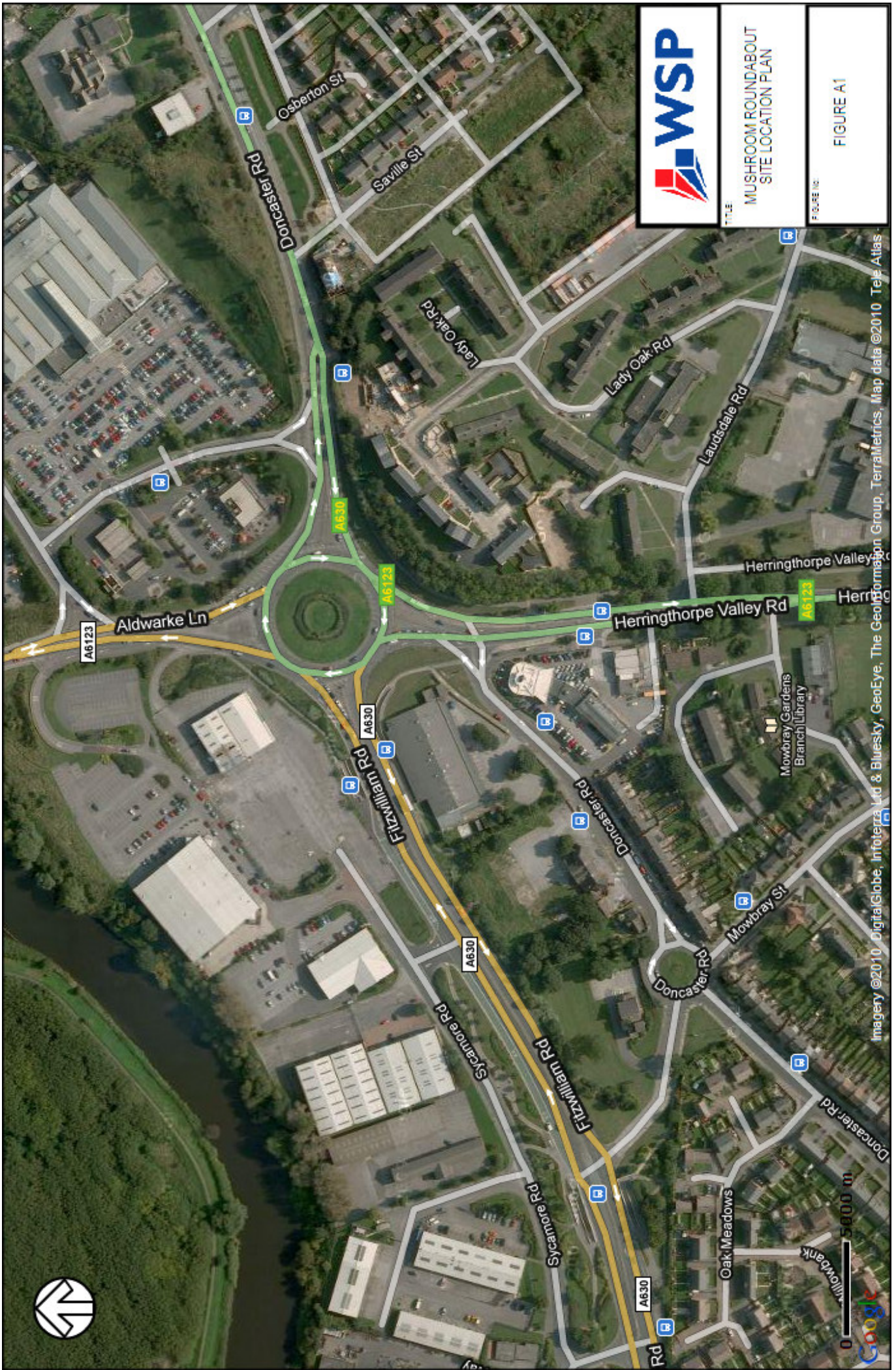

Appendices, Figures & Tables

Appendix A Figures



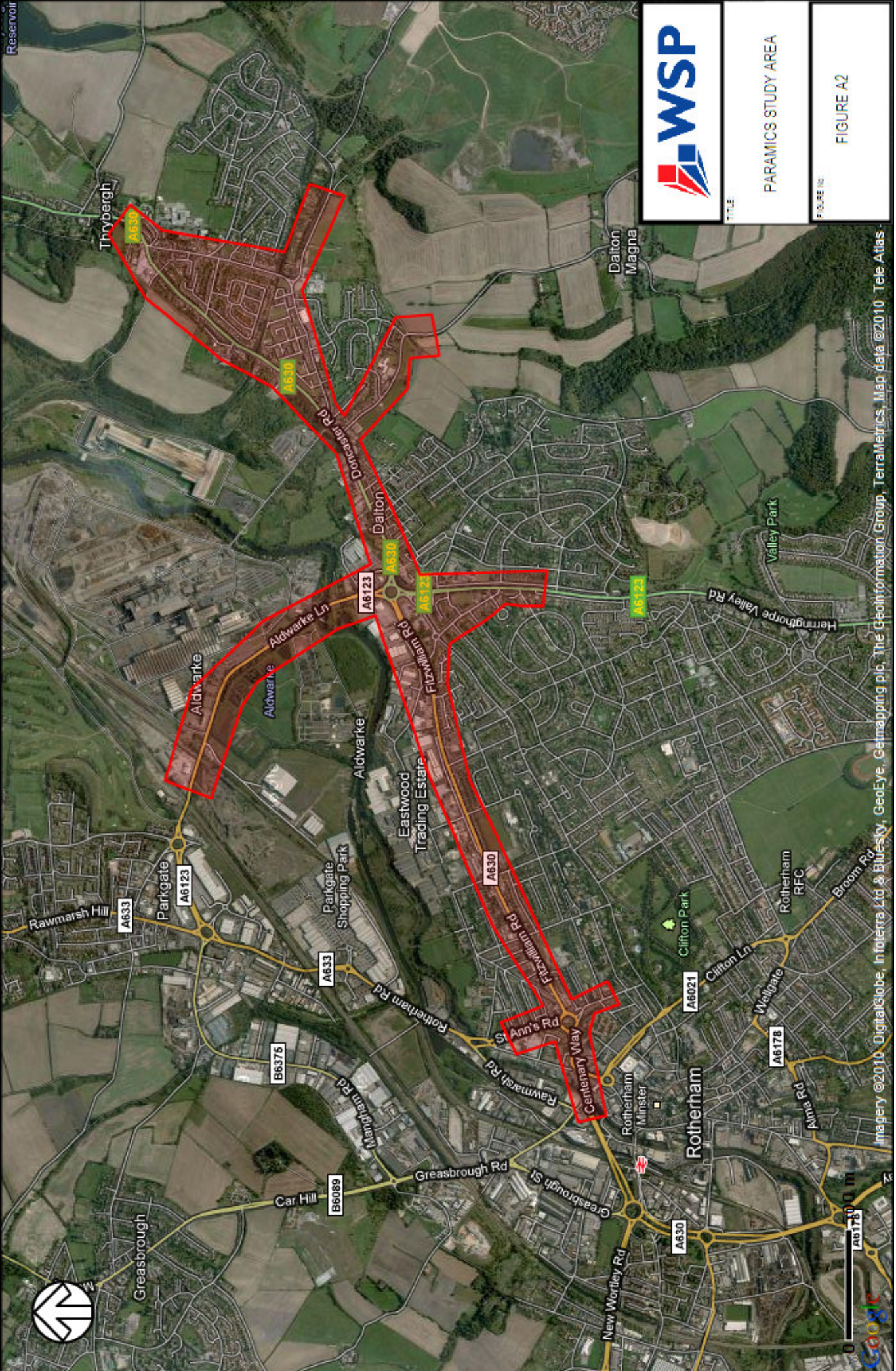
TITLE

MUSHROOM ROUNDABOUT
SITE LOCATION PLAN

FIGURE NO.

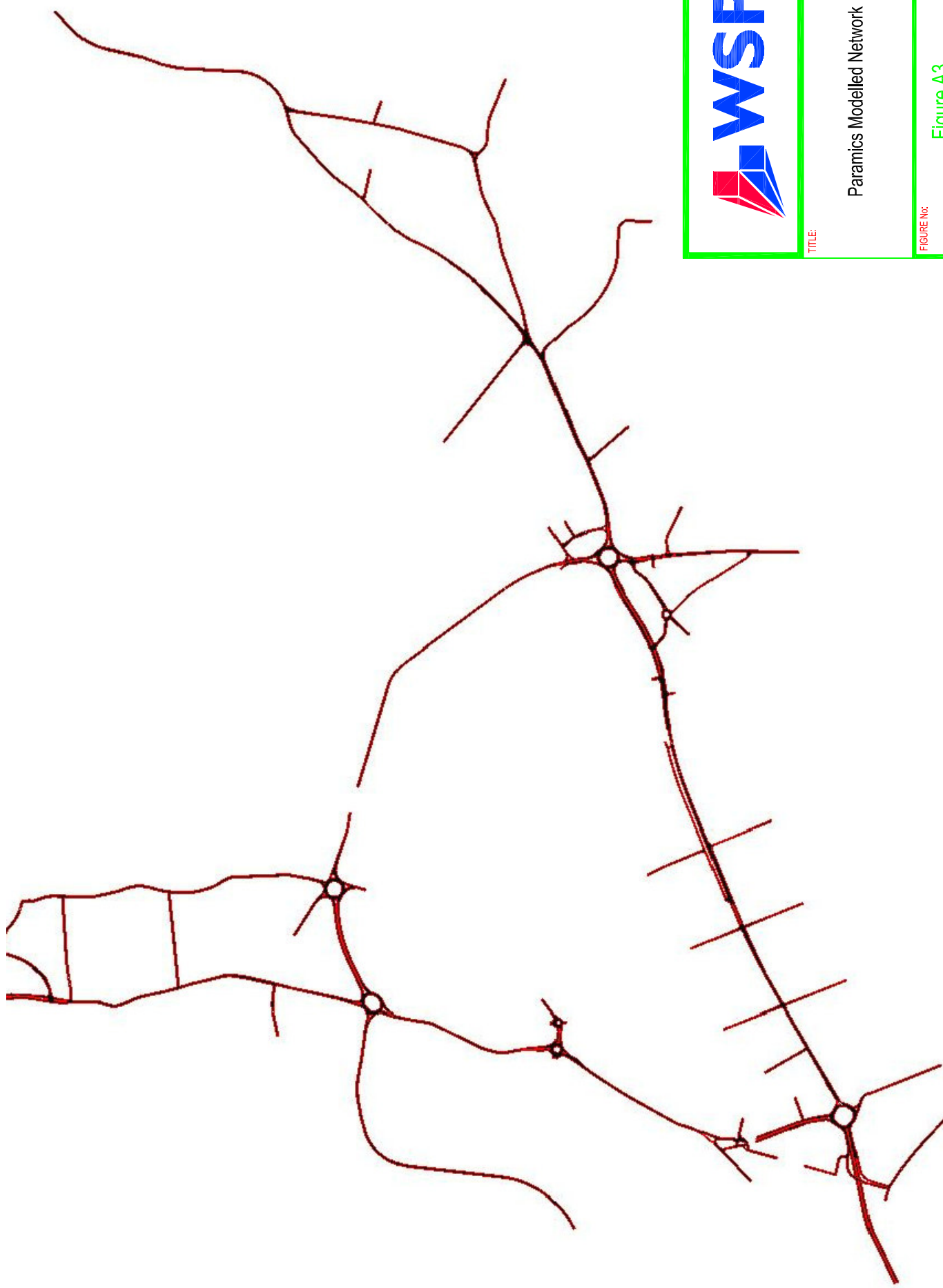
FIGURE A1

Imagery ©2010 DigitalGlobe, Infoterra Ltd & Bluesky, GeoEye, The GeoInformation Group, TerraMetrics, Map data ©2010 Tele Atlas



TITLE	PARAMICS STUDY AREA
FIGURE NO.	FIGURE A2

Imagery ©2010 DigitalGlobe, Infoterra Ltd & Bluesky, GeoEye, Geomapping Group, TerraMetrics, Map data ©2010 Tele Atlas



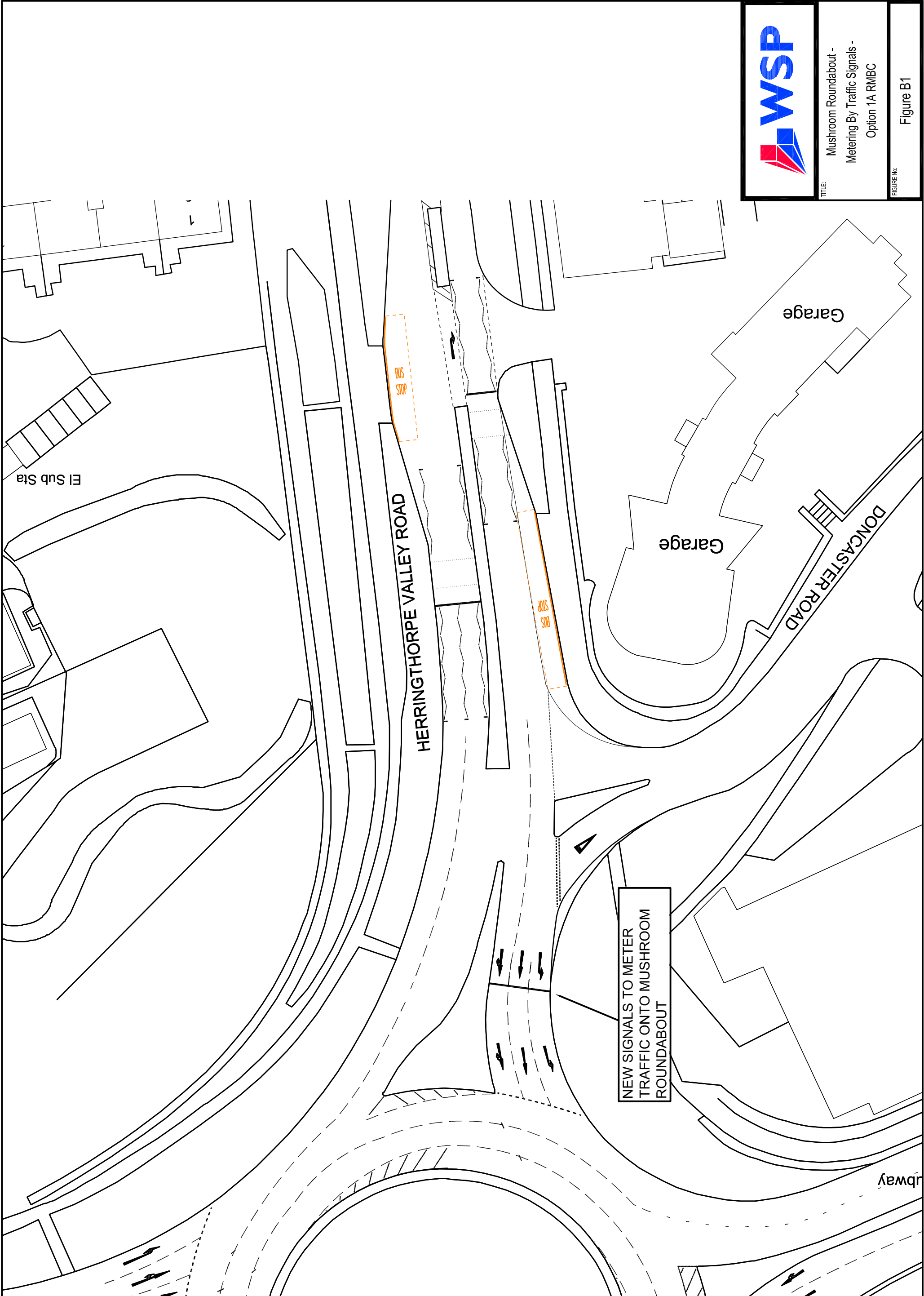
TITLE:

Params Modelled Network

FIGURE No:

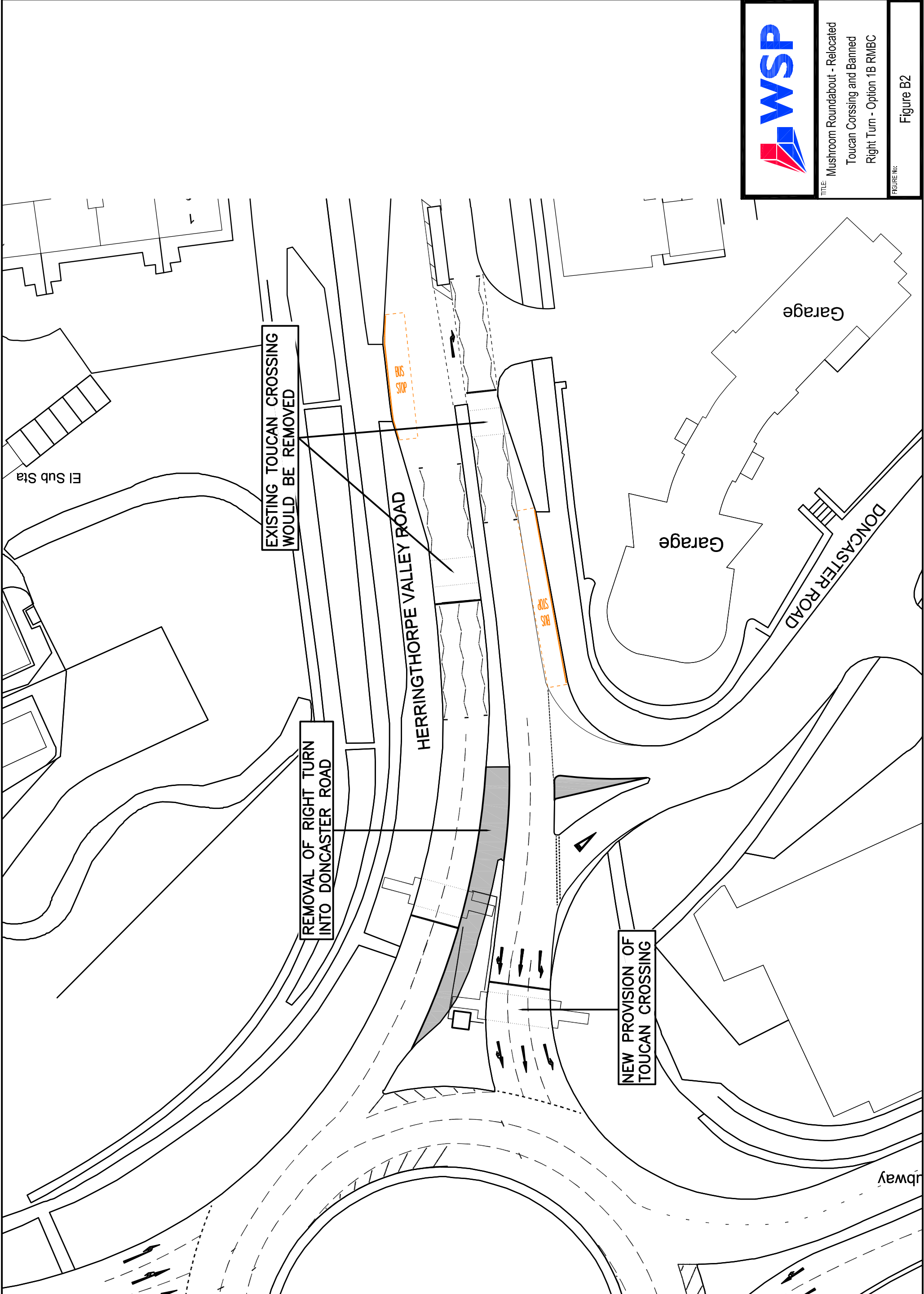
Figure A3

Appendix B Initial Option Sketches



TITLE: Mushroom Roundabout -
Metering By Traffic Signals -
Option 1A RMBC

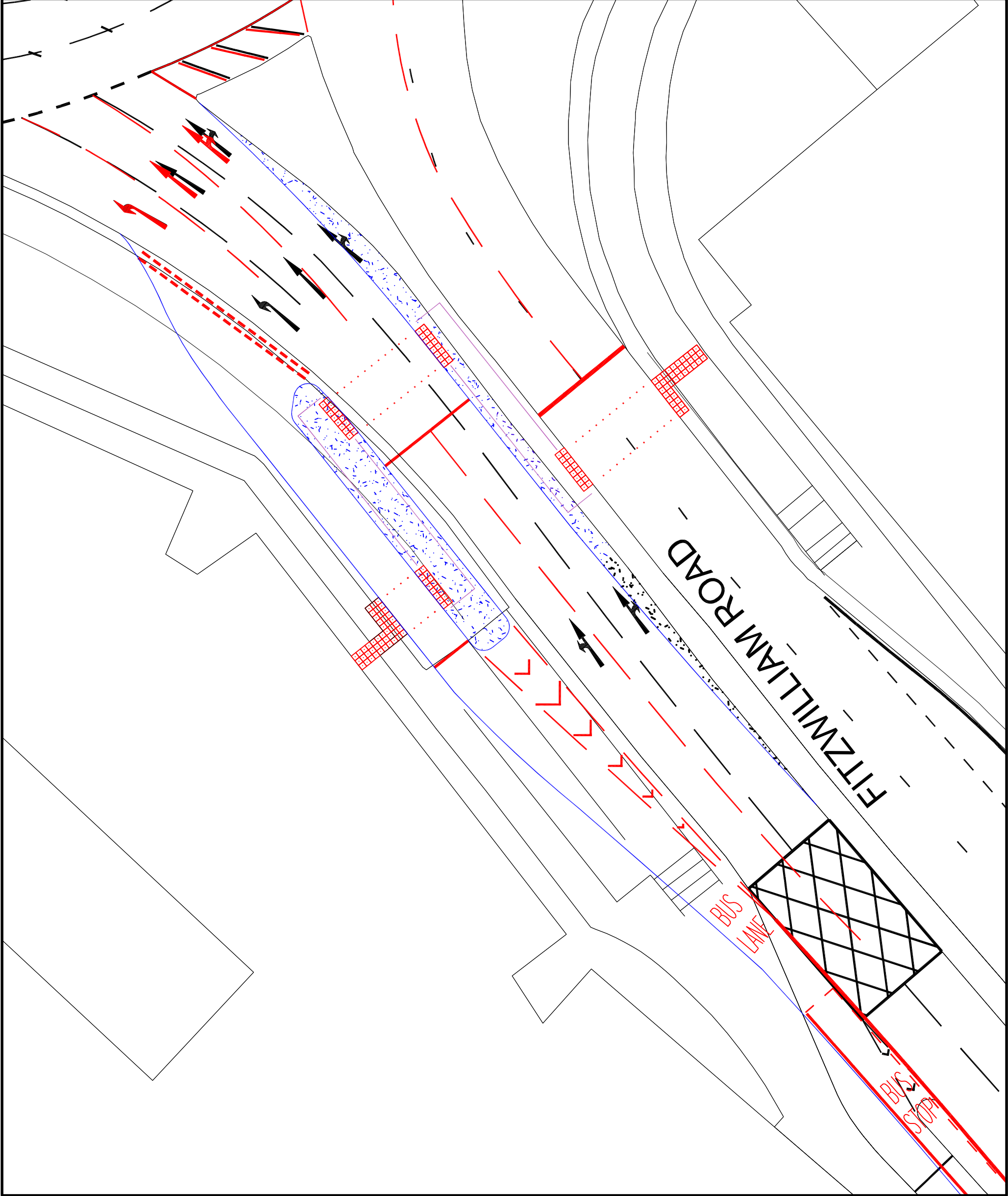
FIGURE No: Figure B1



TITLE: Mushroom Roundabout - Relocated
Toucan Crossing and Banned
Right Turn - Option 1B RMBC

FIGURE No:

Figure B2



KEY

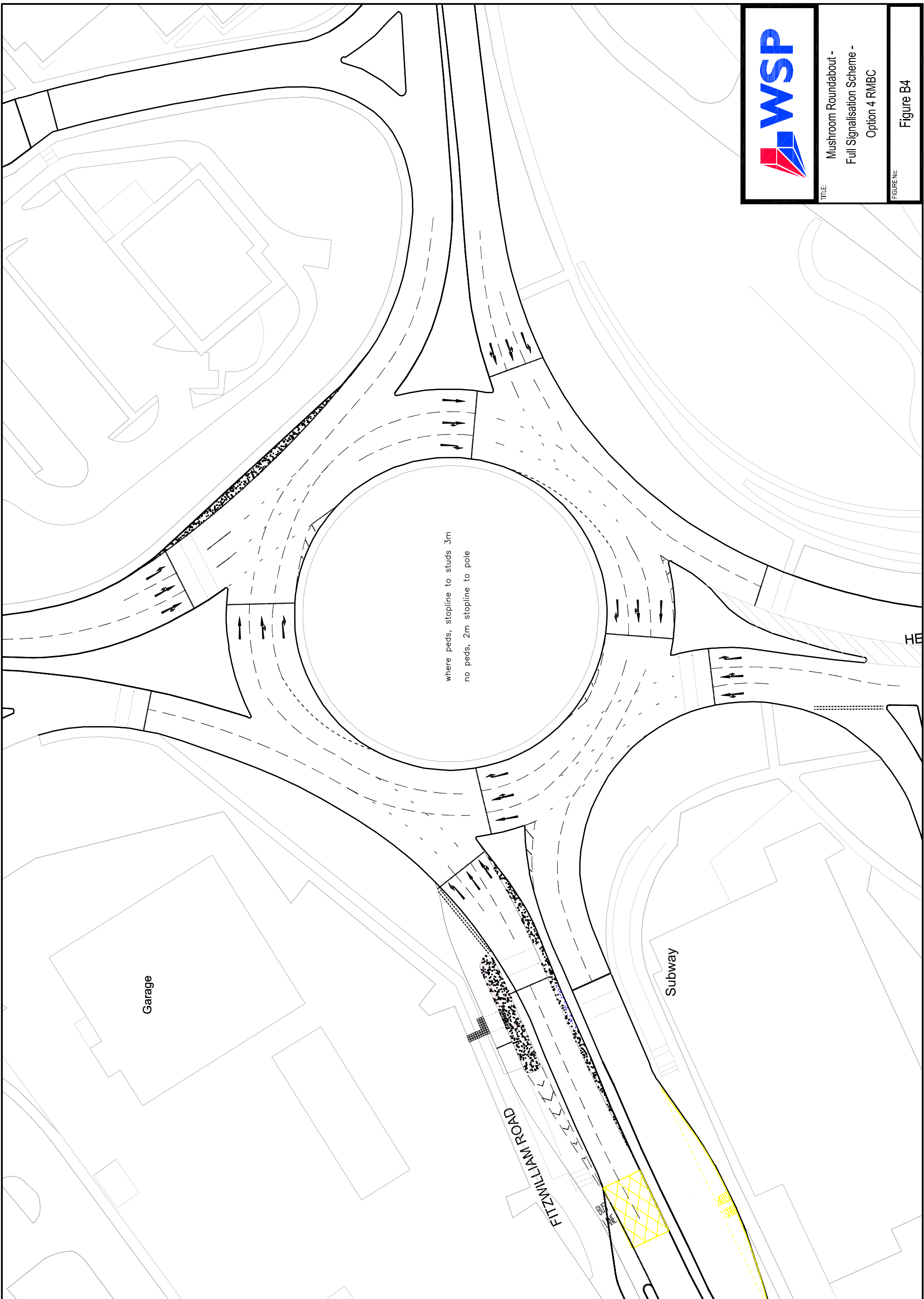
- Existing Road Markings
- Proposed Road Markings
- Pedestrian Guardrailing
- Tactile Paving (proposed)
- New Verge / Island Construction



TITLE: Mushroom Roundabout - Fitzwilliam
Road Bus Lane Extension with Pedestrian
Facilities - Option 2 RMBC

FIGURE No:

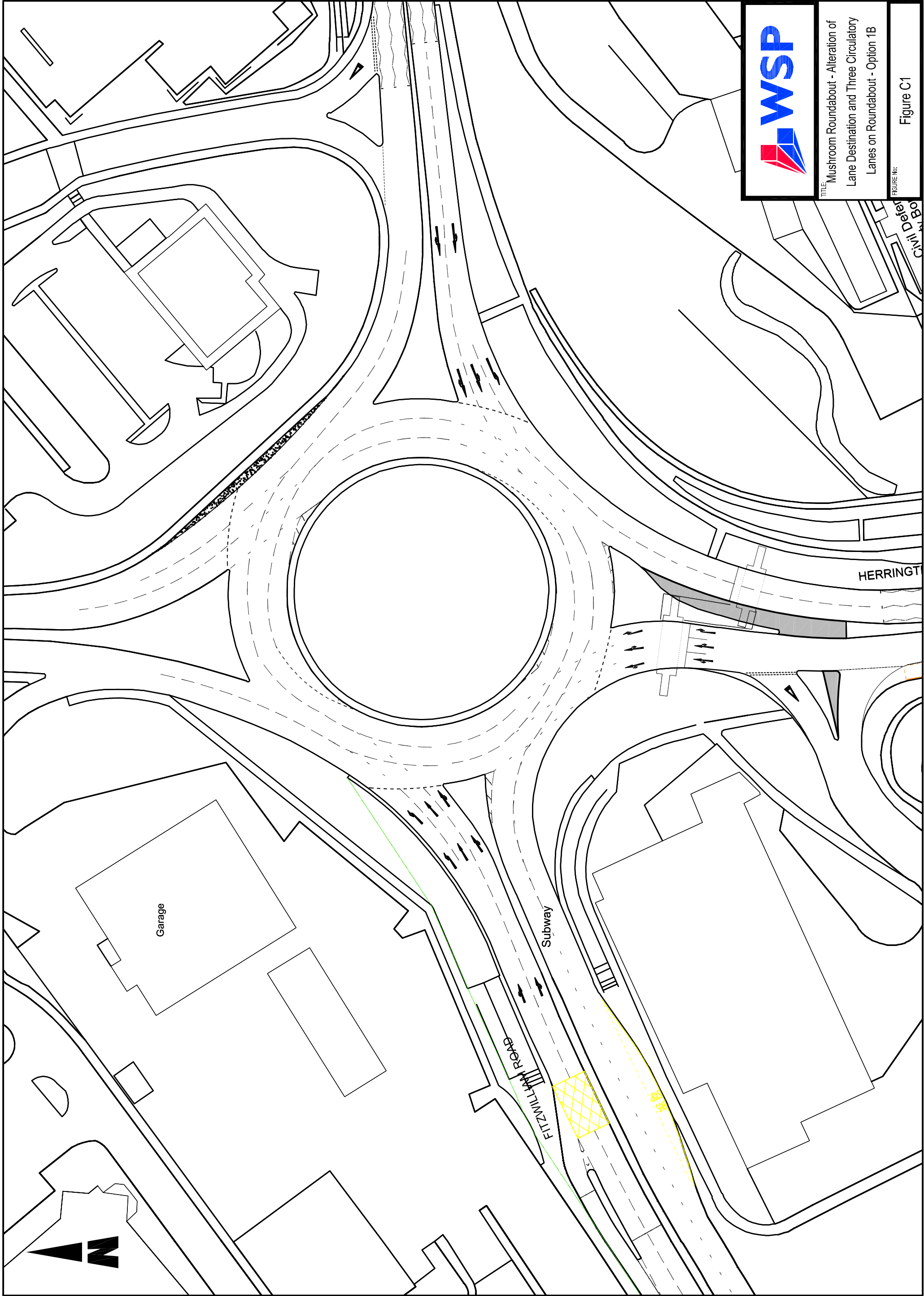
Figure B3




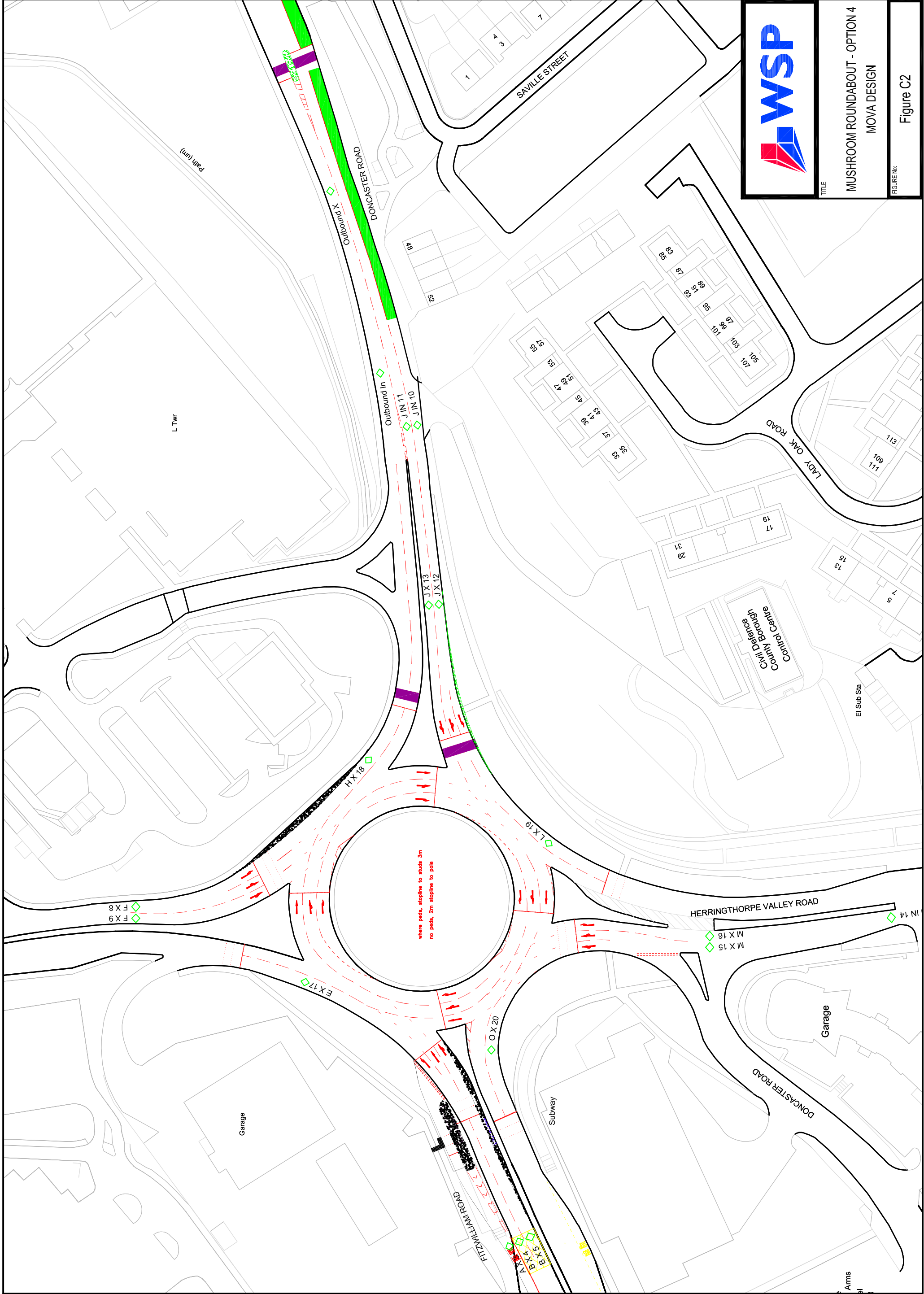
TITLE: Mushroom Roundabout -
Full Signalisation Scheme -
Option 4 RMBC


FIGURE No: Figure B4

Appendix C Developed Option Sketches



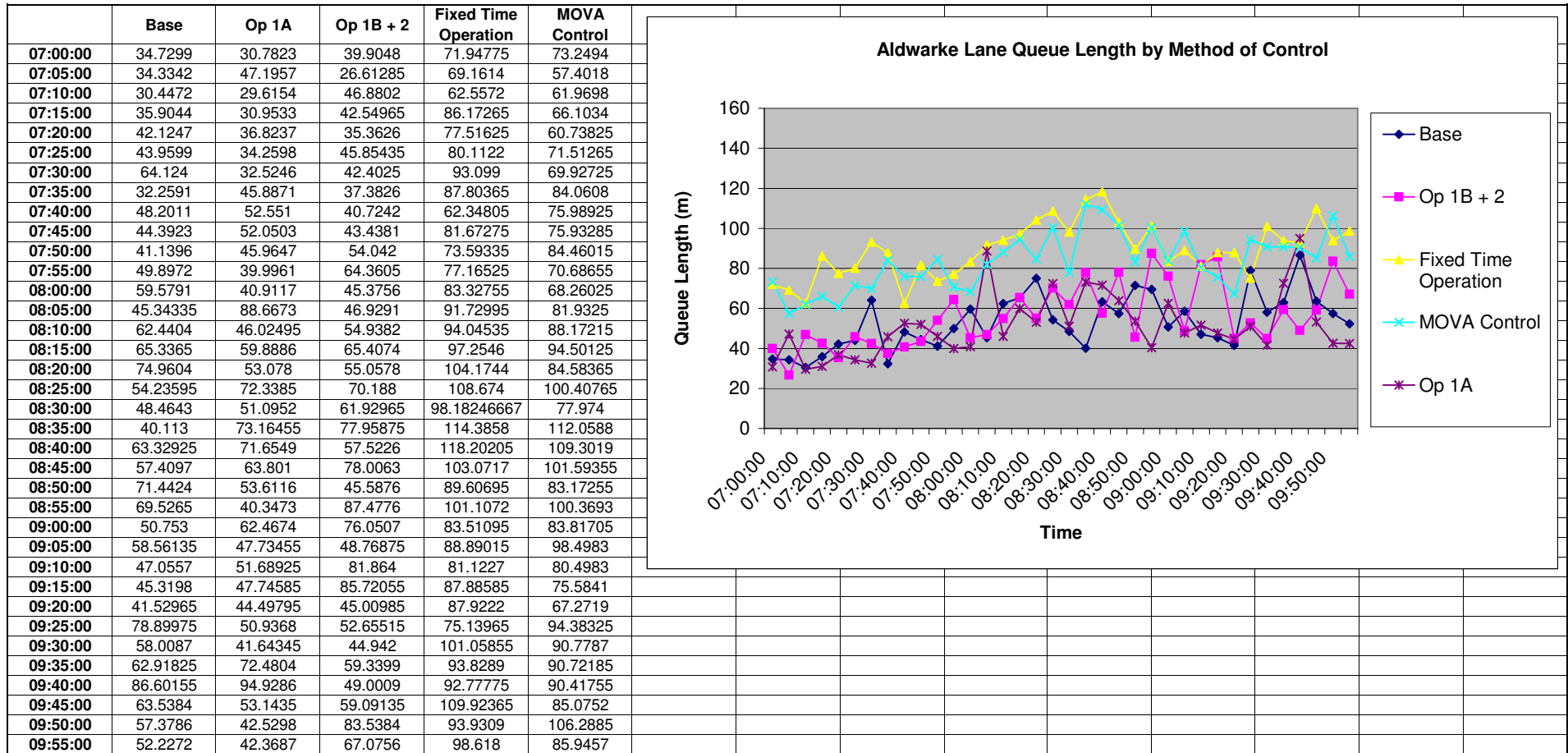
	TITLE: Mushroom Roundabout - Alteration of Lane Destination and Three Circulatory Lanes on Roundabout - Option 1B
	FIGURE No: Figure C1



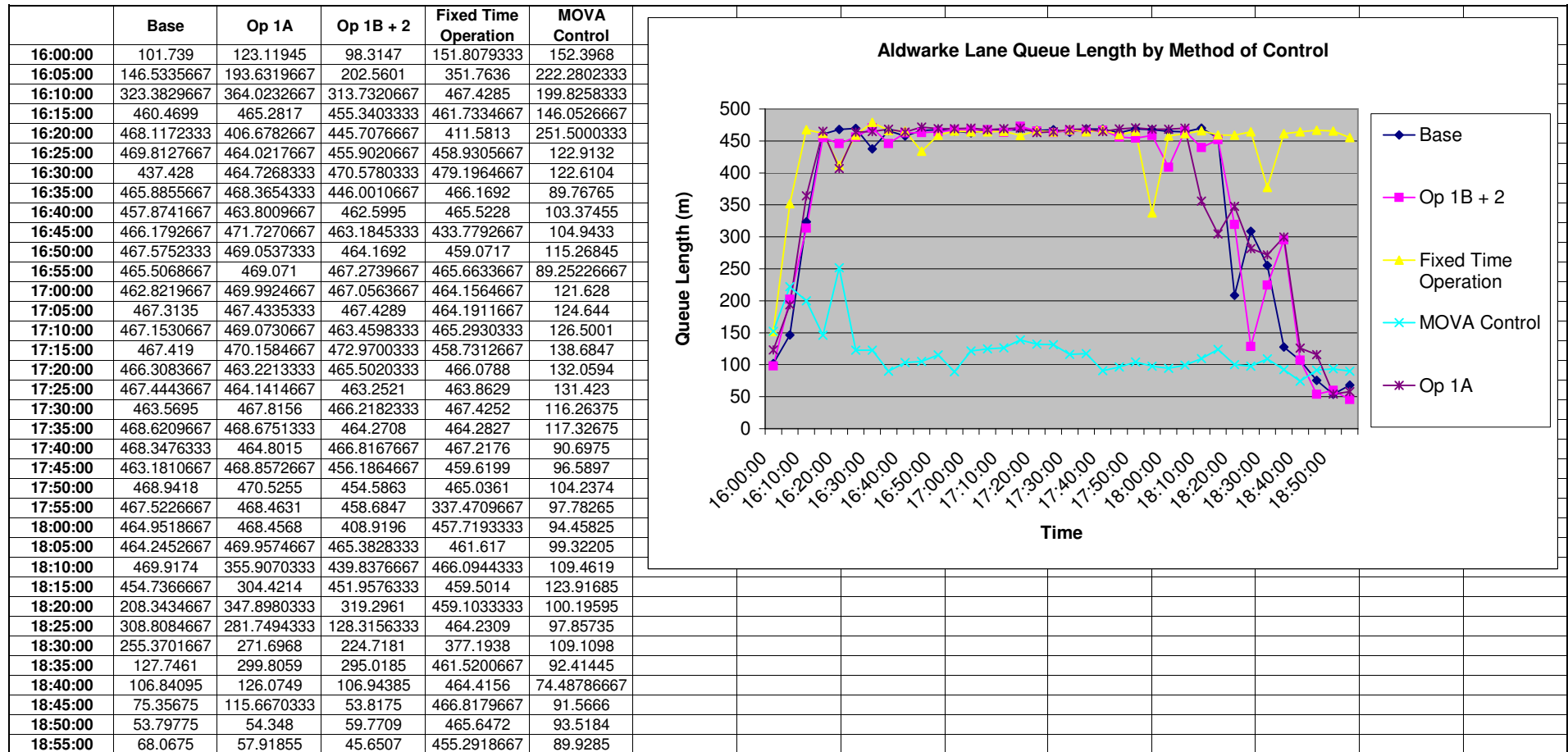
	TITLE:	MUSHROOM ROUNDABOUT - OPTION 4
	FIGURE No.:	MOVA DESIGN
		Figure C2

Appendix D Queue Length Graphs

Queue Length Comparison by Approach - Morning Peak

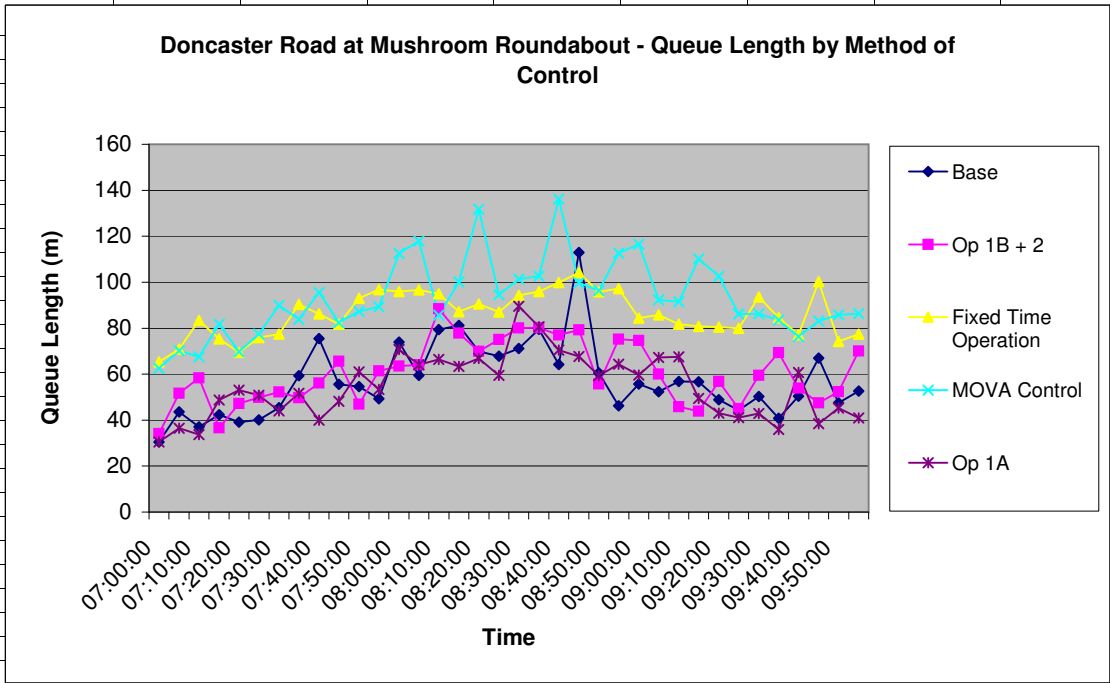


Queue Length Comparison by Approach - Evening Peak



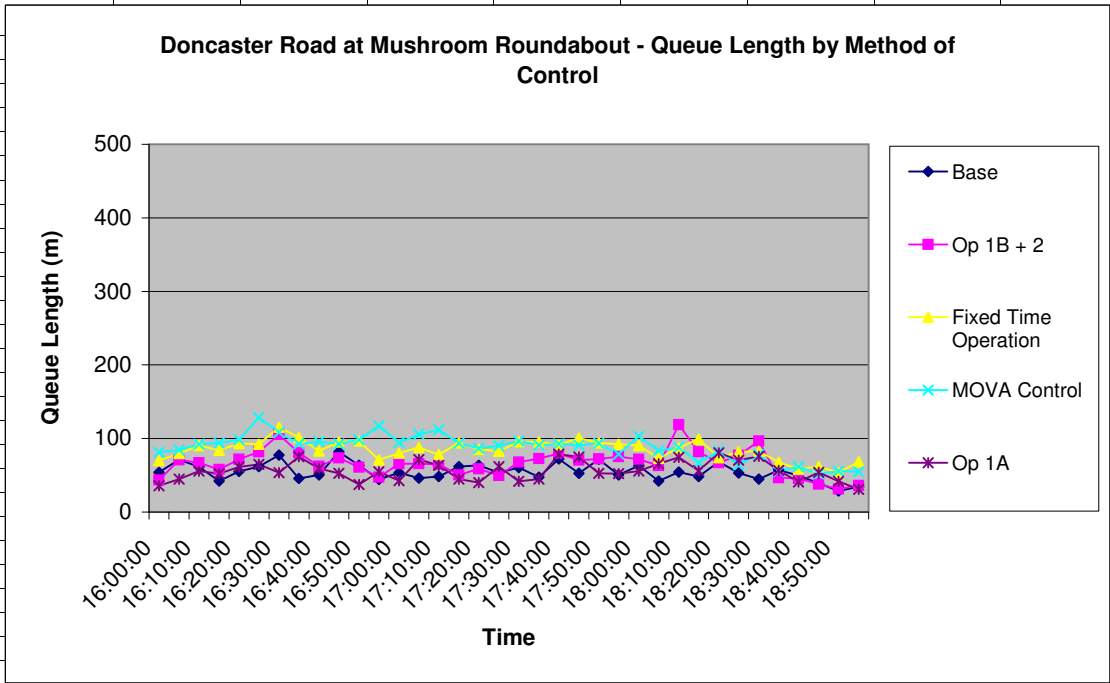
Queue Length Comparison by Approach - Morning Peak

	Base	Op 1A	Op 1B + 2	Fixed Time Operation	MOVA Control
07:00:00	30.4837	30.5278	34.1811	65.28533333	62.54653333
07:05:00	43.64676667	36.53015	51.6321	70.86636667	70.23343333
07:10:00	37.0722	33.7131	58.4041	83.41393333	67.5219
07:15:00	42.3552	48.75136667	36.63356667	75.3174	81.78976667
07:20:00	39.1504	53.1115	47.1693	69.52423333	69.74286667
07:25:00	40.0503	50.80046667	49.8898	75.9206	77.4928
07:30:00	45.331	44.0627	52.22045	77.44	89.90076667
07:35:00	59.32803333	51.72706667	49.7417	90.438	83.7755
07:40:00	75.5175	39.98995	56.1762	86.20733333	95.5123
07:45:00	55.50243333	48.2379	65.5328	81.68266667	82.39213333
07:50:00	54.56913333	61.02086667	46.91555	93.00343333	87.3555
07:55:00	49.35576667	53.38123333	61.3764	96.79286667	89.2429
08:00:00	73.94923333	70.7762	63.47176667	95.98183333	112.5435333
08:05:00	59.4171	64.0093	64.1155	96.68216667	117.9849667
08:10:00	79.3057	66.3552	88.42626667	95.01656667	85.6405
08:15:00	81.1848	63.3327	77.80263333	87.18316667	100.1325667
08:20:00	69.94315	66.8697	69.861	90.5001	131.7045333
08:25:00	67.85903333	59.4712	75.00726667	86.9636	94.53376667
08:30:00	71.09596667	89.60226667	80.05813333	94.2693	101.3245333
08:35:00	79.5596	80.61026667	80.19586667	95.87673333	102.6689
08:40:00	64.25783333	70.4414	77.07446667	99.85486667	136.1791
08:45:00	112.9159	67.7279	79.2459	104.1947	99.6988
08:50:00	60.55	59.28193333	55.76033333	95.74156667	96.34646667
08:55:00	46.19363333	64.3196	75.19656667	97.26673333	112.6697667
09:00:00	55.70296667	59.55666667	74.59173333	84.3816	116.5007667
09:05:00	52.40086667	67.21506667	60.03743333	85.76316667	92.37986667
09:10:00	56.86603333	67.4982	45.814	81.7174	91.43653333
09:15:00	56.74426667	49.37016667	43.84566667	80.78766667	110.1624
09:20:00	48.9226	43.0431	56.75755	80.48633333	102.5652333
09:25:00	44.34246667	41.07906667	44.917	79.92966667	86.1804
09:30:00	50.3269	42.92775	59.5036	93.51283333	86.17426667
09:35:00	40.75553333	35.96356667	69.34445	84.5585	83.58123333
09:40:00	50.43486667	60.67116667	53.90735	77.09566667	76.32946667
09:45:00	67.00446667	38.48183333	47.43125	100.2551667	83.15293333
09:50:00	47.45846667	45.27415	52.29376667	74.15903333	85.77253333
09:55:00	52.57745	40.95076667	70.08766667	77.4462	86.33106667



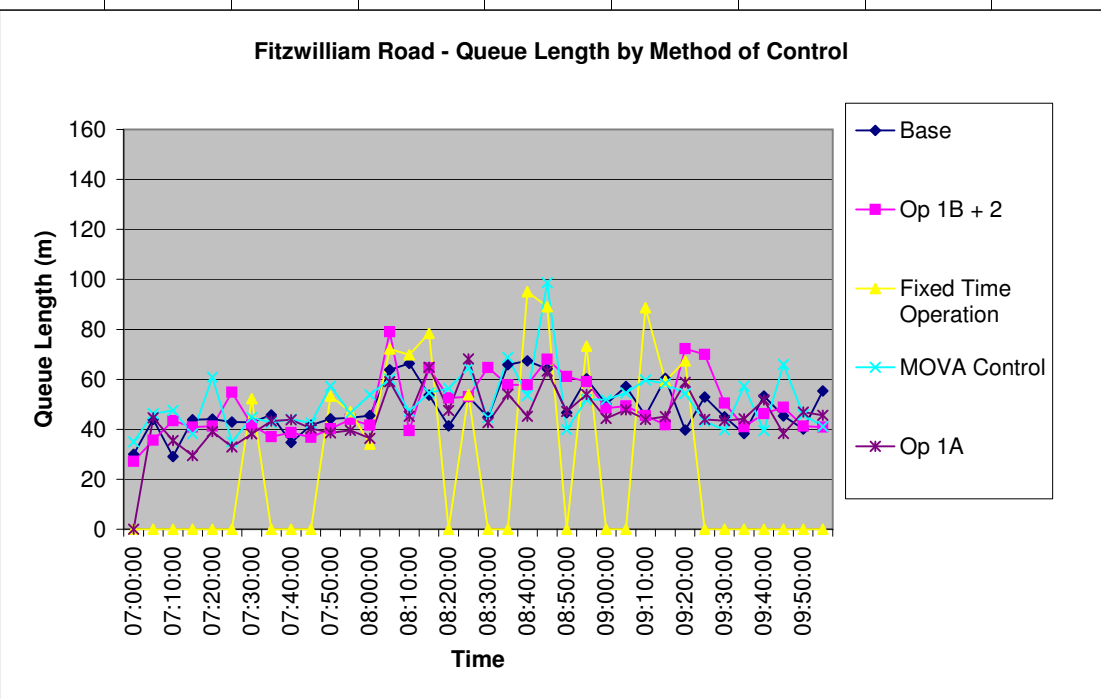
Queue Length Comparison by Approach - Evening Peak

	Base	Op 1A	Op 1B + 2	Fixed Time Operation	MOVA Control
16:00:00	54.14703333	35.6792	43.38845	70.1663	81.24576667
16:05:00	71.26996667	44.81013333	70.88303333	79.60046667	84.35656667
16:10:00	61.3187	55.88036667	67.1435	90.57653333	92.19503333
16:15:00	42.27653333	52.28063333	57.894	84.0905	93.98383333
16:20:00	55.37656667	61.32103333	71.81015	92.9884	98.5502
16:25:00	61.813	64.8114	81.955	92.44723333	128.2802667
16:30:00	77.31843333	53.55766667	105.2000667	115.3369333	108.5035
16:35:00	45.79506667	75.46126667	80.49023333	101.5629667	92.65643333
16:40:00	50.56783333	59.28186667	62.18533333	82.93236667	95.52196667
16:45:00	81.96223333	52.66953333	73.61826667	95.4627	92.80386667
16:50:00	63.5905	37.33723333	61.10386667	96.70346667	98.13323333
16:55:00	44.4933	54.692	47.43386667	70.81686667	117.0739333
17:00:00	53.46275	42.7217	65.88926667	80.03153333	94.5798
17:05:00	46.1151	71.21486667	65.83973333	87.87453333	105.5927667
17:10:00	48.35613333	63.4458	64.93943333	77.90706667	111.8063333
17:15:00	61.94026667	44.6954	50.3814	94.10833333	93.714
17:20:00	63.70226667	40.20143333	58.91573333	85.4974	86.7972
17:25:00	53.4008	61.95946667	49.65703333	82.8134	90.11516667
17:30:00	60.44896667	41.79193333	67.9454	95.82616667	96.41983333
17:35:00	47.41176667	44.69396667	72.78683333	95.4367	90.9145
17:40:00	72.03466667	78.92796667	79.51223333	91.37783333	92.78926667
17:45:00	52.6894	75.06373333	70.64776667	100.5563667	91.03023333
17:50:00	71.66743333	52.46736667	72.19663333	93.85733333	93.68986667
17:55:00	50.53183333	52.0335	75.3725	92.46773333	78.54956667
18:00:00	63.13446667	55.67423333	71.8426	90.55036667	103.2286667
18:05:00	42.08073333	65.85486667	63.30933333	73.12003333	83.67413333
18:10:00	54.5376	74.30066667	118.5931333	87.62386667	87.96166667
18:15:00	48.30293333	56.09843333	81.9467	99.0767	67.36416667
18:20:00	68.2564	80.69836667	66.9783	74.0923	82.85963333
18:25:00	53.18783333	70.69983333	77.22283333	81.82796667	64.30506667
18:30:00	44.9513	75.60353333	96.42153333	82.804	78.49696667
18:35:00	57.16133333	56.63206667	46.69555	67.9588	55.43886667
18:40:00	49.44733333	40.9831	45.86406667	58.17823333	61.98683333
18:45:00	39.3552	53.8607	38.0478	61.6884	51.60883333
18:50:00	28.8697	41.9755	31.30173333	53.41066667	55.64706667
18:55:00	34.59465	30.9391	36.2889	68.50723333	54.61516667

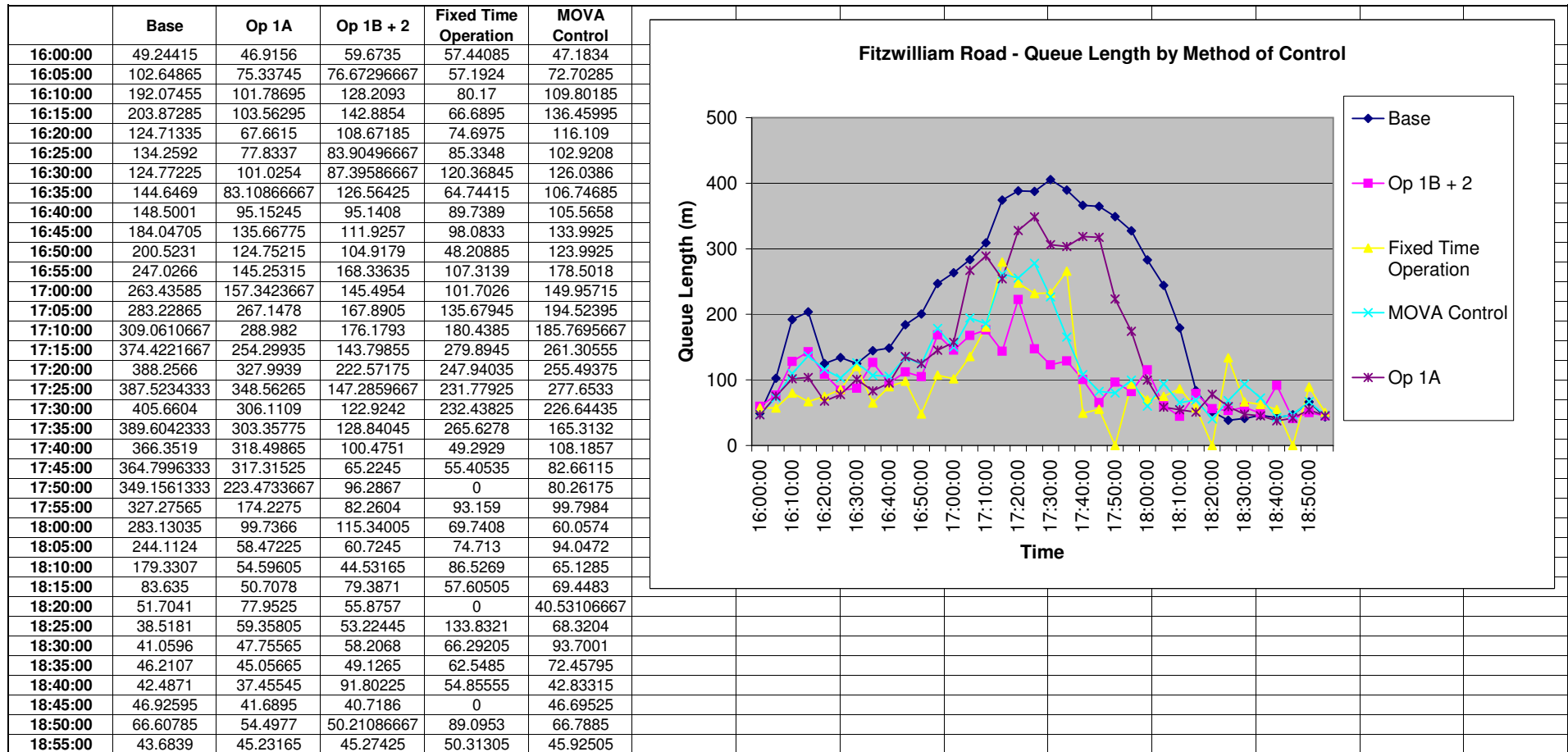


Queue Length Comparison by Approach - Morning Peak

	Base	Op 1A	Op 1B + 2	Fixed Time Operation	MOVA Control
07:00:00	29.9631	0	27.2137	0	34.9497
07:05:00	43.961	44.6204	35.6208	0	46.201
07:10:00	29.06885	35.54075	43.4153	0	47.5649
07:15:00	43.86755	29.5271	40.88565	0	38.15035
07:20:00	44.0872	39.07105	41.2777	0	60.81835
07:25:00	42.9694	32.869	54.8092	0	34.92775
07:30:00	42.83435	38.16175	41.736	52.2821	44.7401
07:35:00	45.6768	43.2839	36.9896	0	42.60605
07:40:00	34.68815	43.75525	38.6381	0	44.05433333
07:45:00	41.64135	40.38005	36.8282	0	42.5331
07:50:00	44.2177	38.54985	40.28173333	53.3434	57.2179
07:55:00	44.61605	39.63445	43.8939	47.0689	46.5528
08:00:00	45.50495	36.4046	41.58425	34.03103333	53.7653
08:05:00	63.75725	59.03765	79.0522	72.08925	60.09956667
08:10:00	66.4073	45.1997	39.4821	69.8218	47.323
08:15:00	53.7297	64.78025	64.5827	78.44	54.6028
08:20:00	41.32965	47.51565	52.4984	0	56.34845
08:25:00	53.0585	68.1629	53.05713333	53.84595	64.50166667
08:30:00	44.79725	42.6177	64.6888	0	44.69005
08:35:00	65.82775	54.0834	57.83003333	0	68.7479
08:40:00	67.3945	45.2268	57.7516	95.03385	53.50255
08:45:00	64.18405	63.24375	68.0774	89.006	98.61965
08:50:00	46.66095	47.17146667	61.05475	0	39.8013
08:55:00	60.2466	53.9215	59.09033333	73.2642	51.86503333
09:00:00	50.1	44.32195	48.4408	0	51.87485
09:05:00	57.1414	47.75555	49.29563333	0	54.50936667
09:10:00	45.45876667	43.95255	45.5233	88.6108	59.7362
09:15:00	60.39675	45.0586	41.7755	59.291	58.32296667
09:20:00	39.6881	58.7929	72.303	67.4447	54.30976667
09:25:00	52.8518	43.88585	69.9643	0	43.12466667
09:30:00	44.9688	43.4164	50.42265	0	39.74415
09:35:00	38.34583333	44.16645	40.9443	0	57.31025
09:40:00	53.277	51.73715	46.20695	0	39.4307
09:45:00	45.34935	38.3275	48.82775	0	65.9101
09:50:00	40.06485	46.9216	41.3077	0	45.8006
09:55:00	55.27955	45.5491	40.84545	0	41.1313

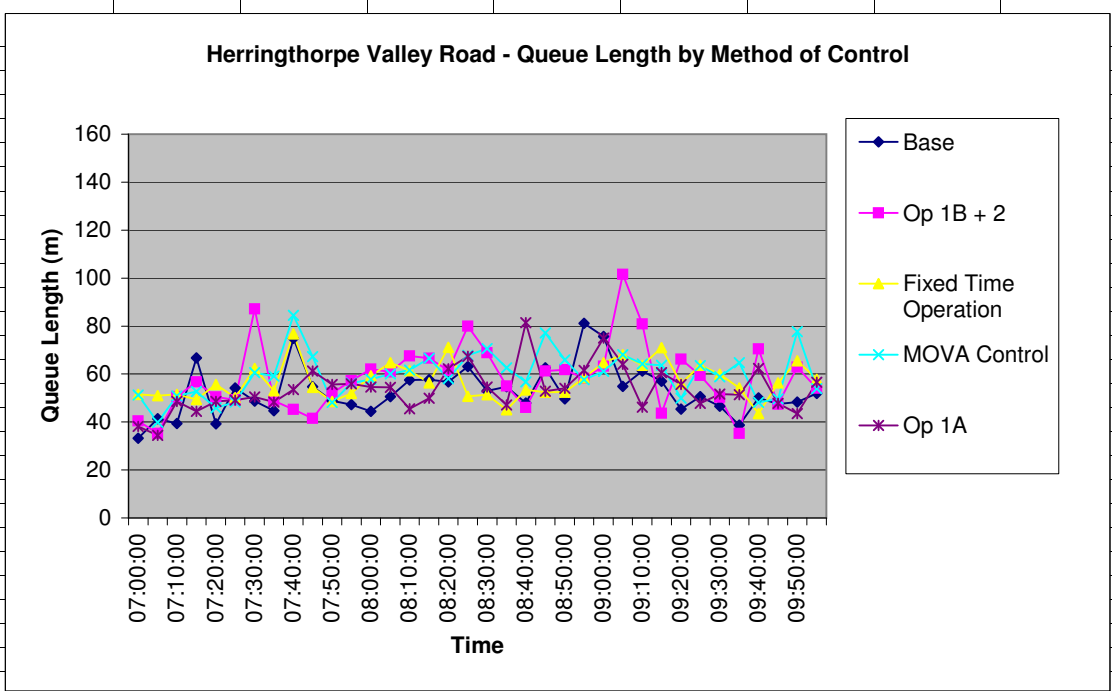


Queue Length Comparison by Approach - Evening Peak



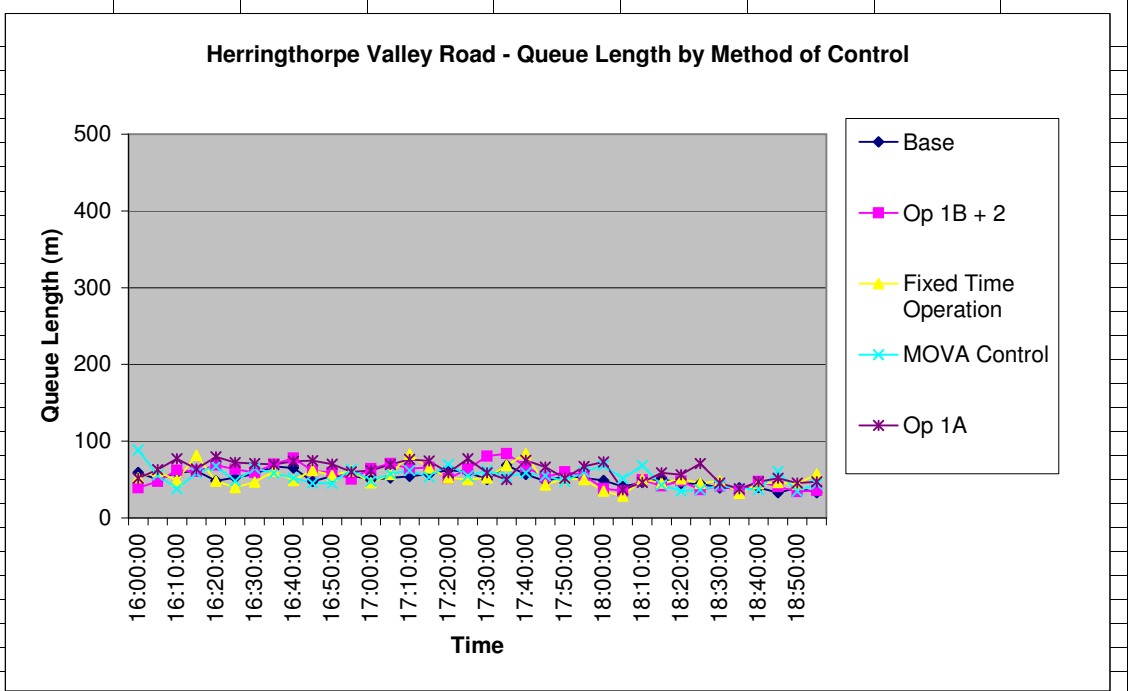
Queue Length Comparison by Approach - Morning Peak

	Base	Op 1A	Op 1B + 2	Fixed Time Operation	MOVA Control
07:00:00	33.1791	38.1883	40.4548	51.52975	51.20273333
07:05:00	41.34	34.49505	35.2187	50.96345	39.96213333
07:10:00	39.34	48.5268	50.52625	51.53075	50.84433333
07:15:00	66.7711	44.3992	56.70113333	49.38296667	52.76823333
07:20:00	39.2143	48.51315	50.3815	55.6791	45.92036667
07:25:00	54.178	49.13896667	49.2601	50.1632	48.2616
07:30:00	48.72855	50.41195	87.0844	62.3584	60.62013333
07:35:00	44.668	48.2644	48.8821	52.95343333	59.1001
07:40:00	74.88775	53.49336667	45.2963	76.67183333	84.47905
07:45:00	54.6708	61.2033	41.56045	54.4357	67.2367
07:50:00	48.84675	55.6311	52.03016667	48.59573333	48.21565
07:55:00	47.18045	55.93275	57.22355	51.96953333	56.17273333
08:00:00	44.4995	54.5236	62.04635	59.24393333	57.75616667
08:05:00	50.5706	54.47576667	60.78565	64.68216667	59.99036667
08:10:00	57.57385	45.50085	67.5033	61.33863333	61.602
08:15:00	57.6964	49.9453	66.6485	56.32366667	66.579
08:20:00	56.7032	62.1403	61.4611	71.1322	57.99496667
08:25:00	63.17005	67.3352	79.9948	50.69783333	67.8274
08:30:00	52.99285	54.62075	68.801	51.3733	70.55573333
08:35:00	54.7268	47.1105	54.94533333	45.1307	62.5677
08:40:00	47.9468	81.4124	46.05583333	53.31506667	56.75793333
08:45:00	62.5736	52.90386667	61.18456667	52.50823333	77.1617
08:50:00	49.7069	54.09903333	61.74256667	52.38426667	65.9742
08:55:00	81.07155	61.52373333	58.20333333	58.4686	57.69673333
09:00:00	75.69875	74.94973333	63.28796667	64.72073333	61.1197
09:05:00	54.7986	63.98686667	101.5831	68.0941	68.04256667
09:10:00	61.31	46.20426667	80.8307	63.71223333	64.15143333
09:15:00	56.95995	60.64183333	43.58583333	70.95476667	63.61236667
09:20:00	45.3295	55.6593	66.19753333	56.03366667	49.88723333
09:25:00	50.6344	47.70686667	59.344	63.70773333	63.5279
09:30:00	46.5264	51.7052	50.3405	59.8579	58.80956667
09:35:00	38.6554	51.3468	35.18015	54.15216667	64.70513333
09:40:00	49.98025	62.2611	70.41895	43.56525	48.21313333
09:45:00	47.5268	47.7442	47.3867	56.2912	49.65273333
09:50:00	48.33265	43.472	62.89793333	65.51036667	77.61133333
09:55:00	51.8849	56.63633333	54.0438	57.83863333	53.88356667



Queue Length Comparison by Approach - Evening Peak

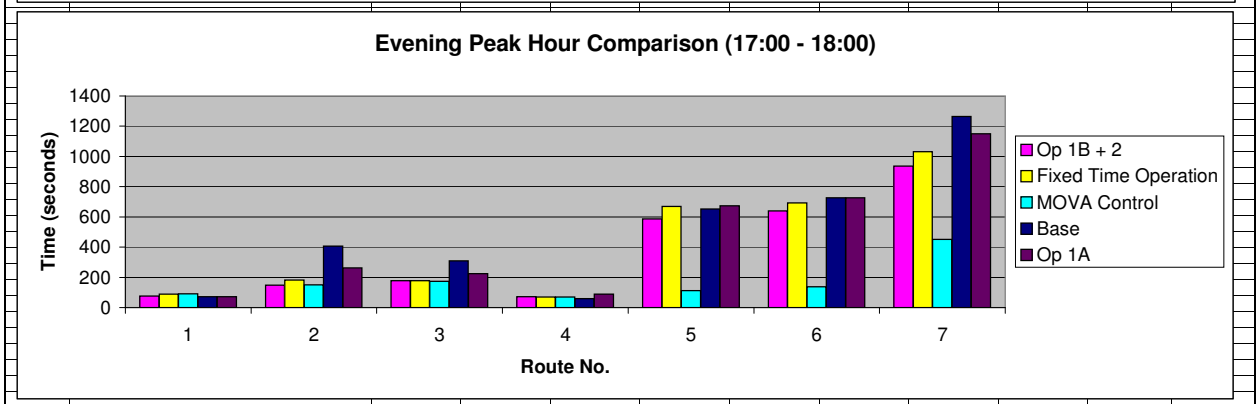
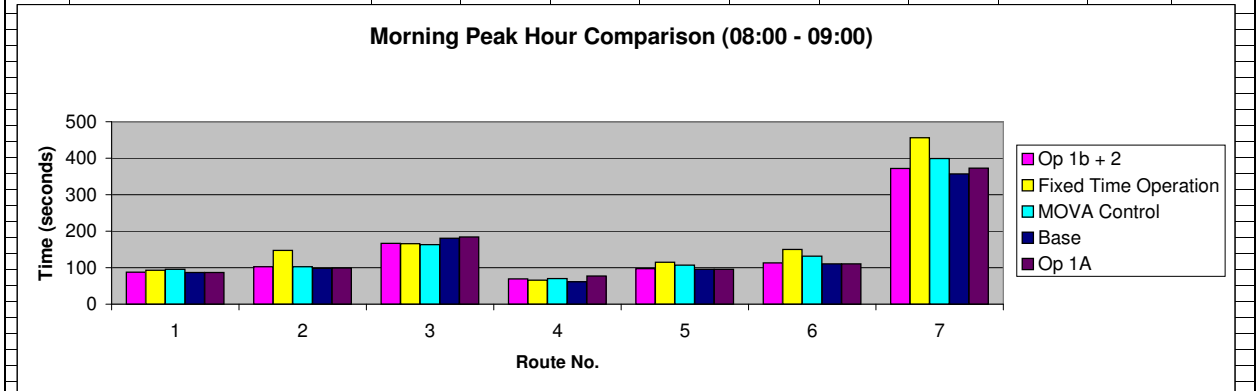
	Base	Op 1A	Op 1B + 2	Fixed Time Operation	MOVA Control
16:00:00	59.202	51.8879	39.1088	52.4123	88.5256
16:05:00	49.88633333	63.07296667	47.5227	60.37973333	55.8977
16:10:00	58.96215	77.34653333	62.1179	48.67493333	37.74943333
16:15:00	61.34515	63.84873333	60.36606667	81.6916	58.5803
16:20:00	48.5009	79.5768	68.90063333	47.7744	67.68965
16:25:00	52.3684	72.0464	63.3435	39.43246667	47.85103333
16:30:00	56.97055	70.85216667	59.342	46.7579	64.57126667
16:35:00	67.0659	69.75983333	69.93185	60.68486667	58.57226667
16:40:00	64.9903	74.00233333	78.09475	48.96206667	52.29816667
16:45:00	47.46765	74.45136667	61.34585	62.24393333	45.3691
16:50:00	54.4772	69.94346667	59.08565	55.46996667	45.17896667
16:55:00	55.30865	60.11893333	50.5097	61.4876	63.19163333
17:00:00	49.63636667	61.87023333	64.02903333	46.0407	47.92753333
17:05:00	51.93725	69.80876667	70.87476667	56.5399	57.48536667
17:10:00	54.21375	76.51703333	64.17203333	82.94233333	61.70186667
17:15:00	57.0974	74.1808	66.07556667	64.88803333	53.2624
17:20:00	62.42165	58.60393333	51.20666667	52.16825	69.5422
17:25:00	59.437	77.0488	63.7305	49.89336667	54.6001
17:30:00	50.09235	58.93786667	80.46435	52.24743333	61.72615
17:35:00	68.9817	50.08	83.70355	68.52265	53.73163333
17:40:00	56.71485	75.039	66.51585	83.73505	58.79553333
17:45:00	48.16325	66.5042	52.7789	42.90926667	55.1312
17:50:00	54.79225	51.80393333	60.2461	51.2853	47.37076667
17:55:00	52.16965	66.958	55.5308	49.9067	60.10983333
18:00:00	48.7817	73.1741	38.17106667	35.0638	68.257
18:05:00	40.69275	36.65513333	35.1716	28.19753333	51.2261
18:10:00	46.21955	46.2225	49.44905	50.4115	68.45665
18:15:00	50.9826	58.8298	41.624	45.47863333	42.79083333
18:20:00	44.8158	56.4079	47.9782	50.9396	35.1477
18:25:00	44.4605	70.8603	36.62165	45.0273	36.6872
18:30:00	39.2701	45.509	41.87693333	48.2691	42.0636
18:35:00	39.34	37.822	36.071	32.0387	38.5629
18:40:00	39.6372	47.2958	47.52555	44.6672	37.0215
18:45:00	32.949	51.5629	40.7046	46.2984	60.64215
18:50:00	39.1587	45.51666667	34.2381	44.28656667	34.48315
18:55:00	32.81495	47.1778	35.6891	57.30113333	44.05256667



Appendix E Journey Time Graphs

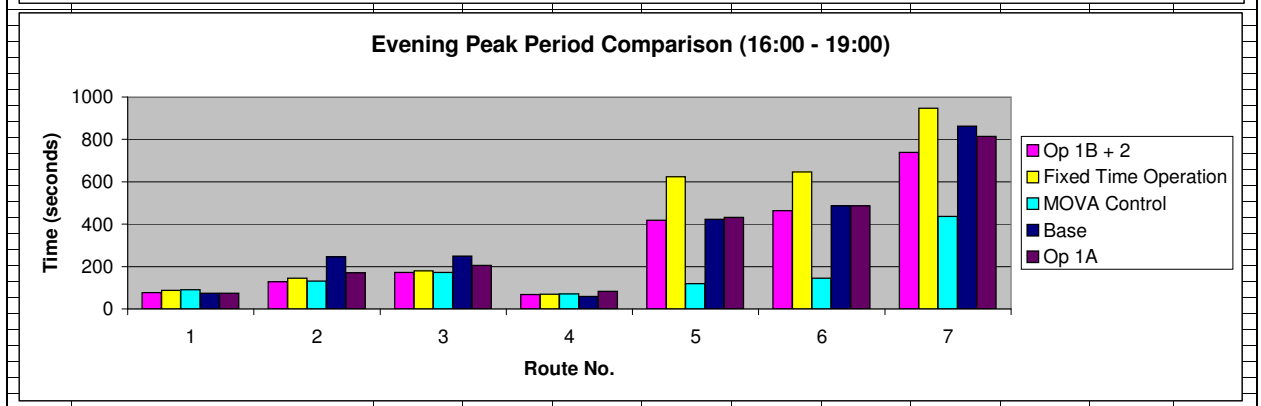
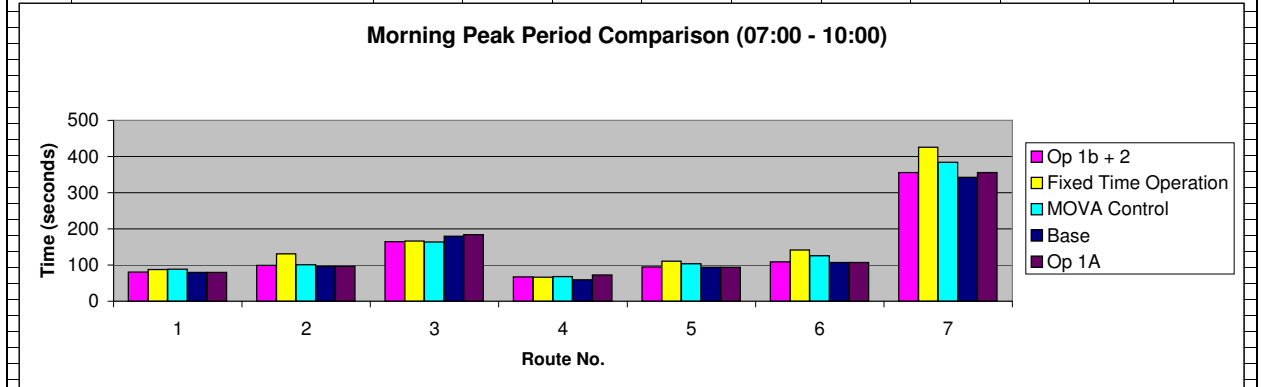
Journey Time Comparison at Mushroom Roundabout

Route	Journey Path	Base		Op 1A		Op 1B + 2		Fixed Time Operation		MOVA Control	
		08:00 - 09:00	17:00 - 18:00	08:00 - 09:00	17:00 - 18:00	08:00 - 09:00	17:00 - 18:00	08:00 - 09:00	17:00 - 18:00	08:00 - 09:00	17:00 - 18:00
1	Magna Lane to Mushroom Rbt	86.4313	71.9021	86.9386	72.0341	87.6488	76.1532	92.9213	88.1187	95.913	91.3147
2	Cranworth Road to Mushroom Rbt Cars	97.954	405.914	99.1263	262.707	102.215	148.311	147.425	182.326	102.446	150.544
3	Cranworth Road to Mushroom Rbt Buses	181	309.267	184.4	223.578	166.725	177.156	165.575	178.756	163.3	173.533
4	Herringthorpe Valley Road to Doncaster Road EB	61.521	60.3467	76.8074	88.1076	69.1226	72.2672	65.7563	69.9171	69.9962	70.8214
5	Aldwarke Lane to Doncaster Road EB	95.7319	651.328	95.5229	674.577	97.1668	586.69	115.055	669.273	106.746	112.072
6	Aldwarke Lane to Doncaster Road WB	110.763	726.467	110.169	726.696	113.186	638.9	149.944	691.85	131.175	137.519
7	Total Junction Journey Time	356.6693	1264.6298	373.0413	1149.5447	372.1724	935.6314	456.0466	1032.2118	399.5302	450.1991



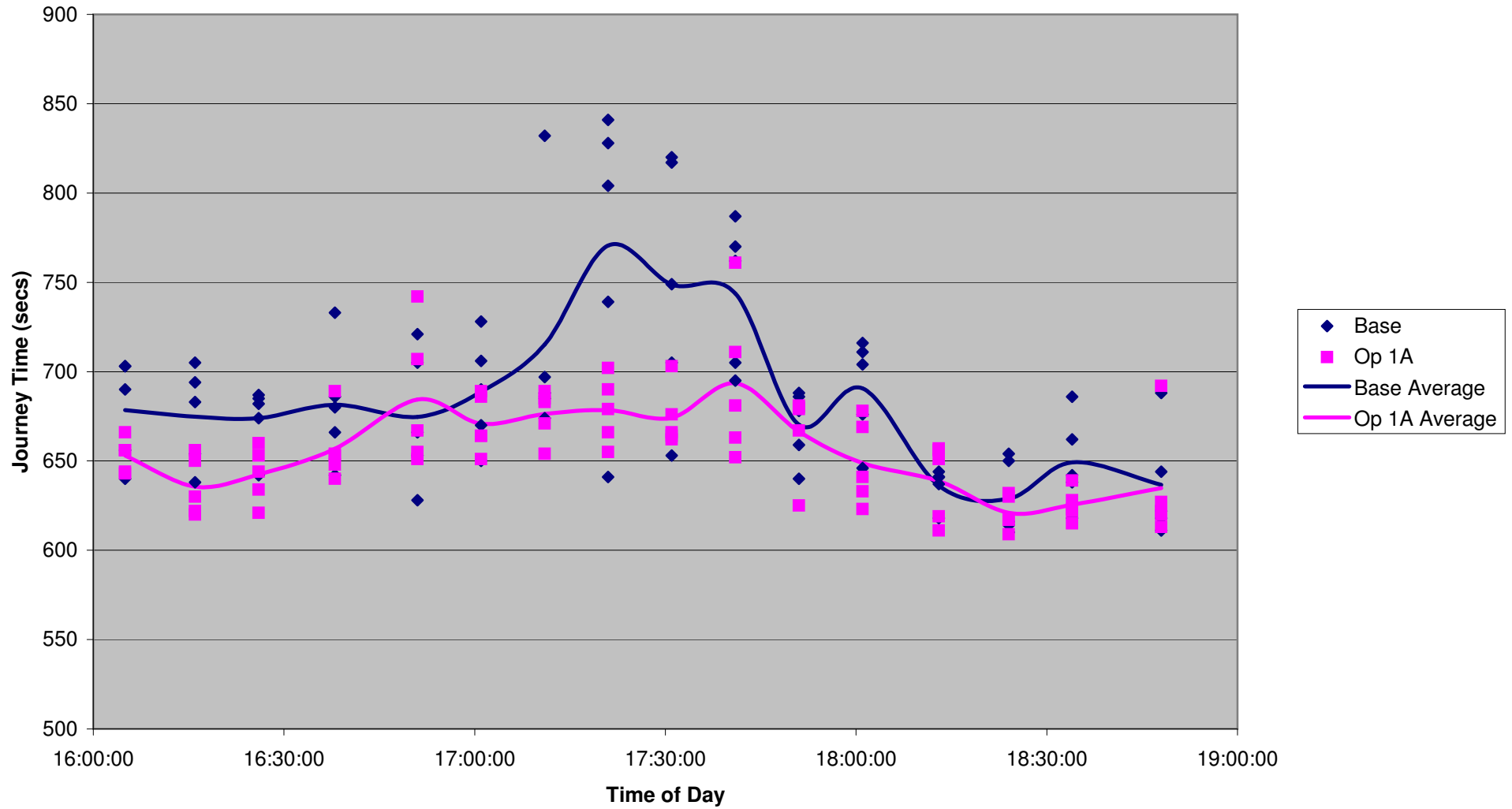
Journey Time Comparison at Mushroom Roundabout

Route	Journey Path	Base		Op 1A		Op 1B + 2		Fixed Time Operation		MOVA Control	
		07:00 - 10:00	16:00 - 19:00	07:00 - 10:00	16:00 - 19:00	07:00 - 10:00	16:00 - 19:00	07:00 - 10:00	16:00 - 19:00	07:00 - 10:00	16:00 - 19:00
1	Magna Lane to Mushroom Rbt	79.5754	73.3327	79.8288	73.9191	80.5201	77.5809	87.3152	87.0596	88.8651	90.1495
2	Cranworth Road to Mushroom Rbt Cars	96.2376	245.527	96.4415	171.367	98.9954	128.281	131.029	144.864	101.089	131.553
3	Cranworth Road to Mushroom Rbt Buses	179.844	249.652	184.144	205.835	164.589	171.896	166.789	179.861	163.844	171.835
4	Herringthorpe Valley Road to Doncaster Road EB	59.2932	58.6717	72.2836	83.0659	67.2882	68.5911	66.0353	69.2512	68.4107	70.2874
5	Aldwarke Lane to Doncaster Road EB	93.6547	422.524	93.3821	431.687	94.6632	418.37	110.493	623.956	103.833	120.028
6	Aldwarke Lane to Doncaster Road WB	107.463	485.75	106.838	486.408	109.133	463.782	141.723	645.939	126.023	144.783
7	Total Junction Journey Time	342.5692	863.2814	355.3919	814.76	355.9367	738.235	426.1025	947.1138	384.3878	436.7729

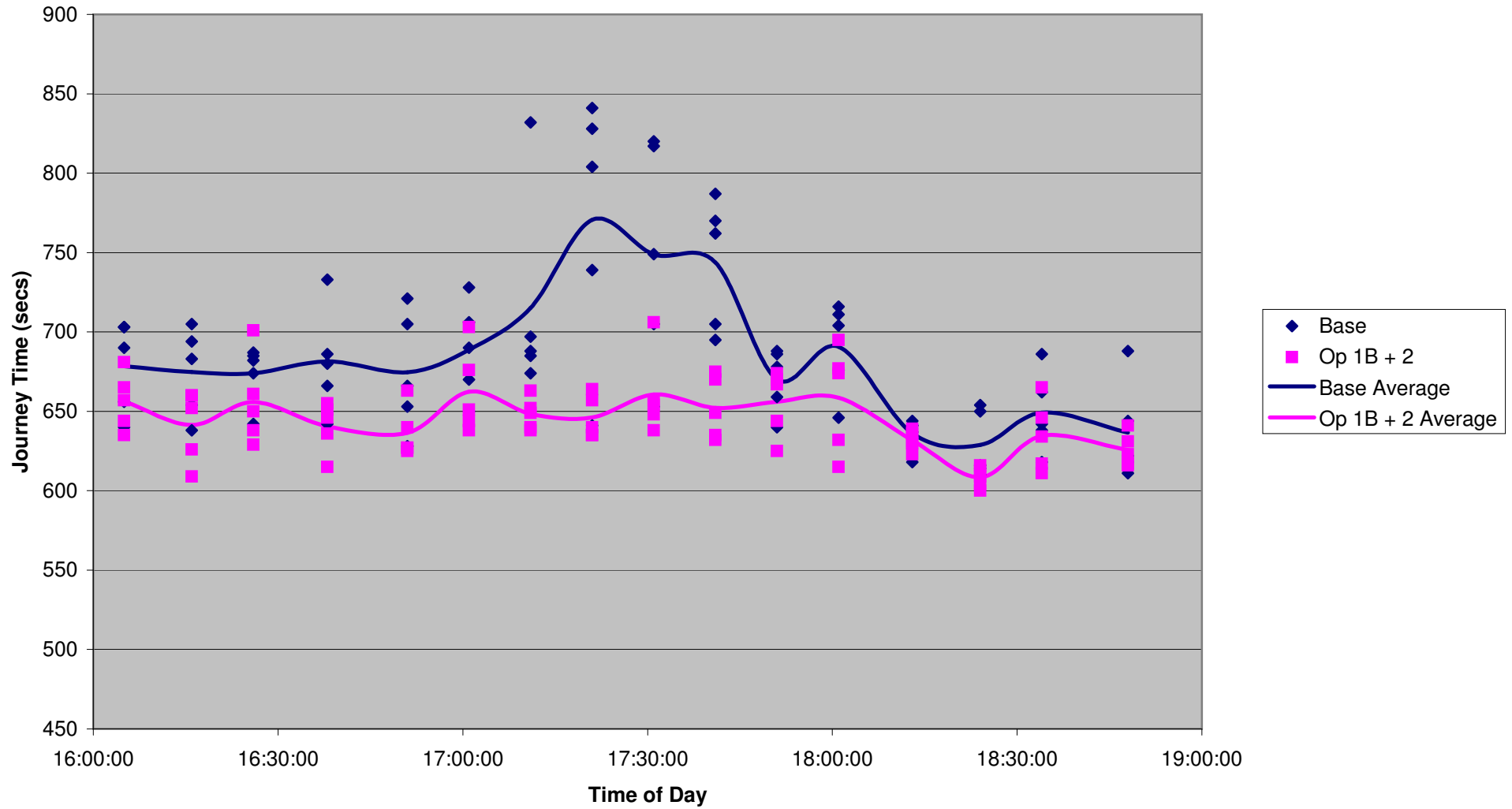


Appendix F Journey Time Reliability Graphs

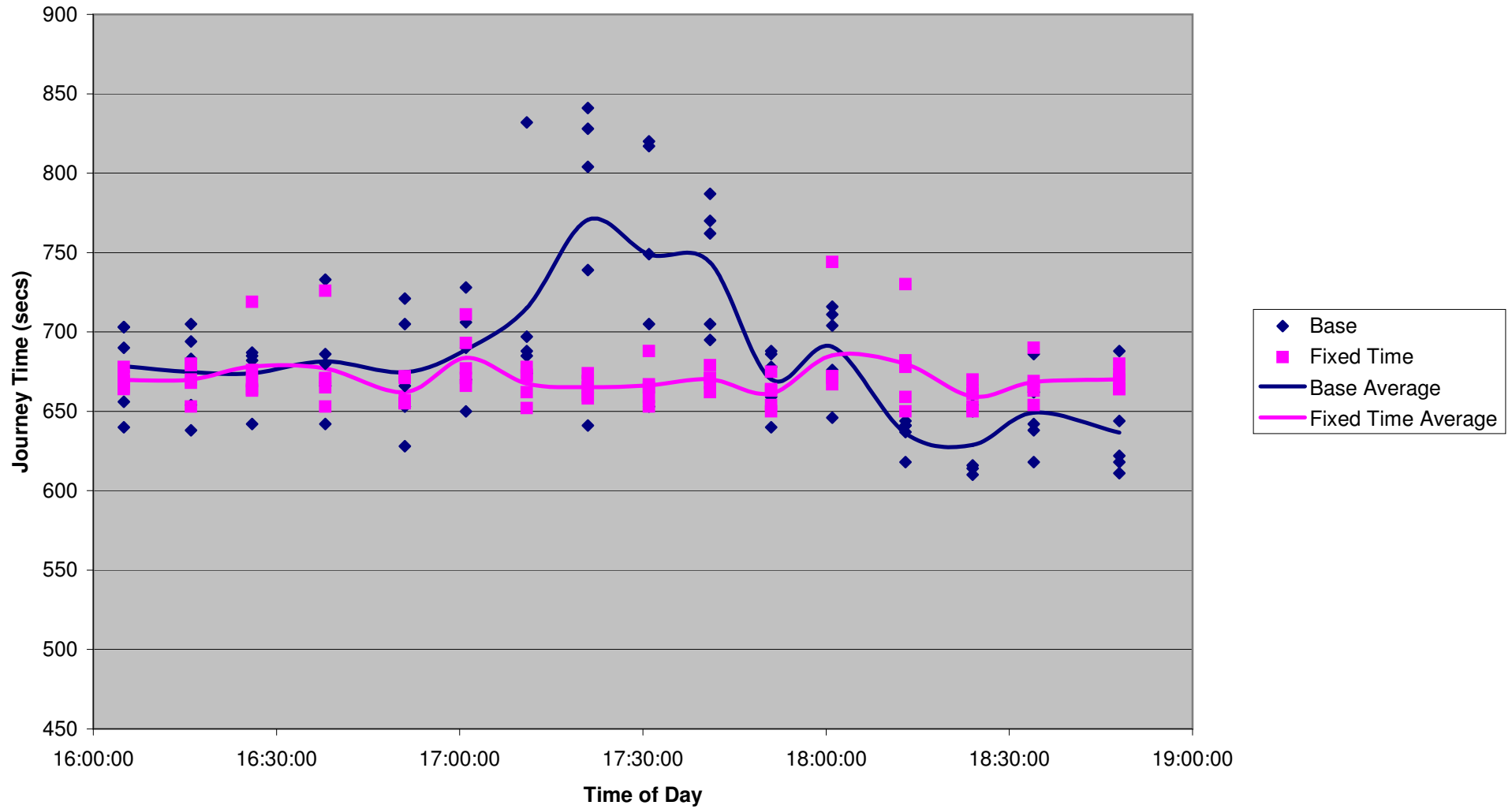
X 78 nb Evening Journey Time Variability - Base compared to Op 1A



X 78 nb Evening Journey Time Variability - Base compared to Op 1B + 2



X 78 nb Evening Journey Time Variability - Base compared to Fixed Time



X 78 nb Evening Journey Time Variability - Base compared to MOVA control

