CBO Transport

Project:
New Street / Heelis Street Food Store Proposal,
Barnsley Town Centre

Applicant:
RED Property Services

Document:
Transport Assessment

FIGURES AND APPENDICES

CBO

Transport

Project:

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Transport Assessment

FIGURES AND APPENDICES

C.B.O. Transport Ltd
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T: 0161 235 6365. F: 0161 235 6366

New Street / Heelis Street Food Store Proposal, Barnsley Town Centre

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CBO Transport

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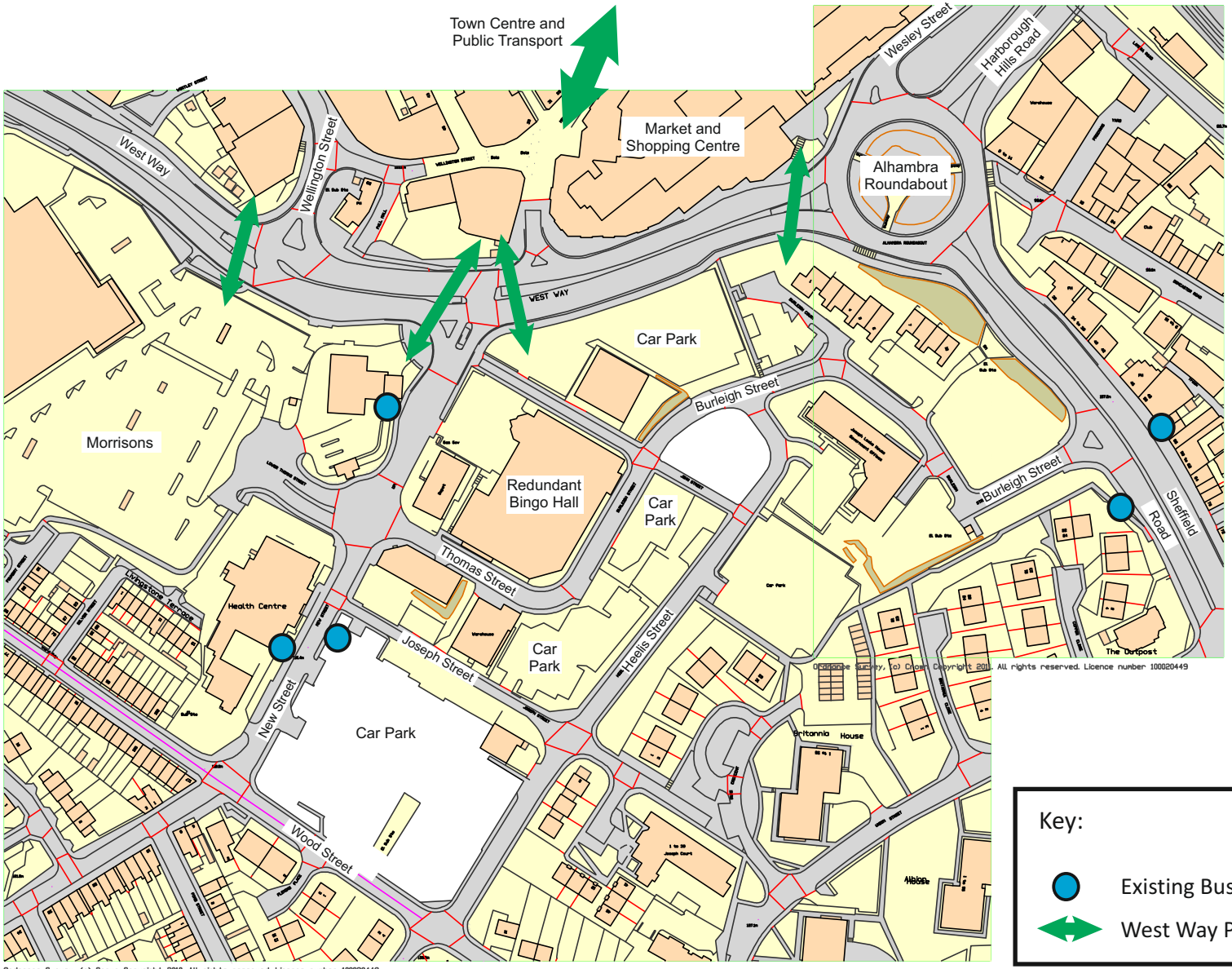
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Site Location **Figure 1.1**



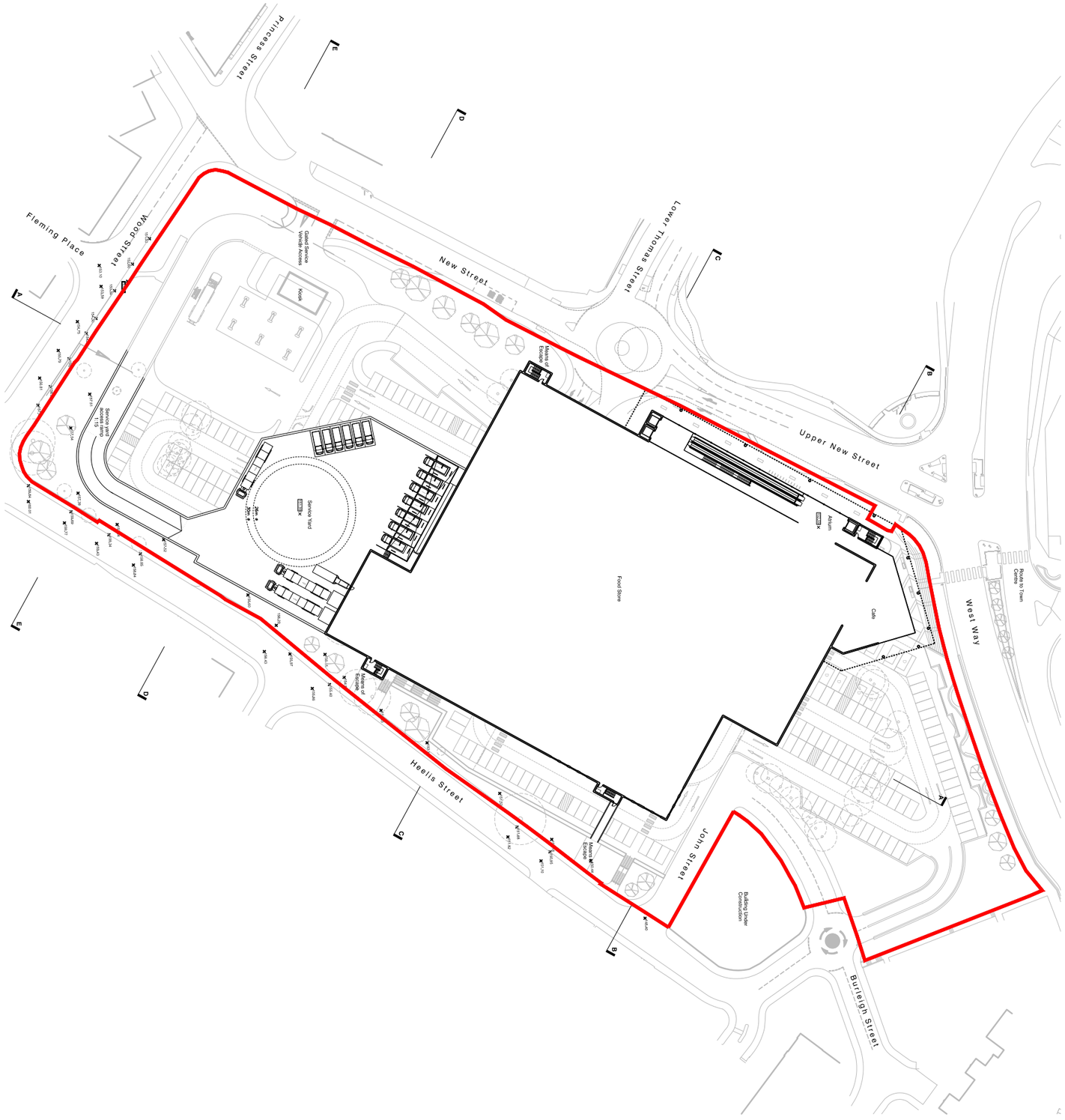
Ordnance Survey, (c) Crown Copyright 2010. All rights reserved. Licence number 100020449

Existing Site Context **Figure 1.2**



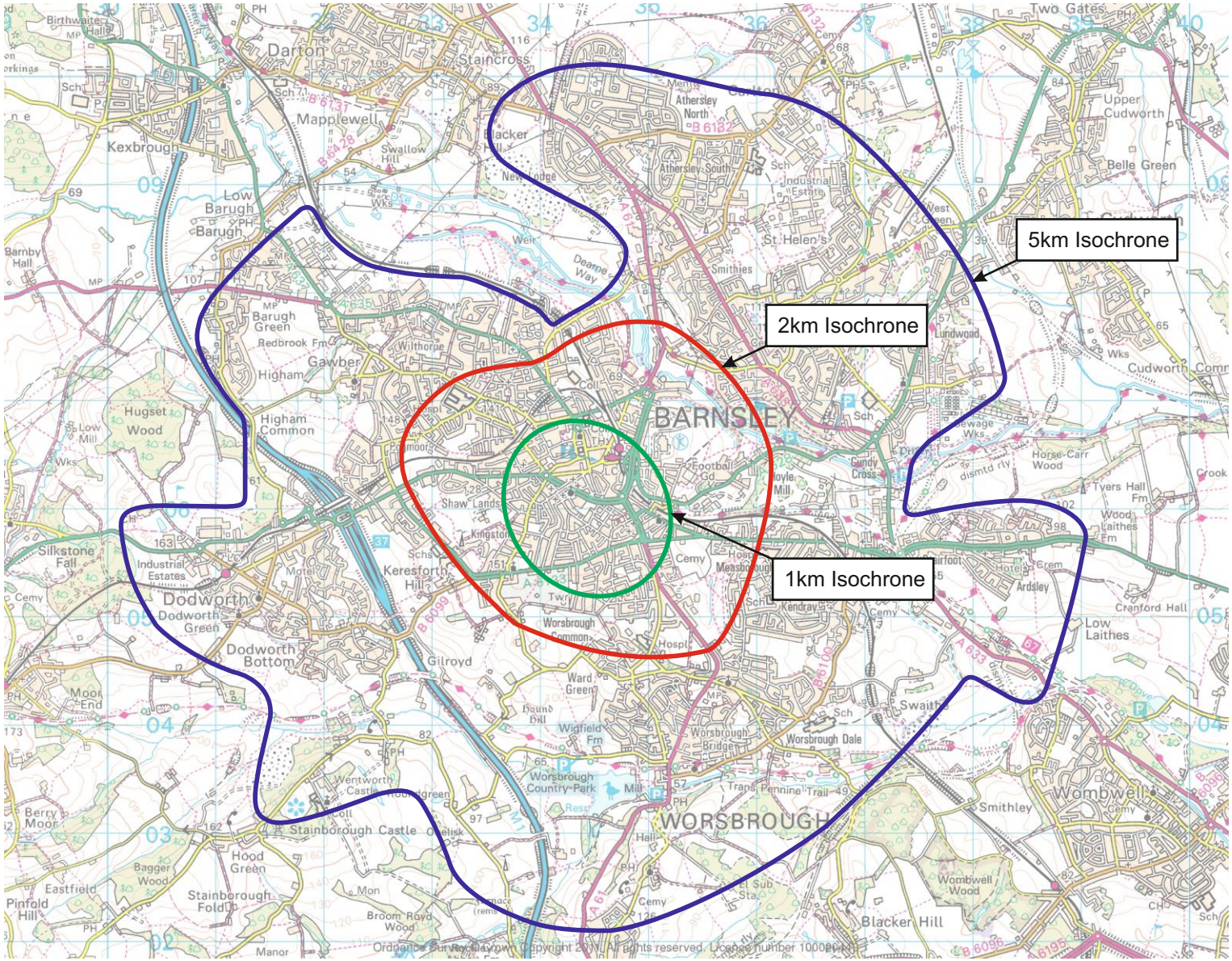
Plan not to scale. For scale plans refer to Michael Hyde Architects Plan as submitted with the planning application

Car Park Level **Figure 1.3a**

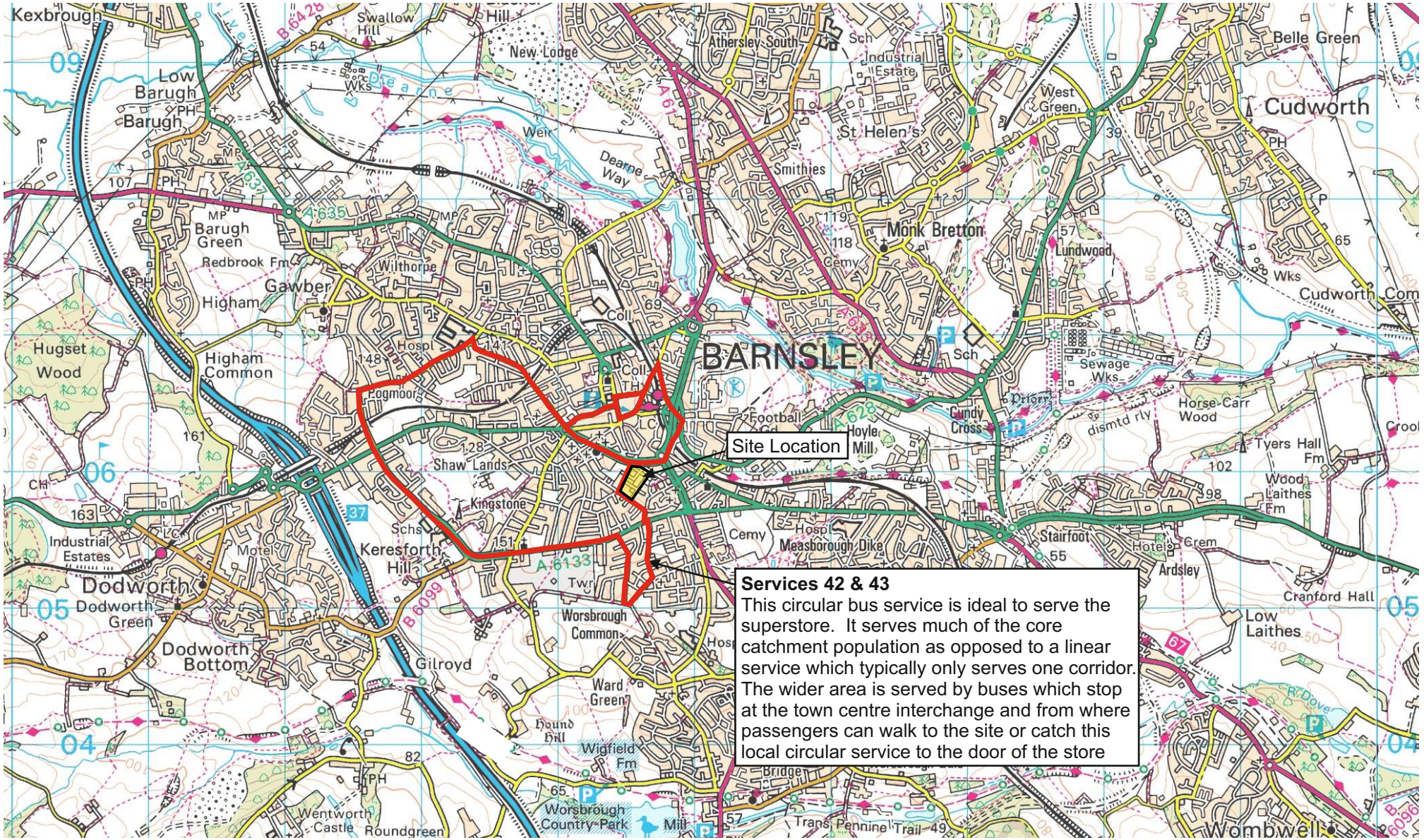


Plan not to scale. For scale plans refer to Michael Hyde Architects Plan as submitted with the planning application

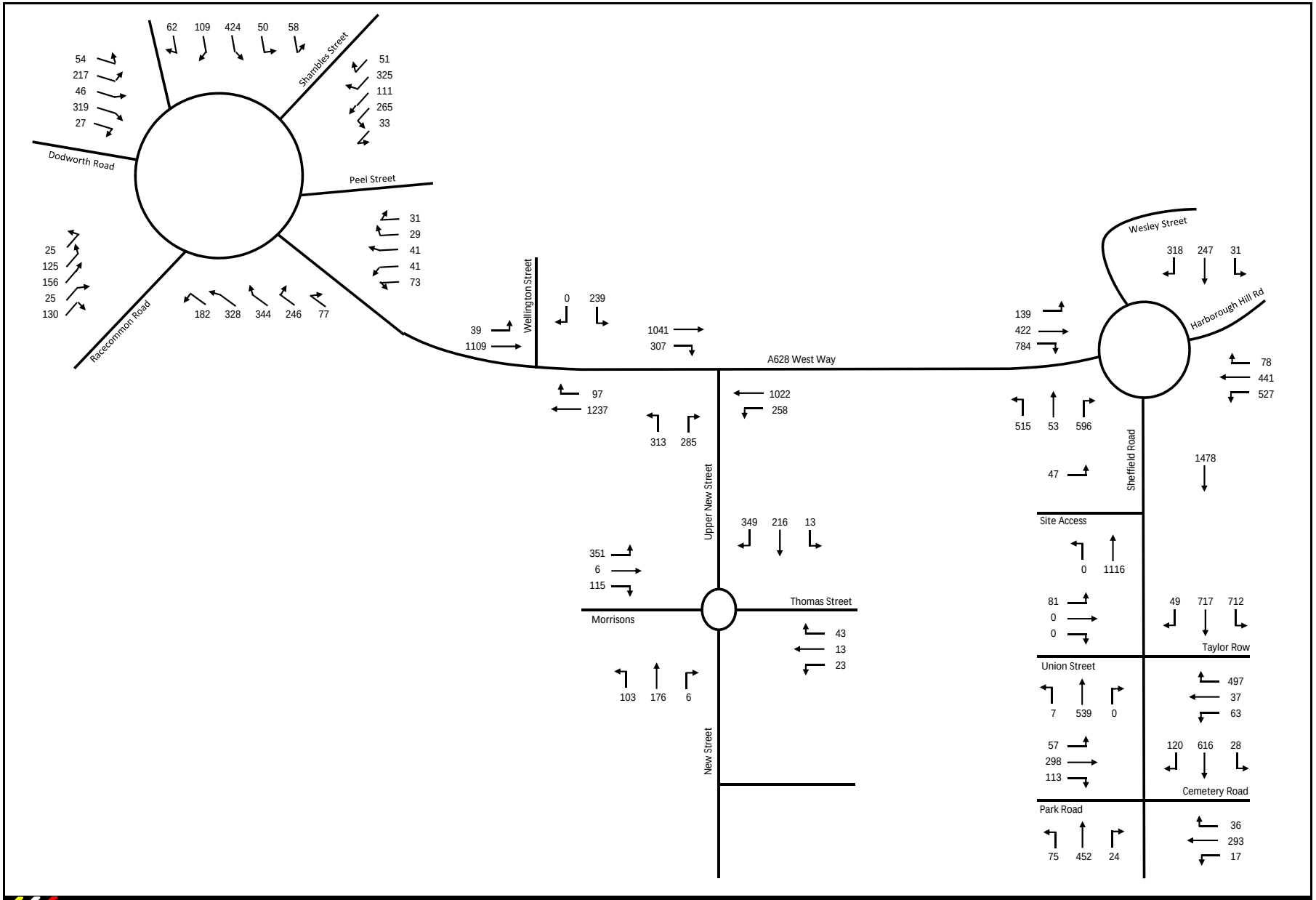
Food Store Level **Figure 1.3b**



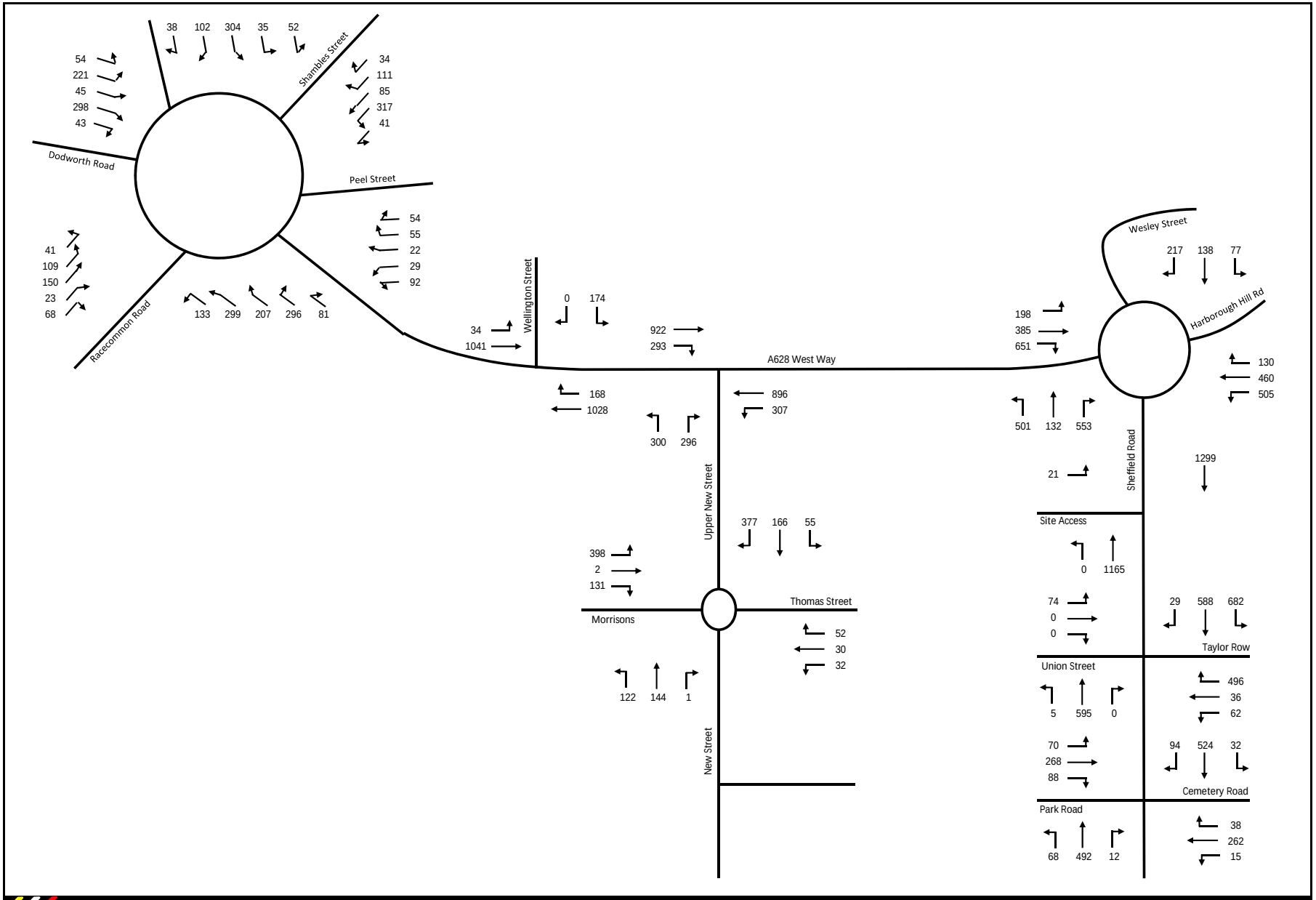
Walking & Cycling Isochrones **Figure 2.1**



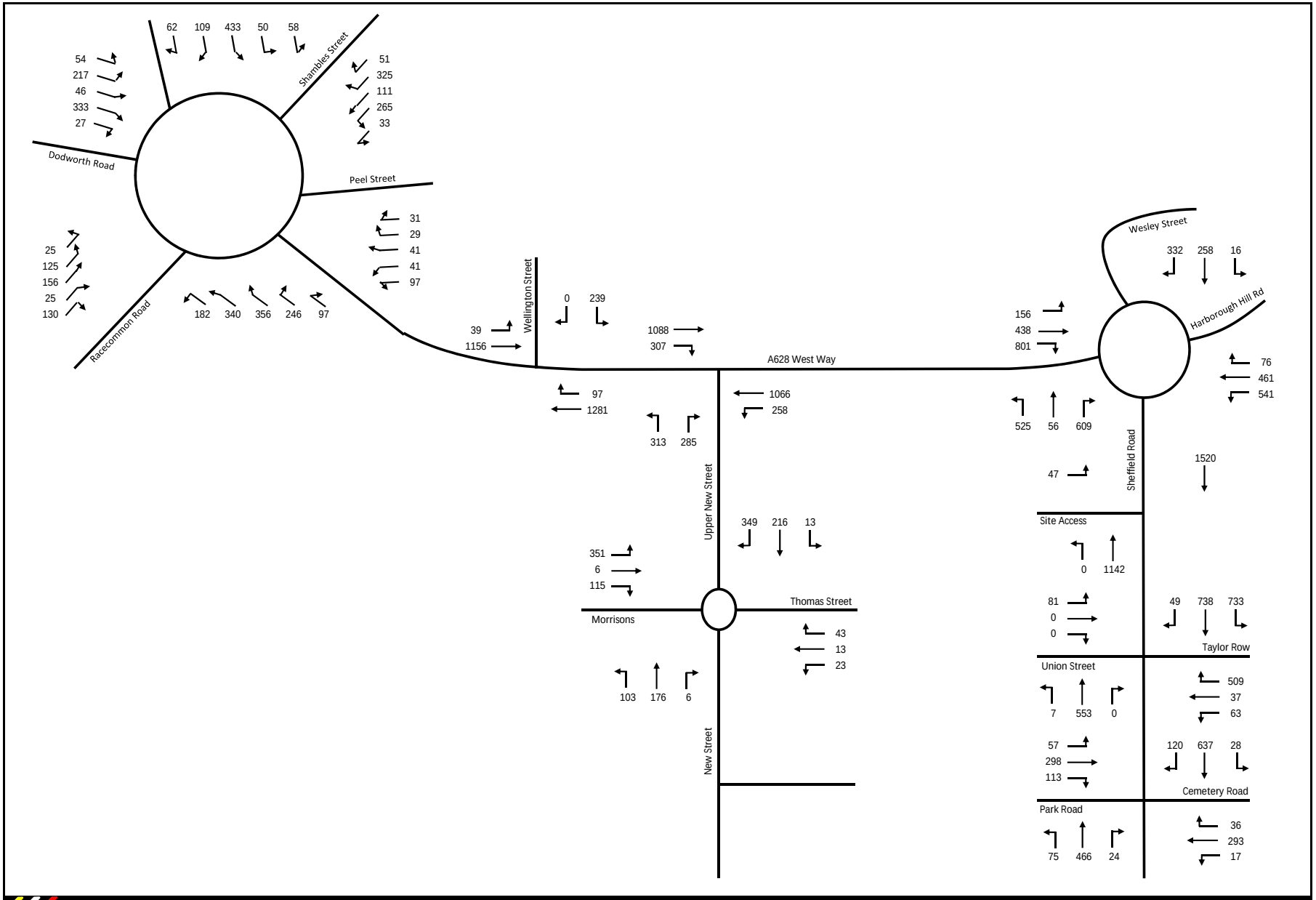
Local Bus Route: Services 42 & 43 **Figure 2.2**



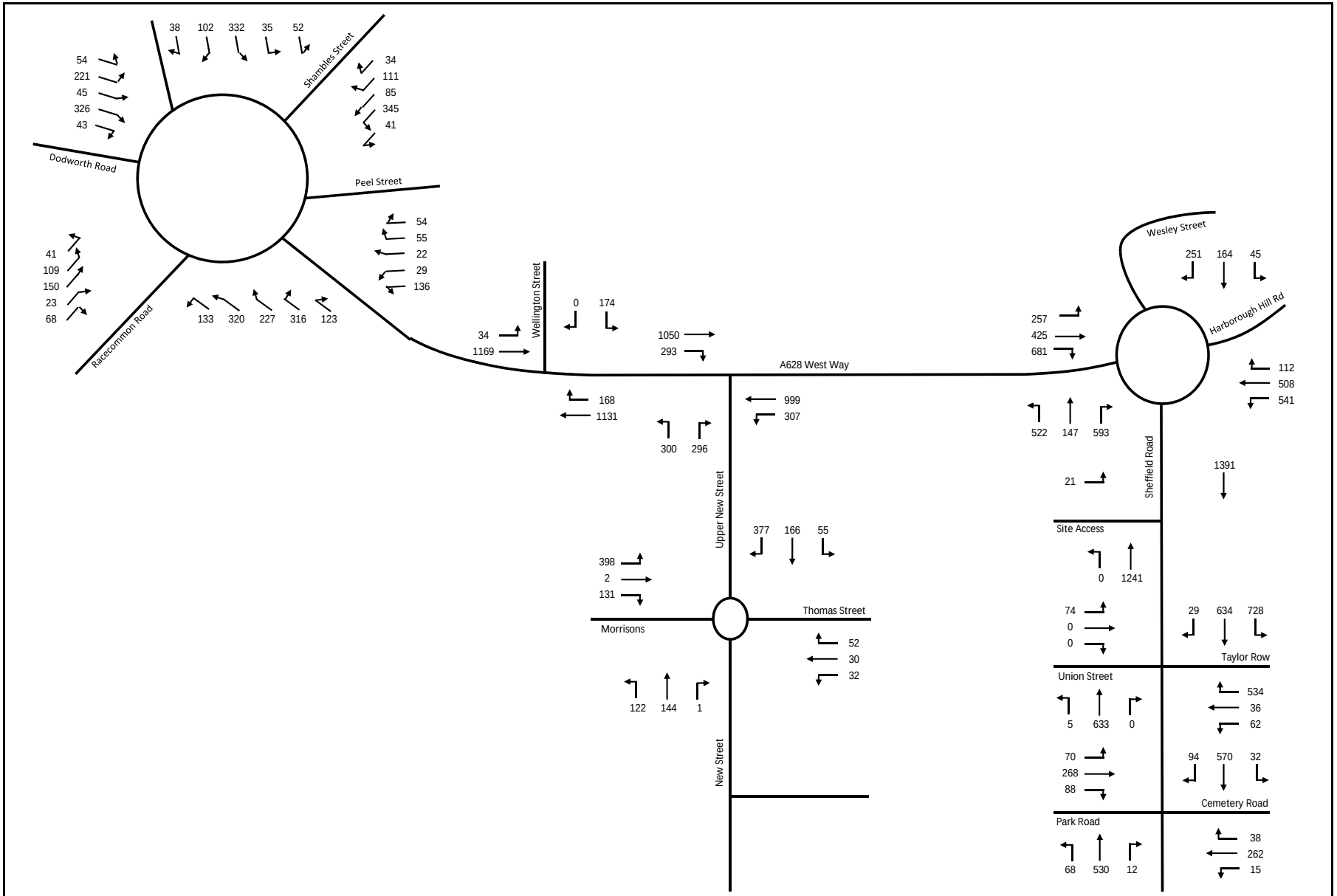
Existing Evening Peak Hour Traffic Flows **Figure 3.1**



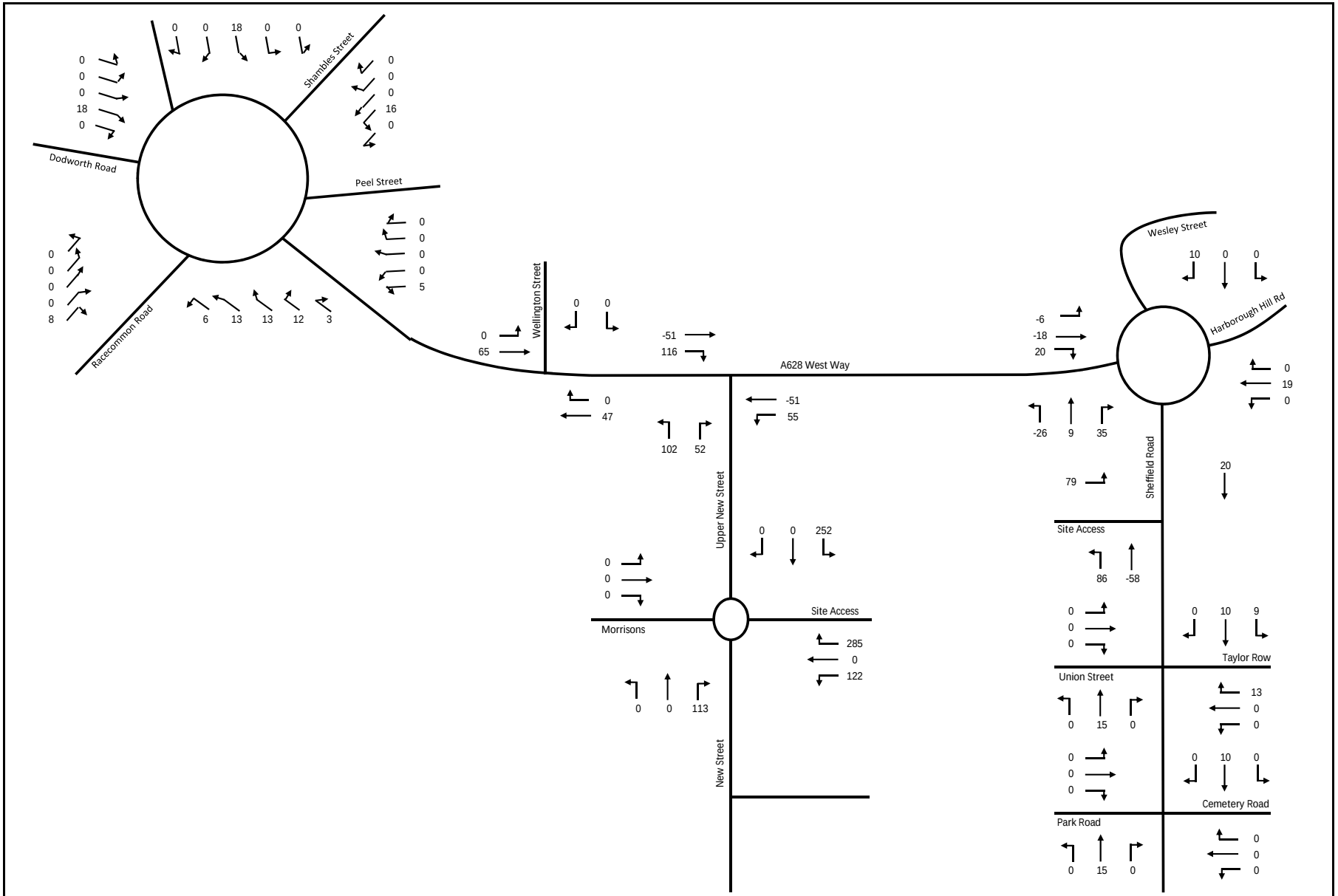
Existing Saturday Peak Hour Traffic Flows **Figure 3.2**



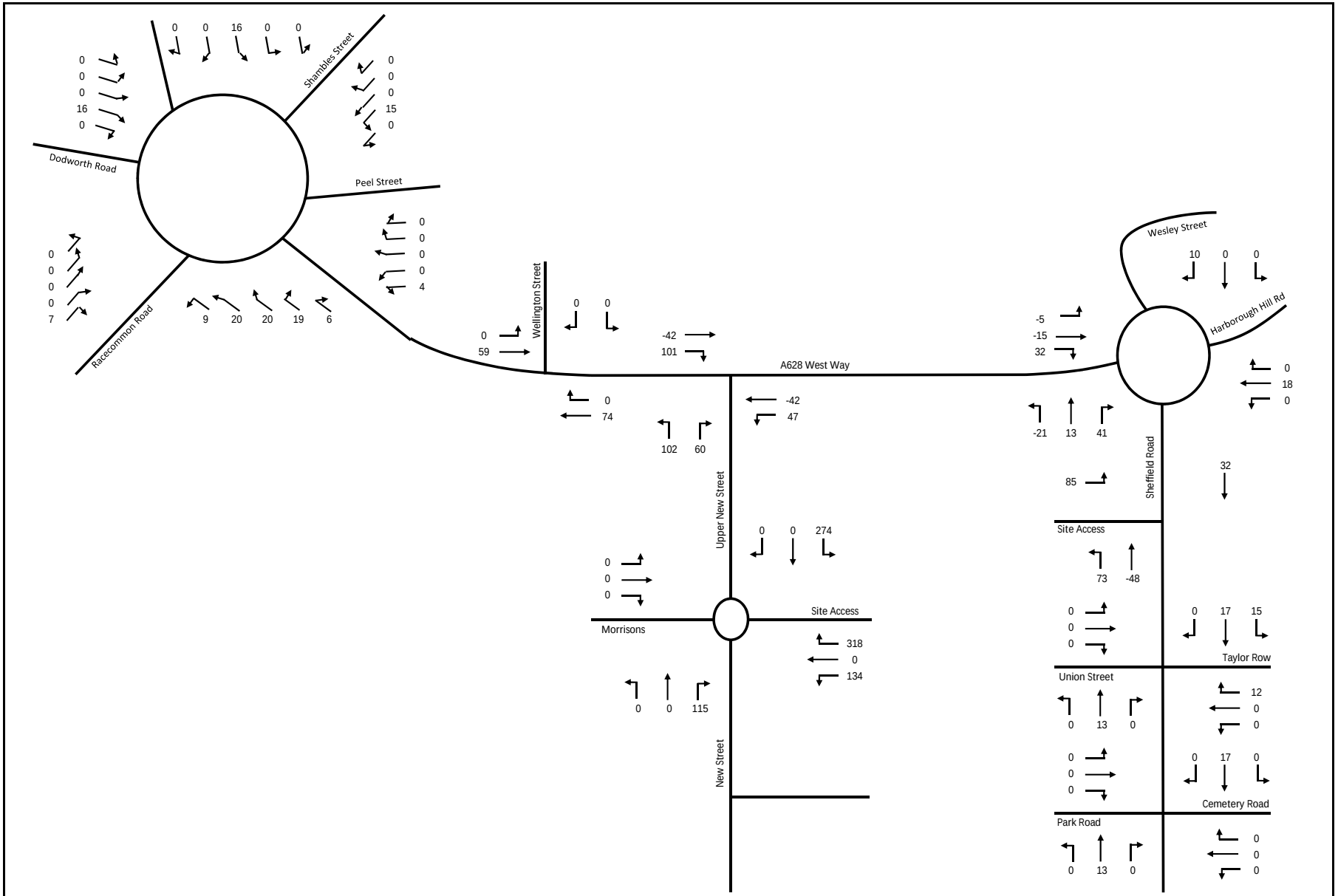
Base Evening Peak Hour Traffic Flows **Figure 3.3**



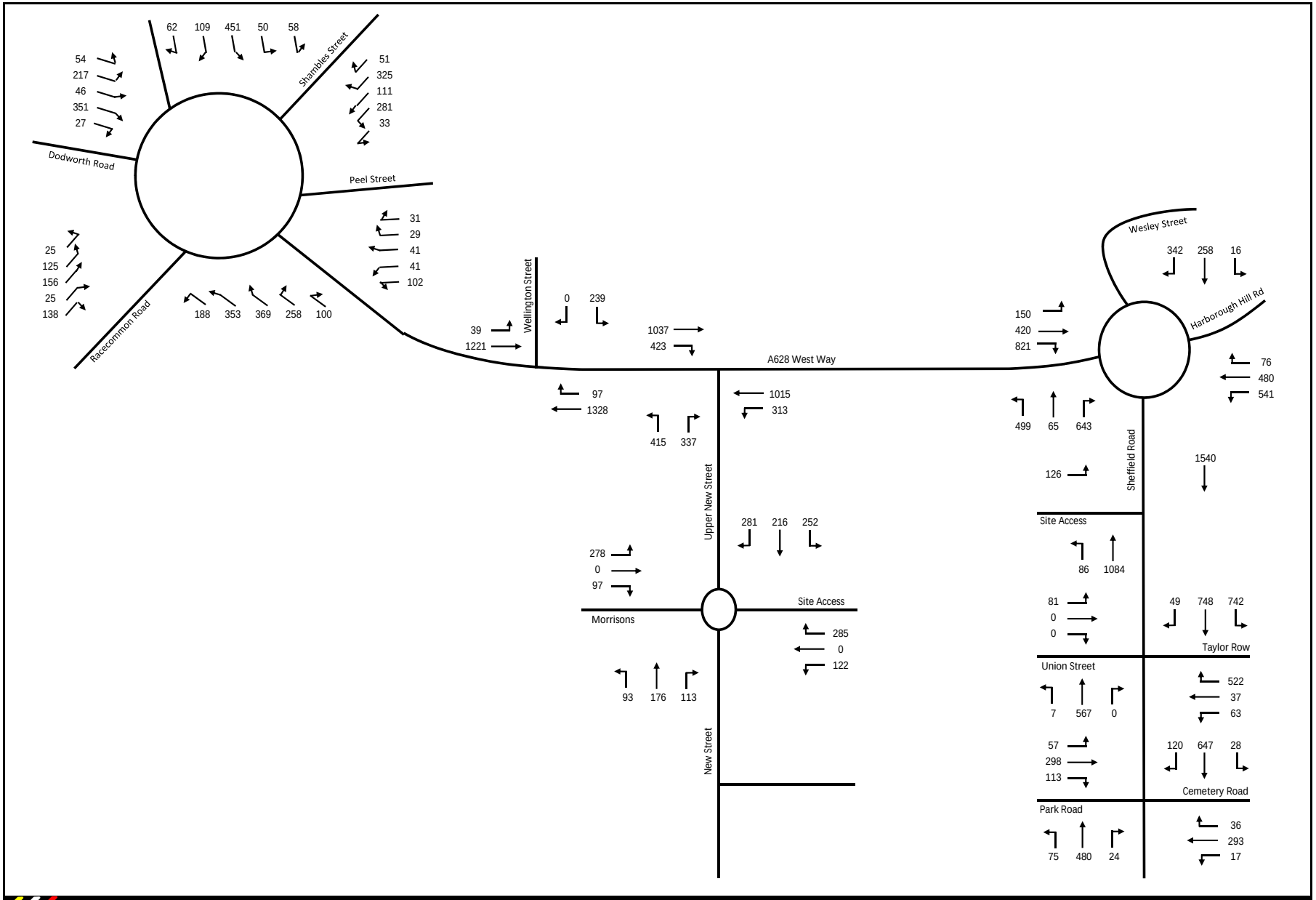
Base Saturday Peak Hour Traffic Flows **Figure 3.4**



Additional Food Store Traffic - Evening Peak Hour Traffic Flows **Figure 4.1**

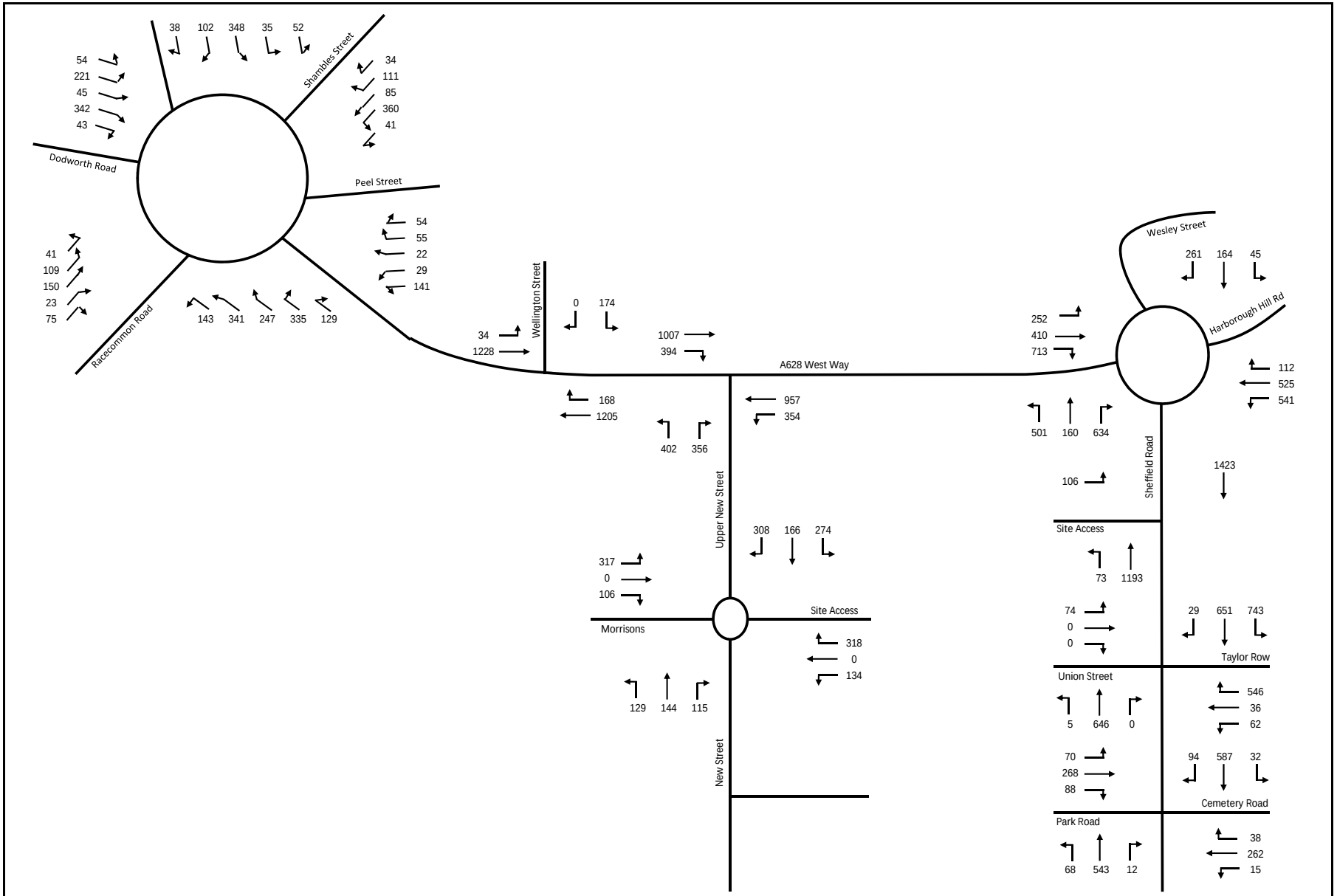


Additional Food Store Traffic - Saturday Peak Hour Traffic Flows **Figure 4.2**

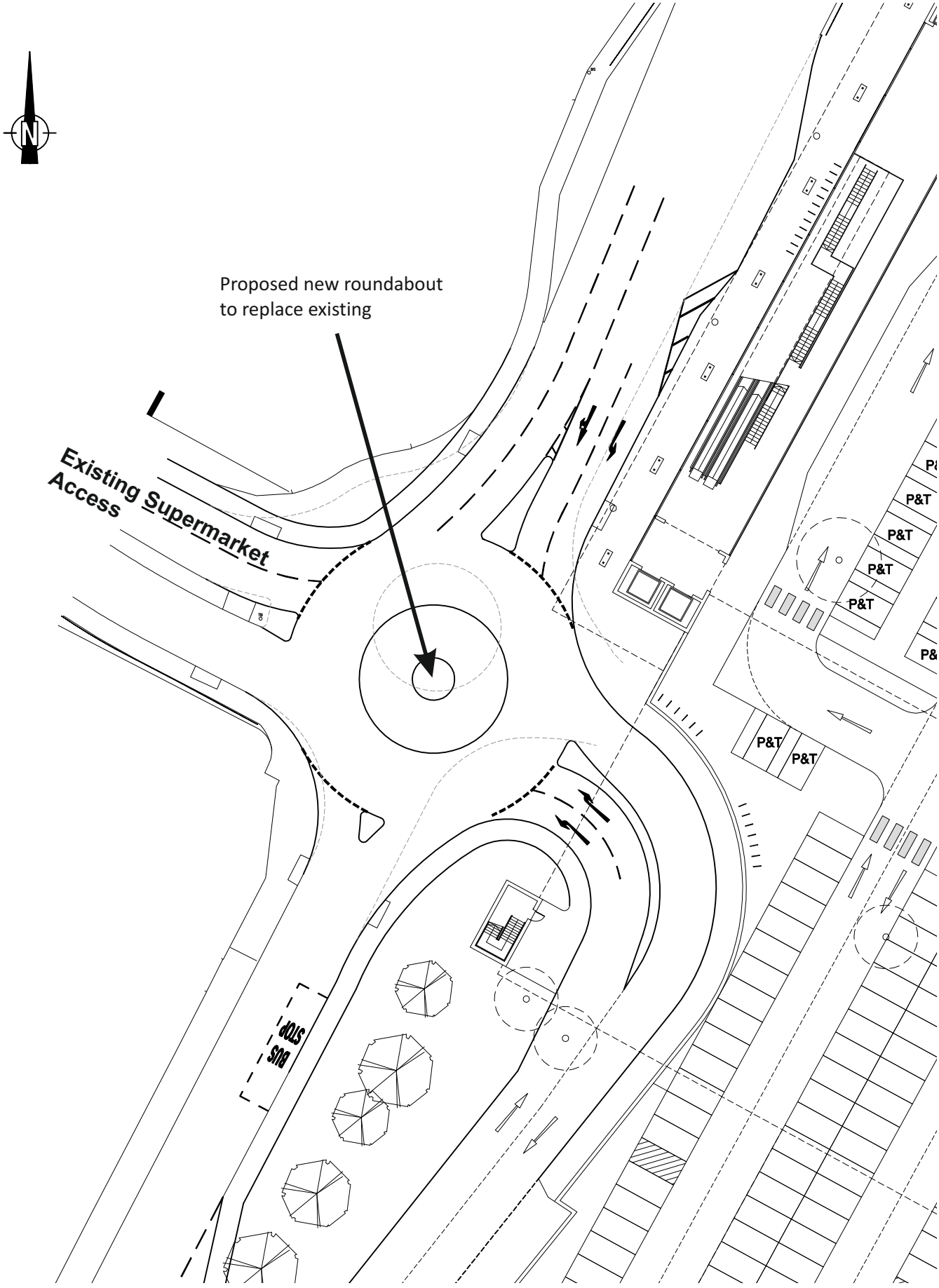


Assessment Evening Peak Hour Traffic Flows

Figure 4.3



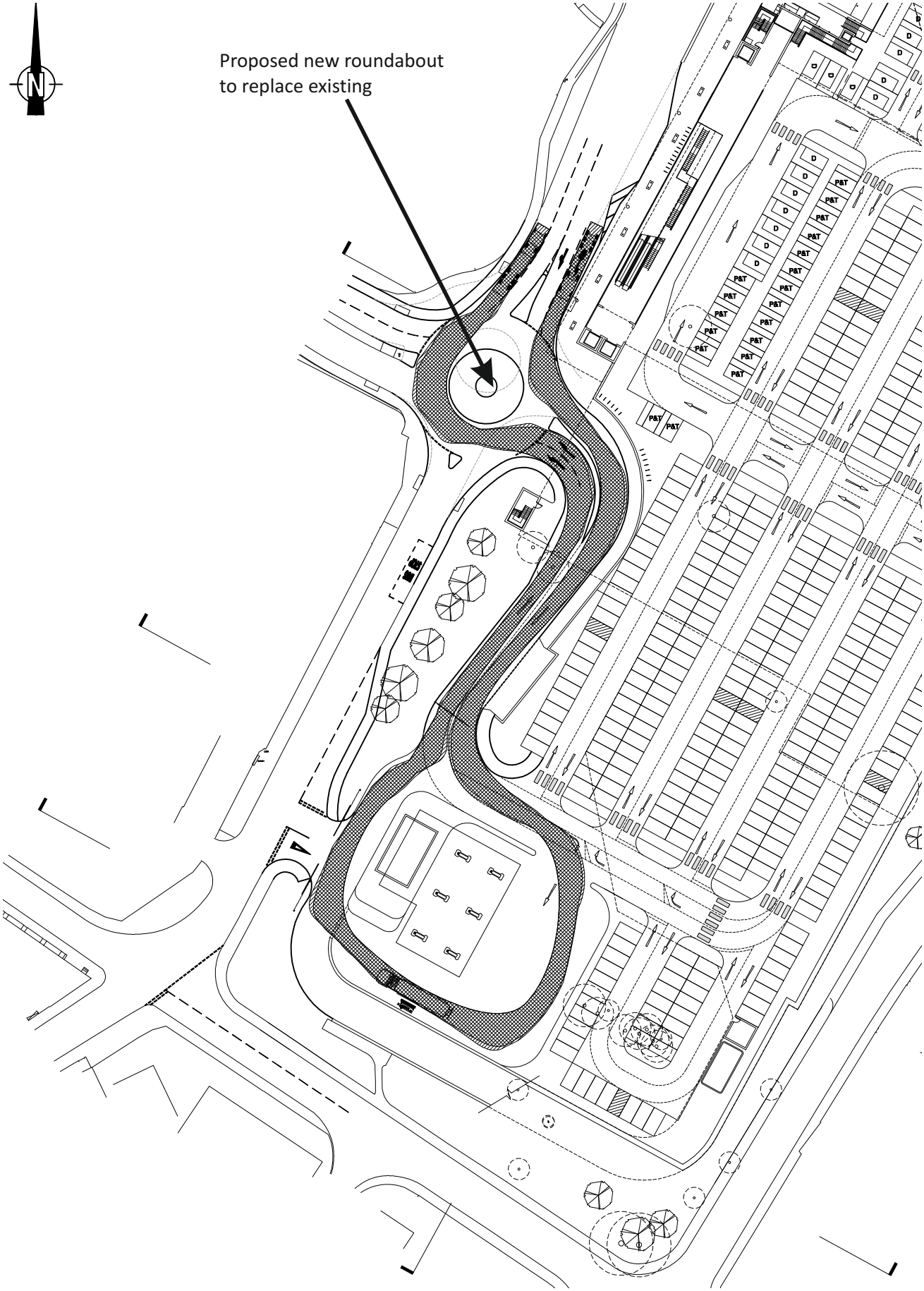
Assessment Saturday Peak Hour Traffic Flows **Figure 4.4**



Scale: 1:500

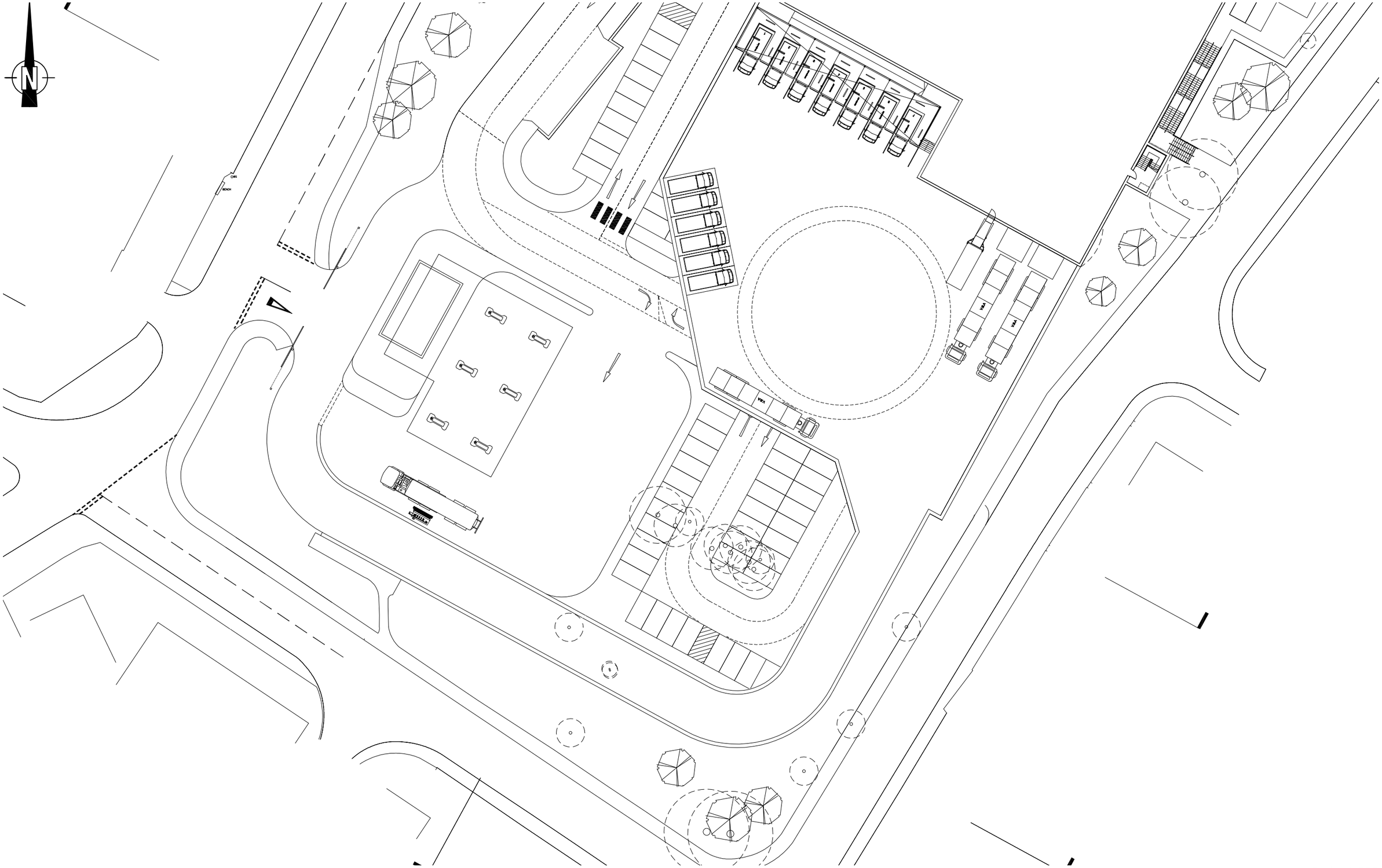
Site Access Roundabout - Upper New Street

Figure 5.1



Scale: 1:1,000

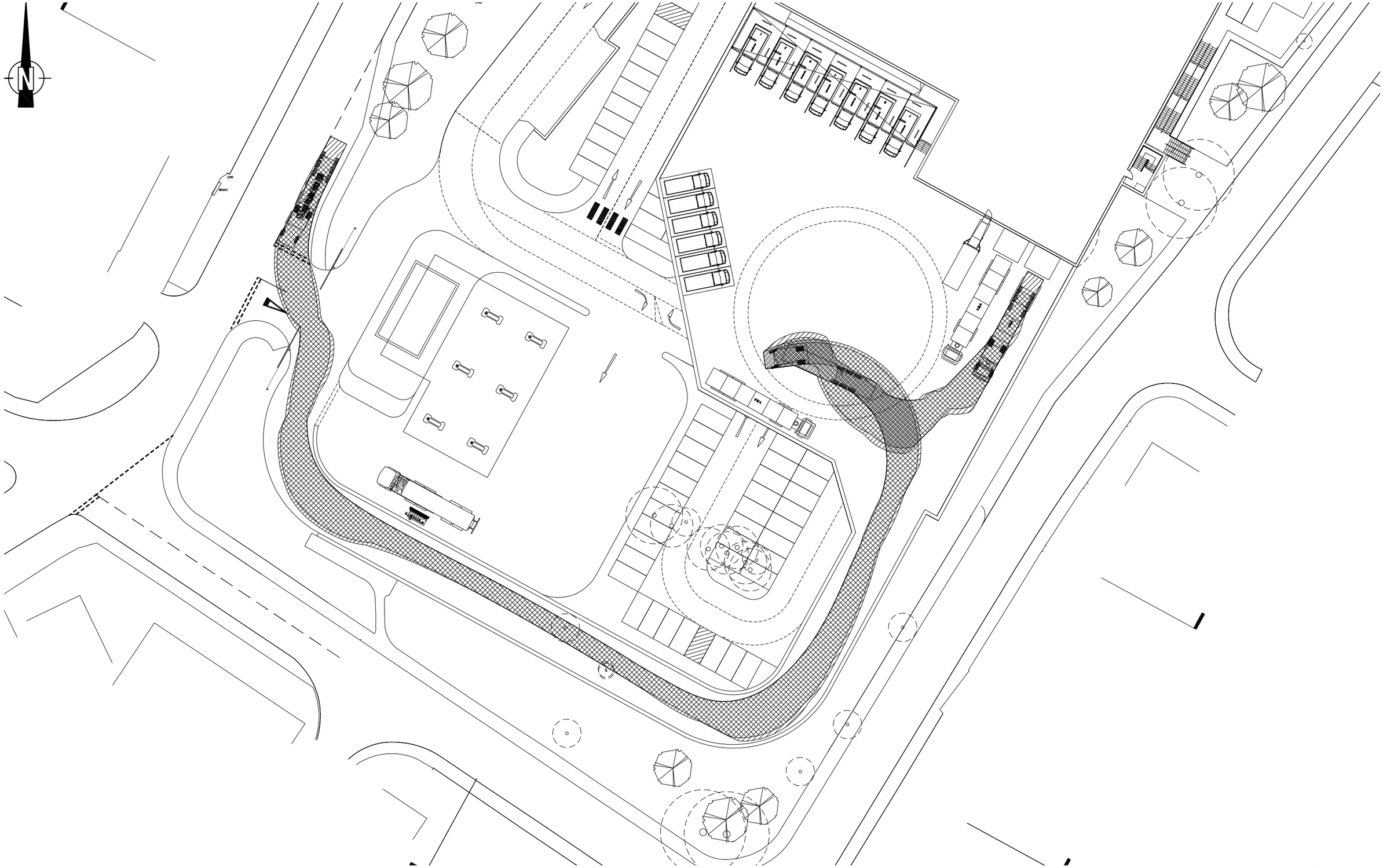
Swept Path Of Tanker Accessing The Petrol Filling Station **Figure 5.2**



Scale: 1:500

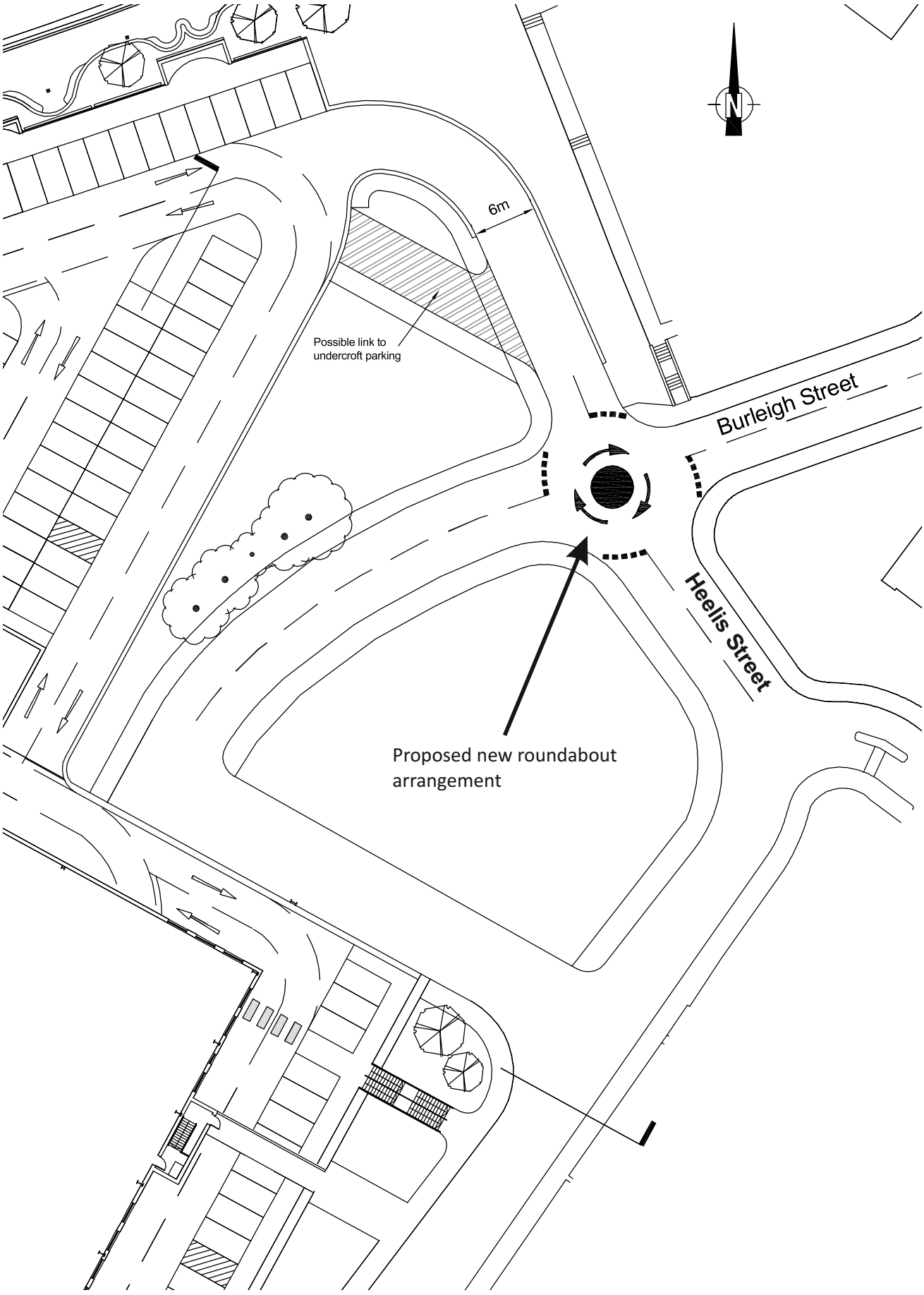
Proposed Service Access

Figure 5.3



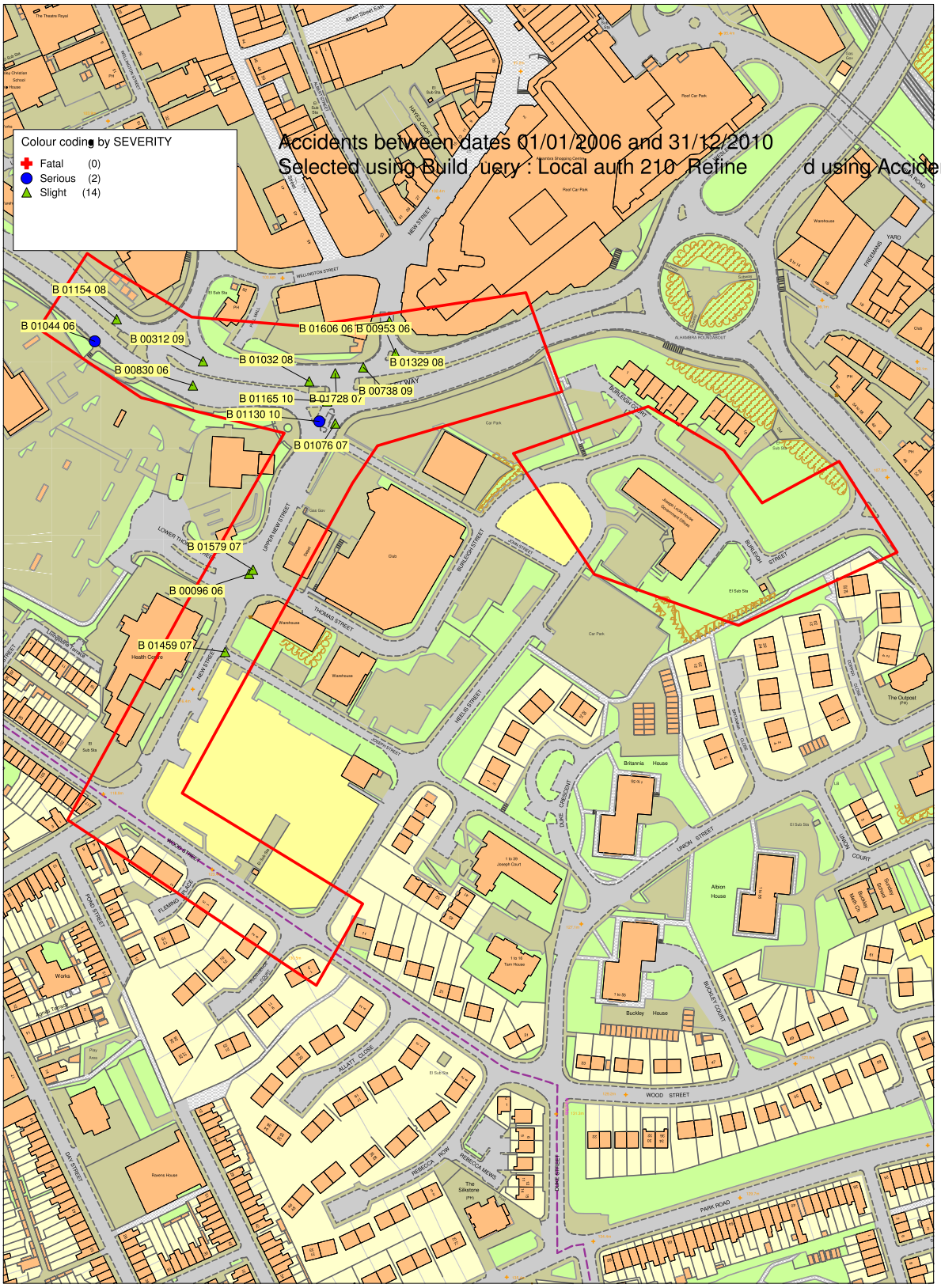
Scale: 1:500

Swept Path of HGV Accessing the Service Yard **Figure 5.4**



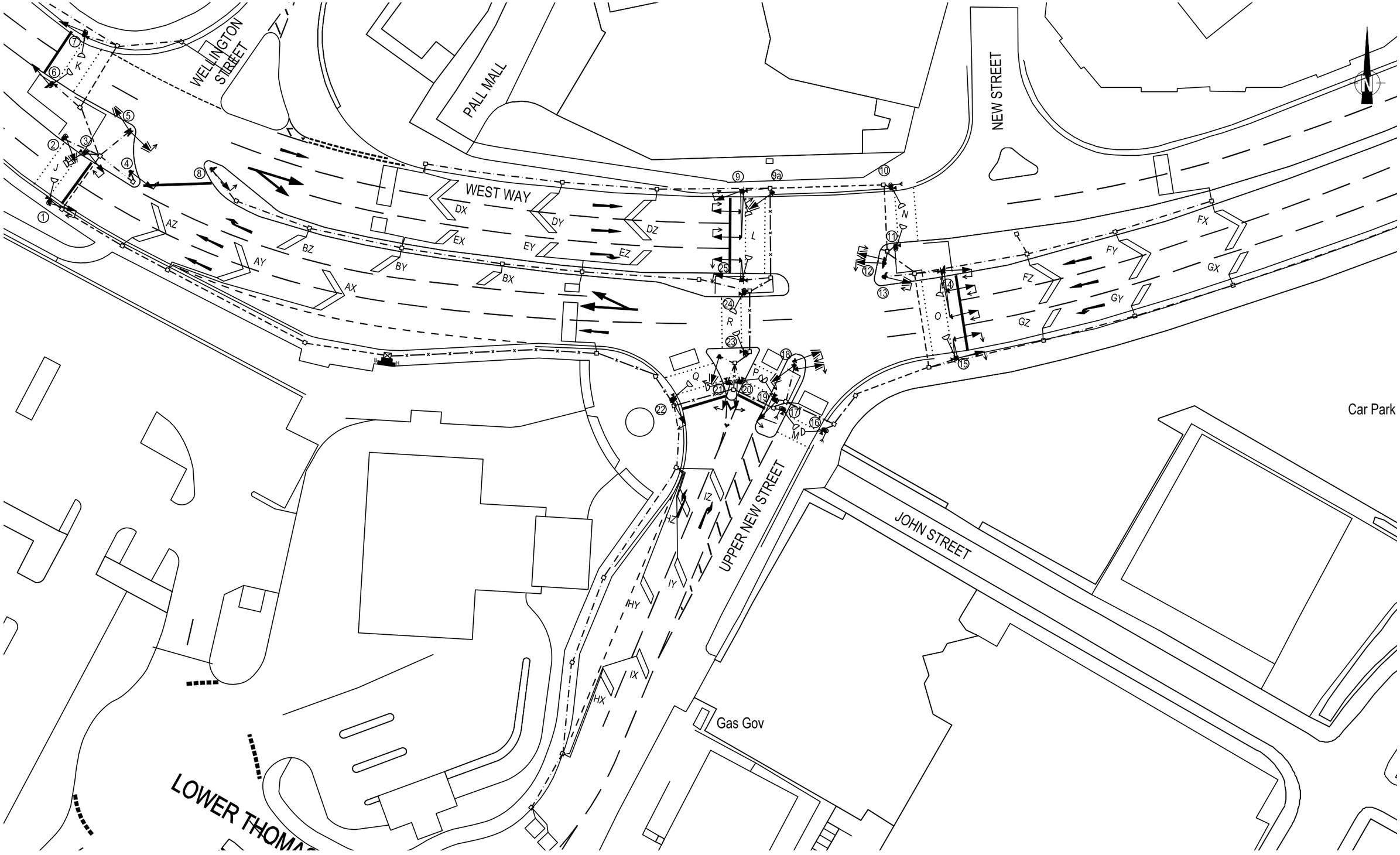
Scale: 1:500

Site Access - Burleigh Street **Figure 5.5**



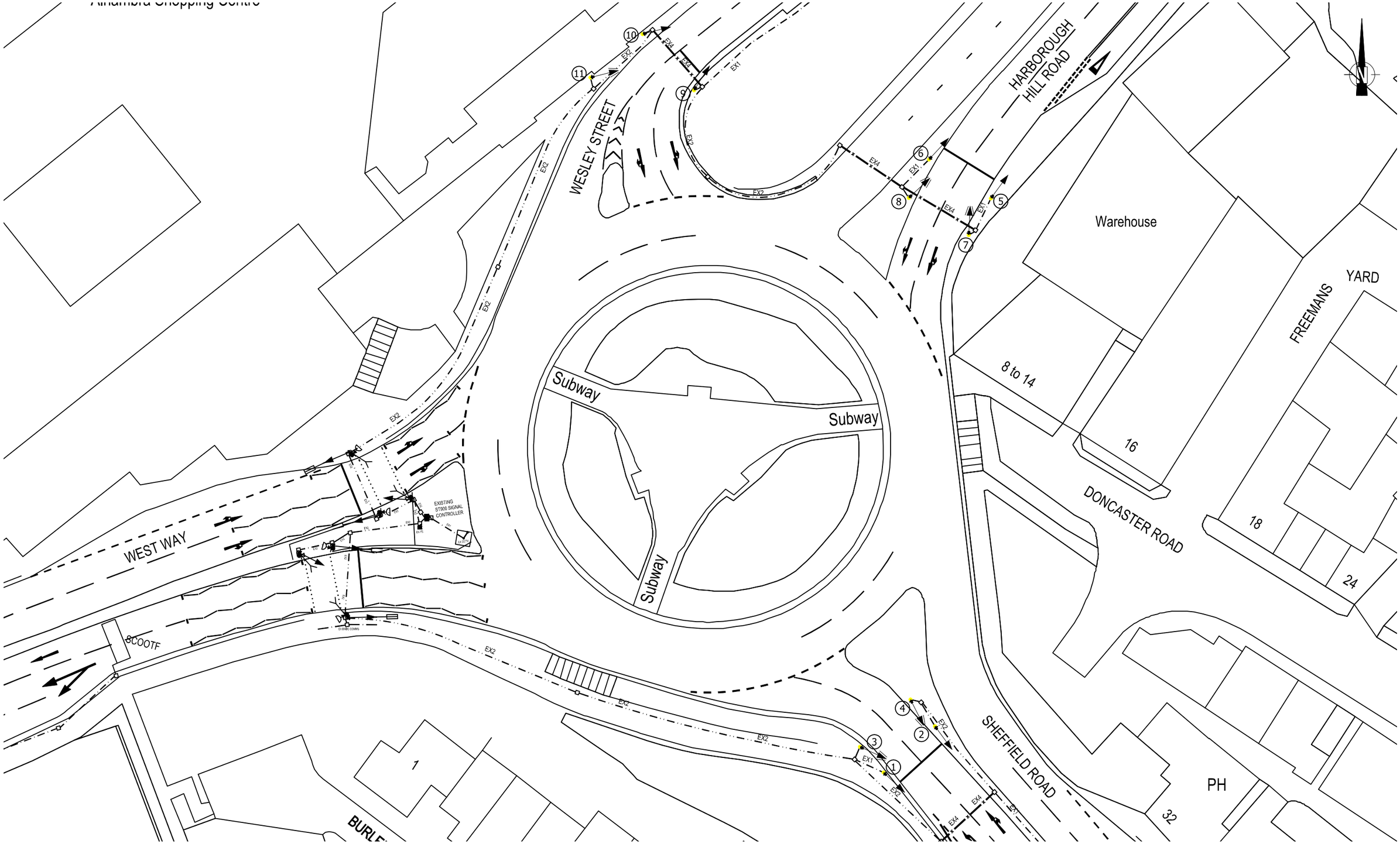
MAKING SOUTH YORKSHIRE ROADS SAFER	Reproduced from the Ordnance Survey mapping with the permission of the Controller of Her Majesty's Stationery Office (c) Crown copyright. Unauthorised reproduction infringes Crown copyright and may lead to prosecution or civil proceedings. Rotherham MBC Licence No. 100019587. South Yorkshire LTP Partnership Licence No: 100019587 2011 Selected map area	SCALE	1 : 1860
		DATE	17/10/2011
		DRWG No.	
		DRN BY	

Location of Personal Injury Accidents 2006-2010 **Figure 6.1**



Scale: 1:500

West Way / Upper New St / Wellington St: Existing Junction Arrangement **Figure 6.2**



Scale: 1:500

Alhambra Roundabout Existing Junction Arrangement **Figure 6.3**

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 01 - RETAIL
Category : A - FOOD SUPERSTORE

VEHICLES

Selected regions and areas:

02	SOUTH EAST		
	HC	HAMPSHIRE	1 days
03	SOUTH WEST		
	CW	CORNWALL	1 days
	GS	GLOUCESTERSHIRE	1 days
07	YORKSHIRE & NORTH LINCOLNSHIRE		
	SY	SOUTH YORKSHIRE	1 days
09	NORTH		
	CB	CUMBRIA	1 days
10	WALES		
	WR	WREXHAM	1 days
11	SCOTLAND		
	DU	DUNDEE CITY	1 days
17	ULSTER (NORTHERN IRELAND)		
	AN	ANTRIM	1 days

Filtering Stage 2 selection:

Parameter: Gross floor area
Range: 7000 to 9800 (units: sqm)

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/03 to 29/10/10

Selected survey days:

Tuesday	2 days
Thursday	1 days
Friday	5 days

Selected survey types:

Manual count	8 days
Directional ATC Count	0 days

Selected Locations:

Edge of Town Centre	2
Suburban Area (PPS6 Out of Centre)	1
Edge of Town	5

Selected Location Sub Categories:

Commercial Zone	1
Residential Zone	2
Retail Zone	2
Built-Up Zone	1
No Sub Category	2

Filtering Stage 3 selection:

Use Class:

A1	8 days

Filtering Stage 3 selection (Cont.):

Population within 1 mile:

1,001 to 5,000	1 days
5,001 to 10,000	3 days
10,001 to 15,000	1 days
15,001 to 20,000	1 days
20,001 to 25,000	1 days
50,001 to 100,000	1 days

Population within 5 miles:

5,001 to 25,000	1 days
25,001 to 50,000	1 days
75,001 to 100,000	2 days
125,001 to 250,000	3 days
250,001 to 500,000	1 days

Car ownership within 5 miles:

0.6 to 1.0	6 days
1.1 to 1.5	2 days

Petrol filling station:

Excluded from count or no filling station	0 days
Included in the survey count	8 days

Travel Plan:

Yes	1 days
No	7 days

LIST OF SITES relevant to selection parameters

1 AN-01-A-03 TESCO EXTRA, ANTRIM ANTRIM
CASTLE WAY

ANTRIM
Edge of Town Centre
Built-Up Zone
Total Gross floor area: 7702 sqm
Survey date: THURSDAY 24/06/10 Survey Type: MANUAL

2 CB-01-A-04 MORRISONS, CARLISLE CUMBRIA
KINGSTOWN ROAD

CARLISLE
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Gross floor area: 7800 sqm
Survey date: FRIDAY 31/10/03 Survey Type: MANUAL

3 CW-01-A-09 ASDA, PENRYN CORNWALL
KERNICK ROAD

PENRYN
Edge of Town
No Sub Category
Total Gross floor area: 8991 sqm
Survey date: TUESDAY 26/05/09 Survey Type: MANUAL

4 DU-01-A-04 TESCO EXTRA, DUNDEE DUNDEE CITY
RIVERSIDE DRIVE
RIVERSIDE
DUNDEE
Edge of Town Centre
No Sub Category
Total Gross floor area: 9104 sqm
Survey date: FRIDAY 29/10/10 Survey Type: MANUAL

5 GS-01-A-03 SAINSBURYS, GLOUCESTER GLOUCESTERSHIRE
BARNETT WAY
BARNWOOD
GLOUCESTER
Edge of Town
Commercial Zone
Total Gross floor area: 7950 sqm
Survey date: FRIDAY 30/04/10 Survey Type: MANUAL

6 HC-01-A-04 ASDA, EASTLEIGH HAMPSHIRE
BOURNEMOUTH ROAD

EASTLEIGH
Edge of Town
Residential Zone
Total Gross floor area: 9800 sqm
Survey date: TUESDAY 03/06/03 Survey Type: MANUAL

LIST OF SITES relevant to selection parameters (Cont.)

7 SY-01-A-01 TESCO, BARNSLEY SOUTH YORKSHIRE
WOMBWELL LANE

BARNSLEY
Edge of Town
Retail Zone
Total Gross floor area: 7000 sqm
Survey date: FRIDAY 11/04/03 Survey Type: MANUAL

8 WR-01-A-01 SAINSBURYS WREXHAM
PLAS COCH ROAD
RHOSDDU
WREXHAM
Edge of Town
Retail Zone
Total Gross floor area: 7075 sqm
Survey date: FRIDAY 26/09/03 Survey Type: MANUAL

TRIP RATE for Land Use 01 - RETAIL/A - FOOD SUPERSTORE
VEHICLES
Calculation factor: 100 sqm
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 01:00	0	0	0.000	0	0	0.000	0	0	0.000
01:00 - 02:00	0	0	0.000	0	0	0.000	0	0	0.000
02:00 - 03:00	0	0	0.000	0	0	0.000	0	0	0.000
03:00 - 04:00	0	0	0.000	0	0	0.000	0	0	0.000
04:00 - 05:00	0	0	0.000	0	0	0.000	0	0	0.000
05:00 - 06:00	0	0	0.000	0	0	0.000	0	0	0.000
06:00 - 07:00	0	0	0.000	0	0	0.000	0	0	0.000
07:00 - 08:00	7	8232	1.888	7	8232	1.329	7	8232	3.217
08:00 - 09:00	8	8178	3.078	8	8178	2.279	8	8178	5.357
09:00 - 10:00	8	8178	4.333	8	8178	3.085	8	8178	7.418
10:00 - 11:00	8	8178	4.853	8	8178	4.155	8	8178	9.008
11:00 - 12:00	8	8178	5.260	8	8178	4.956	8	8178	10.216
12:00 - 13:00	8	8178	5.730	8	8178	5.677	8	8178	11.407
13:00 - 14:00	8	8178	5.692	8	8178	5.860	8	8178	11.552
14:00 - 15:00	8	8178	5.171	8	8178	5.260	8	8178	10.431
15:00 - 16:00	8	8178	5.432	8	8178	5.944	8	8178	11.376
16:00 - 17:00	8	8178	5.708	8	8178	5.662	8	8178	11.370
17:00 - 18:00	8	8178	5.955	8	8178	6.265	8	8178	12.220
18:00 - 19:00	8	8178	5.640	8	8178	6.152	8	8178	11.792
19:00 - 20:00	7	7946	4.133	7	7946	4.754	7	7946	8.887
20:00 - 21:00	7	7946	2.740	7	7946	3.375	7	7946	6.115
21:00 - 22:00	7	7946	1.884	7	7946	2.393	7	7946	4.277
22:00 - 23:00	0	0	0.000	0	0	0.000	0	0	0.000
23:00 - 24:00	0	0	0.000	0	0	0.000	0	0	0.000
Total Rates:			67.497			67.146			134.643

Parameter summary

Trip rate parameter range selected:	7000 - 9800 (units: sqm)
Survey date date range:	01/01/03 - 29/10/10
Number of weekdays (Monday-Friday):	8
Number of Saturdays:	0
Number of Sundays:	0
Surveys manually removed from selection:	0

RANK ORDER for Land Use 01 - RETAIL/A - FOOD SUPERSTORE

VEHICLES

Ranking Type: TOTALS Time Range: 16:00-17:00

WARNING: Using 85th and 15th percentile highlighted trip rates in data sets of under 20 surveys is not recommended by TRICS and may be misleading.

15th Percentile = No. 7 (**)

85th Percentile = No. 2 (**)

Median Values

Arrivals: 5.681

Departures: 6.211

Totals: 11.893

Rank	Site-Ref	Description	Area	GFA	Day	Date	Trip Rate (Sorted by Totals)			Travel Plan
							Arrivals	Departures	Totals	
1	WR-01-A-01	SAINSBURYS	WREXHAM	7075	Fri	26/09/03	7.449	7.053	14.502	
2 **	CW-01-A-09	ASDA, PENRYN	CORNWALL	8991	Tue	26/05/09	6.607	7.152	13.759	
3	HC-01-A-04	ASDA, EASTLEIGH	HAMPSHIRE	9800	Tue	03/06/03	6.459	6.010	12.469	
4	CB-01-A-04	MORRISONS, CARLISLE	CUMBRIA	7800	Fri	31/10/03	5.692	6.308	12.000	
5	SY-01-A-01	TESCO, BARNSLEY	SOUTH YORKSHIRE	7000	Fri	11/04/03	5.671	6.114	11.785	
6	DU-01-A-04	TESCO EXTRA, DUNDEE	DUNDEE CITY	9104	Fri	29/10/10	5.679	4.767	10.446	
7 **	AN-01-A-03	TESCO EXTRA, ANTRIM	ANTRIM	7702	Thu	24/06/10	4.479	4.739	9.218	Yes
8	GS-01-A-03	SAINSBURYS, GLOUCESTER	GLOUCESTERSHIRE	7950	Fri	30/04/10	3.484	3.195	6.679	

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 01 - RETAIL
Category : A - FOOD SUPERSTORE
VEHICLES

Selected regions and areas:

01	GREATER LONDON		
	BT	BRENT	1 days
03	SOUTH WEST		
	CW	CORNWALL	1 days
05	EAST MIDLANDS		
	LN	LINCOLNSHIRE	1 days
06	WEST MIDLANDS		
	WM	WEST MIDLANDS	1 days
07	YORKSHIRE & NORTH LINCOLNSHIRE		
	SY	SOUTH YORKSHIRE	1 days
09	NORTH		
	CB	CUMBRIA	2 days
10	WALES		
	WR	WREXHAM	1 days
11	SCOTLAND		
	EA	EAST AYRSHIRE	1 days
	SR	STIRLING	1 days
17	ULSTER (NORTHERN IRELAND)		
	DE	DERRY	1 days

Filtering Stage 2 selection:

Parameter: Gross floor area
Range: 7000 to 10000 (units: sqm)

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/03 to 29/10/10

Selected survey days:

Saturday	11 days

Selected survey types:

Manual count	11 days
Directional ATC Count	0 days

Selected Locations:

Suburban Area (PPS6 Out of Centre)	6
Edge of Town	5

Selected Location Sub Categories:

Industrial Zone	1
Commercial Zone	1
Residential Zone	3
Retail Zone	3
No Sub Category	3

LIST OF SITES relevant to selection parameters

1 BT-01-A-02 SAINSBURYS, ALPERTON BRENT
EALING ROAD

ALPERTON
Suburban Area (PPS6 Out of Centre)
Commercial Zone
Total Gross floor area: 7899 sqm
Survey date: SATURDAY 28/06/03 Survey Type: MANUAL

2 CB-01-A-04 MORRISONS, CARLISLE CUMBRIA
KINGSTOWN ROAD

CARLISLE
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Gross floor area: 7800 sqm
Survey date: SATURDAY 01/11/03 Survey Type: MANUAL

3 CB-01-A-06 MORRISONS, CARLISLE CUMBRIA
KINGSTOWN ROAD

CARLISLE
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Gross floor area: 7800 sqm
Survey date: SATURDAY 18/06/05 Survey Type: MANUAL

4 CW-01-A-09 ASDA, PENRYN CORNWALL
KERNICK ROAD

PENRYN
Edge of Town
No Sub Category
Total Gross floor area: 8991 sqm
Survey date: SATURDAY 23/05/09 Survey Type: MANUAL

5 DE-01-A-02 ASDA, COLERAINE DERRY
RING ROAD

COLERAINE
Edge of Town
No Sub Category
Total Gross floor area: 9800 sqm
Survey date: SATURDAY 14/11/09 Survey Type: MANUAL

6 EA-01-A-01 MORRISONS, KILMARNOCK EAST AYRSHIRE
WEST LANGLANDS ST.

KILMARNOCK
Suburban Area (PPS6 Out of Centre)
No Sub Category
Total Gross floor area: 9000 sqm
Survey date: SATURDAY 14/06/08 Survey Type: MANUAL

7 LN-01-A-05 ASDA, LINCOLN LINCOLNSHIRE
NEWARK ROAD
NORTH HYKEHAM
LINCOLN
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Gross floor area: 7710 sqm
Survey date: SATURDAY 21/05/05 Survey Type: MANUAL

LIST OF SITES relevant to selection parameters (Cont.)

8 SR-01-A-01 MORRISONS, STIRLING STIRLING
IAN URQUHART WAY

STIRLING
Edge of Town
Retail Zone
Total Gross floor area: 7000 sqm
Survey date: SATURDAY 21/04/07 Survey Type: MANUAL

9 SY-01-A-01 TESCO, BARNSLEY SOUTH YORKSHIRE
WOMBWELL LANE

BARNSLEY
Edge of Town
Retail Zone
Total Gross floor area: 7000 sqm
Survey date: SATURDAY 12/04/03 Survey Type: MANUAL

10 WM-01-A-03 ASDA, BIRMINGHAM WEST MIDLANDS
COVENTRY ROAD
SMALL HEATH
BIRMINGHAM
Suburban Area (PPS6 Out of Centre)
Industrial Zone
Total Gross floor area: 10000 sqm
Survey date: SATURDAY 22/09/07 Survey Type: MANUAL

11 WR-01-A-01 SAINSBURYS WREXHAM
PLAS COCH ROAD
RHOSDDU
WREXHAM
Edge of Town
Retail Zone
Total Gross floor area: 7075 sqm
Survey date: SATURDAY 27/09/03 Survey Type: MANUAL

TRIP RATE for Land Use 01 - RETAIL/A - FOOD SUPERSTORE
VEHICLES
Calculation factor: 100 sqm
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 01:00	0	0	0.000	0	0	0.000	0	0	0.000
01:00 - 02:00	0	0	0.000	0	0	0.000	0	0	0.000
02:00 - 03:00	0	0	0.000	0	0	0.000	0	0	0.000
03:00 - 04:00	0	0	0.000	0	0	0.000	0	0	0.000
04:00 - 05:00	0	0	0.000	0	0	0.000	0	0	0.000
05:00 - 06:00	0	0	0.000	0	0	0.000	0	0	0.000
06:00 - 07:00	0	0	0.000	0	0	0.000	0	0	0.000
07:00 - 08:00	11	8189	1.478	11	8189	0.907	11	8189	2.385
08:00 - 09:00	11	8189	3.349	11	8189	2.155	11	8189	5.504
09:00 - 10:00	11	8189	4.634	11	8189	3.738	11	8189	8.372
10:00 - 11:00	11	8189	5.679	11	8189	4.937	11	8189	10.616
11:00 - 12:00	11	8189	6.042	11	8189	5.816	11	8189	11.858
12:00 - 13:00	11	8189	5.801	11	8189	5.563	11	8189	11.364
13:00 - 14:00	11	8189	5.534	11	8189	5.664	11	8189	11.198
14:00 - 15:00	11	8189	5.666	11	8189	5.507	11	8189	11.173
15:00 - 16:00	11	8189	5.437	11	8189	5.690	11	8189	11.127
16:00 - 17:00	11	8189	5.255	11	8189	5.993	11	8189	11.248
17:00 - 18:00	11	8189	4.641	11	8189	5.424	11	8189	10.065
18:00 - 19:00	11	8189	3.852	11	8189	4.572	11	8189	8.424
19:00 - 20:00	11	8189	2.717	11	8189	3.548	11	8189	6.265
20:00 - 21:00	11	8189	1.575	11	8189	2.032	11	8189	3.607
21:00 - 22:00	8	8284	1.206	8	8284	1.486	8	8284	2.692
22:00 - 23:00	0	0	0.000	0	0	0.000	0	0	0.000
23:00 - 24:00	0	0	0.000	0	0	0.000	0	0	0.000
Total Rates:			62.866			63.032			125.898

Parameter summary

Trip rate parameter range selected:	7000 - 10000 (units: sqm)
Survey date date range:	01/01/03 - 29/10/10
Number of weekdays (Monday-Friday):	0
Number of Saturdays:	11
Number of Sundays:	0
Surveys manually removed from selection:	0

RANK ORDER for Land Use 01 - RETAIL/A - FOOD SUPERSTORE

VEHICLES

Ranking Type: TOTALS Time Range: 12:00-13:00

WARNING: Using 85th and 15th percentile highlighted trip rates in data sets of under 20 surveys is not recommended by TRICS and may be misleading.

15th Percentile = No. 9 (**)

85th Percentile = No. 3 (**)

Median Values

Arrivals: 6.089

Departures: 6.191

Totals: 12.280

Rank	Site-Ref	Description	Area	GFA	Day	Date	Trip Rate (Sorted by Totals)			Travel Plan
							Arrivals	Departures	Totals	
1	SR-01-A-01	MORRISONS, STIRLING	STIRLING	7000	Sat	21/04/07	7.414	8.286	15.700	
2	WR-01-A-01	SAINSBURYS	WREXHAM	7075	Sat	27/09/03	7.406	7.816	15.222	
3 **	LN-01-A-05	ASDA, LINCOLN	LINCOLNSHIRE	7710	Sat	21/05/05	6.939	5.966	12.905	
4	CB-01-A-04	MORRISONS, CARLISLE	CUMBRIA	7800	Sat	01/11/03	6.372	6.231	12.603	
5	SY-01-A-01	TESCO, BARNSLEY	SOUTH YORKSHIRE	7000	Sat	12/04/03	5.800	6.757	12.557	
6	BT-01-A-02	SAINSBURYS, ALPERTON	BRENT	7899	Sat	28/06/03	6.089	6.191	12.280	
7	CB-01-A-06	MORRISONS, CARLISLE	CUMBRIA	7800	Sat	18/06/05	5.962	6.179	12.141	
8	CW-01-A-09	ASDA, PENRYN	CORNWALL	8991	Sat	23/05/09	6.651	5.205	11.856	
9 **	WM-01-A-03	ASDA, BIRMINGHAM	WEST MIDLANDS	10000	Sat	22/09/07	4.940	4.110	9.050	
10	EA-01-A-01	MORRISONS, KILMARNOCK	EAST AYRSHIRE	9000	Sat	14/06/08	4.689	3.900	8.589	
11	DE-01-A-02	ASDA, COLERAINE	DERRY	9800	Sat	14/11/09	2.898	2.633	5.531	

ARCADY 7

Version: 7.1.1.245 [9th June 2011]
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File: C:\Users\Paul Corbett\Documents\Project Folders\Barnsley Foodstore CBO 0010\Site Access.arc7
Report generation date: 07/11/2011 15:59:25

Summary of roundabout performance

	PM			
	Queue (PCU)	Delay (min)	RFC	LOS
	Proposed Site Access - 2011 Development			
Arm 1	0.55	0.08	0.36	A
Arm 2	0.85	0.13	0.46	A
Arm 3	0.36	0.06	0.26	A
Arm 4	0.91	0.07	0.48	A

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

2011 Development - PM runs from 16:00:00 to 17:00:00
Site Access - Saturday runs from 12:00:00 to 13:00:00

File summary

File Description

Title	(untitled)
Location	
Site Number	
Date	23/09/2011
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	Laptop1\Paul Corbett
Description	

Analysis Options

RFC Threshold	Vehicle Length (m)	Do Queue Variations
0.85	5.75	

Sorting and Display

Show Arm Names	Arm Grouping	Sorting Direction	Sorting Type	Data Matrix Style	Time Style
	Order	Ascending	Numerical	By Destination	Absolute Time

Units

Distance Units	Speed Units	Traffic Units Input	Traffic Units Results	Flow Units	Average Delay Units	Total Delay Units	Rate Of Delay Units
m	kph	PCU	PCU	perHour	min	-Min	perMin

A1 - Proposed Site Access - D1 - 2011 Development, PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Description	Include In Report	Use Specific Demand Set	Demand Set	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
Proposed Site Access		Yes		(D1)		100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Locked	Run Automatically	Use Relationship	Relationship	Start Time (HH:mm)	Finish Time (HH:mm)	Time Period Length (min)	Time Segment Length (min)	Traffic Profile Type
2011 Development, PM	2011 Development	PM			Yes			16:00	17:00	60	15	FLAT

Roundabout Network

Roundabout Type(s)

ID	Name	Arm Order	Roundabout Type	Grade Separated	Large Roundabout	Do Geometric Delay
1	Site Access	1,2,3,4	Standard			

Roundabout Network Options

Driving Side	Lighting	Road Surface	In London
Left	Normal/unknown	((Mini-roundabouts only))	

Arms

Arms

ID	Name	Description
1	Site Access	
2	New Street	
3	Morrisons	
4	Upper New Street	

Capacity Options

Arm	Minimum Capacity (PCU/hr)	Maximum Capacity (PCU/hr)	Assume Flat Start Profile	Initial Queue (PCU)
1	0.00	99999.00		0.00
2	0.00	99999.00		0.00
3	0.00	99999.00		0.00
4	0.00	99999.00		0.00

Standard Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
1	3.75	5.75	17.00	9.00	28.00	27.00	
2	3.65	4.00	2.00	12.50	28.00	30.00	
3	6.00	6.00	0.00	15.00	28.00	25.00	
4	5.00	5.75	25.00	15.00	28.00	27.00	

Pedestrian Crossings

Arm	Crossing Type
1	None
2	None
3	None
4	None

Arm Slope/ Intercept and Capacity

Slope and Intercept used in model

Arm	Enter Directly	Slope	Intercept (PCU/hr)	Final Slope	Final Intercept (PCU/hr)
1		((calculated))	((calculated))	0.603	1498.695
2		((calculated))	((calculated))	0.536	1139.488
3		((calculated))	((calculated))	0.685	1819.909
4		((calculated))	((calculated))	0.660	1712.200

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

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCU Factor for a HV (PCU)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
			Yes	HV Percentages	2.00				Yes	Yes

Entry Flows

General Flows Data

Arm	Profile Type	Use Turning Counts	Average Demand Flow (PCU/hr)	Flow Scaling Factor (%)	PHF
1	FLAT	Yes	407.00	100.000	1.00
2	FLAT	Yes	384.00	100.000	1.00
3	FLAT	Yes	375.00	100.000	1.00
4	FLAT	Yes	751.00	100.000	1.00

Turning Proportions

Turning Counts or Proportions (PCU/hr) - Roundabout 1 (for whole period)

		To			
		1	2	3	4
From	1	0.000	122.000	0.000	285.000
	2	113.000	0.000	93.000	178.000
	3	0.000	97.000	0.000	278.000
	4	252.000	218.000	281.000	0.000

Turning Proportions (PCU) - Roundabout 1 (for whole period)

		To			
		1	2	3	4
From	1	0.00	0.30	0.00	0.70
	2	0.29	0.00	0.24	0.46
	3	0.00	0.26	0.00	0.74
	4	0.34	0.29	0.37	0.00

Vehicle Mix

Average PCU Per Vehicle - Roundabout 1 (for whole period)

		To			
		1	2	3	4
From	1	1.000	1.000	1.000	1.000
	2	1.000	1.000	1.000	1.000
	3	1.000	1.000	1.000	1.000
	4	1.000	1.000	1.000	1.000

Heavy Vehicle Percentages - Roundabout 1 (for whole period)

		To			
		1	2	3	4
From	1	0.000	0.000	0.000	0.000
	2	0.000	0.000	0.000	0.000
	3	0.000	0.000	0.000	0.000
	4	0.000	0.000	0.000	0.000

Results

Results Summary

Arm	Max RFC	Max Delay (min)	Max Queue (PCU)	Max LOS	Total Demand (PCU/hr)	Total Arrivals (PCU)	Total Queueing Delay (PCU-min)	Average Queueing Delay (min)	Rate Of Queueing Delay (PCU-min/min)	Inclusive Queueing Total Delay (PCU-min)	Inclusive Queueing Average Delay (min)	Slope	Intercept (PCU/hr)
1	0.36	0.08	0.55	A	407.00	407.00	32.89	0.08	0.55	32.90	0.08	0.603	1498.695
2	0.46	0.13	0.85	A	384.00	384.00	49.77	0.13	0.83	49.79	0.13	0.536	1139.488

3	0.26	0.06	0.36	A	375.00	375.00	21.21	0.06	0.35	21.22	0.06	0.685	1819.909
4	0.48	0.07	0.91	A	751.00	751.00	54.02	0.07	0.90	54.03	0.07	0.660	1712.200

ARCADY 7

Version: 7.1.1.245 [9th June 2011]
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File: C:\Users\Paul Corbett\Documents\Project Folders\Barnsley Foodstore CBO 0010\Site Access.arc7
Report generation date: 07/11/2011 16:07:49

Summary of roundabout performance

	Saturday			
	Queue (PCU)	Delay (min)	RFC	LOS
	Proposed Site Access - 2011			
Arm 1	0.65	0.09	0.39	A
Arm 2	0.93	0.14	0.48	A
Arm 3	0.42	0.06	0.30	A
Arm 4	0.91	0.07	0.48	A

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

2011 Development - PM runs from 16:00:00 to 17:00:00
2011 - Saturday runs from 12:00:00 to 13:00:00

File summary

File Description

Title	(untitled)
Location	
Site Number	
Date	23/09/2011
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	Laptop1\Paul Corbett
Description	

Analysis Options

RFC Threshold	Vehicle Length (m)	Do Queue Variations
0.85	5.75	

Sorting and Display

Show Arm Names	Arm Grouping	Sorting Direction	Sorting Type	Data Matrix Style	Time Style
	Order	Ascending	Numerical	By Destination	Absolute Time

Units

Distance Units	Speed Units	Traffic Units Input	Traffic Units Results	Flow Units	Average Delay Units	Total Delay Units	Rate Of Delay Units
m	kph	PCU	PCU	perHour	min	-Min	perMin

A1 - Proposed Site Access - D2 - 2011, Saturday

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Description	Include In Report	Use Specific Demand Set	Demand Set	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
Proposed Site Access		Yes		(D1)		100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Locked	Run Automatically	Use Relationship	Relationship	Start Time (HH:mm)	Finish Time (HH:mm)	Time Period Length (min)	Time Segment Length (min)	Traffic Profile Type
2011, Saturday	2011	Saturday			Yes			12:00	13:00	60	15	FLAT

Roundabout Network

Roundabout Type(s)

ID	Name	Arm Order	Roundabout Type	Grade Separated	Large Roundabout	Do Geometric Delay
1	Site Access	1,2,3,4	Standard			

Roundabout Network Options

Driving Side	Lighting	Road Surface	In London
Left	Normal/unknown	((Mini-roundabouts only))	

Arms

Arms

ID	Name	Description
1	Site Access	
2	New Street	
3	Morrisons	
4	Upper New Street	

Capacity Options

Arm	Minimum Capacity (PCU/hr)	Maximum Capacity (PCU/hr)	Assume Flat Start Profile	Initial Queue (PCU)
1	0.00	99999.00		0.00
2	0.00	99999.00		0.00
3	0.00	99999.00		0.00
4	0.00	99999.00		0.00

Standard Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
1	3.75	5.75	17.00	9.00	28.00	27.00	
2	3.65	4.00	2.00	12.50	28.00	30.00	
3	6.00	6.00	0.00	15.00	28.00	25.00	
4	5.00	5.75	25.00	15.00	28.00	27.00	

Pedestrian Crossings

Arm	Crossing Type
1	None
2	None
3	None
4	None

Arm Slope/ Intercept and Capacity

Slope and Intercept used in model

Arm	Enter Directly	Slope	Intercept (PCU/hr)	Final Slope	Final Intercept (PCU/hr)
1		((calculated))	((calculated))	0.603	1498.695
2		((calculated))	((calculated))	0.536	1139.488
3		((calculated))	((calculated))	0.685	1819.909
4		((calculated))	((calculated))	0.660	1712.200

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

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCU Factor for a HV (PCU)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		Yes	Yes	HV Percentages	2.00				Yes	Yes

Entry Flows

General Flows Data

Arm	Profile Type	Use Turning Counts	Average Demand Flow (PCU/hr)	Flow Scaling Factor (%)	PHF
1	FLAT	Yes	452.00	100.000	1.00
2	FLAT	Yes	388.00	100.000	1.00
3	FLAT	Yes	423.00	100.000	1.00
4	FLAT	Yes	748.00	100.000	1.00

Turning Proportions

Turning Counts or Proportions (PCU/hr) - Roundabout 1 (for whole period)

		To			
		1	2	3	4
From	1	0.000	134.000	0.000	318.000
	2	115.000	0.000	129.000	144.000
	3	0.000	106.000	0.000	317.000
	4	274.000	166.000	308.000	0.000

Turning Proportions (PCU) - Roundabout 1 (for whole period)

		To			
		1	2	3	4
From	1	0.00	0.30	0.00	0.70
	2	0.30	0.00	0.33	0.37
	3	0.00	0.25	0.00	0.75
	4	0.37	0.22	0.41	0.00

Vehicle Mix

Average PCU Per Vehicle - Roundabout 1 (for whole period)

		To			
		1	2	3	4
From	1	1.000	1.000	1.000	1.000
	2	1.000	1.000	1.000	1.000
	3	1.000	1.000	1.000	1.000
	4	1.000	1.000	1.000	1.000

Heavy Vehicle Percentages - Roundabout 1 (for whole period)

		To			
		1	2	3	4
From	1	0.000	0.000	0.000	0.000
	2	0.000	0.000	0.000	0.000
	3	0.000	0.000	0.000	0.000
	4	0.000	0.000	0.000	0.000

Results

Results Summary

Arm	Max RFC	Max Delay (min)	Max Queue (PCU)	Max LOS	Total Demand (PCU/hr)	Total Arrivals (PCU)	Total Queueing Delay (PCU-min)	Average Queueing Delay (min)	Rate Of Queueing Delay (PCU-min/min)	Inclusive Queueing Total Delay (PCU-min)	Inclusive Queueing Average Delay (min)	Slope	Intercept (PCU/hr)
1	0.39	0.09	0.65	A	452.00	452.00	38.34	0.08	0.64	38.35	0.08	0.603	1498.695
2	0.48	0.14	0.93	A	388.00	388.00	54.51	0.14	0.91	54.54	0.14	0.536	1139.488

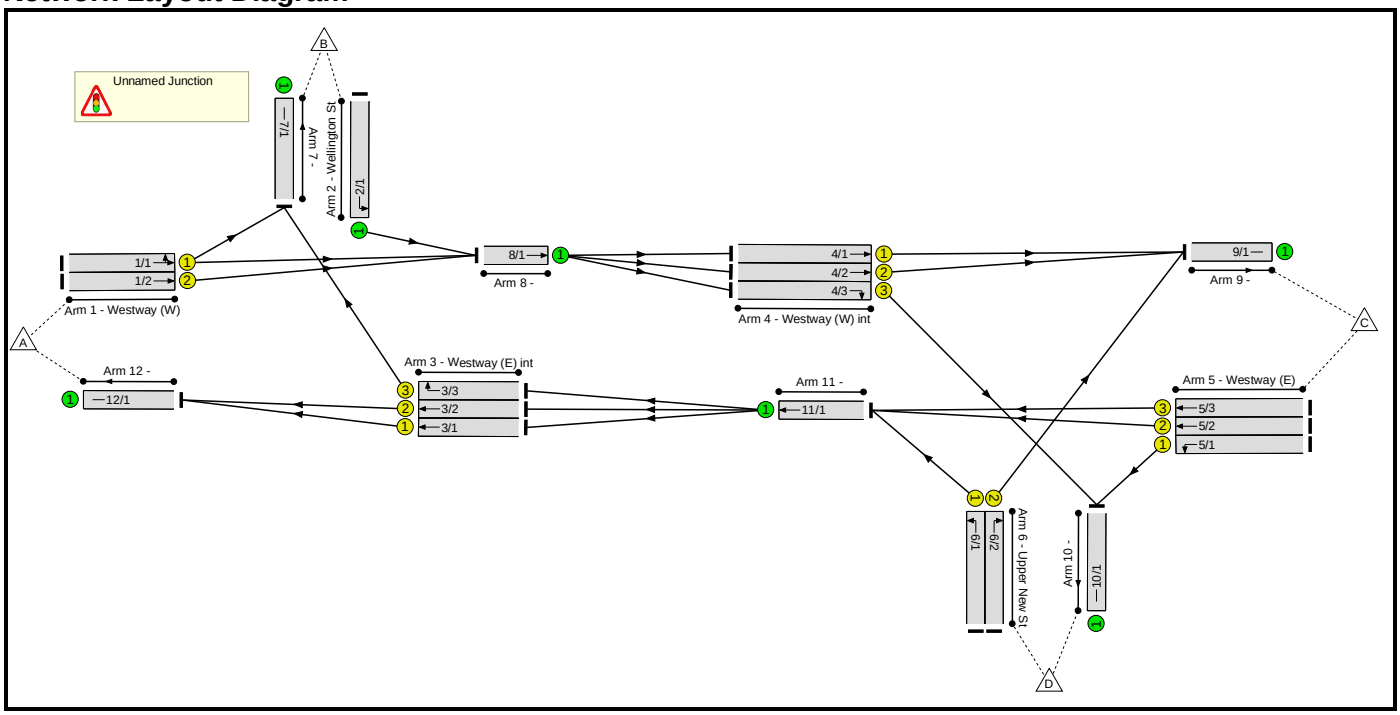
3	0.30	0.06	0.42	A	423.00	423.00	25.07	0.06	0.42	25.08	0.06	0.685	1819.909
4	0.48	0.07	0.91	A	748.00	748.00	54.07	0.07	0.90	54.09	0.07	0.660	1712.200

Barnsley

Project and User Details

Project:	
Title:	
Author:	

Network Layout Diagram

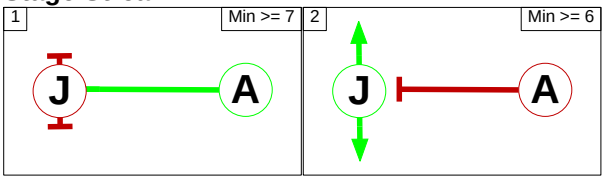


Phase Intergreens Matrix

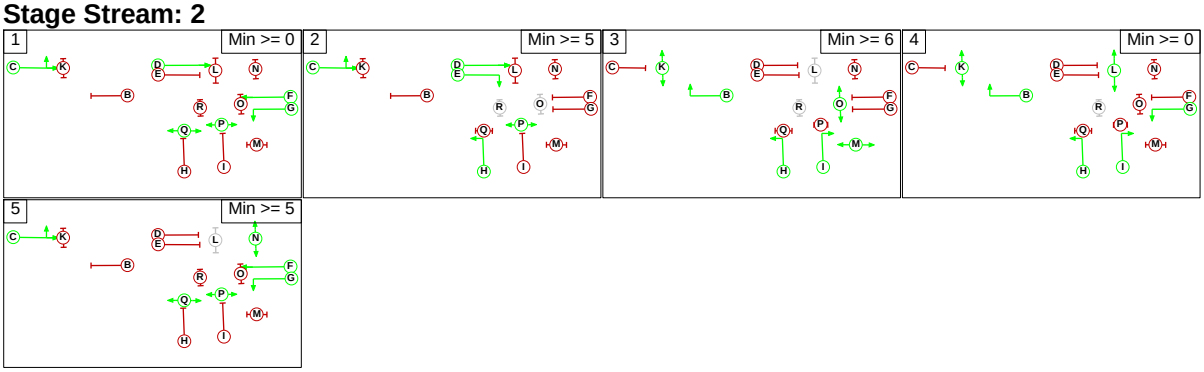
Terminating Phase \ Starting Phase	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
A		-	-	-	-	-	-	-	-	5	-	-	-	-	-	-	-	-
B	-		5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C	-	5		-	-	-	-	-	-	-	5	-	-	-	-	-	-	-
D	-	-	-		-	-	-	-	5	-	-	5	-	8	-	-	-	-
E	-	-	-	-		6	6	-	6	-	-	5	9	-	-	-	-	-
F	-	-	-	-	5		-	7	6	-	-	-	-	-	5	-	-	8
G	-	-	-	-	5	-		-	-	-	-	-	9	-	5	-	-	-
H	-	-	-	-	-	5	-		-	-	-	-	-	-	-	-	5	-
I	-	-	-	7	7	5	-	-		-	-	-	-	9	-	5	-	-
J	8	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-
K	-	-	9	-	-	-	-	-	-	-		-	-	-	-	-	-	-
L	-	-	-	10	10	-	-	-	-	-	-		-	-	-	-	-	-
M	-	-	-	-	5	-	5	-	-	-	-	-		-	-	-	-	-
N	-	-	-	8	-	-	-	-	7	-	-	-	-		-	-	-	-
O	-	-	-	-	-	10	10	-	-	-	-	-	-	-		-	-	-
P	-	-	-	-	-	-	-	-	6	-	-	-	-	-	-		-	-
Q	-	-	-	-	-	-	-	6	-	-	-	-	-	-	-	-		-
R	-	-	-	-	-	8	-	-	-	-	-	-	-	-	-	-	-	

Stage Diagram

Stage Stream: 1



Stage Stream: 2



Network Control Plans

Plan	Controller	Sequence Name	Sequence
Plan A	C1	Plan A	Stream 1: 1,2 Stream 2: 1,2,3,5
Plan B	C1	Plan B	Stream 1: 1,2 Stream 2: 1,2,3,4,5

Lane Input Data

Junction: Unnamed Junction

Lane	Lane Type	Phases	Start Disp.	End Disp.	Physical Length (PCU)	Sat Flow Type	Def User Saturation Flow (PCU/Hr)	Lane Width (m)	Gradient	Nearside Lane	Turns	Turning Radius (m)
1/1 (Westway (W))	U	C	2	3	60.0	Geom	-	3.50	0.00	Y	Arm 7 Left	25.00
											Arm 8 Ahead	Inf
1/2 (Westway (W))	U	C	2	3	60.0	Geom	-	3.50	0.00	N	Arm 8 Ahead	Inf
2/1 (Wellington St)	U		2	3	60.0	Geom	-	3.25	0.00	Y	Arm 8 Left	Inf
3/1 (Westway (E) int)	U	A	2	3	17.4	Geom	-	3.50	0.00	Y	Arm 12 Ahead	Inf
3/2 (Westway (E) int)	U	A	2	3	17.4	Geom	-	3.50	0.00	N	Arm 12 Ahead	Inf
3/3 (Westway (E) int)	U	B	2	3	17.4	Geom	-	3.50	0.00	N	Arm 7 Right	20.00
4/1 (Westway (W) int)	U	D	2	3	17.4	Geom	-	3.50	0.00	Y	Arm 9 Ahead	Inf
4/2 (Westway (W) int)	U	D	2	3	17.4	Geom	-	3.50	0.00	N	Arm 9 Ahead	Inf
4/3 (Westway (W) int)	U	E	2	3	17.4	Geom	-	3.50	0.00	N	Arm 10 Right	15.00
5/1 (Westway (E))	U	G	2	3	60.0	Geom	-	3.50	0.00	Y	Arm 10 Left	20.00
5/2 (Westway (E))	U	F	2	3	60.0	Geom	-	3.50	0.00	N	Arm 11 Ahead	Inf
5/3 (Westway (E))	U	F	2	3	60.0	Geom	-	3.50	0.00	N	Arm 11 Ahead	Inf
6/1 (Upper New St)	U	H	2	3	60.0	Geom	-	3.50	0.00	Y	Arm 11 Left	15.00
6/2 (Upper New St)	U	I	2	3	60.0	Geom	-	3.50	0.00	N	Arm 9 Right	25.00
7/1	U		2	3	60.0	Inf	-	-	-	-	-	-
8/1	U		2	3	1.0	User	6000	-	-	-	-	-
9/1	U		2	3	60.0	Inf	-	-	-	-	-	-
10/1	U		2	3	60.0	Inf	-	-	-	-	-	-
11/1	U		2	3	1.0	User	6000	-	-	-	-	-

12/1	U		2	3	60.0	Inf	-	-	-	-	-	-

Network Results

Scenario 1: 'Base Plus Dev PM' (FG1: 'Base Plus Dev PM', Plan 1: 'Plan A')

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Total Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Max Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Mean Max Queue (pcu)
Network	-	-	-		-	-	-	-	-	**84.4%**	**22.2**	**14.5**	**36.7**	-	-	-
Unnamed Junction	-	-	-		-	-	-	-	-	**84.4%**	**22.2**	**14.5**	**36.7**	-	-	-
1/1	Westway (W) Left Ahead	U	C		46	605	1957	1957	1210	50.0%	1.3	0.5	1.8	11.0	6.9	7.4
1/2	Westway (W) Ahead	U	C		46	675	2105	2105	1302	51.9%	1.5	0.5	2.1	11.0	7.9	8.4
2/1	Wellington St Left	U	-		-	241	1940	1940	1940	12.4%	0.0	0.1	0.1	1.1	0.0	0.1
3/1	Westway (E) int Ahead	U	A		57	619	1965	1965	1500	41.3%	0.1	0.4	0.5	2.7	0.7	1.1
3/2	Westway (E) int Ahead	U	A		57	723	2105	2105	1606	45.0%	0.1	0.4	0.5	2.6	5.9	6.3
3/3	Westway (E) int Right	U	B		16	98	1958	1958	438	22.4%	0.7	0.1	0.8	30.6	1.9	2.1
4/1	Westway (W) int Ahead	U	D		32	502	1965	1965	853	58.8%	1.4	0.7	2.1	14.8	7.8	8.5
4/2	Westway (W) int Ahead	U	D		32	554	2105	2105	914	60.6%	1.5	0.8	2.3	14.7	8.8	9.6
4/3	Westway (W) int Right	U	E		19	425	1914	1914	504	84.4%	2.3	2.5	4.9	41.2	8.4	10.9
5/1	Westway (E) Left	U	G		21	314	1828	1828	529	59.3%	2.0	0.7	2.7	31.5	5.7	6.4
5/2	Westway (E) Ahead	U	F		21	512	2105	2105	609	84.0%	3.6	2.5	6.1	42.9	10.1	12.6
5/3	Westway (E) Ahead	U	F		21	512	2105	2105	609	84.0%	3.6	2.5	6.1	42.9	10.1	12.6
6/1	Upper New St Left	U	H		38	416	1786	1786	916	45.4%	1.4	0.4	1.8	15.3	5.5	6.0
6/2	Upper New St Right	U	I		15	338	1986	1986	418	80.8%	2.7	2.0	4.7	49.9	6.8	8.8
7/1		U	-		-	138	Inf	Inf	Inf	0.0%	0.0	0.0	0.0	0.0	0.0	0.0

8/1	Ahead	U	-		-	1481	6000	6000	6000	24.7%	0.0	0.2	0.2	0.4	0.0	0.2
9/1		U	-		-	1394	Inf	Inf	Inf	0.0%	0.0	0.0	0.0	0.0	0.0	0.0
10/1		U	-		-	739	Inf	Inf	Inf	0.0%	0.0	0.0	0.0	0.0	0.0	0.0
11/1	Ahead	U	-		-	1440	6000	6000	6000	24.0%	0.0	0.2	0.2	0.4	0.0	0.2
12/1		U	-		-	1342	Inf	Inf	Inf	0.0%	0.0	0.0	0.0	0.0	0.0	0.0

C1	Stream: 1 PRC for Signalled Lanes (%):	100.0	Total Delay for Signalled Lanes (pcuHr):	0.99	Cycle Time (s):	76
C1	Stream: 2 PRC for Signalled Lanes (%):	6.7	Total Delay for Signalled Lanes (pcuHr):	35.36	Cycle Time (s):	76
	PRC Over All Lanes (%):	6.7	Total Delay Over All Lanes(pcuHr):	36.74		

Scenario 2: 'Base Plus Dev Sat' (FG2: 'Base Plus Dev Sat', Plan 1: 'Plan A')

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Total Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Max Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**82.5%**	**22.3**	**13.1**	**35.4**	**-**	**-**	**-**
Unnamed Junction	**-**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**82.5%**	**22.3**	**13.1**	**35.4**	**-**	**-**	**-**
1/1	Westway (W) Left Ahead	U	C		45	601	1958	1958	1185	50.7%	1.4	0.5	1.9	11.6	7.2	7.7
1/2	Westway (W) Ahead	U	C		45	669	2105	2105	1274	52.5%	1.6	0.6	2.2	11.6	8.0	8.5
2/1	Wellington St Left	U	-		-	175	1940	1940	1940	9.0%	0.0	0.0	0.0	1.0	0.0	0.0
3/1	Westway (E) int Ahead	U	A		57	539	1965	1965	1500	35.9%	0.1	0.3	0.4	2.6	0.7	1.0
3/2	Westway (E) int Ahead	U	A		57	663	2105	2105	1606	41.3%	0.1	0.4	0.4	2.4	4.1	4.5
3/3	Westway (E) int Right	U	B		17	166	1958	1958	464	35.8%	1.2	0.3	1.5	31.8	3.3	3.6
4/1	Westway (W) int Ahead	U	D		31	482	1965	1965	827	58.3%	1.3	0.7	2.0	14.7	7.4	8.1
4/2	Westway (W) int Ahead	U	D		31	534	2105	2105	886	60.2%	1.4	0.8	2.2	14.6	8.4	9.2
4/3	Westway (W) int Right	U	E		18	395	1914	1914	479	82.5%	2.1	2.2	4.4	39.9	7.8	10.0
5/1	Westway (E) Left	U	G		21	355	1828	1828	529	67.1%	2.3	1.0	3.4	34.0	6.6	7.6
5/2	ay (E) Ahead	U	F		21	482	2105	2105	609	79.1%	3.3	1.8	5.2	38.6	9.4	11.2
5/3	Westway (E) Ahead	U	F		21	483	2105	2105	609	79.3%	3.3	1.9	5.2	38.7	9.4	11.2
6/1	Upper New St Left	U	H		38	403	1786	1786	916	44.0%	1.3	0.4	1.7	15.1	5.3	5.7
6/2	Upper New St Right	U	I		16	357	1986	1986	444	80.4%	2.8	2.0	4.7	47.7	7.0	9.0
7/1		U	-		-	200	Inf	Inf	Inf	0.0%	0.0	0.0	0.0	0.0	0.0	0.0
8/1	Ahead	U	-		-	1411	6000	6000	6000	23.5%	0.0	0.2	0.2	0.4	0.0	0.2

9/1		U	-		-	1373	Inf	Inf	Inf	0.0%	0.0	0.0	0.0	0.0	0.0	0.0
10/1		U	-		-	750	Inf	Inf	Inf	0.0%	0.0	0.0	0.0	0.0	0.0	0.0
11/1	Ahead	U	-		-	1368	6000	6000	6000	22.8%	0.0	0.1	0.1	0.4	0.0	0.1
12/1		U	-		-	1202	Inf	Inf	Inf	0.0%	0.0	0.0	0.0	0.0	0.0	0.0

C1	Stream: 1 PRC for Signalled Lanes (%):	118.1	Total Delay for Signalled Lanes (pcuHr):	0.84	Cycle Time (s):	76
C1	Stream: 2 PRC for Signalled Lanes (%):	9.0	Total Delay for Signalled Lanes (pcuHr):	34.22	Cycle Time (s):	76
	PRC Over All Lanes (%):	9.0	Total Delay Over All Lanes(pcuHr):	35.40		


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ARCADY 7

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File: (new file)
Report generation date: 07/11/2011 22:33:07

« A1 - Existing Layout - D1 - Opening Year Base Plus Development, PM
- » Roundabout Network
- » Arms
- » Traffic Flows
- » Entry Flows
- » Turning Proportions
- » Vehicle Mix
- » Results

Summary of roundabout performance

	PM			
	Queue (PCU)	Delay (min)	RFC	LOS
	Existing Layout - Opening Year Base Plus Development			
Arm 1	3.14	0.17	0.76	B
Arm 2	1.86	0.09	0.65	A
Arm 3	3.20	0.14	0.76	A
Arm 4	103.53	10.77	1.19	F

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

Opening Year Base Plus Development - PM runs from 16:00:00 to 17:00:00
Opening Year Base Plus Development - Saturday runs from 12:00:00 to 13:00:00

File summary

File Description

Title	(untitled)
Location	
Site Number	
Date	07/11/2011
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	Laptop1\Paul Corbett
Description	

Analysis Options

RFC Threshold	Vehicle Length (m)	Do Queue Variations
0.85	5.75	

Sorting and Display

Show Arm Names	Arm Grouping	Sorting Direction	Sorting Type	Data Matrix Style	Time Style
	Order	Ascending	Numerical	By Destination	Absolute Time

Units

Distance Units	Speed Units	Traffic Units Input	Traffic Units Results	Flow Units	Average Delay Units	Total Delay Units	Rate Of Delay Units
m	kph	PCU	PCU	perHour	min	-Min	perMin

A1 - Existing Layout - D1 - Opening Year Base Plus Development, PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Description	Include In Report	Use Specific Demand Set	Demand Set	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
Existing Layout	Alhambra Roundabout	Yes		(D1)		100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Locked	Run Automatically	Use Relationship	Relationship	Start Time (HH:mm)	Finish Time (HH:mm)	Time Period Length (min)	Time Segment Length (min)	Traffic Profile Type
Opening Year Base Plus Development, PM	Opening Year Base Plus Development	PM			Yes			16:00	17:00	60	15	FLAT

Roundabout Network

Roundabout Type(s)

ID	Name	Arm Order	Roundabout Type	Grade Separated	Large Roundabout	Do Geometric Delay
1	(untitled)	1,2,3,4	Standard			

Roundabout Network Options

Driving Side	Lighting	Road Surface	In London
Left	Normal/unknown	((Mini-roundabouts only))	

Arms

Arms

ID	Name	Description
1	Harborough Road	
2	Sheffield Road	
3	West Way	
4	Wesley Street	

Capacity Options

Arm	Minimum Capacity (PCU/hr)	Maximum Capacity (PCU/hr)	Assume Flat Start Profile	Initial Queue (PCU)
1	0.00	99999.00		0.00
2	0.00	99999.00		0.00
3	0.00	99999.00		0.00
4	0.00	99999.00		0.00

Standard Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
1	7.00	7.50	5.00	25.00	65.00	28.00	
2	7.30	8.00	5.00	15.00	65.00	20.00	
3	7.30	7.50	5.00	40.00	65.00	30.00	
4	3.50	10.50	7.00	10.00	65.00	60.00	

Pedestrian Crossings

Arm	Crossing Type
1	None
2	None
3	None
4	None

Arm Slope/ Intercept and Capacity

Slope and Intercept used in model

Arm	Enter Directly	Slope	Intercept (PCU/hr)	Final Slope	Final Intercept (PCU/hr)
1		((calculated))	((calculated))	0.628	2273.155
2		((calculated))	((calculated))	0.650	2401.772
3		((calculated))	((calculated))	0.638	2321.018
4		((calculated))	((calculated))	0.430	1325.979

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

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCU Factor for a HV (PCU)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		Yes	Yes	HV Percentages	2.00				Yes	Yes

Entry Flows

General Flows Data

Arm	Profile Type	Use Turning Counts	Average Demand Flow (PCU/hr)	Flow Scaling Factor (%)	PHF
1	FLAT	Yes	1097.00	100.000	1.00
2	FLAT	Yes	1207.00	100.000	1.00
3	FLAT	Yes	1391.00	100.000	1.00
4	FLAT	Yes	616.00	100.000	1.00

Turning Proportions

Turning Counts or Proportions (PCU/hr) - Roundabout 1 (for whole period)

		To			
		1	2	3	4
From	1	0.000	541.000	480.000	76.000
	2	643.000	0.000	499.000	65.000
	3	420.000	821.000	0.000	150.000
	4	16.000	258.000	342.000	0.000

Turning Proportions (PCU) - Roundabout 1 (for whole period)

		To			
		1	2	3	4
From	1	0.00	0.49	0.44	0.07
	2	0.53	0.00	0.41	0.05
	3	0.30	0.59	0.00	0.11
	4	0.03	0.42	0.56	0.00

Vehicle Mix

Average PCU Per Vehicle - Roundabout 1 (for whole period)

		To			
		1	2	3	4
From	1	1.000	1.000	1.000	1.000
	2	1.000	1.000	1.000	1.000
	3	1.000	1.000	1.000	1.000
	4	1.000	1.000	1.000	1.000

Heavy Vehicle Percentages - Roundabout 1 (for whole period)

		To			
		1	2	3	4
From	1	0.000	0.000	0.000	0.000
	2	0.000	0.000	0.000	0.000
	3	0.000	0.000	0.000	0.000
	4	0.000	0.000	0.000	0.000

Results

Results Summary

Arm	Max RFC	Max Delay (min)	Max Queue (PCU)	Max LOS	Total Demand (PCU/hr)	Total Arrivals (PCU)	Total Queueing Delay (PCU-min)	Average Queueing Delay (min)	Rate Of Queueing Delay (PCU-min/min)	Inclusive Queueing Total Delay (PCU-min)	Inclusive Queueing Average Delay (min)	Slope	Intercept (PCU/hr)
1	0.76	0.17	3.14	B	1097.00	1097.00	179.42	0.16	2.99	179.63	0.16	0.628	2273.155
2	0.65	0.09	1.86	A	1207.00	1207.00	108.82	0.09	1.81	108.88	0.09	0.650	2401.772
3	0.76	0.14	3.20	A	1391.00	1391.00	185.57	0.13	3.09	185.74	0.13	0.638	2321.018
4	1.19	10.77	103.53	F	616.00	616.00	3192.57	5.18	53.21	3815.80	6.19	0.430	1325.979

ARCADY 7

Version: 7.1.1.245 [9th June 2011]
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File: (new file)
Report generation date: 07/11/2011 22:23:22

« A1 - Existing Layout - D2 - Opening Year Base Plus Development, Saturday
- » Roundabout Network
- » Arms
- » Traffic Flows
- » Entry Flows
- » Turning Proportions
- » Vehicle Mix
- » Results

Summary of roundabout performance

	Saturday			
	Queue (PCU)	Delay (min)	RFC	LOS
	Existing Layout - Opening Year Base Plus Development			
Arm 1	3.06	0.16	0.76	A
Arm 2	2.46	0.11	0.71	A
Arm 3	3.69	0.16	0.79	A
Arm 4	4.42	0.59	0.82	E

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

Opening Year Base Plus Development - PM runs from 16:00:00 to 17:00:00
Opening Year Base Plus Development - Saturday runs from 12:00:00 to 13:00:00

File summary

File Description

Title	(untitled)
Location	
Site Number	
Date	07/11/2011
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	Laptop1\Paul Corbett
Description	

Analysis Options

RFC Threshold	Vehicle Length (m)	Do Queue Variations
0.85	5.75	

Sorting and Display

Show Arm Names	Arm Grouping	Sorting Direction	Sorting Type	Data Matrix Style	Time Style
	Order	Ascending	Numerical	By Destination	Absolute Time

Units

Distance Units	Speed Units	Traffic Units Input	Traffic Units Results	Flow Units	Average Delay Units	Total Delay Units	Rate Of Delay Units
m	kph	PCU	PCU	perHour	min	-Min	perMin

A1 - Existing Layout - D2 - Opening Year Base Plus Development, Saturday

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Description	Include In Report	Use Specific Demand Set	Demand Set	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
Existing Layout	Alhambra Roundabout	Yes		(D1)		100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Locked	Run Automatically	Use Relationship	Relationship	Start Time (HH:mm)	Finish Time (HH:mm)	Time Period Length (min)	Time Segment Length (min)	Traffic Profile Type
Opening Year Base Plus Development, Saturday	Opening Year Base Plus Development	Saturday			Yes			12:00	13:00	60	15	FLAT

Roundabout Network

Roundabout Type(s)

ID	Name	Arm Order	Roundabout Type	Grade Separated	Large Roundabout	Do Geometric Delay
1	(untitled)	1,2,3,4	Standard			

Roundabout Network Options

Driving Side	Lighting	Road Surface	In London
Left	Normal/unknown	((Mini-roundabouts only))	

Arms

Arms

ID	Name	Description
1	Harborough Road	
2	Sheffield Road	
3	West Way	
4	Wesley Street	

Capacity Options

Arm	Minimum Capacity (PCU/hr)	Maximum Capacity (PCU/hr)	Assume Flat Start Profile	Initial Queue (PCU)
1	0.00	99999.00		0.00
2	0.00	99999.00		0.00
3	0.00	99999.00		0.00
4	0.00	99999.00		0.00

Standard Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
1	7.00	7.50	5.00	25.00	65.00	28.00	
2	7.30	8.00	5.00	15.00	65.00	20.00	
3	7.30	7.50	5.00	40.00	65.00	30.00	
4	3.50	10.50	7.00	10.00	65.00	60.00	

Pedestrian Crossings

Arm	Crossing Type
1	None
2	None
3	None
4	None

Arm Slope/ Intercept and Capacity

Slope and Intercept used in model

Arm	Enter Directly	Slope	Intercept (PCU/hr)	Final Slope	Final Intercept (PCU/hr)
1		((calculated))	((calculated))	0.628	2273.155
2		((calculated))	((calculated))	0.650	2401.772
3		((calculated))	((calculated))	0.638	2321.018
4		((calculated))	((calculated))	0.430	1325.979

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

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCU Factor for a HV (PCU)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		Yes	Yes	HV Percentages	2.00				Yes	Yes

Entry Flows

General Flows Data

Arm	Profile Type	Use Turning Counts	Average Demand Flow (PCU/hr)	Flow Scaling Factor (%)	PHF
1	FLAT	Yes	1178.00	100.000	1.00
2	FLAT	Yes	1295.00	100.000	1.00
3	FLAT	Yes	1375.00	100.000	1.00
4	FLAT	Yes	470.00	100.000	1.00

Turning Proportions

Turning Counts or Proportions (PCU/hr) - Roundabout 1 (for whole period)

		To			
		1	2	3	4
From	1	0.000	541.000	525.000	112.000
	2	634.000	0.000	501.000	160.000
	3	410.000	713.000	0.000	252.000
	4	45.000	164.000	261.000	0.000

Turning Proportions (PCU) - Roundabout 1 (for whole period)

		To			
		1	2	3	4
From	1	0.00	0.46	0.45	0.10
	2	0.49	0.00	0.39	0.12
	3	0.30	0.52	0.00	0.18
	4	0.10	0.35	0.56	0.00

Vehicle Mix

Average PCU Per Vehicle - Roundabout 1 (for whole period)

		To			
		1	2	3	4
From	1	1.000	1.000	1.000	1.000
	2	1.000	1.000	1.000	1.000
	3	1.000	1.000	1.000	1.000
	4	1.000	1.000	1.000	1.000

Heavy Vehicle Percentages - Roundabout 1 (for whole period)

		To			
		1	2	3	4
From	1	0.000	0.000	0.000	0.000
	2	0.000	0.000	0.000	0.000
	3	0.000	0.000	0.000	0.000
	4	0.000	0.000	0.000	0.000

Results

Results Summary

Arm	Max RFC	Max Delay (min)	Max Queue (PCU)	Max LOS	Total Demand (PCU/hr)	Total Arrivals (PCU)	Total Queueing Delay (PCU-min)	Average Queueing Delay (min)	Rate Of Queueing Delay (PCU-min/min)	Inclusive Queueing Total Delay (PCU-min)	Inclusive Queueing Average Delay (min)	Slope	Intercept (PCU/hr)
1	0.76	0.16	3.06	A	1178.00	1178.00	175.36	0.15	2.92	175.54	0.15	0.628	2273.155
2	0.71	0.11	2.46	A	1295.00	1295.00	142.92	0.11	2.38	143.02	0.11	0.650	2401.772
3	0.79	0.16	3.69	A	1375.00	1375.00	211.87	0.15	3.53	212.11	0.15	0.638	2321.018
4	0.82	0.59	4.42	E	470.00	470.00	235.37	0.50	3.92	236.39	0.50	0.430	1325.979

ARCADY 7

Version: 7.1.1.245 [9th June 2011]
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File: C:\Users\Paul Corbett\Documents\Project Folders\Barnsley Foodstore CBO 0010\Alhambra Roundabout\Alhambra Existing.arc7
Report generation date: 07/11/2011 22:51:57

« A1 - Existing Layout - D3 - Opening Year Base, PM
- » Roundabout Network
- » Arms
- » Traffic Flows
- » Entry Flows
- » Turning Proportions
- » Vehicle Mix
- » Results

Summary of roundabout performance

	PM			
	Queue (PCU)	Delay (min)	RFC	LOS
	Existing Layout - Opening Year Base			
Arm 1	2.90	0.16	0.75	A
Arm 2	1.76	0.09	0.64	A
Arm 3	3.05	0.13	0.75	A
Arm 4	79.87	8.16	1.14	F

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

Opening Year Base Plus Development - PM runs from 16:00:00 to 17:00:00
Opening Year Base Plus Development - Saturday runs from 12:00:00 to 13:00:00
Opening Year Base - PM runs from 16:00:00 to 17:00:00

File summary

File Description

Title	(untitled)
Location	
Site Number	
Date	07/11/2011
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	Laptop1\Paul Corbett
Description	

Analysis Options

RFC Threshold	Vehicle Length (m)	Do Queue Variations
0.85	5.75	

Sorting and Display

Show Arm Names	Arm Grouping	Sorting Direction	Sorting Type	Data Matrix Style	Time Style
	Order	Ascending	Numerical	By Destination	Absolute Time

Units

Distance Units	Speed Units	Traffic Units Input	Traffic Units Results	Flow Units	Average Delay Units	Total Delay Units	Rate Of Delay Units
m	kph	PCU	PCU	perHour	min	-Min	perMin

A1 - Existing Layout - D3 - Opening Year Base, PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Description	Include In Report	Use Specific Demand Set	Demand Set	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
Existing Layout	Alhambra Roundabout	Yes		(D1)		100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Locked	Run Automatically	Use Relationship	Relationship	Start Time (HH:mm)	Finish Time (HH:mm)	Time Period Length (min)	Time Segment Length (min)	Traffic Profile Type
Opening Year Base, PM	Opening Year Base	PM			Yes			16:00	17:00	60	15	FLAT

Roundabout Network

Roundabout Type(s)

ID	Name	Arm Order	Roundabout Type	Grade Separated	Large Roundabout	Do Geometric Delay
1	(untitled)	1,2,3,4	Standard			

Roundabout Network Options

Driving Side	Lighting	Road Surface	In London
Left	Normal/unknown	((Mini-roundabouts only))	

Arms

Arms

ID	Name	Description
1	Harborough Road	
2	Sheffield Road	
3	West Way	
4	Wesley Street	

Capacity Options

Arm	Minimum Capacity (PCU/hr)	Maximum Capacity (PCU/hr)	Assume Flat Start Profile	Initial Queue (PCU)

1	0.00	99999.00		0.00
2	0.00	99999.00		0.00
3	0.00	99999.00		0.00
4	0.00	99999.00		0.00

Standard Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
1	7.00	7.50	5.00	25.00	65.00	28.00	
2	7.30	8.00	5.00	15.00	65.00	20.00	
3	7.30	7.50	5.00	40.00	65.00	30.00	
4	3.50	10.50	7.00	10.00	65.00	60.00	

Pedestrian Crossings

Arm	Crossing Type
1	None
2	None
3	None
4	None

Arm Slope/ Intercept and Capacity

Slope and Intercept used in model

Arm	Enter Directly	Slope	Intercept (PCU/hr)	Final Slope	Final Intercept (PCU/hr)
1		((calculated))	((calculated))	0.628	2273.155
2		((calculated))	((calculated))	0.650	2401.772
3		((calculated))	((calculated))	0.638	2321.018
4		((calculated))	((calculated))	0.430	1325.979

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

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCU Factor for a HV (PCU)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		Yes	Yes	HV Percentages	2.00				Yes	Yes

Entry Flows

General Flows Data

Arm	Profile Type	Use Turning Counts	Average Demand Flow (PCU/hr)	Flow Scaling Factor (%)	PHF
1	FLAT	Yes	1078.00	100.000	1.00
2	FLAT	Yes	1190.00	100.000	1.00
3	FLAT	Yes	1395.00	100.000	1.00
4	FLAT	Yes	606.00	100.000	1.00

Turning Proportions

Turning Counts or Proportions (PCU/hr) - Roundabout 1 (for whole period)

		To			
		1	2	3	4
From	1	0.000	541.000	461.000	76.000
	2	609.000	0.000	525.000	56.000
	3	438.000	801.000	0.000	156.000
	4	16.000	258.000	332.000	0.000

Turning Proportions (PCU) - Roundabout 1 (for whole period)

		To			
		1	2	3	4
From	1	0.00	0.50	0.43	0.07
	2	0.51	0.00	0.44	0.05
	3	0.31	0.57	0.00	0.11
	4	0.03	0.43	0.55	0.00

Vehicle Mix

Average PCU Per Vehicle - Roundabout 1 (for whole period)

		To			
		1	2	3	4
From	1	1.000	1.000	1.000	1.000
	2	1.000	1.000	1.000	1.000
	3	1.000	1.000	1.000	1.000
	4	1.000	1.000	1.000	1.000

Heavy Vehicle Percentages - Roundabout 1 (for whole period)

		To			
		1	2	3	4
From	1	0.000	0.000	0.000	0.000
	2	0.000	0.000	0.000	0.000
	3	0.000	0.000	0.000	0.000
	4	0.000	0.000	0.000	0.000

Results

Results Summary

Arm	Max RFC	Max Delay (min)	Max Queue (PCU)	Max LOS	Total Demand (PCU/hr)	Total Arrivals (PCU)	Total Queueing Delay (PCU-min)	Average Queueing Delay (min)	Rate Of Queueing Delay (PCU-min/min)	Inclusive Queueing Total Delay (PCU-min)	Inclusive Queueing Average Delay (min)	Slope	Intercept (PCU/hr)
1	0.75	0.16	2.90	A	1078.00	1078.00	165.95	0.15	2.77	166.13	0.15	0.628	2273.155
2	0.64	0.09	1.76	A	1190.00	1190.00	103.16	0.09	1.72	103.21	0.09	0.650	2401.772
3	0.75	0.13	3.05	A	1395.00	1395.00	177.05	0.13	2.95	177.21	0.13	0.638	2321.018
4	1.14	8.16	79.87	F	606.00	606.00	2512.22	4.15	41.87	2872.29	4.74	0.430	1325.979