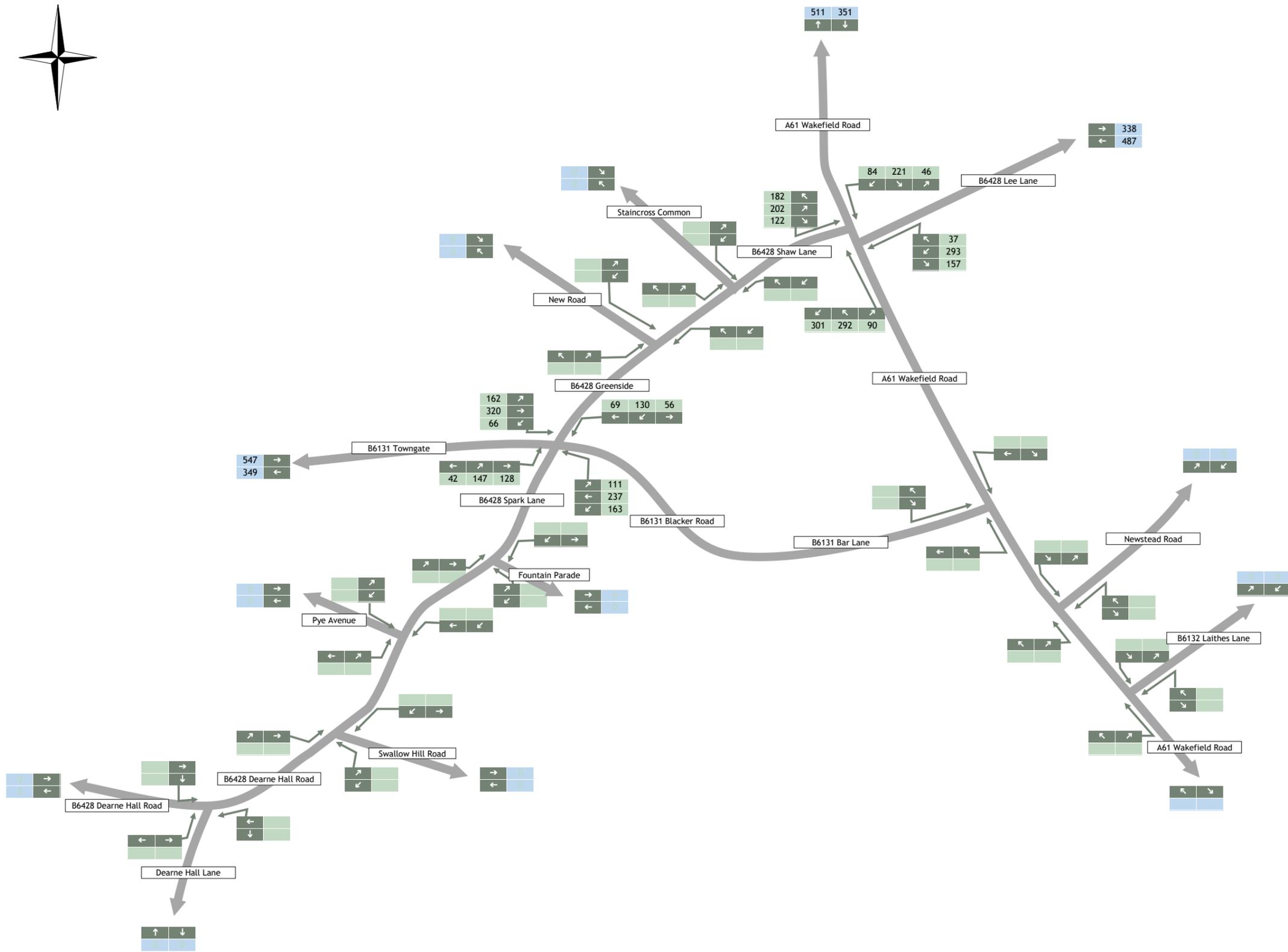
Figure Title:
 2033 Full Residential Development Traffic Flows - B6428
 (PM Peak Hour)

Scale:
 Not to scale

Figure Status:
 Issue

Job Number:
 3062

Figure Number:
 Figure 108



Key:

- End Point (As per the study area extent of the Transport Assessment)
- Highway Network

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



Client:
 Strata Sterling Barnsley West Ltd

Project:
 Proposed MU1 Residential and Employment Site, Barnsley

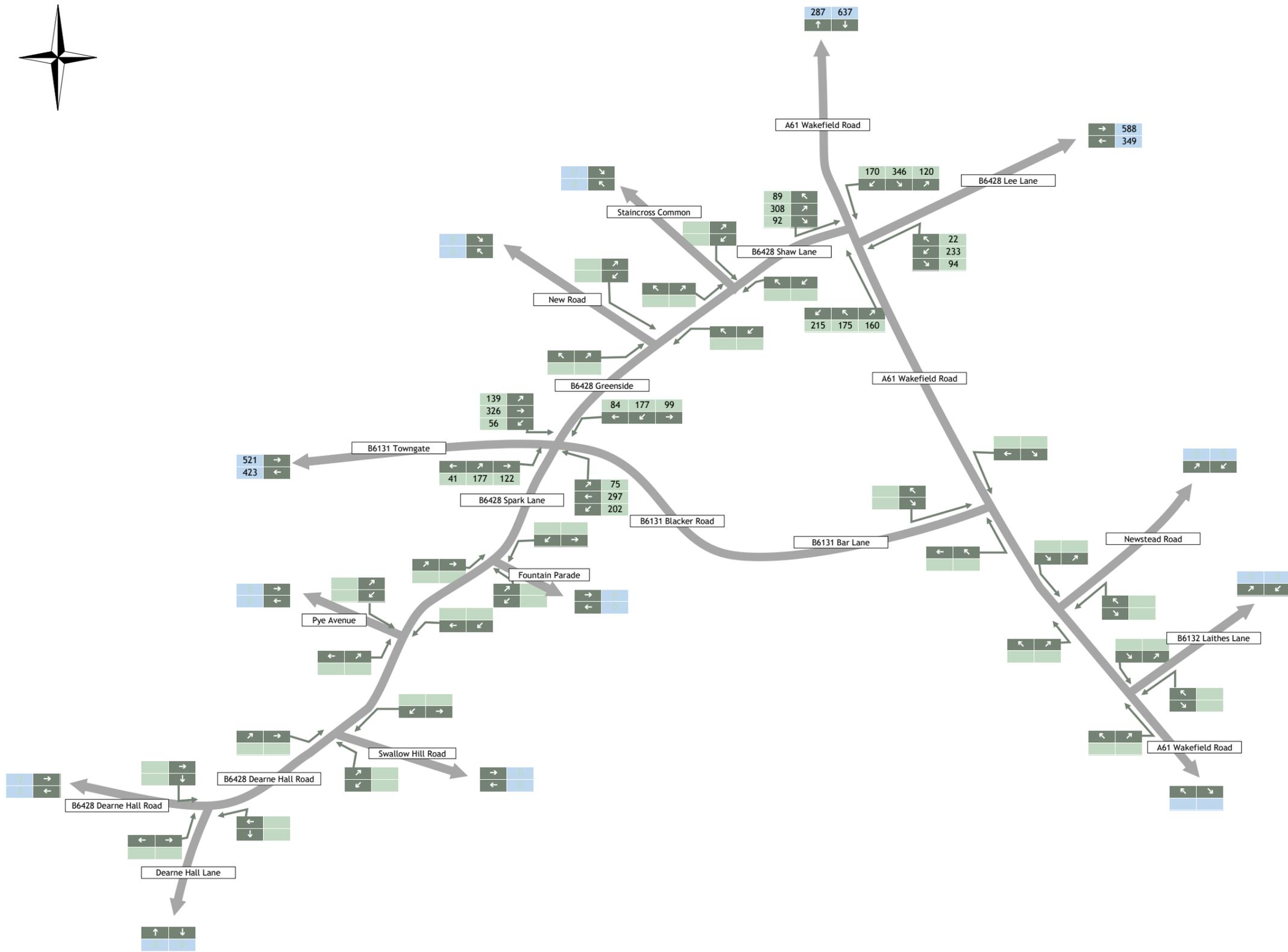
Figure Title:
 2033 Full Development Traffic Flows - B6428 (AM Peak Hour)

Scale:
 Not to scale

Figure Status:
 Issue

Job Number:
 3062

Figure Number:
 Figure 109



Key:

1 End Point (As per the study area extent of the Transport Assessment)

Highway Network

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



Client:
 Strata Sterling Barnsley West Ltd

Project:
 Proposed MU1 Residential and Employment Site, Barnsley

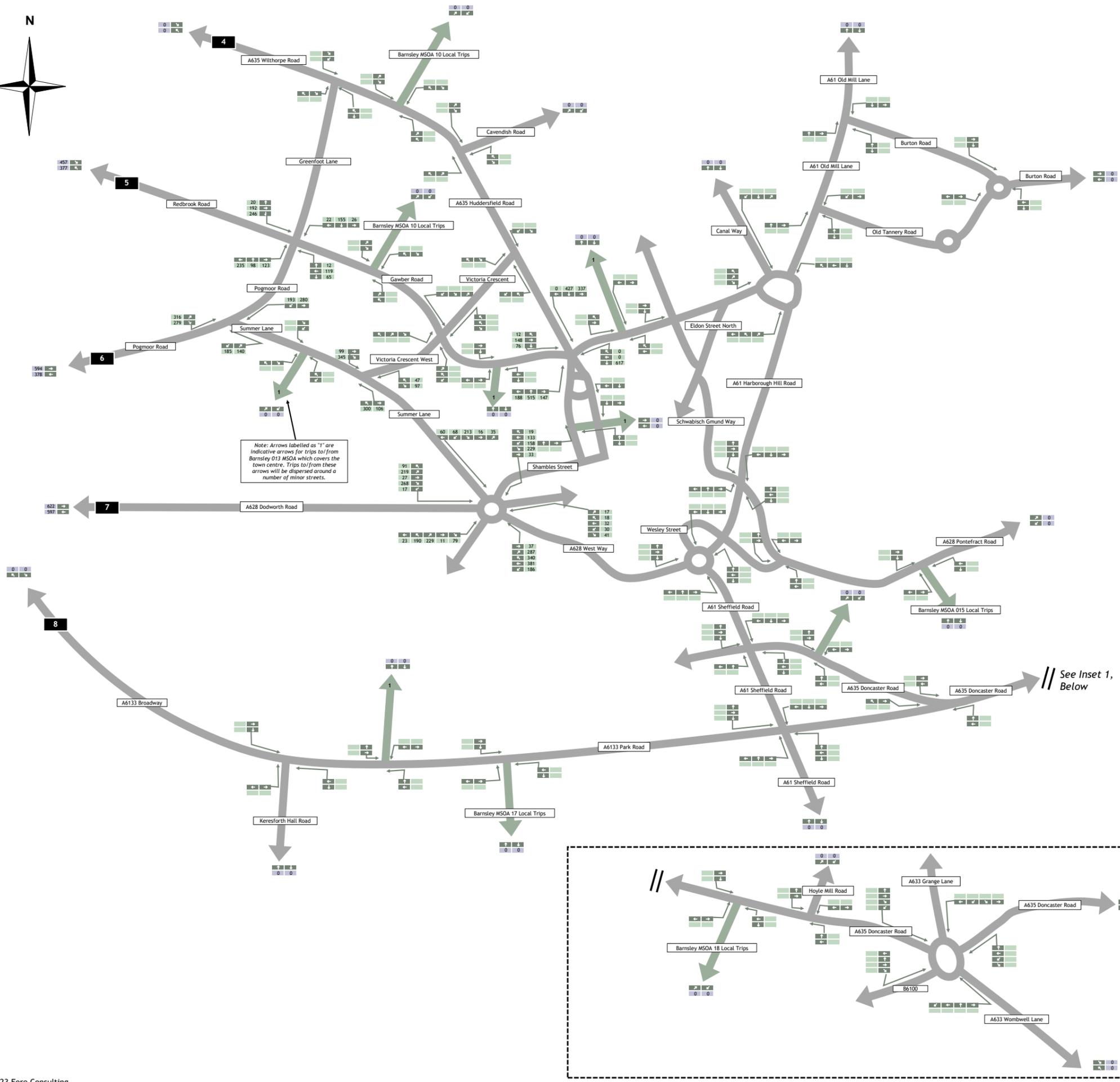
Figure Title:
 2033 Full Development Traffic Flows - B6428 (PM Peak Hour)

Scale:
 Not to scale

Figure Status:
 Issue

Job Number:
 3062

Figure Number:
 Figure 110



Key:

-  End Point (as per the primary network traffic flow diagram)
-  Highway Network
-  Indicative End Points (These are trips that may be split between one or more routes (e.g. a number of minor roads)).

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



Client:
 Strata Sterling Barnsley West Limited

Project:
 Proposed MU1 Residential and Employment Site, Barnsley

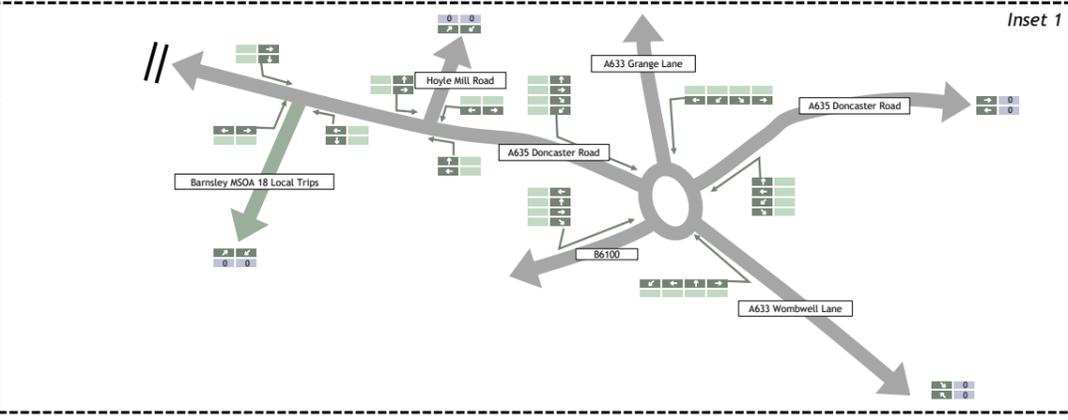
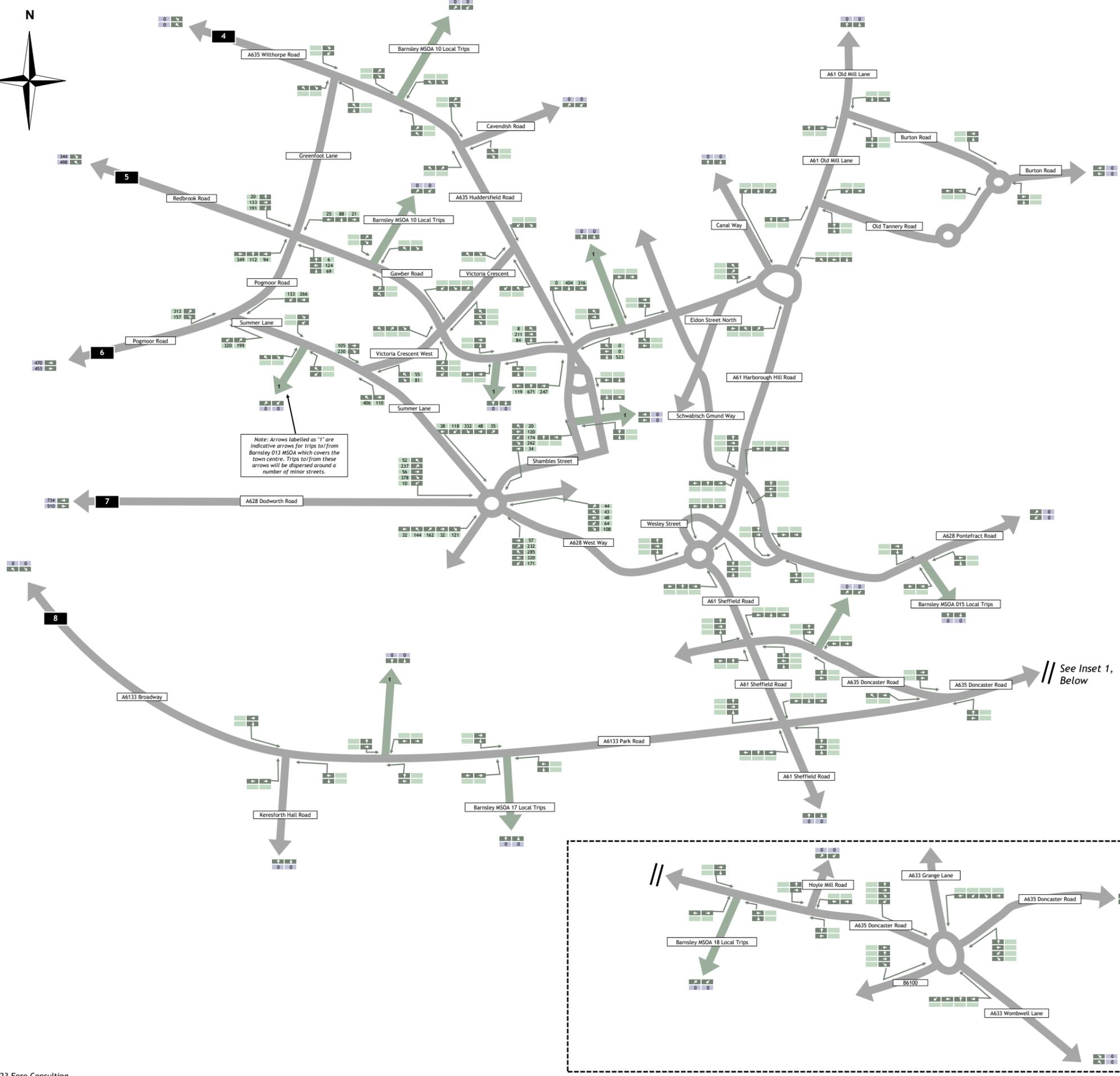
Figure Title:
 2026 Do Minimum Traffic Flows - Town Centre (AM Peak Hour)

Scale:
 Not to scale

Figure Status:
 Issue

Job Number:
 3062

Figure Number:
 Figure 111



Key:

- End Point (as per the primary network traffic flow diagram)
- Highway Network
- Indicative End Points (These are trips that may be split between one or more routes (e.g. a number of minor roads)).

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

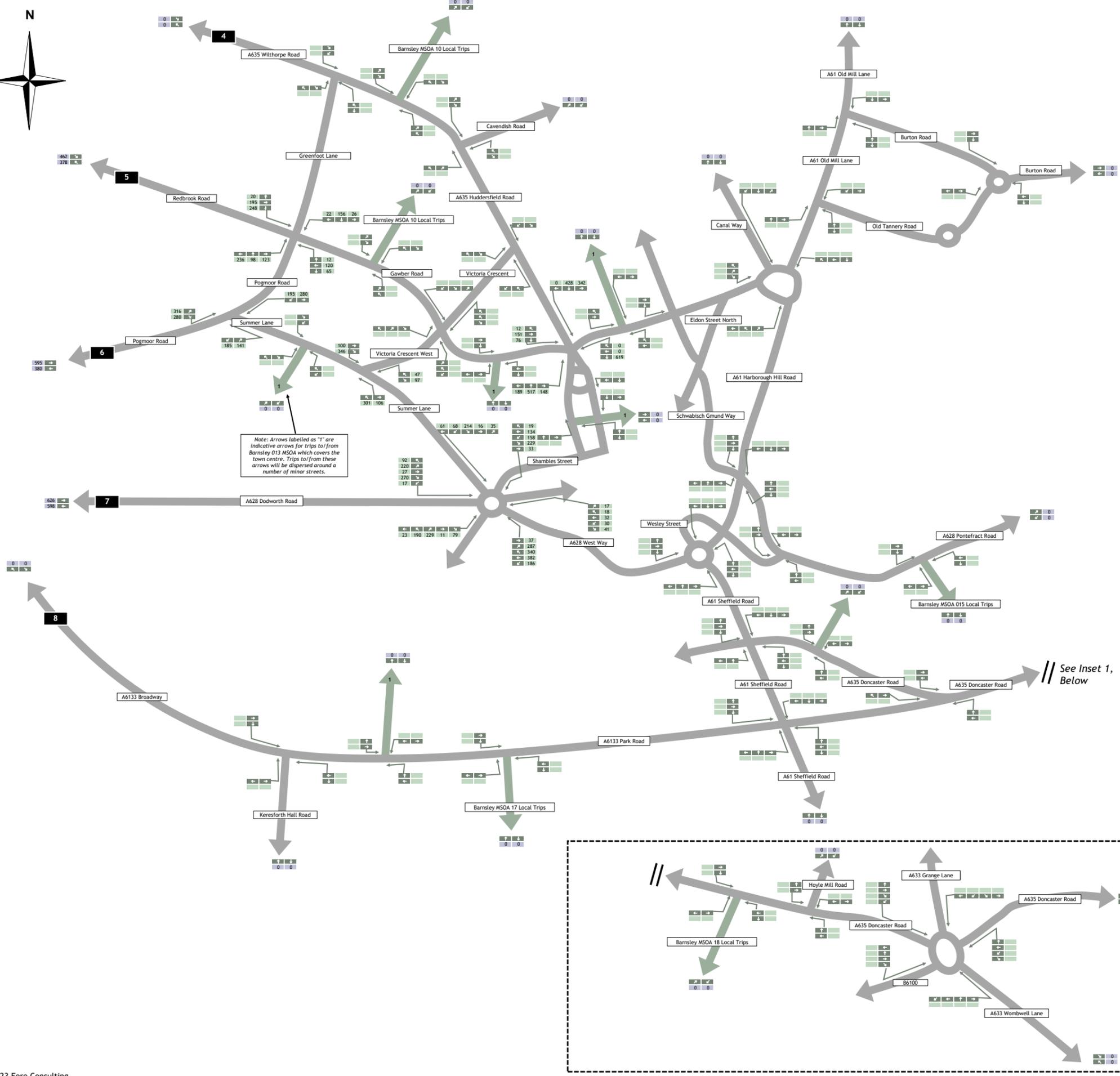


Client:
 Strata Sterling Barnsley West Limited

Project:
 Proposed MU1 Residential and Employment Site, Barnsley

Figure Title:
 2026 Do Minimum Traffic Flows - Town Centre (PM Peak Hour)

Scale: Not to scale	Figure Status: Issue
Job Number: 3062	Figure Number: Figure 112



Key:

- End Point (as per the primary network traffic flow diagram)
- Highway Network
- Indicative End Points (These are trips that may be split between one or more routes (e.g. a number of minor roads).)

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

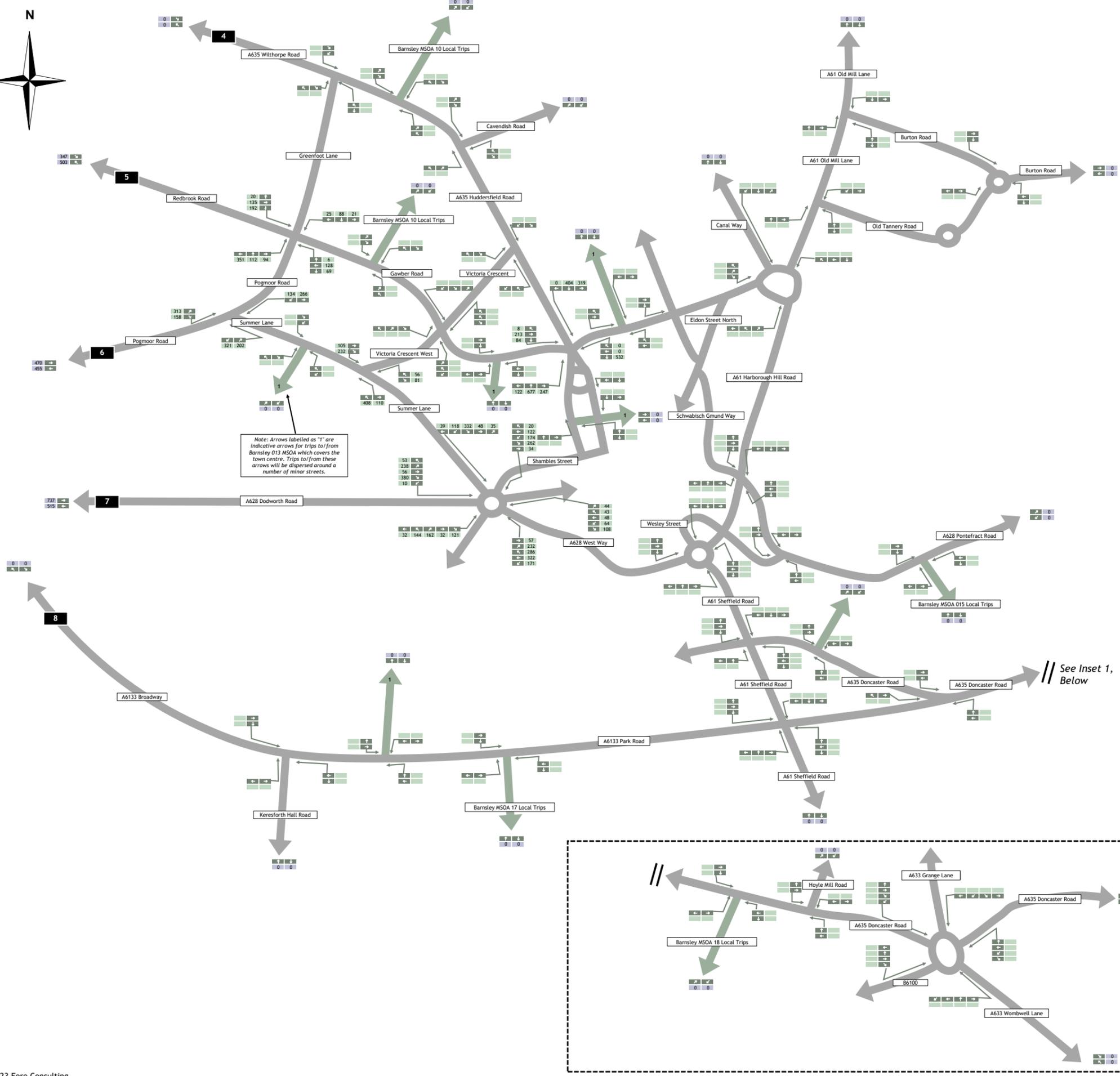


Client:
 Strata Sterling Barnsley West Limited

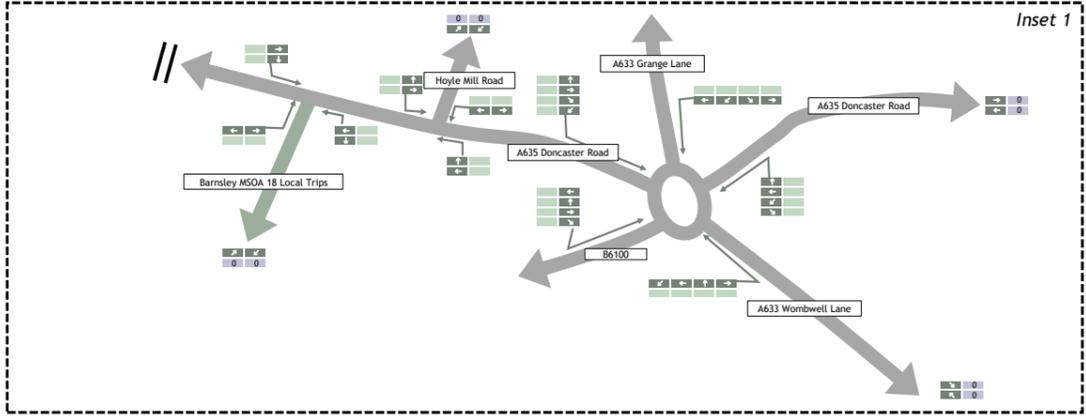
Project:
 Proposed MU1 Residential and Employment Site, Barnsley

Figure Title:
 2026 Residential Phase1a Development Traffic Flows - Town Centre (AM Peak Hour)

Scale: Not to scale	Figure Status: Issue
Job Number: 3062	Figure Number: Figure 113



Note: Arrows labelled as "1" are indicative arrows for trips to/from Barnsley 013 MSOA which covers the town centre. Trips to/from these arrows will be dispersed around a number of minor streets.



Key:

- End Point (as per the primary network traffic flow diagram)
- Highway Network
- Indicative End Points (These are trips that may be split between one or more routes (e.g. a number of minor roads)).

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

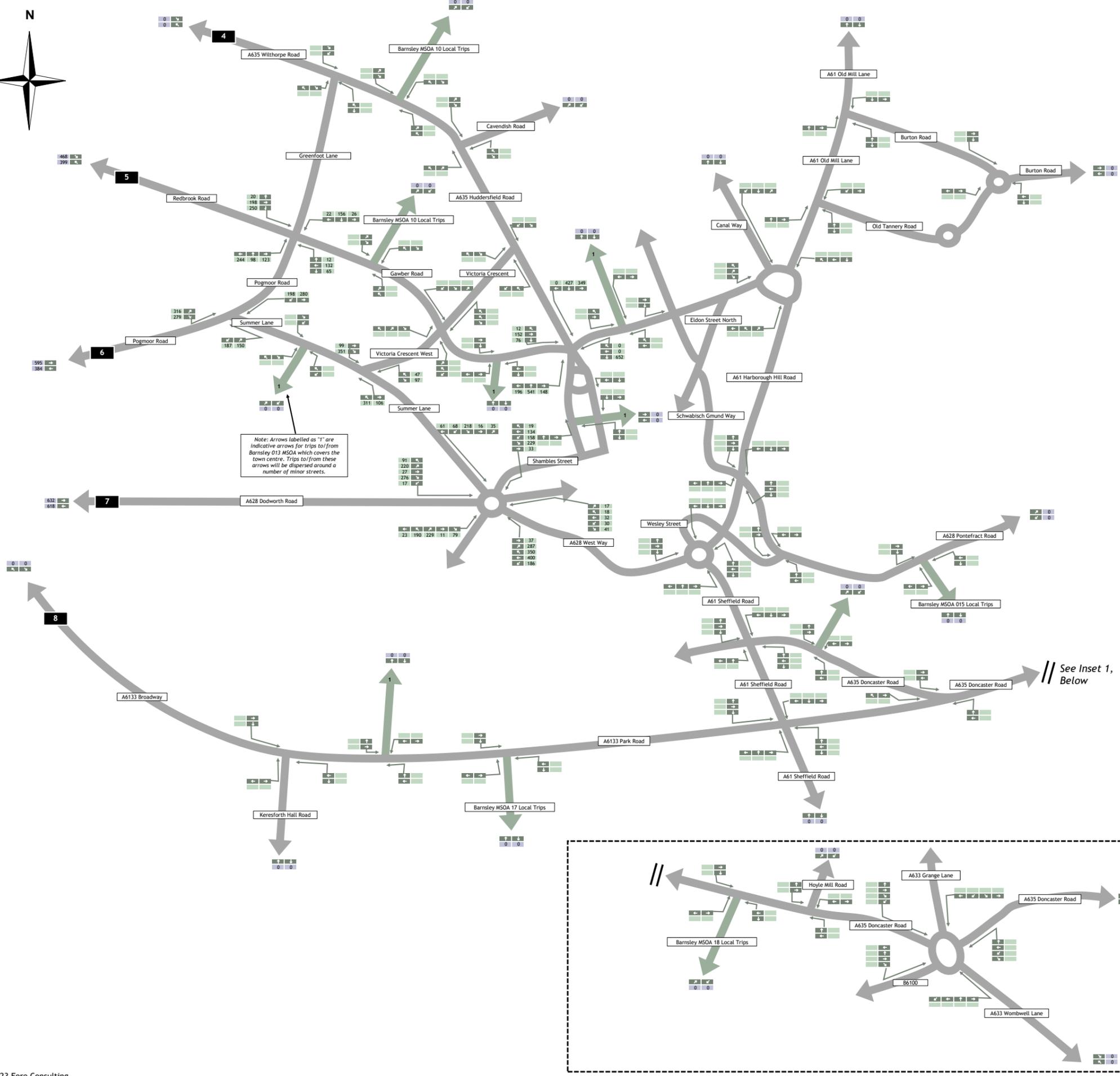


Client:
 Strata Sterling Barnsley West Limited

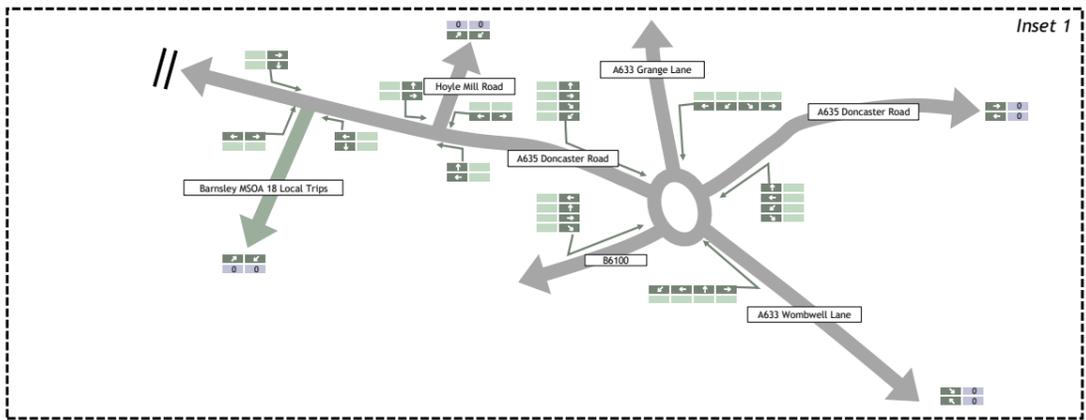
Project:
 Proposed MU1 Residential and Employment Site, Barnsley

Figure Title:
 2026 Residential Phase1a Development Traffic Flows - Town Centre (PM Peak Hour)

Scale: Not to scale	Figure Status: Issue
Job Number: 3062	Figure Number: Figure 114



Note: Arrows labelled as "1" are indicative arrows for trips to/from Barnsley 013 MSOA which covers the town centre. Trips to/from these arrows will be dispersed around a number of minor streets.



Key:

- End Point (as per the primary network traffic flow diagram)
- Highway Network
- Indicative End Points (These are trips that may be split between one or more routes (e.g. a number of minor roads)).

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

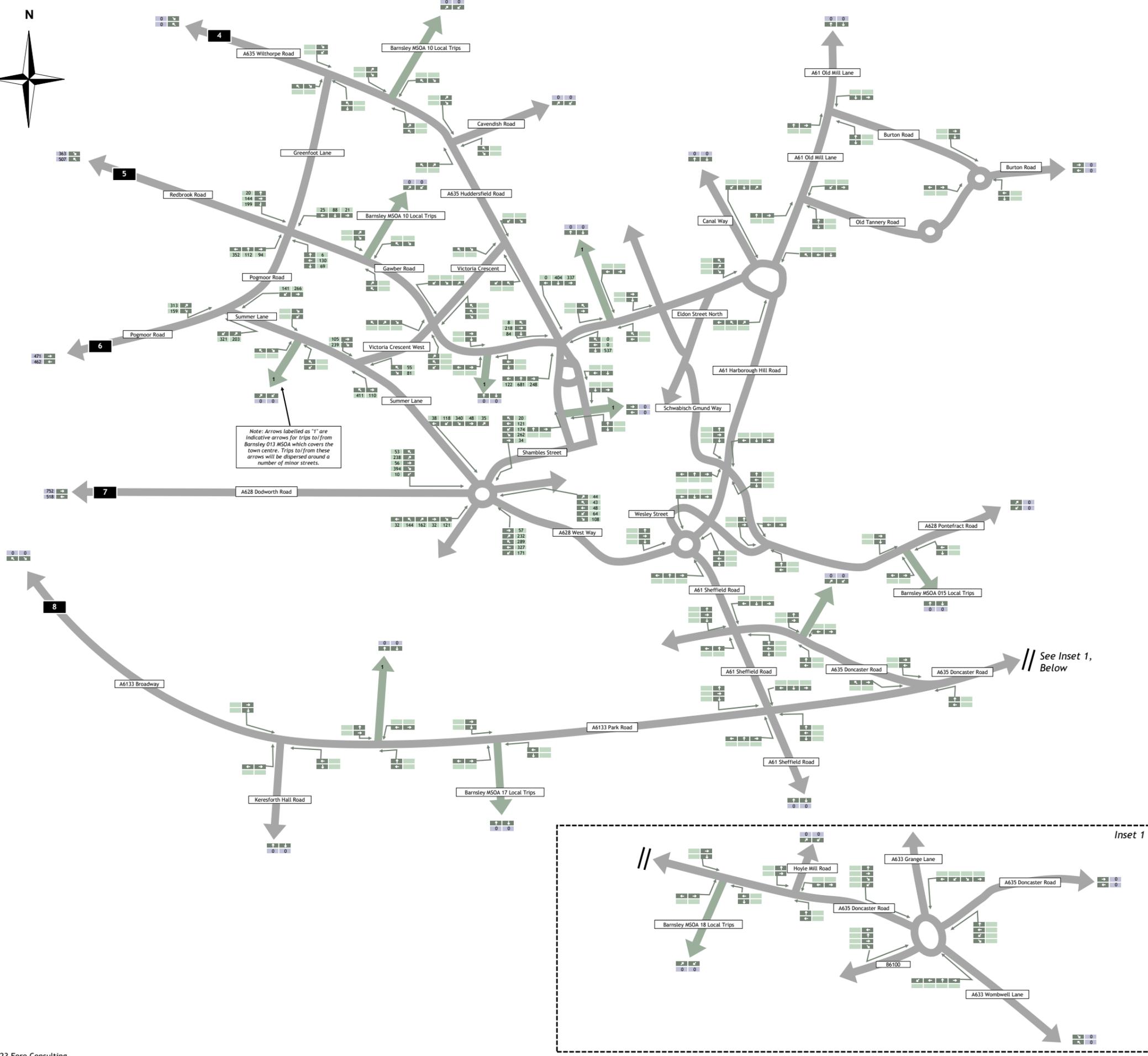


Client:
 Strata Sterling Barnsley West Limited

Project:
 Proposed MU1 Residential and Employment Site, Barnsley

Figure Title:
 2026 Employment Development Traffic Flows - Town Centre (AM Peak Hour)

Scale: Not to scale	Figure Status: Issue
Job Number: 3062	Figure Number: Figure 115



Note: Arrows labelled as "1" are indicative arrows for trips to/from Barnsley 013 MSOA which covers the town centre. Trips to/from these arrows will be dispersed around a number of minor streets.

Key:

- End Point (as per the primary network traffic flow diagram)
- Highway Network
- Indicative End Points (These are trips that may be split between one or more routes (e.g. a number of minor roads)).

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

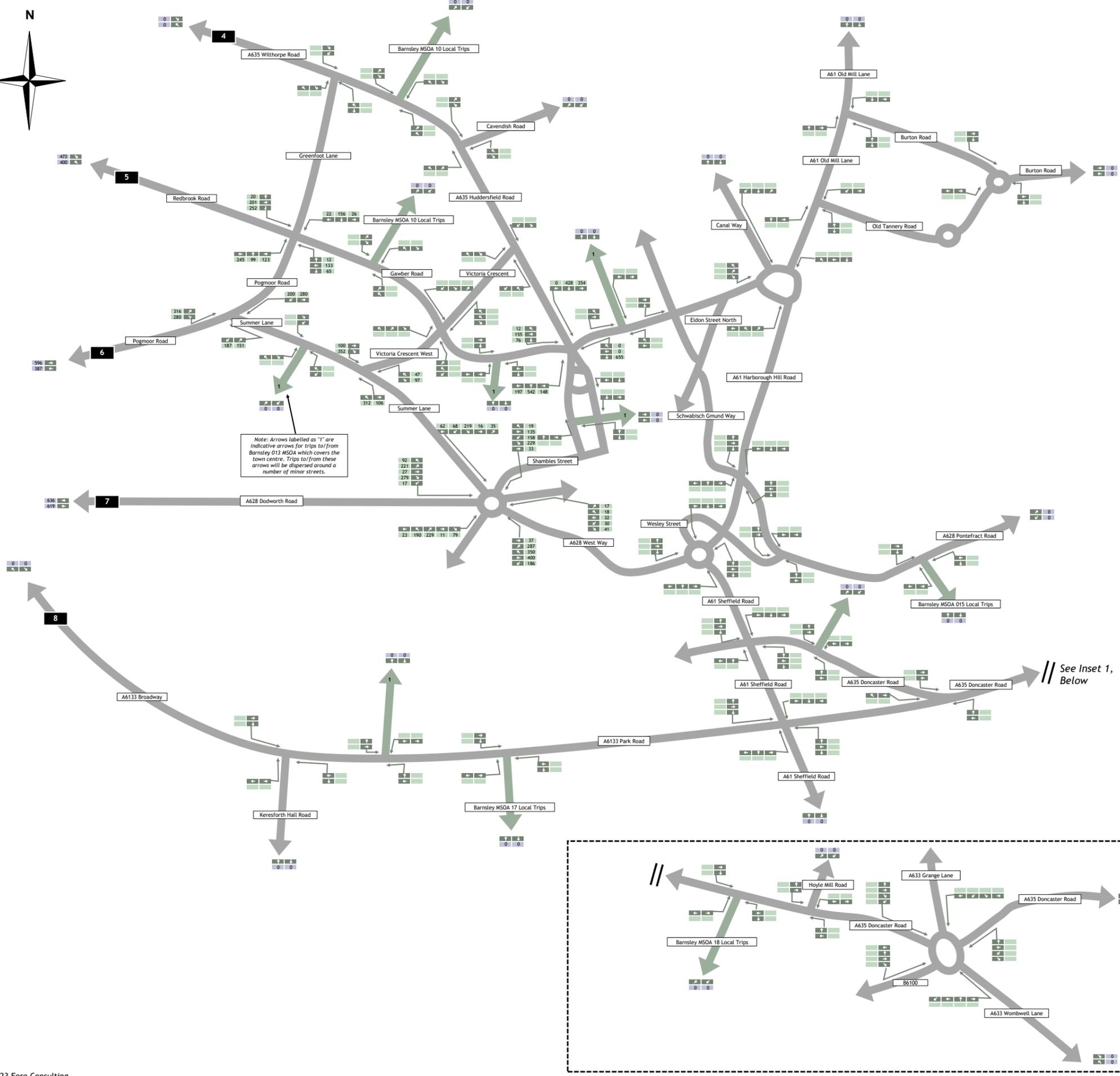


Client:
 Strata Sterling Barnsley West Limited

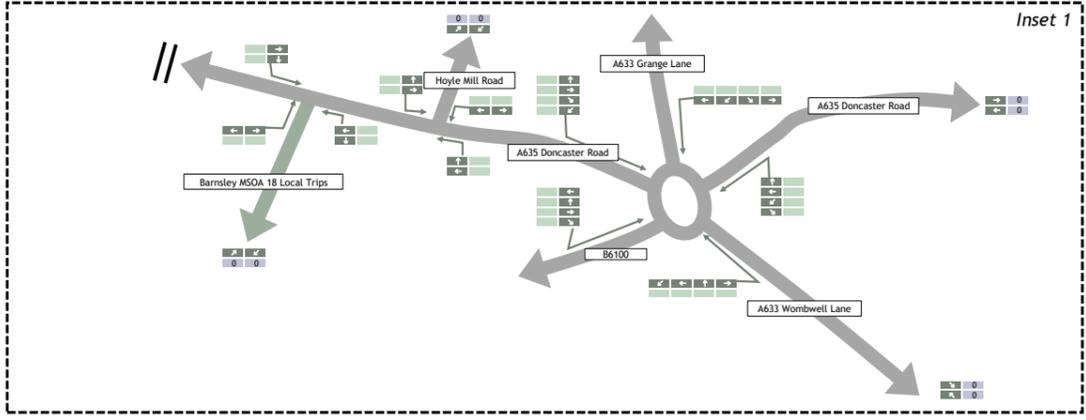
Project:
 Proposed MU1 Residential and Employment Site, Barnsley

Figure Title:
 2026 Employment Development Traffic Flows - Town Centre (PM Peak Hour)

Scale: Not to scale	Figure Status: Issue
Job Number: 3062	Figure Number: Figure 116



Note: Arrows labelled as "1" are indicative arrows for trips to/from Barnsley 013 MSOA which covers the town centre. Trips to/from these arrows will be dispersed around a number of minor streets.



Key:

- End Point (as per the primary network traffic flow diagram)
- Highway Network
- Indicative End Points (These are trips that may be split between one or more routes (e.g. a number of minor roads)).

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



Client:
 Strata Sterling Barnsley West Limited

Project:
 Proposed MU1 Residential and Employment Site, Barnsley

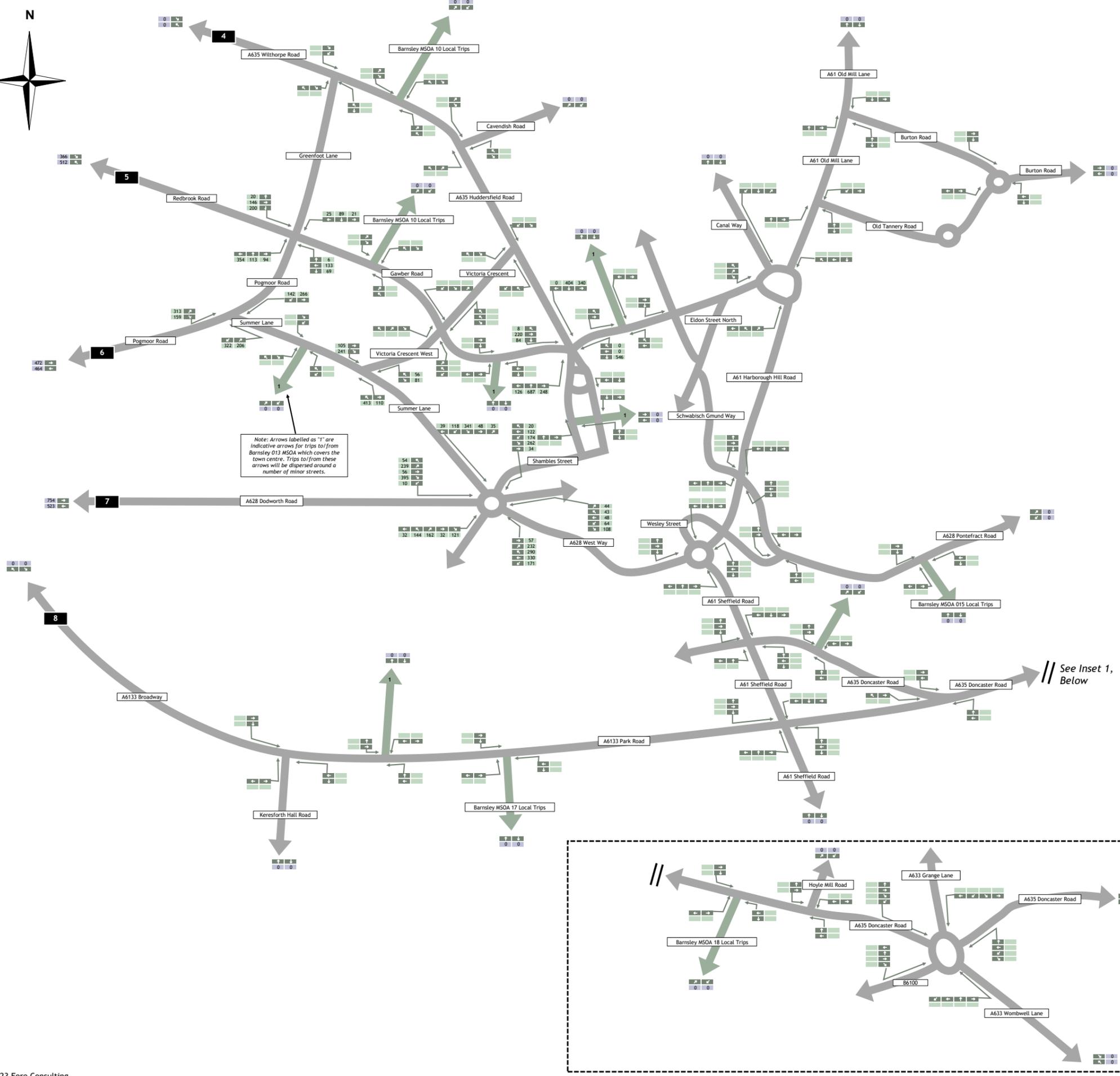
Figure Title:
 2026 Phase 1 Development Traffic Flows - Town Centre (AM Peak Hour)

Scale:
 Not to scale

Figure Status:
 Issue

Job Number:
 3062

Figure Number:
 Figure 117



Note: Arrows labelled as "1" are indicative arrows for trips to/from Barnsley 013 MSOA which covers the town centre. Trips to/from these arrows will be dispersed around a number of minor streets.

Key:

-  End Point (as per the primary network traffic flow diagram)
-  Highway Network
-  Indicative End Points (These are trips that may be split between one or more routes (e.g. a number of minor roads)).

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



Client:
 Strata Sterling Barnsley West Limited

Project:
 Proposed MU1 Residential and Employment Site, Barnsley

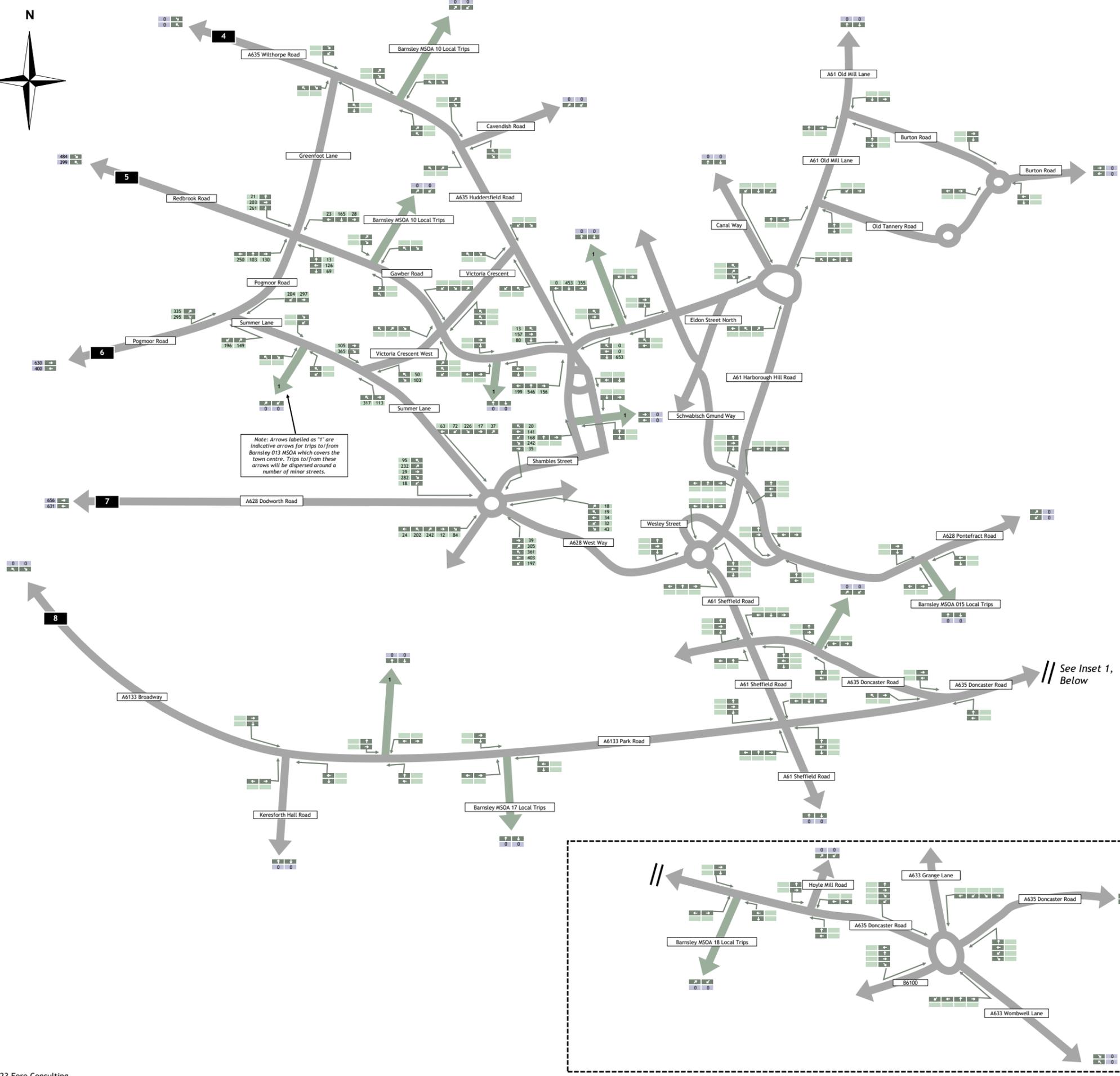
Figure Title:
 2026 Phase 1 Development Traffic Flows - Town Centre (PM Peak Hour)

Scale:
 Not to scale

Figure Status:
 Issue

Job Number:
 3062

Figure Number:
 Figure 118



Key:

-  End Point (as per the primary network traffic flow diagram)
-  Highway Network
-  Indicative End Points (These are trips that may be split between one or more routes (e.g. a number of minor roads)).

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



Client:
 Strata Sterling Barnsley West Limited

Project:
 Proposed MU1 Residential and Employment Site, Barnsley

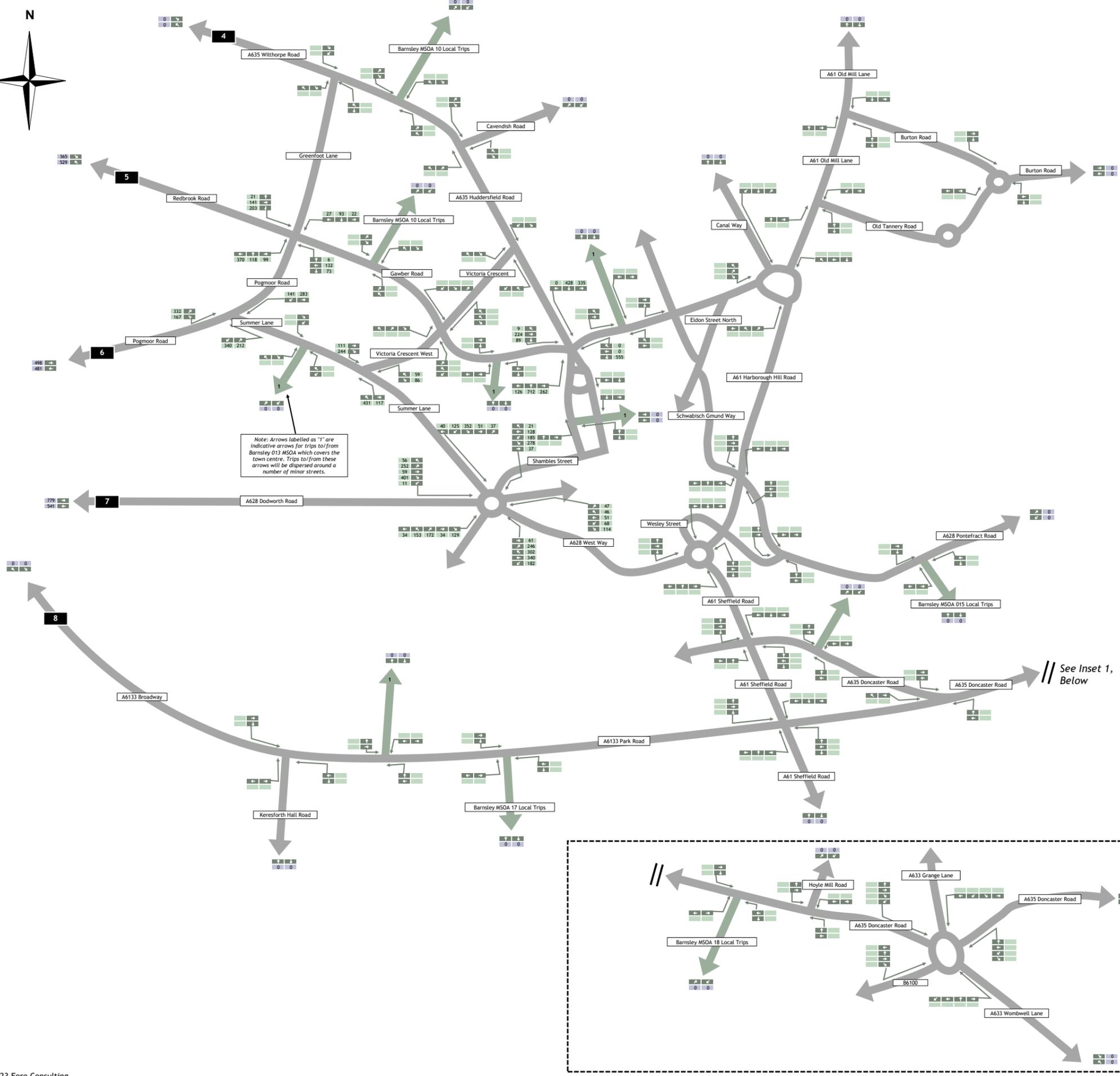
Figure Title:
 2033 Do Minimum Traffic Flows - Town Centre (AM Peak Hour)

Scale:
 Not to scale

Figure Status:
 Issue

Job Number:
 3062

Figure Number:
 Figure 119



Key:

-  End Point (as per the primary network traffic flow diagram)
-  Highway Network
-  Indicative End Points (These are trips that may be split between one or more routes (e.g. a number of minor roads).)

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



Client:
 Strata Sterling Barnsley West Limited

Project:
 Proposed MU1 Residential and Employment Site, Barnsley

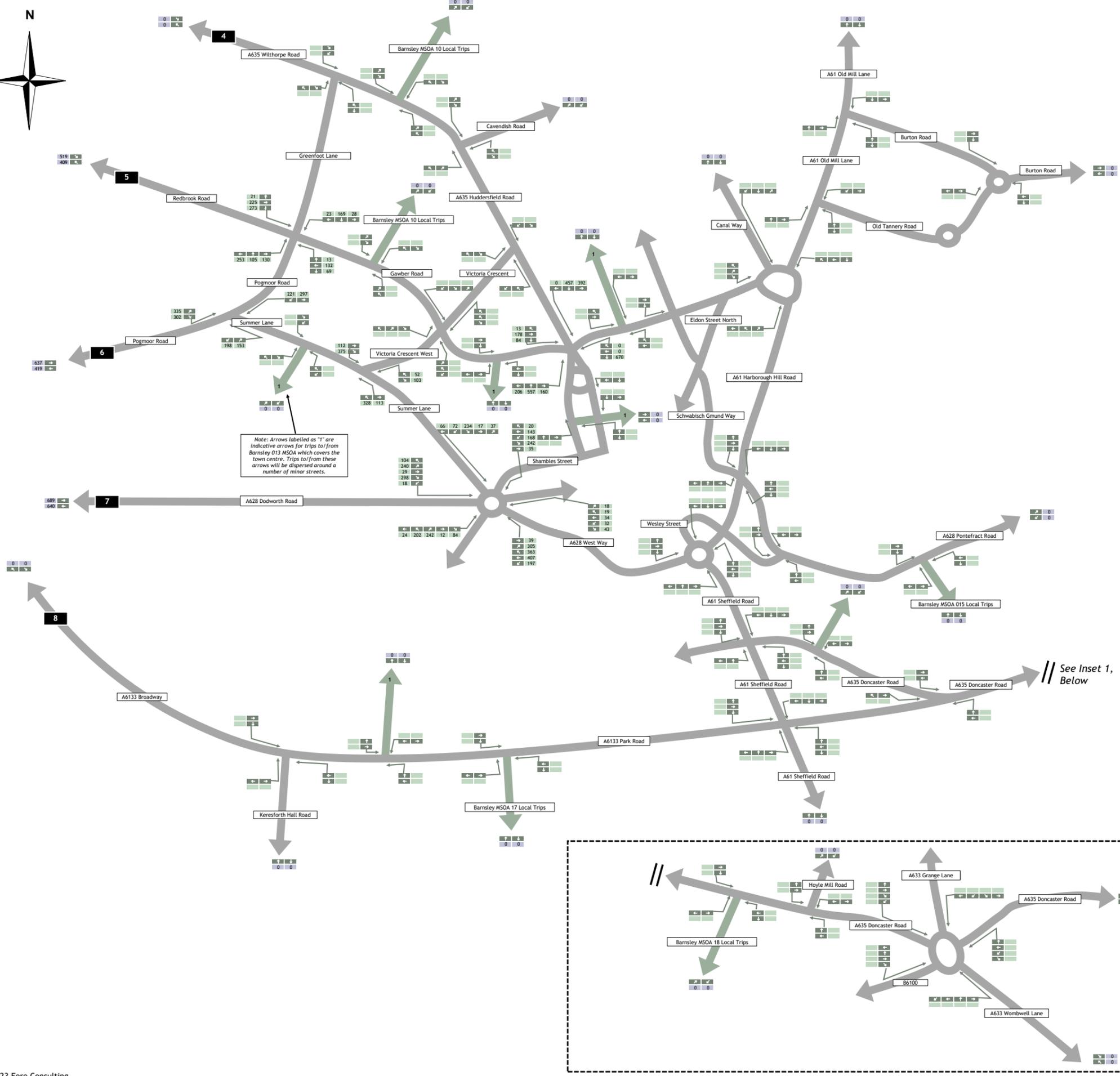
Figure Title:
 2033 Do Minimum Traffic Flows - Town Centre (PM Peak Hour)

Scale:
 Not to scale

Figure Status:
 Issue

Job Number:
 3062

Figure Number:
 Figure 120



Note: Arrows labelled as "1" are indicative arrows for trips to/from Barnsley 013 MSOA which covers the town centre. Trips to/from these arrows will be dispersed around a number of minor streets.

Key:

- End Point (as per the primary network traffic flow diagram)
- Highway Network
- Indicative End Points (These are trips that may be split between one or more routes (e.g. a number of minor roads)).

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

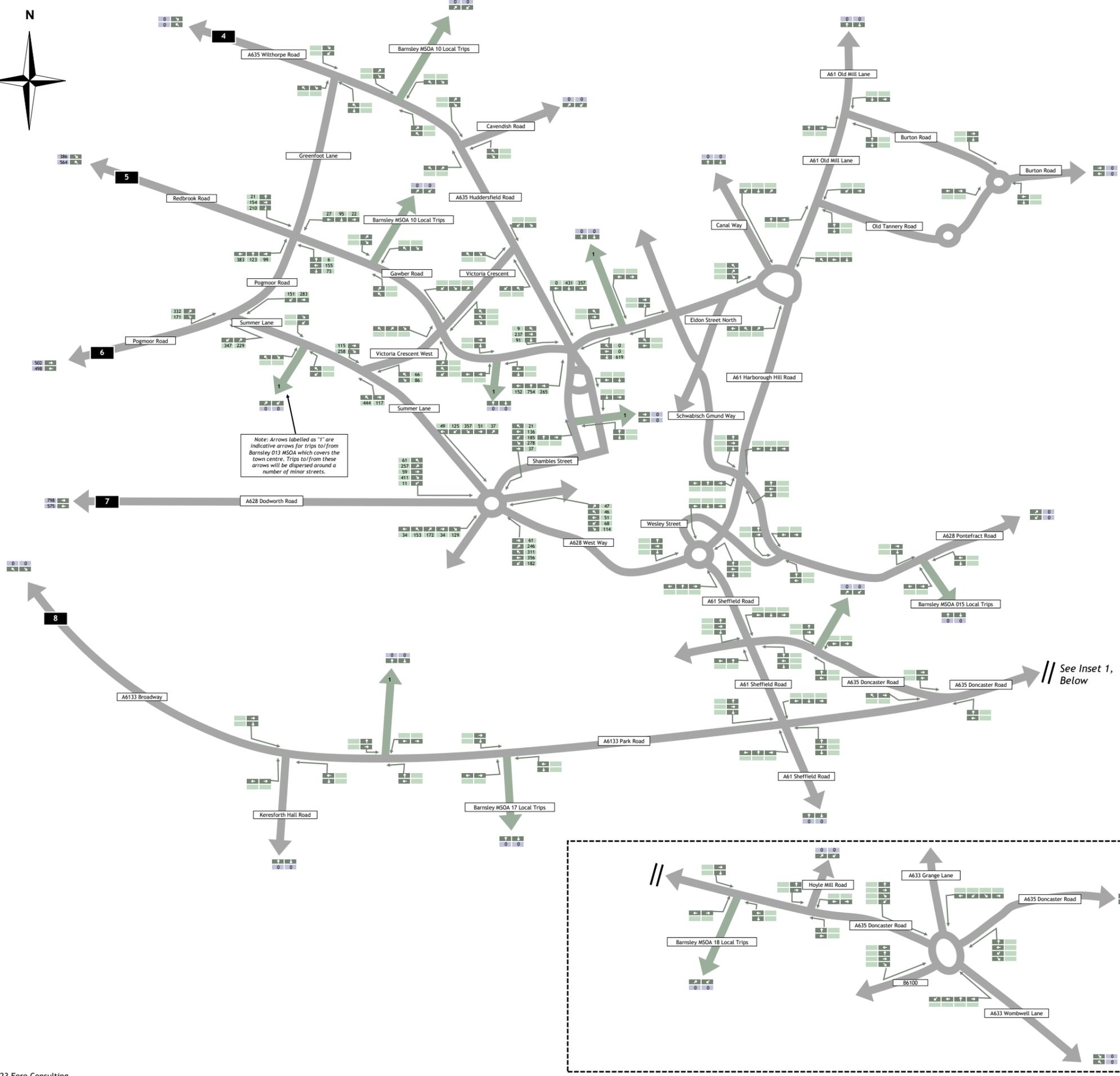


Client:
 Strata Sterling Barnsley West Limited

Project:
 Proposed MU1 Residential and Employment Site, Barnsley

Figure Title:
 2033 Full Residential Development Traffic Flows - Town Centre (AM Peak Hour)

Scale: Not to scale	Figure Status: Issue
Job Number: 3062	Figure Number: Figure 121



Note: Arrows labelled as "1" are indicative arrows for trips to/from Barnsley 013 MSOA which covers the town centre. Trips to/from these arrows will be dispersed around a number of minor streets.

Key:

-  End Point (as per the primary network traffic flow diagram)
-  Highway Network
-  Indicative End Points (These are trips that may be split between one or more routes (e.g. a number of minor roads)).

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

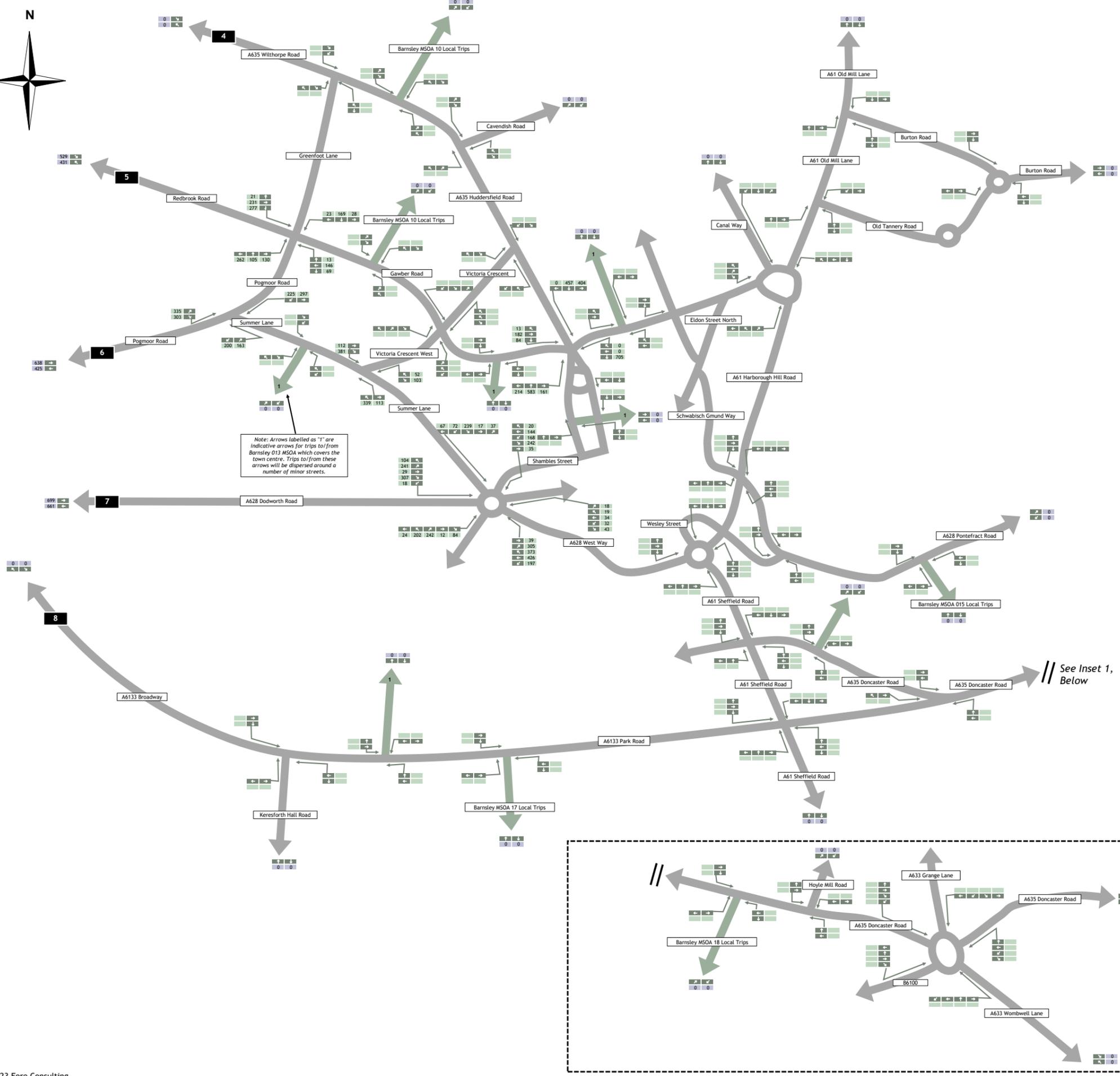


Client:
 Strata Sterling Barnsley West Limited

Project:
 Proposed MU1 Residential and Employment Site, Barnsley

Figure Title:
 2033 Full Residential Development Traffic Flows - Town Centre (PM Peak Hour)

Scale: Not to scale	Figure Status: Issue
Job Number: 3062	Figure Number: Figure 122



Key:

- End Point (as per the primary network traffic flow diagram)
- Highway Network
- Indicative End Points (These are trips that may be split between one or more routes (e.g. a number of minor roads)).

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

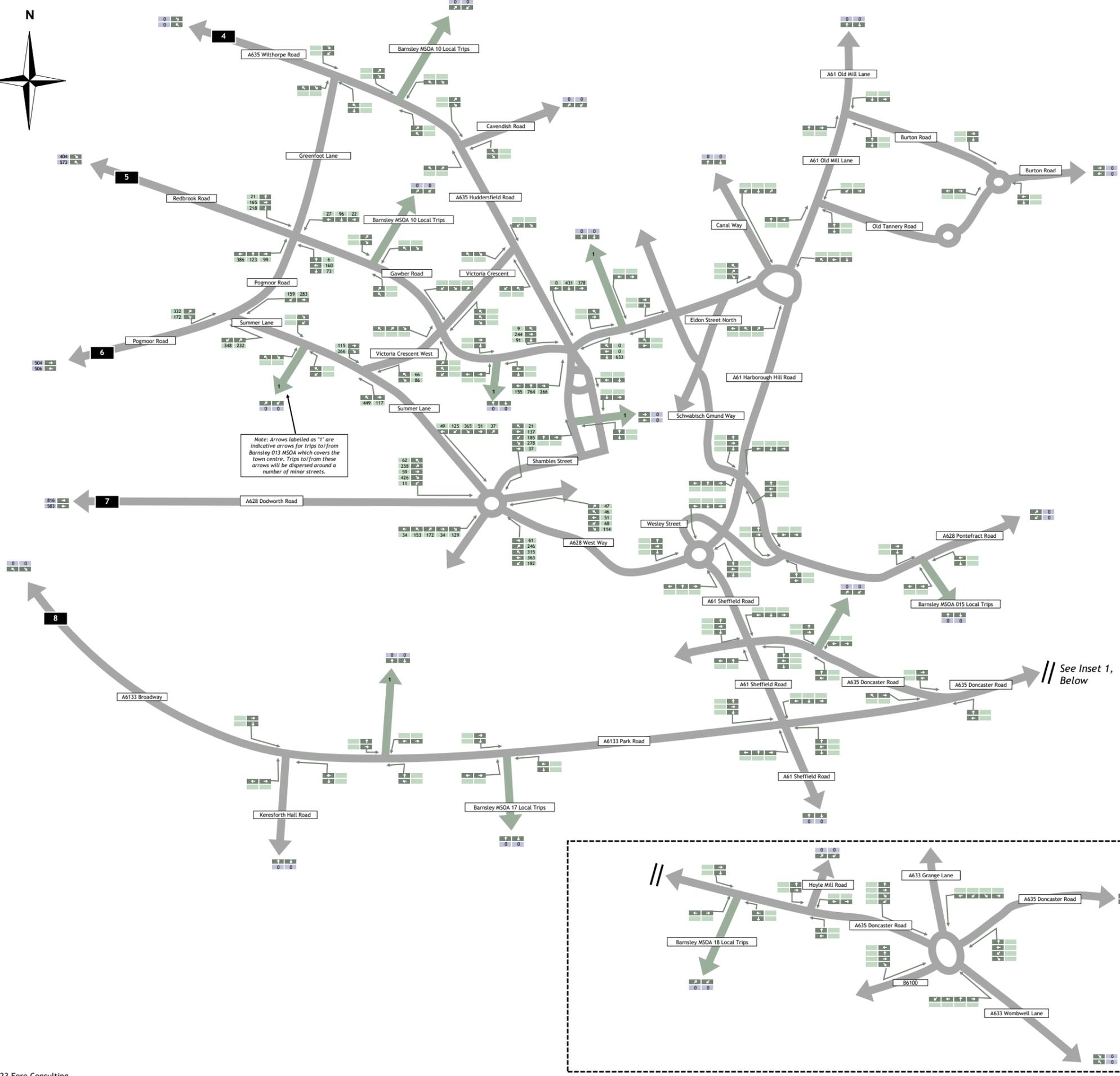


Client:
 Strata Sterling Barnsley West Limited

Project:
 Proposed MU1 Residential and Employment Site, Barnsley

Figure Title:
 2033 Full Development Traffic Flows - Town Centre (AM Peak Hour)

Scale: Not to scale	Figure Status: Issue
Job Number: 3062	Figure Number: Figure 123



Note: Arrows labelled as "1" are indicative arrows for trips to/from Barnsley 013 MSOA which covers the town centre. Trips to/from these arrows will be dispersed around a number of minor streets.

Key:

- End Point (as per the primary network traffic flow diagram)
- Highway Network
- Indicative End Points (These are trips that may be split between one or more routes (e.g. a number of minor roads)).

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



Client:
 Strata Sterling Barnsley West Limited

Project:
 Proposed MU1 Residential and Employment Site, Barnsley

Figure Title:
 2033 Full Development Traffic Flows - Town Centre (PM Peak Hour)

Scale:
 Not to scale

Figure Status:
 Issue

Job Number:
 3062

Figure Number:
 Figure 124