Technical Note

Project name	John Cotton, Mirfield		
Note title	TRANSYT Model Capacity Assessment		
Document reference	3633		
Author	MG / BI		
Revision	v1.0		
Date	14 February 2025	Approved	✓

1. Introduction

Hydrock Fore is instructed by John Cotton Group Ltd to assist an outline planning application for a proposed warehouse development on the former Cooper Bridge Waste Water Treatment Works, near Mirfield, Kirklees, in respect of transport and highways matters. The commission included the preparation of a Transport Assessment and Travel Plan submitted with the planning application to Kirklees Council[1].

On 16 January 2024, a 2022 Base Year TRANSYT model of the Cooper Bridge roundabout and A62 Leeds Road / A644 Huddersfield Road junction was submitted to Kirklee's Council (KC) Highways Development Management (HDM) and Urban Traffic Control (UTC) team. On 29 February 2024, a Technical Response Note was submitted based on a consultation response received by KC HDM and UTC. The Technical Response Note updated development trip generation and distribution calculations based on discussions with Kirklees Council HDM and UTC officers, as well an updated TRANSYT model based on UTC comments and the inclusion of 2028 Do Minimum and With Development assessment scenarios.

On 20 August 2024, the Base and Future Year TRANSYT model was updated to include left-turn HGV development flows entering the proposed A644 Huddersfield Road access junction; and submitted to KC HDM and UTC.

The purpose of this Technical Note is to summarise the capacity assessment results of the Base and Future Year TRANSYT model submitted on 20 August 2024, as well as diagrams demonstrating traffic flows on the local highway network (as incorporated within the TRANSYT model) in accordance with the assumptions and methodology as discussed and agreed with Kirklees Council officers. The traffic flow diagrams are provided at Appendix A.

1.1 Capacity Assessment

TRANSYT 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. A DoS of 90% represents a practical capacity threshold for signalised junctions. The software also calculates the mean maximum queue (MMQ), representing the average position of the furthest vehicle from the stop line in each cycle (measured in PCU).

For the purposes of this assessment, an average cycle time of 60 seconds has been assumed at both junctions, for both the weekday AM and PM peak hours; as set out in the controller specification.

The model results for the Cooper Bridge roundabout and A62 Leeds Road / A644 Huddersfield Road junction are summarised in Table 1, and presented in full at Appendix B. For each approach, only the lane / traffic stream with the highest associated DoS has been presented, except for the approaches associated with multiple lanes / traffic streams over 80% within an assessment scenario.

[1] Planning application reference 2023/92448

Table 1: Cooper Bridge Roundabout & A62 Leeds Road / A644 Huddersfield Road Junction- Highway Capacity Assessment

Approach	2022 Base		2028 DM		2028 WD	
	DoS	MMQ	DoS	MMQ	DoS	MMQ
Weekday AM Peak Hour						
1/1: Cooper Bridge Road Ln 1	100%	27.0	112%	65.6	112%	65.6
1/2: Cooper Bridge Road Ln 2	85%	9.8	98%	18.5	101%	24.9
3/1: Cooper Bridge Roundabout W/B Ln 1	49%	4.2	49%	4.2	49%	4.2
4/2: Cooper Bridge Roundabout N/B Ln 2	84%	5.8	93%	9.1	95%	9.9
5/1: Cooper Bridge Roundabout S/B Ln 1	71%	2.3	71%	2.3	71%	2.3
7/2: A644 Wakefield Road Ln 2	109%	39.3	117%	58.2	124%	78.3
8/2: Cooper Bridge Roundabout E/B Ln 2	85%	4.8	90%	6.2	90%	6.5
9/1: A62 Leeds Road Ln 1	91%	12.8	94%	14.8	84%	13.0
9/2: A62 Leeds Road Ln 2	100%	26.6	102%	26.3	100%	26.7
11/1: A644 Huddersfield Road Ln 1	103%	23.4	109%	33.4	122%	60.6
12/1: A62 Leeds Road Bus Lane Ln 1	3%	0.2	3%	0.2	3%	0.2
13/1: A62 Leeds Road Ln 2	99%	20.2	105%	33.0	122%	75.5
14/1: A644 Huddersfield Road RT Ln	84%	8.1	92%	10.6	93%	12.1
16/1: A644 Huddersfield Road Ln 1	37%	0.1	37%	0.1	38%	5.2
17/2: A62 Leeds Road Ln 2	42%	1.6	46%	0.2	46%	1.6
18/1: A62 Leeds Road Ln 1	72%	16.7	57%	0.4	90%	9.2
Weekday PM Peak Hour						
1/1: Cooper Bridge Road Ln 1	98%	22.2	105%	40.4	105%	40.4
1/2: Cooper Bridge Road Ln 2	83%	9.4	90%	11.7	92%	12.6
3/1: Cooper Bridge Roundabout W/B Ln 1	49%	4.2	49%	4.2	49%	4.2
4/2: Cooper Bridge Roundabout N/B Ln 2	82%	5.5	88%	6.8	90%	7.3
5/1: Cooper Bridge Roundabout S/B Ln 1	71%	2.3	71%	2.3	71%	2.3
7/2: A644 Wakefield Road Ln 2	107%	33.3	118%	61.4	127%	86.9
8/2: Cooper Bridge Roundabout E/B Ln 2	84%	4.7	87%	5.4	88%	5.6
9/1: A62 Leeds Road Ln 1	86%	9.9	93%	13.7	85%	13.4
9/2: A62 Leeds Road Ln 2	99%	13.2	99%	13.3	100%	26.6
11/1: A644 Huddersfield Road Ln 1	109%	34.7	120%	56.8	133%	85.9
12/1: A62 Leeds Road Bus Lane Ln 1	2%	0.2	2%	0.2	2%	0.2%

Approach	2022 Base		2028 DM		2028 WD	
	DoS	MMQ	DoS	MMQ	DoS	MMQ
13/1: A62 Leeds Road Ln 2	85%	10.1	93%	13.5	110%	42.4
14/1: A644 Huddersfield Road RT Ln	90%	9.7	95%	13.6	98%	16.1
16/1: A644 Huddersfield Road Ln 1	32%	0.1	35%	0.1	37%	5.2
17/2: A62 Leeds Road Ln 2	43%	0.2	46%	0.2	46%	0.2
18/1: A62 Leeds Road Ln 1	52%	0.3	55%	0.3	90%	9.3

The assessment demonstrates:

- Several key links within both the Cooper Bridge roundabout and A62 Leeds Road / A644 Huddersfield Road junction currently operate beyond capacity in the 2022 Base scenario, in both the weekday AM and PM peak hours.
- Both the 2028 Do Minimum and 2028 With Development scenarios are also predicted to be associated with overcapacity links, in both the weekday AM and PM peak hours.
- While queuing on Leeds Road is expected to increase, there is generally no significant increase in the DoS values and associated queues between the 2028 Do Minimum and 2028 With Development scenarios.

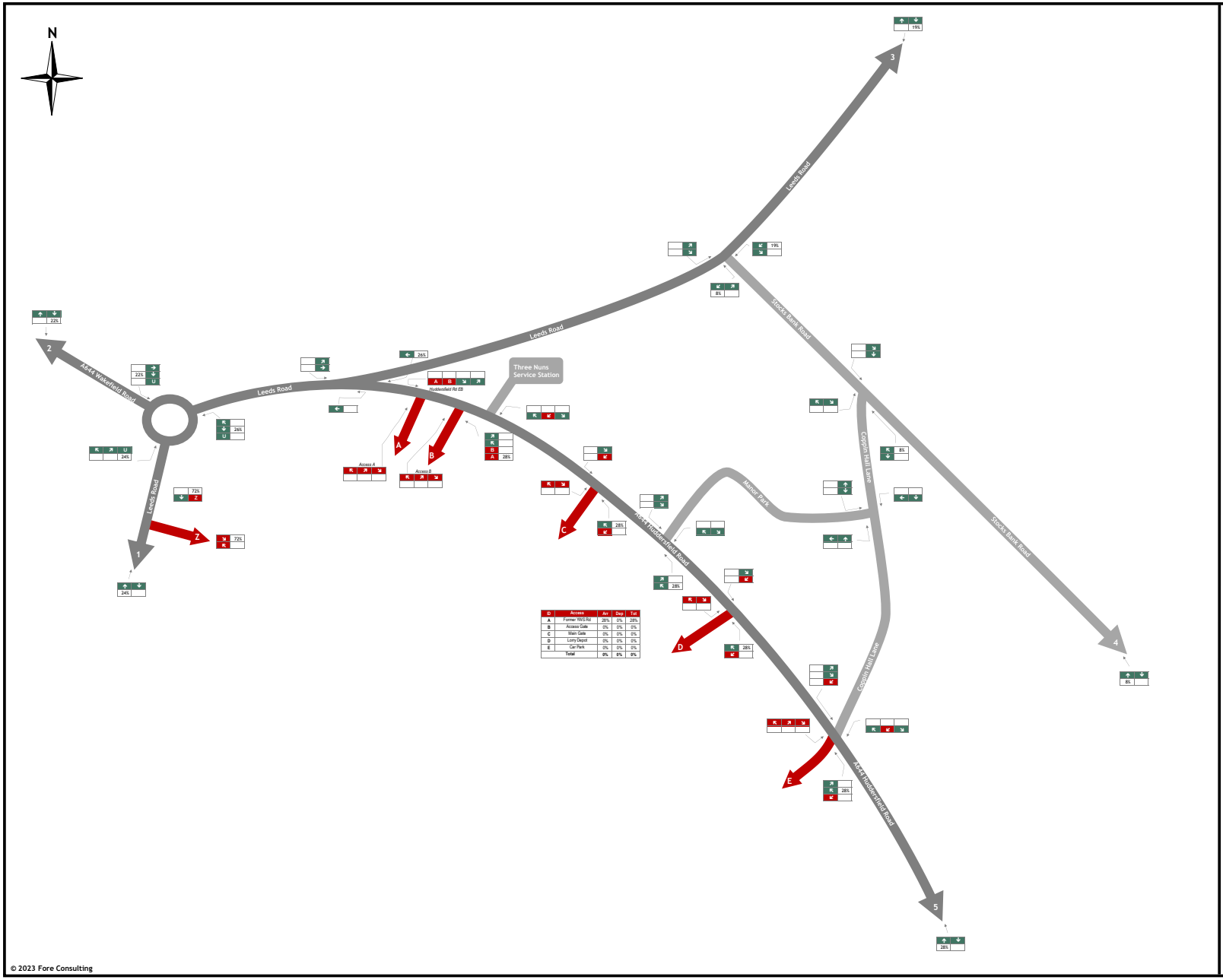
On this basis, it is concluded that changes in traffic flows associated with the proposed development can be satisfactorily accommodated by the Cooper Bridge roundabout and A62 Leeds Road / A644 Huddersfield Road junction.

It should be noted that the TRANSYT model considers the existing layout of the junctions only. WYCA and KC are promoting a package of highway improvements in the Cooper Bridge area, named the 'A62 to Cooper Bridge Corridor Improvement Scheme' which includes the Cooper Bridge roundabout and A62 Leeds Road / A644 Huddersfield Road junction. The improvement scheme aims to reduce congestion, improve journey times and reliability, and road safety, beyond that assessed as part of the above TRANSYT modelling.

Appendix A

Traffic Flow Diagrams

Tab Reference	Description
	Trip Distribution
6 to 9	Light Vehicle and HGV Trip Distribution - Arrivals and Departures (%)
	Development Traffic Flows
10 to 11	Light Vehicle Development Traffic Flows (Weekday AM and PM Peak Hours) - Derived from TRICS Trip Rates
12 to 13	HGV Development Traffic Flows (Weekday AM and PM Peak Hours) - Derived from TRICS Trip Rates
14 to 15	Existing HGV Traffic Flows to / from Satellite Storage Sites at Ravensthorpe and Euroway (Weekday AM and PM Peak Hours) - Derived from 2022 Base Traffic Flows
16 to 17	Reassignment of Existing HGV Traffic Flows to / from Satellite Storage Sites to / from Proposed Development (Weekday AM and PM Peak Hours)
18 to 19	Net Impact of Reassigned Existing HGV Trips (Weekday AM and PM Peak Hours) - 16/17 minus (-) 14/15
20 to 21	Net HGV Development Traffic Flows (Weekday AM and PM Peak Hours) - 12/13 plus (+) 18/19
22 to 23	Total Vehicle Development Traffic Flows (Weekday AM and PM Peak Hours) - 10/11 plus (+) 20/21
24 to 25	Total PCU Development Traffic Flows (Weekday AM and PM Peak Hours)
	Base Traffic Flows
26 to 33	2022 Base Traffic Flows (Weekday AM and PM Peak Hours) - Light Vehicles, HGVs, Total Vehicles & PCUs - Derived from 2022 Base Traffic Survey
	Committed Development Traffic Flows
34 to 35	Total Committed Development Traffic Flows (Weekday AM and PM Peak Hours) - Includes Bradley Villa Farm, Gernhill Avenue, Tithe House Lane, Land between Dewsbury Road and New Hey Road, and Woodhouse Garden Suburb
	Do Minimum Flows
36 to 43	2028 Do Minimum Traffic Flows (Weekday AM and PM Peak Hours) - Light Vehicles, HGVs, Total Vehicles & PCUs - 2022 Base Traffic Flows * TEMPro Factor (Kirklees District) plus (+) Total Committed Traffic Flows
	With Development Traffic Flows
44 to 51	2028 With Development Traffic Flows (Weekday AM and PM Peak Hours) - 2028 Do Minimum Traffic Flows plus (+) Development Traffic Flows



Key:

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

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

Fore Consulting Limited
1st Floor, 15 St Paul's Street
Leeds
LS1 2JG

enquiries@foreconsulting.co.uk
www.foreconsulting.co.uk

Client:
John Cotton Group Ltd

Project:
John Cotton Site, Mirfield

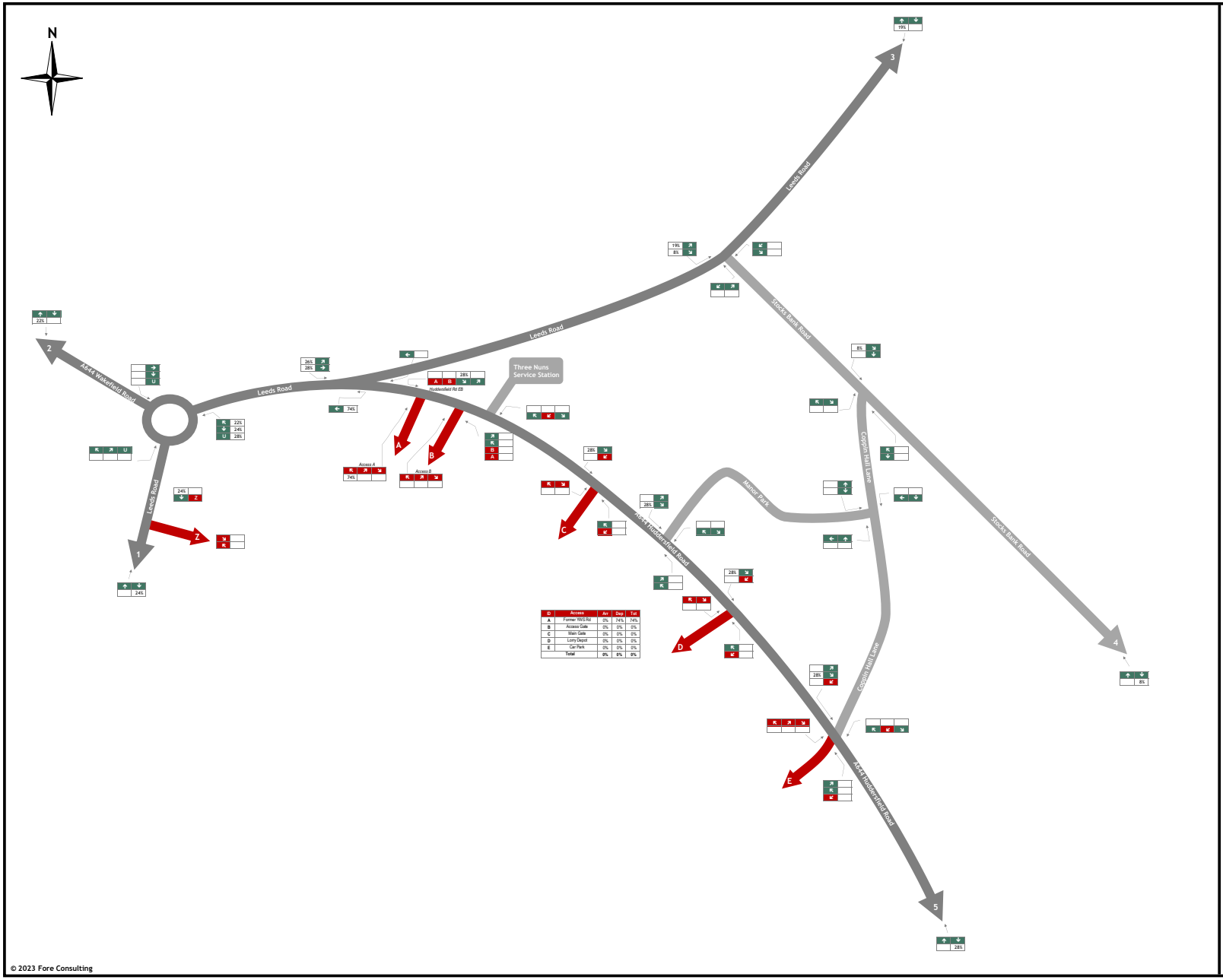
Figure Title:
Trip Distribution Arrivals (%) - Light Vehicles

Scale:
Not to scale

Figure Status:
Issue

Job Number:
3633

Figure Number:
Figure 6



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Fore Consulting Limited
1st Floor, 15 St Paul's Street
Leeds
LS1 2JG

enquiries@foreconsulting.co.uk
www.foreconsulting.co.uk

Client:
John Cotton Group Ltd

Project:
John Cotton Site, Mirfield

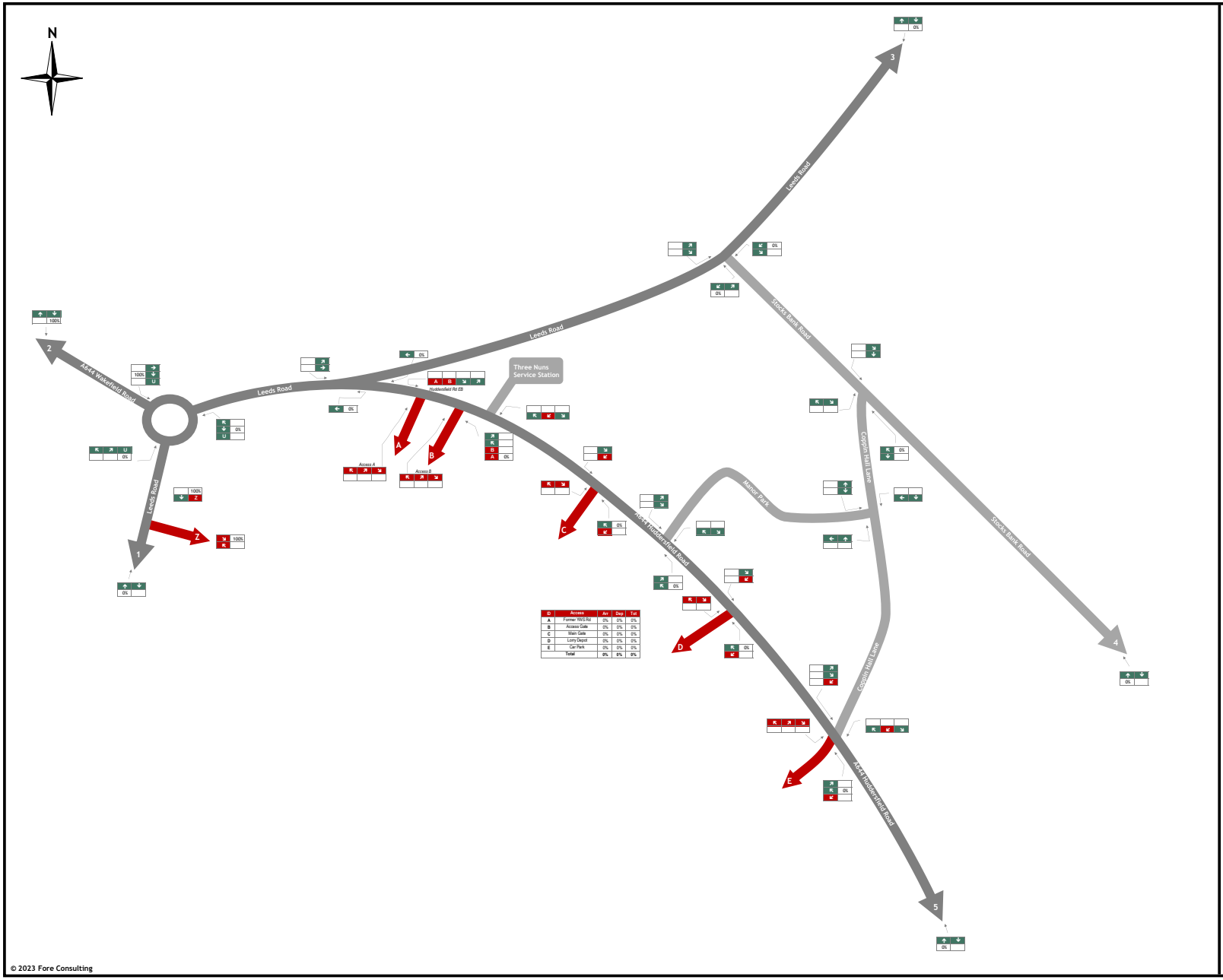
Figure Title:
Trip Distribution Departures (%) - Light Vehicles

Scale:
Not to scale

Figure Status:
Issue

Job Number:
3633

Figure Number:
Figure 7



ID	Access	Arr	Dep	Tot
A	Former NWS Rd	0%	0%	0%
B	Access Gate	0%	0%	0%
C	Main Gate	0%	0%	0%
D	Lorry Depot	0%	0%	0%
E	Car Park	0%	0%	0%
	Total	0%	0%	0%

Key:

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Fore Consulting Limited
1st Floor, 15 St Paul's Street
Leeds
LS1 2JG

enquiries@foreconsulting.co.uk
www.foreconsulting.co.uk

Client:
John Cotton Group Ltd

Project:
John Cotton Site, Mirfield

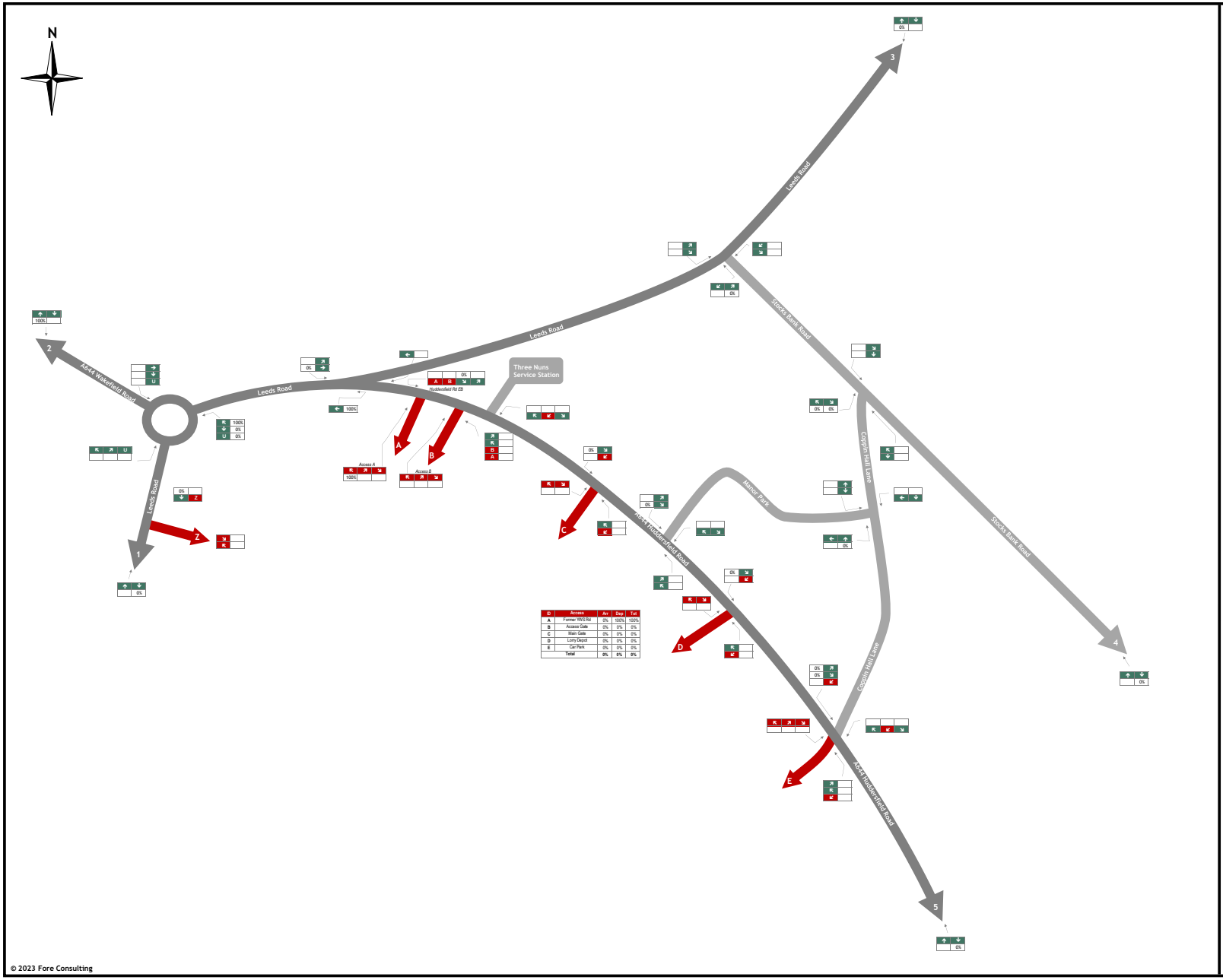
Figure Title:
Trip Distribution Arrivals (%) - HGVs

Scale:
Not to scale

Figure Status:
Issue

Job Number:
3633

Figure Number:
Figure 8



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Fore Consulting Limited
1st Floor, 15 St Paul's Street
Leeds
LS1 2JG

enquiries@foreconsulting.co.uk
www.foreconsulting.co.uk

Client:
John Cotton Group Ltd

Project:
John Cotton Site, Mirfield

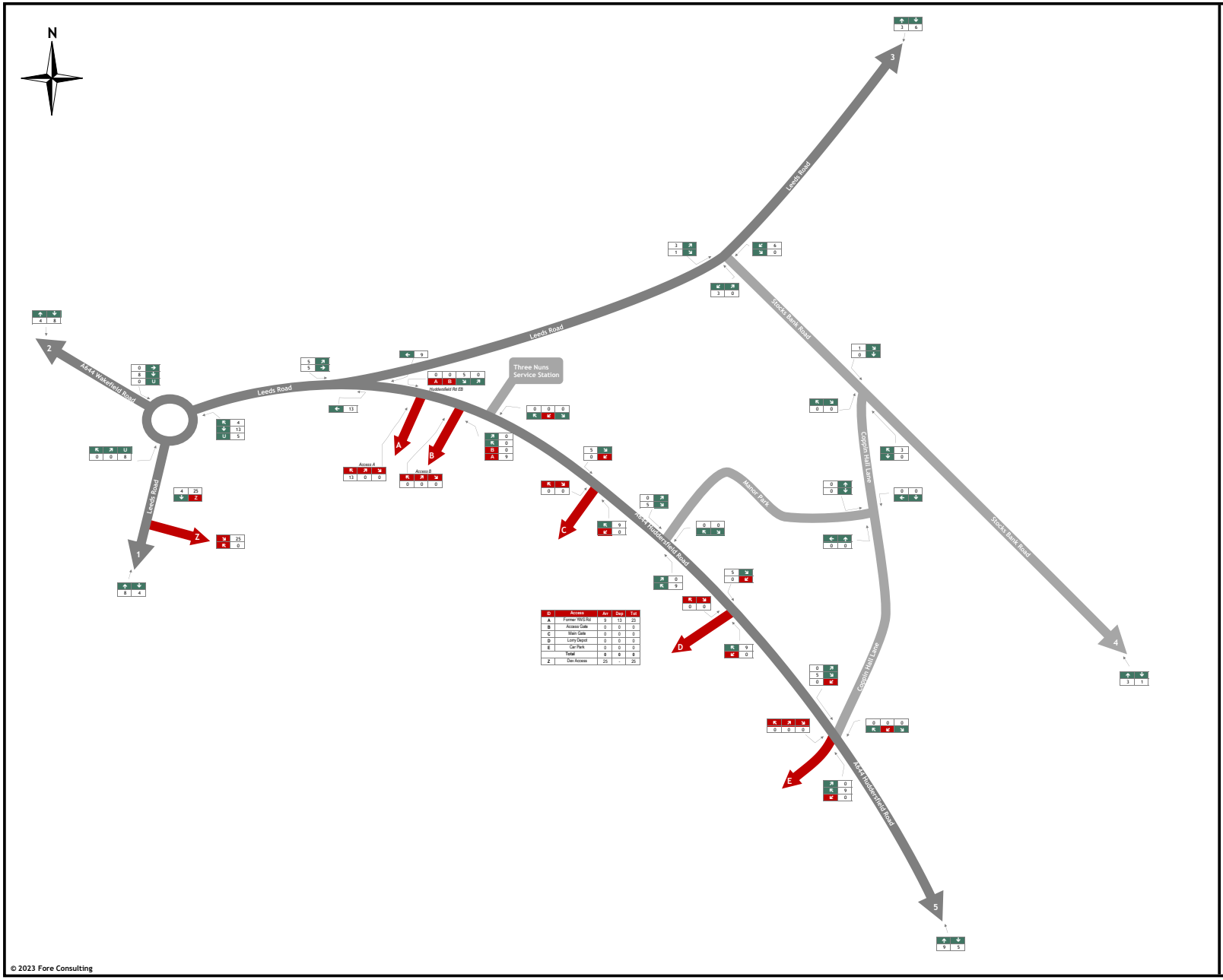
Figure Title:
Trip Distribution Departures (%) - HGVs

Scale:
Not to scale

Figure Status:
Issue

Job Number:
3633

Figure Number:
Figure 9



ID	Access	Arr	Dep	Tot
A	Former NWS Rd	9	13	23
B	Access Gate	0	0	0
C	Main Gate	0	0	0
D	Lorry Depot	0	0	0
E	Car Park	0	0	0
	Total	9	0	9
Z	Dev Access	25	-	25

Key:

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Fore Consulting Limited
1st Floor, 15 St Paul's Street
Leeds
LS1 2JG

enquiries@foreconsulting.co.uk
www.foreconsulting.co.uk

Client:
John Cotton Group Ltd

Project:
John Cotton Site, Mirfield

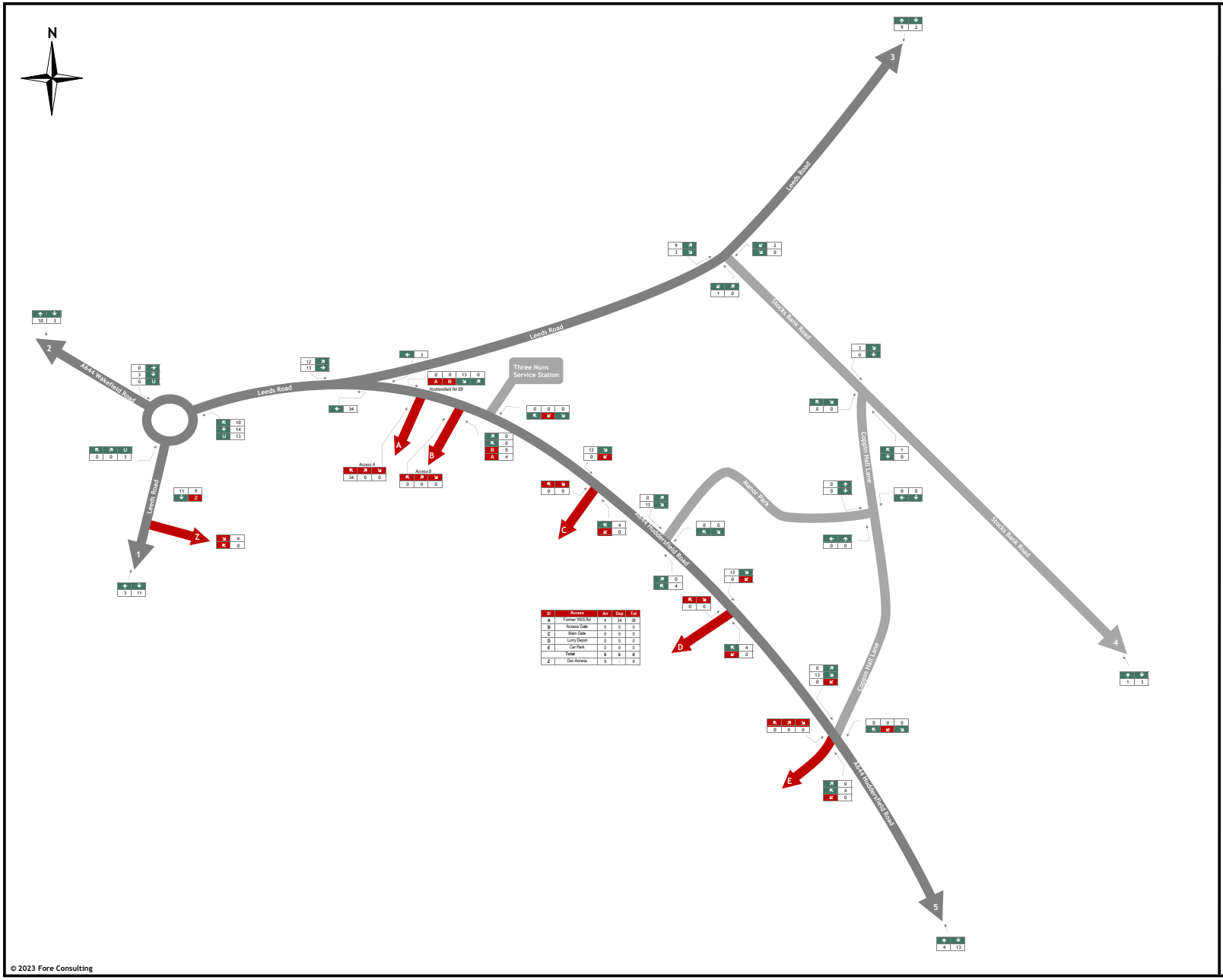
Figure Title:
Development Traffic Flows - Light Vehicles - Weekday AM Peak Hour

Scale:
Not to scale

Figure Status:
Issue

Job Number:
3633

Figure Number:
Figure 10



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

Fore Consulting Limited
1st Floor, 15 St Paul's Street
Leeds
LS1 2JG

enquiries@foreconsulting.co.uk
www.foreconsulting.co.uk

Client:
John Cotton Group Ltd

Project:
John Cotton Site, Mirfield

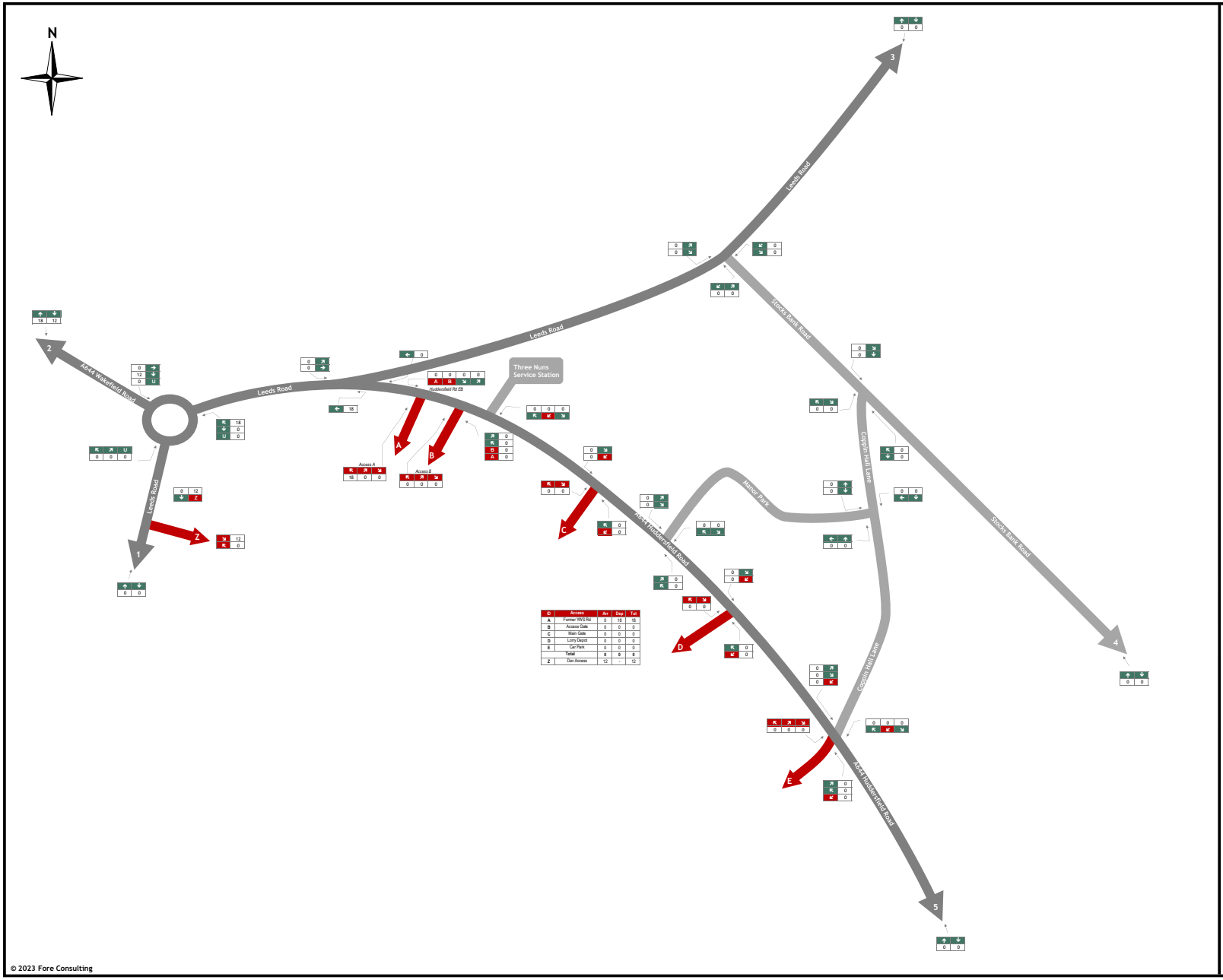
Figure Title:
Development Traffic Flows - Light Vehicles - Weekday PM Peak Hour

Scale:
Not to scale

Figure Status:
Issue

Job Number:
3633

Figure Number:
Figure 11



ID	Access	Arr	Dep	Tot
A	Former NWS Rd	0	18	18
B	Access Gate	0	0	0
C	Main Gate	0	0	0
D	Lorry Depot	0	0	0
E	Car Park	0	0	0
	Total	0	0	0
Z	Dev Access	12	-	12

Key:

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Fore Consulting Limited
1st Floor, 15 St Paul's Street
Leeds
LS1 2JG

enquiries@foreconsulting.co.uk
www.foreconsulting.co.uk

Client:
John Cotton Group Ltd

Project:
John Cotton Site, Kirklees

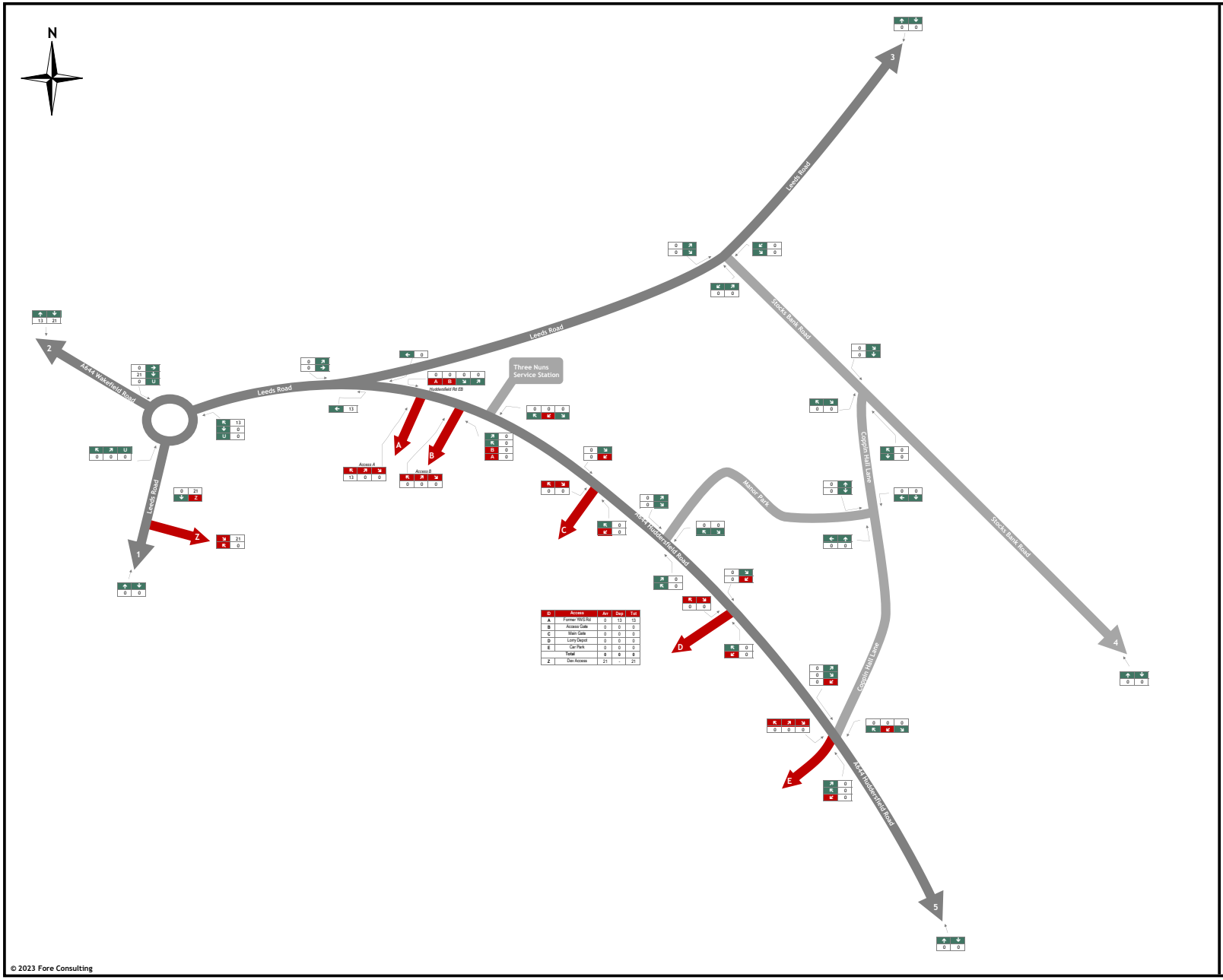
Figure Title:
Development Traffic Flows - HGVs - Weekday AM Peak Hour

Scale:
Not to scale

Figure Status:
Issue

Job Number:
3633

Figure Number:
Figure 12



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Fore Consulting Limited
1st Floor, 15 St Paul's Street
Leeds
LS1 2JG

enquiries@foreconsulting.co.uk
www.foreconsulting.co.uk

Client:
John Cotton Group Ltd

Project:
John Cotton Site, Kirklees

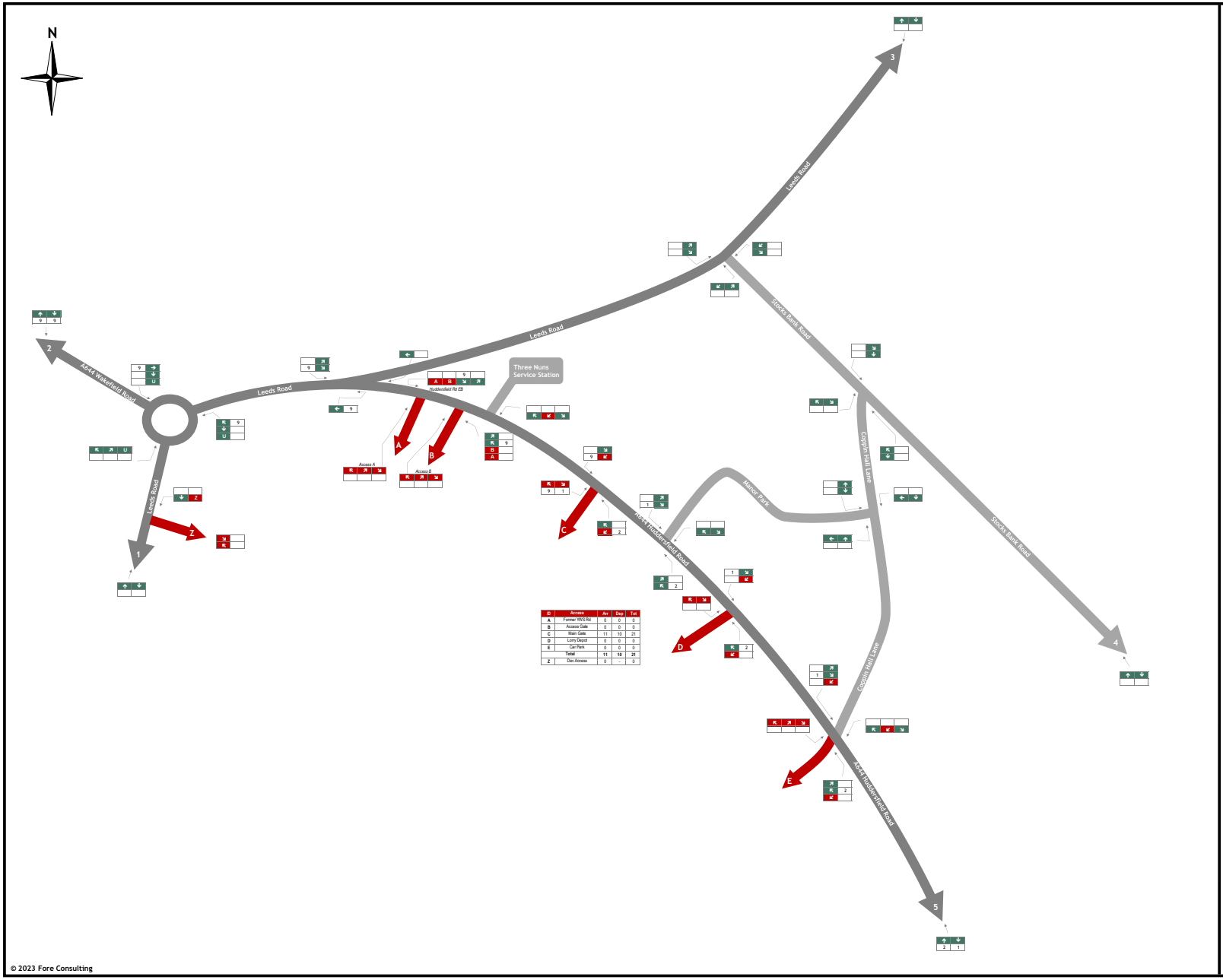
Figure Title:
Development Traffic Flows - HGVs - Weekday PM Peak Hour

Scale:
Not to scale

Figure Status:
Issue

Job Number:
3633

Figure Number:
Figure 13



ID	Access	Arr	Dep	Tot
A	Former NWS Rd	0	0	0
B	Access Gate	0	0	0
C	Main Gate	11	10	21
D	Lorry Depot	0	0	0
E	Car Park	0	0	0
	Total	11	10	21
Z	Dev Access	0	-	0

Key:

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Fore Consulting Limited
1st Floor, 15 St Paul's Street
Leeds
LS1 2JG

enquiries@foreconsulting.co.uk
www.foreconsulting.co.uk

Client:
John Cotton Group Ltd

Project:
John Cotton Site, Mirfield

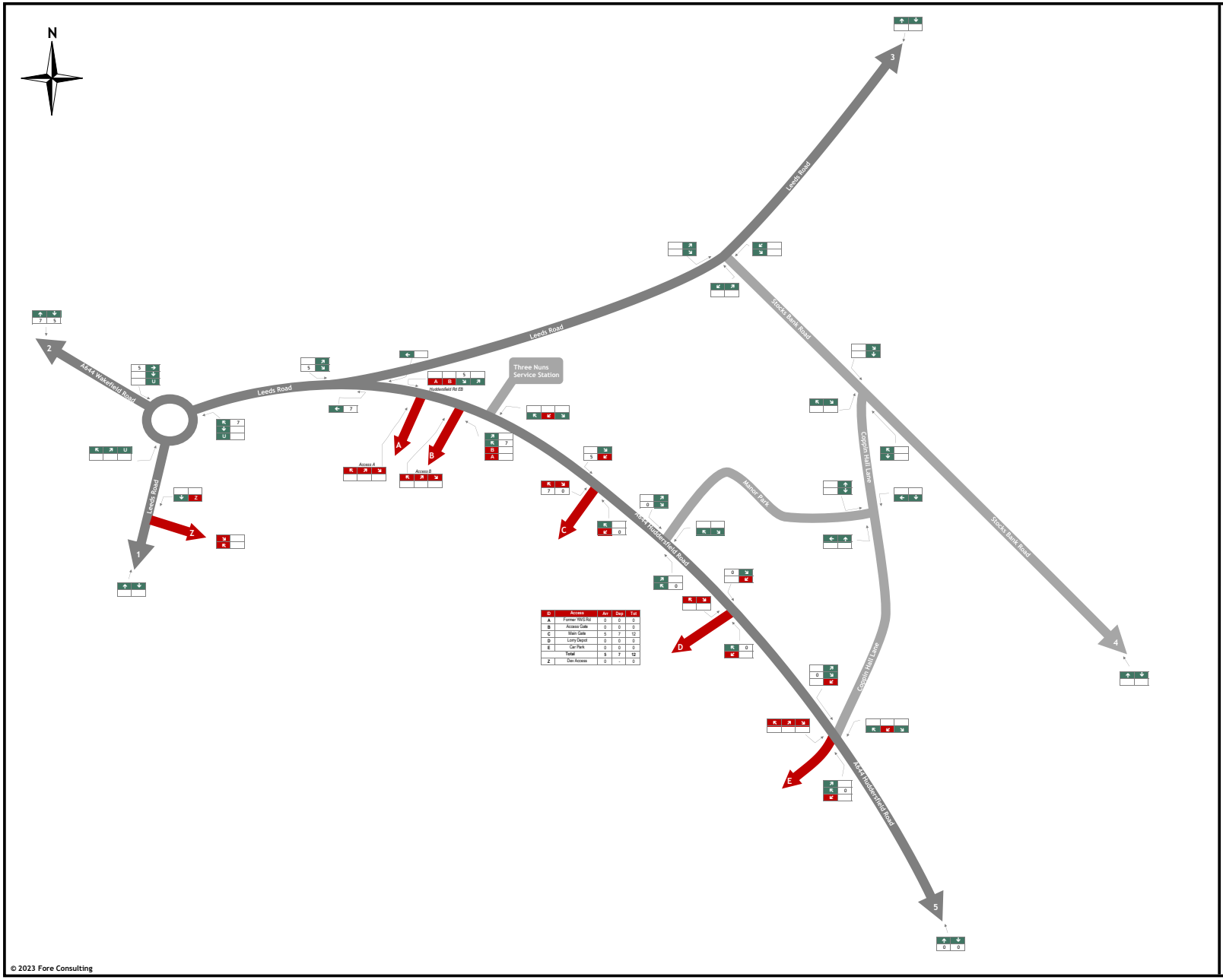
Figure Title:
Existing HGV Traffic Flows to Satellite Storage Sites - Weekday AM Peak Hour

Scale:
Not to scale

Figure Status:
Issue

Job Number:
3633

Figure Number:
Figure 14



Key:

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

Fore Consulting Limited
1st Floor, 15 St Paul's Street
Leeds
LS1 2JG

enquiries@foreconsulting.co.uk
www.foreconsulting.co.uk

Client:
John Cotton Group Ltd

Project:
John Cotton Site, Mirfield

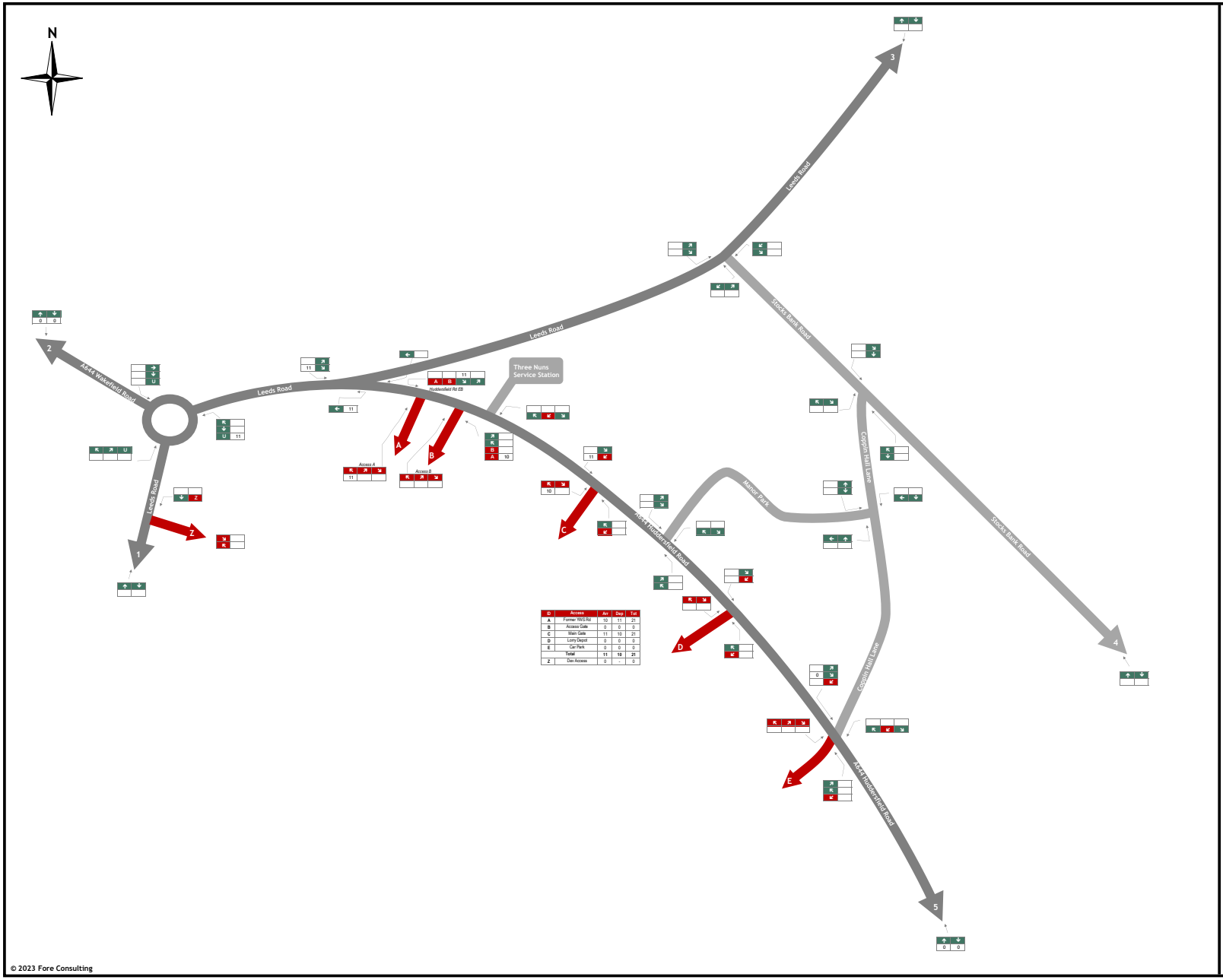
Figure Title:
Existing HGV Traffic Flows to Satellite Storage Sites - Weekday PM Peak Hour

Scale:
Not to scale

Figure Status:
Issue

Job Number:
3633

Figure Number:
Figure 15



ID	Access	Arr	Dep	Tot
A	Former NWS Rd	10	11	21
B	Access Gate	0	0	0
C	Main Gate	11	10	21
D	Lorry Depot	0	0	0
E	Car Park	0	0	0
	Total	11	10	21
Z	Dev Access	0	-	0

Key:

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- Site Access
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Note: The number in each arrowhead relates to the route reference used in the Trip Distribution

Fore Consulting Limited
2nd Floor, Queens House
34 Wellington Street
Leeds
LS1 2DE

0113 246 0204
enquiries@foreconsulting.co.uk
www.foreconsulting.co.uk

Client:
John Cotton Group Ltd

Project:
John Cotton Site, Mirfield

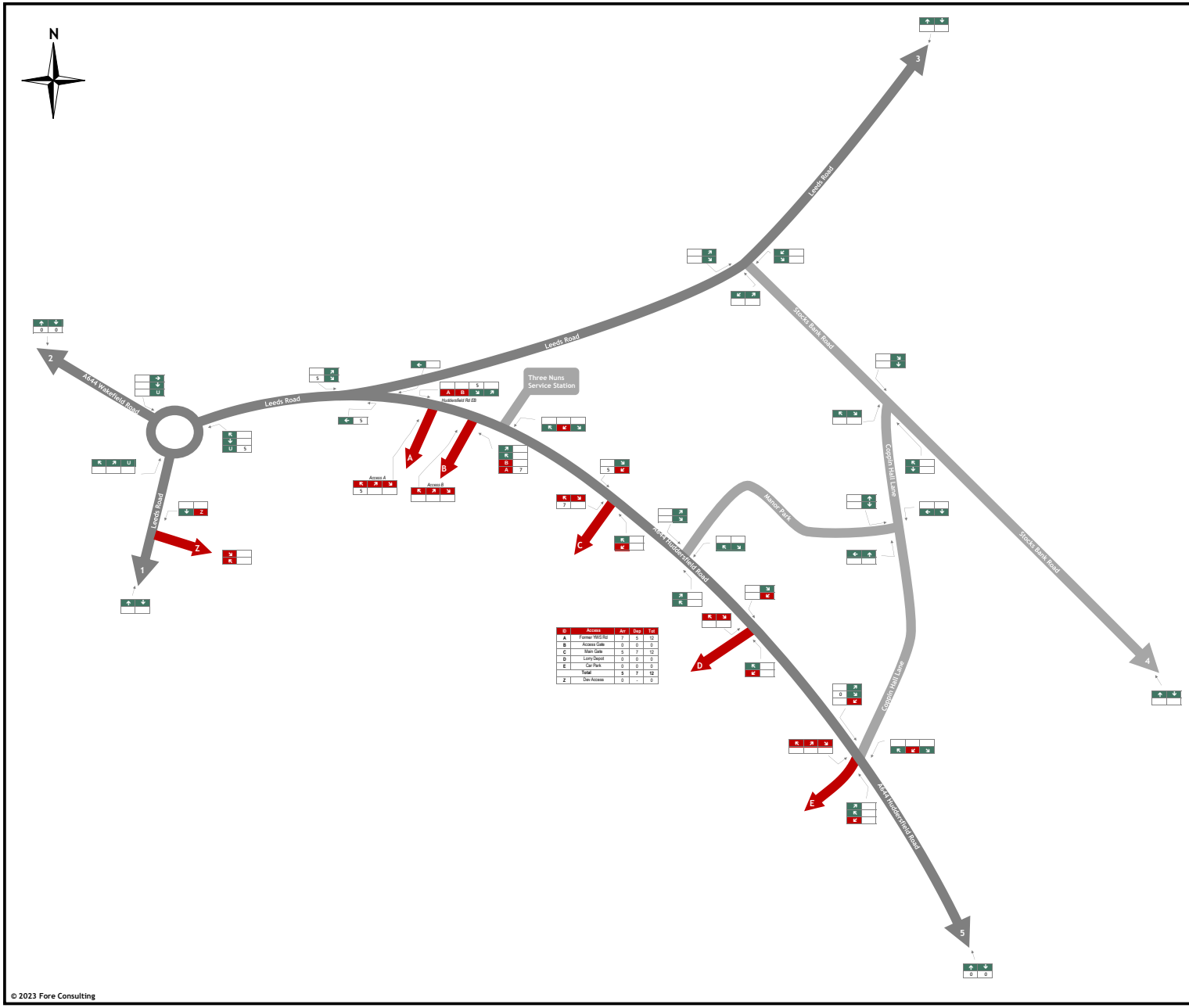
Figure Title:
Reassigned HGV Traffic Flows to Satellite Storage Sites - Weekday AM Peak Hour

Scale:
Not to scale

Figure Status:
Issue

Job Number:
3633

Figure Number:
Figure 16



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Fore Consulting Limited
2nd Floor, Queens House
34 Wellington Street
Leeds
LS1 2DE

0113 246 0204
enquiries@foreconsulting.co.uk
www.foreconsulting.co.uk

Client:
John Cotton Group Ltd

Project:
John Cotton Site, Mirfield

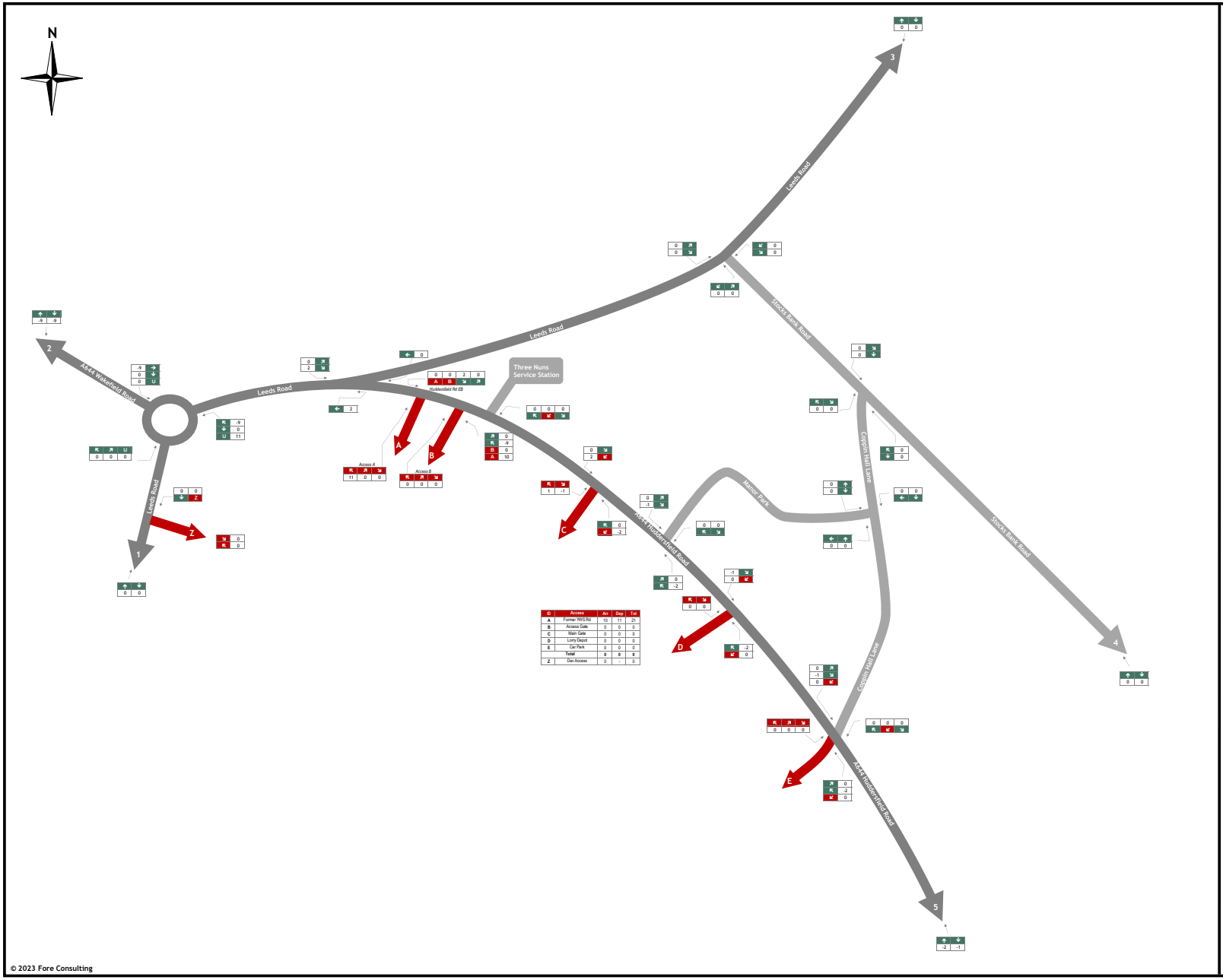
Figure Title:
Reassigned HGV Traffic Flows to Satellite Storage Sites - Weekday PM Peak Hour

Scale:
Not to scale

Figure Status:
Issue

Job Number:
3633

Figure Number:
Figure 17



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Fore Consulting Limited
2nd Floor, Queens House
34 Wellington Street
Leeds
LS1 2DE

0113 246 0204
enquiries@foreconsulting.co.uk
www.foreconsulting.co.uk

Client:
John Cotton Group Ltd

Project:
John Cotton Site, Mirfield

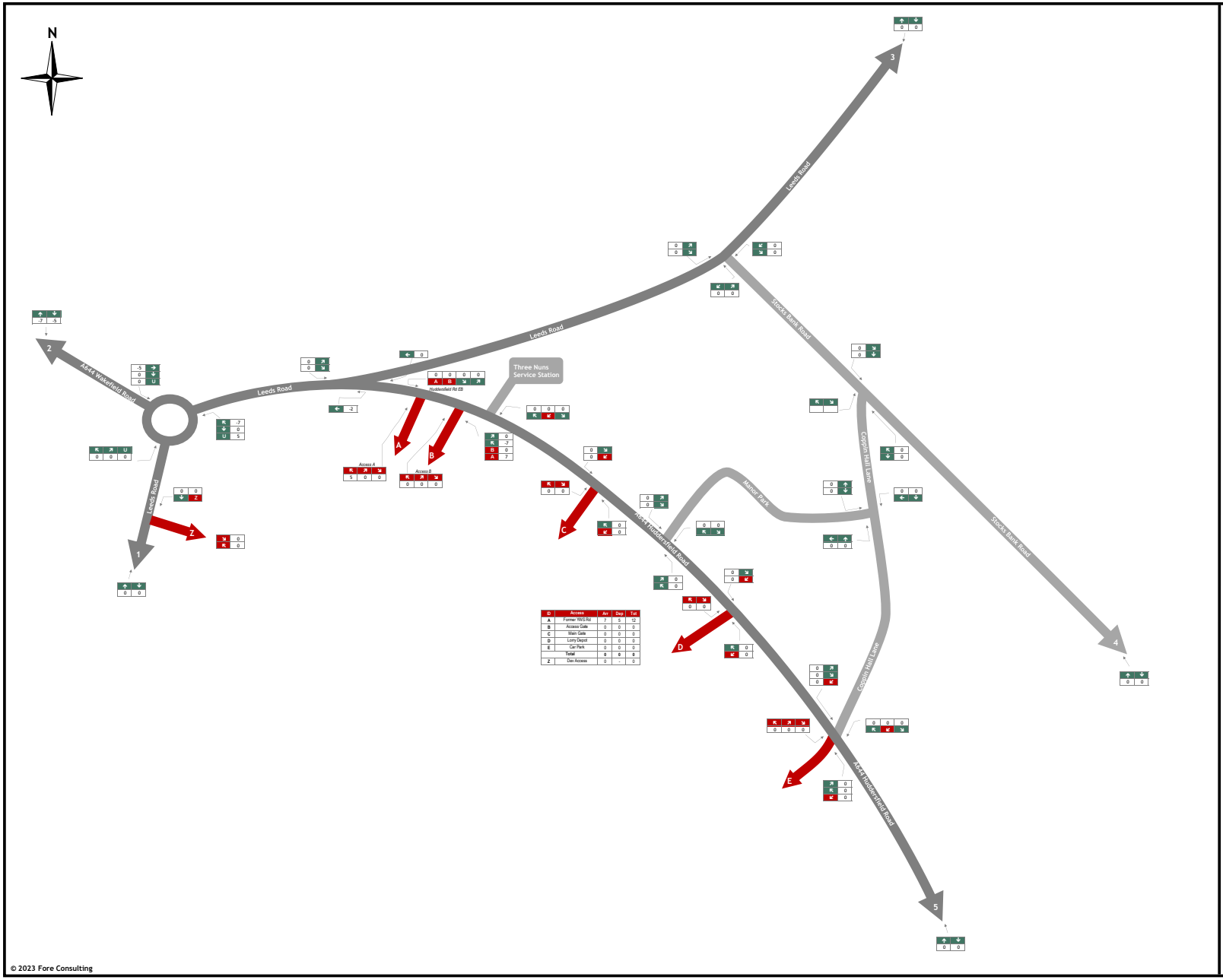
Figure Title:
Net Impact of Reassigned HGV Traffic Flows to Satellite Storage Sites - Weekday AM Peak Hour

Scale:
Not to scale

Figure Status:
Issue

Job Number:
3633

Figure Number:
Figure 18



ID	Access	Arr	Dep	Tot
A	Former NWS Rd	7	5	12
B	Access Gate	0	0	0
C	Main Gate	0	0	0
D	Lorry Depot	0	0	0
E	Car Park	0	0	0
	Total	0	0	0
Z	Dev Access	0	-	0

Key:

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

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

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2nd Floor, Queens House
34 Wellington Street
Leeds
LS1 2DE

0113 246 0204
enquiries@foreconsulting.co.uk
www.foreconsulting.co.uk

Client:
John Cotton Group Ltd

Project:
John Cotton Site, Mirfield

Figure Title:
Net Impact of Reassigned HGV Traffic Flows to Satellite Storage Sites - Weekday PM Peak Hour

Scale:
Not to scale

Figure Status:
Issue

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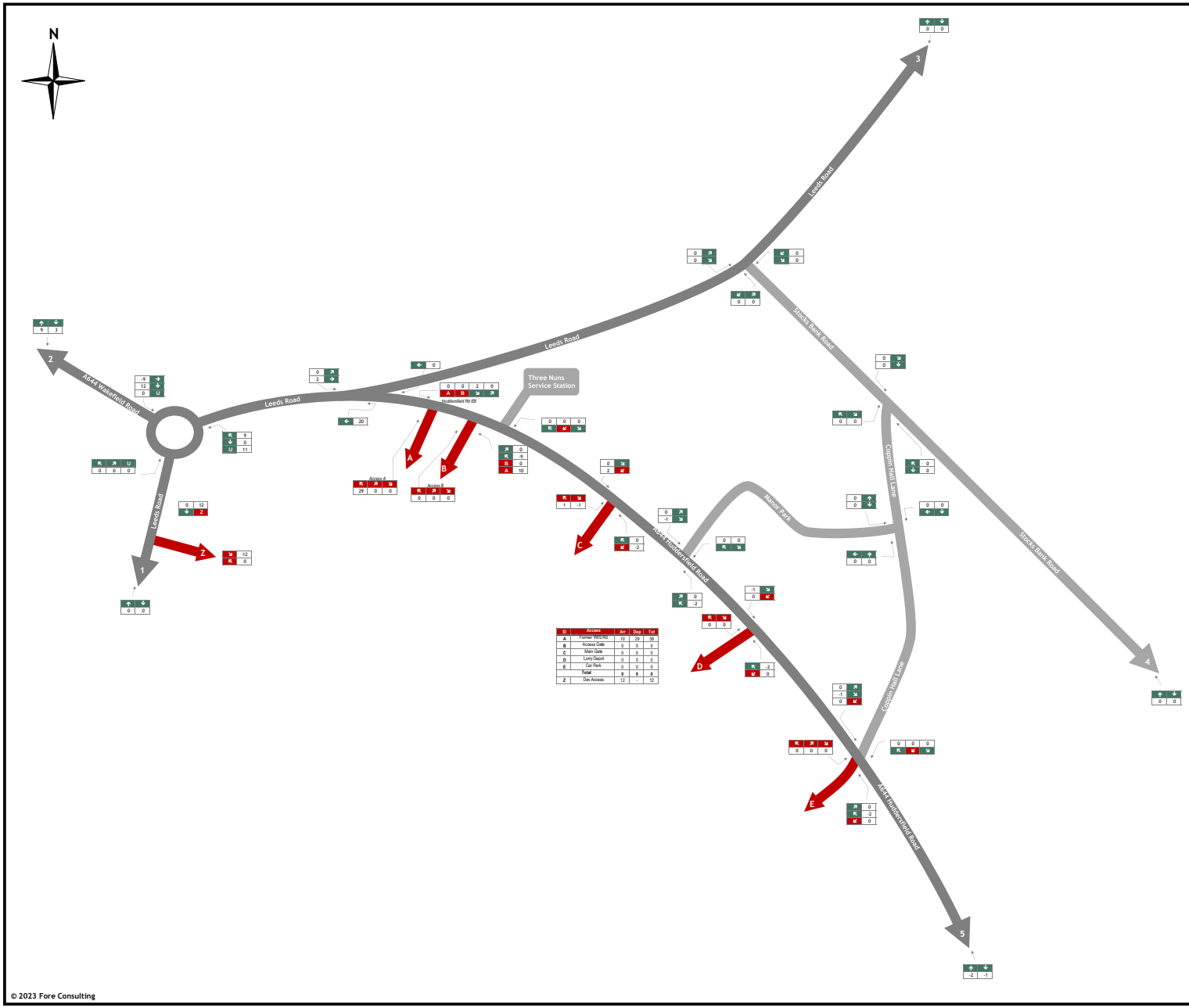
3633

Figure Number:
Figure 19



Key:

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

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

Fore Consulting Limited
1st Floor, 15 St Paul's Street
Leeds
LS1 2JG

enquiries@foreconsulting.co.uk
www.foreconsulting.co.uk

Client:
John Cotton Group Ltd

Project:
John Cotton Site, Mirfield

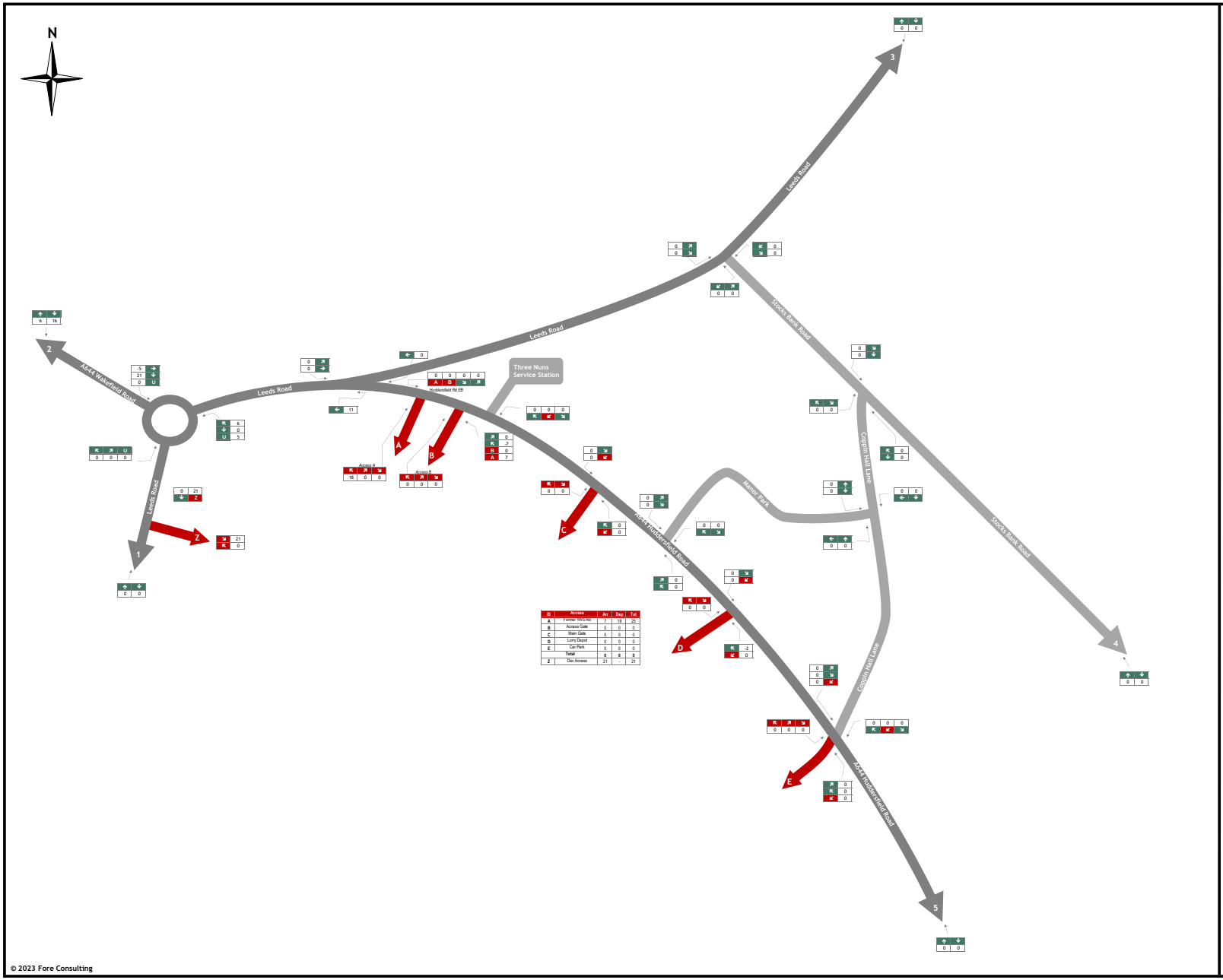
Figure Title:
Net Development Traffic Flows - HGVs (Including Reassigned HGV Trips to Satellite Storage Sites) - Weekday AM Peak Hour

Scale:
Not to scale

Figure Status:
Issue

Job Number:
3633

Figure Number:
Figure 20



Arrivals 21
Departures

Key:

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

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

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1st Floor, 15 St Paul's Street
Leeds
LS1 2JG

enquiries@foreconsulting.co.uk
www.foreconsulting.co.uk

Client:
John Cotton Group Ltd

Project:
John Cotton Site, Mirfield

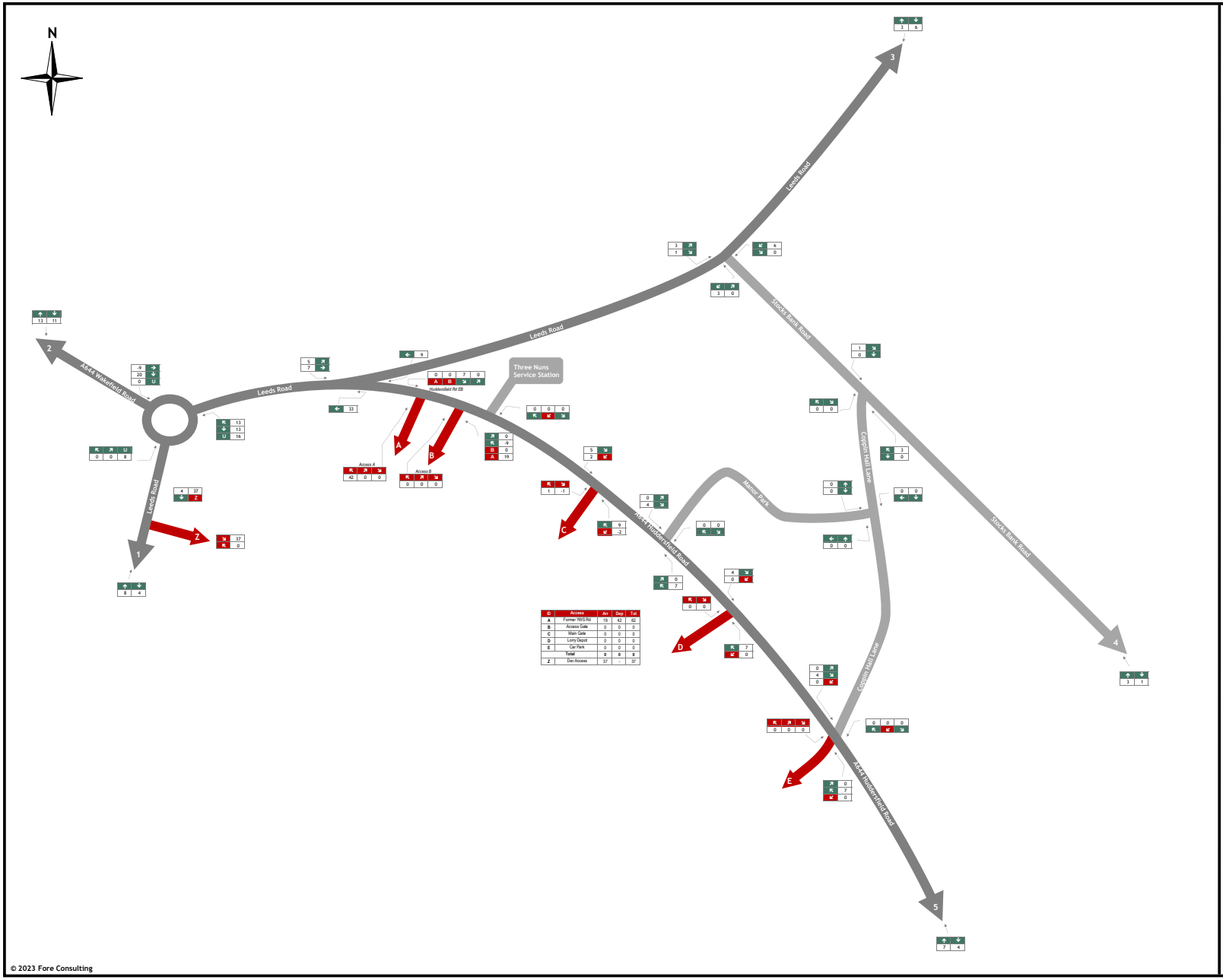
Figure Title:
Net Development Traffic Flows - HGVS (Including Reassigned HGV Trips to Satellite Storage Sites) - Weekday PM Peak Hour

Scale:
Not to scale

Figure Status:
Issue

Job Number:
3633

Figure Number:
Figure 21



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Key:

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

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

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Leeds
LS1 2JG

enquiries@foreconsulting.co.uk
www.foreconsulting.co.uk

Client:
John Cotton Group Ltd

Project:
John Cotton Site, Mirfield

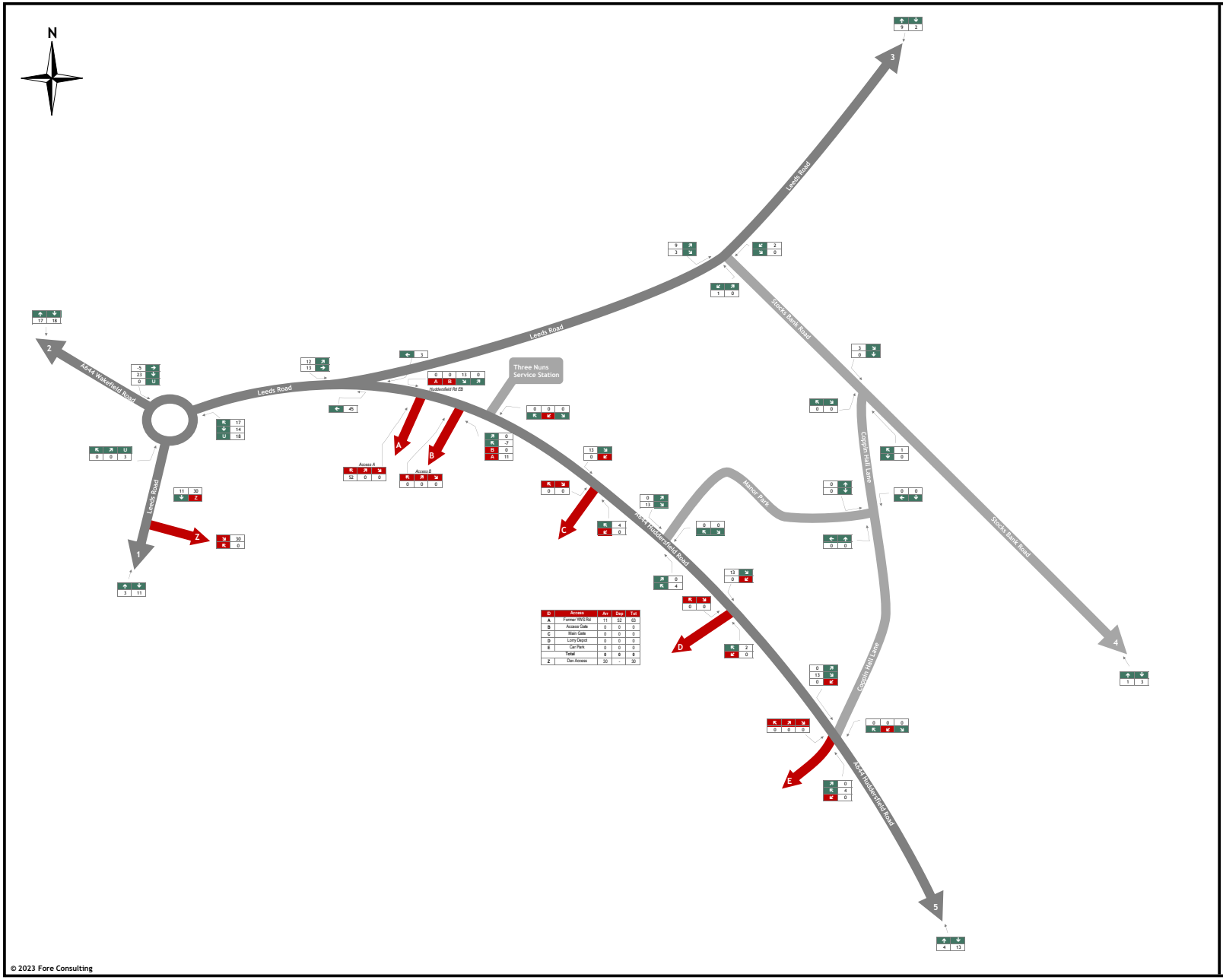
Figure Title:
Net Development Traffic Flows - Total Vehicles - Weekday AM Peak Hour

Scale:
Not to scale

Figure Status:
Issue

Job Number:
3633

Figure Number:
Figure 22



Key:

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

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

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1st Floor, 15 St Paul's Street
Leeds
LS1 2JG

enquiries@foreconsulting.co.uk
www.foreconsulting.co.uk

Client:
John Cotton Group Ltd

Project:
John Cotton Site, Mirfield

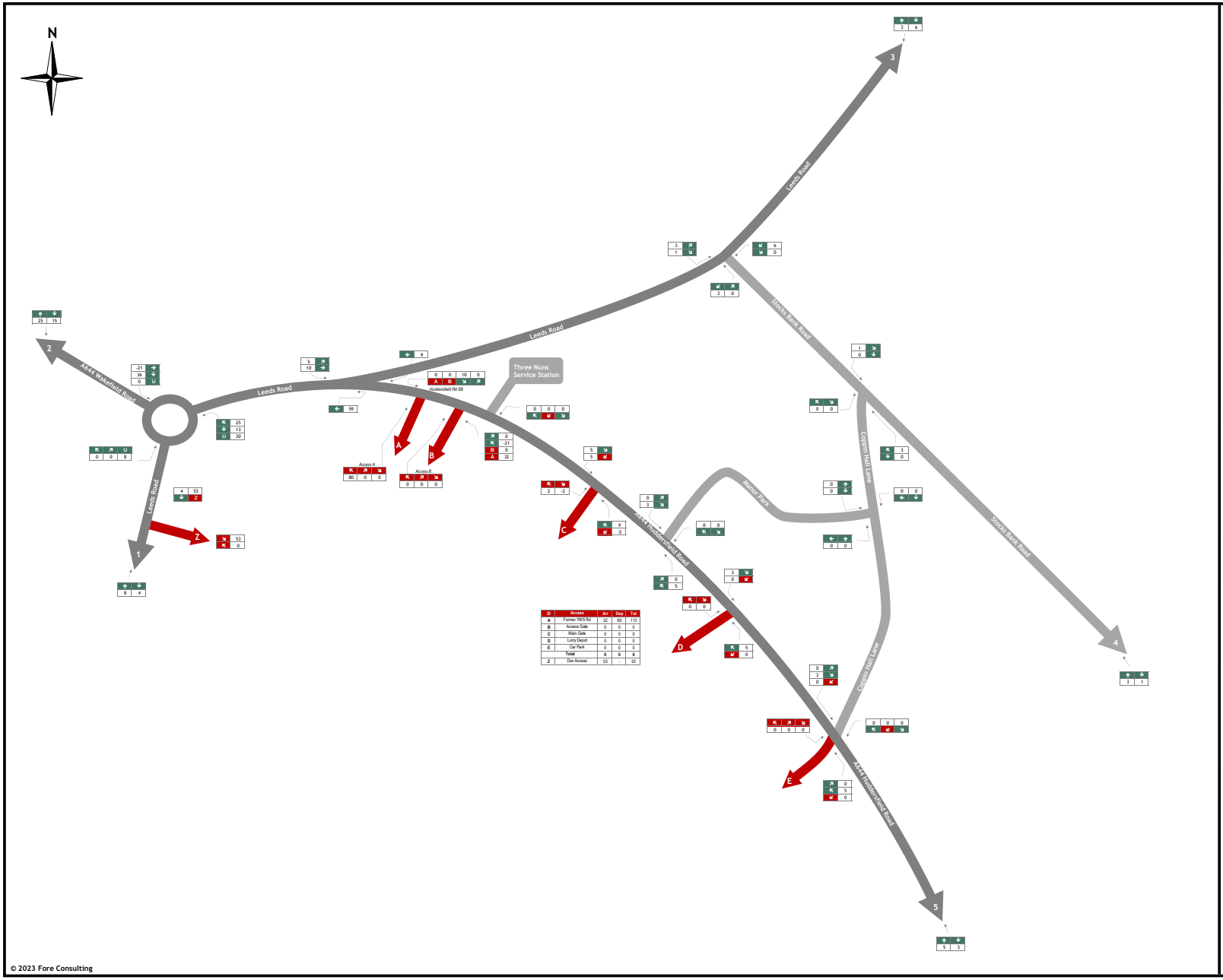
Figure Title:
Net Development Traffic Flows - Total Vehicles - Weekday PM Peak Hour

Scale:
Not to scale

Figure Status:
Issue

Job Number:
3633

Figure Number:
Figure 23



Key:

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

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

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1st Floor, 15 St Paul's Street
Leeds
LS1 2JG

enquiries@foreconsulting.co.uk
www.foreconsulting.co.uk

Client:
John Cotton Group Ltd

Project:
John Cotton Site, Mirfield

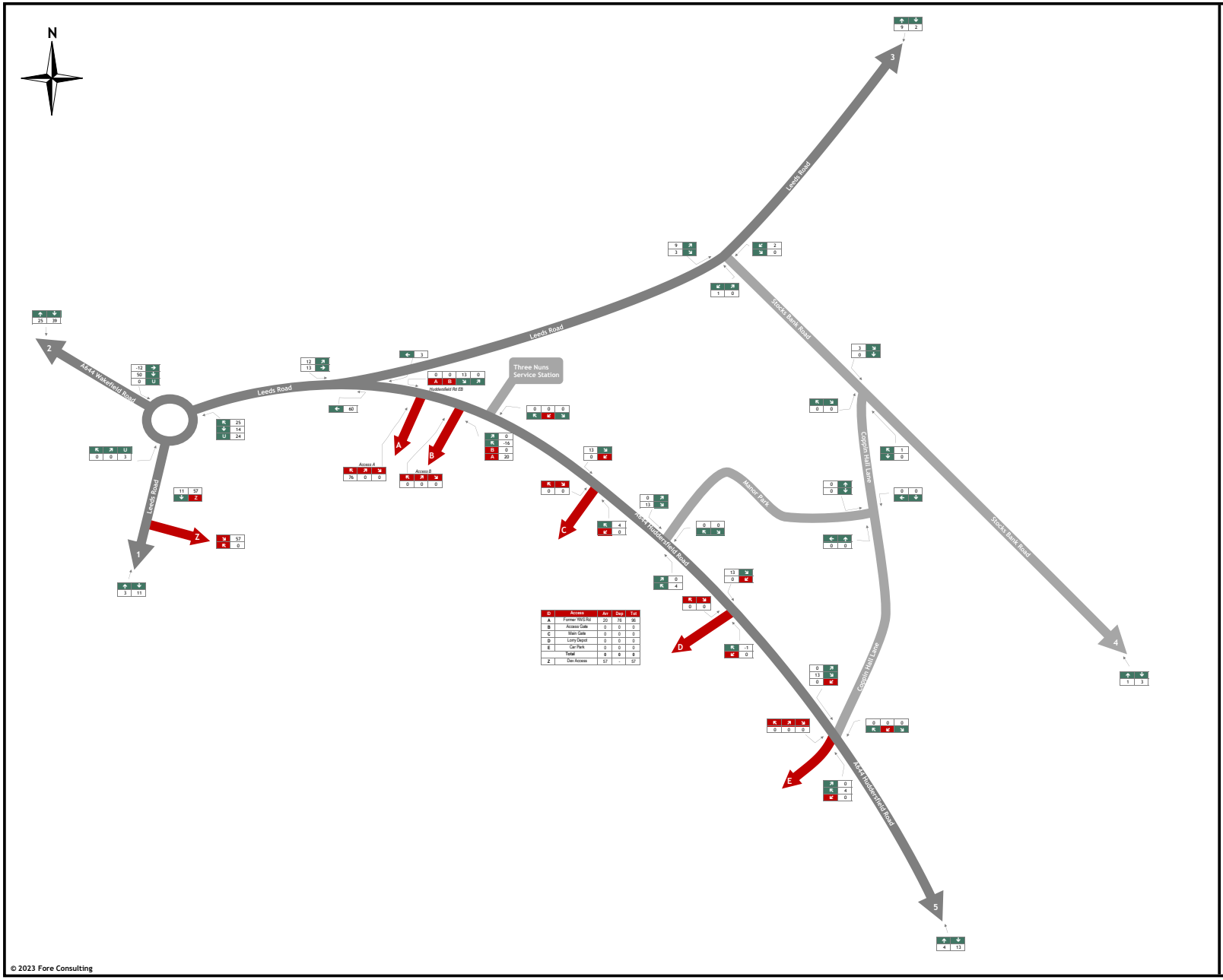
Figure Title:
Net Development Traffic Flows - PCUs - Weekday AM Peak Hour

Scale:
Not to scale

Figure Status:
Issue

Job Number:
3633

Figure Number:
Figure 24



Key:

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

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

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Leeds
LS1 2JG

enquiries@foreconsulting.co.uk
www.foreconsulting.co.uk

Client:
John Cotton Group Ltd

Project:
John Cotton Site, Mirfield

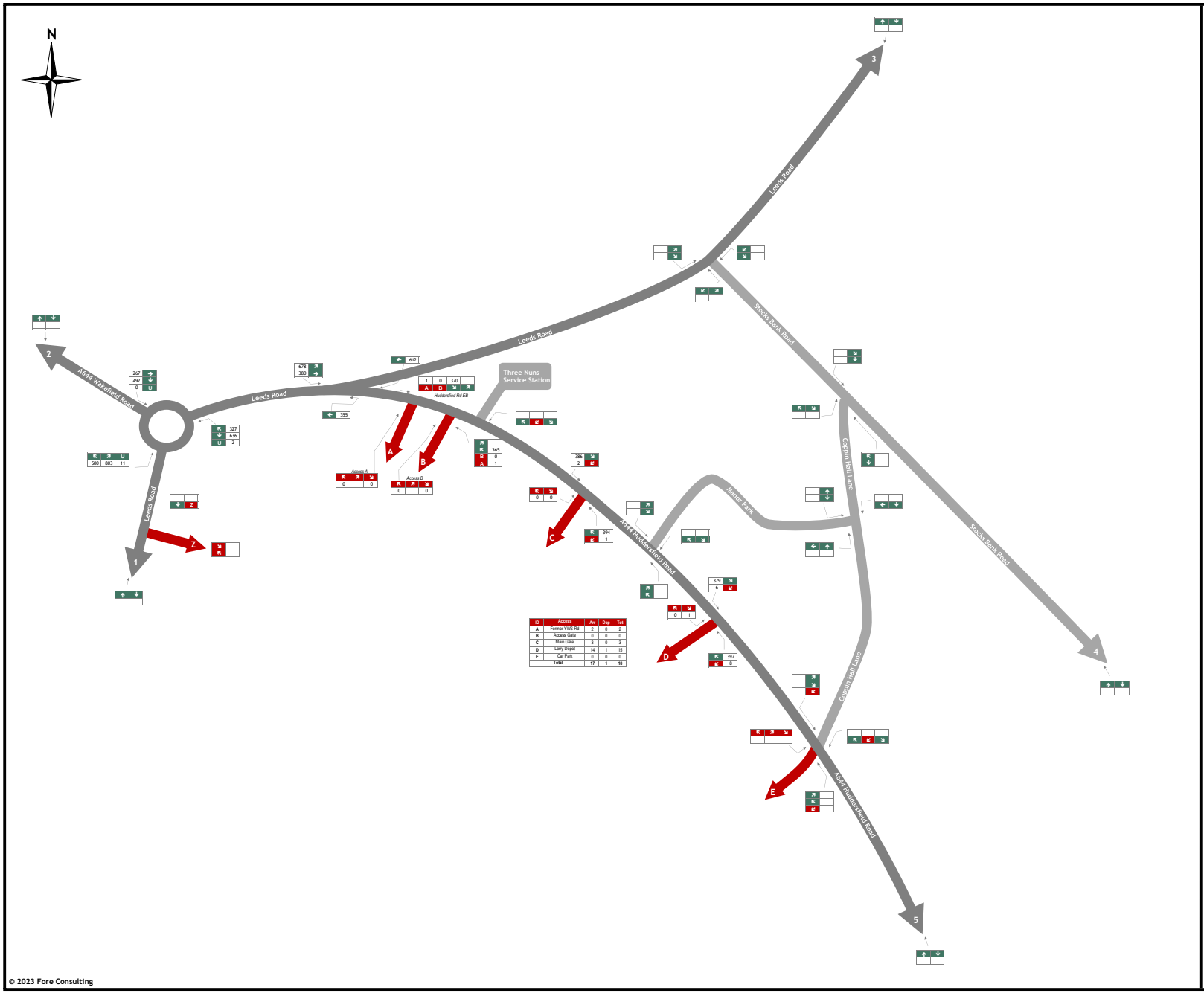
Figure Title:
Net Development Traffic Flows - PCUs - Weekday PM Peak Hour

Scale:
Not to scale

Figure Status:
Issue

Job Number:
3633

Figure Number:
Figure 25



Key:

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

Note: The number in each arrowhead relates to the route reference

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1st Floor, 15 St Paul's Street
Leeds
LS1 2JG

enquiries@foreconsulting.co.uk
www.foreconsulting.co.uk

Client:
John Cotton Group Ltd

Project:
John Cotton Site, Kirklees

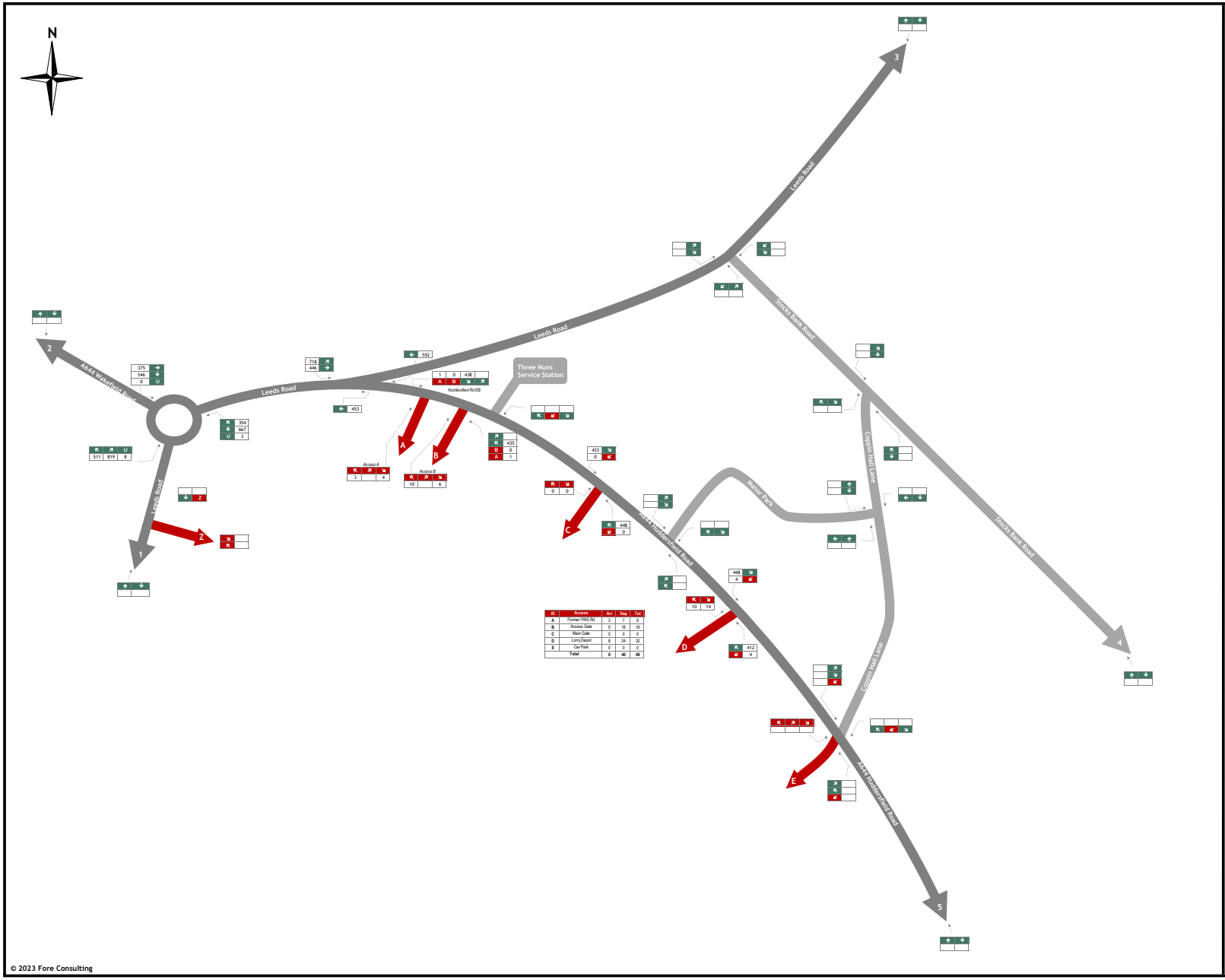
Figure Title:
2022 Base Traffic Flows - Light Vehicles - Weekday AM Peak Hour

Scale:
Not to scale

Figure Status:
Issue

Job Number:
3633

Figure Number:
Figure 26



Key:

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

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

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Leeds
LS1 2JG

enquiries@foreconsulting.co.uk
www.foreconsulting.co.uk

Client:
John Cotton Group Ltd

Project:
John Cotton Site, Kirklees

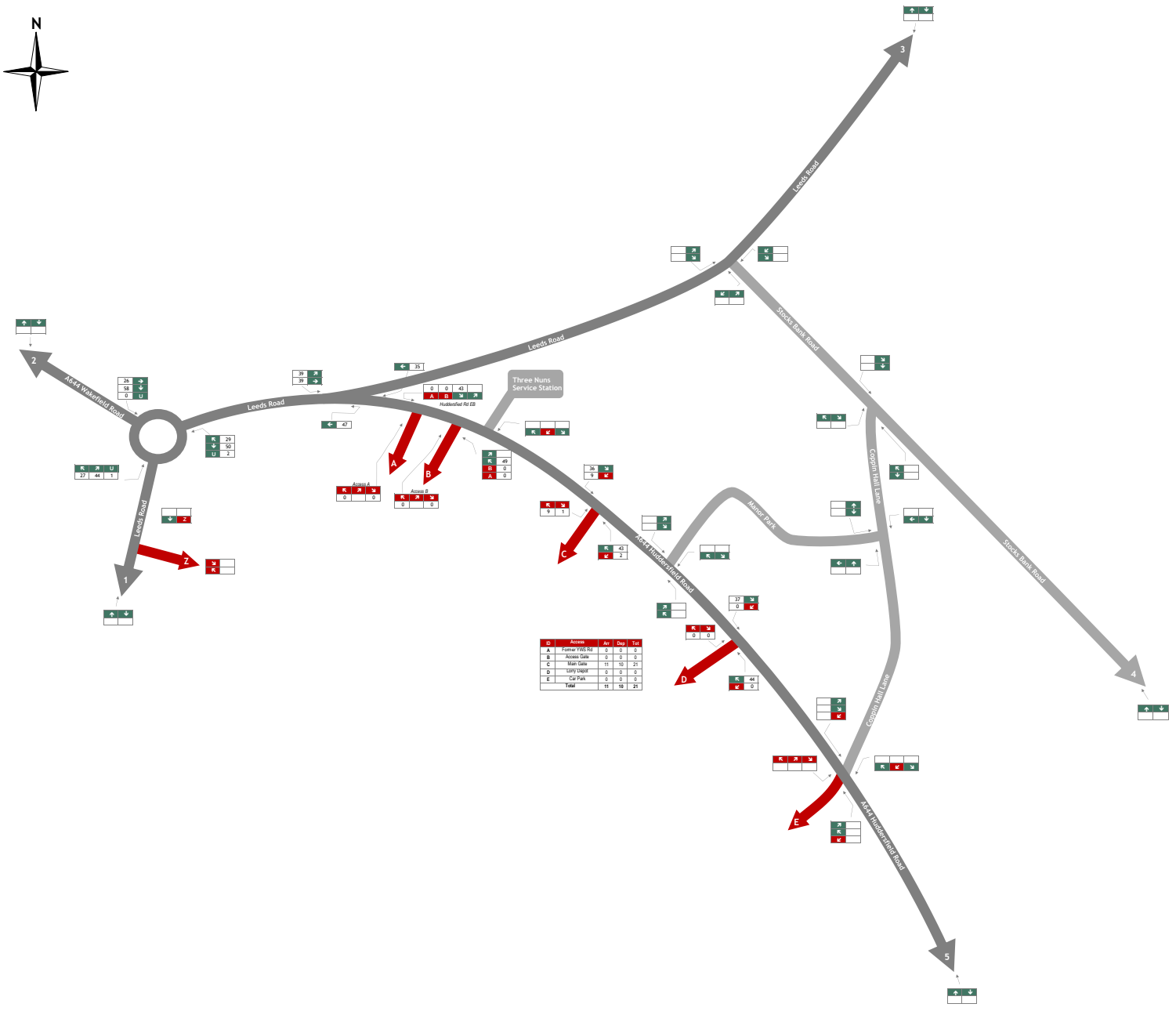
Figure Title:
2022 Base Traffic Flows - Light Vehicles - Weekday PM Peak Hour

Scale:
Not to scale

Figure Status:
Issue

Job Number:
3633

Figure Number:
Figure 27



ID	Access	Arr	Dep	Tot
A	Former YWS Rd	0	0	0
B	Access Gate	0	0	0
C	Main Gate	11	10	21
D	Lorry Depot	0	0	0
E	Car Park	0	0	0
	Total	11	10	21

Key:

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

Note: The number in each arrowhead relates to the route reference

Fore Consulting Limited
1st Floor, 15 St Paul's Street
Leeds
LS1 2JG

enquiries@foreconsulting.co.uk
www.foreconsulting.co.uk

Client:
John Cotton Group Ltd

Project:
John Cotton Site, Kirklees

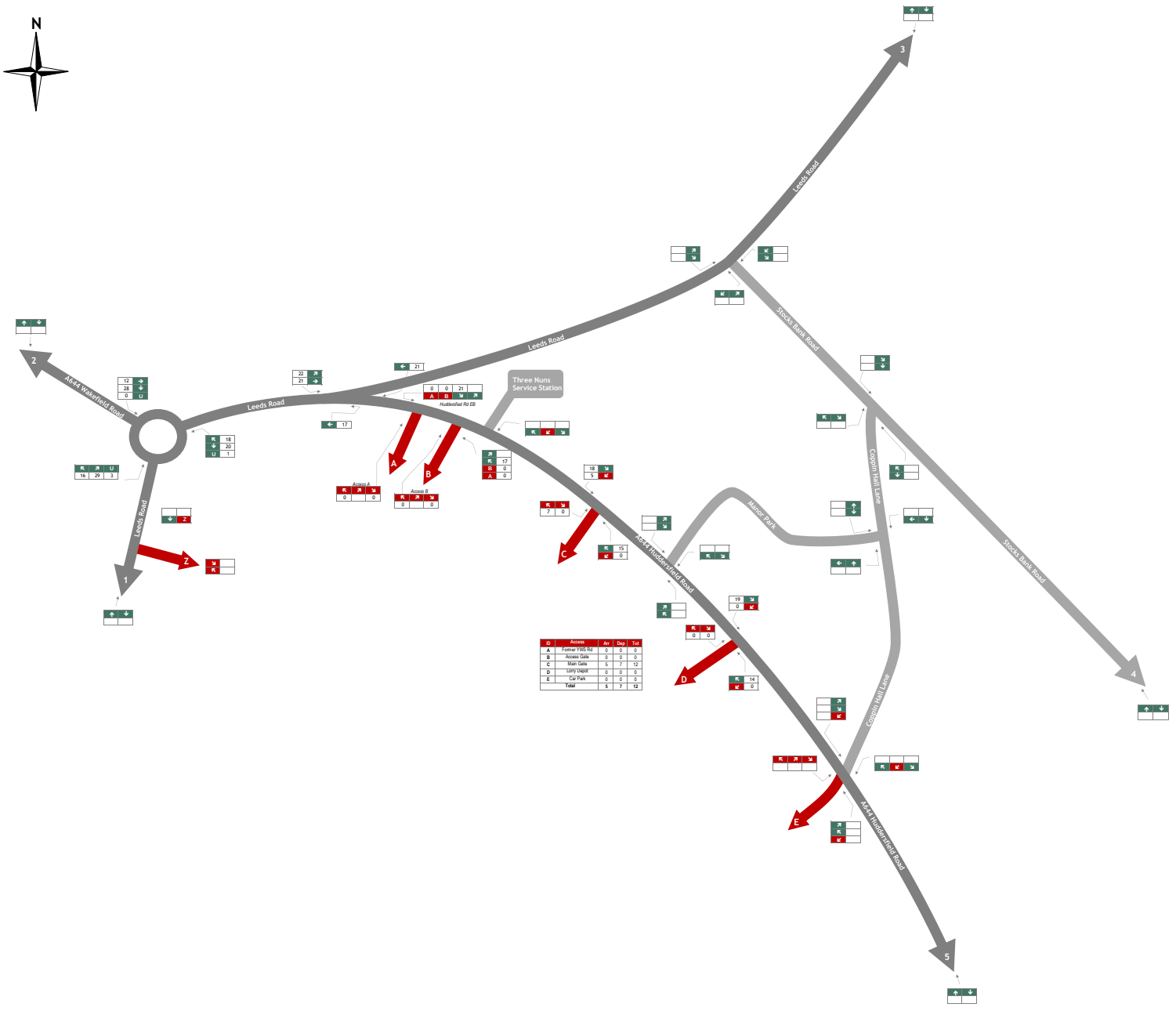
Figure Title:
2022 Base Traffic Flows - HGVs - Weekday AM Peak Hour

Scale:
Not to scale

Figure Status:
Issue

Job Number:
3633

Figure Number:
Figure 28



Key:

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

Note: The number in each arrowhead relates to the route reference

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Leeds
LS1 2JG

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www.foreconsulting.co.uk

Client:
John Cotton Group Ltd

Project:
John Cotton Site, Kirklees

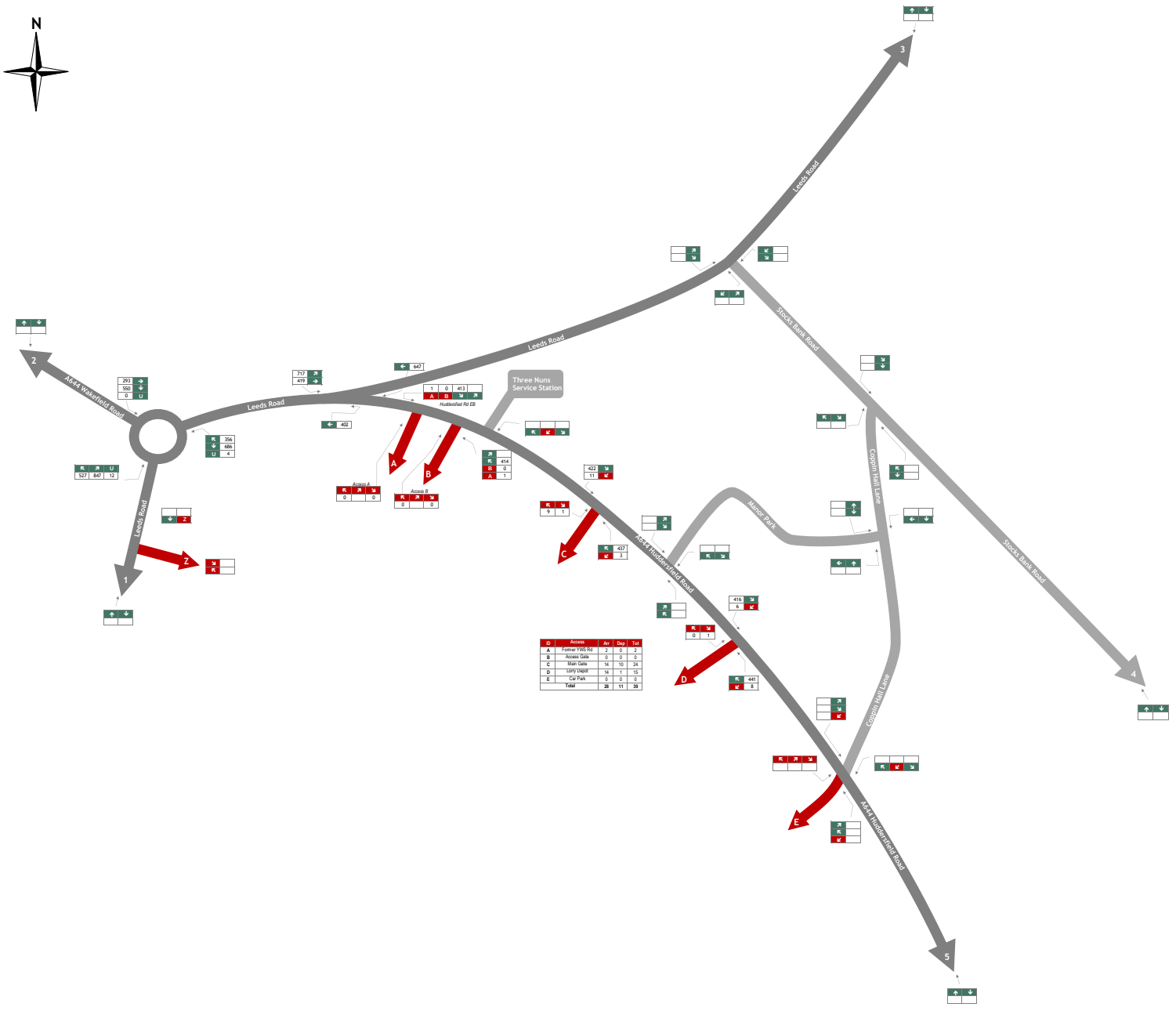
Figure Title:
2022 Base Traffic Flows - HGVs - Weekday PM Peak Hour

Scale:
Not to scale

Figure Status:
Issue

Job Number:
3633

Figure Number:
Figure 29



Key:

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

Note: The number in each arrowhead relates to the route reference

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Leeds
LS1 2JG

enquiries@foreconsulting.co.uk
www.foreconsulting.co.uk

Client:
John Cotton Group Ltd

Project:
John Cotton Site, Kirklees

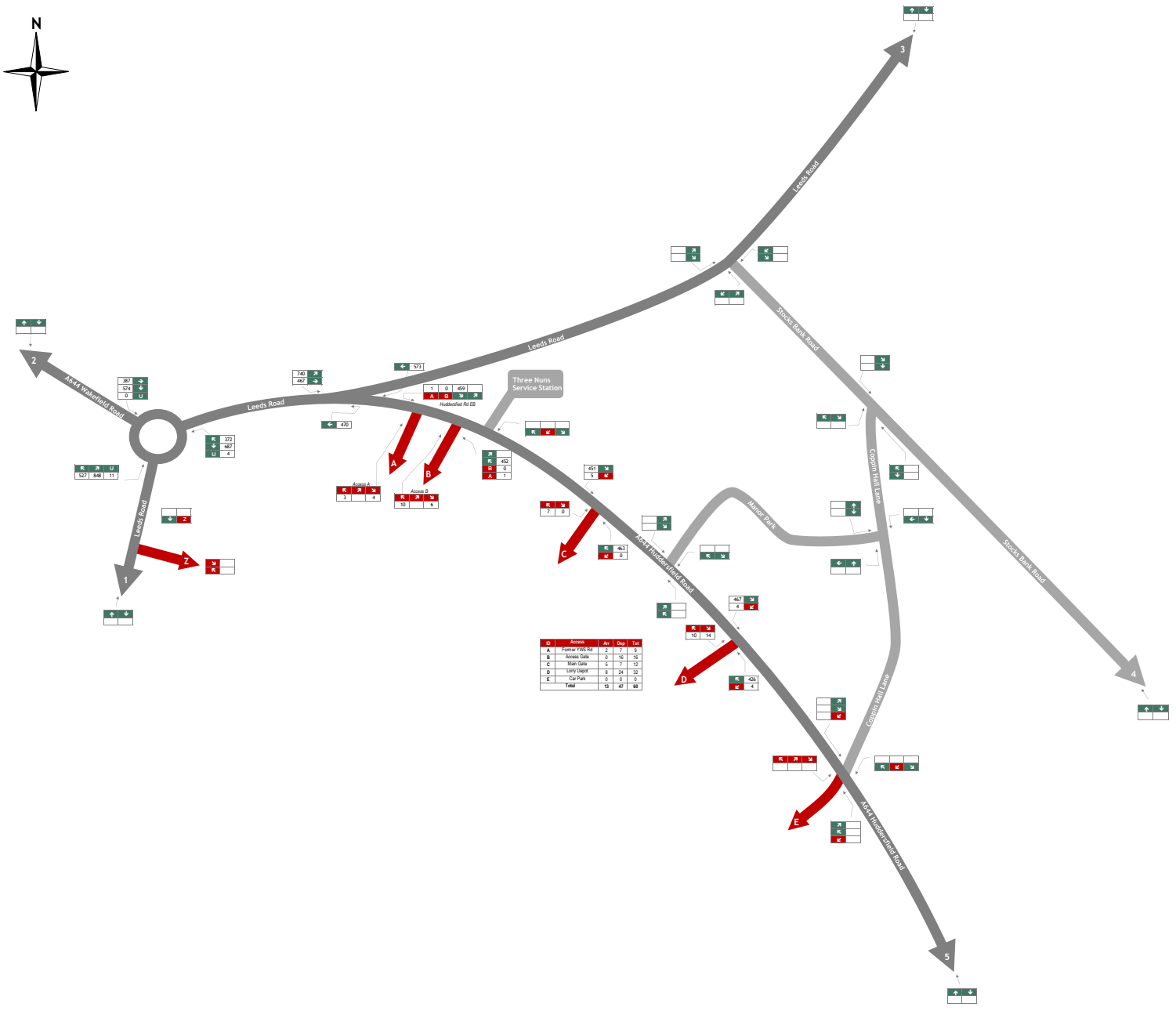
Figure Title:
2022 Base Traffic Flows - Total Vehicles - Weekday AM Peak Hour

Scale:
Not to scale

Figure Status:
Issue

Job Number:
3633

Figure Number:
Figure 30



Key:

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

Note: The number in each arrowhead relates to the route reference

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Leeds
LS1 2JG

enquiries@foreconsulting.co.uk
www.foreconsulting.co.uk

Client:
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Project:
John Cotton Site, Kirklees

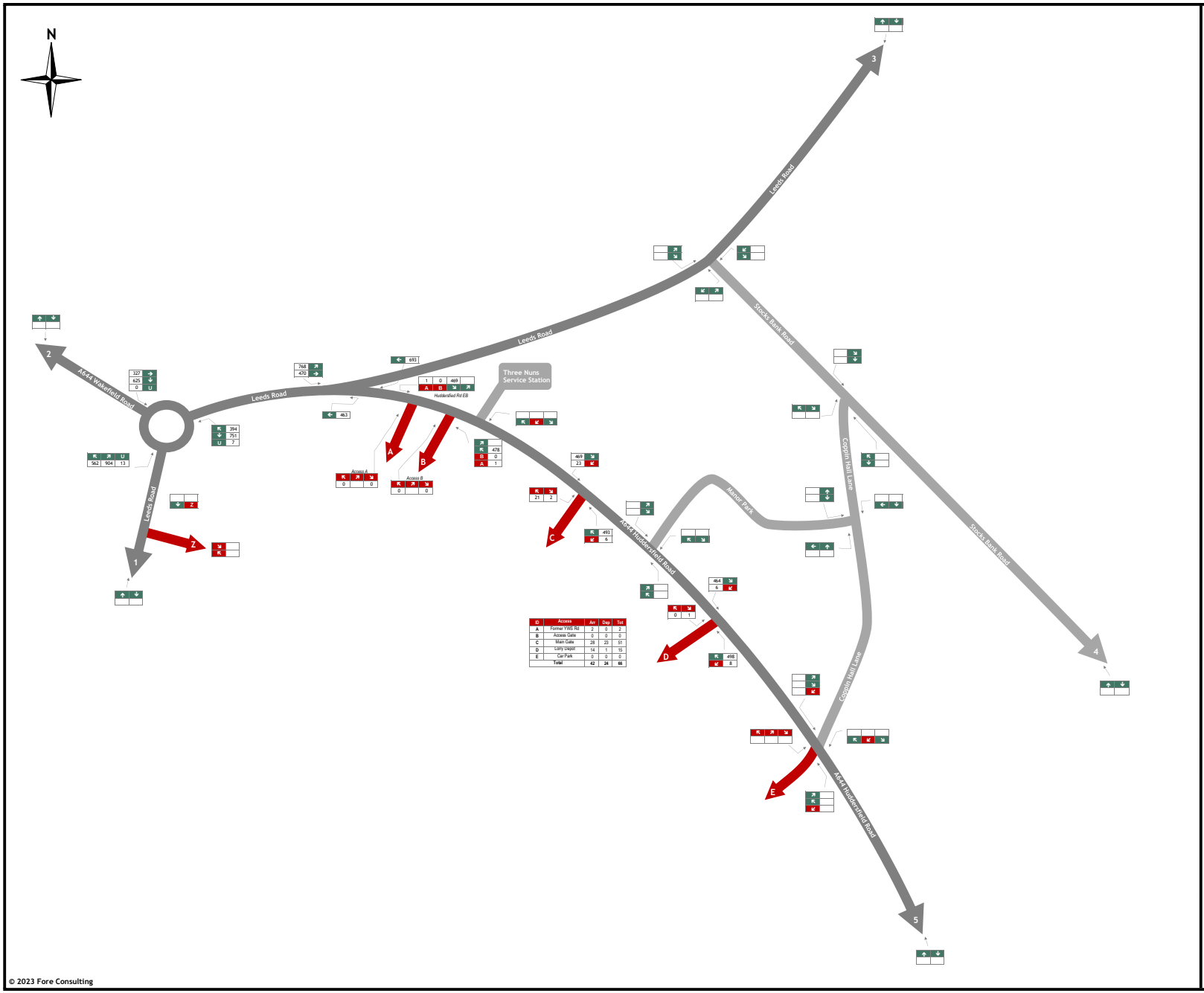
Figure Title:
2022 Base Traffic Flows - Total Vehicles - Weekday PM Peak Hour

Scale:
Not to scale

Figure Status:
Issue

Job Number:
3633

Figure Number:
Figure 31



Key:

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

Note: The number in each arrowhead relates to the route reference

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Leeds
LS1 2JG

enquiries@foreconsulting.co.uk
www.foreconsulting.co.uk

Client:
John Cotton Group Ltd

Project:
John Cotton Site, Kirklees

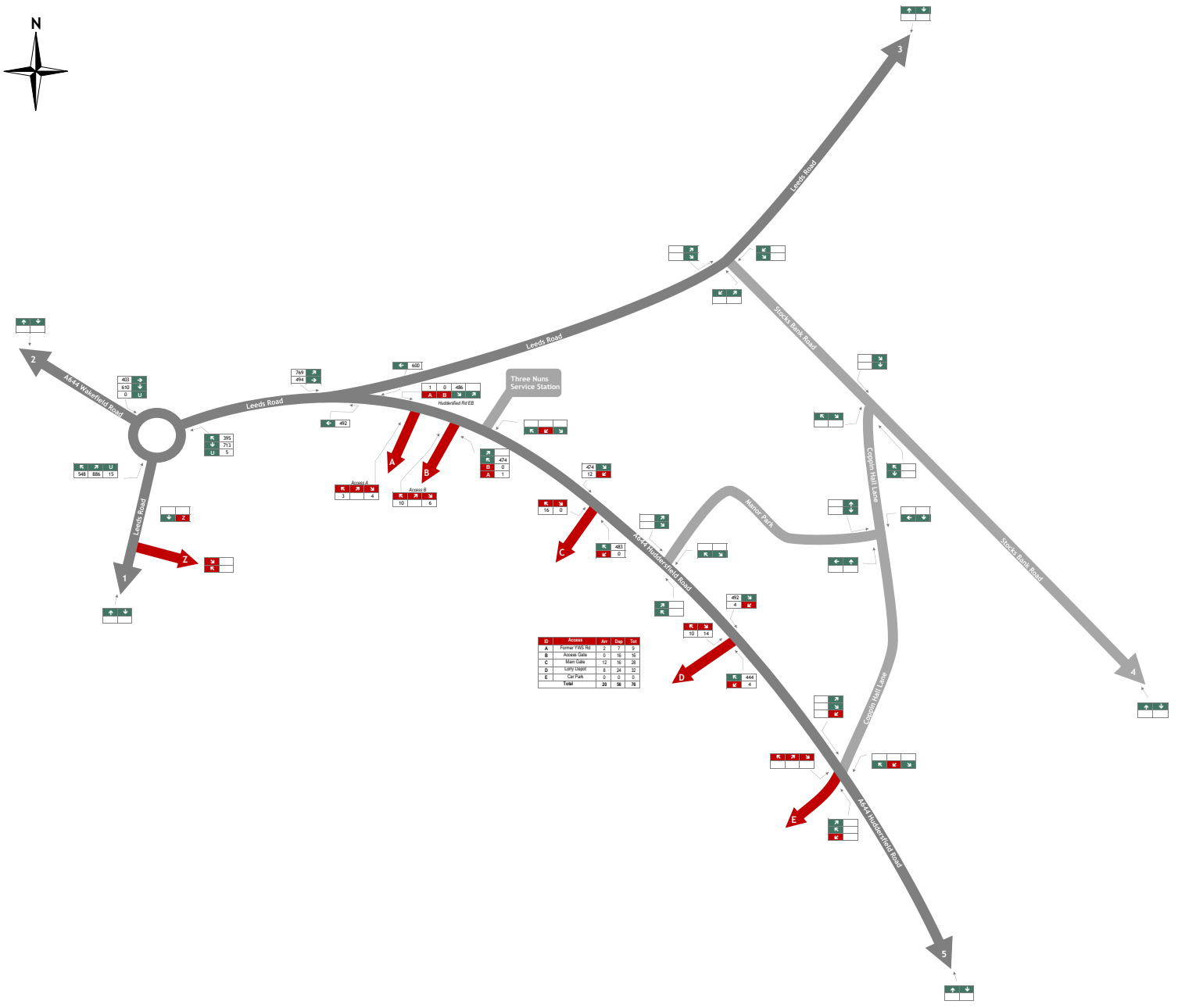
Figure Title:
2022 Base Traffic Flows - PCUs - Weekday AM Peak Hour

Scale:
Not to scale

Figure Status:
Issue

Job Number:
3633

Figure Number:
Figure 32



Key:

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

Note: The number in each arrowhead relates to the route reference

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1st Floor, 15 St Paul's Street
Leeds
LS1 2JG

enquiries@foreconsulting.co.uk
www.foreconsulting.co.uk

Client:
John Cotton Group Ltd

Project:
John Cotton Site, Kirklees

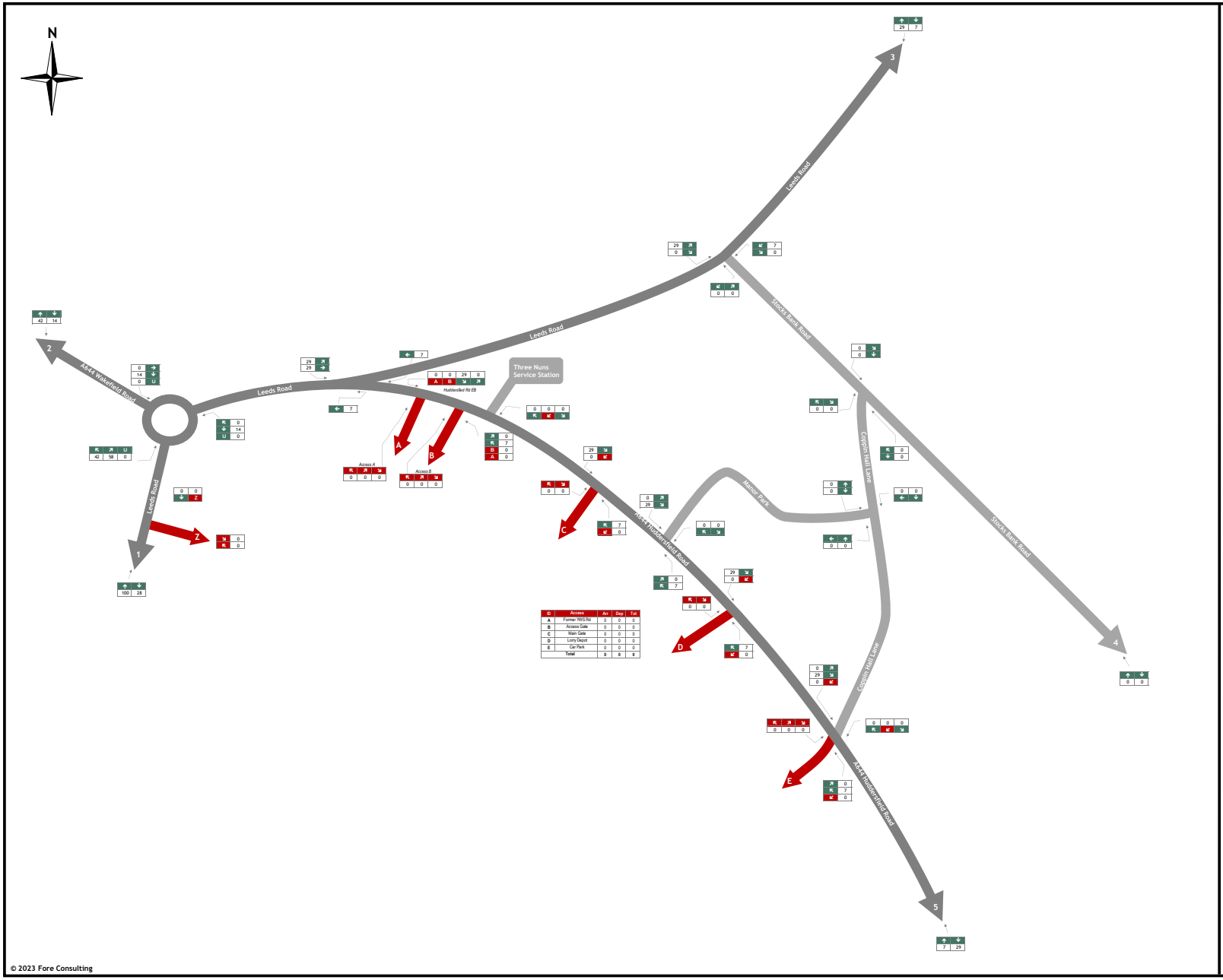
Figure Title:
2022 Base Traffic Flows - PCUs - Weekday PM Peak Hour

Scale:
Not to scale

Figure Status:
Issue

Job Number:
3633

Figure Number:
Figure 33



Key:

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

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

Fore Consulting Limited
1st Floor, 15 St Paul's Street
Leeds
LS1 2JG

enquiries@foreconsulting.co.uk
www.foreconsulting.co.uk

Client:
John Cotton Group Ltd

Project:
John Cotton Site, Kirklees

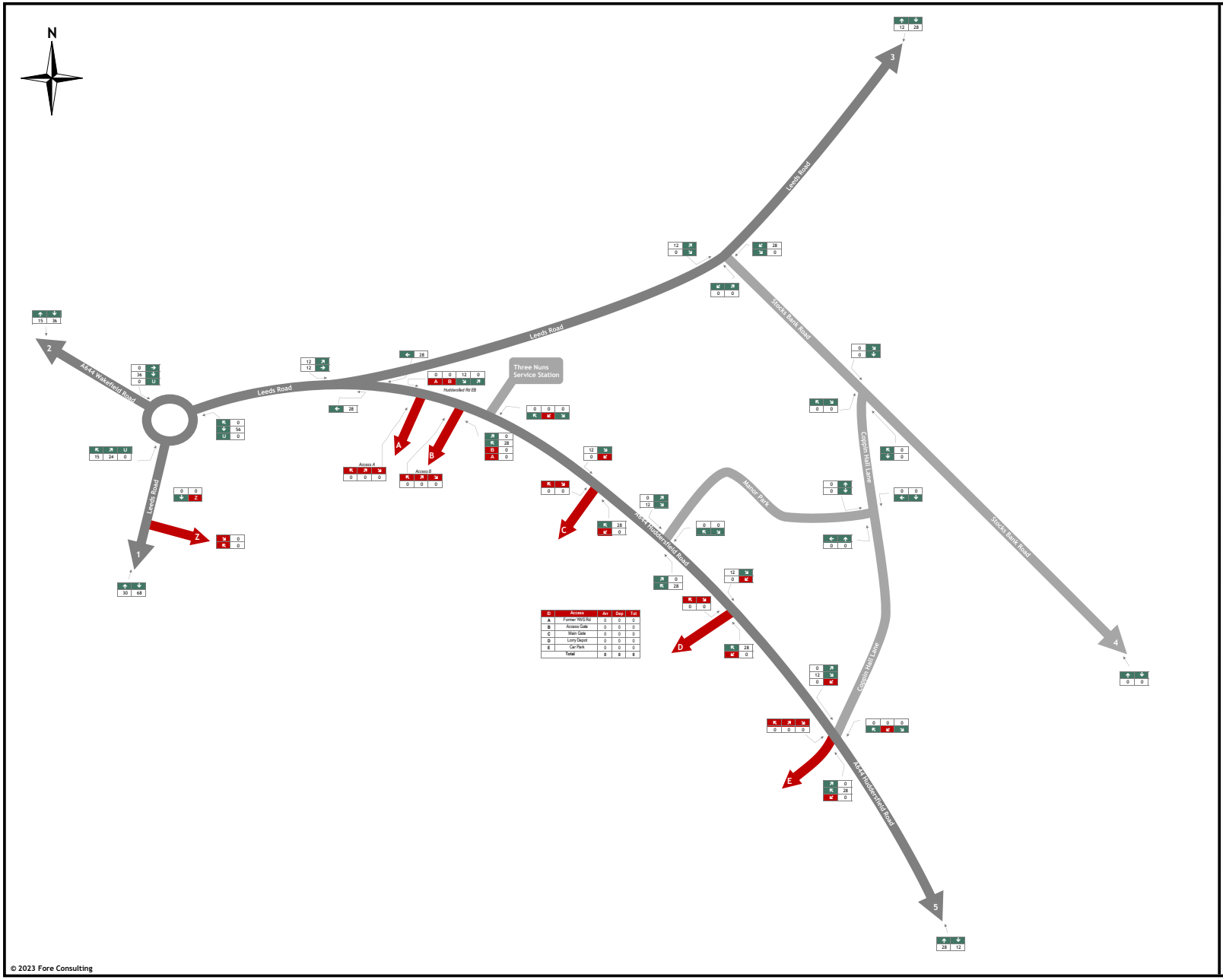
Figure Title:
Total Committed Traffic Flows - Total Vehicles - Weekday AM Peak Hour (Includes Bradley Villa Farm, Gernhill Avenue, Tithe House Lane, Land between Dewsbury Road and New Hey Road, and Woodhouse Garden

Scale:
Not to scale

Figure Status:
Issue

Job Number:
3633

Figure Number:
Figure 34



Key:

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

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

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1st Floor, 15 St Paul's Street
Leeds
LS1 2JG

enquiries@foreconsulting.co.uk
www.foreconsulting.co.uk

Client:
John Cotton Group Ltd

Project:
John Cotton Site, Kirklees

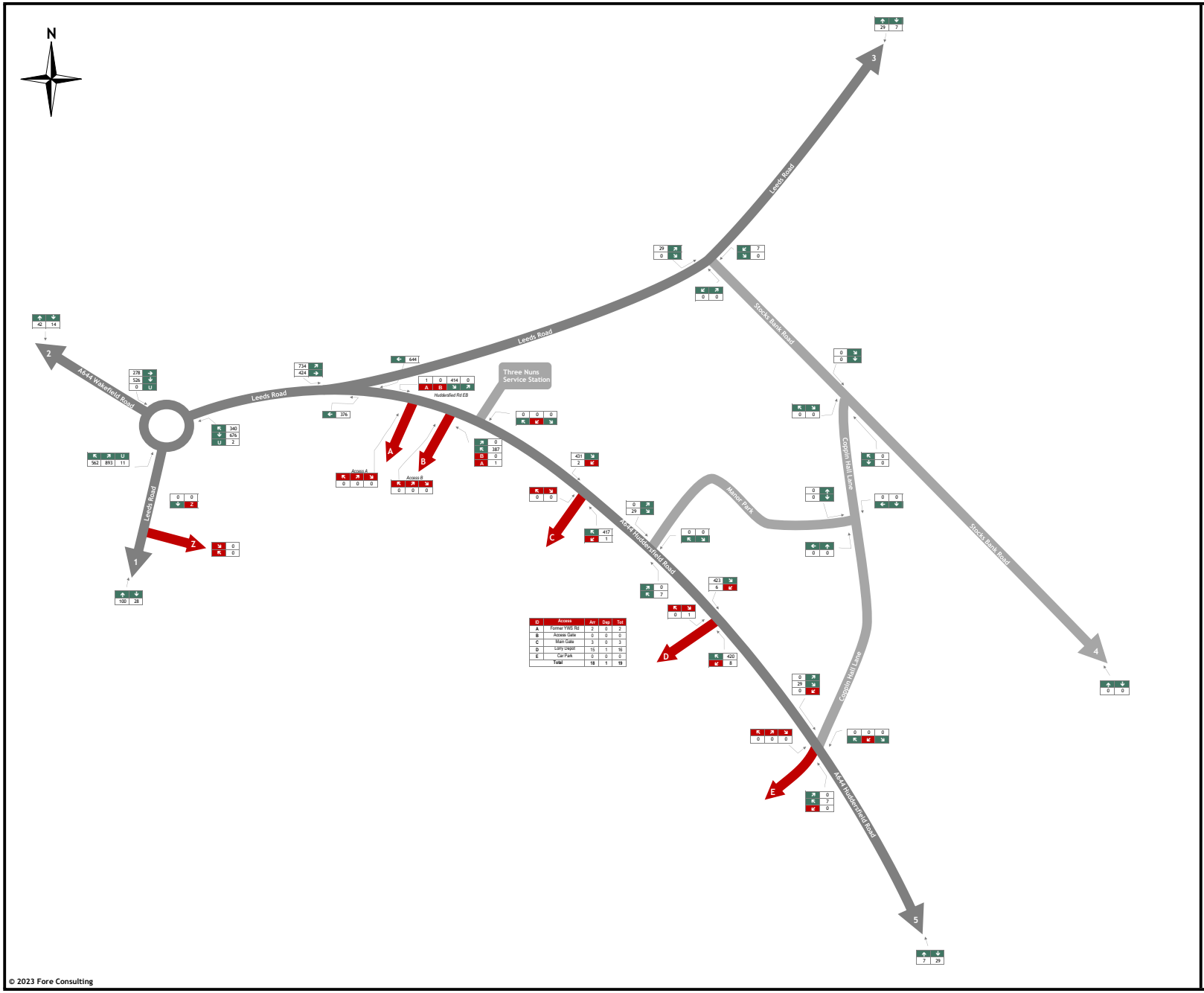
Figure Title:
Total Committed Traffic Flows - Total Vehicles - Weekday PM Peak Hour (Includes Bradley Villa Farm, Gernhill Avenue, Tithe House Lane, Land between Dewsbury Road and New Hey Road, and Woodhouse Garden

Scale:
Not to scale

Figure Status:
Issue

Job Number:
3633

Figure Number:
Figure 35



Key:

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

Note: The number in each arrowhead relates to the route reference

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1st Floor, 15 St Paul's Street
Leeds
LS1 2JG

enquiries@foreconsulting.co.uk
www.foreconsulting.co.uk

Client:
John Cotton Group Ltd

Project:
John Cotton Site, Kirklees

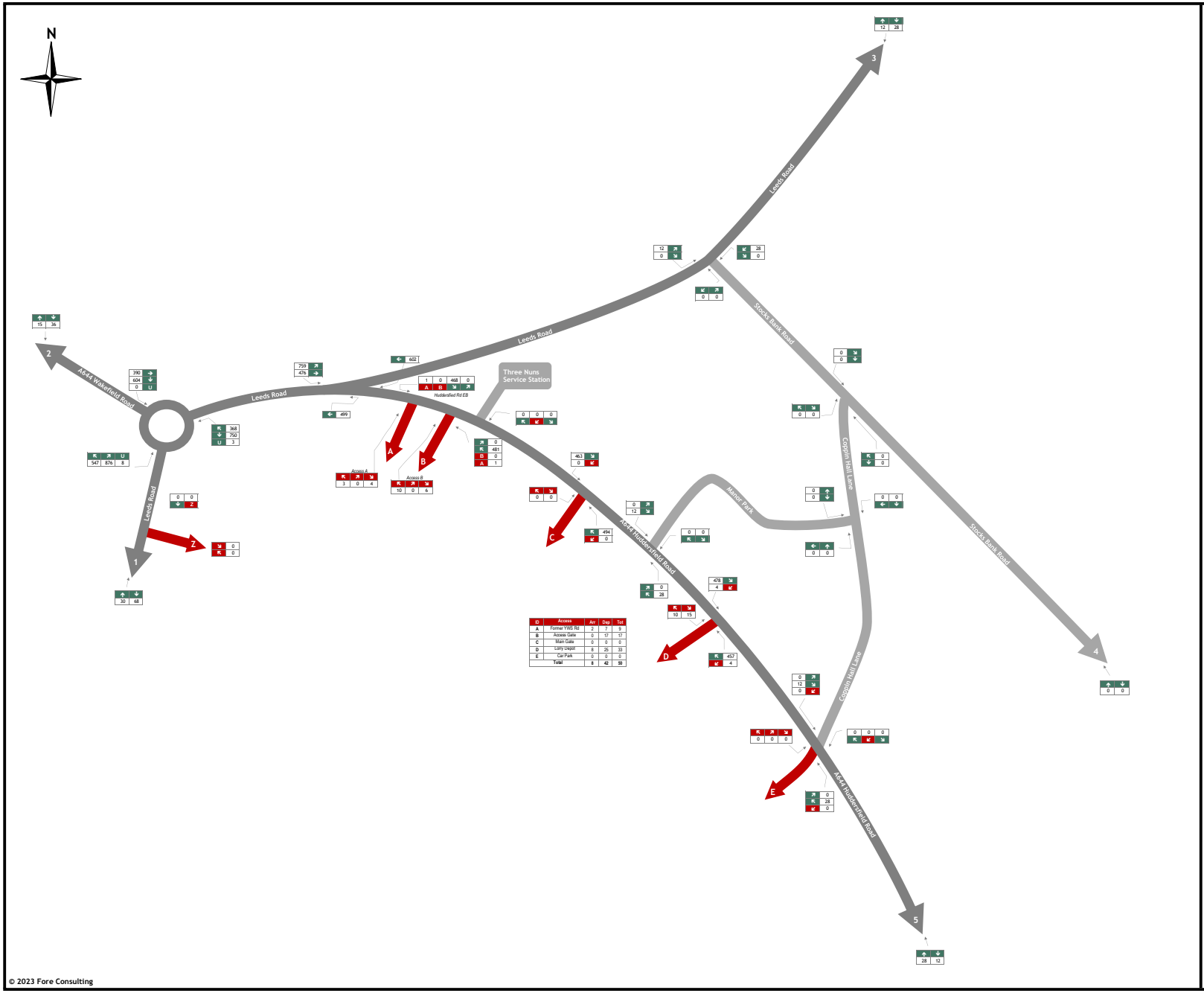
Figure Title:
2028 Do Minimum Traffic Flows - Light Vehicles - Weekday AM Peak Hour

Scale:
Not to scale

Figure Status:
Issue

Job Number:
3633

Figure Number:
Figure 36



Key:

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

Note: The number in each arrowhead relates to the route reference

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Leeds
LS1 2JG

enquiries@foreconsulting.co.uk
www.foreconsulting.co.uk

Client:
John Cotton Group Ltd

Project:
John Cotton Site, Kirklees

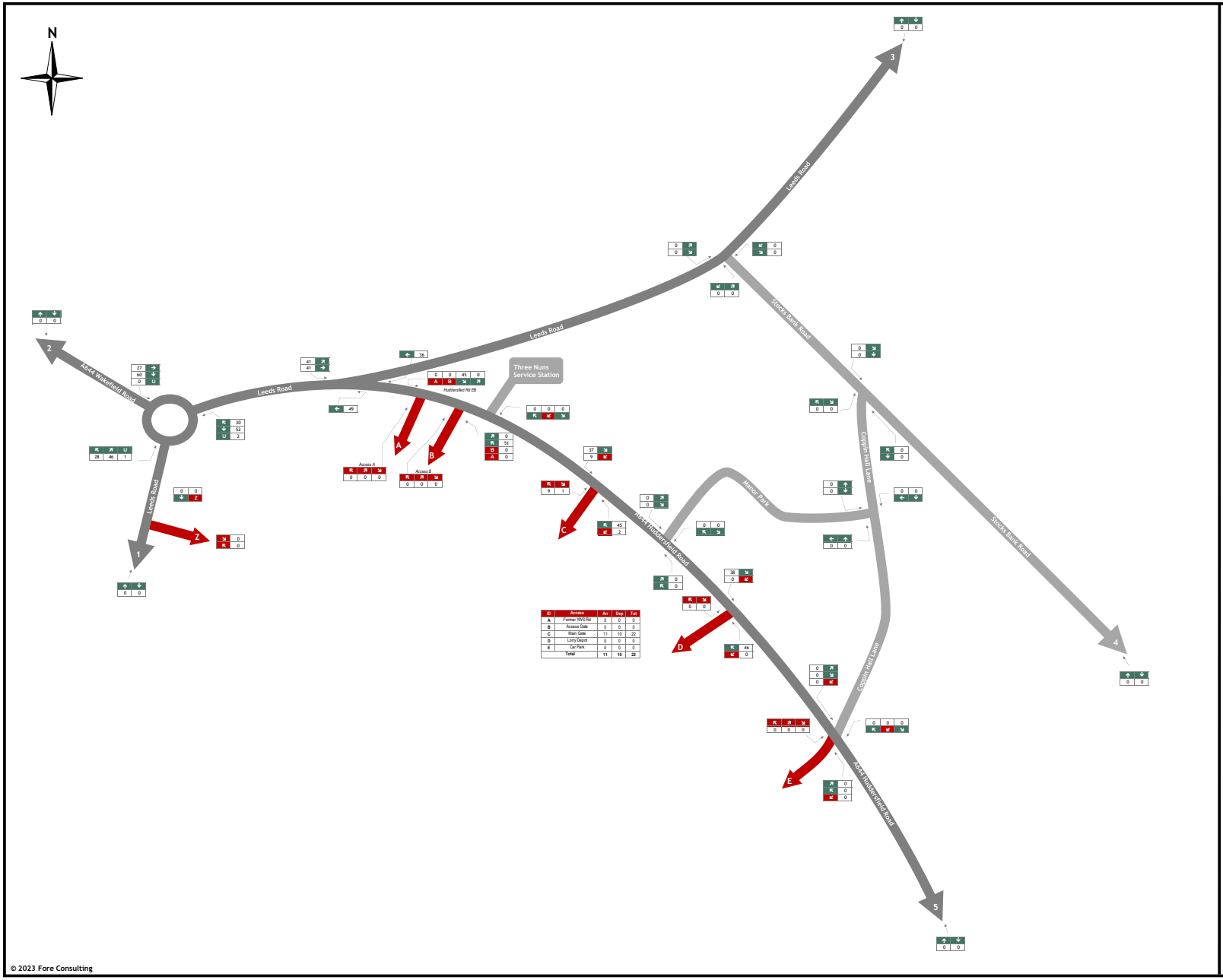
Figure Title:
2028 Do Minimum Traffic Flows - Light Vehicles - Weekday PM Peak Hour

Scale:
Not to scale

Figure Status:
Issue

Job Number:
3633

Figure Number:
Figure 37



Key:

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

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

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1st Floor, 15 St Paul's Street
Leeds
LS1 2JG

enquiries@foreconsulting.co.uk
www.foreconsulting.co.uk

Client:
John Cotton Group Ltd

Project:
John Cotton Site, Kirklees

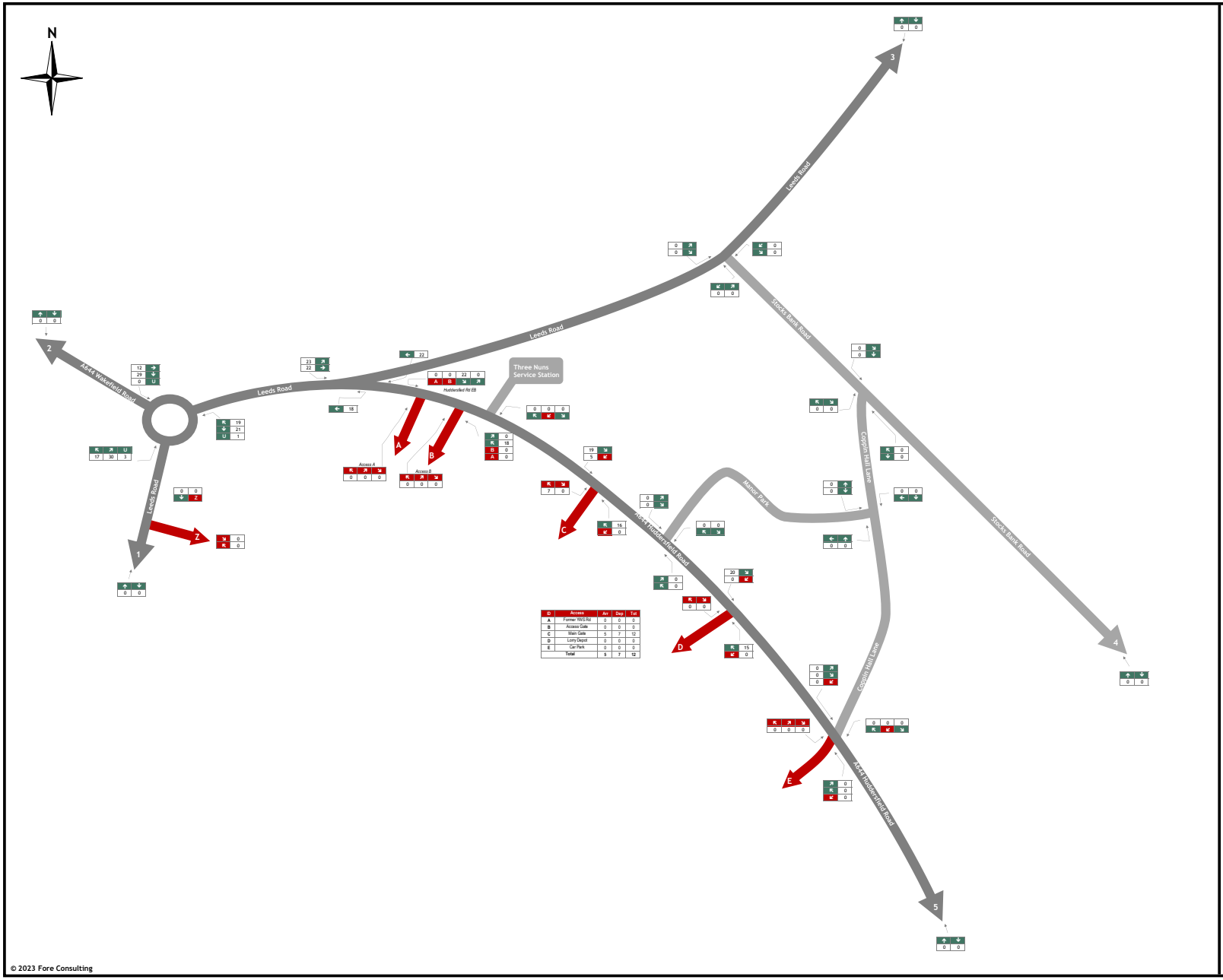
Figure Title:
2028 Do Minimum Traffic Flows - HGVs - Weekday AM Peak Hour

Scale:
Not to scale

Figure Status:
Issue

Job Number:
3633

Figure Number:
Figure 38



Key:

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

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

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1st Floor, 15 St Paul's Street
Leeds
LS1 2JG

enquiries@foreconsulting.co.uk
www.foreconsulting.co.uk

Client:
John Cotton Group Ltd

Project:
John Cotton Site, Kirklees

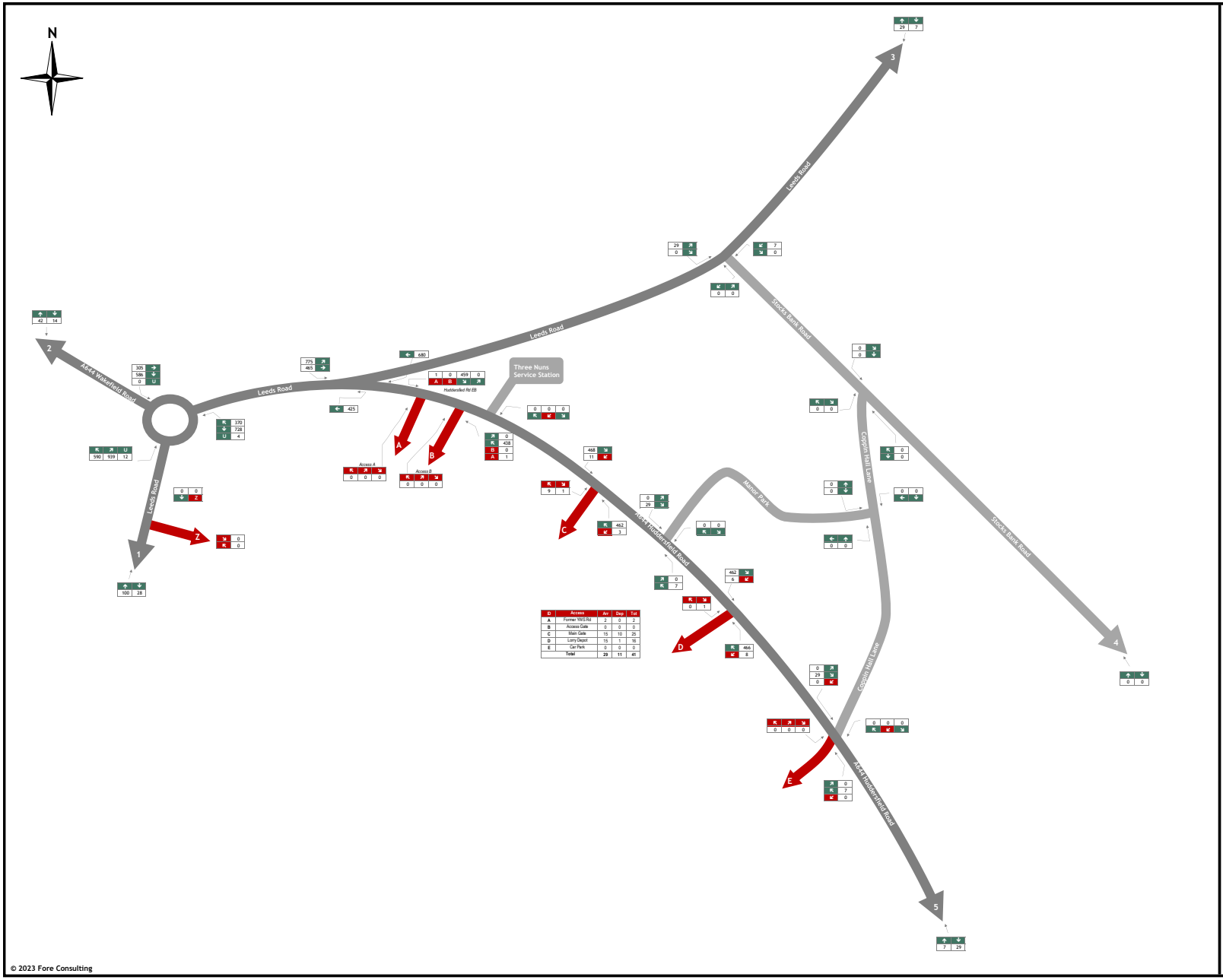
Figure Title:
2028 Do Minimum Traffic Flows - HGVs - Weekday PM Peak Hour

Scale:
Not to scale

Figure Status:
Issue

Job Number:
3633

Figure Number:
Figure 39



Key:

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

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

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1st Floor, 15 St Paul's Street
Leeds
LS1 2JG

enquiries@foreconsulting.co.uk
www.foreconsulting.co.uk

Client:
John Cotton Group Ltd

Project:
John Cotton Site, Kirklees

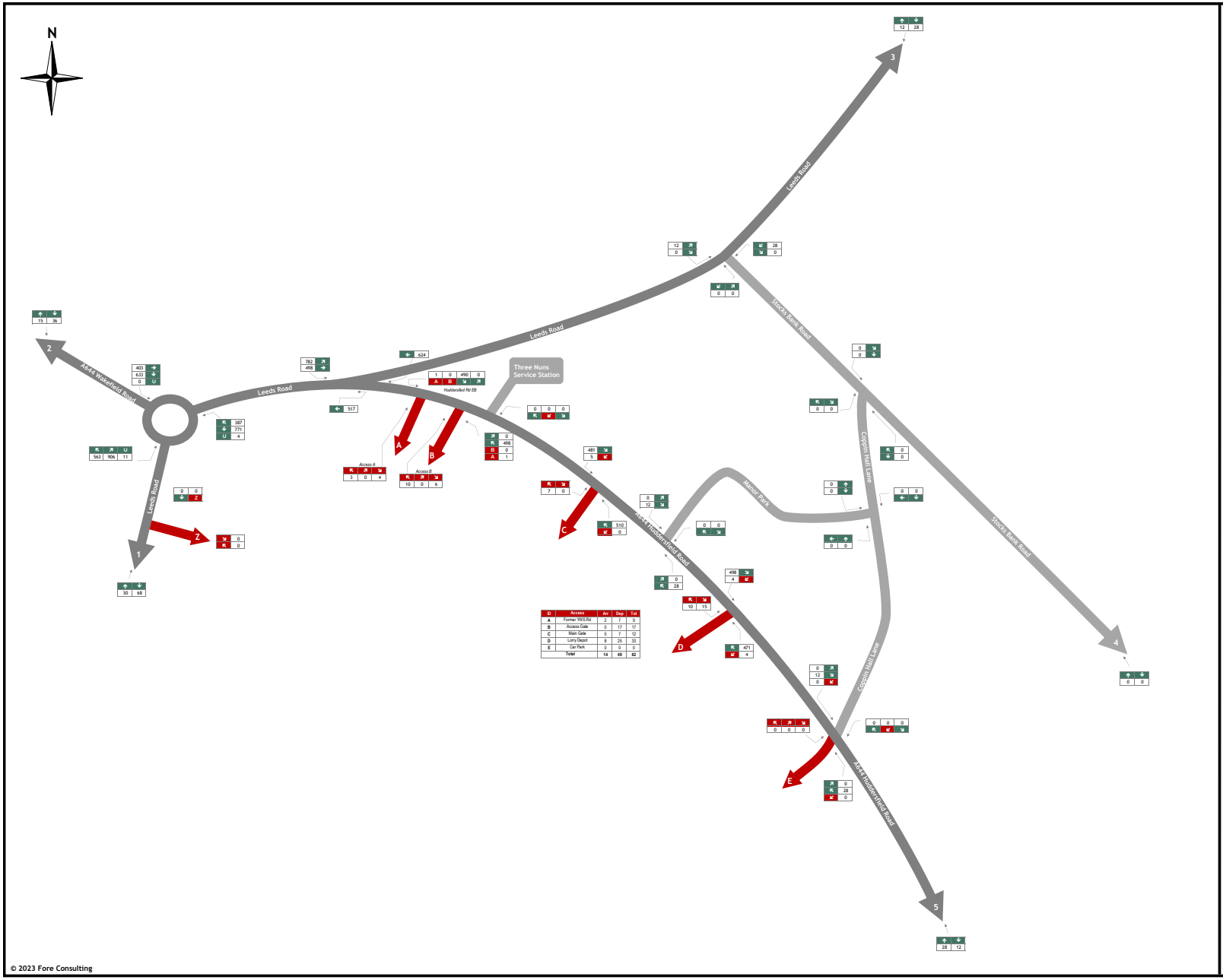
Figure Title:
2028 Do Minimum Traffic Flows - Total Vehicles - Weekday AM Peak Hour

Scale:
Not to scale

Figure Status:
Issue

Job Number:
3633

Figure Number:
Figure 40



Key:

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

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

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Leeds
LS1 2JG

enquiries@foreconsulting.co.uk
www.foreconsulting.co.uk

Client:
John Cotton Group Ltd

Project:
John Cotton Site, Kirklees

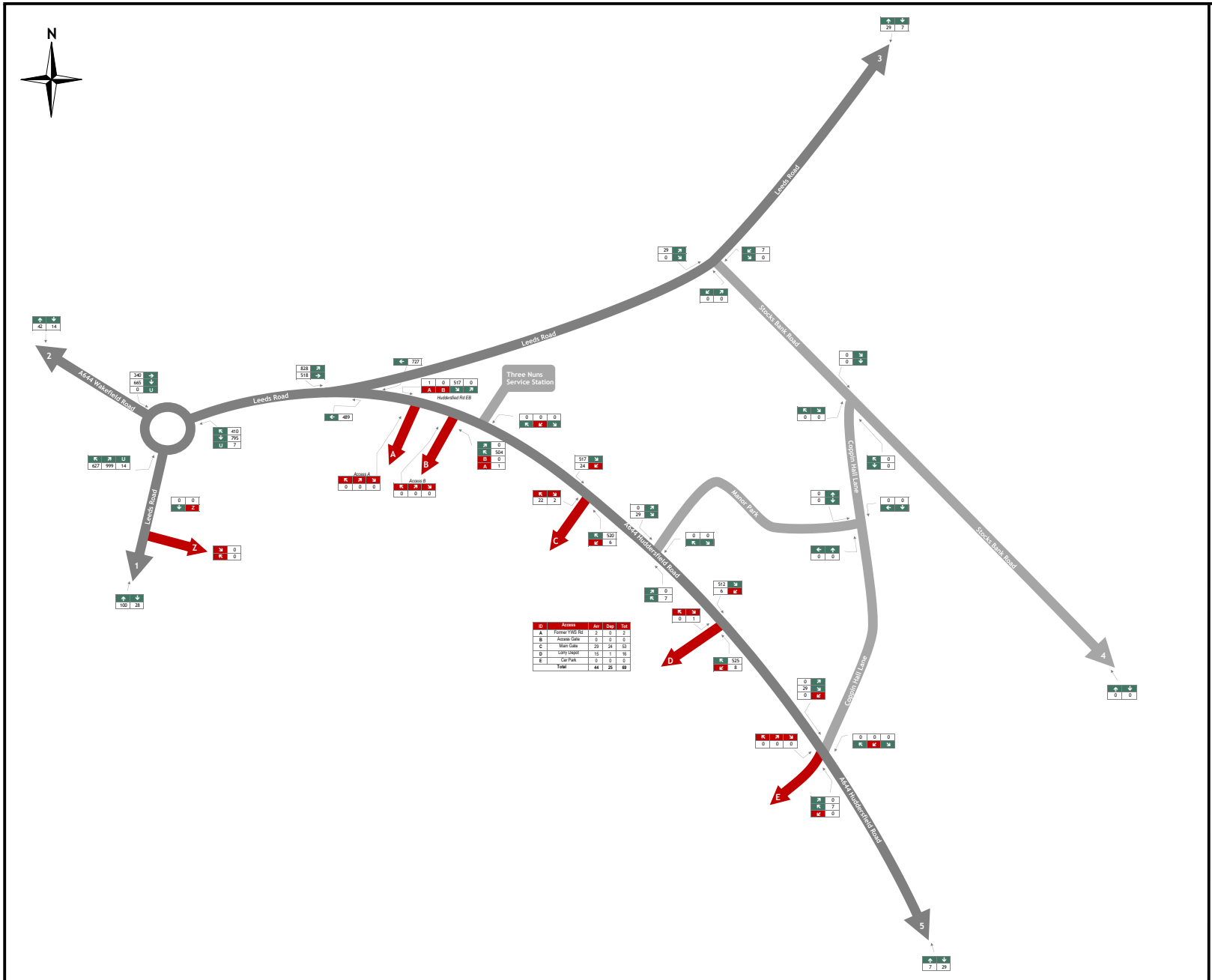
Figure Title:
2028 Do Minimum Traffic Flows - Total Vehicles - Weekday PM Peak Hour

Scale:
Not to scale

Figure Status:
Issue

Job Number:
3633

Figure Number:
Figure 41



Key:

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

Note: The number in each arrowhead relates to the route reference

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Leeds
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enquiries@foreconsulting.co.uk
www.foreconsulting.co.uk

Client:
John Cotton Group Ltd

Project:
John Cotton Site, Kirklees

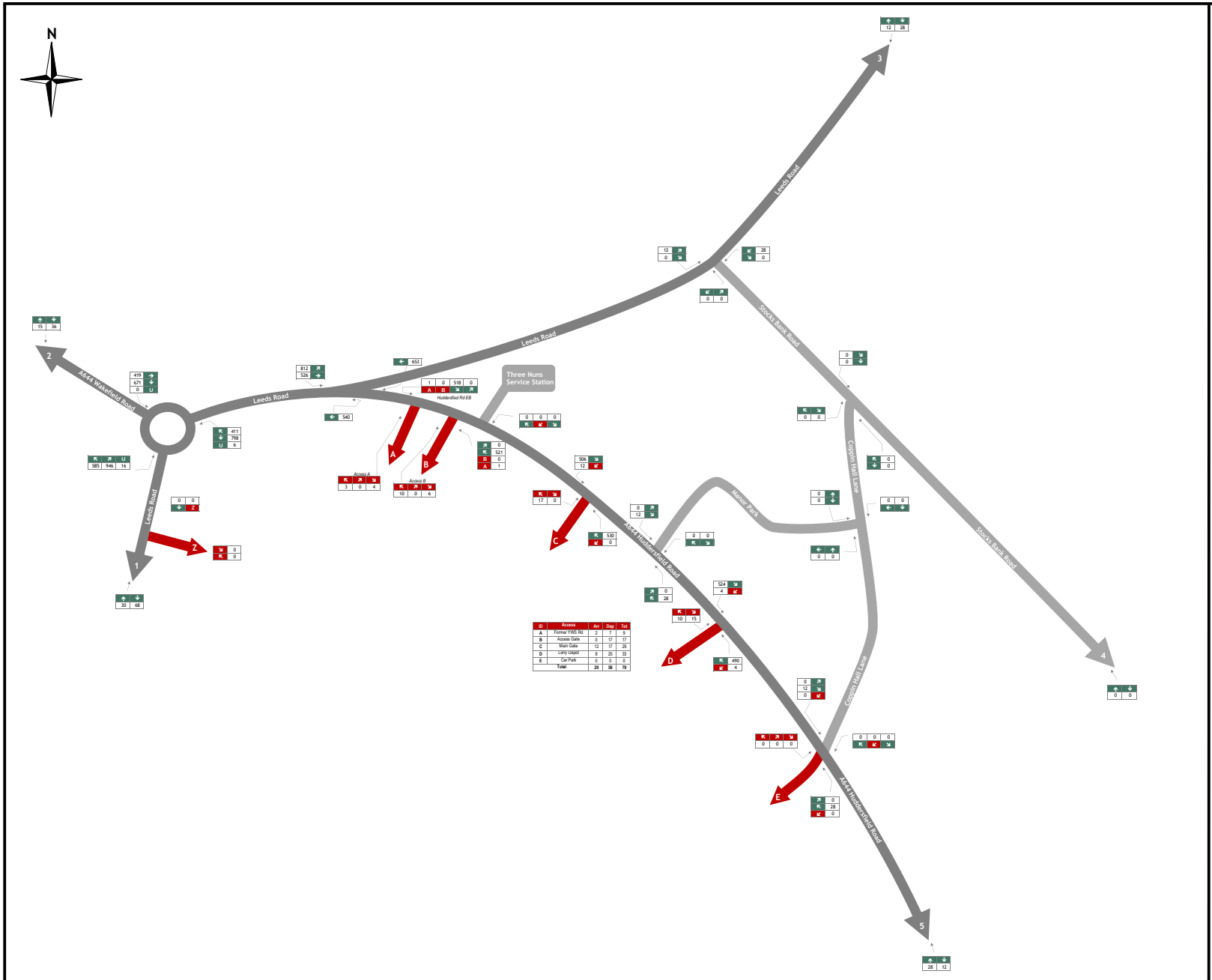
Figure Title:
2028 Do Minimum Traffic Flows - PCUs - Weekday AM Peak Hour

Scale:
Not to scale

Figure Status:
Issue

Job Number:
3633

Figure Number:
Figure 42



Key:

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

Note: The number in each arrowhead relates to the route reference

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Leeds
LS1 2JG

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www.foreconsulting.co.uk

Client:
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Project:
John Cotton Site, Kirklees

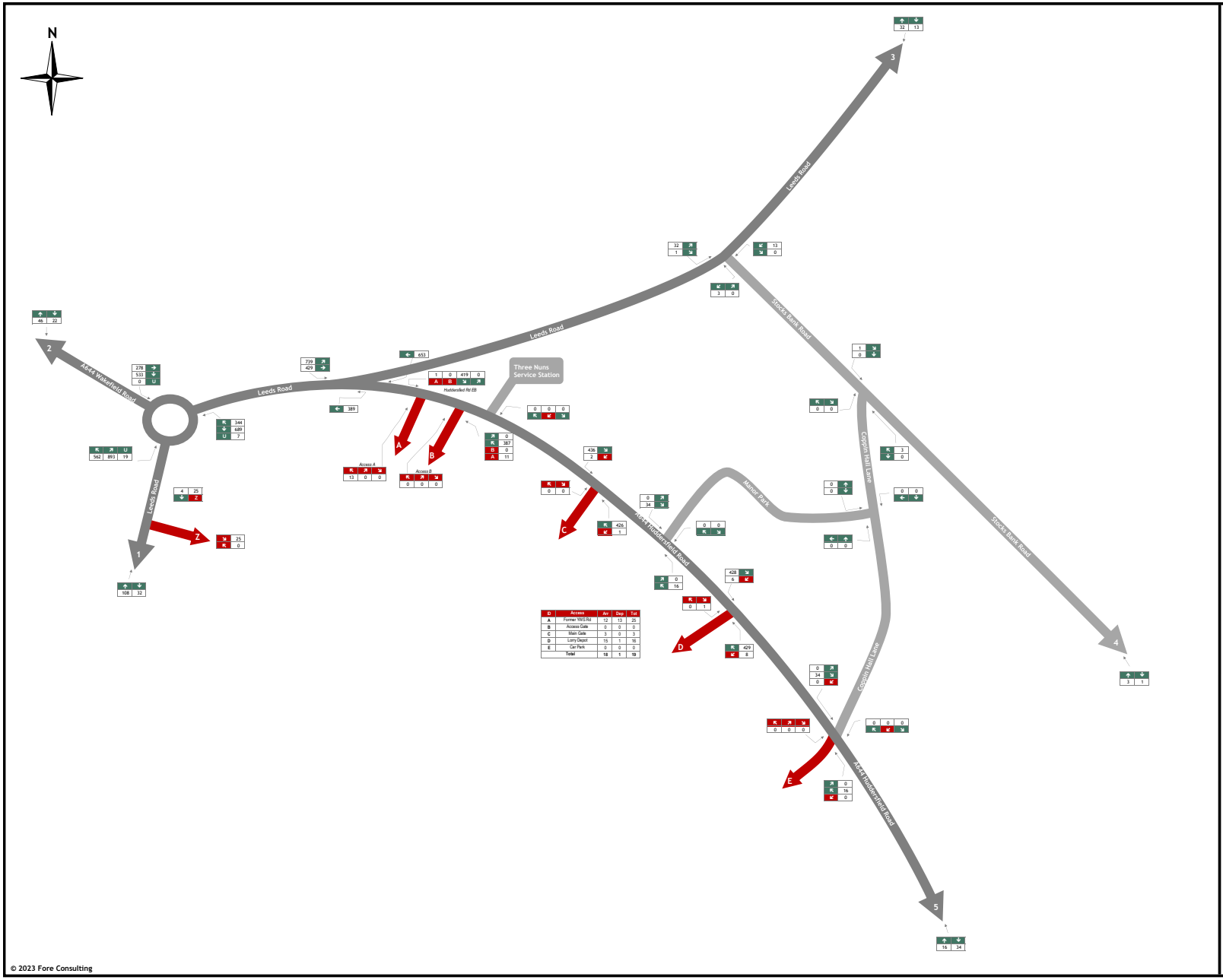
Figure Title:
2028 Do Minimum Traffic Flows - PCUs - Weekday PM Peak Hour

Scale:
Not to scale

Figure Status:
Issue

Job Number:
3633

Figure Number:
Figure 43



Key:

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

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

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Leeds
LS1 2JG

enquiries@foreconsulting.co.uk
www.foreconsulting.co.uk

Client:
John Cotton Group Ltd

Project:
John Cotton Site, Kirklees

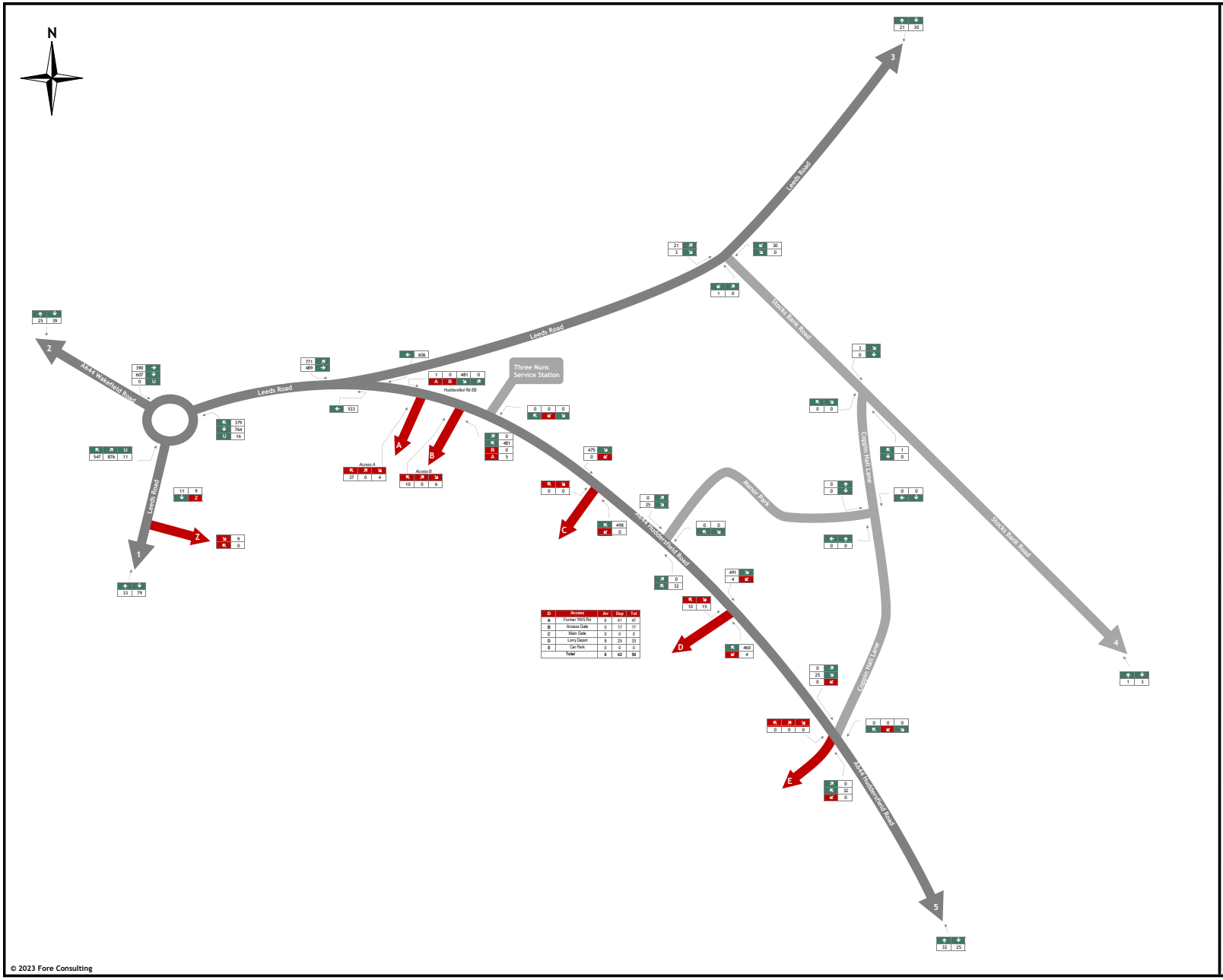
Figure Title:
2028 With Development Traffic Flows - Light Vehicles - Weekday AM Peak Hour

Scale:
Not to scale

Figure Status:
Issue

Job Number:
3633

Figure Number:
Figure 44



Key:

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

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

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Leeds
LS1 2JG

enquiries@foreconsulting.co.uk
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Client:
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Project:
John Cotton Site, Kirklees

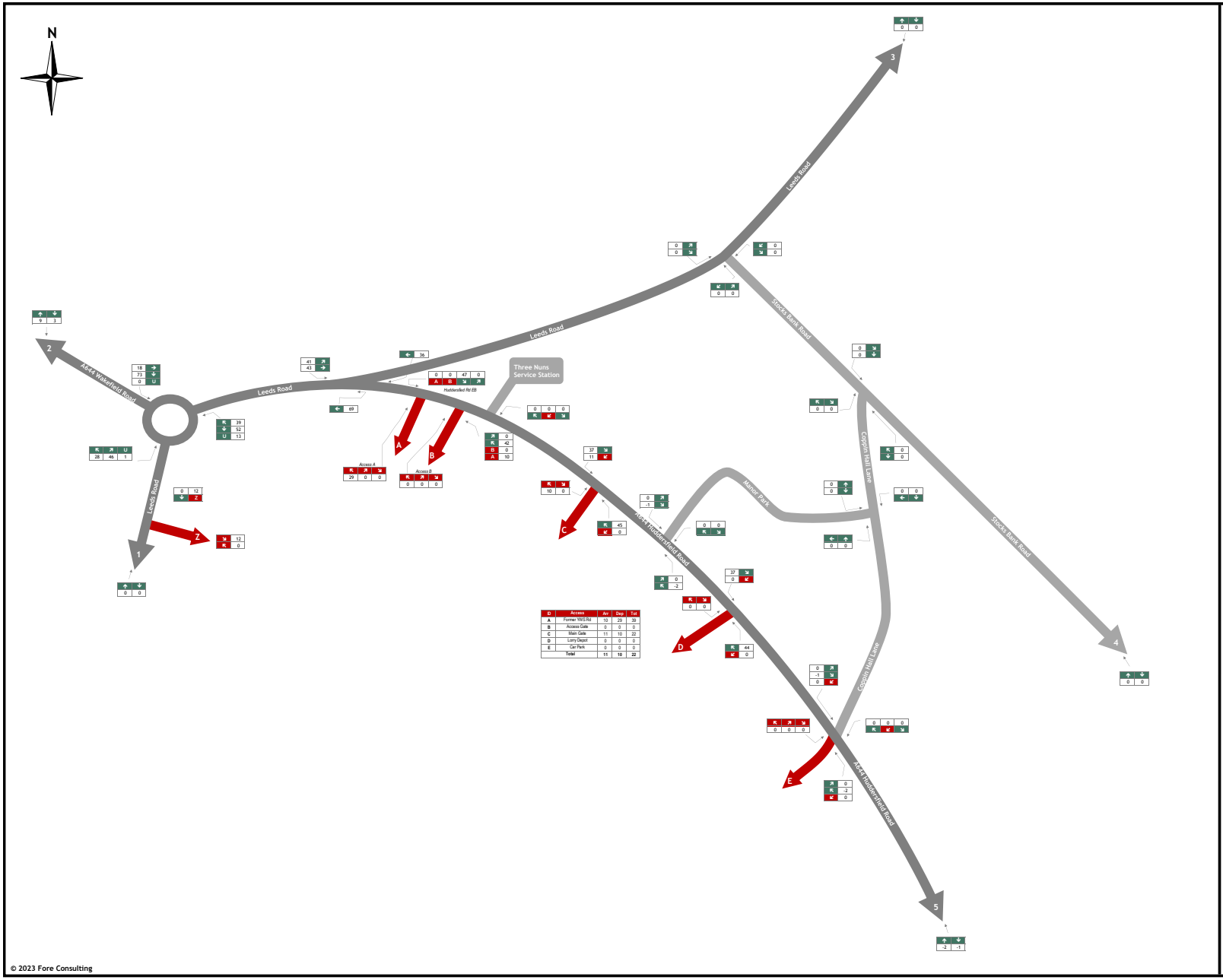
Figure Title:
2028 With Development Traffic Flows - Light Vehicles - Weekday PM Peak Hour

Scale:
Not to scale

Figure Status:
Issue

Job Number:
3633

Figure Number:
Figure 45



Key:

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

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

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1st Floor, 15 St Paul's Street
Leeds
LS1 2JG

enquiries@foreconsulting.co.uk
www.foreconsulting.co.uk

Client:
John Cotton Group Ltd

Project:
John Cotton Site, Kirklees

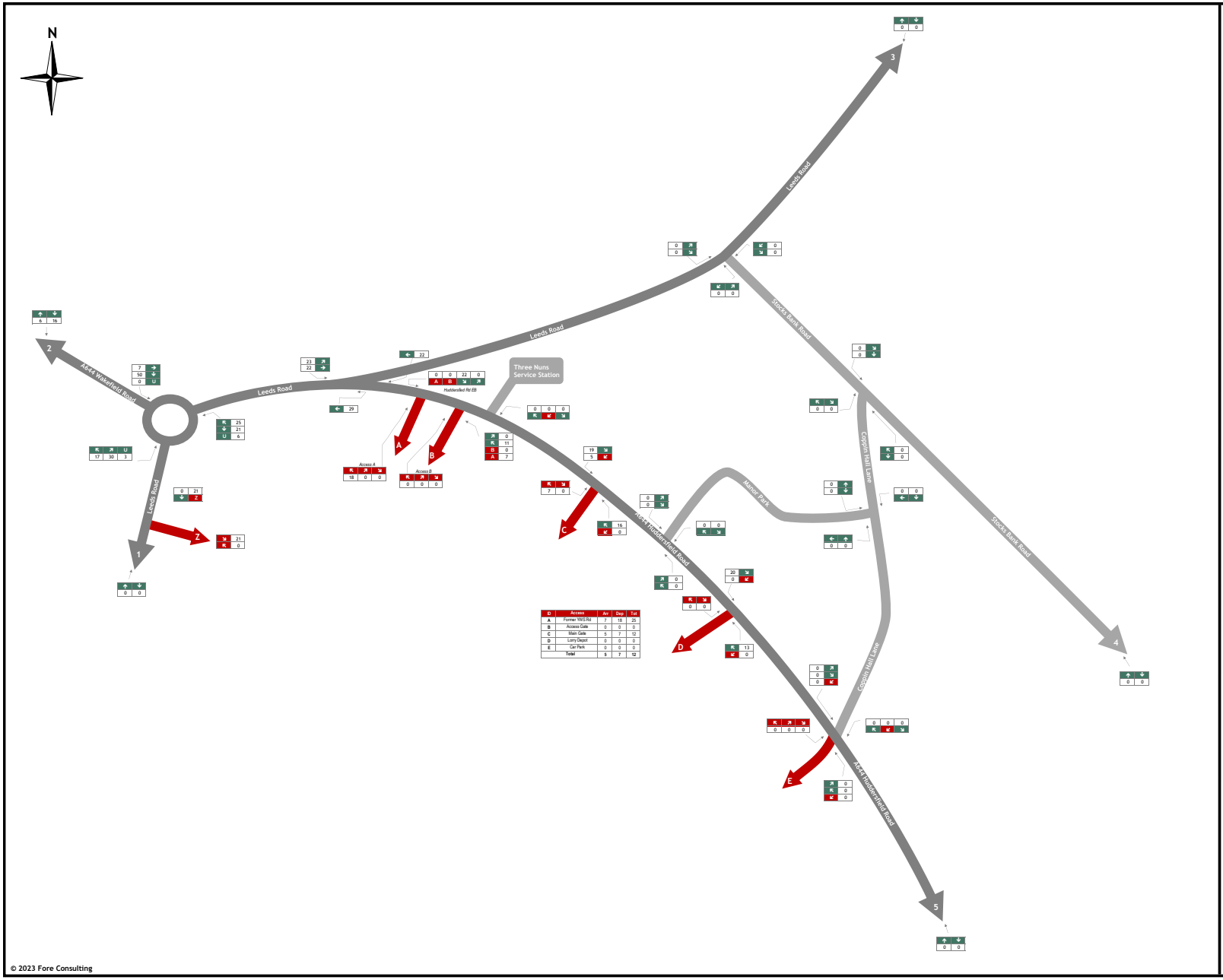
Figure Title:
2028 With Development Traffic Flows - HGVs - Weekday AM Peak Hour

Scale:
Not to scale

Figure Status:
Issue

Job Number:
3633

Figure Number:
Figure 46



Key:

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- Site Access
- Additional traffic movements not explicitly represented in the network diagram (e.g. minor roads)

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

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1st Floor, 15 St Paul's Street
Leeds
LS1 2JG

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www.foreconsulting.co.uk

Client:
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Project:
John Cotton Site, Kirklees

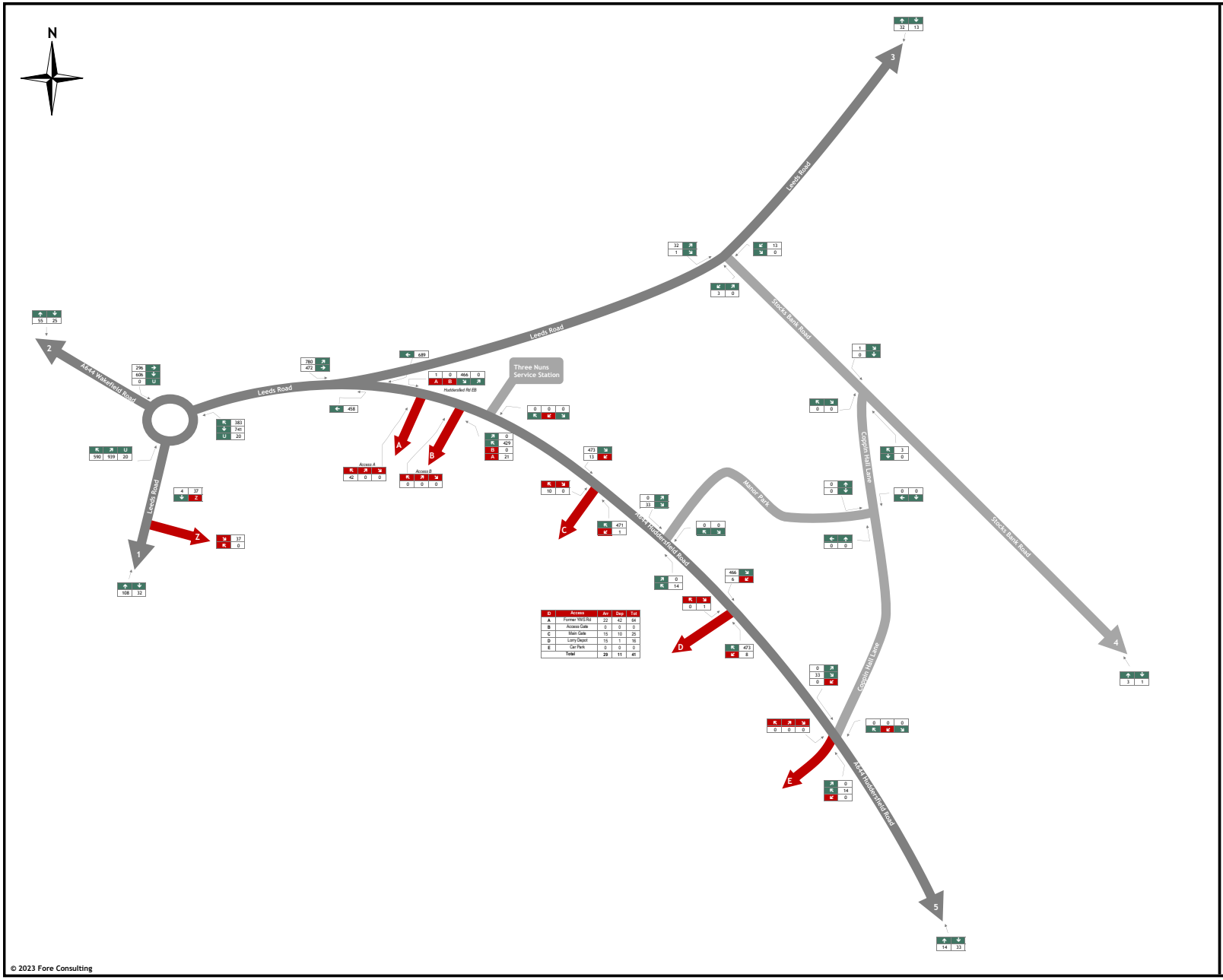
Figure Title:
2028 With Development Traffic Flows - HGVs - Weekday PM Peak Hour

Scale:
Not to scale

Figure Status:
Issue

Job Number:
3633

Figure Number:
Figure 47



Key:

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

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

Fore Consulting Limited
1st Floor, 15 St Paul's Street
Leeds
LS1 2JG

enquiries@foreconsulting.co.uk
www.foreconsulting.co.uk

Client:
John Cotton Group Ltd

Project:
John Cotton Site, Kirklees

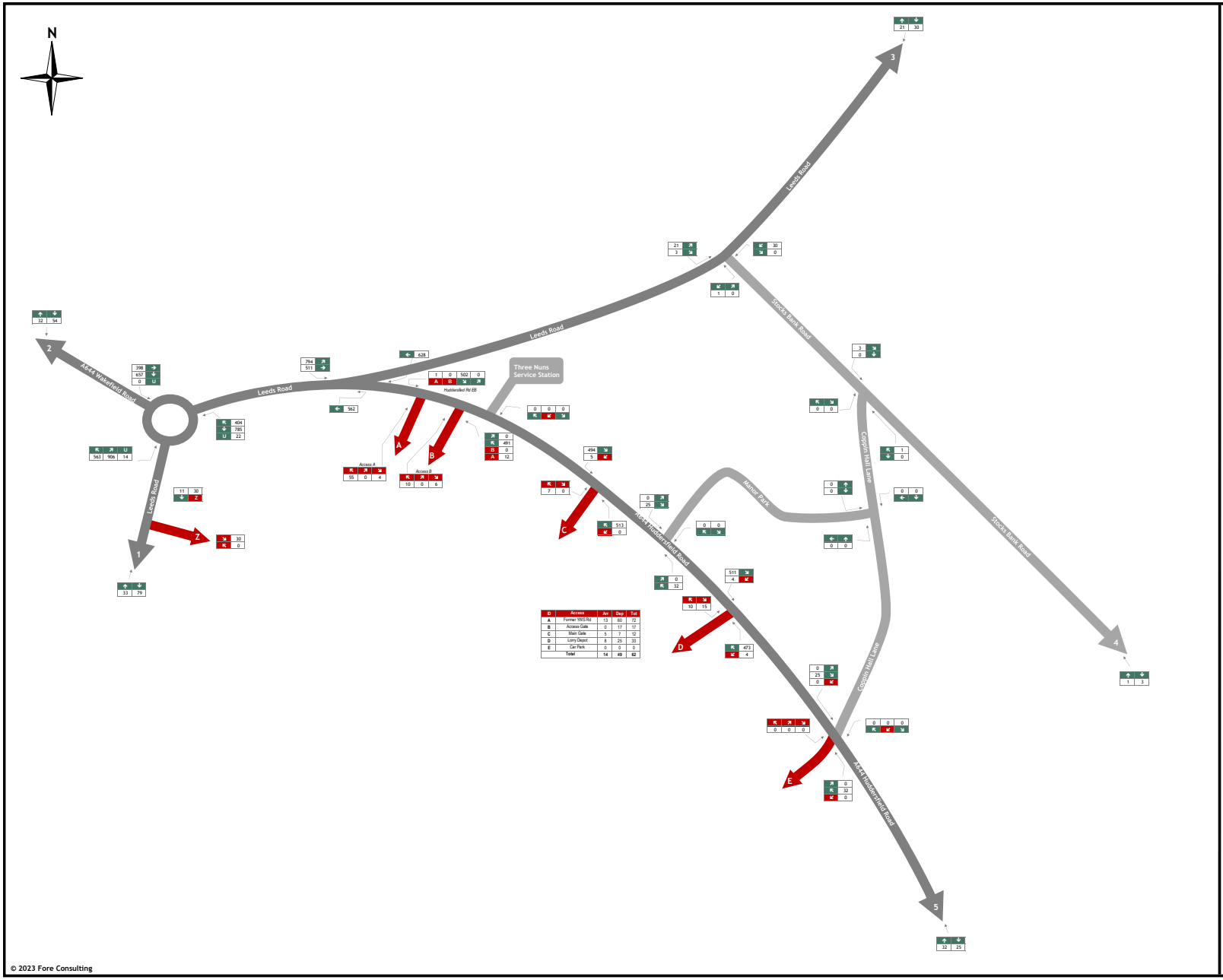
Figure Title:
2028 With Development Traffic Flows - Total Vehicles - Weekday AM Peak Hour

Scale:
Not to scale

Figure Status:
Issue

Job Number:
3633

Figure Number:
Figure 48



Key:

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

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

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1st Floor, 15 St Paul's Street
Leeds
LS1 2JG

enquiries@foreconsulting.co.uk
www.foreconsulting.co.uk

Client:
John Cotton Group Ltd

Project:
John Cotton Site, Kirklees

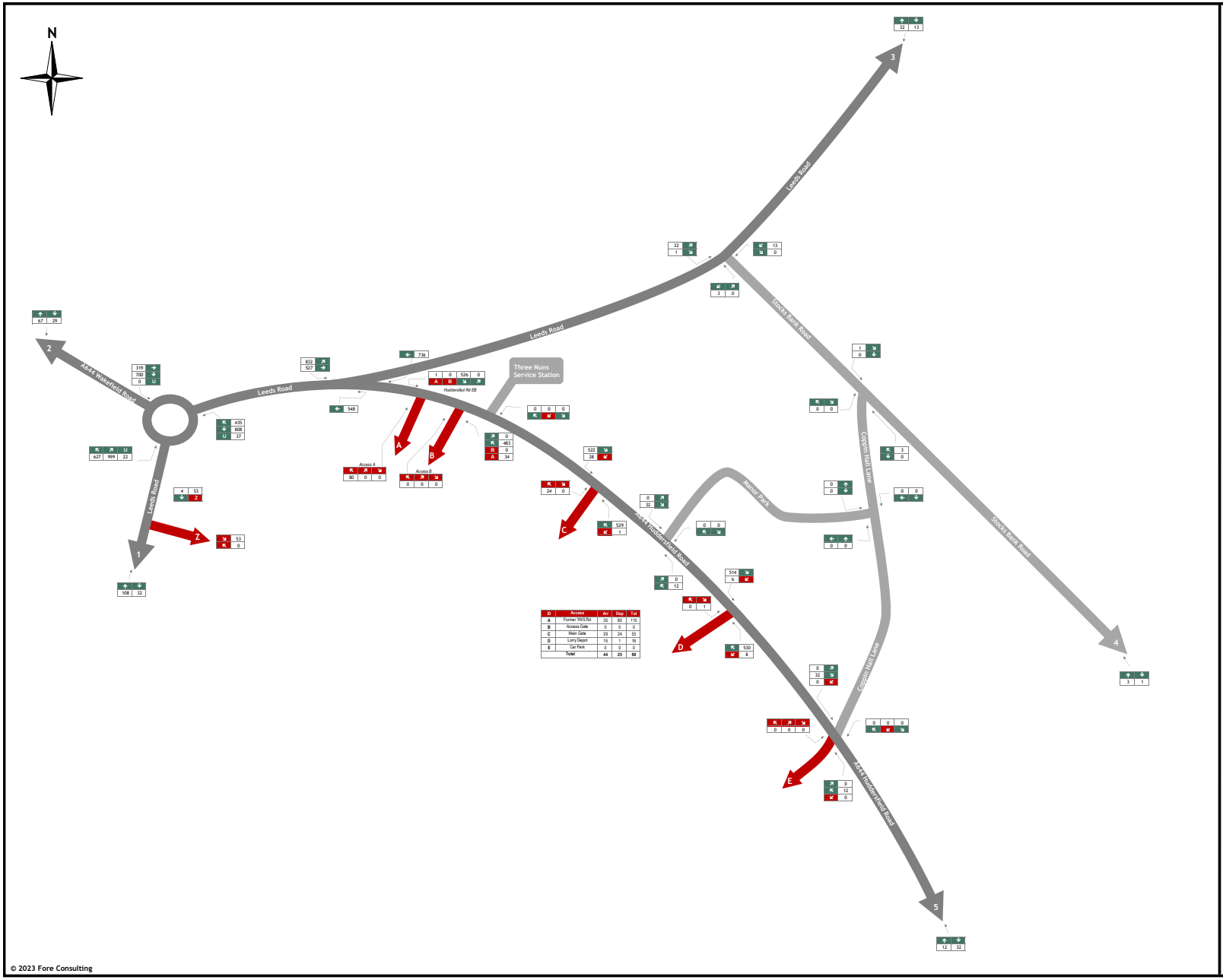
Figure Title:
2028 With Development Traffic Flows - Total Vehicles - Weekday PM Peak Hour

Scale:
Not to scale

Figure Status:
Issue

Job Number:
3633

Figure Number:
Figure 49



Key:

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

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

Fore Consulting Limited
1st Floor, 15 St Paul's Street
Leeds
LS1 2JG

enquiries@foreconsulting.co.uk
www.foreconsulting.co.uk

Client:
John Cotton Group Ltd

Project:
John Cotton Site, Kirklees

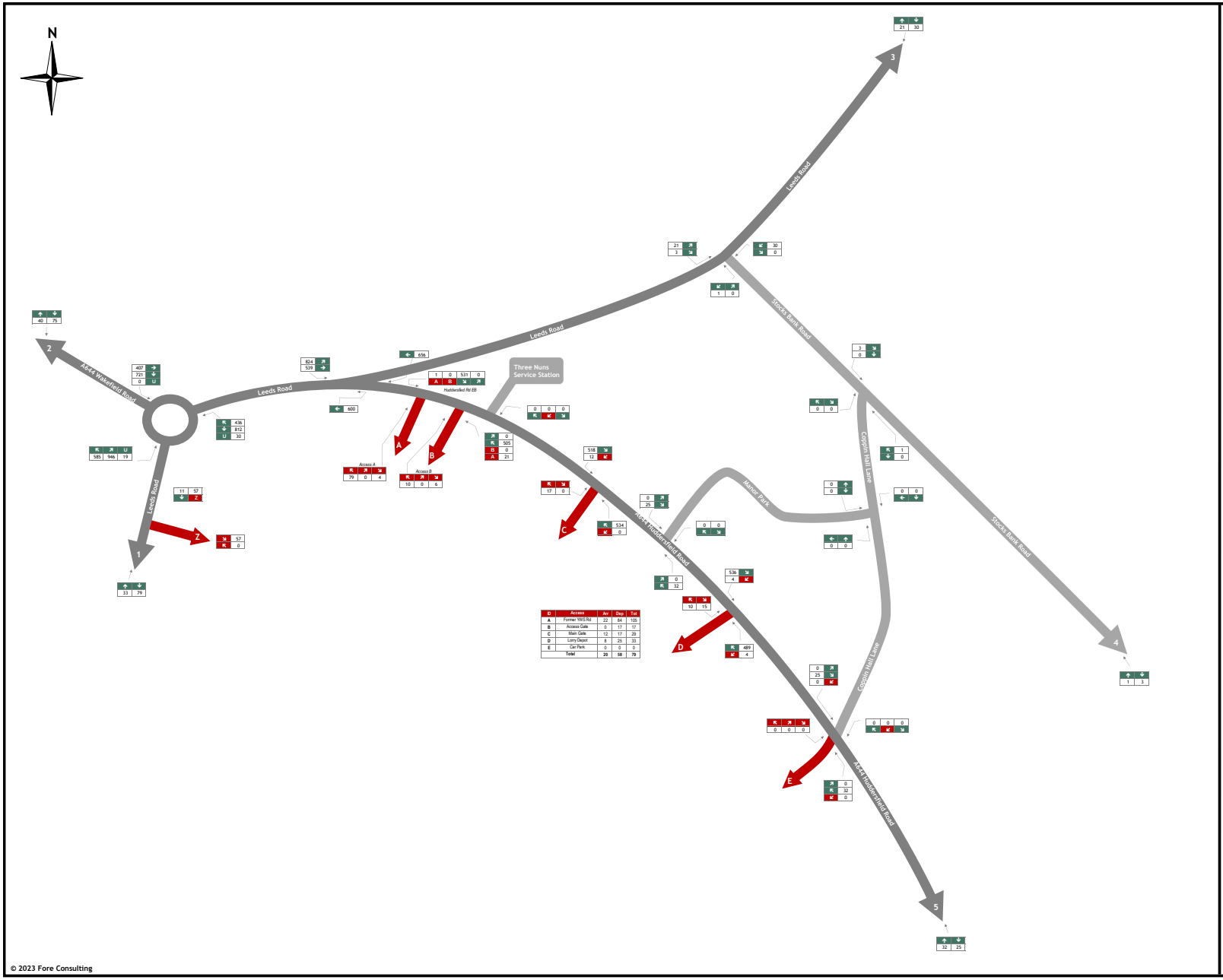
Figure Title:
2028 With Development Traffic Flows - PCUs - Weekday AM Peak Hour

Scale:
Not to scale

Figure Status:
Issue

Job Number:
3633

Figure Number:
Figure 50



Key:

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

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

Fore Consulting Limited
1st Floor, 15 St Paul's Street
Leeds
LS1 2JG

enquiries@foreconsulting.co.uk
www.foreconsulting.co.uk

Client:
John Cotton Group Ltd

Project:
John Cotton Site, Kirklees

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

Scale:
Not to scale

Figure Status:
Issue

Job Number:
3633

Figure Number:
Figure 51

Appendix B

TRANSYT Model

TRANSYT 16

Results are NOT up to date. You should run the file and then refresh this report.

Filename: 2024-08-20_3633_Cooper_Bridge_Base&Future_TRANSYT_Model.t16
Path: G:\Shared drives\Jobs3000\3633 John Cotton, Mirfield\Models
Report generation date: 18/02/2025 15:29:17

»A1 - (untitled) : D1 - 2022 Base, AM :
»A1 - (untitled) : D2 - 2022 Base, PM :
»A1 - (untitled) : D3 - 2028 Do Minimum, AM :
»A1 - (untitled) : D4 - 2028 Do Minimum, PM :
»A1 - (untitled) : D5 - 2028 With Development, AM :
»A1 - (untitled) : D6 - 2028 With Development, PM :

Summary of network performance

	AM					PM				
	Set ID	PI (£ per hr)	Total delay (PCU-hr/hr)	Highest DOS	Number oversaturated	Set ID	PI (£ per hr)	Total delay (PCU-hr/hr)	Highest DOS	Number oversaturated
	(untitled) - 2022 Base									
Network	D1	2116.45	139.54	109% (TS 7/2)	6 (25%)	D2	1736.12	114.58	109% (TS 11/1)	4 (17%)
	(untitled) - 2028 Do Minimum									
Network	D3	3500.69	235.28	117% (TS 7/2)	9 (38%)	D4	2954.42	198.48	120% (TS 11/1)	8 (33%)
	(untitled) - 2028 With Development									
Network	D5	5146.64	347.72	124% (TS 7/2)	10 (42%)	D6	4631.31	312.53	133% (TS 11/1)	8 (33%)

There are warnings associated with one or more model runs - see the 'Data Errors and Warnings' tables for each Analysis or Demand Set.

Network Diagrams

>=100%
>=90% and <100%
>=80% and <90%
<80%
Colour overlay: Degree of Saturation
(untitled)
Cycletime 0s / 60s
Timesteps 59 / 60
5
Diagram produced using TRANSYT 16.1.2.2043

A1 - (untitled)
D1 - 2022 Base, AM

Signal Timings

Network Default: 60s cycle time; 60 steps

Intergreen Matrix for Controller Stream 1

		To													
		A	B	C	D	E	F	G	H	I	J	K	L	M	N
From	A							5							0
	B			5										5	
	C		5												0
	D					5	5						0		
	E				5				0	0					0
	F				5				0					0	0
	G	5							5	5	5	5			
	H					1	5	5		3		3	1	0	0
	I					0		5	0		0		0	0	0
	J							5		3		3	2	0	0
	K							5	0		0		0	0	0
	L				0				0	0	0	0		1	0
	M		0				0		3	3	3	3	0		0
	N	0		0		0	0		0	0	0	0	0	0	

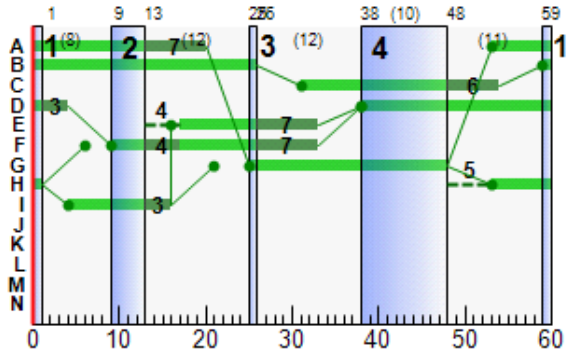
Resultant Stages

Controller Stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	1	✓	4	C,D,G	38	48	10	1	1
	2	✓	1	A,B,D,H	59	1	2	1	1
	3	✓	2	A,B,F,I	9	13	4	1	1
	4	✓	3	B,E,F,G	25	26	1	1	1

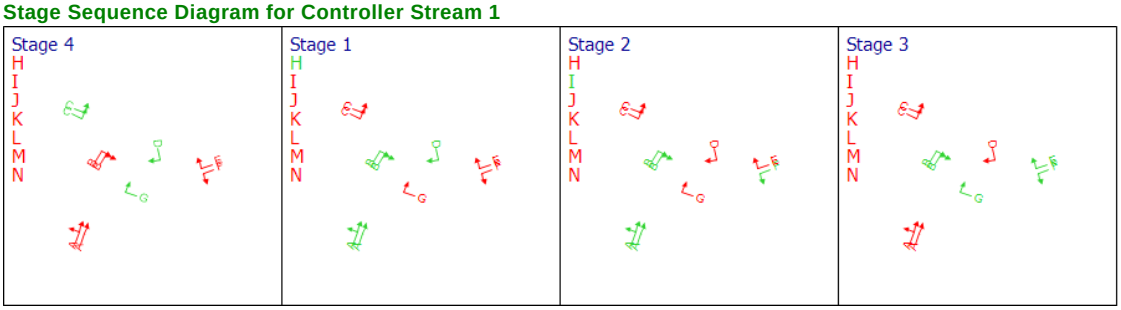
Traffic Stream Green Times

Arm	Traffic Stream	Traffic Node	Controller Stream	Phase	Green Period 1		
					Start	End	Duration
1	1		1	A	53	20	27
1	2		1	A	53	20	27
3	1		1	G	25	48	23
4	1		1	B	59	26	27
4	2		1	B	59	26	27
5	1		1	D	38	4	26
7	1		1	C	31	54	23
7	2		1	C	31	54	23
9	1		1	F	9	33	24
9	2		1	E	17	33	16

Phase Timings Diagram for Controller Stream 1



Stage Sequence Diagram for Controller Stream 1



Intergreen Matrix for Controller Stream 2

		To							
		A	B	C	D	E	F	G	H
From	A		5		7	6	5	6	
	B	5			7	6		6	
	C				9	5		9	
	D	5	5	6			5	5	
	E	5	6	9			6		
	F	5			9	5		6	
	G	5	6	9	5		5		
	H								

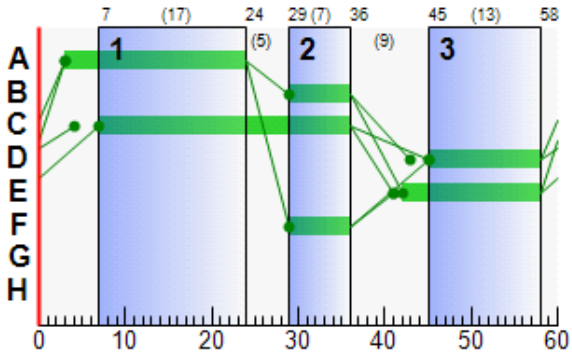
Resultant Stages

Controller Stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
2	1	✓	1	A,C	7	24	17	1	3
	2	✓	2	B,C,F	29	36	7	1	7
	3	✓	3	D,E	45	58	13	1	7

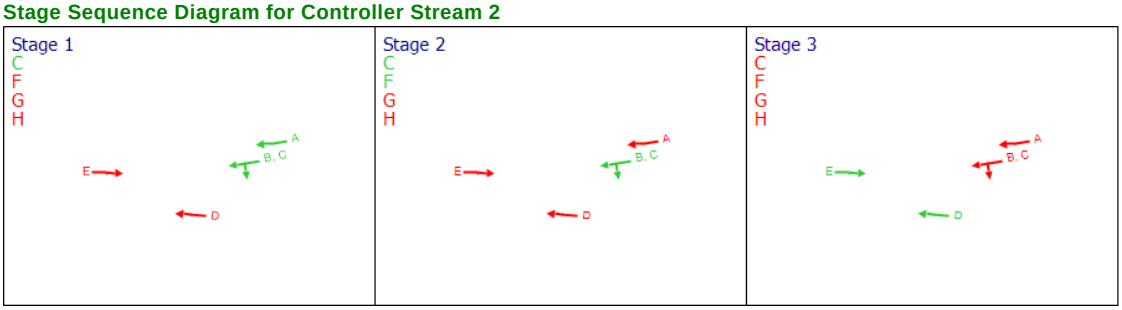
Traffic Stream Green Times

Arm	Traffic Stream	Traffic Node	Controller Stream	Phase	Green Period 1		
					Start	End	Duration
11	1		2	D	45	58	13
12	1		2	B	29	36	7
13	1		2	A	3	24	21
14	1		2	E	42	58	16

Phase Timings Diagram for Controller Stream 2



Stage Sequence Diagram for Controller Stream 2



Final Prediction Table

Traffic Stream Results

				SIGNALS			FLOWS		PERFORMANCE				PER PCU			QU
Arm	Traffic Stream	Name	Traffic node	Controller stream	Phase	Second phase	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Wasted time total (s (per cycle))	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Veh (s)	Mean stops per Veh (%)	M q (P
1	1 NBT			1	A		839 <	1734	27	0.00	100	-10	101.05	90.66	184.03	27
	2 NBT			1	A		636	1929	27	5.64	85	6	37.15	26.81	109.95	9
2	1 NBT						1327	Unrestricted	60	9.00	0	Unrestricted	15.23	0.00	0.00	0
3	1 NBT			1	G		398	1939	23	11.11	49	82	9.00	5.29	61.02	4
4	1 NBT			1	B		284	1654	27	3.00	36	153	5.54	1.89	13.81	1
	2 NBT			1	B		650 <	1672	27	4.10	84	8	17.16	13.81	50.68	5.
5	1 NBT			1	D		597	1804	26	3.01	71	27	7.79	6.10	21.97	2
6	1 NBT						938	Unrestricted	60	17.00	0	Unrestricted	10.63	0.00	0.00	0
7	1 NBT			1	C		328	1780	23	0.00	44	104	21.32	14.44	68.16	3
	2 NBT			1	C		571 <	1935	23	7.28	109	-18	230.01	223.08	281.15	39
8	1 NBT						612	1808	60	9.00	34	166	3.46	0.51	0.00	0
	2 NBT						1221 <	1523	60	10.53	85	6	11.12	8.34	35.15	4.
9	1 NBT			1	F		710	1816	24	0.19	91	-1	45.47	33.23	98.48	1
	2 NBT			1	E		397 <	1905	16	5.51	100	-10	214.53	202.13	369.78	26
10	1 NBT						469	Unrestricted	60	42.00	0	Unrestricted	11.22	0.00	0.00	0
11	1 NBT			2	D		450 <	1923	13	0.96	103	-13	164.79	154.98	293.53	23
12	1 BT			2	B	C	24	1781	29	0.00	3	3351	22.23	7.30	48.42	0
13	1			2	A		669 <	1882	21	1.56	99	-10	87.36	80.94	159.86	20
14	1 NBT			2	E		469	2012	16	1.37	84	7	42.07	31.80	96.13	8
15	1 NBT						767	Unrestricted	60	9.00	0	Unrestricted	21.88	0.00	0.00	0
16	1 NBT						693	1861	60	37.00	37	142	5.63	0.57	0.00	0
17	1 NBT						437	1744	60	9.17	25	258	29.15	0.35	0.61	1
	2 NBT						799	1901	60	9.24	42	113	29.61	0.69	1.21	1
18	1 NBT						1143	2023	60	22.82	72	25	32.59	6.54	54.39	1

Network Results

	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	Total delay (PCU-hr/hr)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Excess queue penalty (£ per hr)	Performance Index (£ per hr)
Normal traffic	1447.62	185.76	7.79	137.50	1952.57	134.34	0.00	2086.90
Bus	30.80	4.09	7.52	2.04	28.97	0.58	0.00	29.55
Tram	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pedestrians								
TOTAL	1478.42	189.85	7.79	139.54	1981.54	134.92	0.00	2116.45

- *N = at least one source for this link/traffic stream carries normal traffic*
- *B = at least one source for this link/traffic stream carries Bus traffic*
- *T = at least one source for this link/traffic stream carries Tram traffic*
- *< = adjusted flow warning (upstream links/traffic streams are over-saturated)*
- ** = Traffic Stream - Normal, Bus or Tram Stop or Delay weighting has been set to a value other than 100%*
- *^ = Traffic Stream - Normal, Bus or Tram Stop or Delay Path weighting has been set to a value other than 100%*
- *+ = average link/traffic stream excess queue is greater than 0*
- ***P.I. = PERFORMANCE INDEX***

A1 - (untitled)
D2 - 2022 Base, PM

Signal Timings

Network Default: 60s cycle time; 60 steps

Intergreen Matrix for Controller Stream 1

		To													
		A	B	C	D	E	F	G	H	I	J	K	L	M	N
From	A							5							0
	B			5										5	
	C		5												0
	D					5	5						0		
	E				5				0	0					0
	F				5				0					0	0
	G	5							5	5	5	5			
	H					1	5	5		3		3	1	0	0
	I					0		5	0		0		0	0	0
	J							5		3		3	2	0	0
	K							5	0		0		0	0	0
	L				0				0	0	0	0		1	0
	M		0				0		3	3	3	3	0		0
	N	0		0		0	0		0	0	0	0	0	0	

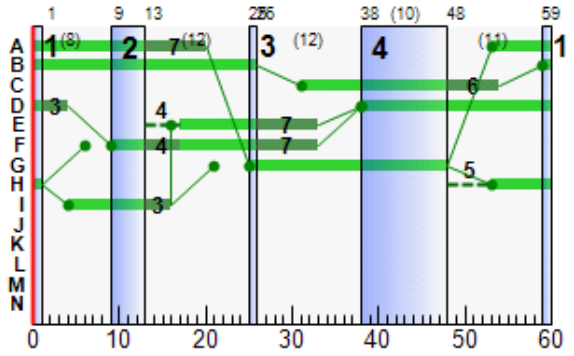
Resultant Stages

Controller Stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	1	✓	4	C,D,G	38	48	10	1	1
	2	✓	1	A,B,D,H	59	1	2	1	1
	3	✓	2	A,B,F,I	9	13	4	1	1
	4	✓	3	B,E,F,G	25	26	1	1	1

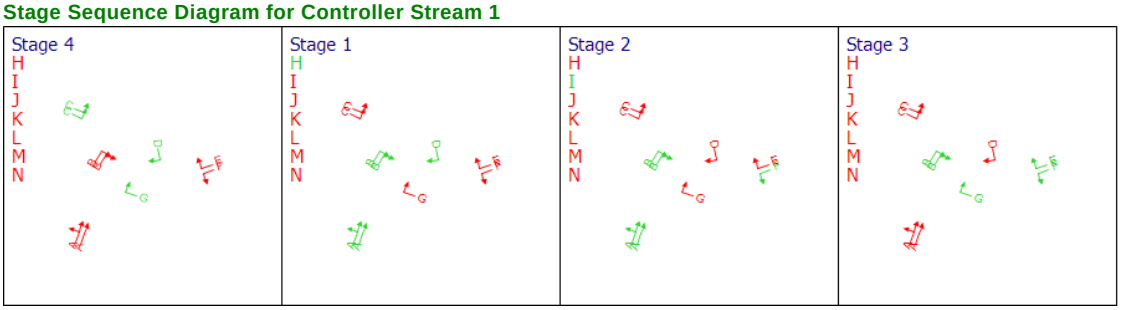
Traffic Stream Green Times

Arm	Traffic Stream	Traffic Node	Controller Stream	Phase	Green Period 1		
					Start	End	Duration
1	1		1	A	53	20	27
1	2		1	A	53	20	27
3	1		1	G	25	48	23
4	1		1	B	59	26	27
4	2		1	B	59	26	27
5	1		1	D	38	4	26
7	1		1	C	31	54	23
7	2		1	C	31	54	23
9	1		1	F	9	33	24
9	2		1	E	17	33	16

Phase Timings Diagram for Controller Stream 1



Stage Sequence Diagram for Controller Stream 1



Intergreen Matrix for Controller Stream 2

		To							
		A	B	C	D	E	F	G	H
From	A		5		7	6	5	6	
	B	5			7	6		6	
	C				9	5		9	
	D	5	5	6			5	5	
	E	5	6	9			6		
	F	5			9	5		6	
	G	5	6	9	5		5		
	H								

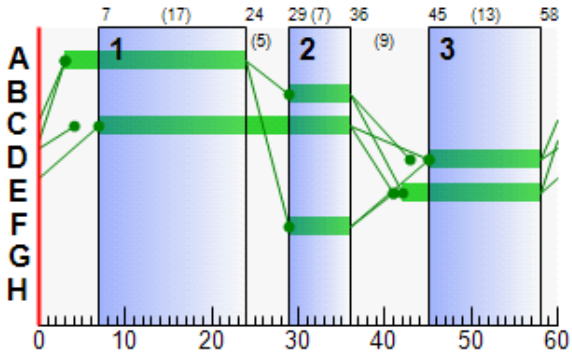
Resultant Stages

Controller Stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
2	1	✓	1	A,C	7	24	17	1	3
	2	✓	2	B,C,F	29	36	7	1	7
	3	✓	3	D,E	45	58	13	1	7

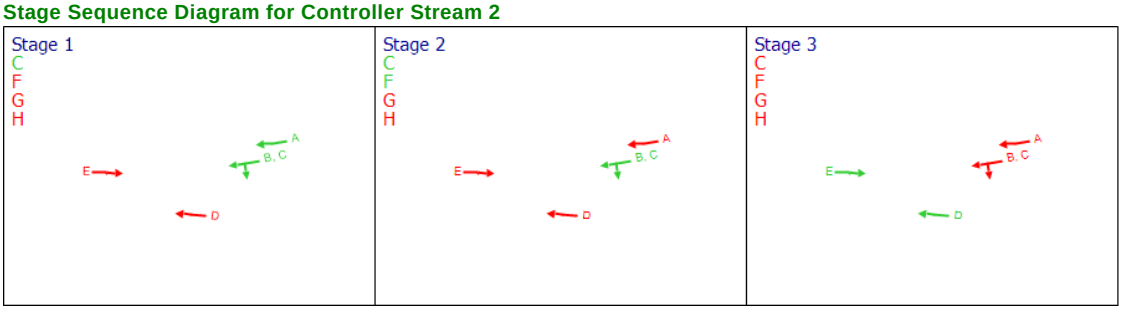
Traffic Stream Green Times

Arm	Traffic Stream	Traffic Node	Controller Stream	Phase	Green Period 1		
					Start	End	Duration
11	1		2	D	45	58	13
12	1		2	B	29	36	7
13	1		2	A	3	24	21
14	1		2	E	42	58	16

Phase Timings Diagram for Controller Stream 2



Stage Sequence Diagram for Controller Stream 2



Final Prediction Table

Traffic Stream Results

				SIGNALS			FLOWS		PERFORMANCE				PER PCU			QU
Arm	Traffic Stream	Name	Traffic node	Controller stream	Phase	Second phase	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Wasted time total (s (per cycle))	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Veh (s)	Mean stops per Veh (%)	M q (P
1	1 NBT			1	A		823 <	1735	27	0.00	98	-8	71.51	61.12	144.54	22
	2 NBT			1	A		625	1929	27	5.62	83	8	35.67	25.34	106.64	9
2	1 NBT						1271	Unrestricted	60	9.00	0	Unrestricted	15.26	0.00	0.00	0
3	1 NBT			1	G		396	1939	23	12.13	49	83	9.00	5.29	61.20	4
4	1 NBT			1	B		278	1654	27	3.00	35	159	5.40	1.75	13.56	1
	2 NBT			1	B		638 <	1672	27	4.01	82	10	15.88	12.53	49.28	5.
5	1 NBT			1	D		597	1804	26	3.01	71	27	7.83	6.14	22.00	2
6	1 NBT						928	Unrestricted	60	18.00	0	Unrestricted	10.63	0.00	0.00	0
7	1 NBT			1	C		404	1780	23	0.00	54	65	22.99	16.10	73.10	4
	2 NBT			1	C		570 <	1935	23	7.31	107	-16	192.30	185.35	263.61	33
8	1 NBT						682	1808	60	9.00	38	139	3.54	0.60	0.00	0
	2 NBT						1209 <	1523	60	10.57	84	7	10.72	7.93	34.12	4.
9	1 NBT			1	F		674	1816	24	0.14	86	5	41.24	28.99	86.94	9
	2 NBT			1	E		396	1905	16	5.42	99	-9	111.93	99.48	182.99	1
10	1 NBT						494	Unrestricted	60	42.00	0	Unrestricted	11.12	0.00	0.00	0
11	1 NBT			2	D		450 <	1923	13	0.96	109	-18	254.99	245.18	342.69	34
12	1 BT			2	B	C	20	1781	29	0.00	2	4041	22.22	7.29	48.41	0
13	1			2	A		580 <	1882	21	1.24	85	6	37.60	31.18	103.56	10
14	1 NBT			2	E		494	2012	16	1.58	90	0	51.24	41.07	112.31	9
15	1 NBT						769	Unrestricted	60	9.00	0	Unrestricted	21.99	0.00	0.00	0
16	1 NBT						600	1861	60	37.00	32	179	5.51	0.46	0.00	0
17	1 NBT						470	1744	60	9.00	27	234	29.14	0.38	0.00	0
	2 NBT						824	1901	60	9.00	43	108	29.62	0.72	0.00	0
18	1 NBT						1050	2023	60	22.00	52	73	26.96	0.96	0.00	0

Network Results

	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	Total delay (PCU-hr/hr)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Excess queue penalty (£ per hr)	Performance Index (£ per hr)
Normal traffic	1429.62	160.59	8.90	112.93	1603.65	108.71	0.00	1712.37
Bus	29.89	3.63	8.22	1.64	23.31	0.44	0.00	23.76
Tram	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pedestrians								
TOTAL	1459.51	164.22	8.89	114.58	1626.97	109.15	0.00	1736.12

- *N = at least one source for this link/traffic stream carries normal traffic*
- *B = at least one source for this link/traffic stream carries Bus traffic*
- *T = at least one source for this link/traffic stream carries Tram traffic*
- *< = adjusted flow warning (upstream links/traffic streams are over-saturated)*
- ** = Traffic Stream - Normal, Bus or Tram Stop or Delay weighting has been set to a value other than 100%*
- *^ = Traffic Stream - Normal, Bus or Tram Stop or Delay Path weighting has been set to a value other than 100%*
- *+ = average link/traffic stream excess queue is greater than 0*
- ***P.I. = PERFORMANCE INDEX***

A1 - (untitled)
D3 - 2028 Do Minimum, AM

Signal Timings

Network Default: 60s cycle time; 60 steps

Intergreen Matrix for Controller Stream 1

		To													
		A	B	C	D	E	F	G	H	I	J	K	L	M	N
From	A							5							0
	B			5										5	
	C		5												0
	D					5	5						0		
	E				5				0	0					0
	F				5				0					0	0
	G	5							5	5	5	5			
	H					1	5	5		3		3	1	0	0
	I					0		5	0		0		0	0	0
	J							5		3		3	2	0	0
	K							5	0		0		0	0	0
	L				0				0	0	0	0		1	0
	M		0				0		3	3	3	3	0		0
	N	0		0		0	0		0	0	0	0	0	0	

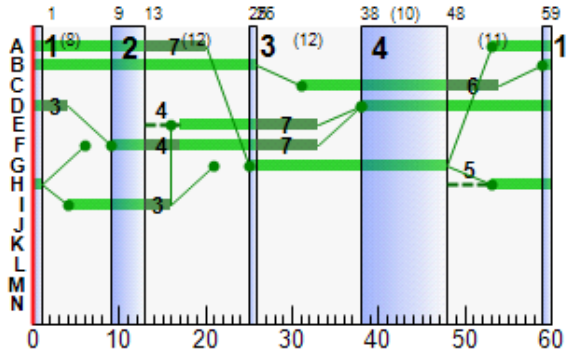
Resultant Stages

Controller Stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	1	✓	4	C,D,G	38	48	10	1	1
	2	✓	1	A,B,D,H	59	1	2	1	1
	3	✓	2	A,B,F,I	9	13	4	1	1
	4	✓	3	B,E,F,G	25	26	1	1	1

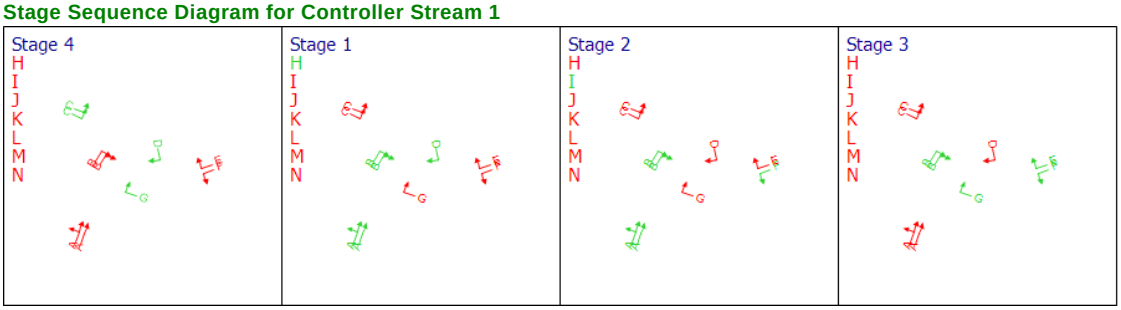
Traffic Stream Green Times

Arm	Traffic Stream	Traffic Node	Controller Stream	Phase	Green Period 1		
					Start	End	Duration
1	1		1	A	53	20	27
1	2		1	A	53	20	27
3	1		1	G	25	48	23
4	1		1	B	59	26	27
4	2		1	B	59	26	27
5	1		1	D	38	4	26
7	1		1	C	31	54	23
7	2		1	C	31	54	23
9	1		1	F	9	33	24
9	2		1	E	17	33	16

Phase Timings Diagram for Controller Stream 1



Stage Sequence Diagram for Controller Stream 1



Intergreen Matrix for Controller Stream 2

		To							
		A	B	C	D	E	F	G	H
From	A		5		7	6	5	6	
	B	5			7	6		6	
	C				9	5		9	
	D	5	5	6			5	5	
	E	5	6	9			6		
	F	5			9	5		6	
	G	5	6	9	5		5		
	H								

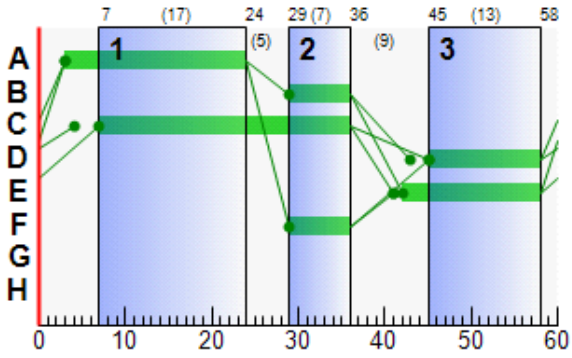
Resultant Stages

Controller Stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
2	1	✓	1	A,C	7	24	17	1	3
	2	✓	2	B,C,F	29	36	7	1	7
	3	✓	3	D,E	45	58	13	1	7

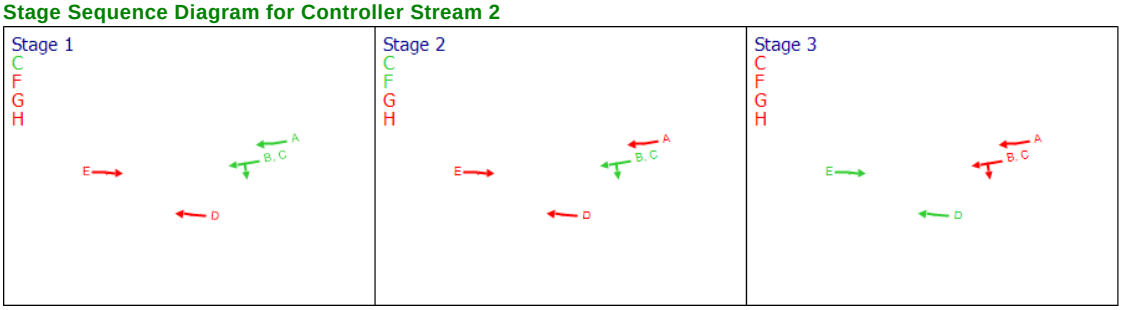
Traffic Stream Green Times

Arm	Traffic Stream	Traffic Node	Controller Stream	Phase	Green Period 1		
					Start	End	Duration
11	1		2	D	45	58	13
12	1		2	B	29	36	7
13	1		2	A	3	24	21
14	1		2	E	42	58	16

Phase Timings Diagram for Controller Stream 2



Stage Sequence Diagram for Controller Stream 2



Final Prediction Table

Traffic Stream Results

				SIGNALS			FLOWS		PERFORMANCE				PER PCU			QU
Arm	Traffic Stream	Name	Traffic node	Controller stream	Phase	Second phase	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Wasted time total (s (per cycle))	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Veh (s)	Mean stops per Veh (%)	M q (P
1	1 NBT			1	A		838 <	1734	27	0.00	112	-19	265.51	255.12	281.85	65
	2 NBT			1	A		704 <	1929	27	6.64	98	-8	74.78	64.44	162.31	18
2	1 NBT						1333	Unrestricted	60	9.00	0	Unrestricted	15.22	0.00	0.00	0
3	1 NBT			1	G		398	1939	23	11.11	49	82	9.00	5.29	61.03	4
4	1 NBT			1	B		282	1654	27	3.00	35	155	5.52	1.87	13.75	1
	2 NBT			1	B		718 <	1672	27	2.45	93	-4	32.81	29.46	70.06	9.
5	1 NBT			1	D		597	1804	26	3.01	71	27	7.80	6.11	22.01	2
6	1 NBT						940	Unrestricted	60	17.00	0	Unrestricted	10.63	0.00	0.00	0
7	1 NBT			1	C		340	1780	23	0.00	46	96	21.56	14.67	68.38	3
	2 NBT			1	C		570 <	1935	23	7.31	117	-23	349.47	342.54	320.56	58
8	1 NBT						622	1808	60	9.00	34	161	3.47	0.52	0.00	0
	2 NBT						1288 <	1523	60	7.58	90	0	14.66	11.87	44.70	6.
9	1 NBT			1	F		737	1816	24	0.19	94	-5	57.48	45.24	114.01	1
	2 NBT			1	E		404 <	1905	16	5.51	102	-12	202.88	190.48	367.09	26
10	1 NBT						505	Unrestricted	60	42.00	0	Unrestricted	11.19	0.00	0.00	0
11	1 NBT			2	D		450 <	1923	13	0.96	109	-17	244.75	234.94	338.31	33
12	1 BT			2	B	C	25	1781	29	0.00	3	3213	22.23	7.30	48.42	0
13	1			2	A		670 <	1882	21	1.64	105	-14	158.39	151.97	209.25	33
14	1 NBT			2	E		505	2012	16	1.58	92	-2	57.34	47.09	119.82	1
15	1 NBT						808	Unrestricted	60	6.00	0	Unrestricted	21.86	0.00	0.00	0
16	1 NBT						695	1861	60	37.00	37	141	5.64	0.58	0.00	0
17	1 NBT						441	1744	60	9.00	25	256	29.15	0.35	0.00	0
	2 NBT						872	1901	60	6.00	46	96	29.69	0.80	0.00	0
18	1 NBT						1145	2023	60	22.00	57	59	27.23	1.16	0.00	0

Network Results

	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	Total delay (PCU-hr/hr)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Excess queue penalty (£ per hr)	Performance Index (£ per hr)
Normal traffic	1493.56	281.78	5.30	232.00	3294.35	159.07	0.00	3453.42
Bus	31.48	5.38	5.85	3.28	46.62	0.65	0.00	47.27
Tram	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pedestrians								
TOTAL	1525.04	287.16	5.31	235.28	3340.96	159.72	0.00	3500.69

- *N = at least one source for this link/traffic stream carries normal traffic*
- *B = at least one source for this link/traffic stream carries Bus traffic*
- *T = at least one source for this link/traffic stream carries Tram traffic*
- *< = adjusted flow warning (upstream links/traffic streams are over-saturated)*
- ** = Traffic Stream - Normal, Bus or Tram Stop or Delay weighting has been set to a value other than 100%*
- *^ = Traffic Stream - Normal, Bus or Tram Stop or Delay Path weighting has been set to a value other than 100%*
- *+ = average link/traffic stream excess queue is greater than 0*
- ***P.I. = PERFORMANCE INDEX***

A1 - (untitled)
D4 - 2028 Do Minimum, PM

Signal Timings

Network Default: 60s cycle time; 60 steps

Intergreen Matrix for Controller Stream 1

		To													
		A	B	C	D	E	F	G	H	I	J	K	L	M	N
From	A							5							0
	B			5										5	
	C		5												0
	D					5	5						0		
	E				5				0	0					0
	F				5				0					0	0
	G	5							5	5	5	5			
	H					1	5	5		3		3	1	0	0
	I					0		5	0		0		0	0	0
	J							5		3		3	2	0	0
	K							5	0		0		0	0	0
	L				0				0	0	0	0		1	0
	M		0				0		3	3	3	3	0		0
	N	0		0		0	0		0	0	0	0	0	0	

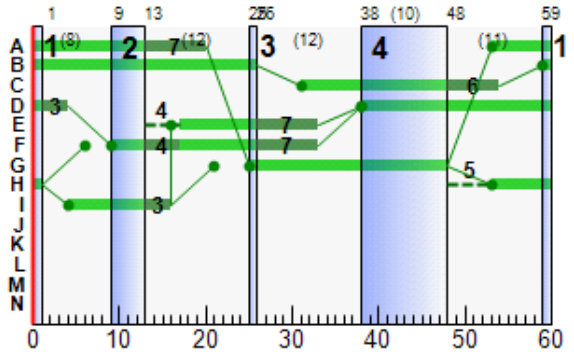
Resultant Stages

Controller Stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	1	✓	4	C,D,G	38	48	10	1	1
	2	✓	1	A,B,D,H	59	1	2	1	1
	3	✓	2	A,B,F,I	9	13	4	1	1
	4	✓	3	B,E,F,G	25	26	1	1	1

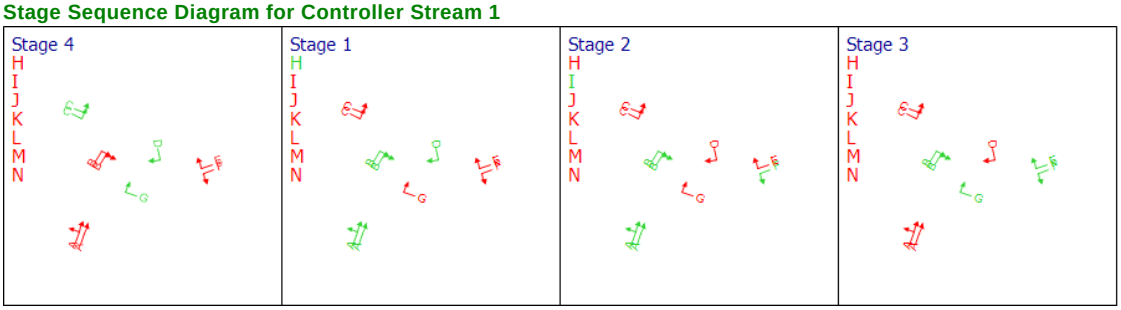
Traffic Stream Green Times

Arm	Traffic Stream	Traffic Node	Controller Stream	Phase	Green Period 1		
					Start	End	Duration
1	1		1	A	53	20	27
1	2		1	A	53	20	27
3	1		1	G	25	48	23
4	1		1	B	59	26	27
4	2		1	B	59	26	27
5	1		1	D	38	4	26
7	1		1	C	31	54	23
7	2		1	C	31	54	23
9	1		1	F	9	33	24
9	2		1	E	17	33	16

Phase Timings Diagram for Controller Stream 1



Stage Sequence Diagram for Controller Stream 1



Intergreen Matrix for Controller Stream 2

		To							
		A	B	C	D	E	F	G	H
From	A		5		7	6	5	6	
	B	5			7	6		6	
	C				9	5		9	
	D	5	5	6			5	5	
	E	5	6	9			6		
	F	5			9	5		6	
	G	5	6	9	5		5		
	H								

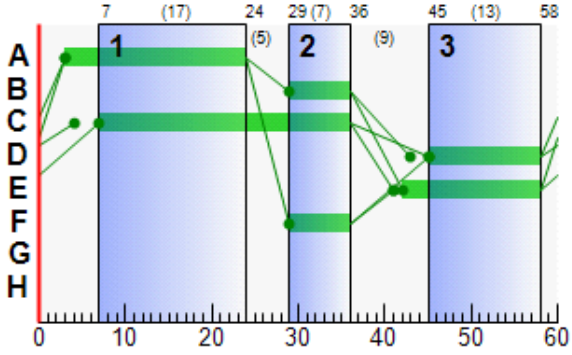
Resultant Stages

Controller Stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
2	1	✓	1	A,C	7	24	17	1	3
	2	✓	2	B,C,F	29	36	7	1	7
	3	✓	3	D,E	45	58	13	1	7

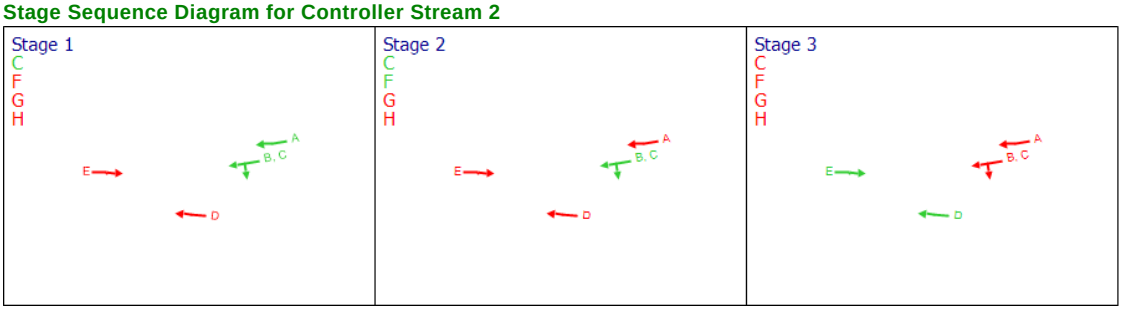
Traffic Stream Green Times

Arm	Traffic Stream	Traffic Node	Controller Stream	Phase	Green Period 1		
					Start	End	Duration
11	1		2	D	45	58	13
12	1		2	B	29	36	7
13	1		2	A	3	24	21
14	1		2	E	42	58	16

Phase Timings Diagram for Controller Stream 2



Stage Sequence Diagram for Controller Stream 2



Final Prediction Table

Traffic Stream Results

				SIGNALS			FLOWS		PERFORMANCE				PER PCU			QU
Arm	Traffic Stream	Name	Traffic node	Controller stream	Phase	Second phase	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Wasted time total (s (per cycle))	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Veh (s)	Mean stops per Veh (%)	M q (P
1	1 NBT			1	A		838 <	1734	27	0.00	105	-14	157.41	147.01	228.35	40
	2 NBT			1	A		668	1929	27	6.01	90	0	45.30	34.97	122.69	1
2	1 NBT						1323	Unrestricted	60	9.00	0	Unrestricted	15.24	0.00	0.00	0
3	1 NBT			1	G		396	1939	23	12.13	49	83	9.01	5.29	61.21	4
4	1 NBT			1	B		284	1654	27	3.00	36	153	5.43	1.77	13.37	1
	2 NBT			1	B		681 <	1672	27	4.28	88	2	21.85	18.50	56.25	6.
5	1 NBT			1	D		597	1804	26	3.01	71	27	7.84	6.15	22.03	2
6	1 NBT						937	Unrestricted	60	18.00	0	Unrestricted	10.63	0.00	0.00	0
7	1 NBT			1	C		420	1780	23	0.00	57	59	23.40	16.52	73.95	5
	2 NBT			1	C		570 <	1935	23	7.34	118	-24	370.52	363.57	325.96	61
8	1 NBT						704	1808	60	9.00	39	131	3.58	0.63	0.00	0
	2 NBT						1251 <	1523	60	9.61	87	3	12.48	9.69	38.85	5.
9	1 NBT			1	F		726	1816	24	0.18	93	-3	53.19	40.95	105.40	1
	2 NBT			1	E		396	1905	16	5.42	99	-9	112.02	99.57	184.66	1
10	1 NBT						521	Unrestricted	60	42.00	0	Unrestricted	11.11	0.00	0.00	0
11	1 NBT			2	D		450 <	1923	13	0.96	120	-25	431.34	421.54	393.57	56
12	1 BT			2	B	C	21	1781	29	0.00	2	3844	22.22	7.30	48.41	0
13	1			2	A		632 <	1882	21	1.37	93	-3	53.10	46.68	124.24	13
14	1 NBT			2	E		521	2012	16	1.69	95	-6	70.75	60.59	140.27	1
15	1 NBT						805	Unrestricted	60	8.00	0	Unrestricted	21.98	0.00	0.00	0
16	1 NBT						653	1861	60	37.00	35	156	5.57	0.52	0.00	0
17	1 NBT						483	1744	60	9.00	28	225	29.18	0.40	0.00	0
	2 NBT						875	1901	60	8.00	46	96	29.72	0.81	0.00	0
18	1 NBT						1103	2023	60	22.00	55	65	27.06	1.06	0.00	0

Network Results

	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	Total delay (PCU-hr/hr)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Excess queue penalty (£ per hr)	Performance Index (£ per hr)
Normal traffic	1492.18	245.65	6.07	195.91	2781.97	135.47	0.00	2917.44
Bus	30.92	4.63	6.68	2.57	36.43	0.54	0.00	36.97
Tram	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pedestrians								
TOTAL	1523.10	250.28	6.09	198.48	2818.40	136.01	0.00	2954.42

- *N = at least one source for this link/traffic stream carries normal traffic*
- *B = at least one source for this link/traffic stream carries Bus traffic*
- *T = at least one source for this link/traffic stream carries Tram traffic*
- *< = adjusted flow warning (upstream links/traffic streams are over-saturated)*
- ** = Traffic Stream - Normal, Bus or Tram Stop or Delay weighting has been set to a value other than 100%*
- *^ = Traffic Stream - Normal, Bus or Tram Stop or Delay Path weighting has been set to a value other than 100%*
- *+ = average link/traffic stream excess queue is greater than 0*
- ***P.I. = PERFORMANCE INDEX***

A1 - (untitled)
D5 - 2028 With Development, AM

Signal Timings

Network Default: 60s cycle time; 60 steps

Intergreen Matrix for Controller Stream 1

		To													
		A	B	C	D	E	F	G	H	I	J	K	L	M	N
From	A							5							0
	B			5										5	
	C		5												0
	D					5	5						0		
	E				5				0	0					0
	F				5				0					0	0
	G	5							5	5	5	5			
	H					1	5	5		3		3	1	0	0
	I					0		5	0		0		0	0	0
	J							5		3		3	2	0	0
	K							5	0		0		0	0	0
	L				0				0	0	0	0		1	0
	M		0				0		3	3	3	3	0		0
	N	0		0		0	0		0	0	0	0	0	0	

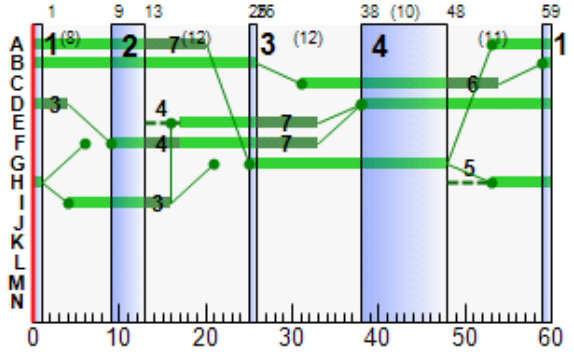
Resultant Stages

Controller Stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	1	✓	4	C,D,G	38	48	10	1	1
	2	✓	1	A,B,D,H	59	1	2	1	1
	3	✓	2	A,B,F,I	9	13	4	1	1
	4	✓	3	B,E,F,G	25	26	1	1	1

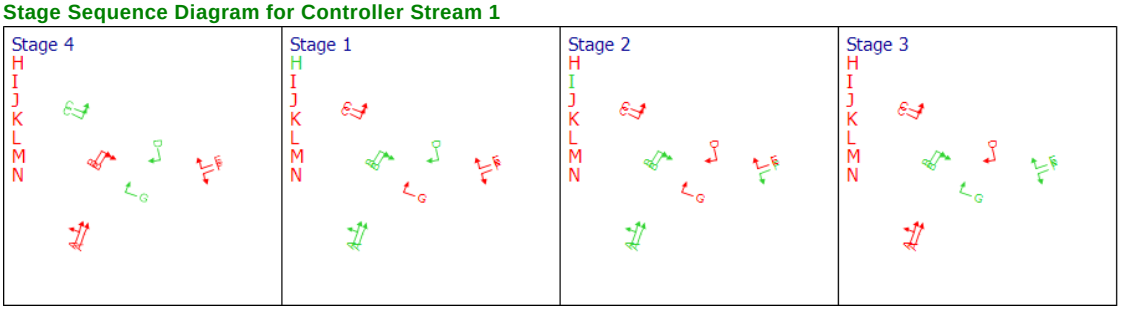
Traffic Stream Green Times

Arm	Traffic Stream	Traffic Node	Controller Stream	Phase	Green Period 1		
					Start	End	Duration
1	1		1	A	53	20	27
1	2		1	A	53	20	27
3	1		1	G	25	48	23
4	1		1	B	59	26	27
4	2		1	B	59	26	27
5	1		1	D	38	4	26
7	1		1	C	31	54	23
7	2		1	C	31	54	23
9	1		1	F	9	33	24
9	2		1	E	17	33	16

Phase Timings Diagram for Controller Stream 1



Stage Sequence Diagram for Controller Stream 1



Intergreen Matrix for Controller Stream 2

		To							
		A	B	C	D	E	F	G	H
From	A		5		7	6	5	6	
	B	5			7	6		6	
	C				9	5		9	
	D	5	5	6			5	5	
	E	5	6	9			6		
	F	5			9	5		6	
	G	5	6	9	5		5		
	H								

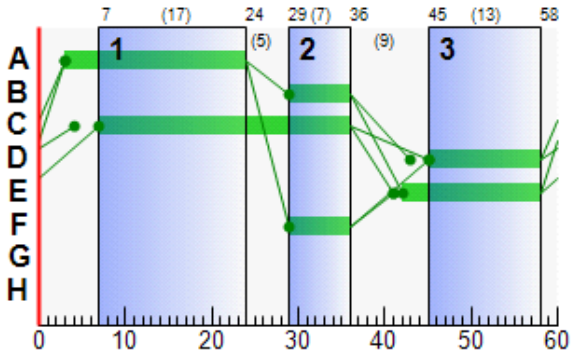
Resultant Stages

Controller Stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
2	1	✓	1	A,C	7	24	17	1	3
	2	✓	2	B,C,F	29	36	7	1	7
	3	✓	3	D,E	45	58	13	1	7

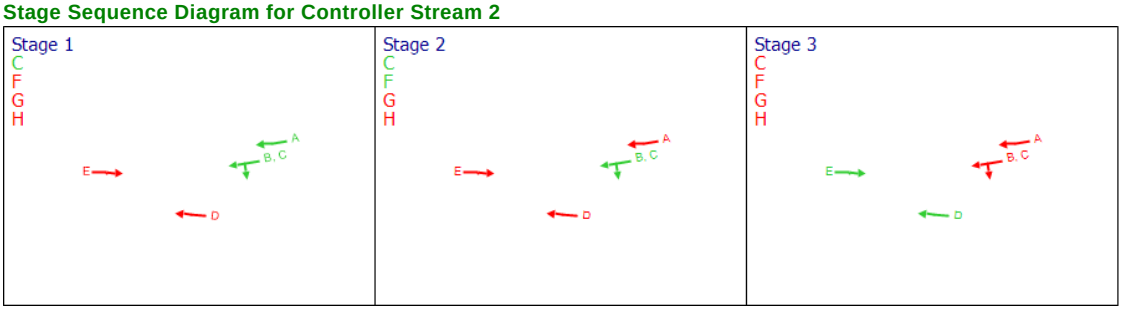
Traffic Stream Green Times

Arm	Traffic Stream	Traffic Node	Controller Stream	Phase	Green Period 1		
					Start	End	Duration
11	1		2	D	45	58	13
12	1		2	B	29	36	7
13	1		2	A	3	24	21
14	1		2	E	42	58	16

Phase Timings Diagram for Controller Stream 2



Stage Sequence Diagram for Controller Stream 2



Final Prediction Table

Traffic Stream Results

				SIGNALS			FLOWS		PERFORMANCE				PER PCU			QU
Arm	Traffic Stream	Name	Traffic node	Controller stream	Phase	Second phase	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Wasted time total (s (per cycle))	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Veh (s)	Mean stops per Veh (%)	M q (P
1	1 NBT			1	A		838 <	1734	27	0.00	112	-19	265.51	255.12	281.85	65
	2 NBT			1	A		706 <	1929	27	7.06	101	-11	111.19	100.85	233.06	24
2	1 NBT						1250	Unrestricted	60	13.00	0	Unrestricted	15.21	0.00	0.00	0
3	1 NBT			1	G		400	1939	23	11.00	49	82	8.92	5.23	60.76	4
4	1 NBT			1	B		298	1654	27	3.00	37	141	7.02	3.38	18.66	1
	2 NBT			1	B		726 <	1672	27	2.45	95	-5	36.62	33.28	75.27	9.
5	1 NBT			1	D		596	1804	26	3.01	71	27	7.99	6.31	22.13	2
6	1 NBT						919	Unrestricted	60	17.00	0	Unrestricted	10.63	0.00	0.00	0
7	1 NBT			1	C		320	1780	23	0.00	43	109	21.18	14.29	68.01	3
	2 NBT			1	C		563 <	1935	23	7.53	124	-28	482.48	475.56	350.54	78
8	1 NBT						618	1808	60	9.00	34	163	3.47	0.52	0.00	0
	2 NBT						1289 <	1523	60	7.85	90	-1	15.32	12.53	46.70	6.
9	1 NBT			1	F		655	1816	24	4.19	84	7	36.95	24.72	116.35	1
	2 NBT			1	E		399 <	1905	16	5.44	100	-10	216.59	204.23	366.32	26
10	1 NBT						510	Unrestricted	60	42.00	0	Unrestricted	11.19	0.00	0.00	0
11	1 NBT			2	D		450 <	1923	13	0.96	122	-26	461.97	452.17	399.64	60
12	1 BT			2	B	C	25	1781	29	0.00	3	3213	22.23	7.30	48.42	0
13	1			2	A		581 <	1882	21	4.46	122	-26	447.39	440.97	319.19	75
14	1 NBT			2	E		510	2012	16	1.69	93	-3	62.37	52.13	127.05	1
15	1 NBT						806	Unrestricted	60	6.00	0	Unrestricted	21.86	0.00	0.00	0
16	1 NBT						606	1861	60	40.07	38	139	9.35	4.27	34.47	5
17	1 NBT						439	1744	60	9.16	25	256	29.15	0.35	1.10	1
	2 NBT						872	1901	60	6.46	46	95	29.71	0.82	1.47	1
18	1 NBT						1056 <	2023	60	25.27	90	0	82.05	55.94	221.71	39

Network Results

	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	Total delay (PCU-hr/hr)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Excess queue penalty (£ per hr)	Performance Index (£ per hr)
Normal traffic	1445.79	391.98	3.69	343.78	4881.72	208.15	0.00	5089.88
Bus	30.50	5.97	5.11	3.93	55.87	0.89	0.00	56.76
Tram	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pedestrians								
TOTAL	1476.29	397.94	3.71	347.72	4937.60	209.04	0.00	5146.64

- *N = at least one source for this link/traffic stream carries normal traffic*
- *B = at least one source for this link/traffic stream carries Bus traffic*
- *T = at least one source for this link/traffic stream carries Tram traffic*
- *< = adjusted flow warning (upstream links/traffic streams are over-saturated)*
- ** = Traffic Stream - Normal, Bus or Tram Stop or Delay weighting has been set to a value other than 100%*
- *^ = Traffic Stream - Normal, Bus or Tram Stop or Delay Path weighting has been set to a value other than 100%*
- *+ = average link/traffic stream excess queue is greater than 0*
- ***P.I. = PERFORMANCE INDEX***

A1 - (untitled)
D6 - 2028 With Development, PM

Signal Timings

Network Default: 60s cycle time; 60 steps

Intergreen Matrix for Controller Stream 1

		To													
		A	B	C	D	E	F	G	H	I	J	K	L	M	N
From	A							5							0
	B			5										5	
	C		5												0
	D					5	5						0		
	E				5				0	0					0
	F				5				0					0	0
	G	5							5	5	5	5			
	H					1	5	5		3		3	1	0	0
	I					0		5	0		0		0	0	0
	J							5		3		3	2	0	0
	K							5	0		0		0	0	0
	L				0				0	0	0	0		1	0
	M		0				0		3	3	3	3	0		0
	N	0		0		0	0		0	0	0	0	0	0	

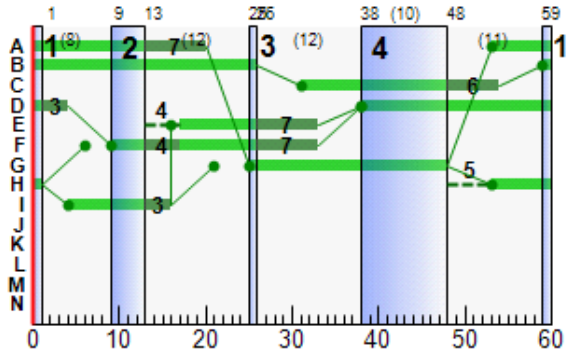
Resultant Stages

Controller Stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	1	✓	4	C,D,G	38	48	10	1	1
	2	✓	1	A,B,D,H	59	1	2	1	1
	3	✓	2	A,B,F,I	9	13	4	1	1
	4	✓	3	B,E,F,G	25	26	1	1	1

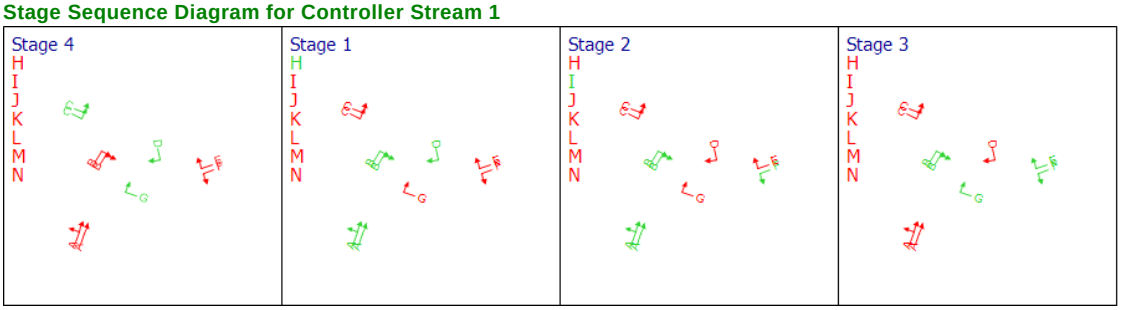
Traffic Stream Green Times

Arm	Traffic Stream	Traffic Node	Controller Stream	Phase	Green Period 1		
					Start	End	Duration
1	1		1	A	53	20	27
1	2		1	A	53	20	27
3	1		1	G	25	48	23
4	1		1	B	59	26	27
4	2		1	B	59	26	27
5	1		1	D	38	4	26
7	1		1	C	31	54	23
7	2		1	C	31	54	23
9	1		1	F	9	33	24
9	2		1	E	17	33	16

Phase Timings Diagram for Controller Stream 1



Stage Sequence Diagram for Controller Stream 1



Intergreen Matrix for Controller Stream 2

		To							
		A	B	C	D	E	F	G	H
From	A		5		7	6	5	6	
	B	5			7	6		6	
	C				9	5		9	
	D	5	5	6			5	5	
	E	5	6	9			6		
	F	5			9	5		6	
	G	5	6	9	5		5		
	H								

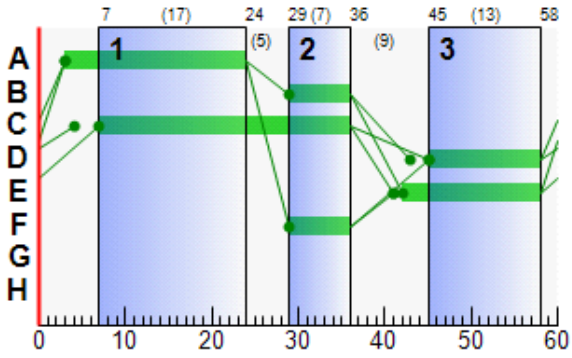
Resultant Stages

Controller Stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
2	1	✓	1	A,C	7	24	17	1	3
	2	✓	2	B,C,F	29	36	7	1	7
	3	✓	3	D,E	45	58	13	1	7

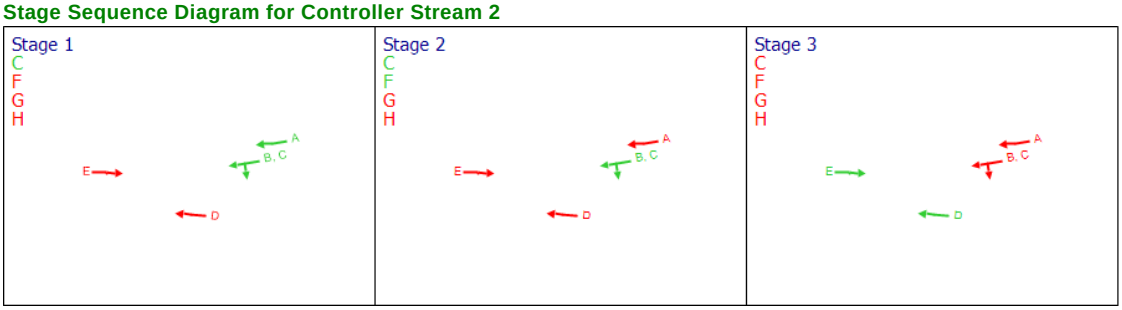
Traffic Stream Green Times

Arm	Traffic Stream	Traffic Node	Controller Stream	Phase	Green Period 1		
					Start	End	Duration
11	1		2	D	45	58	13
12	1		2	B	29	36	7
13	1		2	A	3	24	21
14	1		2	E	42	58	16

Phase Timings Diagram for Controller Stream 2



Stage Sequence Diagram for Controller Stream 2



Final Prediction Table

Traffic Stream Results

				SIGNALS			FLOWS		PERFORMANCE				PER PCU			QU
Arm	Traffic Stream	Name	Traffic node	Controller stream	Phase	Second phase	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Wasted time total (s (per cycle))	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Veh (s)	Mean stops per Veh (%)	M q (P
1	1 NBT			1	A		838 <	1734	27	0.00	105	-14	157.41	147.01	228.35	40
	2 NBT			1	A		671	1929	27	6.38	92	-2	50.04	39.71	129.89	1
2	1 NBT						1262	Unrestricted	60	12.00	0	Unrestricted	15.22	0.00	0.00	0
3	1 NBT			1	G		399	1939	23	11.00	49	82	8.92	5.22	60.85	4
4	1 NBT			1	B		298	1654	27	3.00	37	142	6.71	3.06	17.57	1
	2 NBT			1	B		690 <	1672	27	3.37	90	0	24.20	20.86	59.73	7.
5	1 NBT			1	D		596	1804	26	3.01	71	27	7.90	6.21	22.06	2
6	1 NBT						920	Unrestricted	60	17.00	0	Unrestricted	10.62	0.00	0.00	0
7	1 NBT			1	C		408	1780	23	0.00	55	64	23.09	16.20	73.34	5
	2 NBT			1	C		567 <	1935	23	7.42	127	-29	534.27	527.32	357.84	86
8	1 NBT						706	1808	60	9.00	39	131	3.58	0.64	0.00	0
	2 NBT						1257 <	1523	60	8.72	88	2	12.93	10.14	40.18	5.
9	1 NBT			1	F		666	1816	24	3.19	85	6	38.63	26.40	118.99	1
	2 NBT			1	E		399 <	1905	16	5.44	100	-10	216.42	204.00	366.65	26
10	1 NBT						532	Unrestricted	60	42.00	0	Unrestricted	11.10	0.00	0.00	0
11	1 NBT			2	D		450 <	1923	13	0.96	133	-33	664.32	654.52	431.77	85
12	1 BT			2	B	C	21	1781	29	0.00	2	3844	22.22	7.30	48.41	0
13	1			2	A		576 <	1882	21	4.65	110	-18	244.85	238.43	265.95	42
14	1 NBT			2	E		532 <	2012	16	1.79	98	-8	86.32	76.16	158.43	16
15	1 NBT						814	Unrestricted	60	7.00	0	Unrestricted	21.97	0.00	0.00	0
16	1 NBT						597	1861	60	40.46	37	141	9.61	4.55	36.26	5
17	1 NBT						484	1744	60	9.12	28	224	29.18	0.40	0.87	1
	2 NBT						882	1901	60	7.00	46	94	29.72	0.82	0.00	0
18	1 NBT						1047 <	2023	60	25.68	90	0	83.75	57.73	225.41	39

Network Results

	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	Total delay (PCU-hr/hr)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Excess queue penalty (£ per hr)	Performance Index (£ per hr)
Normal traffic	1466.75	357.90	4.10	309.01	4387.97	192.64	0.00	4580.61
Bus	30.09	5.52	5.45	3.51	49.91	0.80	0.00	50.70
Tram	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pedestrians								
TOTAL	1496.84	363.42	4.12	312.53	4437.87	193.44	0.00	4631.31

- *N = at least one source for this link/traffic stream carries normal traffic*
- *B = at least one source for this link/traffic stream carries Bus traffic*
- *T = at least one source for this link/traffic stream carries Tram traffic*
- *< = adjusted flow warning (upstream links/traffic streams are over-saturated)*
- ** = Traffic Stream - Normal, Bus or Tram Stop or Delay weighting has been set to a value other than 100%*
- *^ = Traffic Stream - Normal, Bus or Tram Stop or Delay Path weighting has been set to a value other than 100%*
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