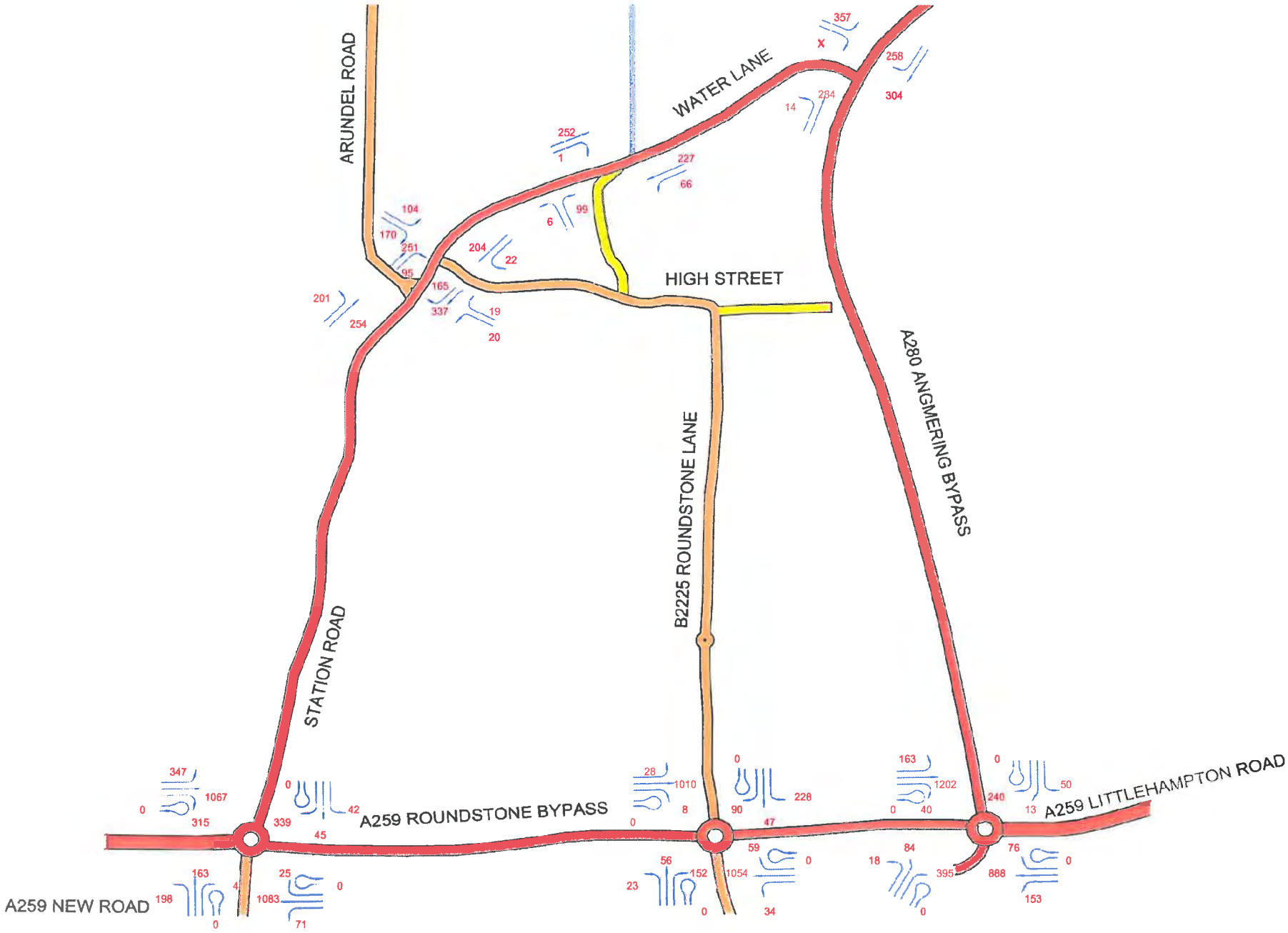
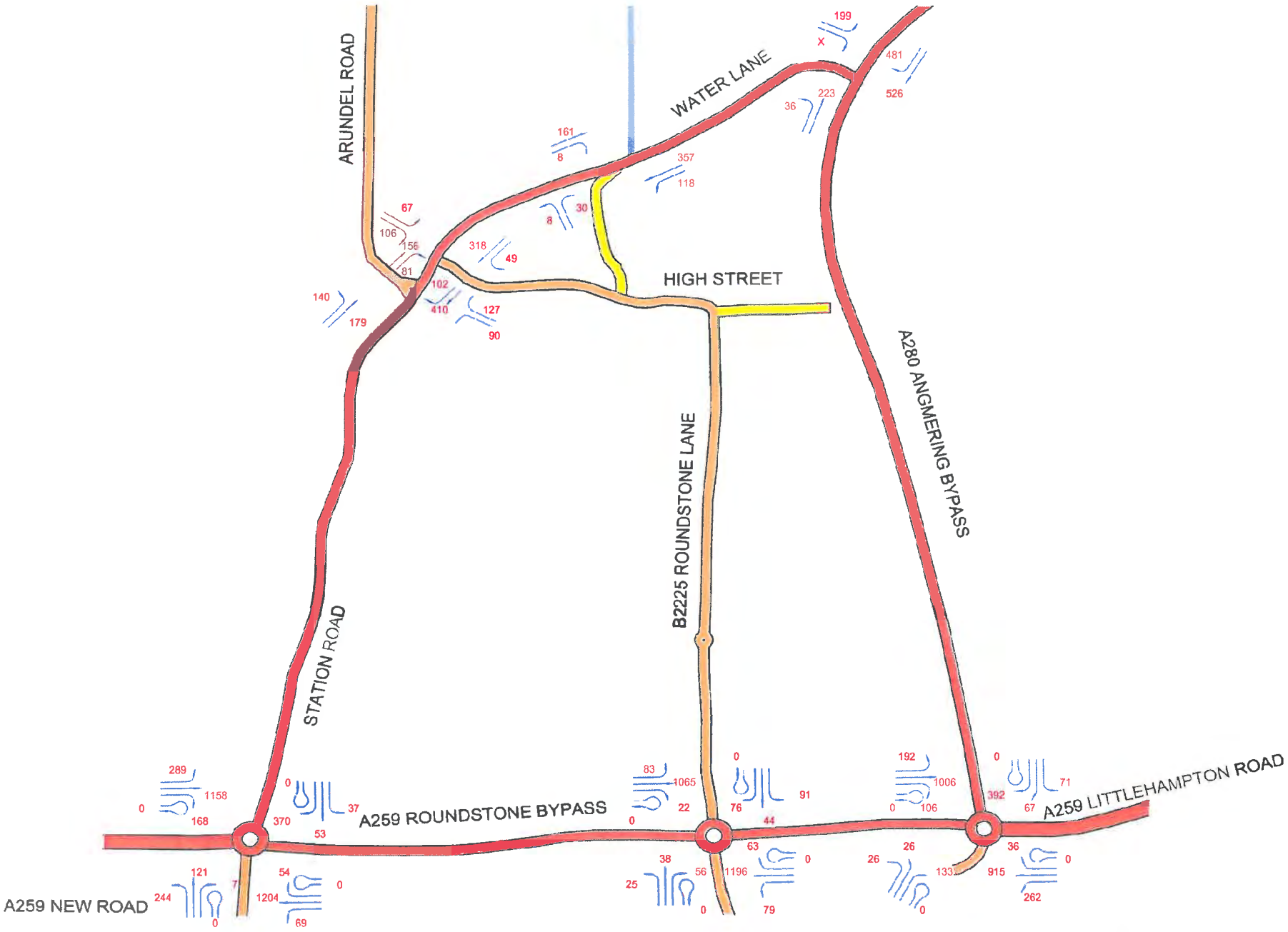
Appendix 11

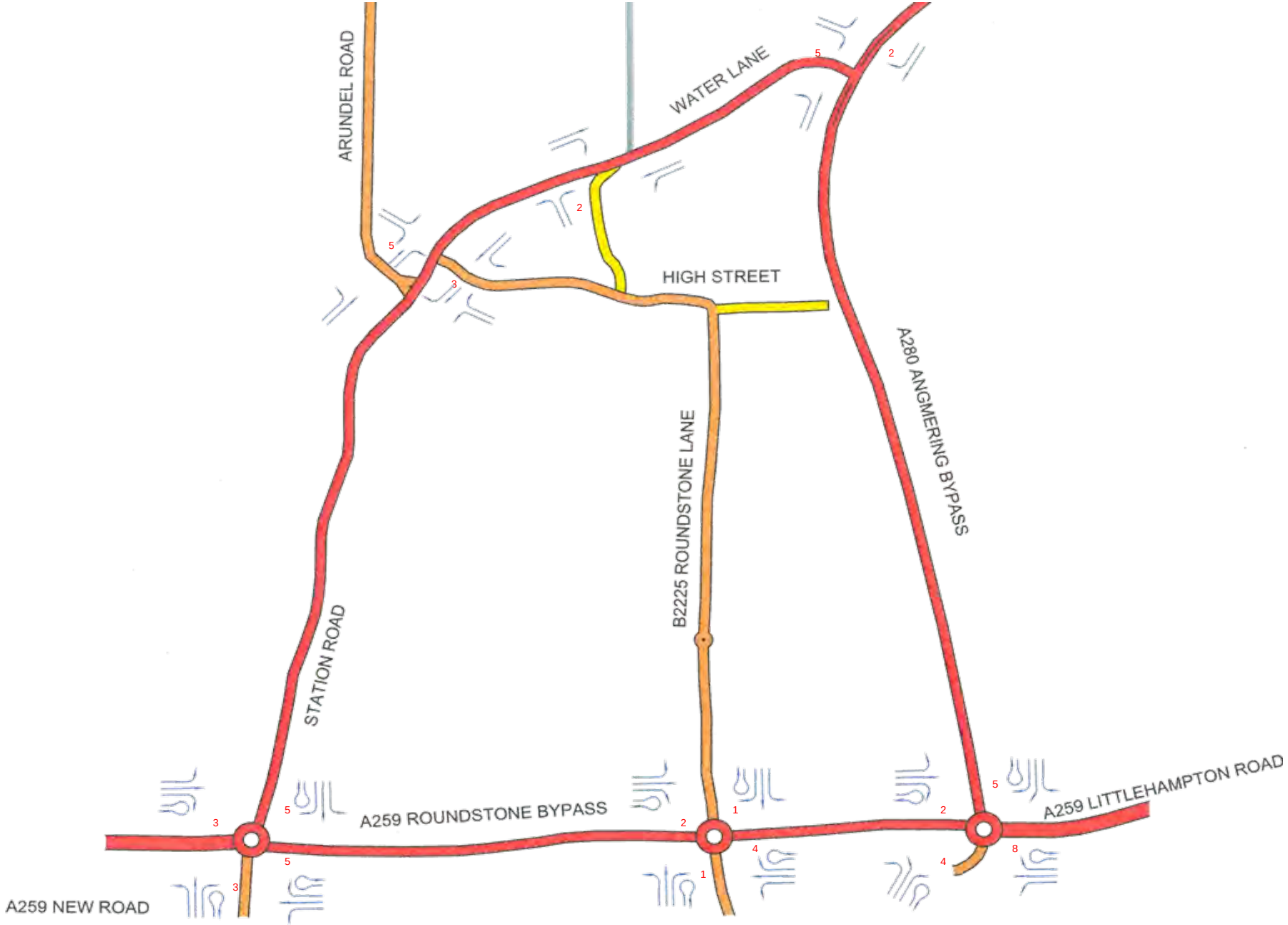
Summary of Traffic Survey Data, Queue Length Data and Junction Geometry Drawings



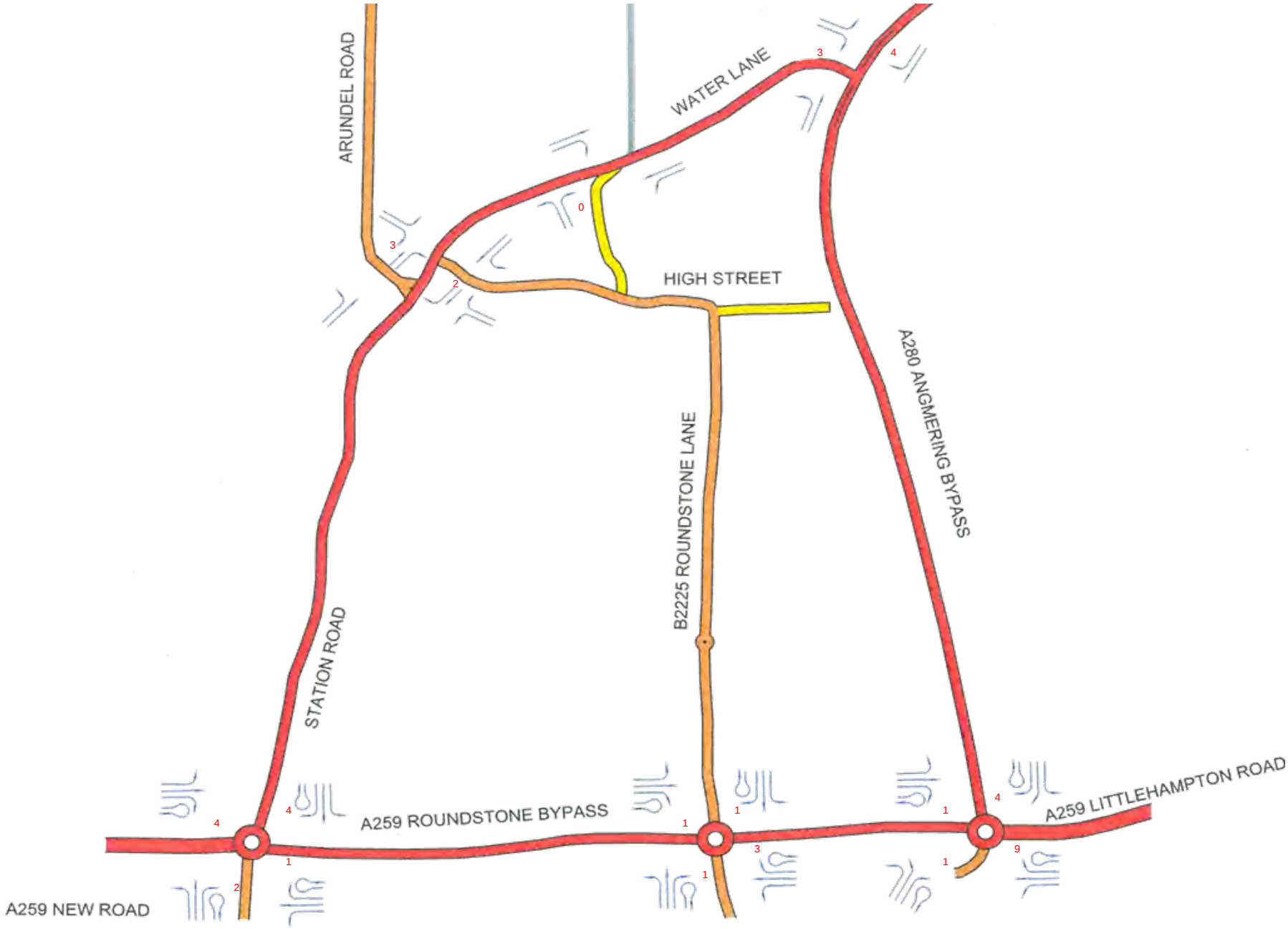
2011 Traffic Counts
AM Peak Hour



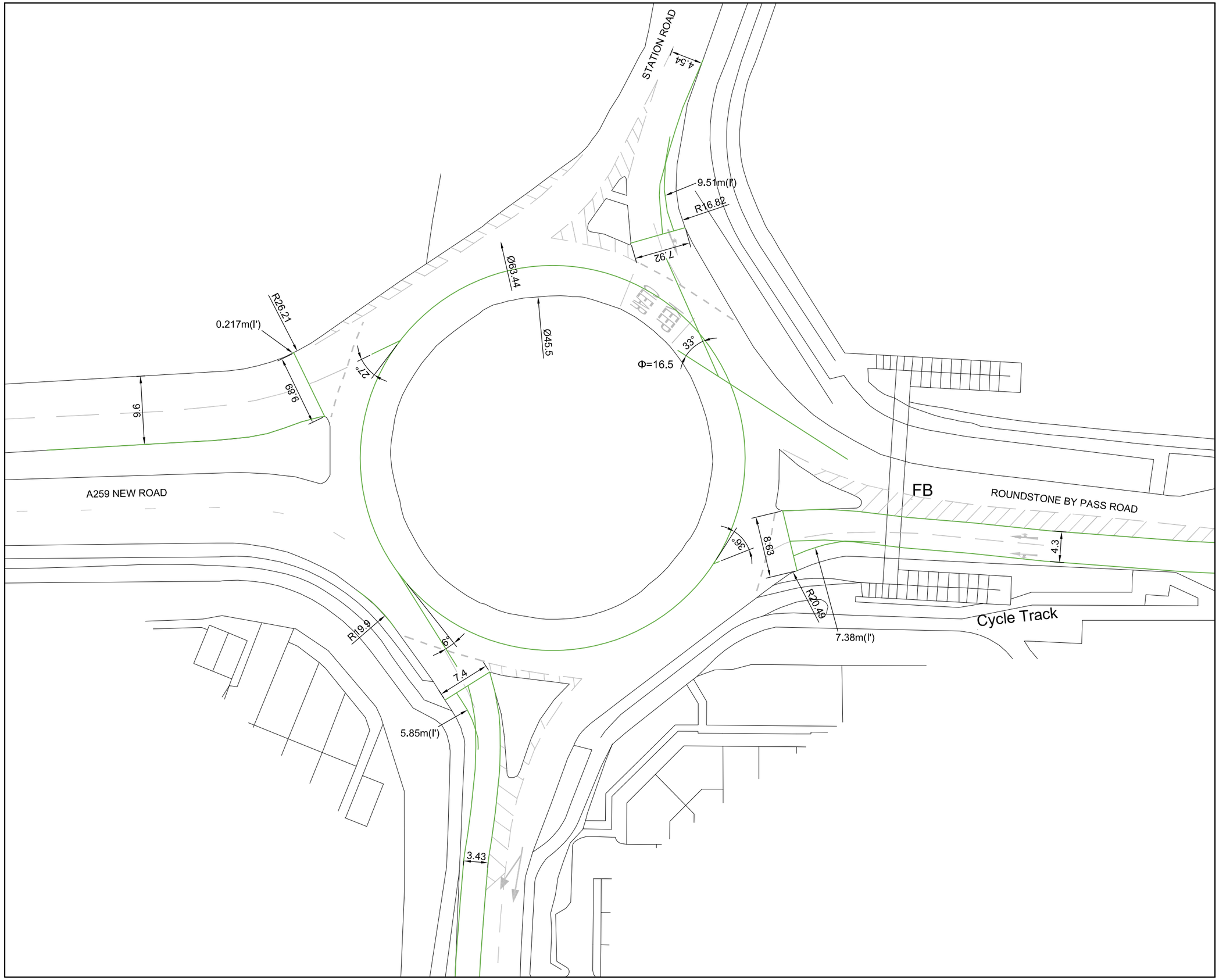
2011 Traffic Counts
PM Peak Hour



2011 Observed Queue Lengths
AM Peak Hour



2011 Observed Queue Lengths
PM Peak Hour



NOTES:

N

REV	DATE	INT	DESCRIPTION	CHK

Issue Status: PRELIMINARY

11 Tungsten Building
George Street
Fishersgate
Sussex
BN41 1RA
Tel: 01273 424424
Fax:01273 424425
email: design@civil.co.uk

the civil engineering practice

CLIENT: Barratt David Wilson Southampton

PROJECT: Roundstone Lane
Angmering

TITLE: Station Road Roundabout
Existing Layout

DRAWN	DATE	PROJECT NO.
A Davies	Dec 2012	22067
ENGINEER	CHECKED	ORG. No. / REV.
A French		112

SCALE: 1:500 @ A3

ARUN DISTRICT COUNCIL A/82/12/

Kelston House

Orchard House

Appletree Cottage

ROUNDSTONE LANE

ROUNDSTONE BY PASS ROAD

2.94

R52.26

4.47

6.9m(l')

2.96

R33.47

5.98

8.33

3.3

R24.59

R76.2

10.58m(l')

21°

7.7

Ø60.09

Ø43.33

3.98

5.46

8

5.15

6.5

Ø43.25

R58.84

8.18

7.16

30°

17.08m(l')

R140.44

4.54

R51.32

8.36

3.8

38°

6.08

R18.16

20.18m(l')

5.17

137

The Roundstone
(PH)

Burbe
Hou

NOTES:

N

REV.	DATE	INT.	DESCRIPTION	CHK

Issue Status: PRELIMINARY

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email: design@civil.co.uk

the civil engineering practice

CLIENT: Barratt David Wilson Southampton

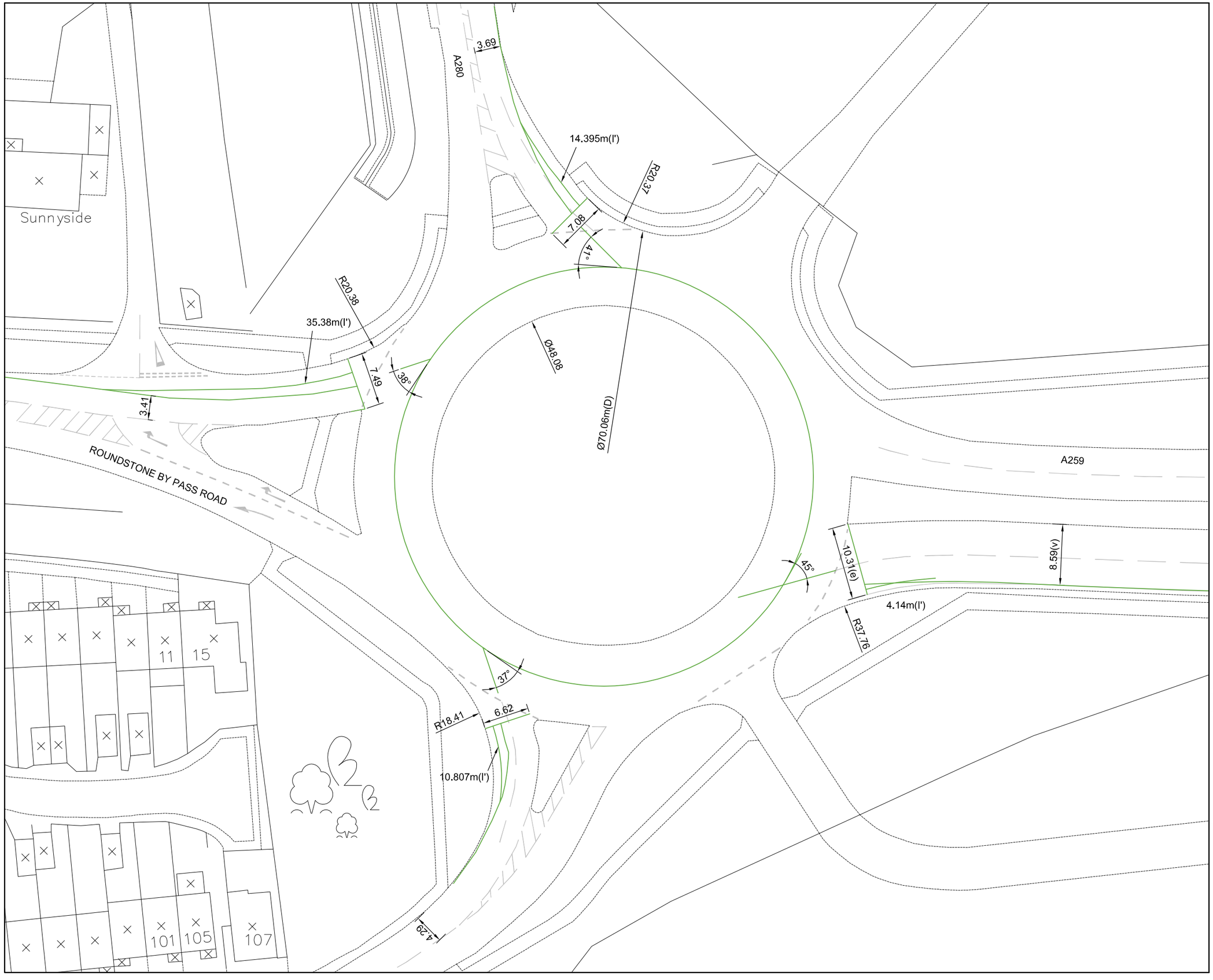
PROJECT: Roundstone Lane
Angmering

TITLE: Roundstone Lane Roundabout
Existing Layout

DRAWN	DATE	PROJECT NO.
A Davies	Dec 2012	22067
ENGINEER	CHECKED	ORG. No. / REV.
A French		113

SCALE: 1:500 @ A3

ARUN DISTRICT COUNCIL A/82/12/



NOTES:

N

REV	DATE	INT	DESCRIPTION	CHK

Issue Status: PRELIMINARY

11 Tungsten Building
George Street
Fishersgate
Sussex
BN41 1RA
Tel: 01273 424424
Fax:01273 424425
email: design@civil.co.uk

the civil engineering practice

CLIENT: Barratt David Wilson Southampton

PROJECT: Roundstone Lane
Angmering

TITLE: A280 Roundabout
Existing Layout

DRAWN	DATE	PROJECT NO.
A Davies	Dec 2012	22067
ENGINEER	CHECKED	DRG. No. / REV.
A French		114

SCALE: 1:500 @ A3

ARUN DISTRICT COUNCIL A/82/12/

NOTES:

N

REV	DATE	INT	DESCRIPTION	CHK

Issue Status: PRELIMINARY

11 Tungsten Building
George Street
Fishersgate
Sussex
BN41 1RA
Tel: 01273 424424
Fax:01273 424425
email: design@civil.co.uk

the civil engineering practice

CLIENT: Barratt David Wilson Southampton

PROJECT: Roundstone Lane
Angmering

TITLE: Water Lane Junction with Arundel Road
Existing Layout

DRAWN	DATE	PROJECT NO.
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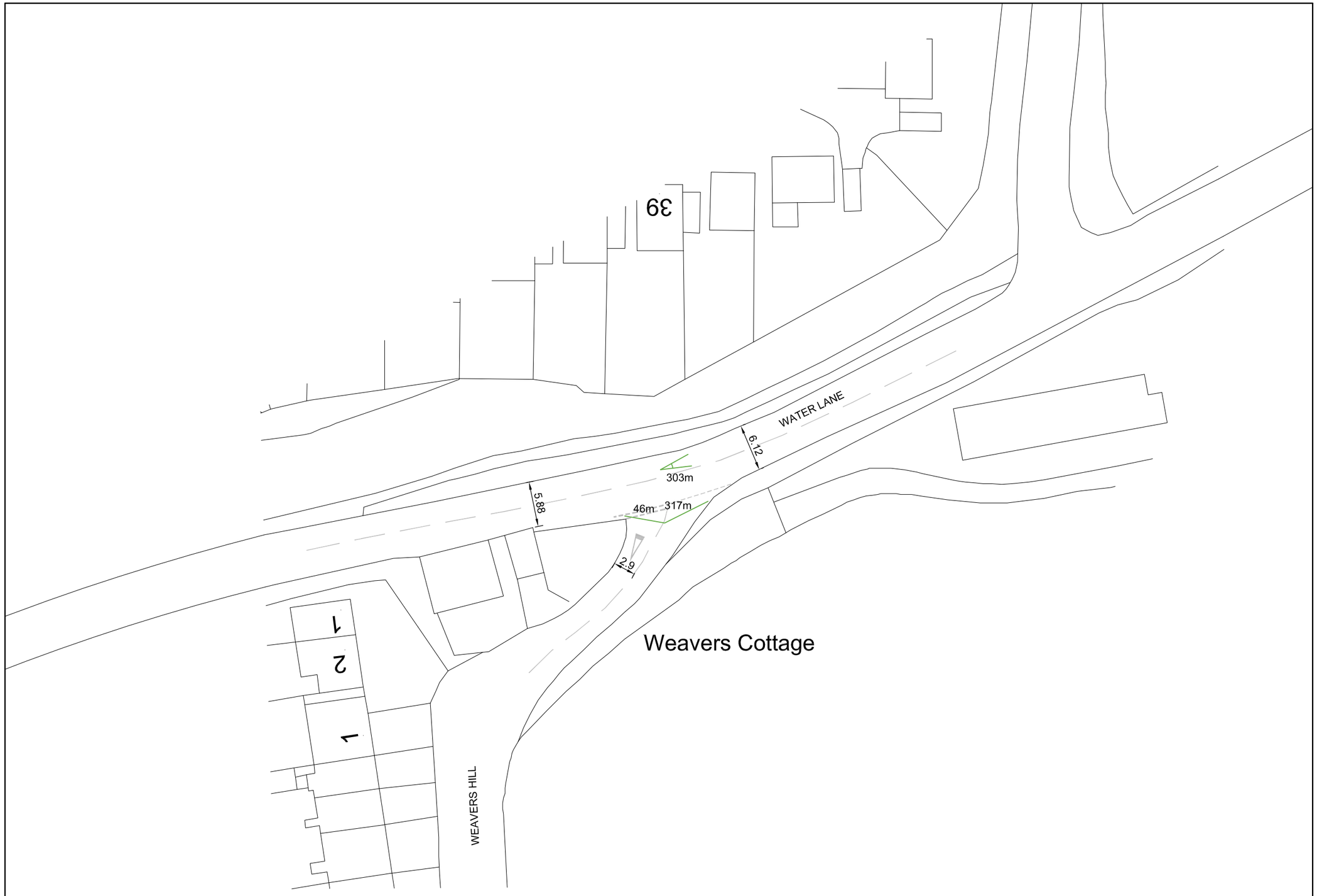
ENGINEER	CHECKED	DRG. No. / REV.
A French		115

SCALE: 1:500 @ A3

ARUN DISTRICT COUNCIL A/82/12/



NOTES:

N

REV	DATE	INT	DESCRIPTION	CHK

Issue Status: PRELIMINARY

11 Tungsten Building
George Street
Fishersgate
Sussex
BN41 1RA
Tel: 01273 424424
Fax:01273 424425
email: design@civil.co.uk

the civil engineering practice

CLIENT: Barratt David Wilson Southampton

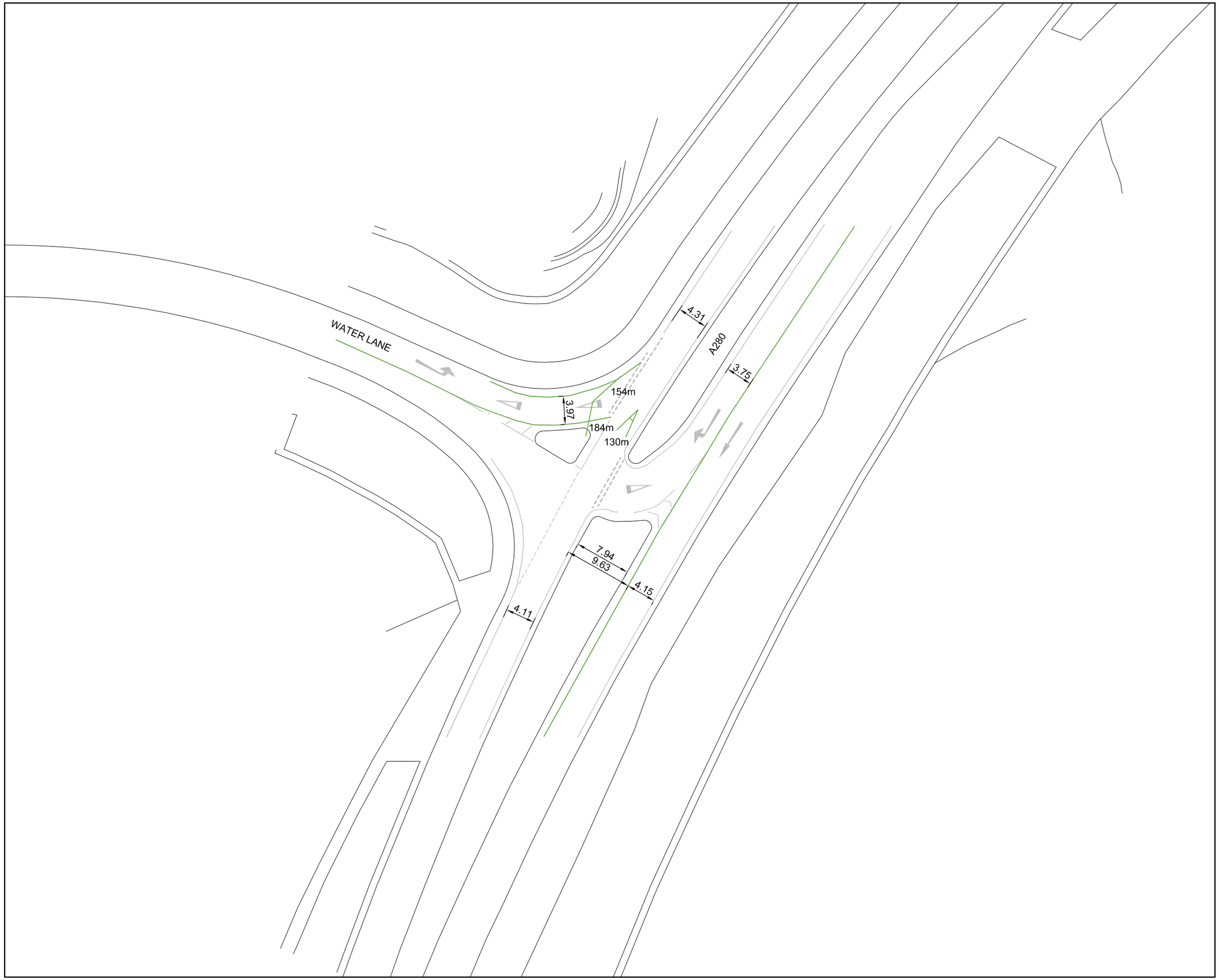
PROJECT: Roundstone Lane
Angmering

TITLE: Water Lane Junction with Water Lane
Existing Layout

DRAWN	DATE	PROJECT NO.
A Davies	Dec 2012	22067
ENGINEER	CHECKED	DRG. No. / REV.
A French		116

SCALE: 1:500 @ A3

ARUN DISTRICT COUNCIL A/82/12/



NOTES:

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Issue Status: PRELIMINARY

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George Street
Fishersgate
Sussex
BN41 1RA
Tel: 01273 424424
Fax:01273 424425
email: design@civil.co.uk

the civil engineering practice

CLIENT: Barratt David Wilson Southampton

PROJECT: Roundstone Lane
Angmering

TITLE: Water Lane Junction with A280
Existing Layout

DRAWN	DATE	PROJECT NO.
A Davies	Dec 2012	22067
ENGINEER	CHECKED	DRG. No. / REV.
A French		117

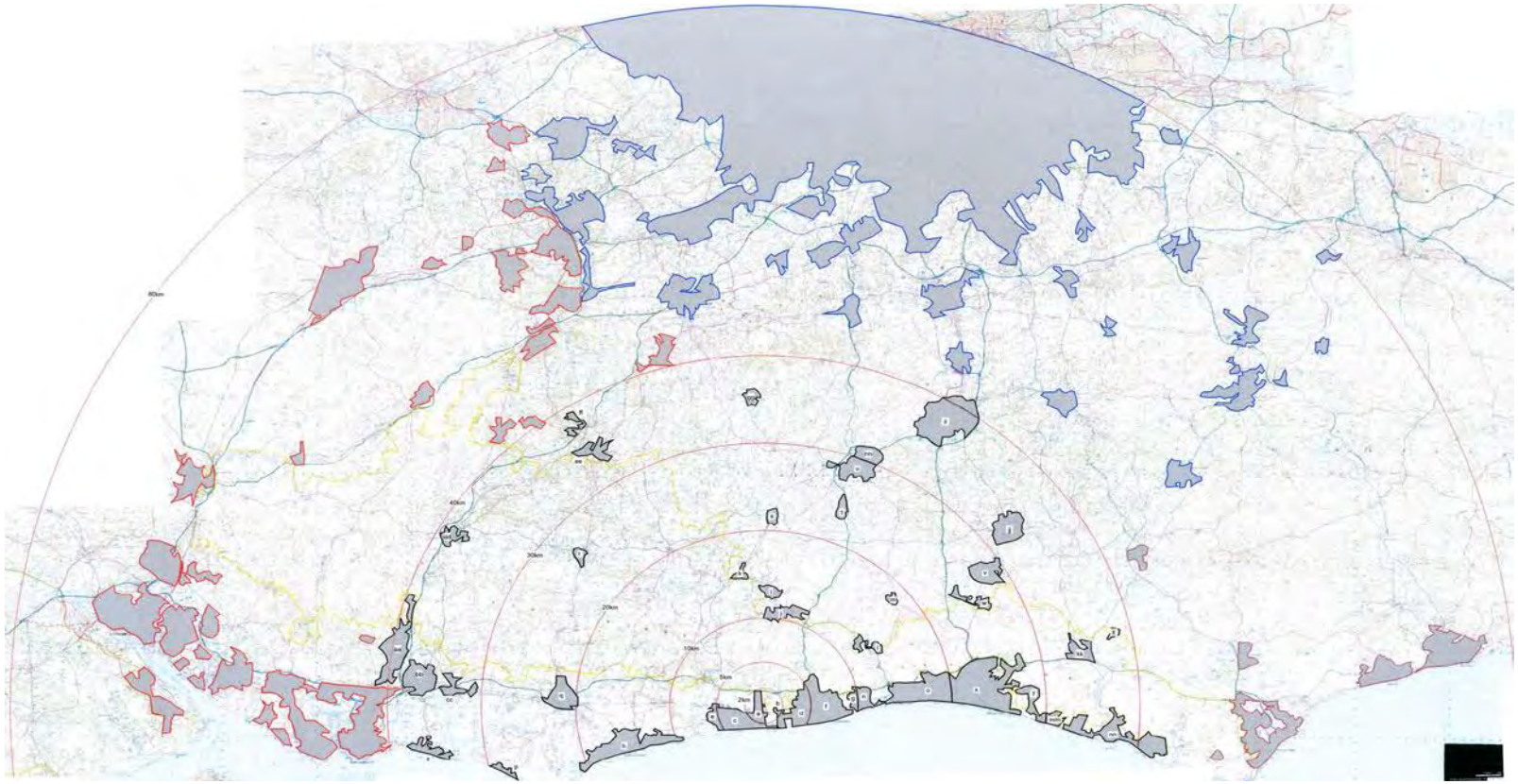
SCALE: 1:500 @ A3

ARUN DISTRICT COUNCIL A/82/12/

Appendix 12

Vehicle Trip Gravity Model and Traffic Flow Diagrams

Distance Travelled to Work		
Less than 2km	599	23.4%
2 - 5km	554	21.6%
5 - 10km	648	25.3%
10 - 20km	245	9.6%
20 - 30km	214	8.4%
30 - 40km	61	2.4%
Over 40km	238	9.3%



Zone				% of Catchment Zone	% of Residents to Employment Catchment
Less than 2km	A	386	ha	88.5%	20.7%
	B	50	ha	11.5%	2.7%
		436	**ha**		**23.4%**
2 - 5km	C	1,829	ha	54.6%	11.8%
	D	1,522	ha	45.4%	9.8%
		3,351	**ha**		**21.6%**
5 - 10km	E	244	ha	12.9%	3.3%
	F	1,462	ha	77.4%	19.6%
	G	183	ha	9.7%	2.5%
		1,889	**ha**		**25.3%**
10 - 20km	H	1,727	ha	33.8%	3.2%
	I	239	ha	4.7%	0.4%
	J	521	ha	10.2%	1.0%
	K	143	ha	2.8%	0.3%
	L	263	ha	5.1%	0.5%
	M	112	ha	2.2%	0.2%
	N	387	ha	7.6%	0.7%
	O	1,720	ha	33.6%	3.2%
		5,112	**ha**		**9.6%**
20 - 30km	P	157	ha	2.2%	0.2%
	Q	806	ha	11.4%	1.0%
	R	180	ha	2.6%	0.2%
	S	182	ha	2.6%	0.2%
	T	231	ha	3.3%	0.3%
	U	820	ha	11.6%	1.0%
	V	735	ha	10.4%	0.9%
	W	324	ha	4.6%	0.4%
	X	3,192	ha	45.2%	3.8%
	Y	429	ha	6.1%	0.5%
		7,056	**ha**		**8.4%**
30 - 40km	Z	439	ha	4.3%	0.1%
	AA	1,484	ha	14.6%	0.3%
	BB	1,017	ha	10.0%	0.2%
	CC	443	ha	4.4%	0.1%
	DD	377	ha	3.7%	0.1%
	EE	507	ha	5.0%	0.1%
	FF	235	ha	2.3%	0.1%
	GG	234	ha	2.3%	0.1%
	HH	453	ha	4.5%	0.1%
	II	2,139	ha	21.1%	0.5%
	JJ	941	ha	9.3%	0.2%
	KK	492	ha	4.8%	0.1%
	LL	91	ha	0.9%	0.0%
	MM	221	ha	2.2%	0.1%
	NN	1,085	ha	10.7%	0.3%
		10,158	**ha**		**2.4%**
Over 40km	West	33,763	ha	24.0%	2.2%
	North	100,138	ha	71.3%	6.6%
	East	6,530	ha	4.6%	0.4%
		140,431	**ha**		**9.3%**
					100.0%

Pre Travel Plan Development Flows
AM Peak Hour

Pre Travel Plan Development Flows
PM Peak Hour

Post Travel Plan Development Flows
AM Peak Hour

Opening Year 2% Reduction in Private Car Trips due to Travel Plan

Post Travel Plan Development Flows
PM Peak Hour

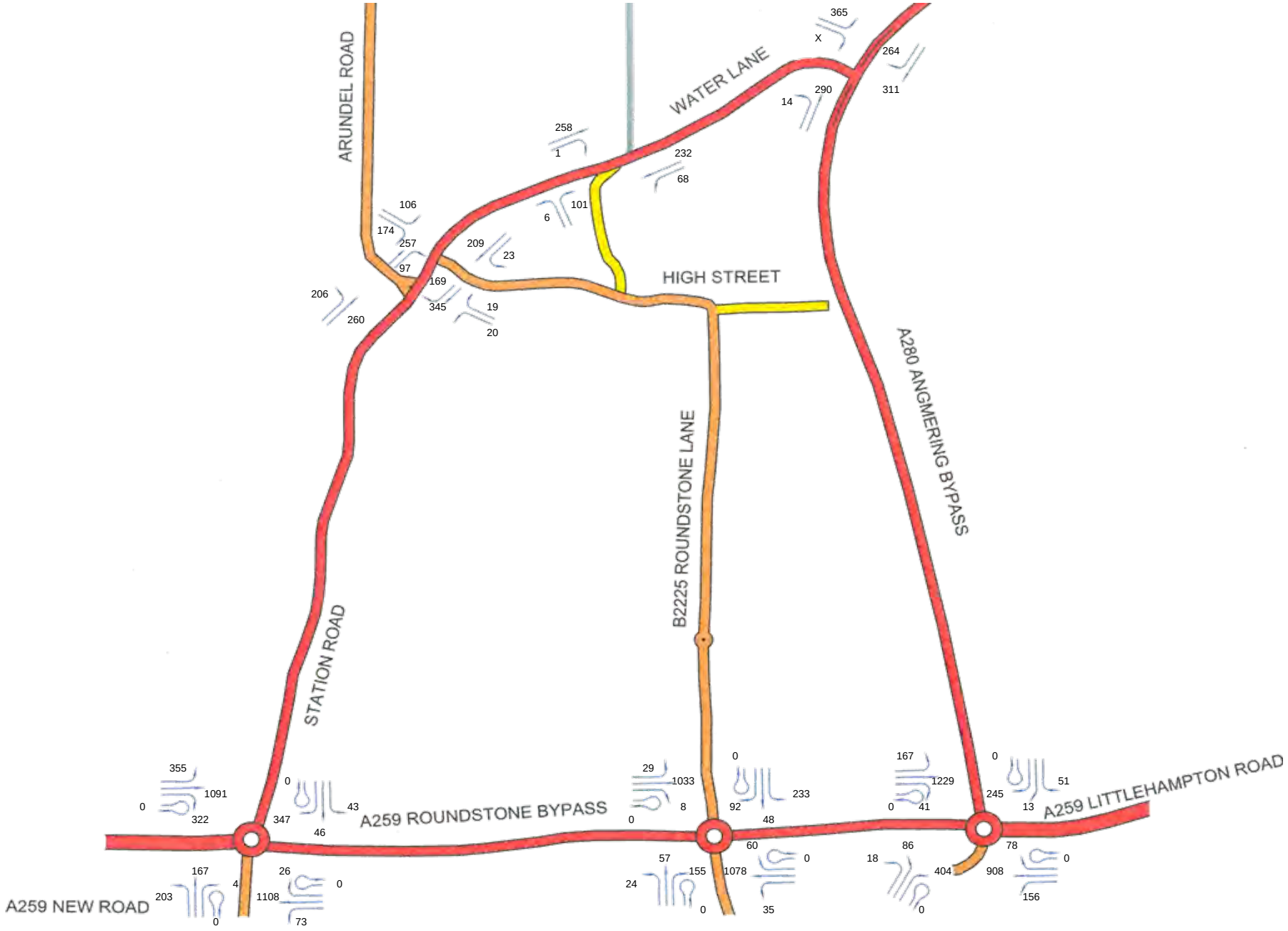
Opening Year 2% Reduction in Private Car Trips due to Travel Plan

Post Travel Plan Development Flows
AM Peak Hour

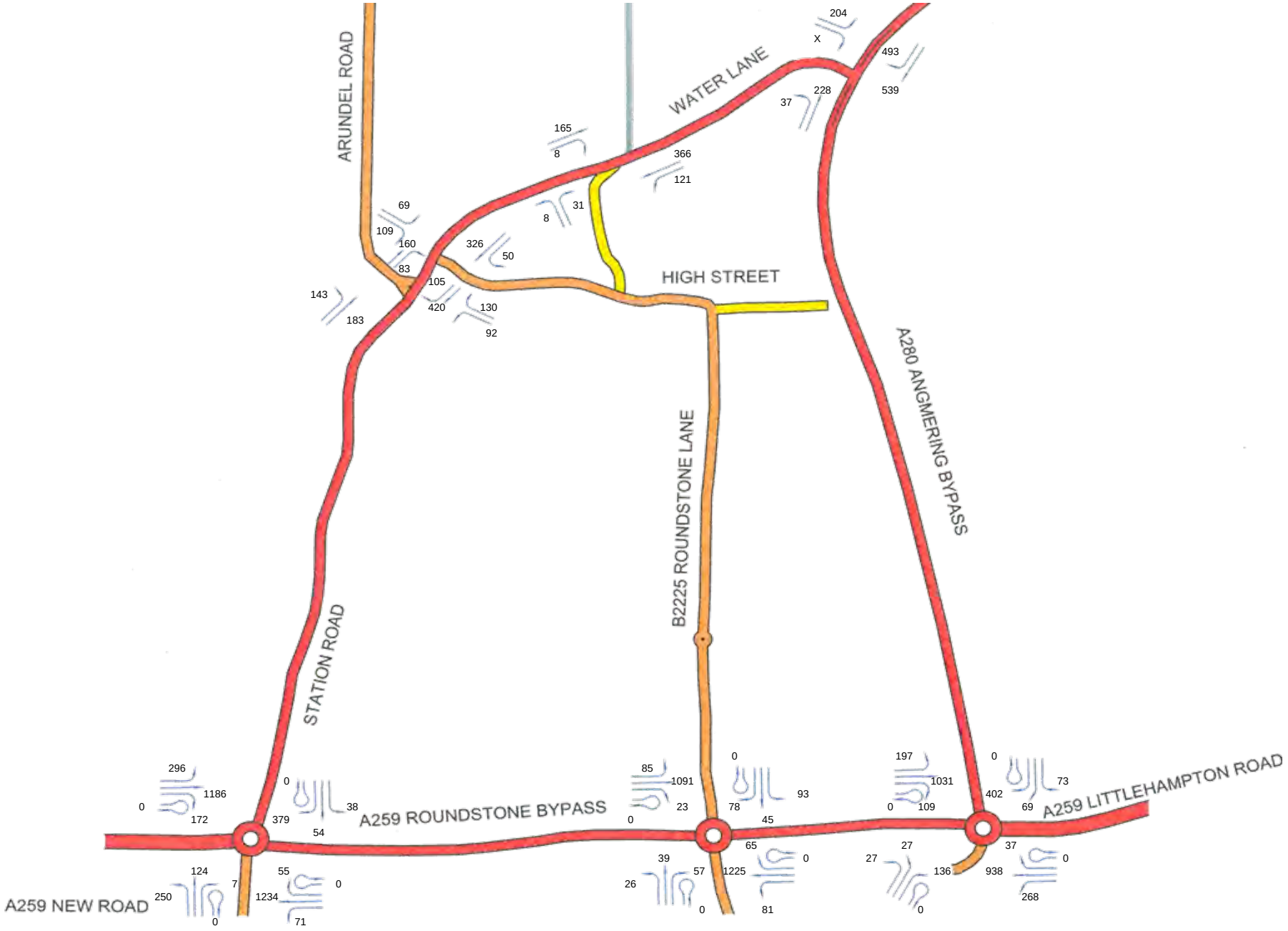
2019 8% Reduction in Private Car Trips due to Travel Plan

Post Travel Plan Development Flows
PM Peak Hour

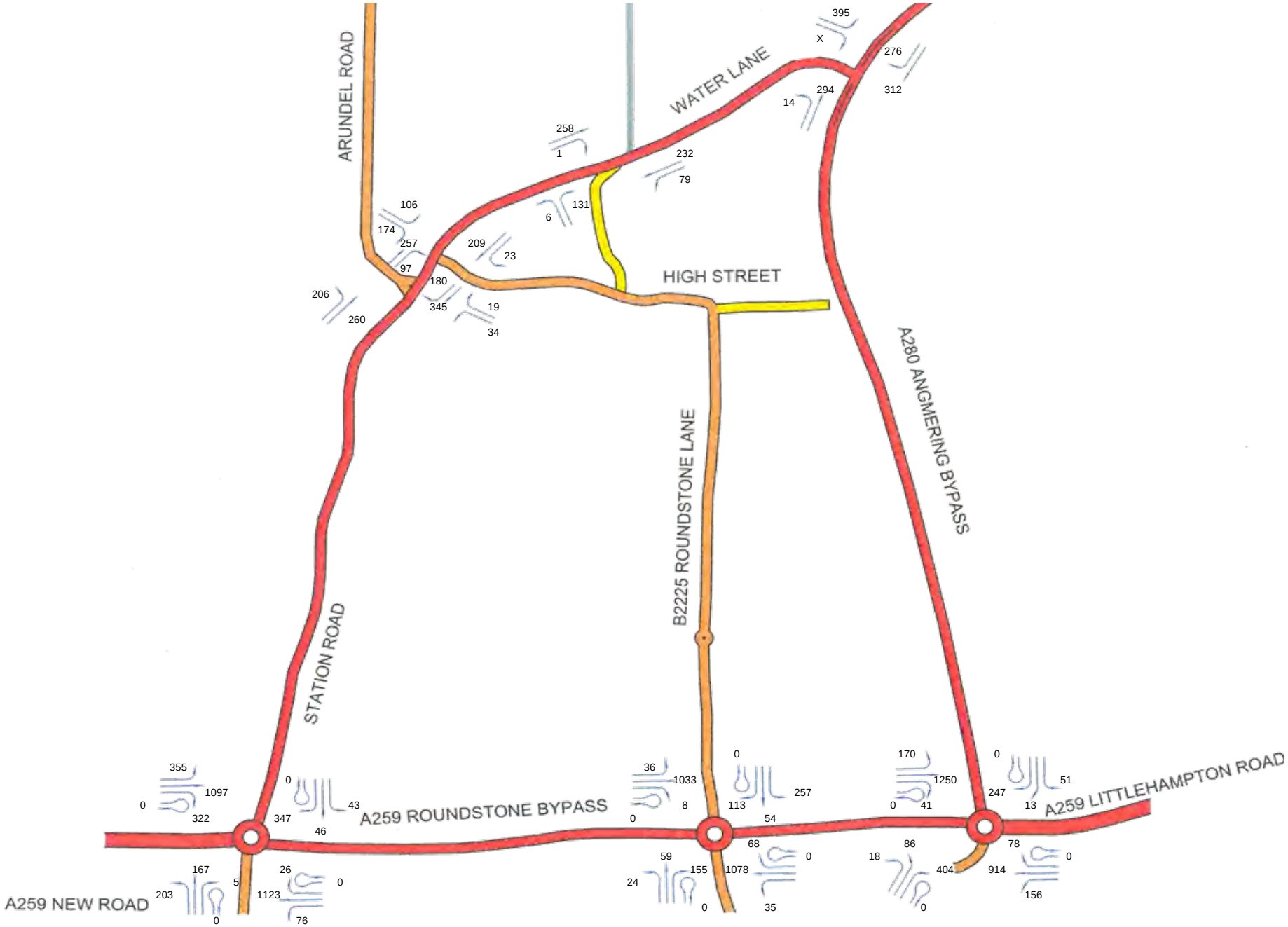
2019 8% Reduction in Private Car Trips due to Travel Plan



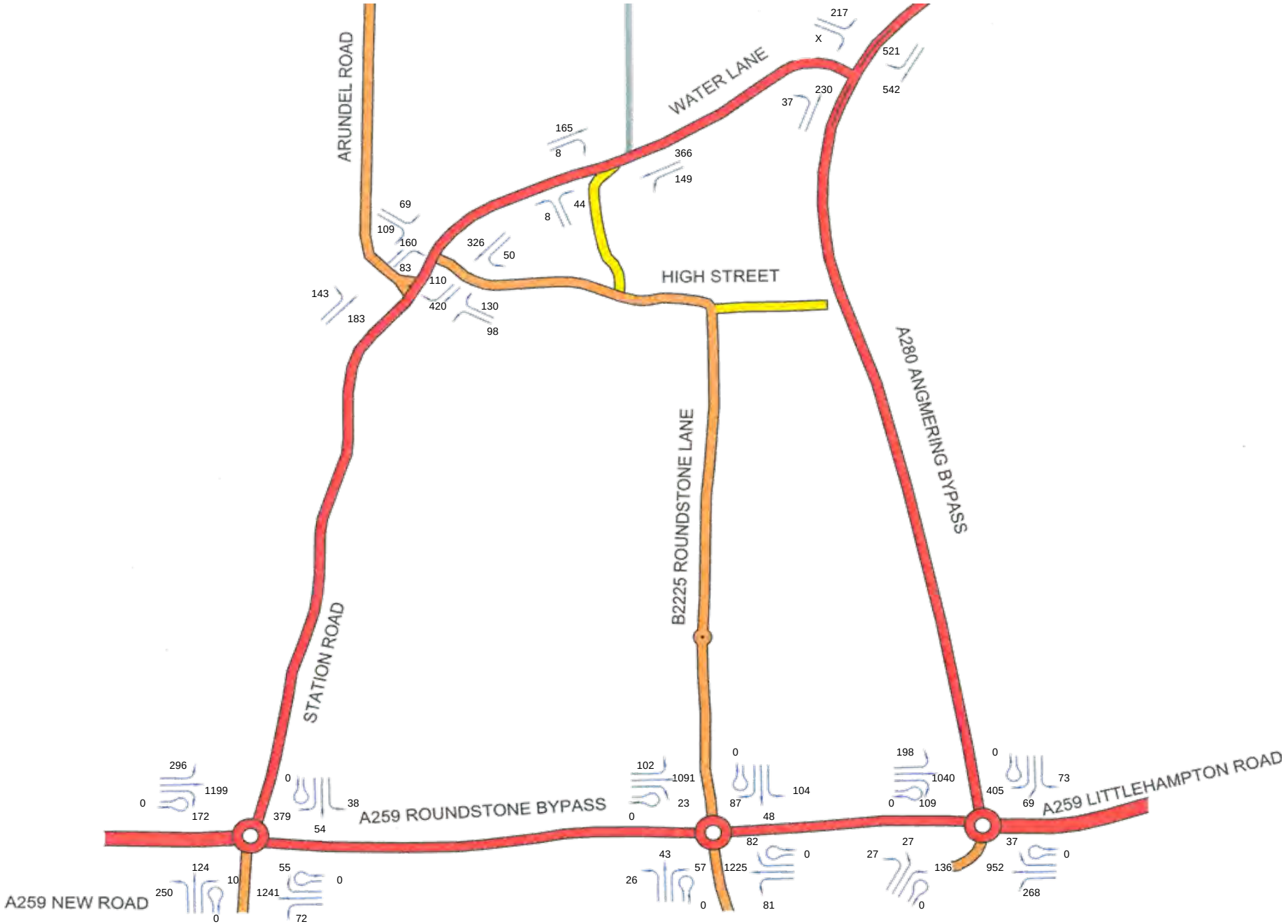
2015 Predicted Base Flows
AM Peak Hour



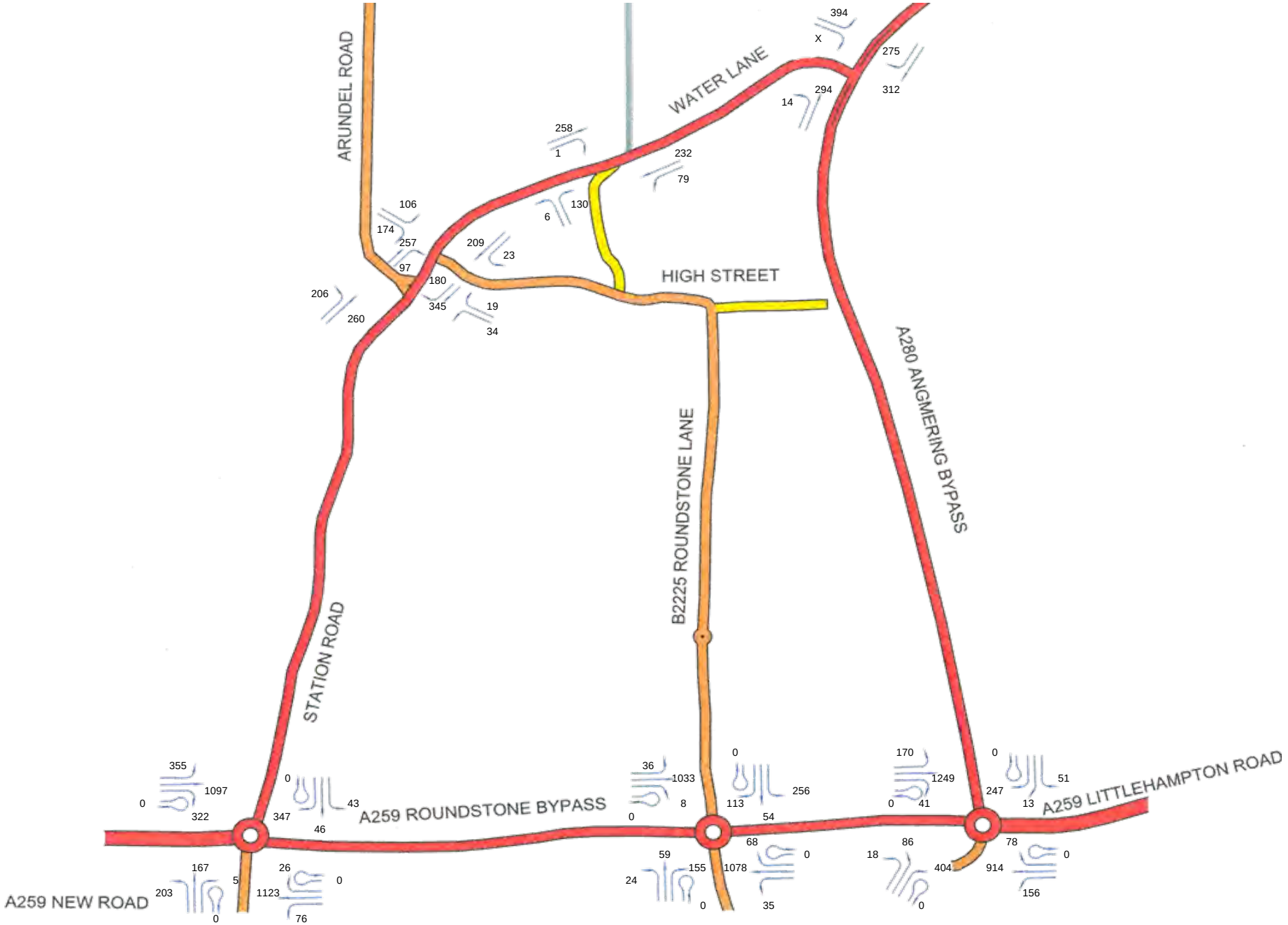
2015 Predicted Base Flows
PM Peak Hour



2015 Pre Travel Plan Predicted Flows
AM Peak Hour

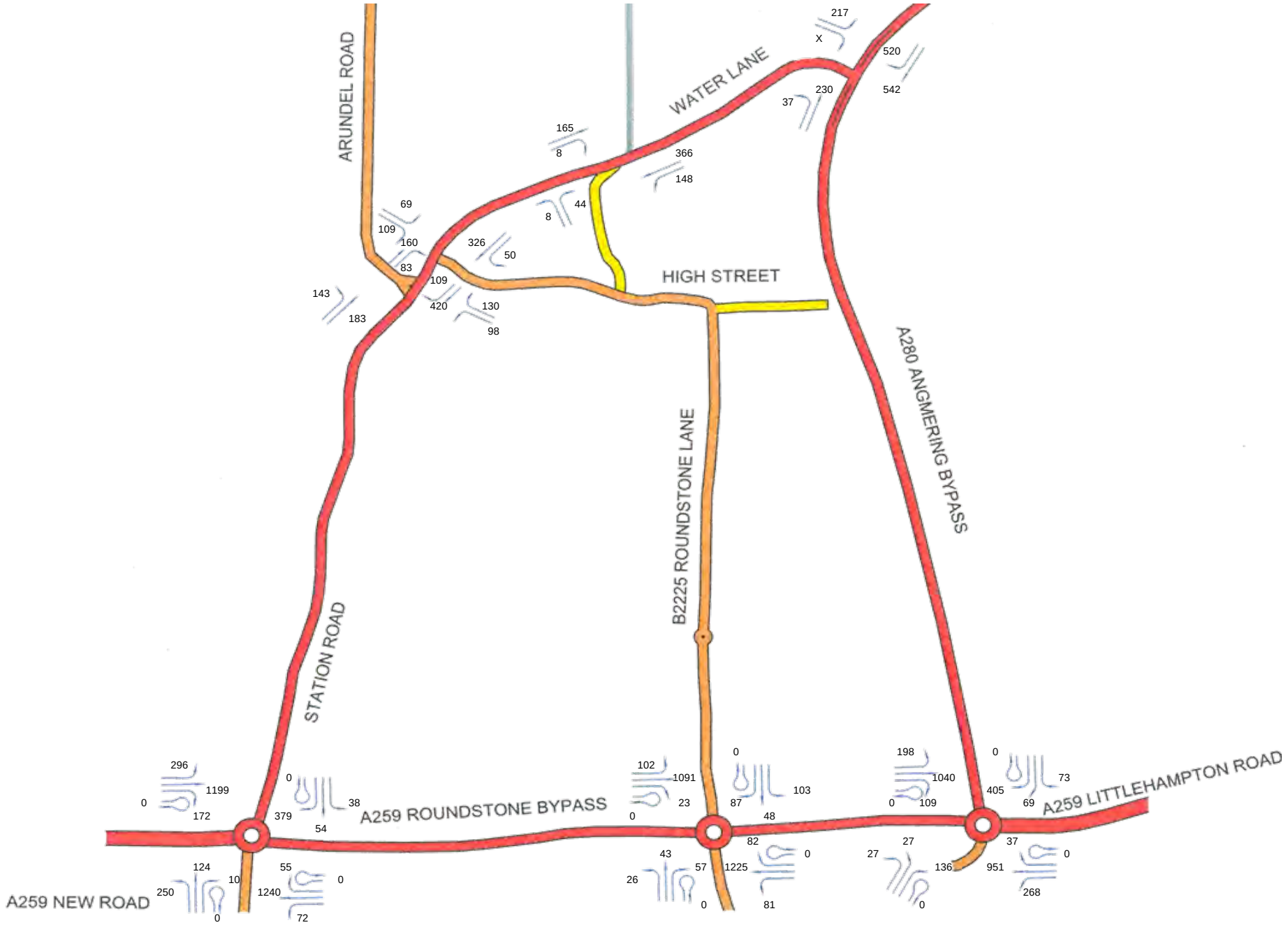


2015 Pre Travel Plan Predicted Flows
PM Peak Hour



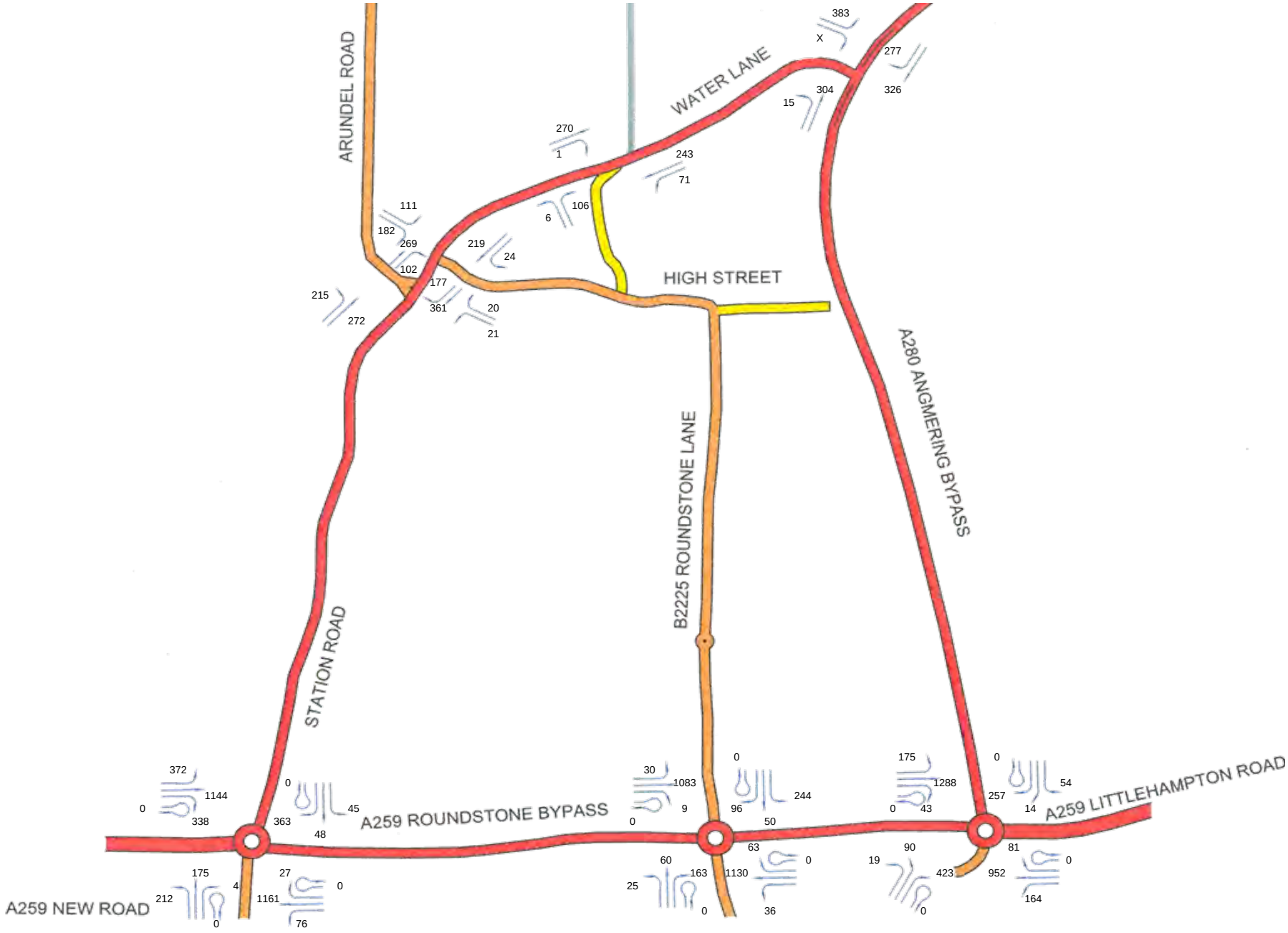
2015 Post Travel Plan Predicted Flows
AM Peak Hour

2% Reduction in Private Car Trips due to Travel Plan

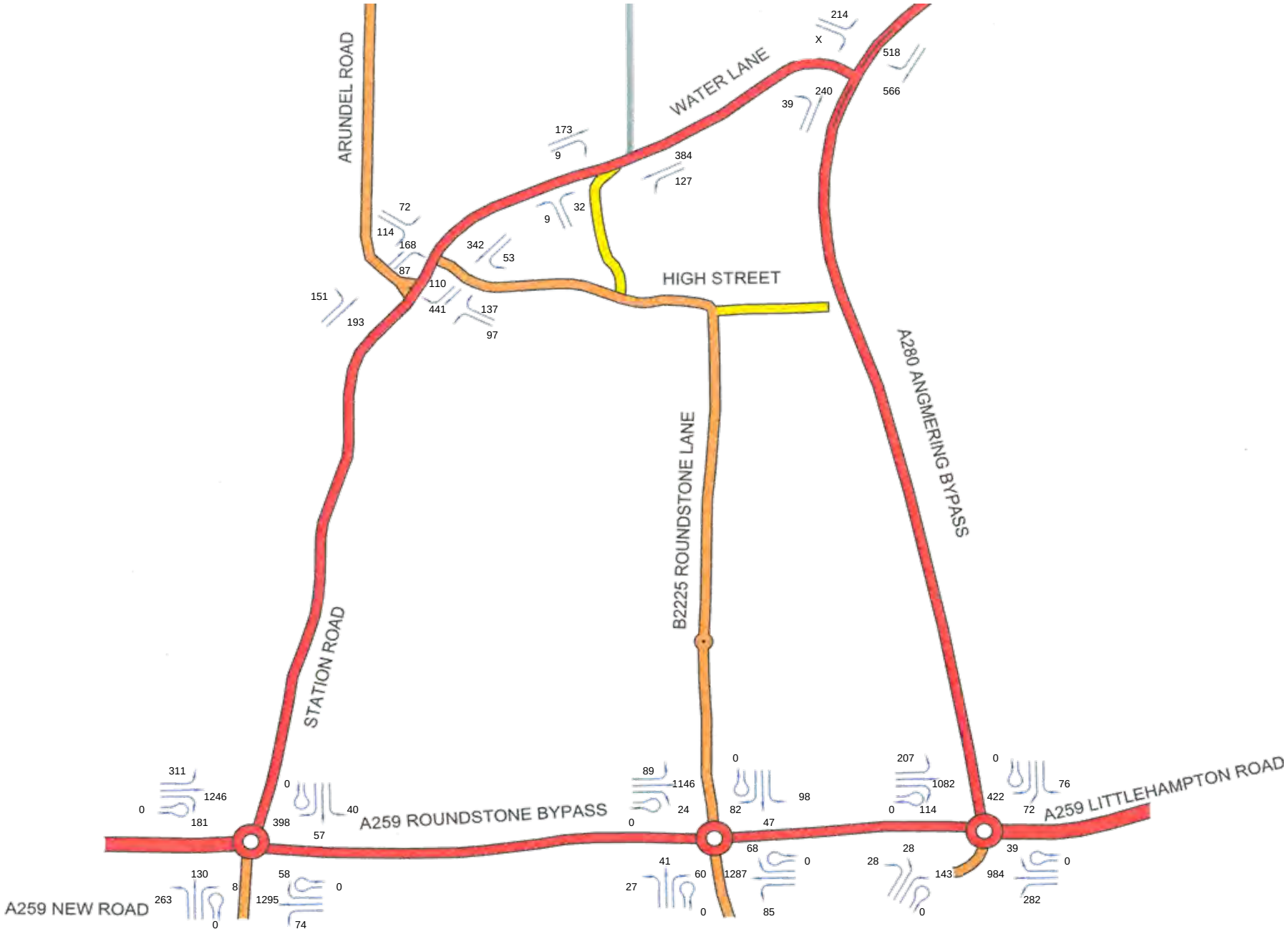


2015 Post Travel Plan Predicted Flows
PM Peak Hour

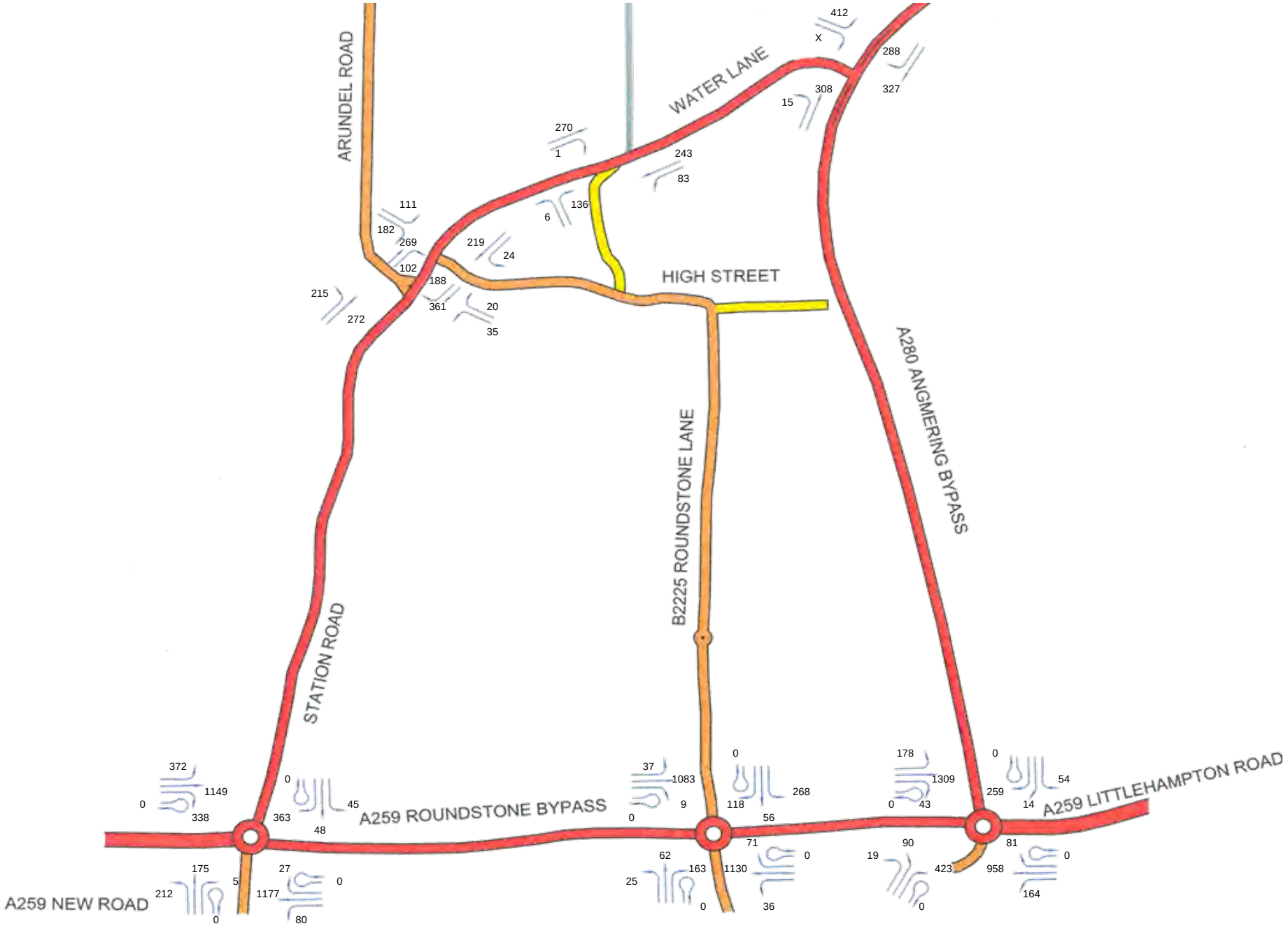
2% Reduction in Private Car Trips due to Travel Plan



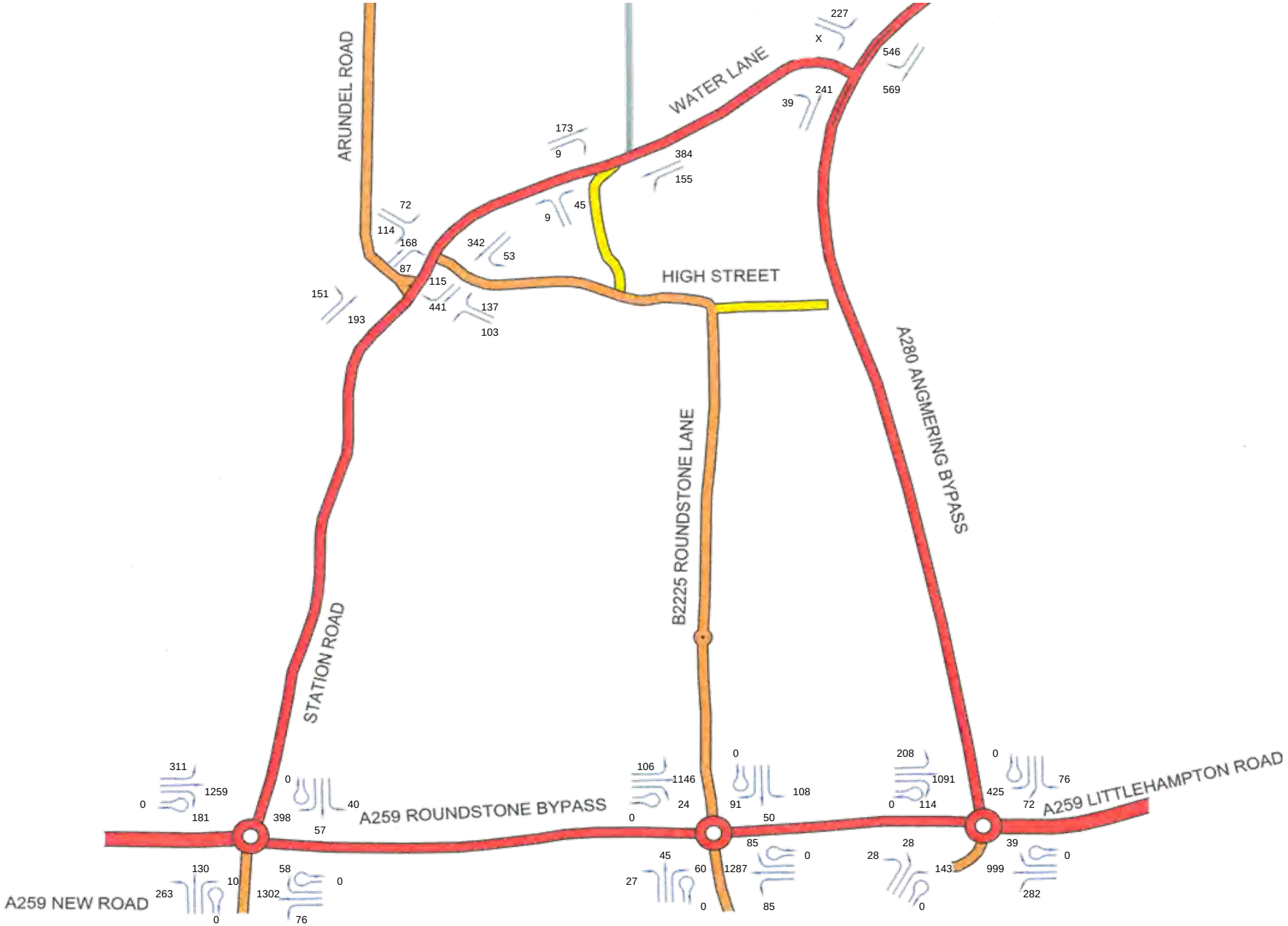
2019 Future Year Base Flows
AM Peak Hour



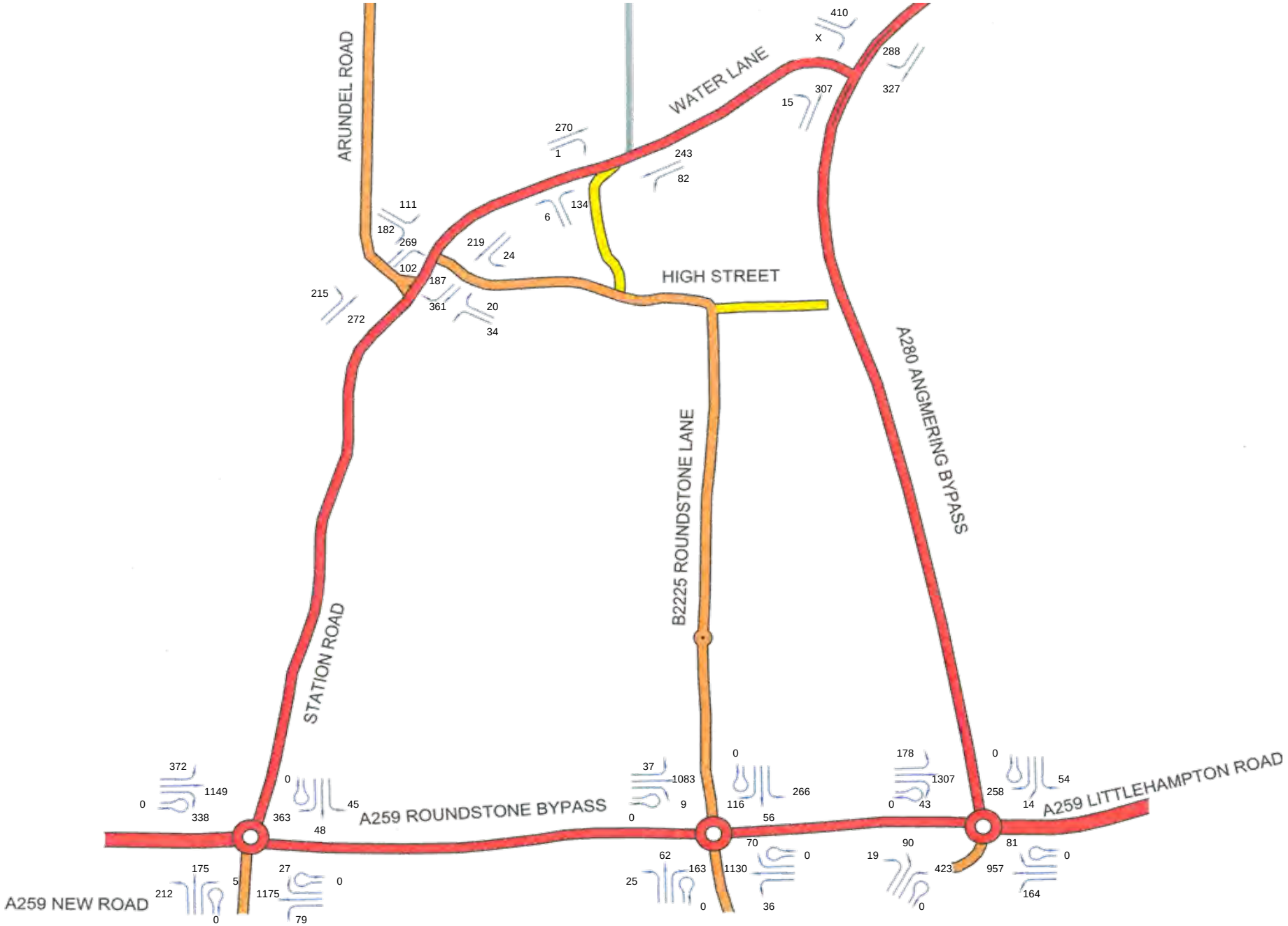
2019 Future Year Base Flows
PM Peak Hour



2019 Pre Travel Plan Predicted Flows
AM Peak Hour

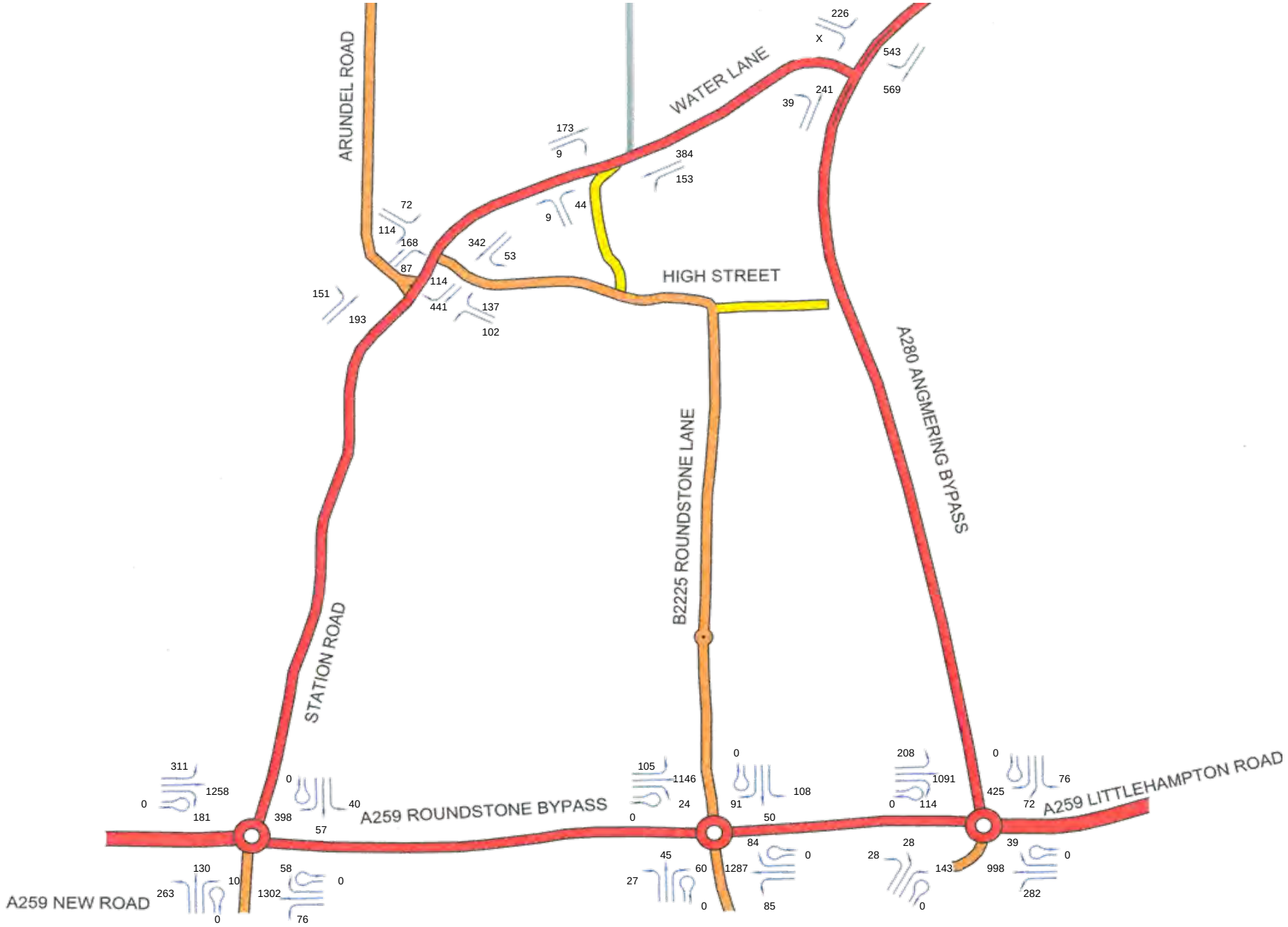


2019 Pre Travel Plan Predicted Flows
PM Peak Hour



2019 Post Travel Plan Predicted Flows
AM Peak Hour

8% Reduction in Private Car Trips due to Travel Plan



2019 Post Travel Plan Predicted Flows
PM Peak Hour

8% Reduction in Private Car Trips due to Travel Plan

Appendix 13

Junction Capacity Modelling Summary

Arundel Road - Water Lane T Junction
2011 Traffic Counts

	Weekday AM Peak			Weekday PM Peak		
	Queue (PCU)	Delay (min)	RFC	Queue (PCU)	Delay (min)	RFC
Arundel Road Left Turn	0	0.14	0.24	0	0.11	0.13
Arundel Road Right Turn	1	0.26	0.51	0	0.18	0.29
Right Turn to Arundel Road	1	0.16	0.32	0	0.13	0.19

Arundel Road - Water Lane T Junction
2015 Opening Year Base Flows

	Weekday AM Peak			Weekday PM Peak		
	Queue (PCU)	Delay (min)	RFC	Queue (PCU)	Delay (min)	RFC
Arundel Road Left Turn	0	0.14	0.23	0	0.11	0.13
Arundel Road Right Turn	1	0.27	0.53	0	0.19	0.30
Right Turn to Arundel Road	1	0.17	0.33	0	0.13	0.20

Arundel Road - Water Lane T Junction
2015 Opening Year with Pre Travel Plan Development

	Weekday AM Peak						Weekday PM Peak					
	Queue (PCU)	+	Delay (min)	+	RFC	+	Queue (PCU)	+	Delay (min)	+	RFC	+
Arundel Road Left Turn	0	0	0.14	0.00	0.23	0.00	0	0	0.11	0.00	0.13	0.00
Arundel Road Right Turn	1	0	0.27	0.00	0.54	0.01	0	0	0.19	0.00	0.31	0.00
Right Turn to Arundel Road	1	0	0.17	0.00	0.36	0.02	0	0	0.13	0.00	0.20	0.01

Arundel Road - Water Lane T Junction
2015 Opening Year with Post Travel Plan Development

	Weekday AM Peak						Weekday PM Peak					
	Queue (PCU)	+	Delay (min)	+	RFC	+	Queue (PCU)	+	Delay (min)	+	RFC	+
Arundel Road Left Turn	0	0	0.14	0.00	0.23	0.00	0	0	0.11	0.00	0.13	0.13
Arundel Road Right Turn	1	0	0.27	0.00	0.54	0.01	0	0	0.19	0.00	0.31	0.00
Right Turn to Arundel Road	1	0	0.17	0.00	0.36	0.02	0	0	0.13	0.00	0.20	0.01

Arundel Road - Water Lane T Junction
2019 Future Year without Development

	Weekday AM Peak			Weekday PM Peak		
	Queue (PCU)	Delay (min)	RFC	Queue (PCU)	Delay (min)	RFC
Arundel Road Left Turn	0	0.14	0.25	0	0.12	0.14
Arundel Road Right Turn	1	0.29	0.57	1	0.20	0.32
Right Turn to Arundel Road	1	0.18	0.35	0	0.14	0.21

Arundel Road - Water Lane T Junction
2019 Future Year with Pre Travel Plan Development

	Weekday AM Peak						Weekday PM Peak					
	Queue (PCU)	+	Delay (min)	+	RFC	+	Queue (PCU)	+	Delay (min)	+	RFC	+
Arundel Road Left Turn	0	0	0.14	0.00	0.25	0.00	0	0	0.12	0.00	0.14	0.00
Arundel Road Right Turn	1	0	0.29	0.00	0.58	0.01	1	0	0.20	0.00	0.33	0.00
Right Turn to Arundel Road	1	0	0.18	0.00	0.37	0.02	0	0	0.14	0.00	0.22	0.01

Arundel Road - Water Lane T Junction
2019 Future Year with Post Travel Plan Development

	Weekday AM Peak						Weekday PM Peak					
	Queue (PCU)	+	Delay (min)	+	RFC	+	Queue (PCU)	+	Delay (min)	+	RFC	+
Arundel Road Left Turn	0	0	0.14	0.00	0.25	0.00	0	0	0.12	0.00	0.14	0.00
Arundel Road Right Turn	1	0	0.28	-0.01	0.58	0.01	1	0	0.20	0.00	0.33	0.00
Right Turn to Arundel Road	1	0	0.18	0.00	0.37	0.02	0	0	0.14	0.00	0.21	0.01

High Street - Water Lane T Junction
2011 Traffic Counts

	Weekday AM Peak			Weekday PM Peak		
	Queue (PCU)	Delay (min)	RFC	Queue (PCU)	Delay (min)	RFC
High Street	0	0.11	0.08	1	0.17	0.44
Right Turn to High Street	0	0.13	0.18	0	0.13	0.16

High Street - Water Lane T Junction
2015 Opening Year Base Flows

	Weekday AM Peak			Weekday PM Peak		
	Queue (PCU)	Delay (min)	RFC	Queue (PCU)	Delay (min)	RFC
High Street	0	0.11	0.08	1	0.17	0.46
Right Turn to High Street	0	0.13	0.19	0	0.13	0.17

High Street - Water Lane T Junction
2015 Opening Year with Pre Travel Plan Development

	Weekday AM Peak						Weekday PM Peak					
	Queue (PCU)	+	Delay (min)	+	RFC	+	Queue (PCU)	+	Delay (min)	+	RFC	+
High Street	0	0	0.11	0.00	0.10	0.02	1	0	0.17	0.00	0.47	0.01
Right Turn to High Street	0	0	0.13	0.00	0.19	0.00	0	0	0.13	0.00	0.17	0.00

High Street - Water Lane T Junction
2015 Opening Year with Post Travel Plan Development

	Weekday AM Peak						Weekday PM Peak					
	Queue (PCU)	+	Delay (min)	+	RFC	+	Queue (PCU)	+	Delay (min)	+	RFC	+
High Street	0	0	0.11	0.00	0.10	0.02	1	0	0.17	0.00	0.47	0.01
Right Turn to High Street	0	0	0.13	0.00	0.19	0.00	0	0	0.13	0.00	0.17	0.00

High Street - Water Lane T Junction
2019 Future Year without Development

	Weekday AM Peak			Weekday PM Peak		
	Queue (PCU)	Delay (min)	RFC	Queue (PCU)	Delay (min)	RFC
High Street	0	0.11	0.08	1	0.18	0.49
Right Turn to High Street	0	0.13	0.20	0	0.13	0.18

High Street - Water Lane T Junction
2019 Future Year with Pre Travel Plan Development

	Weekday AM Peak						Weekday PM Peak					
	Queue (PCU)	+	Delay (min)	+	RFC	+	Queue (PCU)	+	Delay (min)	+	RFC	+
High Street	0	0	0.11	0.00	0.10	0.02	1	0	0.18	0.00	0.50	0.01
Right Turn to High Street	0	0	0.13	0.00	0.20	0.00	0	0	0.13	0.00	0.18	0.00

High Street - Water Lane T Junction
2019 Future Year with Post Travel Plan Development

	Weekday AM Peak						Weekday PM Peak					
	Queue (PCU)	+	Delay (min)	+	RFC	+	Queue (PCU)	+	Delay (min)	+	RFC	+
High Street	0	0	0.11	0.00	0.10	0.02	1	0	0.18	0.00	0.50	0.01
Right Turn to High Street	0	0	0.13	0.00	0.20	0.00	0	0	0.13	0.00	0.18	0.00

Weavers Hill - Water Lane T Junction
2011 Traffic Counts

	Weekday AM Peak			Weekday PM Peak		
	Queue (PCU)	Delay (min)	RFC	Queue (PCU)	Delay (min)	RFC
Weavers Hill	0	0.16	0.25	0	0.14	0.10
Right Turn to Weavers Hill	0	0.09	0.00	0	0.10	0.02

Weavers Hill - Water Lane T Junction
2015 Opening Year Base Flows

	Weekday AM Peak			Weekday PM Peak		
	Queue (PCU)	Delay (min)	RFC	Queue (PCU)	Delay (min)	RFC
Weavers Hill	0	0.16	0.26	0	0.14	0.10
Right Turn to Weavers Hill	0	0.09	0.00	0	0.10	0.02

Weavers Hill - Water Lane T Junction
2015 Opening Year with Pre Travel Plan Development

	Weekday AM Peak						Weekday PM Peak					
	Queue (PCU)	+	Delay (min)	+	RFC	+	Queue (PCU)	+	Delay (min)	+	RFC	+
Weavers Hill	1	0	0.17	0.01	0.33	0.07	0	0	0.15	0.01	0.14	0.04
Right Turn to Weavers Hill	0	0	0.09	0.00	0.00	0.00	0	0	0.10	0.00	0.02	0.00

Weavers Hill - Water Lane T Junction
2015 Opening Year with Post Travel Plan Development

	Weekday AM Peak						Weekday PM Peak					
	Queue (PCU)	+	Delay (min)	+	RFC	+	Queue (PCU)	+	Delay (min)	+	RFC	+
Weavers Hill	1	0	0.17	0.01	0.33	0.07	0	0	0.15	0.01	0.14	0.04
Right Turn to Weavers Hill	0	0	0.09	0.00	0.00	0.00	0	0	0.10	0.00	0.02	0.00

Weavers Hill - Water Lane T Junction
2019 Future Year without Development

	Weekday AM Peak			Weekday PM Peak		
	Queue (PCU)	Delay (min)	RFC	Queue (PCU)	Delay (min)	RFC
Weavers Hill	0	0.16	0.27	0	0.14	0.11
Right Turn to Weavers Hill	0	0.09	0.00	0	0.10	0.02

Weavers Hill - Water Lane T Junction
2019 Future Year with Pre Travel Plan Development

	Weekday AM Peak						Weekday PM Peak					
	Queue (PCU)	+	Delay (min)	+	RFC	+	Queue (PCU)	+	Delay (min)	+	RFC	+
Weavers Hill	1	0	0.18	0.02	0.35	0.08	0	0	0.15	0.01	0.14	0.04
Right Turn to Weavers Hill	0	0	0.09	0.00	0.00	0.00	0	0	0.11	0.01	0.02	0.00

Weavers Hill - Water Lane T Junction
2019 Future Year with Post Travel Plan Development

	Weekday AM Peak						Weekday PM Peak					
	Queue (PCU)	+	Delay (min)	+	RFC	+	Queue (PCU)	+	Delay (min)	+	RFC	+
Weavers Hill	1	0	0.18	0.02	0.34	0.07	0	0	0.15	0.01	0.14	0.04
Right Turn to Weavers Hill	0	0	0.09	0.00	0.00	0.00	0	0	0.11	0.01	0.02	0.00

Water Lane - A280 Angmering Bypass T Junction
2011 Traffic Counts Calibrated Model

	Weekday AM Peak			Weekday PM Peak		
	Queue (PCU)	Delay (min)	RFC	Queue (PCU)	Delay (min)	RFC
Water Lane	5	0.43	0.84	1	0.20	0.46
Right Turn to Water Lane	1	0.14	0.43	4	0.29	0.80

Water Lane - A280 Angmering Bypass T Junction
2015 Opening Year Base Flows

	Weekday AM Peak			Weekday PM Peak		
	Queue (PCU)	Delay (min)	RFC	Queue (PCU)	Delay (min)	RFC
Water Lane	5	0.46	0.86	1	0.20	0.47
Right Turn to Water Lane	1	0.14	0.46	4	0.31	0.82

Water Lane - A280 Angmering Bypass T Junction
2015 Opening Year with Pre Travel Plan Development

	Weekday AM Peak						Weekday PM Peak					
	Queue (PCU)	+	Delay (min)	+	RFC	+	Queue (PCU)	+	Delay (min)	+	RFC	+
Water Lane	9	3	0.62	0.16	0.93	0.07	1	0	0.21	0.01	0.50	0.03
Right Turn to Water Lane	1	0	0.15	0.01	0.47	0.01	6	2	0.36	0.05	0.87	0.05

Water Lane - A280 Angmering Bypass T Junction
2015 Opening Year with Post Travel Plan Development

	Weekday AM Peak						Weekday PM Peak					
	Queue (PCU)	+	Delay (min)	+	RFC	+	Queue (PCU)	+	Delay (min)	+	RFC	+
Water Lane	8	3	0.61	0.15	0.93	0.07	1	0	0.21	0.01	0.50	0.03
Right Turn to Water Lane	1	0	0.15	0.01	0.46	0.01	6	1	0.36	0.05	0.87	0.05

Water Lane - A280 Angmering Bypass T Junction
2019 Future Year without Development

	Weekday AM Peak			Weekday PM Peak		
	Queue (PCU)	Delay (min)	RFC	Queue (PCU)	Delay (min)	RFC
Water Lane	7	0.56	0.91	1	0.21	0.50
Right Turn to Water Lane	1	0.15	0.47	6	0.36	0.87

Water Lane - A280 Angmering Bypass T Junction
2019 Future Year with Pre Travel Plan Development

	Weekday AM Peak						Weekday PM Peak					
	Queue (PCU)	+	Delay (min)	+	RFC	+	Queue (PCU)	+	Delay (min)	+	RFC	+
Water Lane	13	5	0.80	0.24	0.98	0.07	1	0	0.22	0.01	0.53	0.03
Right Turn to Water Lane	1	0	0.15	0.00	0.49	0.02	8	2	0.44	0.08	0.91	0.05

Water Lane - A280 Angmering Bypass T Junction
2019 Future Year with Post Travel Plan Development

	Weekday AM Peak						Weekday PM Peak					
	Queue (PCU)	+	Delay (min)	+	RFC	+	Queue (PCU)	+	Delay (min)	+	RFC	+
Water Lane	12	5	0.77	0.21	0.97	0.07	1	0	0.22	0.01	0.52	0.03
Right Turn to Water Lane	1	0	0.15	0.00	0.49	0.02	8	2	0.43	0.07	0.91	0.04

Modelling Summary

Station Road Roundabout
2011 Traffic Counts Calibrated Model

	Weekday AM Peak			Weekday PM Peak		
	Queue (PCU)	Delay (min)	RFC	Queue (PCU)	Delay (min)	RFC
A259 Roundstone Bypass	3	0.15	0.75	4	0.18	0.81
Station Road (South)	1	0.18	0.54	2	0.26	0.63
A259 New Road	4	0.12	0.78	3	0.09	0.73
Station Road (South)	3	0.42	0.76	4	0.46	0.80

Station Road Roundabout
2015 Opening Year Base Flows

	Weekday AM Peak			Weekday PM Peak		
	Queue (PCU)	Delay (min)	RFC	Queue (PCU)	Delay (min)	RFC
A259 Roundstone Bypass	4	0.16	0.77	5	0.20	0.83
Station Road (South)	1	0.19	0.57	2	0.30	0.67
A259 New Road	4	0.13	0.80	3	0.10	0.75
Station Road (South)	4	0.49	0.80	5	0.56	0.83

Station Road Roundabout
2015 Opening Year with Pre Travel Plan Development

	Weekday AM Peak						Weekday PM Peak					
	Queue (PCU)	+	Delay (min)	+	RFC	+	Queue (PCU)	+	Delay (min)	+	RFC	+
A259 Roundstone Bypass	4	0	0.17	0.01	0.79	0.02	5	0	0.21	0.01	0.84	0.01
Station Road (South)	1	0	0.20	0.01	0.57	0.00	2	0	0.31	0.01	0.68	0.01
A259 New Road	4	0	0.13	0.00	0.80	0.00	3	0	0.10	0.00	0.75	0.00
Station Road (South)	4	0	0.50	0.01	0.80	0.00	5	0	0.60	0.04	0.84	0.01

Station Road Roundabout
2015 Opening Year with Post Travel Plan Development

	Weekday AM Peak						Weekday PM Peak					
	Queue (PCU)	+	Delay (min)	+	RFC	+	Queue (PCU)	+	Delay (min)	+	RFC	+
A259 Roundstone Bypass	4	0	0.17	0.01	0.79	0.02	5	0	0.21	0.01	0.84	0.01
Station Road (South)	1	0	0.20	0.01	0.57	0.00	2	0	0.31	0.01	0.68	0.01
A259 New Road	4	0	0.13	0.00	0.80	0.00	3	0	0.10	0.00	0.75	0.00
Station Road (South)	4	0	0.50	0.01	0.80	0.00	5	0	0.60	0.04	0.84	0.01

Station Road Roundabout
2019 Future Year without Development

	Weekday AM Peak			Weekday PM Peak		
	Queue (PCU)	Delay (min)	RFC	Queue (PCU)	Delay (min)	RFC
A259 Roundstone Bypass	5	0.21	0.82	7	0.29	0.89
Station Road (South)	2	0.24	0.62	3	0.43	0.76
A259 New Road	5	0.16	0.84	4	0.12	0.79
Station Road (South)	6	0.78	0.88	8	0.98	0.92

Station Road Roundabout
2019 Future Year with Pre Travel Plan Development

	Weekday AM Peak						Weekday PM Peak					
	Queue (PCU)	+	Delay (min)	+	RFC	+	Queue (PCU)	+	Delay (min)	+	RFC	+
A259 Roundstone Bypass	5	0	0.22	0.01	0.83	0.01	8	0	0.30	0.01	0.89	0.00
Station Road (South)	2	0	0.25	0.01	0.63	0.01	3	0	0.45	0.02	0.77	0.01
A259 New Road	5	0	0.16	0.00	0.85	0.01	4	0	0.12	0.00	0.79	0.00
Station Road (South)	6	0	0.80	0.02	0.88	0.00	9	1	1.05	0.07	0.93	0.01

Station Road Roundabout
2019 Future Year with Post Travel Plan Development

	Weekday AM Peak						Weekday PM Peak					
	Queue (PCU)	+	Delay (min)	+	RFC	+	Queue (PCU)	+	Delay (min)	+	RFC	+
A259 Roundstone Bypass	5	0	0.22	0.01	0.83	0.01	8	0	0.30	0.01	0.89	0.00
Station Road (South)	2	0	0.24	0.00	0.63	0.01	3	0	0.45	0.02	0.77	0.01
A259 New Road	5	0	0.16	0.00	0.85	0.01	4	0	0.12	0.00	0.79	0.00
Station Road (South)	6	0	0.80	0.02	0.88	0.00	9	1	1.05	0.07	0.93	0.01

Roundstone Lane Roundabout
2011 Traffic Counts Calibrated Model

	Weekday AM Peak			Weekday PM Peak		
	Queue (PCU)	Delay (min)	RFC	Queue (PCU)	Delay (min)	RFC
A259 Roundstone Lane (East)	2	0.11	0.68	4	0.16	0.80
Roundstone Lane (South)	0	0.10	0.30	0	0.10	0.17
A259 Roundstone Lane (West)	1	0.08	0.58	2	0.08	0.63
Roundstone Lane (North)	1	0.15	0.50	0	0.10	0.28

Roundstone Lane Roundabout
2015 Opening Year Base Flows

	Weekday AM Peak			Weekday PM Peak		
	Queue (PCU)	Delay (min)	RFC	Queue (PCU)	Delay (min)	RFC
A259 Roundstone Lane (East)	2	0.11	0.70	4	0.18	0.82
Roundstone Lane (South)	0	0.11	0.31	0	0.10	0.18
A259 Roundstone Lane (West)	2	0.08	0.60	2	0.08	0.64
Roundstone Lane (North)	1	0.16	0.52	0	0.11	0.30

Roundstone Lane Roundabout
2015 Opening Year with Pre Travel Plan Development

	Weekday AM Peak						Weekday PM Peak					
	Queue (PCU)	+	Delay (min)	+	RFC	+	Queue (PCU)	+	Delay (min)	+	RFC	+
A259 Roundstone Lane (East)	3	0	0.12	0.01	0.71	0.01	5	0	0.19	0.01	0.83	0.01
Roundstone Lane (South)	0	0	0.11	0.00	0.32	0.01	0	0	0.10	0.00	0.19	0.01
A259 Roundstone Lane (West)	2	0	0.08	0.00	0.60	0.00	2	0	0.09	0.01	0.66	0.02
Roundstone Lane (North)	1	0	0.19	0.03	0.59	0.07	0	0	0.11	0.00	0.33	0.03

Roundstone Lane Roundabout
2015 Opening Year with Post Travel Plan Development

	Weekday AM Peak						Weekday PM Peak					
	Queue (PCU)	+	Delay (min)	+	RFC	+	Queue (PCU)	+	Delay (min)	+	RFC	+
A259 Roundstone Lane (East)	3	0	0.12	0.01	0.71	0.01	5	0	0.19	0.01	0.83	0.01
Roundstone Lane (South)	0	0	0.11	0.00	0.32	0.01	0	0	0.10	0.00	0.19	0.01
A259 Roundstone Lane (West)	2	0	0.08	0.00	0.60	0.00	2	0	0.09	0.01	0.66	0.02
Roundstone Lane (North)	1	0	0.19	0.03	0.59	0.07	0	0	0.11	0.00	0.33	0.03

Roundstone Lane Roundabout
2019 Future Year without Development

	Weekday AM Peak			Weekday PM Peak		
	Queue (PCU)	Delay (min)	RFC	Queue (PCU)	Delay (min)	RFC
A259 Roundstone Lane (East)	3	0.13	0.73	6	0.23	0.86
Roundstone Lane (South)	1	0.12	0.34	0	0.11	0.20
A259 Roundstone Lane (West)	2	0.09	0.63	2	0.09	0.68
Roundstone Lane (North)	1	0.19	0.57	0	0.12	0.33

Roundstone Lane Roundabout
2019 Future Year with Pre Travel Plan Development

	Weekday AM Peak						Weekday PM Peak					
	Queue (PCU)	+	Delay (min)	+	RFC	+	Queue (PCU)	+	Delay (min)	+	RFC	+
A259 Roundstone Lane (East)	3	0	0.14	0.01	0.75	0.02	7	1	0.26	0.03	0.87	0.01
Roundstone Lane (South)	1	0	0.12	0.00	0.35	0.01	0	0	0.11	0.00	0.21	0.01
A259 Roundstone Lane (West)	2	0	0.09	0.00	0.63	0.00	2	0	0.10	0.01	0.69	0.01
Roundstone Lane (North)	2	0	0.23	0.04	0.65	0.08	1	0	0.12	0.00	0.36	0.03

Roundstone Lane Roundabout
2019 Future Year with Post Travel Plan Development

	Weekday AM Peak						Weekday PM Peak					
	Queue (PCU)	+	Delay (min)	+	RFC	+	Queue (PCU)	+	Delay (min)	+	RFC	+
A259 Roundstone Lane (East)	3	0	0.14	0.01	0.75	0.02	7	1	0.26	0.03	0.87	0.01
Roundstone Lane (South)	1	0	0.12	0.00	0.35	0.01	0	0	0.11	0.00	0.21	0.01
A259 Roundstone Lane (West)	2	0	0.09	0.00	0.63	0.00	2	0	0.10	0.01	0.69	0.01
Roundstone Lane (North)	2	0	0.23	0.04	0.64	0.07	1	0	0.12	0.00	0.36	0.03

A280 Agmering Bypass Roundabout
2011 Traffic Counts Calibrated Model

	Weekday AM Peak			Weekday PM Peak		
	Queue (PCU)	Delay (min)	RFC	Queue (PCU)	Delay (min)	RFC
A259 Littlehampton Road	3	0.17	0.77	9	0.41	0.91
Old Worthing Road	4	0.42	0.79	0	0.15	0.32
A259 Roundstone Bypass	2	0.08	0.66	1	0.05	0.54
A280 Angmering Bypass	2	0.29	0.60	4	0.48	0.83

A280 Agmering Bypass Roundabout
2015 Opening Year Base Flows

	Weekday AM Peak			Weekday PM Peak		
	Queue (PCU)	Delay (min)	RFC	Queue (PCU)	Delay (min)	RFC
A259 Littlehampton Road	4	0.19	0.79	11	0.52	0.93
Old Worthing Road	4	0.49	0.82	1	0.15	0.33
A259 Roundstone Bypass	2	0.08	0.68	1	0.05	0.56
A280 Angmering Bypass	2	0.32	0.63	6	0.59	0.86

A280 Agmering Bypass Roundabout
2015 Opening Year with Pre Travel Plan Development

	Weekday AM Peak						Weekday PM Peak					
	Queue (PCU)	+	Delay (min)	+	RFC	+	Queue (PCU)	+	Delay (min)	+	RFC	+
A259 Littlehampton Road	4	0	0.19	0.00	0.79	0.00	13	2	0.59	0.07	0.94	0.01
Old Worthing Road	4	0	0.50	0.01	0.83	0.01	1	0	0.15	0.00	0.34	0.01
A259 Roundstone Bypass	2	0	0.09	0.01	0.69	0.01	1	0	0.05	0.00	0.56	0.00
A280 Angmering Bypass	2	0	0.34	0.02	0.64	0.01	6	0	0.63	0.04	0.87	0.01

A280 Agmering Bypass Roundabout
2015 Opening Year with Post Travel Plan Development

	Weekday AM Peak						Weekday PM Peak					
	Queue (PCU)	+	Delay (min)	+	RFC	+	Queue (PCU)	+	Delay (min)	+	RFC	+
A259 Littlehampton Road	4	0	0.19	0.00	0.79	0.00	13	1	0.58	0.06	0.94	0.01
Old Worthing Road	4	0	0.50	0.01	0.83	0.01	1	0	0.15	0.00	0.34	0.01
A259 Roundstone Bypass	2	0	0.09	0.01	0.69	0.01	1	0	0.05	0.00	0.56	0.00
A280 Angmering Bypass	2	0	0.33	0.01	0.64	0.01	6	0	0.63	0.04	0.87	0.01

A280 Agmering Bypass Roundabout
2019 Future Year without Development

	Weekday AM Peak			Weekday PM Peak		
	Queue (PCU)	Delay (min)	RFC	Queue (PCU)	Delay (min)	RFC
A259 Littlehampton Road	5	0.23	0.83	22	0.93	0.99
Old Worthing Road	7	0.74	0.89	1	0.16	0.36
A259 Roundstone Bypass	3	0.10	0.72	1	0.06	0.59
A280 Angmering Bypass	2	0.41	0.70	10	1.01	0.94

A280 Agmering Bypass Roundabout
2019 Future Year with Pre Travel Plan Development

	Weekday AM Peak						Weekday PM Peak					
	Queue (PCU)	+	Delay (min)	+	RFC	+	Queue (PCU)	+	Delay (min)	+	RFC	+
A259 Littlehampton Road	5	0	0.24	0.01	0.84	0.01	26	4	1.07	0.14	1.00	0.01
Old Worthing Road	7	0	0.76	0.02	0.89	0.00	1	0	0.16	0.00	0.36	0.00
A259 Roundstone Bypass	3	0	0.10	0.00	0.73	0.01	1	0	0.06	0.00	0.59	0.00
A280 Angmering Bypass	3	0	0.44	0.03	0.71	0.01	11	1	1.08	0.07	0.95	0.01

A280 Agmering Bypass Roundabout
2019 Future Year with Post Travel Plan Development

	Weekday AM Peak						Weekday PM Peak					
	Queue (PCU)	+	Delay (min)	+	RFC	+	Queue (PCU)	+	Delay (min)	+	RFC	+
A259 Littlehampton Road	5	0	0.24	0.01	0.83	0.00	25	4	1.06	0.13	1.00	0.01
Old Worthing Road	7	0	0.76	0.02	0.89	0.00	1	0	0.16	0.00	0.36	0.00
A259 Roundstone Bypass	3	0	0.10	0.00	0.73	0.01	1	0	0.06	0.00	0.59	0.00
A280 Angmering Bypass	3	0	0.43	0.02	0.71	0.01	11	1	1.08	0.07	0.95	0.01

Modelling Summary

Appendix 14

Previous Planning Consultation Comments and Response Documents

WEST SUSSEX COUNTY COUNCIL **DATE: 6 September 2012**
STRATEGIC PLANNING CONSULTATION

FROM: **Matthew Bartle** **TO:** **Arun District Council**
FAO: **Paul Stack**

SUBJECT: **A/82/12 - Residential development comprising 150 x dwellings including 30% affordable with access, landscaping, open space & associated works (this application is a Departure from the Development Plan).**

Land East Of, Roundstone Lane, Angmering, West Sussex, BN16 4AL

CONSULTATION DATE: **24 August 2012**

RECOMMENDATION:

Advice	X	**Modification**		**More Information**	X
Objection		**No Objection**		**Refusal**	

S106 contribution: £ to follow

The following points should be addressed by the applicant before the County Council is able to consider the highway and transport impacts of the application further:

Junction assessments: These do not appear to be consistent with observed traffic conditions on the A259 or at Water Lane/A283. The queue lengths in Appendix 11 appear to be lower than actual observed queue lengths during the morning and evening peak hours. Further detail should be provided on the junction assessments relating to the A259 to explain the relationship between observed congestion and the technical junction assessments. The A283 Angmering Bypass/Water Lane junction is also subject to congestion with traffic queuing (for example) from the traffic calming build-outs on Water Lane to the junction, causing the right-turn lane on the A283 to exceed capacity.

The junction of the A259 and Roundstone Lane appears to have a narrow exit arm from Roundstone Lane which reduces capacity on the arm. Further information should be provided on this aspect of the junction and whether alterations to the kerb line would be beneficial.

Site access junction: There is concern that the proposed configuration of the junction does not relate well to the existing traffic calming on Roundstone Lane. The safety auditor comments:

Despite traffic calming features on Roundstone Lane it was noted by the Audit Team that many vehicles were proceeding at inappropriate speeds for this class and type of road.

This implies that the existing traffic calming is not effective and the proposed raised table at the site access junction does not appear to introduce a feature which would reduce speeds on Roundstone Lane. Paragraph 5.7.5 in the transport assessment does not appear to be consistent with the auditor's comment. Further information should be provided justifying the choice of junction configuration and indicating how it relates to and improves the effectiveness of the existing traffic calming.

Evidence should be provided of existing vehicle speeds on Roundstone Lane at or near the site access and how the proposed configuration of the junction would contribute to their reduction. This

should form part of a signed design audit of the proposal, indicating which design standards have been used and justifying any departures from the standards used. The road safety auditor's opinion should be sought on the proposed design and whether it meets the concerns expressed in the road safety audit and takes account of the use of Roundstone Lane by buses. (Note that signatures are required for the road safety audit, designer's response and any further opinion from the road safety auditor.) The needs of pedestrians, cyclists and mobility-impaired people should be accounted for within the junction design.

No capacity modelling appears to have been carried out on the proposed site access junction and this should be addressed.

The proposed retaining structures at the junction will require Approval in Principle before they can be constructed as part of a Section 278 highway agreement. While this is not required for any planning consent, the applicant should ensure that it is feasible to construct the structures within existing or proposed highway land.

Site sustainability: There is a network of roads and paths to the west of the site and there are public rights of way along the east and south sides of the site. The only bus service adjacent to the site is the 9 between Lancing & Littlehampton which passes along Roundstone Lane. Local amenities are said to be within a "short walk" of the site, though this is not defined in distance or time. It is not clear whether the proposed travel plan would be effective in mitigating any deficiencies in access to services. Further information should be provided on access to facilities and public transport and how it is proposed to improve access to more frequent bus services that the 9 and to Angmering railway station. Proposals to improve bus stops adjacent to the site should be considered. It is not clear how the public rights of way adjacent to the site would be accessed and further details should be provided.

Internal road layout: It would be helpful if a more detailed plan could be provided showing how provision will be made within the site for pedestrians, cyclists and mobility-impaired people. It is not clear from the refuse tracking layout (plan 4528:P90) whether footways or shared surfaces will be provided, nor whether access for emergency vehicles has been considered. Evidence that the Fire & Rescue service has been consulted should be provided.

Construction Management Plan: While a detailed Plan is not required at this stage, further details of the traffic management aspects of construction, including vehicle routing and parking, should be provided.

Matthew Bartle
Strategic Planning

Response to WSCC Strategic Planning Consultation Comments dated 6 September 2012

Proposed housing development at

Roundstone Lane, Angmering
Arun Planning Application A/82/12

On behalf of

Barratt David Wilson Southampton

23 November 2012

the Civil Engineering Practice

The Civil Engineering Practice
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This note is prepared on behalf of the Applicant to respond to the content of the WSCC Strategic Planning Consultation response to Arun District Council dated 6 September 2012. We respond paragraph by paragraph with the WSCC comments in blue for clarity.

'Junction assessments: These do not appear to be consistent with observed traffic conditions on the A259 or at Water Lane/A283. The queue lengths in Appendix 11 appear to be lower than actual observed queue lengths during the morning and evening peak hours. Further detail should be provided on the junction assessments relating to the A259 to explain the relationship between observed congestion and the technical junction assessments.'

Queue length data taken during the traffic survey together with a summary in table and also schematic format is attached in Appendix 1 at the rear of this note.

The observed lengths in vehicles were noted every five minutes by the survey company. The summary queue lengths compiled by us from this data are mean average PCUs to match the definition of queue in TRL's ARCADY method. Capacity models are based on geometrical measurements taken from Ordnance Survey and aerial photograph. Percentage arm capacity adjustments have been undertaken where necessary such that the output from the ARCADY base model shows similar results.

We believe this industry standard approach provides adequately representative models however there are two reasons the traffic conditions observed might differ from the modelling results which are worth noting before attempting to produce more 'accurate' models:

1 – Natural variance and definition of queue. The queues reported from ARCADY are mean average static queues over time segments. This does not include slow moving traffic approaching a junction or demonstrate the maximum observable number of stopped vehicles at any particular time or any particular day. It can be seen from the raw queue length data that as expected at peak times there is a significant variance in queue length. There would also be significant daily variance not able to be incorporated into the models.

2 – Congestion from downstream delays beyond the roundabouts may have been observed which is not a capacity failing of the roundabout itself and would not be appropriate to artificially throttle the performance of the roundabout to mimic this since alteration to that roundabout would not solve the problem.

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Nevertheless we believe the models represent the geometry and delay on the ground and produce a fair assessment of the likely increases in queue and delays due to development which are of course small in proportion to the small increase in traffic flow due to development.

'The A283 Angmering Bypass/Water Lane junction is also subject to congestion with traffic queuing (for example) from the traffic calming build-outs on Water Lane to the junction, causing the right-turn lane on the A283 to exceed capacity.'

We had not observed this scenario on the A280 having visited site several times during peak times and the queue lengths recorded in the traffic survey do not show this situation occurring but are aware the priority traffic calming on Water Lane causes a significant restriction and this may affect the ability of traffic on the A280 to enter Water Lane which would in turn affect route choice.

The capacity of the RHT lane is 10-11 vehicles. The traffic survey shows queues of up to 7 vehicles (average 4) PM peak, less on the AM peak. The greatest increase to the right turn into Water Lane due to development is one vehicle per two minutes during the PM peak hour and therefore it would be expected that no more than one additional vehicle could be observed at any time due to development.

The PICADY analysis confirms that for the flows on the A280 and turning movements associated with Water Lane the right hand turn lane is sufficient both without and with development flows. The blocking back effect of downstream traffic calming cannot be incorporated in the T junction modelling and is not caused by that junction.

Since the restriction is formed by the Water Lane traffic calming an alteration to the A280 junction would not release the restriction. The traffic calming could be altered or removed which would release the restriction but could increase the volume of through traffic using the village rather than the bypass. The small impact from the development proposals is not responsible for the overhaul or otherwise of the Angmering Village Traffic Calming although this is being looked at by WSCC and APC. It was acknowledged by us and WSCC during pre app consultation that small highway improvements were not going to be effective at solving the wider issues causing these local problems and the request was for financial contribution towards the schemes being tabled by the Joint Eastern Arun Area Committee.

'The junction of the A259 and Roundstone Lane appears to have a narrow exit arm from Roundstone Lane which reduces capacity on the arm. Further information should be provided on this aspect of the junction and whether alterations to the kerb line would be beneficial.'

Drawing 22067/110 which shows the existing kerb and white lining layout together with photographs of this location are attached in Appendix 2 at the rear of this note.

The entry arm onto the roundabout is two lane on its approach and modelling of this roundabout confirms that the existing highway geometry does not present any capacity issues.

The entry from the southern end of Roundstone Lane was specifically revisited following the first public consultation and concern from local people about large vehicles and a video survey was taken in addition to the turning count surveys previously commissioned. The video survey was undertaken over a weekday week 27 February 2012 to 2 March 2012. The

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busiest day was Thursday and we had the traffic survey company compile a sped up version (middle 30 minutes of the peak hours played at 12 x speed = 2.5 minutes long) which we played at the second public exhibition to demonstrate there was no significant capacity problem at the southern end of Roundstone Lane.

The situation where a large vehicle straddles both entry lanes and restricts the ability of two lane entry only causes a momentary delay and it can be seen that the small queues clear very quickly. The proposed development is residential and would therefore not increase HGV flows. The existing two lane entry is sufficient for two cars abreast.

Given the lack of capacity problem and small traffic impact no highway improvement was offered with the planning application and we remain of the view that this location is not in need of junction capacity improvement due to development.

'Site access junction: There is concern that the proposed configuration of the junction does not relate well to the existing traffic calming on Roundstone Lane. The safety auditor comments:

Despite traffic calming features on Roundstone Lane it was noted by the Audit Team that many vehicles were proceeding at inappropriate speeds for this class and type of road.

This implies that the existing traffic calming is not effective and the proposed raised table at the site access junction does not appear to introduce a feature which would reduce speeds on Roundstone Lane. Paragraph 5.7.5 in the transport assessment does not appear to be consistent with the auditor's comment. Further information should be provided justifying the choice of junction configuration and indicating how it relates to and improves the effectiveness of the existing traffic calming.

Evidence should be provided of existing vehicle speeds on Roundstone Lane at or near the site access and how the proposed configuration of the junction would contribute to their reduction. This should form part of a signed design audit of the proposal, indicating which design standards have been used and justifying any departures from the standards used. The road safety auditor's opinion should be sought on the proposed design and whether it meets the concerns expressed in the road safety audit and takes account of the use of Roundstone Lane by buses. (Note that signatures are required for the road safety audit, designer's response and any further opinion from the road safety auditor.) The needs of pedestrians, cyclists and mobility-impaired people should be accounted for within the junction design.'

The Auditor noted his observation of vehicle speed on Roundstone Lane in the introduction, we had noticed the same during a site visit and interpret this to be due to the width of the speed cushions being narrow enough to straddle in a car without reducing speed once aligned. We commissioned a speed and volume survey in June 2012 which showed 85%ile speeds approximately at the posted speed limit in both directions. The speed survey attached recorded a mean average speed of 24mph and an 85%ile speed of 29mph northbound and a mean average speed of 27mph and an 85%ile speed of 32mph southbound adjacent to the existing priority buildout which quite obviously does less to restrict speed in the prioritised southerly direction.

We do not agree with the comment that raised tables do not introduce a feature which would reduce vehicle speeds. Flat topped humps and raised junctions are found to be very effective according to guidance within Local

Transport Note 1/07 March 2007: Traffic Calming. They have also been recently installed at the nearby Bramley Green estate and appear to be an acceptable form of traffic calming on bus routes which cater well for pedestrian crossings whilst raising awareness of the new T junction.

The road safety auditor's concern was the bypassing of the priority junction narrowing facilitated by the new bellmouth. His recommendation was to remove the buildout and this is achieved in the proposed raised junction which therefore meets the recommendation.

A design statement for the proposed raised junction and further Safety Audit of that specific proposal is undertaken and will be submitted separately.

'No capacity modelling appears to have been carried out on the proposed site access junction and this should be addressed.'

PICADY modelling has now been undertaken on the proposed site access based on an average of the five day peak hour flows taken from the June 2012 7 day ATC data with development turning movements added.

Modelling with the predicted development traffic identifies that there is no noticeable effect on traffic on Roundstone Lane. The effect is so minimal that it is clear that future year modelling would not demonstrate any capacity problems. Results are shown below.

Site Access - Roundstone Lane 2013 Opening Year with Pre Travel Plan Development			
	Weekday AM Peak		
	Queue (PCU)	Delay (min)	RFC
Site Access	0	0.11	0.19
Roundstone Lane (south)	0	0.10	0.03
	Weekday PM Peak		
	Queue (PCU)	Delay (min)	RFC
Site Access	0	0.11	0.08
Roundstone Lane (south)	0	0.10	0.08

The PICADY output is attached in Appendix 3.

'The proposed retaining structures at the junction will require Approval in Principle before they can be constructed as part of a Section 278 highway agreement. While this is not required for any planning consent, the applicant should ensure that it is feasible to construct the structures within existing or proposed highway land.'

The applicant's land abuts highway land in this location and it is envisaged the retaining walls would be constructed and adopted under Section 38 / 278 Agreement under the Highways Act 1980.

A preliminary design for the entrance and retaining walls will be provided.

'Site sustainability: There is a network of roads and paths to the west of the site and there are public rights of way along the east and south sides of the site. The only bus service adjacent to the site is the 9 between Lancing & Littlehampton which passes along Roundstone Lane. Local amenities are said to be within a "short walk" of the site, though this is not defined in distance or time. It is not clear whether the proposed travel plan would be effective in mitigating any deficiencies in access to services. Further information should be provided on access to facilities and public transport and how it is proposed to improve access to more frequent bus services that the 9 and to Angmering railway station. Proposals to improve bus stops adjacent to the site should be considered. It is not clear how the public

rights of way adjacent to the site would be accessed and further details should be provided.'

Suggested small scale local transport infrastructure improvement proposals were forwarded to WSCC during pre application consultation and the advice given was that the Highway Authority would prefer financial contribution towards approved measures in the local infrastructure plan.

The number 9 bus stops outside the site boundary, there is little that could be done to improve access other than a high quality crossing of Roundstone Lane which we believe is achieved by the proposed raised junction. Potential improvements to the local bus stops to include shelters were offered at the pre planning stage and remain a possible improvement but were rejected in favor of financial contribution. This seemed appropriate but conflicts with the comments now made on the application.

The amenities within Angmering village centre are within approximately 1km of the development site. This is a 10 – 15 minute walk at normal walking speeds of around 80 metres per minute.

Plans and descriptions of the local amenities, key destinations and pedestrian routes, pedestrian and cyclist infrastructure, local bus stops and services and routes to the railway station were included in the Transport Assessment. There is a shared cycle footway and puffin crossing along the route to Angering Railway Station between footways and carriageways along residential streets. There is no clear need to improve accessibility along this route.

The travel plan would not directly affect any shortfall in commercial public transport services but the increase in demand for the number 9 service will improve the commercial viability in itself. The travel plan is based on site specific advice from WSCC and includes a financial contribution towards the sustainable travel costs for each household.

The main desire lines are to the west and southwest. However, pedestrian footpaths will link the site to the existing footpath along the south boundary and to the northeast at the point of the existing gated field entrance. These will be non-vehicular entrances and allow for walking routes along the path adjacent to the A280 and footbridge over it leading to the countryside to the east of the site.

'Internal road layout: It would be helpful if a more detailed plan could be provided showing how provision will be made within the site for pedestrians, cyclists and mobility-impaired people. It is not clear from the refuse tracking layout (plan 4528:P90) whether footways or shared surfaces will be provided, nor whether access for emergency vehicles has been considered. Evidence that the Fire & Rescue service has been consulted should be provided.'

The architectural colour layout plan attached to the planning application shows footways adjacent to most carriageways and also indicates pedestrian crossing locations which would all include tactile paving as part of detailed design. There are small areas of shared surface cul-de-sacs.

Vehicle tracking analysis was included for the entrance and internal streets including large refuse vehicles (which by worst case includes fire and other emergency vehicles) which demonstrates the physical layout is appropriate which can be agreed in detail as part of a section 38 technical approval. The layout is designed to be in accordance with Part B of Building Regulations.

'Construction Management Plan: While a detailed Plan is not required at this stage, further details of the traffic management aspects of construction, including vehicle routing and parking, should be provided.'

We envisage the key highway related components of a Construction Management Plan for this site would be:

The site entrance would be constructed prior to the onsite building works.

- Construction traffic and construction workers would park onsite so as not to affect the surrounding streets.
- Construction vehicles will approach the site from the A259 only and enter the site via Roundstone Lane not the byway accessed from High Street.
- Construction will be phased such that suitable onsite parking is available throughout the construction programme
- Construction traffic will be managed such that it does not arrive during peak hours or at antisocial times.

WEST SUSSEX COUNTY COUNCIL **DATE: 30th November 2012**
STRATEGIC PLANNING CONSULTATION

FROM: **Tim Townsend** **TO:** **Arun District Council**
FAO: **Peter Cleveland**

SUBJECT: **A/82/12 - Residential development comprising 150 x dwellings including 30% affordable with access, landscaping, open space & associated works (this application is a Departure from the Development Plan).**

LOCATION: **Land East Of, Roundstone Lane, Angmering, West Sussex, BN16 4AL**

CONSULTATION DATE: **19TH November 2012**

RECOMMENDATION:

Advice	X	**Modification**		**More Information**	X
Objection		**No Objection**		**Refusal**	

S106 contribution: £807,960 (does not include any highway requirements, as yet to be agreed)

This is the second WSCC Highways and Transport response to the planning application and follows comments made on 6th September 2012. It should be read alongside that earlier document.

Summary position of Highway Authority.
As submitted, there is insufficient information to enable the Highway Authority to fully consider the application. Key areas where further information is required are as follows (please read in-conjunction with main text of this Report for full details):

- Traffic impact (including TRICS analysis)
- Road Safety Audit
- Design Audit
- Sustainable access
- Internal layout
- Travel Plan
- S106 contributions
- Drainage

Given that the proposal is a full application, all points raised will need to be satisfactorily answered in advance of any further report being issued by the Highway Authority to the Local Planning Authority.

Junction assessments.
Previous comments made by the Highway Authority said that the junction assessments did not appear to be consistent with observed traffic conditions on the A259 or at Water Lane/A283. Further details have been provided on the junction assessments, including a plan showing ARCADY geometric dimensions, albeit at the junction of Roundstone Lane with A259 Littlehampton Road only.

ARCADY assessments have been provided for the following junctions:

- A259 New Road/Roundstone By-Pass with Station Road.
- A259 Roundstone By-Pass with B2225 Roundstone Lane.
- A259 Roundstone By-Pass/Littlehampton Road with A280 Angmering By-Pass.

Queue length assessments have been provided for the following junctions:

- Arundel Road with Station Road.
- High Street with Station Road.
- A280 Angmering By-Pass with Water Lane.
- Weavers Hill with Water Lane.

Previously, WSCC requested that the applicant explain the relationship between observed congestion and the technical junction assessments at both A259 Littlehampton Road/Roundstone Lane and A280/Water Lane junctions.

Responding to the A280/Water Lane junction, the applicant's highway consultant has stated that any congestion here is likely caused by the traffic calming feature on Water Lane causing queues, and not the junction itself being over capacity. The additional survey reports found in Appendix 1 of the consultant's response of 23rd November 2012 shows that the greatest queue was 7 vehicles waiting in the turning lane on the A280 Angmering By-Pass (waiting to turn into Water Lane). The capacity of the turning lane appears to be 10-11 vehicles. The Highway Authority observed the junction on the morning of the 27th November 2012 and although saw that some queuing on Water Lane as a result of the traffic calming was evident, the observations concurred with the findings in the applicant's Report. What is not clear, however, are the plans showing the observed queue lengths, found in Appendix 1 (in front of the revised survey sheets). In particular, it is not known what the red figures represent. As such, the applicant should explain these and provide adequate annotation on the plans.

The junction of the A259 with Roundstone Lane appears to have a narrow exit arm from Roundstone Lane which appears to reduce capacity on the arm, particularly when large vehicles attempt to leave Roundstone Lane to join the A259. Some overriding of the grass verge on the nearside of the northern arm is evident in the form of tyre track markings. Further information has been provided by the applicant's highway consultant, including a video survey on the junction functioning in the peak periods. On-site observation (during the am peak period on 27th November 2012 by the Highway Authority) revealed a maximum queue on the northern arm of Roundstone Lane of approximately 9 No. vehicles, albeit brought about because a coach was observed straddling the white lines at the junction. Average queues observed by the Highway Authority were approximately 4 vehicles during the am peak which is higher than the recordings in Appendix 1 of the aforementioned Technical Report of 23rd November 2012. Vehicles were observed getting away from the junction relatively quickly as gaps on the roundabout became available regularly.

Turning to the surveys and the revised ARCADY assessments provided in the Technical Report, some discrepancies were found, particularly with the ARCADY reports for the Roundstone Lane/Littlehampton Road (A259). In particular, the dimensions inputted to the ARCADY programme were different to those set out on Drawing No. 110 produced by the consultant. This should be corrected and the ARCADY re-run for this junction. Furthermore, drawings should also be provided for the A280/Littlehampton Road (A259) and Station Road/Littlehampton Road junctions with ARCADY re-run for these junctions, in order that the Highway Authority can check these as well.

When available, the Highway Authority will consider the required additional information further.

Assessment of the site access junction (Appendix 3 of the Technical Note), reveals that the junction should operate within capacity. However, it is not known what junction arrangement this is based on. The applicant should confirm this point, showing a detailed plan with dimensions marked on it.

TRICS analysis.
Further TRICS analysis should be undertaken by the applicant and provided to the Highway Authority to consider. Traffic distribution should also be shown.

Site access junction.
Concern was expressed previously that the proposed configuration of the junction did not relate well to the existing traffic calming on Roundstone Lane. As such, the applicant's Highway Consultant was asked to provide a revised access arrangement including a feature to replace the current chicane/build-out on Roundstone Lane. A Design Audit, new/revised Stage 1 Road Safety Audit and Designer's Response were also requested.

The previous Road Safety Audit made the following observation:

"Despite traffic calming features on Roundstone Lane it was noted by the Audit Team that many vehicles were proceeding at inappropriate speeds for this class and type of road."

This implied that the existing traffic calming is not effective and the proposed raised table at the site access junction would not appear to introduce a feature which would reduce speeds on Roundstone Lane.

The original scheme was implemented to discourage through-traffic rather than as a casualty or speed reduction measure. It is, however, noteworthy that there have been no reported personal injury accidents along this stretch in the most up-to-date three years. Subject to satisfactory design, Safety Audit and approval by County Local Committee, the raised table would essentially be a replacement feature to maintain the overall integrity of the existing traffic calming measures along Roundstone Lane. Furthermore, evidence has been provided showing existing vehicle speeds on Roundstone Lane at or near the site access. These are found in the highway consultant's "Review of Roundstone Lane Traffic Calming" Report of July 2012. In summary these show that the highest 85th% tile speed along Roundstone Lane in the vicinity of the site was 33.1mph with average speeds of mid-late 20mph, close to the prescribed 30mph speed limit.

The site access junction itself should be provided with sight lines corresponding to the wet weather 85% tile speed (the applicant should clarify whether the figures quoted are west or dry speeds). Manual for Streets (MfS) Stopping Sight Distance (SSD) will inform the length of visibility splays required at the junction. The needs of pedestrians, cyclists and mobility-impaired people should also be considered within the junction design. Consideration must also be given to the location of existing access points (Flint Cottage being one).

In addition to the modelling of the site access junction, the applicant should also provide PICADY assessment at the junctions of Roundstone Lane south of the site (both the 'T' junction and roundabout). The junction of High Street with Water Lane should also be considered in capacity terms. Clear plans showing the peak hour impacts at these junctions should be provided.

The proposed retaining structures at the junction will require "Approval in Principle" before they can be constructed as part of a Section 278 highway agreement. While this is not required for any planning consent, the applicant should ensure that it is feasible to construct the structures within existing or proposed highway land. Please confirm what the features are.

Site sustainability.
As stated in the Highway Authority's response of 6th September 2012, a network of roads and paths to the west of the site and Public Rights of Way (PROW) along the east and south sides of the site have been observed. The only bus service adjacent to the site is the 9 between Lancing &

Littlehampton which passes along Roundstone Lane. Local amenities are said to be within a short walk of the site.

Further information found in the highway consultant's Report of 23rd November 2012 suggests a number of local transport infrastructure proposals. At this stage, it is not known in what detail these have been prepared, nor is it clear what has informed these changes to the surrounding network. With regard to current infrastructure (specifically for walking, cycling and bus access), a footway runs along the western side of Roundstone Lane which is continuous through to Angmering Village (approximately 10-15 minutes walk away) – albeit with some gradients in places. Access via this footway southwards to local schools via the new estates to the south-west of the site is also available. Access via footpaths would be available via the PROW to the south and east of the site although final details are not shown.

No footway is available on the eastern (site) side of Roundstone Lane. Pedestrians would, therefore, be encouraged to cross adjacent to the site access junction. As such, a footway should be considered along the eastern (site) side of Roundstone Lane. This would have the potential to provide a level footway in and out of the site to both local bus stops and back to Angmering Village. As stated elsewhere in this Report, the footway on the western side of the road, close to Weavers Ring, has a section with a gradient for those travelling northwards which may not be wholly suitable for all highway users. With regard to bus stop improvements, the applicant should confirm that bus stops will be provided with real-time passenger information and, where possible, shelters and seating. The applicant should respond further on these points and demonstrate suitable links to existing paths and footways for access to goods, services, facilities and public transport.

Travel Plan.
The applicant has been provided with advice in relation to Travel Plan requirements for the site. However, a detailed response to this (including costs allocated to the measures required and confirmation of the measures agreed) is still required.

Internal road layout.
The following points should be addressed by the applicant (comments arising from scrutiny of Urban Design Drawing No. ST-02-12B – applicant should confirm that this is the most up-to-date plan):

1. First private access points within the estate layout adjacent to the junction with Roundstone Lane should be moved away from the junction area. As shown, they are too close and there is the risk that collisions may take place.
2. Further detail of the bellmouth of the junction with Roundstone Lane should be shown. Width of access road (first 50 or so metres up to the 'divide in the internal layout) to be shown and full detail of footway. As shown at present, the detail is incomplete.
3. Sight line at junction of access road with Roundstone Lane to be shown following advice in MfS and based on recorded wet weather 85% tile speeds.
4. Flint walls adjacent to the back edge of footways to be maximum height of 0.6m to maintain pedestrian intervisibility. The other alternative would be for the walls to be lowered to 0.6m for 2.4 x 2m intervisibility splays either side of vehicular access points or the walls tapered back on an angle to provide the splays.
5. Please confirm whether the block paved areas on the internal roadways are to be raised or flush.
6. Please confirm tree types shown planted in verge areas. Please note that commuted sums for planted areas may be required.
7. Please provide road adoption plan (or plan showing that intended to be offered for adoption).
8. Driveways for plot's 4 and 148 come in on the ends of the 'ramps' for the block paved areas. These should be moved so they join on the 'flat'. (This comment may not be relevant if block paved areas are proposed to be flush).

9. Pedestrian intervisibility splays to be shown alongside each private driveway at the back edge of footway and/or service margin.
10. Manual for Streets (MfS) splays to be shown at main access junctions throughout the development.
11. Please clearly indicate what is to be footway and what is to be verge.
12. The first POS area – will drivers be able to see across this when driving to and from the 'divide' in the road?
13. Motorcycle parking to be shown (residents and visitors).
14. Disabled parking provision to be shown (residents and visitors).
15. Please confirm internal garage dimensions – need to be 3m x 6m in accordance with MfS.
16. Parking for plots 132 and 133 appears to be over-generous. Please reduce in-line with recommended guidance.
17. Tracking of large service vehicles to be shown throughout estate to be shown (including junction with Roundstone Lane).
18. Parking for plot 138 is poorly situated with regard to the dwelling. This could encourage occupiers to park on-street. Please re-configure the layout to bring parking closer to the plot.
19. Cycle provision to be shown (residents and visitors).
20. Parking for plot 143 would be improved with garage brought in-line with houses and the other two spaces allocated to 143 positioned side by side. The adjacent turning head to be extended slightly to accommodate.
21. Parking for plots 17 and 18 should be provided alongside properties.
22. Manoeuvring at rear of parking spaces for plots 14 and 15 too tight. Needs to be increased to 6.5m.
23. Plot 13 – only 1 No. parking space appears to be shown. Please provide to standard.
24. Turning head adjacent to plot 31 should be shown extended to improve turning at this end.
25. Plots 46 and 47 – trees shown in access road and access details unclear.
26. Plot 87 – Replace garage with parking space in case garage is not used so close to the road junction (will discourage on-street parking at this point).
27. Plot 55 – parking should be put alongside/adjacent to plot.
28. Plots 57 and 58 – parking poorly located and is likely to lead to parking on access road. Needs to be better-related to properties it is serving.
29. Parking court to rear of plots 63, 64, 66 and 67 – manoeuvring area to be enlarged to 6.5m.
30. Further details of access to plot 79 required.
31. Manoeuvring within parking court for plots 69-71 and 68-72 to be enlarged to measure 6.5m.
32. Driveway/access details for plots 92-94 to be shown.
33. Parking space alongside plot 129 needs to measure 6.0m.
34. Visitor laybys to be provided throughout the development on parts of the main access roads (to maintain carriageway widths).
35. Please confirm that a fence will be provided around the play areas.
36. Please specify gradient of first 20m of access from the point it joins Roundstone Lane. (Should not be greater than 1:30 for first 20m).
37. Access to "Pound Place" appears to be shown on the layout drawing. The applicant should confirm whether this is intended or just a drawing error.

For areas not being adopted/remaining private, a management company will be required, details of which will have to be secured in a S106 Agreement. Furthermore, a non-adoption clause will be required to be inserted in the S106 for those areas of roadway not being offered for adoption/remaining private.

Construction Management Plan.
Whilst a detailed Plan is not required at this stage, further details of the traffic management aspects of construction, including vehicle routing and parking, should be provided.

S106.
Details of non-highways requirements found at the foot of this report.

Highways considerations put forward by the applicant are as follows:

- Pedestrian crossing improvements in the form of tactile paving and dropped kerbs – Rectory Lane; Water Lane (2 No. locations); High Street; High Street and Weavers Ring.
- Possible footway, Weavers Hill.
- Bus stop improvements in the form of shelters (where possible); real-time passenger displays; seating.
- Financial contribution towards A259 Route Study.

As documented above, it is not known what has informed the above. The applicant should respond to this and give details of where this information has come from and what design work has been undertaken to demonstrate that these can be achieved. Further highway requirements may emerge when replies to this Report are available.

Public Rights of Way (PROW).
Connections to the formal PROW network are shown on the layout drawings. Connections are shown to the south to Public Footpath 2145 (1 No. point) and to the east to Public Byway 3605 (2 No. points). Neither PROW is actually contained within the site itself so should not be adversely impacted upon. However, actual detail should be specified, please.

Traffic Regulation Order (TRO) – Traffic calming.
If planning permission is granted, alongside the access arrangements will be the need for County Local Committee approval to the proposed traffic calming changes. The need for this additional process would have to be tied-into any planning permission (if granted) by way of condition or S106 Agreement and will involve public consultation, separate to that undertaken as part of the planning application process. Full details of the process can be found on the WSCC website. No works should commence on-site until such approval has been given. Consultation can only take place following grant of planning permission.

WSCC Fire and Rescue Service (WSFRS).
The general overview of the site layout plan is that there are unlikely to be any major issues that cannot be resolved.

Housing is of a greater density from the entrance, with tree-lined avenues. The main entrance road splits and rejoins by a paved area across the back so the WSFRS has two routes into the heart of the development. The only concern would be if the density of on street parking is increased but no provision for parking on the roadway (e.g. road too narrow) unless more detailed plans indicate otherwise*****. This could be overcome by ensuring that if parking is required it is restricted to one side and the road is of a sufficient width to allow a fire appliance to pass. The southern part of the development is more spacious with a lesser chance of on-street congestion. WSFRS is, therefore, satisfied that it has adequate access from a single entrance point If the first point is addressed in the design.

We will require 4 hydrants on this development (positions to be agreed with WSFRS).

(*****Additional on-street visitor parking has been requested – see internal layout comments above).

Drainage.
The applicant should provide details of how the site will be drained.

Conclusion.
Further information is required to enable the Highway Authority to fully consider the proposals. Please re-consult when additional information is available, at which time the Highway Authority will consider the application further.

In the absence of satisfactory information and adequate time to go through it, a highway objection would be raised to the proposals.

Tim Townsend
Strategic Planning

(S106 – sans TAD/highway requirements – found below) : -

LOCAL DEVELOPMENT DIVISION: SECTION 106 CONSULTATION RESPONSE

DATE: 19.09.2012

FROM: Adam Charlton, Monitoring and Records

TO: Matthew Bartle, Planning Applications Team

DISTRICT/BOROUGH COUNCIL: Arun

Application Number: A/82/12

The Provision of Service Infrastructure Related to Development at Land East Of, Roundstone Lane, Angmering, West Sussex, BN16 4AL

Planning Application details - Residential development comprising 150 x dwellings including 30% affordable with access, landscaping, open space & associated works (this application is a Departure from the Development Plan).

Education			
Locality	Angmering		
Population Adjustment	258.9		
	Primary	Secondary	6th Form
Child Product	3.6012	3.6012	1.9446
Total Places Required	25.2084	18.0060	3.8893
Library			
Locality	Angmering		
Contribution towards Angmering / Arundel / East Preston / Ferring / Findon Valley	£34,796		
Contribution towards Rustington / Willowhale	£0		
Contribution towards Bognor Regis / Littlehampton	£0		
Population Adjustment	258.9		
Sqm per population	35		
Sqm Required	9.06		
Waste			
Adjusted Net. Households	105		
Fire			
No. Hydrants	TBC		
Population Adjustment	258.9		
£/head of additional population	£13		
TAD- Transport			
Net Population Increase	0.0		
Net Parking Spaces	0		
Net Commercial Floor Space sqm	0		
Total Access (commercial only)	0.0000		

Summary of Contributions

S106 type	Monies Due
Education - Primary	£330,608
Education - Secondary	£355,835
Education - 6th Form	£83,355
Libraries	£34,796
Waste	No contribution required
Fire & Rescue	£3,366
No. of Hydrants	TBC
TAD	£0
Total Contribution	**£807,960**

The above contributions are required pursuant to s106 of the Town and Country planning Act 1990 to mitigate the impacts of the subject proposal with the provision of additional County Council service infrastructure, highways and public transport that would arise in relation to the proposed development.

Planning obligations requiring the above money is understood to accord with the Secretary of State's policy tests outlined by the in the *National Planning Policy Framework, 2012*.

The basis for this advice is contained in the County Council's adopted Supplementary Planning Guidance document "The Provision of Service Infrastructure Related to New Development in West Sussex – Part 1".

All TAD (Total Access Demand) contributions have been calculated in accordance with the stipulated local threshold and the methodology adopted as Supplementary Planning Guidance (SPG) in November 2003.

The calculations have been derived on the basis of an increase in 150 Net dwellings

Further to the monetary contributions The County Fire Officer advises that the proposed development may need to include the provision of fire hydrants connected to adequate supplies of water for fire fighting (Contact: David Boarer – Fire Services 01243 813667). It should also include suitable access for fire brigade vehicles and equipment.

Please see below for a Breakdown and explanation of the WSCC Contribution Calculators. Also see the attached spreadsheet for the breakdown of the calculation figures. For further explanation please see the Sussex County Council website (http://www.westsussex.gov.uk/s106).

Deed of Planning Obligations

a) As a deed of planning obligations would be required to ensure payment of the necessary financial contribution, the County Council would require the proposed development to reimburse its reasonable legal fees incurred in the preparation of the deed.

b) The deed would provide for payment of the financial contribution upon commencement of the development.

c) In order to reflect the changing costs, the deed would include arrangements for review of the financial contributions at the date the payment is made if the relevant date falls after 31st March 2013.

d) Review of the contributions towards school building costs should be by reference to the DfF adopted Primary/Secondary/Further Secondary school building costs applicable at the date of payment of the contribution and where this has not been published in the financial year in which the contribution has been made then the contribution should be index linked to the DfE cost multiplier and relevant increase in the RICS BCIS All-In TPI. This figure is subject to annual review.

e) Review of the contribution towards the provision of additional library floorspace should be by reference to an appropriate index, preferably RICS BCIS All-In TPI. This figure is subject to annual review.

f) Review of the contribution towards the provision of fire service infrastructure (fire stations) should be by reference to an appropriate index, preferably RICS BCIS All-In TPI. This figure is subject to annual review.

Recent experience suggests that where a change in contributions required in relation to a development or the necessity for indexation of financial contributions from the proposed development towards the costs of providing service infrastructure such as libraries is not specifically set out within recommendations approved by committee, applicants are unlikely to agree to such provisions being included in the deed itself. Therefore, it is important that your report and recommendations should cover a possible change in requirements and the need for appropriate indexation arrangements in relation to financial contributions.

Please ensure that applicants and their agents are advised that any alteration to the housing mix, size, nature or tenure, may generate a different population and thus require re-assessment of contributions. Such re-assessment should be sought as soon as the housing mix is known and not be left until signing of the section 106 Agreement is imminent.

It should be noted that the figures quoted in this letter are based on current information and will be adhered to for 3 months. Thereafter, if they are not consolidated in a signed S106 agreement they will be subject to revision as necessary to reflect the latest information as to cost and need.

Please see below for a Breakdown of the Contribution Calculators for clarification of West Sussex County Council's methodology in calculating Contributions. Also see the attached spreadsheet for the breakdown of the calculation figures. For further explanation please see the Sussex County Council website (http://www.westsussex.gov.uk/s106).

Breakdown of Contribution Calculation Formulas:

1. School Infrastructure Contributions

The financial contributions for school infrastructure are broken up into three categories (primary, secondary, sixth form). Depending on the existing local infrastructure only some or none of these categories of education will be required. Where the contributions are required the calculations are based on the additional amount of children and thus school places that the development would generate (shown as **TPR- Total Places Required**). The TPR is then multiplied by the Department for Children, Schools and Families school building costs per pupil place (**cost multiplier**).

School Contributions = TPR x cost multiplier

a) TPR- Total Places Required:

TPR is determined by the number of year groups in each school category multiplied by the child product.

TPR = (No of year groups) x (child product)

Year groups are as below:

- Primary school- **7** year groups (aged 4 to 11)
- Secondary School- **5** year groups (aged 11 to 16)
- Sixth Form School Places- **2** year groups (aged 16 to 18)

Child Product is the **adjusted education population** multiplied by average amount of children, taken to be 14 children per year of age per 1000 persons (average figure taken from 2001 Census).

Child Product = Adjusted Population x 14 / 1000

Note: The adjusted education population for the child product excludes population generated from 1 bed units, Sheltered and 55+ Age Restricted Housing and Social Rented Housing as a nil child product is assumed for these dwellings.

b) Cost multiplier- Education Services

The cost multiplier is a figure released by the Department for Education. It is a school building costs per pupil place as at 2012/2013, updated by Royal Institute of Chartered Surveyors Building Cost Information Service All-In Tender Price Index. Each Cost multiplier is as below:

- Primary Schools- **£13,115 per child**
- Secondary Schools- **£19,762 per child**
- Sixth Form Schools- **£21,432 per child**

2. Library Infrastructure

There are two methodologies used for calculating library infrastructure Contributions. These have been locally tailored on the basis of required contributions and the nature of the library in the locality, as below:

Library infrastructure contributions are determined by the population adjustment resulting in a square metre demand for library services. The square metre demand is multiplied by a cost multiplier which determines the total contributions as below:

Contributions = SQ M Demand x Cost Multiplier

a) Square Metre Demand
The square metre demand for library floor space varies across the relevant districts and parishes on the basis of library infrastructure available and the settlement population in each particular locality. The **local floorspace demand (LFD)** figure varies between 30 and 35 square metres per 1000 people and is provided with each individual calculation.

Square Metre Demand = (Adjusted Population x LFD) / 1000

b) Cost Multiplier- Library Infrastructure
WSCC estimated cost of providing relatively small additions to the floorspace of existing library buildings is **£3,840** per square metre. This figure was updated by WSCC's Quantity surveyor for the 2012/2013 period.

3. Fire & Rescue Service Infrastructure

The Fire and Rescue Services infrastructure contribution is determined by the population adjustment multiplied by the relevant cost multiplier for the provision of services.

Fire and Rescue Contributions = Adjusted Population x Cost Multiplier

a) Adjusted Population
This is the sum of the occupancy rates for the net dwelling increase with the exclusion of social housing increase.

b) Cost Multiplier- Fire Rescue
There are two cost multipliers for WSCC which relate to the Southern Division and the Northern Division. The cost multiplier is calculated by dividing the total cost of necessary fire and rescue infrastructure within the division by the projected population for 2016. The cost multipliers are as below:

Southern Division (Chichester, Arun, Worthing and Adur): £13 per person

Northern Division (Horsham, Crawley, Mid Sussex): £50 per person in Horsham, £92 per person in Crawley

Note: The installation costs of fire hydrants are excluded from the above and will continue to be required on developments as a direct cost to the developer as required under the Fire Services Act 2004

4. TAD- Total Access Demand

The methodology is based on total access to and from a development. An **Infrastructure Contribution** is required in respect of each occupant or employee provided with a parking space, as they would be more likely to use the road infrastructure. The **Sustainable Transport Contribution** is required in respect of each occupant or employee not provided with a parking space which would be likely to rely on sustainable transport.

TAD = Infrastructure contribution + Sustainable Transport contribution

a) Infrastructure Contribution
Contributions for Infrastructure are determined by the net increase in car parking spaces, multiplied by WSCC's estimated cost of providing transport infrastructure per vehicle- Infrastructure cost multiplier. The Infrastructure cost multiplier as at 2012/2013 is £1,000 per parking space.

Infrastructure contributions = Car parking spaces x Cost multiplier.

b) Sustainable Transport Contribution

This is derived from the net car parking increase subtracted from the projected increase in occupancy of the development. The sustainable transport contribution increases where the population is greater than the parking provided. The sustainable transport figure is then multiplied by County Council's estimated costs of providing sustainable transport infrastructure cost multiplier (£500).

Sustainable transport contr. = (net car parking – occupancy) x 500

Note: occupancy is determined by projected rates per dwelling and projected people per commercial floorspace as determined by WSCC.

cc: **David Boarer, WSCC Fire Services (via email)**
Deborah Lewis, WSCC Library Services (via email)
Lyndsay Irvine, WSCC Children and Young People's Services (via email)

Response to WSCC Strategic Planning Consultation Comments dated 30 November 2012

Proposed housing development at

Roundstone Lane, Angmering
Arun Planning Application A/82/12

On behalf of

Barratt David Wilson Southampton

12 December 2012

the Civil Engineering Practice

The Civil Engineering Practice
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This note is prepared on behalf of the Applicant to respond to the offsite elements of the West Sussex County Council [WSCC] Strategic Planning Consultation response to Arun District Council dated 30 November 2012. Comments relating to the onsite design are responded to separately by MJA Consulting.

The offsite and transportation issues are summarised below and will be discussed in turn with supporting information appended to the rear of this note:

- Traffic Impact
- TRICS Analysis
- Site Access Junction, Design Audit, Road Safety Audit
- Site Sustainability
- Travel Plan
- Construction Management Plan
- S106 Contributions
- Traffic Regulation Order

Where quoted the WSCC comments are highlighted in blue italic for clarity.

Traffic Impact

All input geometry has been rechecked and minor alteration made to the models where necessary. Drawings 22067/112 – 118 highlighting the input geometry used to analyse the Roundabouts and T junctions are attached in Appendix 1.

To further address comments about the accuracy of the base models and in order to allow for a clear audit trail the models have been split into am and pm models to allow for the differing peaks to be calibrated independently and more closely represent the tabulated observed queue lengths. This does not have any effect on the resulting traffic impact of the development which remains minimal.

Additions to average queue lengths are typically between 0 and 1 vehicle at the roundabouts. The maximum increase in delay at any one arm of the roundabouts is less than 5 seconds which is at the southern end of Roundstone Lane where the greatest increase in traffic occurs (although less than one vehicle per minute at peak times). All other arms would experience typically 2-3 seconds additional delay per vehicle due to development and all RFCs remain below 1.0 as do the T junctions.

The models are resubmitted together with the updated results sheet attached in Appendix 2.

ACE

QMS ISO 9001 REGISTERED FIRM

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To clarify any confusion about the observed queue lengths provided in Appendix 1 of our previous note dated 30 November the numbers shown in red on the schematic diagrams titled Observed Queue Lengths are the average recorded queue lengths shown on each arm taken from the recorded queue lengths provided by the traffic survey company. The raw data was supplied and appended with the schematic diagrams from which the corresponding numbers can be seen.

The Highway Authority has requested further capacity analysis of Roundstone Lane specifically the junctions with Nursery Road and Bramley Way. These junctions were omitted from the study area in our analysis provided as there are no capacity issues and the existing flows are comparatively low such that the traffic increase due to development was too small to be capable of significant traffic impact that would warrant analysis of these junctions.

The observed two way traffic flow at the southern end of Roundstone Lane was recorded as 508 vehicles am peak and 395 vehicles pm peak. The observed two way traffic flow on Roundstone Lane passing the site entrance was recorded as 361 vehicles am peak and 296 vehicles pm peak. The two way development traffic flows to the south of the site on Roundstone Lane are 74 vehicles am peak and 66 vehicles pm peak.

In the same way as the site access junction capacity analysis which was excluded from the TA but provided with our previous note dated 23 November 2012 it should be clear that these flows are too small to represent any capacity issues and the increases too small to create any significant worsening. It is not clear what benefit a detailed analysis demonstrating this would provide.

We do not have specific traffic survey for the junctions of Roundstone Lane with Nursery Road and Bramley Way and cannot provide detailed analysis in time for the intended determination of the Planning Application.

TRICS Analysis

The comment in the WSCC consultation response is: *'Further TRICS analysis should be undertaken by the applicant and provided to the Highway Authority to consider. Traffic distribution should also be shown.'*

The TRICS data selection was discussed as part of pre planning consultation.

We had reviewed the available multi modal TRICS survey data to seek a reliable representative site or group of sites to compare with the proposed development based on the following criteria;

- Survey within 8 years
- Ireland and Scotland not included
- Village environments only (neighbourhood centre, free standing)
- Similar accessibility to bus service and shops
- Access to rail services approx 1km distance

As set out in the Transport Assessment section 7.3 the sites available in rural settings were not comparable to the site at Angmering and instead the local modal share statistics were applied to an average of edge of town site which could be expected to have similar all person trip rates but differing modal shares.

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In our view there is no better set of data for this comparison and the analysis provided represents a sufficiently robust trip generation. It is unclear what form of further analysis is required.

The gravity traffic distribution and development traffic schematic diagrams were included in Appendix 10 of the Transport Assessment with assumptions set out in section 8.1 in the text.

Site Access Junction, Design Audit, Road Safety Audit

A Design Statement for the proposed raised junction solution to form a T junction opposite the existing priority build out on Roundstone Lane and the Preliminary Design has undergone a further Stage 1 Road Safety Audit and the recommendation incorporated into the current access junction design.

The Design Statement, Stage 1 Road Safety Audit report and Designer's Response have been submitted to the Planning and Highway Authorities.

The speed survey was undertaken over a week which recorded 85%ile speeds of 29mph northbound and 32mph southbound over the entire survey period. The presence of the new access will reduce these passing speeds by virtue of the new minor arm, frontage and footway and more effectively the raised table. Sightlines on drawing 22067/104C are shown as 2.4x43m to the south and 2.4x45m northbound to reflect the speed survey and are achievable.

The proposed access arrangement is shown on drawing 22067/104C attached in Appendix 3.

The existing ground levels along the site frontage adjacent to the site access position will be reduced to remove the level difference between the site and Roundstone lane such that no retaining walls will be required and adequate forward stopping sight distance is afforded for the two driveways within the site closest to the bellmouth.

Site Sustainability

During the consultation process with Angmering Parish Council they expressed their keenness to seek improvements to Angmering Village. Therefore during pre application consultation with WSCC suggested contributions were specifically geared towards local improvements in Angmering Village.

Drawing 2b within the Transport Assessment highlights potential pedestrian routes from the proposed development to key destinations. Potential improvements along these routes together with bus stop improvements and a contribution towards WSCC's Goring to River Arun A259 Traffic Study were suggested and put forward to Angmering Parish Council and West Sussex County Council. No specific feedback was received from Angmering Parish Council but it was made clear by West Sussex County Council that the minor improvements were not wanted and the Applicant should instead contribute financially towards the approved measures in the local infrastructure plan, therefore proposals for small scale improvements were not progressed beyond sketch designs.

Drawing 22067/104C now indicates an extended footway along the site frontage where land ownership permits which provides for the southbound bus stop to be relocated onto the correct side of the street. Bus stops on both sides are shown to be equipped with shelters and seating.

It is not possible to extend the footway on the eastern side of the road to the north due to land ownership issues.

Travel Plan

The comment in the WSCC consultation response states: *'The applicant has been provided with advice in relation to Travel Plan requirements for the site. However, a detailed response to this (including costs allocated to the measures required and confirmation of the measures agreed) is still required.'*

An Interim Travel Plan was submitted with the Transport Assessment (Appendix 12) which incorporated WSCC Pre Application advice on the Travel Plan. No detailed comments have been provided on this submission to date other than costs should be allocated to measures. The travel voucher is costed at £150 per household therefore £22,500 for the development. The introductory travel pack is not yet costed but a budget of £5,000 for provision of that information to the residents appears reasonable.

The detail of the introductory travel pack content can be the subject of a Planning Condition or s.106 clause.

Internal Road Layout

WSCC consultation comments on the internal onsite layout include items 1-4 (WSCC numbering) which relate to the site access and are responded to below.

'1. First private access points within the estate layout adjacent to the junction with Roundstone Lane should be moved away from the junction area. As shown, they are too close and there is the risk that collisions may take place.'

The driveways in question are each side of the access road 7m and 10m respectively from the giveway lines. The preliminary design for the entrance includes a speed reducing feature and 6m radii corners both of which would control vehicle speeds entering the site.

Forward visibility stopping sight distances corresponding to 20mph are shown and although this speed would be excessive around the entry radii it identifies the areas of land which should be kept clear of visual obstacle for the driveway entrances to be seen on approach.

The Road Safety Audit team finds no problem with this layout other than the sightlines should be kept clear of obstruction and the level difference should be considered in the detailed design.

These driveways each serve parking spaces for three dwellings and pedestrian access for two dwellings. In a slow speed situation within a residential street with adequate visibility the design organisation does not consider there is an undue risk of collision and the arrangement is in accordance with Manual for Streets (2007).

'2. Further detail of the bellmouth of the junction with Roundstone Lane should be shown. Width of access road (first 50 or so metres up to the 'divide in the internal layout) to be shown and full detail of footway. As shown at present, the detail is incomplete.'

This is shown on the Preliminary Design drawing 22067/104C attached.

'3. Sight line at junction of access road with Roundstone Lane to be shown following advice in MfS and based on recorded wet weather 85% tile speeds.'

Sightlines of 2.4x43m and 2.4x45m are shown on drawing 22067/104C attached and will be kept clear of visual obstruction.

'4. Flint walls adjacent to the back edge of footways to be maximum height of 0.6m to maintain pedestrian intervisibility. The other alternative would be for the walls to be lowered to 0.6m for 2.4 x 2m intervisibility splays either side of vehicular access points or the walls tapered back on an angle to provide the splays.'

There will not be a need for retaining walls and any entrance feature will be located behind both the junction and forward visibility splays.

Construction Management Plan

The comment in the WSCC consultation response comment is: *'Whilst a detailed Plan is not required at this stage, further details of the traffic management aspects of construction, including vehicle routing and parking, should be provided.'*

Comments previously made in our note dated 23 November address this issue by making the following points:

'We envisage the key highway related components of a Construction Management Plan for this site would be:

- *The site entrance would be constructed prior to the onsite building works.*
- *Construction traffic and construction workers would park onsite so as not to affect the surrounding streets.*
- *Construction vehicles will approach the site from the A259 only and enter the site via Roundstone Lane not the byway accessed from High Street.*
- *Construction will be phased such that suitable onsite parking is available throughout the construction programme*
- *Construction traffic will be managed such that it does not arrive during peak hours or at antisocial times.'*

The Applicant would accept a Pre Commencement Planning Condition to draw up and agree a Construction Management Plan including the above as key aspects.

S106 Contributions

The comment in the WSCC consultation response comment is:

'Highways considerations put forward by the applicant are as follows:

- *Pedestrian crossing improvements in the form of tactile paving and dropped kerbs – Rectory Lane; Water Lane (2 No. locations); High Street; High Street and Weavers Ring.*
- *Possible footway, Weavers Hill.*
- *Bus stop improvements in the form of shelters (where possible); real-time passenger displays; seating.*
- *Financial contribution towards A259 Route Study.*

As documented above, it is not known what has informed the above. The applicant should respond to this and give details of where this information has come from and what design work has been undertaken to demonstrate that these can be achieved. Further highway requirements may emerge when replies to this Report are available.'

The potential physical improvements were suggested during pre application consultation and rejected by the Highway Authority at that time.

The drop kerb and tactile paving crossings at the locations quoted were identified by the potential pedestrian routes to key walkable destinations identified in the Transport Assessment. No further design work has been undertaken but all drop kerb crossings would constitute minor works within the adopted Public Highway and can be evidently achieved and secured under s.106 Agreement without the need for Preliminary Design.

Weavers Hill is currently a shared surface street with no segregated footways for pedestrian use. There is insufficient width to provide a 5.5m carriageway and 2m footway within the confines of the Public Highway and only a 5m carriageway and 1.5m footway could be provided on one side if a footway were to be incorporated.

The suggestion of a potential footway to Weavers Hill has not received any specific feedback from Angmering Parish Council or WSCC and would obviously affect the residents of that street. The proposal is not necessary to enable the development, would need a significant amount of design work and consultation and is not considered to have a high prospect of success at this late stage. The proposal is withdrawn.

Bus stop improvements are shown on drawing 22067/104C. The Stagecoach number 9 route buses are not equipped with GPS and the route does not use real time technology for any other bus stop signs.

A financial contribution towards the A259 Route Study and Angmering Village Traffic Management scheme was agreed to during Pre Application consultation. The appropriate level of contribution has yet to be proposed by WSCC but it would be appropriate if it were proportionate to the size of development and contributions received from other developments towards this objective.

Traffic Regulation Order

A TRO will be required for the alteration to the traffic calming feature on Roundstone Lane as a statutory process which has historically followed Planning Consent.

We have been advised that an informal consultation exercise will now need to be provided to allow WSCC to support this Application. This is in hand and will be undertaken as soon as possible and submitted in support of the Planning Application.

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WEST SUSSEX COUNTY COUNCIL **DATE: 11th December 2012**
STRATEGIC PLANNING CONSULTATION

FROM: **Tim Townsend** **TO:** **Arun District Council**
FAO: **Peter Cleveland**

SUBJECT: **A/82/12 - Residential development comprising 150 x dwellings including 30% affordable with access, landscaping, open space & associated works (this application is a Departure from the Development Plan).**

LOCATION: **Land East Of, Roundstone Lane, Angmering, West Sussex, BN16 4AL**

CONSULTATION DATE: **19TH November 2012**

RECOMMENDATION:

Advice	X	**Modification**		**More Information**	X
Objection		**No Objection**		**Refusal**	

S106 contribution: £807,960 (does not include any highway requirements, as yet to be agreed)

This is the third WSCC Highways and Transport response to the planning application and follows comments made on 6th September 2012 and 30th November 2012. This report replaces the report of 30th November 2012. Although similar to that earlier report, for ease of reading all changes are shown in red text.

Summary position of Highway Authority.
As submitted, there is insufficient information to enable the Highway Authority to fully consider the application. Key areas where further information is required are as follows (please read in-conjunction with main text of this Report for full details):

- Traffic impact (including TRICS analysis)
- Road Safety Audit
- Design Audit
- Sustainable access
- Internal layout
- Travel Plan
- S106 contributions
- Drainage

Given that the proposal is a full application, all points raised will need to be satisfactorily answered in advance of any further report being issued by the Highway Authority to the Local Planning Authority.

Junction assessments.
Previous comments made by the Highway Authority said that the junction assessments did not appear to be consistent with observed traffic conditions on the A259 or at Water Lane/A283. Further details have been provided on the junction assessments, including a plan showing ARCADY geometric dimensions, albeit at the junction of Roundstone Lane with A259 Littlehampton Road only.

ARCADY assessments have been provided for the following junctions:

- A259 New Road/Roundstone By-Pass with Station Road.
- A259 Roundstone By-Pass with B2225 Roundstone Lane.
- A259 Roundstone By-Pass/Littlehampton Road with A280 Angmering By-Pass.

Queue length assessments have been provided for the following junctions:

- Arundel Road with Station Road.
- High Street with Station Road.
- A280 Angmering By-Pass with Water Lane.
- Weavers Hill with Water Lane.

Previously, WSCC requested that the applicant explain the relationship between observed congestion and the technical junction assessments at both A259 Littlehampton Road/Roundstone Lane and A280/Water Lane junctions.

Responding to the A280/Water Lane junction, the applicant's highway consultant has stated that any congestion here is likely caused by the traffic calming feature on Water Lane causing queues, and not the junction itself being over capacity. The additional survey reports found in Appendix 1 of the consultant's response of 23rd November 2012 shows that the greatest queue was 7 vehicles waiting in the turning lane on the A280 Angmering By-Pass (waiting to turn into Water Lane). The capacity of the turning lane appears to be 10-11 vehicles. The Highway Authority observed the junction on the morning of the 27th November 2012 and although saw that some queuing on Water Lane as a result of the traffic calming was evident, the observations concurred with the findings in the applicant's Report. What is not clear, however, are the plans showing the observed queue lengths, found in Appendix 1 (in front of the revised survey sheets). In particular, it is not known what the red figures represent. As such, the applicant should explain these and provide adequate annotation on the plans.

The junction of the A259 with Roundstone Lane appears to have a narrow exit arm from Roundstone Lane which appears to reduce capacity on the arm, particularly when large vehicles attempt to leave Roundstone Lane to join the A259. Some overriding of the grass verge on the nearside of the northern arm is evident in the form of tyre track markings. Further information has been provided by the applicant's highway consultant, including a video survey on the junction functioning in the peak periods. On-site observation (during the am peak period on 27th November 2012 by the Highway Authority) revealed a maximum queue on the northern arm of Roundstone Lane of approximately 9 No. vehicles, albeit brought about because a coach was observed straddling the white lines at the junction. Average queues observed by the Highway Authority were approximately 4 vehicles during the am peak which is higher than the recordings in Appendix 1 of the aforementioned Technical Report of 23rd November 2012. Vehicles were observed getting away from the junction relatively quickly as gaps on the roundabout became available regularly.

Turning to the surveys and the revised ARCADY assessments provided in the Technical Report, some discrepancies were found, particularly with the ARCADY reports for the Roundstone Lane/Littlehampton Road (A259). In particular, the dimensions inputted to the ARCADY programme were different to those set out on Drawing No. 110 produced by the consultant. This should be corrected and the ARCADY re-run for this junction. Furthermore, drawings should also be provided for the A280/Littlehampton Road (A259) and Station Road/Littlehampton Road junctions with ARCADY re-run for these junctions, in order that the Highway Authority can check these as well.

When available, the Highway Authority will consider the required additional information further.

Assessment of the site access junction (Appendix 3 of the Technical Note), reveals that the junction should operate within capacity. However, it is not known what junction arrangement this is based on. The applicant should confirm this point, showing a detailed plan with dimensions marked on it.

TRICS analysis.
Further TRICS analysis should be undertaken by the applicant and provided to the Highway Authority to consider. Traffic distribution should also be shown.

Site access junction.
Concern was expressed previously that the proposed configuration of the junction did not relate well to the existing traffic calming on Roundstone Lane. As such, the applicant's Highway Consultant was asked to provide a revised access arrangement including a feature to replace the current chicane/build-out on Roundstone Lane. A Design Audit, new/revised Stage 1 Road Safety Audit and Designer's Response were also requested.

The previous Road Safety Audit made the following observation:

"Despite traffic calming features on Roundstone Lane it was noted by the Audit Team that many vehicles were proceeding at inappropriate speeds for this class and type of road."

This implied that the existing traffic calming is not effective and the proposed raised table at the site access junction would not appear to introduce a feature which would reduce speeds on Roundstone Lane.

The original scheme was implemented to discourage through-traffic rather than as a casualty or speed reduction measure. It is, however, noteworthy that there have been no reported personal injury accidents along this stretch in the most up-to-date three years. Subject to satisfactory design, Safety Audit and approval by County Local Committee, the raised table would essentially be a replacement feature to maintain the overall integrity of the existing traffic calming measures along Roundstone Lane. Furthermore, evidence has been provided showing existing vehicle speeds on Roundstone Lane at or near the site access. These are found in the highway consultant's "Review of Roundstone Lane Traffic Calming" Report of July 2012. In summary these show that the highest 85th% tile speed along Roundstone Lane in the vicinity of the site was 33.1mph with average speeds of mid-late 20mph, close to the prescribed 30mph speed limit.

The site access junction itself should be provided with sight lines corresponding to the wet weather 85% tile speed (the applicant should clarify whether the figures quoted are west or dry speeds). Manual for Streets (MfS) Stopping Sight Distance (SSD) will inform the length of visibility splays required at the junction. The needs of pedestrians, cyclists and mobility-impaired people should also be considered within the junction design. Consideration must also be given to the location of existing access points (Flint Cottage being one).

In addition to the modelling of the site access junction, the applicant should also provide PICADY assessment at the junctions of Roundstone Lane south of the site (both the 'T' junction and roundabout). The junction of High Street with Water Lane should also be considered in capacity terms. Clear plans showing the peak hour impacts at these junctions should be provided.

The proposed retaining structures at the junction will require "Approval in Principle" before they can be constructed as part of a Section 278 highway agreement. While this is not required for any planning consent, the applicant should ensure that it is feasible to construct the structures within existing or proposed highway land. Please confirm what the features are.

Site sustainability.
As stated in the Highway Authority's response of 6th September 2012, a network of roads and paths to the west of the site and Public Rights of Way (PROW) along the east and south sides of the site have been observed. The only bus service adjacent to the site is the 9 between Lancing &

Littlehampton which passes along Roundstone Lane. Local amenities are said to be within a short walk of the site.

Further information found in the highway consultant's Report of 23rd November 2012 suggests a number of local transport infrastructure proposals. At this stage, it is not known in what detail these have been prepared, nor is it clear what has informed these changes to the surrounding network. With regard to current infrastructure (specifically for walking, cycling and bus access), a footway runs along the western side of Roundstone Lane which is continuous through to Angmering Village (approximately 10-15 minutes walk away) – albeit with some gradients in places. Access via this footway southwards to local schools via the new estates to the south-west of the site is also available. Access via footpaths would be available via the PROW to the south and east of the site although final details are not shown.

No footway is available on the eastern (site) side of Roundstone Lane. Pedestrians would, therefore, be encouraged to cross adjacent to the site access junction. As such, a footway should be considered along the eastern (site) side of Roundstone Lane. This would have the potential to provide a level footway in and out of the site to both local bus stops and back to Angmering Village. As stated elsewhere in this Report, the footway on the western side of the road, close to Weavers Ring, has a section with a gradient for those travelling northwards which may not be wholly suitable for all highway users. With regard to bus stop improvements, the applicant should confirm that bus stops will be provided with real-time passenger information and, where possible, shelters and seating. The applicant should respond further on these points and demonstrate suitable links to existing paths and footways for access to goods, services, facilities and public transport.

Travel Plan.
The applicant has been provided with advice in relation to Travel Plan requirements for the site. However, a detailed response to this (including costs allocated to the measures required and confirmation of the measures agreed) is still required.

Internal road layout.
The following points should be addressed by the applicant (comments arising from scrutiny of Urban Design Drawing No. ST-02-12B – applicant should confirm that this is the most up-to-date plan):

1. First private access points within the estate layout adjacent to the junction with Roundstone Lane should be moved away from the junction area. As shown, they are too close and there is the risk that collisions may take place.
2. Further detail of the bellmouth of the junction with Roundstone Lane should be shown. Width of access road (first 50 or so metres up to the 'divide in the internal layout) to be shown and full detail of footway. As shown at present, the detail is incomplete.
3. Sight line at junction of access road with Roundstone Lane to be shown following advice in MfS and based on recorded wet weather 85% tile speeds.
4. Flint walls adjacent to the back edge of footways to be maximum height of 0.6m to maintain pedestrian intervisibility. The other alternative would be for the walls to be lowered to 0.6m for 2.4 x 2m intervisibility splays either side of vehicular access points or the walls tapered back on an angle to provide the splays.
5. Please confirm whether the block paved areas on the internal roadways are to be raised or flush.
6. Please confirm tree types shown planted in verge areas. Please note that commuted sums for planted areas may be required.
7. Please provide road adoption plan (or plan showing that intended to be offered for adoption).
8. Driveways for plot's 4 and 148 come in on the ends of the 'ramps' for the block paved areas. These should be moved so they join on the 'flat'. (This comment may not be relevant if block paved areas are proposed to be flush).

9. Pedestrian intervisibility splays to be shown alongside each private driveway at the back edge of footway and/or service margin.
10. Manual for Streets (MfS) splays to be shown at main access junctions throughout the development.
11. Please clearly indicate what is to be footway and what is to be verge.
12. The first POS area – will drivers be able to see across this when driving to and from the 'divide' in the road?
13. Motorcycle parking to be shown (residents and visitors).
14. Disabled parking provision to be shown (residents and visitors).
15. Please confirm internal garage dimensions – need to be 3m x 6m in accordance with MfS.
16. Parking for plots 132 and 133 appears to be over-generous. Please reduce in-line with recommended guidance.
17. Tracking of large service vehicles to be shown throughout estate to be shown (including junction with Roundstone Lane).
18. Parking for plot 138 is poorly situated with regard to the dwelling. This could encourage occupiers to park on-street. Please re-configure the layout to bring parking closer to the plot.
19. Cycle provision to be shown (residents and visitors).
20. Parking for plot 143 would be improved with garage brought in-line with houses and the other two spaces allocated to 143 positioned side by side. The adjacent turning head to be extended slightly to accommodate.
21. Parking for plots 17 and 18 should be provided alongside properties.
22. Manoeuvring at rear of parking spaces for plots 14 and 15 too tight. Needs to be increased to 6.5m.
23. Plot 13 – only 1 No. parking space appears to be shown. Please provide to standard.
24. Turning head adjacent to plot 31 should be shown extended to improve turning at this end.
25. Plots 46 and 47 – trees shown in access road and access details unclear.
26. Plot 87 – Replace garage with parking space in case garage is not used so close to the road junction (will discourage on-street parking at this point).
27. Plot 55 – parking should be put alongside/adjacent to plot.
28. Plots 57 and 58 – parking poorly located and is likely to lead to parking on access road. Needs to be better-related to properties it is serving.
29. Parking court to rear of plots 63, 64, 66 and 67 – manoeuvring area to be enlarged to 6.5m.
30. Further details of access to plot 79 required.
31. Manoeuvring within parking court for plots 69-71 and 68-72 to be enlarged to measure 6.5m.
32. Driveway/access details for plots 92-94 to be shown.
33. Parking space alongside plot 129 needs to measure 6.0m.
34. Visitor laybys to be provided throughout the development on parts of the main access roads (to maintain carriageway widths).
35. Please confirm that a fence will be provided around the play areas.
36. Please specify gradient of first 20m of access from the point it joins Roundstone Lane. (Should not be greater than 1:30 for first 20m).
37. Access to "Pound Place" appears to be shown on the layout drawing. The applicant should confirm whether this is intended or just a drawing error.

For areas not being adopted/remaining private, a management company will be required, details of which will have to be secured in a S106 Agreement. Furthermore, a non-adoption clause will be required to be inserted in the S106 for those areas of roadway not being offered for adoption/remaining private.

Construction Management Plan.
Whilst a detailed Plan is not required at this stage, further details of the traffic management aspects of construction, including vehicle routing and parking, should be provided.

S106.
Details of non-highways requirements found at the foot of this report.

Highways considerations put forward by the applicant are as follows:

- Pedestrian crossing improvements in the form of tactile paving and dropped kerbs – Rectory Lane; Water Lane (2 No. locations); High Street; High Street and Weavers Ring.
- Possible footway, Weavers Hill.
- Bus stop improvements in the form of shelters (where possible); real-time passenger displays; seating.
- Financial contribution towards A259 Route Study.

As documented above, it is not known what has informed the above. The applicant should respond to this and give details of where this information has come from and what design work has been undertaken to demonstrate that these can be achieved. Further highway requirements may emerge when replies to this Report are available.

Public Rights of Way (PROW).
Connections to the formal PROW network are shown on the layout drawings. Connections are shown to the south to Public Footpath 2145 (1 No. point) and to the east to Public Byway 3605 (2 No. points). Neither PROW is actually contained within the site itself so should not be adversely impacted upon. However, actual detail should be specified, please.

Traffic Regulation Order (TRO) – Traffic calming.
In addition to actual technical design and the planning process, the access arrangements require changes to be made to part of the existing scheme of traffic calming on Roundstone Lane. This requires support from the local community, emergency services, bus companies etc. and County Local Committee. WSCC policy requires that developers need to demonstrate community involvement and acceptance through consultation at the preliminary design stage; consultation that needs to be concluded in advance of the application being heard at Planning Committee. To date, this does not appear to have been done and is required to inform both highway design and subsequent response thereto from the Highway Authority. The process would have to be carried out at the applicant's expense. All changes, if agreed, would have to be tied-into a S106 Agreement. The entire TRO process would have to be finalised and agreed prior to **any** works commencing, both on and off-site **and** prior to any application for S38/278 works being submitted. Full details of the process can be found on the WSCC website.

WSCC Fire and Rescue Service (WSFRS).
The general overview of the site layout plan is that there are unlikely to be any major issues that cannot be resolved.

Housing is of a greater density from the entrance, with tree-lined avenues. The main entrance road splits and rejoins by a paved area across the back so the WSFRS has two routes into the heart of the development. The only concern would be if the density of on street parking is increased but no provision for parking on the roadway (e.g. road too narrow) unless more detailed plans indicate otherwise*****. This could be overcome by ensuring that if parking is required it is restricted to one side and the road is of a sufficient width to allow a fire appliance to pass. The southern part of the development is more spacious with a lesser chance of on-street congestion. WSFRS is, therefore, satisfied that it has adequate access from a single entrance point If the first point is addressed in the design.

We will require 4 hydrants on this development (positions to be agreed with WSFRS).

(*****Additional on-street visitor parking has been requested – see internal layout comments above).

Drainage.
The applicant should provide details of how the site will be drained.

Conclusion.
Further information is required to enable the Highway Authority to fully consider the proposals. Please re-consult when additional information is available, at which time the Highway Authority will consider the application further.

In the absence of satisfactory information and adequate time to go through it, a highway objection would be raised to the proposals.

Tim Townsend
Strategic Planning

(S106 – sans TAD/highway requirements – found below) : -

LOCAL DEVELOPMENT DIVISION: SECTION 106 CONSULTATION RESPONSE

DATE: 19.09.2012

FROM: Adam Charlton, Monitoring and Records

TO: Matthew Bartle, Planning Applications Team

DISTRICT/BOROUGH COUNCIL: Arun

Application Number: A/82/12

The Provision of Service Infrastructure Related to Development at Land East Of, Roundstone Lane, Angmering, West Sussex, BN16 4AL

Planning Application details - Residential development comprising 150 x dwellings including 30% affordable with access, landscaping, open space & associated works (this application is a Departure from the Development Plan).

Education			
Locality	Angmering		
Population Adjustment	258.9		
	Primary	Secondary	6th Form
Child Product	3.6012	3.6012	1.9446
Total Places Required	25.2084	18.0060	3.8893
Library			
Locality	Angmering		
Contribution towards Angmering / Arundel / East Preston / Ferring / Findon Valley	£34,796		
Contribution towards Rustington / Willowhale	£0		
Contribution towards Bognor Regis / Littlehampton	£0		
Population Adjustment	258.9		
Sqm per population	35		
Sqm Required	9.06		
Waste			
Adjusted Net. Households	105		
Fire			
No. Hydrants	TBC		
Population Adjustment	258.9		
£/head of additional population	£13		
TAD- Transport			
Net Population Increase	0.0		
Net Parking Spaces	0		
Net Commercial Floor Space sqm	0		
Total Access (commercial only)	0.0000		

Summary of Contributions

S106 type	Monies Due
Education - Primary	£330,608
Education - Secondary	£355,835
Education - 6th Form	£83,355
Libraries	£34,796
Waste	No contribution required
Fire & Rescue	£3,366
No. of Hydrants	TBC
TAD	£0
Total Contribution	**£807,960**

The above contributions are required pursuant to s106 of the Town and Country planning Act 1990 to mitigate the impacts of the subject proposal with the provision of additional County Council service infrastructure, highways and public transport that would arise in relation to the proposed development.

Planning obligations requiring the above money is understood to accord with the Secretary of State's policy tests outlined by the in the *National Planning Policy Framework, 2012***.**

The basis for this advice is contained in the County Council's adopted Supplementary Planning Guidance document "The Provision of Service Infrastructure Related to New Development in West Sussex – Part 1".

All TAD (Total Access Demand) contributions have been calculated in accordance with the stipulated local threshold and the methodology adopted as Supplementary Planning Guidance (SPG) in November 2003.

The calculations have been derived on the basis of an increase in 150 Net dwellings

Further to the monetary contributions The County Fire Officer advises that the proposed development may need to include the provision of fire hydrants connected to adequate supplies of water for fire fighting (Contact: David Boarer – Fire Services 01243 813667). It should also include suitable access for fire brigade vehicles and equipment.

Please see below for a Breakdown and explanation of the WSCC Contribution Calculators. Also see the attached spreadsheet for the breakdown of the calculation figures. For further explanation please see the Sussex County Council website (http://www.westsussex.gov.uk/s106).

Deed of Planning Obligations

a) As a deed of planning obligations would be required to ensure payment of the necessary financial contribution, the County Council would require the proposed development to reimburse its reasonable legal fees incurred in the preparation of the deed.

b) The deed would provide for payment of the financial contribution upon commencement of the development.

c) In order to reflect the changing costs, the deed would include arrangements for review of the financial contributions at the date the payment is made if the relevant date falls after 31st March 2013.

d) Review of the contributions towards school building costs should be by reference to the DfF adopted Primary/Secondary/Further Secondary school building costs applicable at the date of payment of the contribution and where this has not been published in the financial year in which the contribution has been made then the contribution should be index linked to the DfE cost multiplier and relevant increase in the RICS BCIS All-In TPI. This figure is subject to annual review.

e) Review of the contribution towards the provision of additional library floorspace should be by reference to an appropriate index, preferably RICS BCIS All-In TPI. This figure is subject to annual review.

f) Review of the contribution towards the provision of fire service infrastructure (fire stations) should be by reference to an appropriate index, preferably RICS BCIS All-In TPI. This figure is subject to annual review.

Recent experience suggests that where a change in contributions required in relation to a development or the necessity for indexation of financial contributions from the proposed development towards the costs of providing service infrastructure such as libraries is not specifically set out within recommendations approved by committee, applicants are unlikely to agree to such provisions being included in the deed itself. Therefore, it is important that your report and recommendations should cover a possible change in requirements and the need for appropriate indexation arrangements in relation to financial contributions.

Please ensure that applicants and their agents are advised that any alteration to the housing mix, size, nature or tenure, may generate a different population and thus require re-assessment of contributions. Such re-assessment should be sought as soon as the housing mix is known and not be left until signing of the section 106 Agreement is imminent.

It should be noted that the figures quoted in this letter are based on current information and will be adhered to for 3 months. Thereafter, if they are not consolidated in a signed S106 agreement they will be subject to revision as necessary to reflect the latest information as to cost and need.

Please see below for a Breakdown of the Contribution Calculators for clarification of West Sussex County Council's methodology in calculating Contributions. Also see the attached spreadsheet for the breakdown of the calculation figures. For further explanation please see the Sussex County Council website (http://www.westsussex.gov.uk/s106).

Breakdown of Contribution Calculation Formulas:

1. School Infrastructure Contributions

The financial contributions for school infrastructure are broken up into three categories (primary, secondary, sixth form). Depending on the existing local infrastructure only some or none of these categories of education will be required. Where the contributions are required the calculations are based on the additional amount of children and thus school places that the development would generate (shown as **TPR- Total Places Required**). The TPR is then multiplied by the Department for Children, Schools and Families school building costs per pupil place (**cost multiplier**).

School Contributions = TPR x cost multiplier

a) TPR- Total Places Required:

TPR is determined by the number of year groups in each school category multiplied by the child product.

TPR = (No of year groups) x (child product)

Year groups are as below:

- Primary school- **7** year groups (aged 4 to 11)
- Secondary School- **5** year groups (aged 11 to 16)
- Sixth Form School Places- **2** year groups (aged 16 to 18)

Child Product is the **adjusted education population** multiplied by average amount of children, taken to be 14 children per year of age per 1000 persons (average figure taken from 2001 Census).

Child Product = Adjusted Population x 14 / 1000

Note: The adjusted education population for the child product excludes population generated from 1 bed units, Sheltered and 55+ Age Restricted Housing and Social Rented Housing as a nil child product is assumed for these dwellings.

b) Cost multiplier- Education Services

The cost multiplier is a figure released by the Department for Education. It is a school building costs per pupil place as at 2012/2013, updated by Royal Institute of Chartered Surveyors Building Cost Information Service All-In Tender Price Index. Each Cost multiplier is as below:

- Primary Schools- **£13,115 per child**
- Secondary Schools- **£19,762 per child**
- Sixth Form Schools- **£21,432 per child**

2. Library Infrastructure

There are two methodologies used for calculating library infrastructure Contributions. These have been locally tailored on the basis of required contributions and the nature of the library in the locality, as below:

Library infrastructure contributions are determined by the population adjustment resulting in a square metre demand for library services. The square metre demand is multiplied by a cost multiplier which determines the total contributions as below:

Contributions = SQ M Demand x Cost Multiplier

a) Square Metre Demand
The square metre demand for library floor space varies across the relevant districts and parishes on the basis of library infrastructure available and the settlement population in each particular locality. The **local floorspace demand (LFD)** figure varies between 30 and 35 square metres per 1000 people and is provided with each individual calculation.

Square Metre Demand = (Adjusted Population x LFD) / 1000

b) Cost Multiplier- Library Infrastructure
WSCC estimated cost of providing relatively small additions to the floorspace of existing library buildings is **£3,840** per square metre. This figure was updated by WSCC's Quantity surveyor for the 2012/2013 period.

3. Fire & Rescue Service Infrastructure

The Fire and Rescue Services infrastructure contribution is determined by the population adjustment multiplied by the relevant cost multiplier for the provision of services.

Fire and Rescue Contributions = Adjusted Population x Cost Multiplier

a) Adjusted Population
This is the sum of the occupancy rates for the net dwelling increase with the exclusion of social housing increase.

b) Cost Multiplier- Fire Rescue
There are two cost multipliers for WSCC which relate to the Southern Division and the Northern Division. The cost multiplier is calculated by dividing the total cost of necessary fire and rescue infrastructure within the division by the projected population for 2016. The cost multipliers are as below:

Southern Division (Chichester, Arun, Worthing and Adur): £13 per person

Northern Division (Horsham, Crawley, Mid Sussex): £50 per person in Horsham, £92 per person in Crawley

Note: The installation costs of fire hydrants are excluded from the above and will continue to be required on developments as a direct cost to the developer as required under the Fire Services Act 2004

4. TAD- Total Access Demand

The methodology is based on total access to and from a development. An **Infrastructure Contribution** is required in respect of each occupant or employee provided with a parking space, as they would be more likely to use the road infrastructure. The **Sustainable Transport Contribution** is required in respect of each occupant or employee not provided with a parking space which would be likely to rely on sustainable transport.

TAD = Infrastructure contribution + Sustainable Transport contribution

a) Infrastructure Contribution
Contributions for Infrastructure are determined by the net increase in car parking spaces, multiplied by WSCC's estimated cost of providing transport infrastructure per vehicle- Infrastructure cost multiplier. The Infrastructure cost multiplier as at 2012/2013 is £1,000 per parking space.

Infrastructure contributions = Car parking spaces x Cost multiplier.

b) Sustainable Transport Contribution

This is derived from the net car parking increase subtracted from the projected increase in occupancy of the development. The sustainable transport contribution increases where the population is greater than the parking provided. The sustainable transport figure is then multiplied by County Council's estimated costs of providing sustainable transport infrastructure cost multiplier (£500).

Sustainable transport contr. = (net car parking – occupancy) x 500

Note: occupancy is determined by projected rates per dwelling and projected people per commercial floorspace as determined by WSCC.

cc: **David Boarer, WSCC Fire Services (via email)**
Deborah Lewis, WSCC Library Services (via email)
Lyndsay Irvine, WSCC Children and Young People's Services (via email)

Response to WSCC Strategic Planning Consultation Comments dated 11 December 2012

Proposed housing development at

Roundstone Lane, Angmering
Arun Planning Application A/82/12

On behalf of

Barratt David Wilson Southampton

18 December 2012

the Civil Engineering Practice

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This note is prepared on behalf of the Applicant to respond to the offsite elements of the West Sussex County Council [WSCC] Strategic Planning Consultation response to Arun District Council dated 11 December 2012 specifically relating to the site access design and the need for Traffic Regulation Order.

There is currently an objection from the Highway Authority to the Planning Authority on the site access junction proposal on the basis that they require public and statutory consultation to be undertaken prior to Planning Committee to demonstrate the Traffic Regulation Order necessary to install a road hump would be successful subsequent to the granting of Planning Consent.

We assert that the granting of Planning Consent should not be based on the lack of this very specific detail of the proposed vertical deflection at the site entrance which could be omitted if not accepted by the Highway Authority.

Between the junctions with High Street and Nursery Road there are currently three pairs of 75 millimetre high tarmac speed cushions arranged in two sets of three pairs on either side of a priority give way feature which gives priority to southbound vehicles.

The existing cushions are spaced at approximately 30 metres from the junction with High Street and a similar distance from the junction with Nursery Road.

There is an 80 metre gap between the two sets of speed cushions in which a 10 metre long kerbed buildout (priority feature) 45 metres from the northern set of cushions and 25 metres from the southern set has been constructed. The spacing within the two sets between the cushions is approximately 50 metres.

The site access junction is located opposite the existing build out.

The Stage 1 Road Safety Audit dated 5 February 2012 and submitted as part of our Transport Assessment dated July 2012 included the following comment and recommendation:

'Location: New Access on Roundstone Lane - Location 3

Summary: Presence of build-out opposite proposed access could increase risk of the priority system being violated and potential collisions.

The proposed access at Location 3 on Roundstone Lane will be directly opposite a build-out which forms part of a priority system. Once the access is constructed there is a risk that drivers will attempt to use the bell-mouth

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to pass each other and ignore the priority system. This could lead to vehicles conflicting with those approaching the junction on the new access road.

Recommendation - Remove the build-out.'

The design solution to replace the build out with a raised junction was subject to a second Stage 1 Road Safety Audit dated 28 November 2012. All the recommendations within that audit have been incorporated into the design subject to detailed design.

The proposal to replace the build out with a raised junction was to retain and enhance the existing traffic calming on that street. However given the need for public consultation and due process to make a Traffic Regulation Order there is a possibility that the proposed TRO is not approved by the Highway Authority. Under these circumstances the vertical deflection need not be constructed.

The access junction constructed without the vertical deflection of a raised table would be identical in plan and the recommendations of both Road Safety Audits would still be met.

The removal of the buildout would leave a gap of 80m between the two sets of traffic calming speed cushions. This distance complies with current guidance on proximity of speed reducing features.

In discussing traffic calming on 30mph roads, DfT Local Transport Note 1/07 states in paragraph 3.3.7: '*The spacing of the traffic calming measures will influence the speed midway between the measures. Spacing in excess of 100 metres may increase speeds significantly (see Section 4.4). Spacing in excess of 150 metres, for any type of measure, is not recommended. For most measures, a spacing of 60 to 90 metres would be appropriate.*'

The presence of the new access junction, development frontage and new footway on the eastern side of Roundstone Lane would in themselves produce an increase in turning manoeuvres, pedestrian activity and enhancement of the place function of that stretch of road and which would influence driver behaviour and have a limiting effect on speed as discussed in Manual for Streets (2007).

In the event that the build out is totally removed or if it is replaced by a raised junction both solutions would accord with the recommendations of both Stage 1 Road Safety Audits and should be acceptable in highways safety terms.

Public consultation was undertaken by the Applicant as part of their process of Community Involvement prior to submission of the Planning Application. There is also consultation of Statutory Consultees together with Angmering Parish Council and the existing residents on Roundstone Lane as part of the determination process undertaken by the Planning Authority.

On this basis there is no reason to restrict the granting of Planning Consent for lack of consultation and the Traffic Regulation Order process can follow its normal path subsequent and separate to the processes under the Town and Country Planning Act 1990.

Appendix 15

Interim Residential Travel Plan

The Civil Engineering Practice
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INTERIM

Residential Travel Plan

For housing development at

Roundstone Lane
Angmering

On behalf of

Barratt David Wilson Southampton

(Pre-Occupation)

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1 Introduction

1.1 The information in this Travel Plan has been put together to help the residents of the new housing development at Roundstone Lane, Angmering travel to and from their new homes by sustainable modes of transport with reduced reliance on the private car.

1.2 Barratt David Wilson Southampton working with West Sussex County Council aim to raise awareness of the problems associated with unnecessary car use and to help find practical and economic ways of helping people to reduce car use and find alternative ways to travel.

1.3 The aim of the Travel Plan is to promote travel by sustainable modes; walking, cycling, buses and trains whilst being aware of the importance of the private car for long distance journeys which are more difficult to make by sustainable travel modes.

1.4 Where there is a need to use a car, the Plan seeks to promote the use of car clubs and car sharing to reduce single occupancy car use and in turn reduce cost and excessive parking.

1.5 The Travel Plan is committed to by Barratt David Wilson Southampton and West Sussex County Council and will operate for a minimum of five years. The main objectives are:

- To provide sustainable transport choice for residents at the earliest opportunity.
- To aim to reduce single occupancy car use by 10% over a five year period. This can be achieved by a reduction of just 2% each year.

1.6 It is important to understand that the schemes set out within the Travel Plan should not be seen as anti-car but instead as providing viable alternatives to travelling by car for residents. There are various potential benefits to this in terms of financial cost, health, community and the environment.

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2 Roles

2.1 The Developer

2.1.1 Barratt David Wilson Southampton as developer of the properties commissioned this Travel Plan and made a commitment at the Planning Stage to appoint a Travel Plan Coordinator to promote the Plan for five years

2.1.2 The Travel Plan Coordinator will be appointed prior to occupation of the first house.

2.2 The Travel Plan Coordinator

2.2.1 The Travel Plan Coordinator will maintain and organise the Travel Plan.

2.2.2 The Travel Plan Coordinator's responsibilities include:

- Making all residents aware of the Travel Plan and providing all new occupants with an Introductory Travel Pack.
- Implementing and promoting the schemes and initiatives of the Travel Plan
- Commissioning Travel Surveys on behalf of the Developer
- Supplying West Sussex County Council with Survey data
- Monitoring the effectiveness of the Travel Plan
- Updating the Travel Plan
- Informing all residents and West Sussex County Council of progress and any new or revised targets

2.3 West Sussex County Council

2.3.1 West Sussex County Council are committed to promoting sustainable travel choice in the County as a whole and work with local businesses, residents associations, developers and local communities.

2.3.2 West Sussex County Council will audit each Travel Survey and independently monitor the effectiveness of the Travel Plan for comparison with the findings of the Travel Plan Coordinator.

2.4 The Residents of Roundstone Lane

2.4.1 This Travel Plan is for the residents at Roundstone Lane and they are encouraged to use it for their benefit as an aid towards a less car dependent neighbourhood.

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3 Local Transport Information

3.1 By Foot and Cycle

3.1.1 There is a 1.8m wide footway along the full length of the west side of Roundstone Lane and a 1.8m wide footway on the east side of Roundstone Lane which extends northwards from the northwest corner of the site to the High Street.

3.1.2 There is a traffic signal controlled pedestrian crossing on the A259 on the route towards Angmering Railway Station together with several other uncontrolled crossing points at the junctions with Roundstone Lane and Angmering Bypass and a footbridge over the A259 Roundstone Bypass adjacent to Station Road.

3.1.3 In addition to the public footways there are public footpaths along the southern and eastern boundaries which connect Roundstone Lane to the A259 to the south and the High Street to the north.

3.1.4 There is a segregated footway cycleway through the residential estate to the west, a dedicated off road cycle route to the south of the site following the alignment of the A259 and an off carriageway shared cycle route along the A280 Angmering Bypass between Water Lane and the A27.

3.2 By Bus

3.2.1 Stagecoach and Compass Bus operate bus services in the vicinity of the site.

3.2.2 The closest bus stop is located immediately outside the main entrance on Roundstone Lane.

3.2.3 There are also stops on Roundstone Lane at its intersection with the footpath which follows the southern site boundary.

3.2.4 All stops provide access to the Stagecoach number 9 bus which offers an hourly service between Southwick and Littlehampton as well as Angmering and Rustington centres and Angmering Railway Station.

3.2.5 Compass Bus number 84 can be accessed from the village green approximately 1km to the west and provides two services per day Mondays to Saturdays to Arundel and Chichester.

3.2.6 The Stagecoach 700 Coastliner Service stops on Littlehampton Road 1km to the south and provides up to 6 services per hour in each direction between Brighton and Southsea including Ferring, Goring, Worthing, Lancing, Shoreham, Portslade and Hove to the east and continuing to Rustington, Littlehampton, Arundel, Yapton, Bognor Regis, Chichester, Bosham, Southbourne, Emsworth, Havant, Hilsea and Portsmouth to the west.

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3.2.7 The remaining services within Angmering provide access to schools and supermarkets and are typically one service per day which can be caught from either the Village Green or Dell Drive to the west.

3.3 By Train

3.3.1 Angmering Railway Station is located approximately 2km from the site, a 25 minute walk or 12 minute cycle ride.

3.3.2 The number 9 bus provides direct access between the site and the Railway Station and has an hourly frequency.

3.3.3 There is a well established pedestrian route to Angmering Railway Station with a traffic signal controlled pedestrian crossing on the A259.

3.3.4 Trains from Angmering Station travel west to Littlehampton, Chichester, Portsmouth and Southampton and east to Worthing, Hove, Brighton, Gatwick and London Victoria.

3.4 By Car

3.4.1 The B2225 Roundstone Lane links the High Street with the A259.

3.4.2 The A280 Angmering Bypass provides access to the A27 and can be accessed from Roundstone Lane either via the A259 to the south or via Weavers Hill and Water Lane to the north.

3.4.3 The A27 can also be accessed from the B2225 Arundel Road via the High Street although it is restricted to operating left in left out only.

3.4.4 Angmering Station Taxis and Black Knight Taxis operate from Angmering Station

3.4.5 There is the opportunity for all who live and work in West Sussex to use the Liftshare.com website.

3.4.6 The service is free to register and free to use and offers the possibility to find drivers and passengers for car sharing throughout the county online instantly

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4 Travel Survey Data

4.1 Parking Levels

4.1.1 A survey of available parking spaces will be undertaken within three months from the occupation of the 75th house. This survey will be updated biennially and the results incorporated into the Travel Plan Review with any recommendations which may be suitable for implementation.

4.2 Traffic Levels

4.2.1 The Transport Assessment submitted with the Planning Application identifies the anticipated vehicular traffic for the residential development as follows:

	Arrivals	Departures
12 Hour Daytime	469	469

Table 1: Predicted Traffic

4.2.2 A Level 2 TRICS survey (known in this context as SAM: Standard Assessment Methodology) or similar will be undertaken within three months from occupation of the 75th house which will better define the starting point for the Travel Plan.

4.2.3 The Travel Survey will collect data on car parking provision and use, inbound and outbound movements by all travel modes on a typical day and car occupancy.

4.2.4 A summary of that Travel Survey will be appended to this Plan and will be updated at every review.

4.3 Travel Mode Choice

4.3.1 In the absence of the first Travel Survey the predicted travel choice of residents has been taken from the Transport Assessment for the development which is as follows:

Pedestrians and Cyclists	14.0%
Public Transport	7.0%
Vehicle Driver	70.1%
Vehicle Passenger	6.3%
Other	2.6%

Table 2: Predicted Travel Mode Choice

4.4 Future Surveys

4.4.1 The Travel Survey will be repeated in years 3 and 5 of the Plan and the Travel Plan updated accordingly.

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5 Initiatives to Encourage Sustainable Transport

5.1 Updating

5.1.1 This section will be updated with new ideas and schemes as the Travel Plan evolves with the understanding of the travel needs and opportunities to cater for them using sustainable travel choices.

5.2 Introductory Travel Pack

5.2.1 An Introductory Travel Pack will be given to new owners of the properties and will include the following information:

- A plan showing pedestrian infrastructure and distances to public transport stops, shops, amenities and the village centre
- Details of safe routes to local schools
- Details of approximate journey times by foot, cycle, bus and rail to likely destinations
- Information on bicycle maintenance and bike shops offering discounts to residents
- Details of local businesses providing home delivery services
- Information on the Liftshare.com car share scheme and any local car clubs
- Contact details and information on local Taxi firms

5.2.2 The Introductory Travel Pack will include a £150 voucher valid for the purchaser upon first occupation of each house which may be exchanged for one of the following:

- Rail or bus season tickets
- Contribution towards the purchase of a new bicycle or cycling equipment
- Up to three West Sussex County Council 3-in-1 cards, a concessionary fare scheme for 5-19 year olds
- Cycle training for up to 4 members of the household

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6 Travel Plan Targets

6.1 Purpose

6.1.1 An important part of the Travel Plan process is for targets to be set and travel from Roundstone Lane to be monitored. This helps the Travel Plan Coordinator and West Sussex County Council understand if the initiatives in the Travel Plan are making a difference and if the Plan needs to be altered or improved.

6.2 Updating

6.2.1 Targets will be updated at each review but are based on an overall target of a 10% shift in car journeys over five years. The targets will be monitored by the Travel Plan Coordinator on a biennial basis and where appropriate to set new modal choice targets.

6.3 Current Targets

6.3.1 The target modal choice shift over five years based on the predicted percentage mode choice from the Transport Assessment is as follows:

Pedestrians and Cyclists	14 - 21%
Public Transport	7 - 14%%
Vehicle Driver	63.1%
Vehicle Passenger	6.3 - 13.3%
Other	2.6%

Table 3: Target Mode Choice Over 5 Years

	Arrivals	Departures
12 Hour Daytime	422	422

Table 4: Five Year Target Vehicular Traffic

6.3.2 The target for Year 1 of the Travel Plan is a 2% reduction in car journeys based the pre-survey available data as flows:

	Arrivals	Departures
12 Hour Daytime	460	460

Table 5: Predicted First Year Target Vehicular Traffic

6.3.3 Subsequent Targets will be based on a 2% reduction each year of the plan's life and based on directly surveyed data.

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7 Monitoring and Review

7.1 Monitoring

7.1.1 The Travel Plan will be monitored in year 1, 3 and 5 following occupation of the 75th house using a Level 2 TRICS SAM survey or similar which will be commissioned directly by the Travel Plan Coordinator on behalf of the Developer.

7.1.2 The Travel Plan Coordinator will produce monitoring reports and will inform all residents and West Sussex County Council of progress and any new or revised targets for the subsequent years.

7.2 Review

7.2.1 The Travel Plan Coordinator will listen to feedback and ideas from residents and encourage them to play an active role in the evolution and progression of the Travel Plan for the benefit of all the users.

7.2.2 The Travel Plan Coordinator will also hold discussions with West Sussex County Council and will make residents aware of any developments or alterations to the Travel Plan prompted by those discussions.

7.3 Auditing

7.3.1 The Developer will pay West Sussex County Council a £500 auditing fee for each survey.

7.3.2 25% of this will be returnable if targets are met and no remedial actions are required.

7.1 Updating

7.1.1 This Travel Plan is a strategy for the indefinite future and will evolve over time although the key objectives and principles of the Travel Plan to inform residents and to facilitate travel by sustainable modes will not change.

7.1.2 The Travel Plan will be updated biennially if required by progress, new ideas, feedback and Travel Survey.

7.4 Enforcement

7.4.1 In the event that the five year target is not met either a second round of £150 travel vouchers will be issued to each house or an equivalent sum paid to West Sussex County Council specifically for upgrades to public transport or cycle infrastructure used by residents of the site.

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ARUN DISTRICT COUNCIL A/82/12/

8 Quick Reference Directory

Travel Plan Coordinator

Person A [To be confirmed]

Highway Authority

West Sussex County Council

Person B [To be confirmed by WSCC]

01243 777100

www.westsussex.gov.uk

Planning Authority

Arun District Council

Person C [To be confirmed by Arun DC]

01903 737756

planning@arun.gov.uk

Transport Contacts

Cycling Information and Bikeability Training	West Sussex County Council	01243 777100
	www.westsussex.gov.uk/cycling	
Bus Information	Compass Buses	01903 690025
	www.compass-travel.co.uk	
	Stagecoach	08712 002233
	www.stagecoachbus.com	
Rail Information	National Rail Enquiries	08457 484950
Liftshare	www.liftshare.com	
Taxi Services	Angmering Station Taxis	01903 773366
	Black Knight Taxis	01903 787777
West Sussex County Council 3-in-1 cards	www.yourspacewestsussex.co.uk	
Local Transport Information	www.angmeringvillage.co.uk/transport.htm	
Department of Transport Journey Planning Website	www.transportdirect.info	