

Appendix A: Route Choice Calibration

Route Choice Calibration Plots – AM

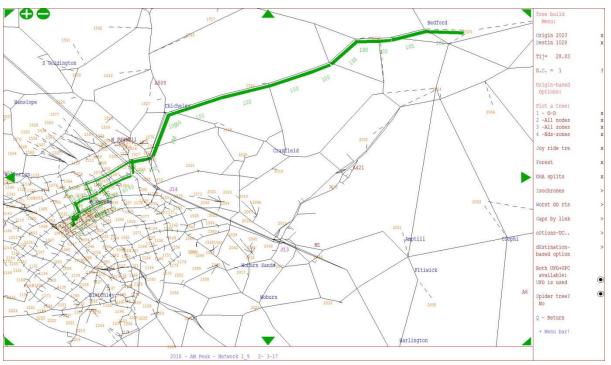
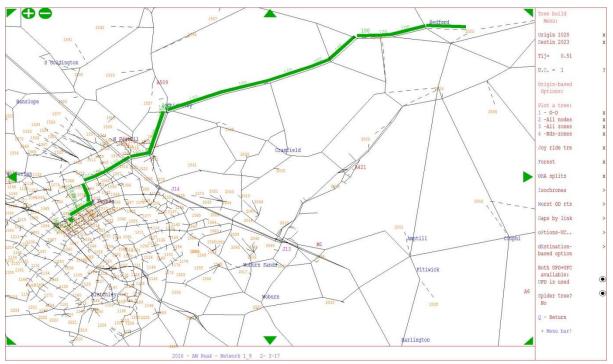
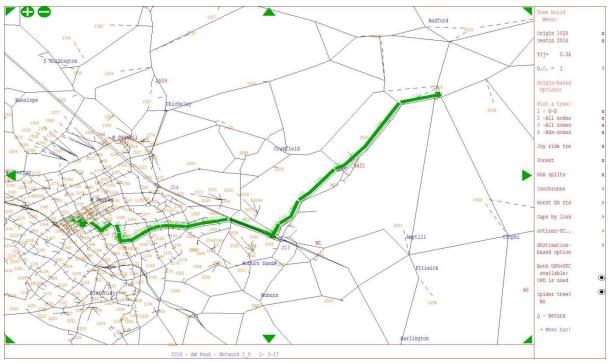


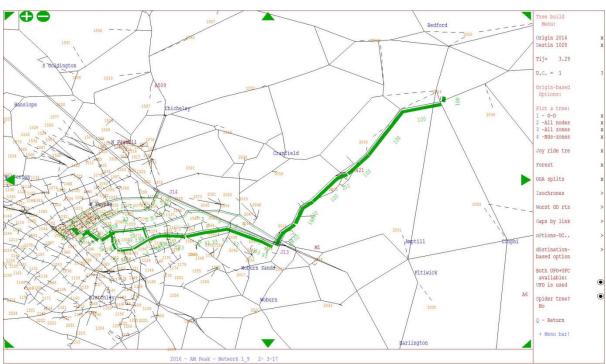
Figure A-1: A Forest Plot showing the routes chosen by vehicles from North Bedford to Milton Keynes Centre - AM

Figure A-2: A Forest Plot showing the routes chosen by vehicles from Milton Keynes Centre to North Bedford - AM











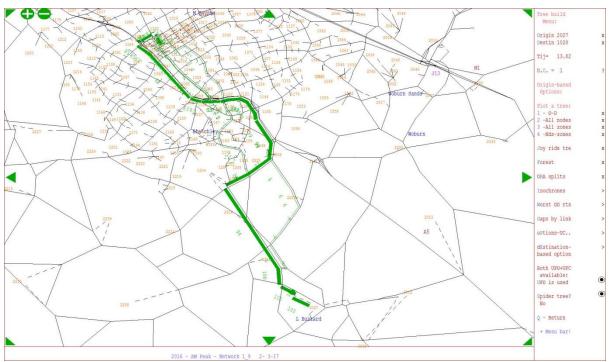
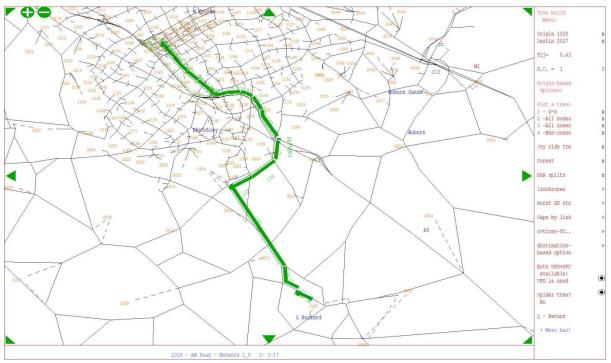


Figure A-5: A Forest Plot showing the routes chosen by vehicles from Leighton Buzzard to Milton Keynes Centre - AM





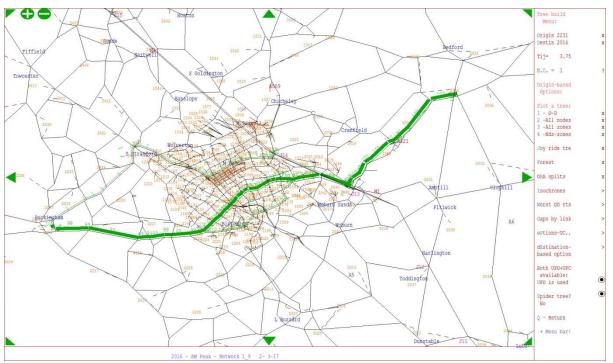
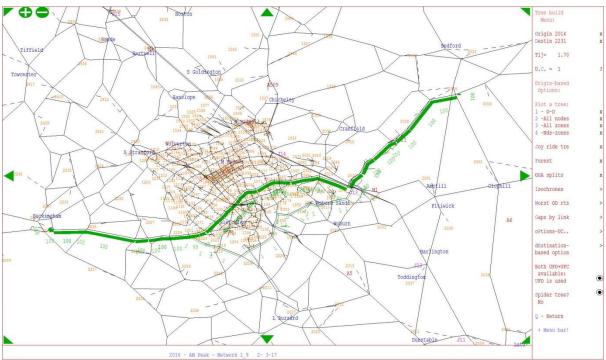


Figure A-7: A Forest Plot showing the routes chosen by vehicles from South Buckingham to South Bedford - AM





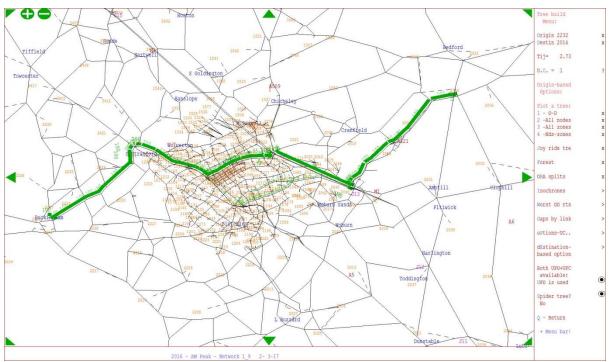
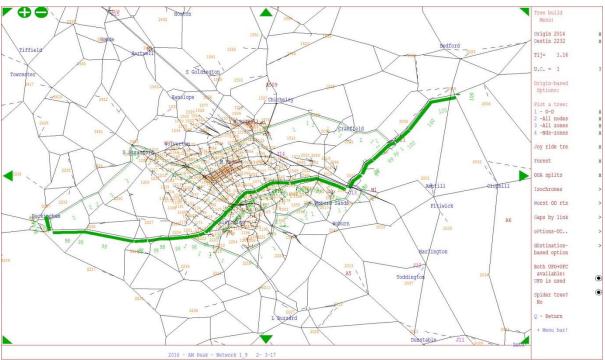


Figure A-9: A Forest Plot showing the routes chosen by vehicles from North Buckingham to South Bedford - AM





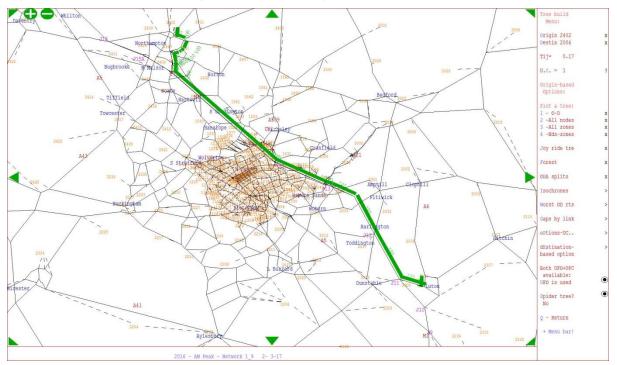


Figure A-11: A Forest Plot showing the routes chosen by vehicles from Northampton to Luton - AM

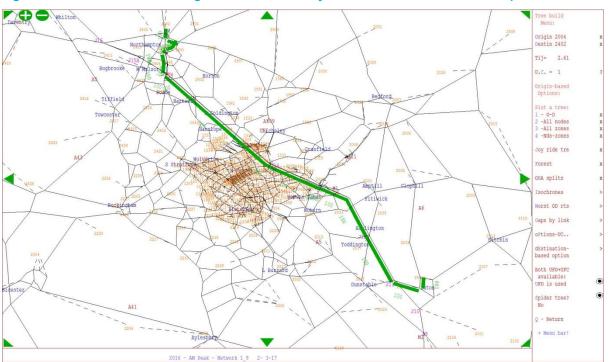
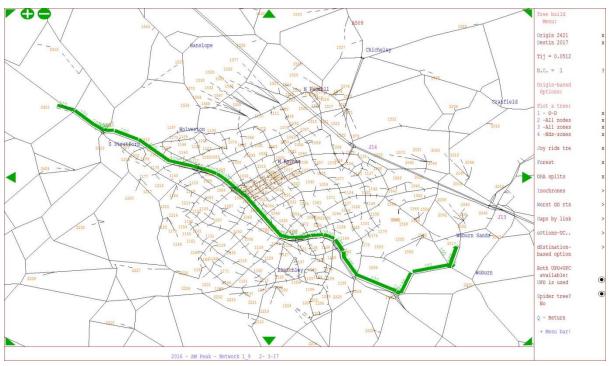


Figure A-12: A Forest Plot showing the routes chosen by vehicles from Luton to Northampton - AM

Figure A-13: A Forest Plot showing the routes chosen by vehicles from Potterspury to Woburn Sands - AM





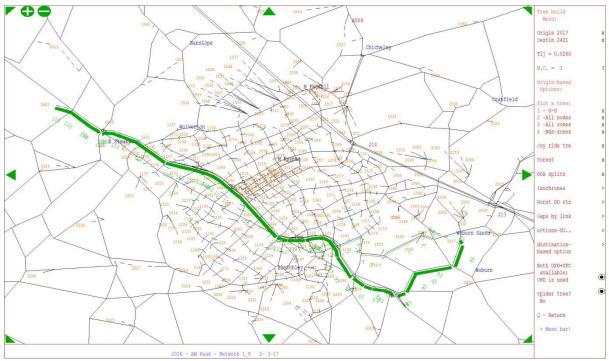
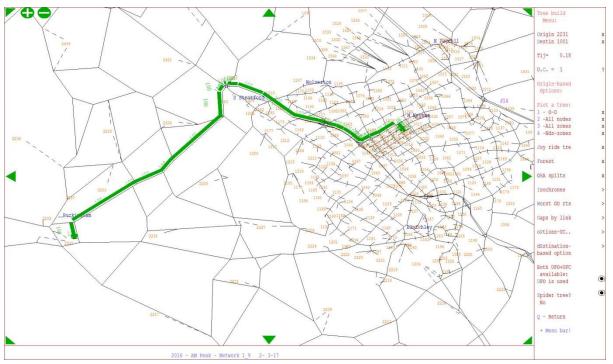
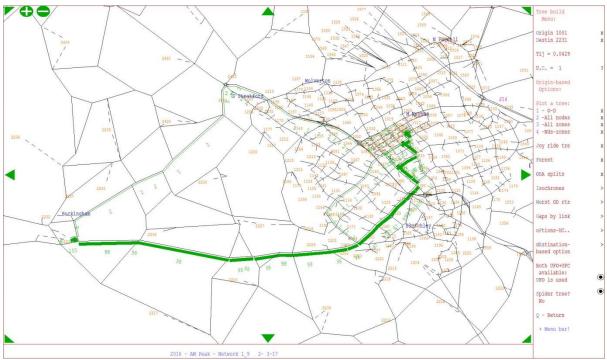


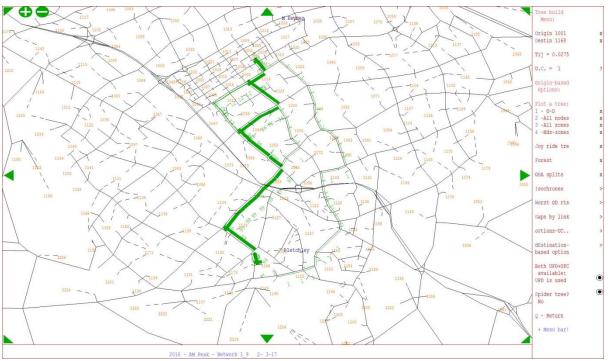
Figure A-15: A Forest Plot showing the routes chosen by vehicles from South Buckingham to Milton Keynes Centre - AM



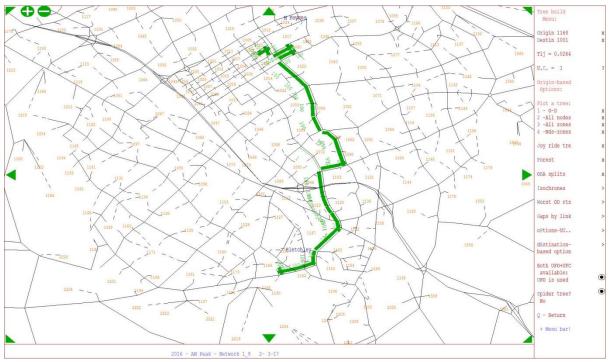












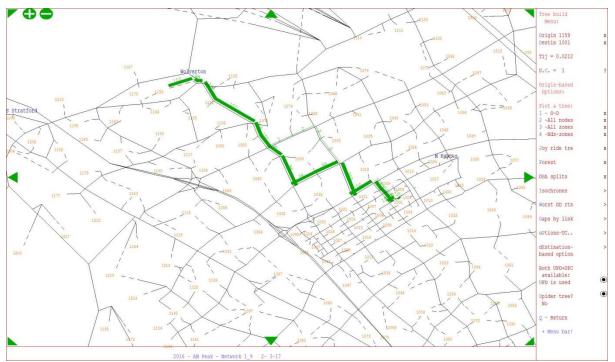


Figure A-19: A Forest Plot showing the routes chosen by vehicles from Wolverton to Milton Keynes Centre - AM



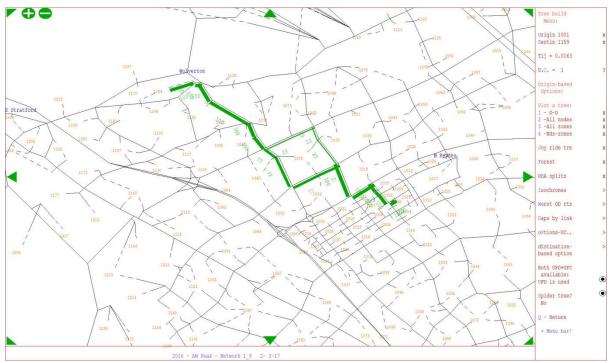


Figure A-21: A Forest Plot showing the routes chosen by vehicles from Newport Pagnell to Milton Keynes Centre - AM

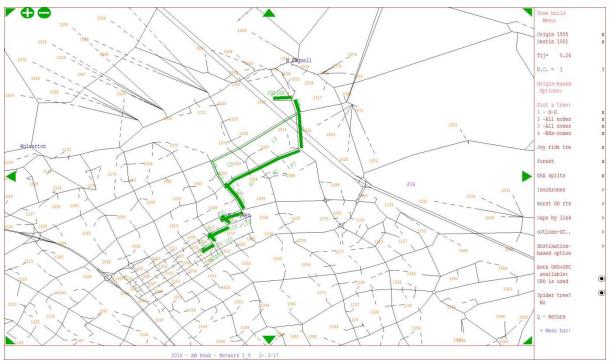
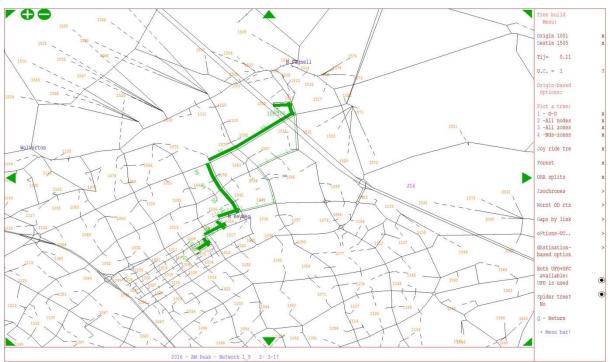


Figure A-22: A Forest Plot showing the routes chosen by vehicles from Milton Keynes Centre to Newport Pagnell - AM



Appendix B: Route Choice Validation

Route Choice Validation Plots – AM

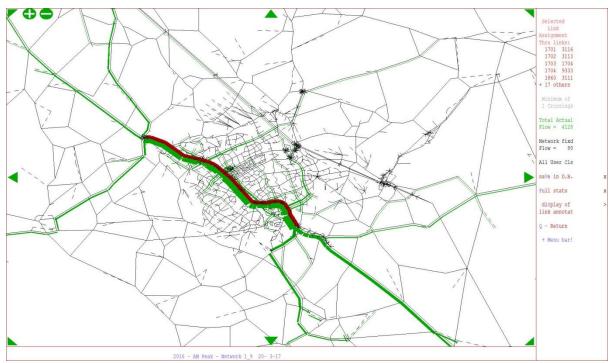


Figure B-1: Select Link Analysis showing actual flow using the A5 NB between Kelly's Kitchen and Old Stratford Roundabouts - AM

Figure B-2: Select Link Analysis showing actual flow using the A5 SB between Old Stratford and Kelly's Kitchen Roundabouts - AM

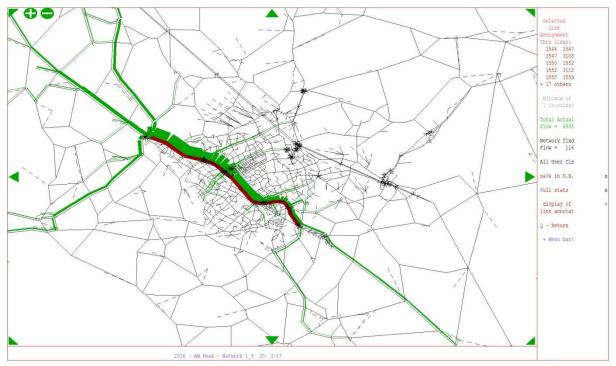
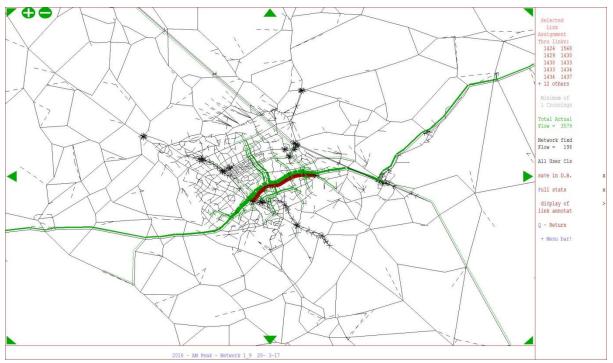


Figure B-3: Select Link Analysis showing actual flow using the A421 EB between Watling Street and Kingston Roundabout - AM





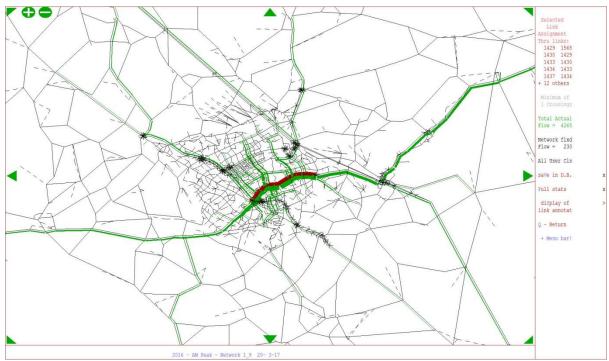
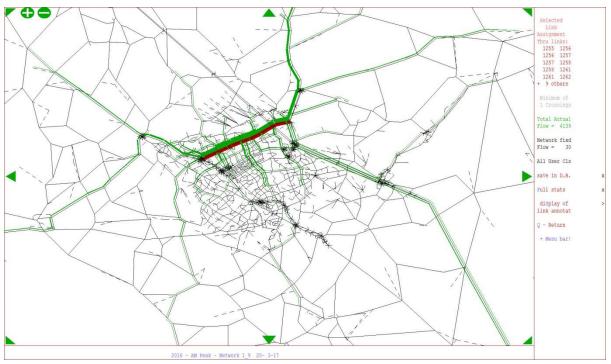
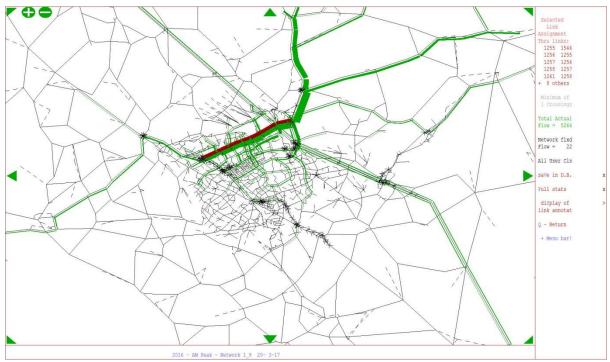


Figure B-5: Select Link Analysis showing actual flow using the A509 EB between Abbey Hill and Tickford Roundabouts - AM







Route Choice Validation Plots – IP

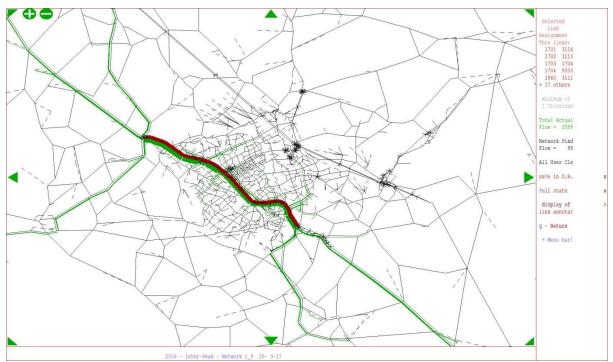


Figure B-7: Select Link Analysis showing actual flow using the A5 NB between Kelly's Kitchen and Old Stratford Roundabouts - IP

Figure B-8: Select Link Analysis showing actual flow using the A5 SB between Old Stratford and Kelly's Kitchen Roundabouts - IP

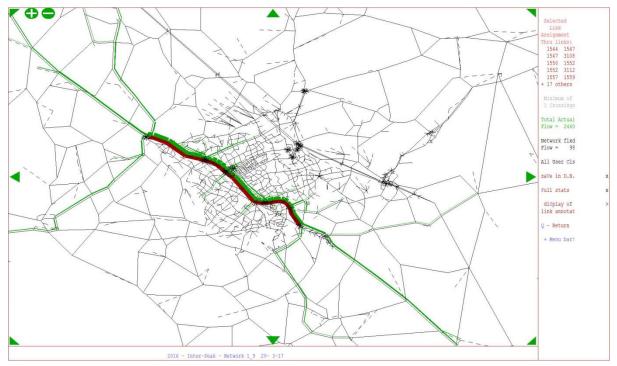
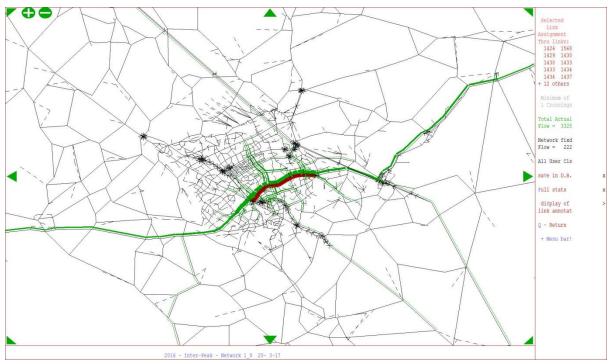


Figure B-9: Select Link Analysis showing actual flow using the A421 EB between Watling Street and Kingston Roundabout - IP





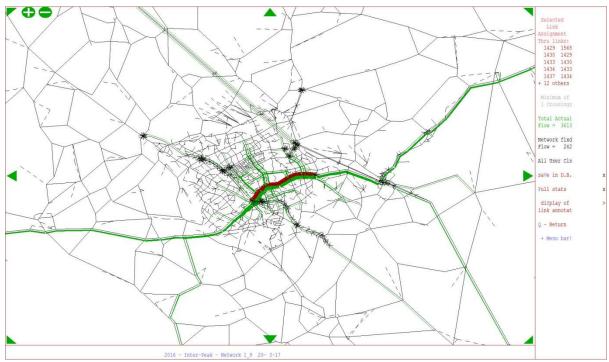
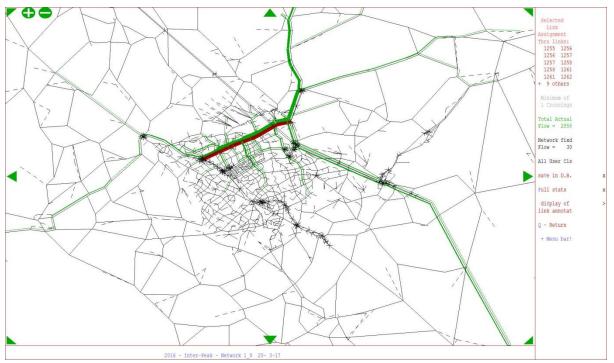
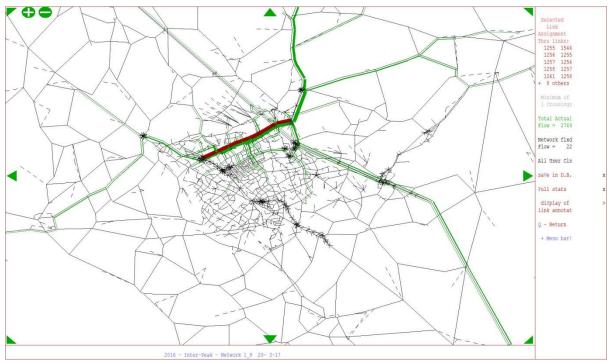


Figure B-11: Select Link Analysis showing actual flow using the A509 EB between Abbey Hill and Tickford Roundabouts - IP







Route Choice Validation Plots – PM

Figure B-13: Select Link Analysis showing actual flow using the A5 NB between Kelly's Kitchen and Old Stratford Roundabouts - PM

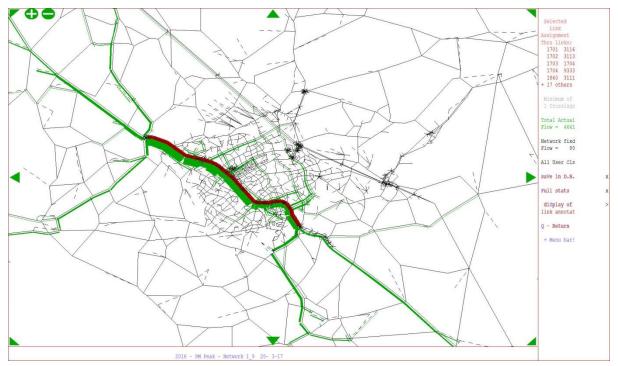


Figure B-14: Select Link Analysis showing actual flow using the A5 SB between Old Stratford and Kelly's Kitchen Roundabouts - PM

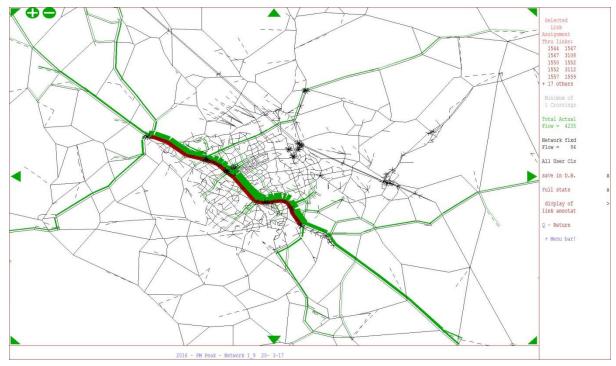
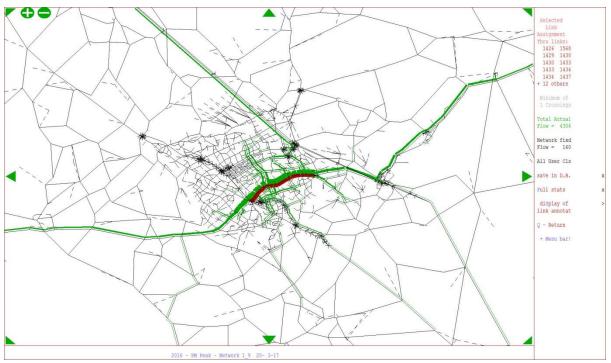


Figure B-15: Select Link Analysis showing actual flow using the A421 EB between Watling Street and Kingston Roundabout - PM





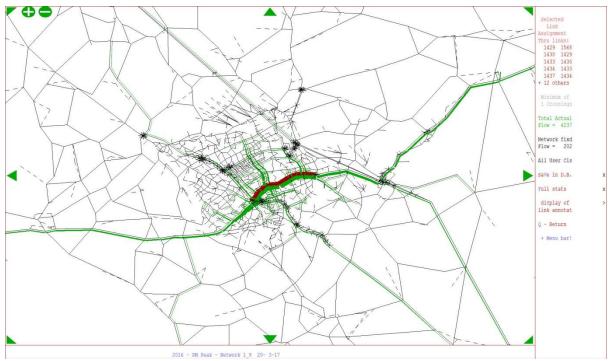
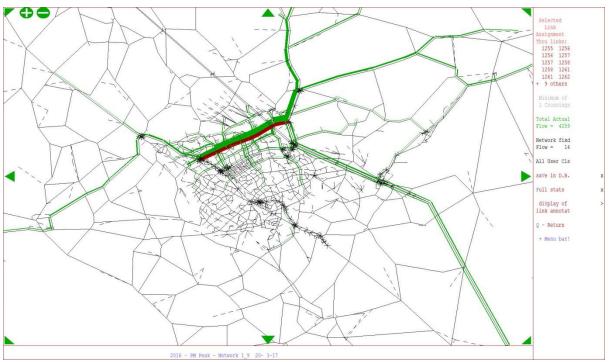
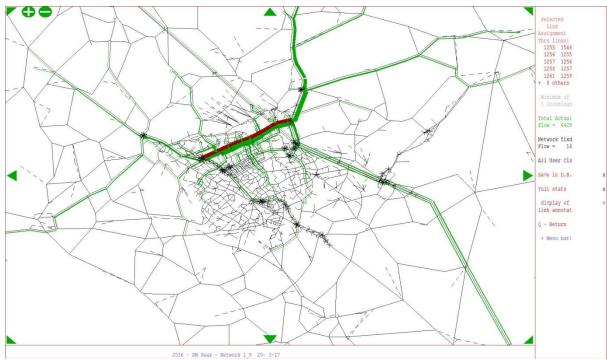


Figure B-17: Select Link Analysis showing actual flow using the A509 EB between Abbey Hill and Tickford Roundabouts - PM







Appendix C: Trip Length Distribution

Trip Length Distribution Plots – AM

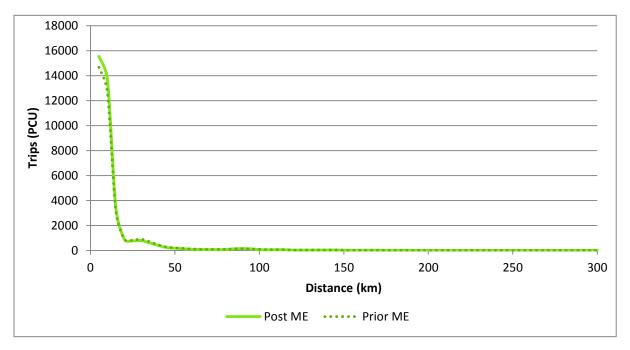
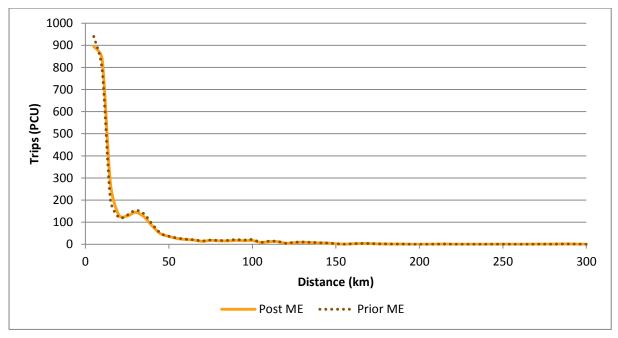




Figure C-2: AM LGV Trip Length Distribution, Trips <300km



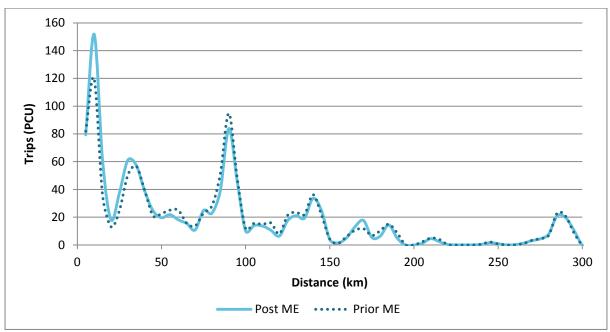


Figure C-3: AM HGV Trip Length Distribution, Trips <300km

Trip Length Distribution Plots – IP

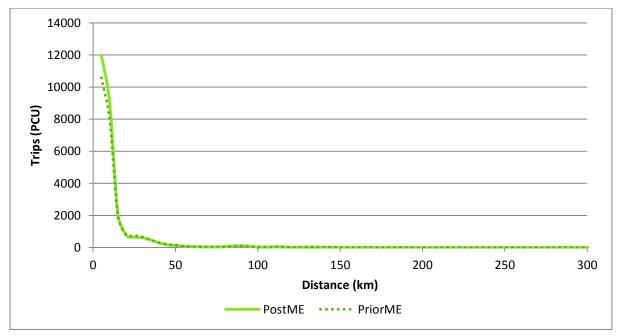


Figure C-4: IP Car Trip Length Distribution, Trips <300km

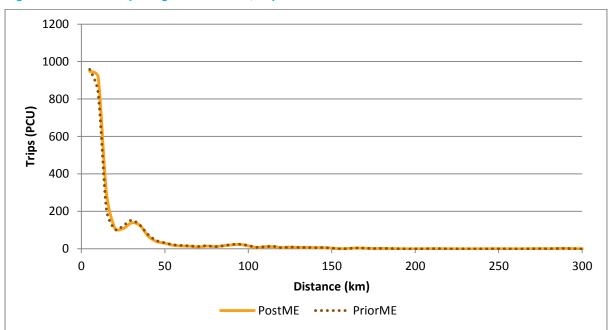
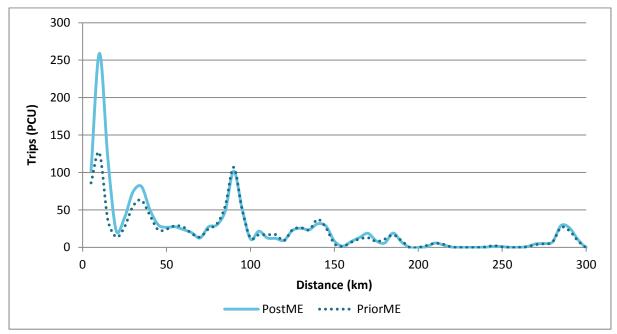


Figure C-5: IP LGV Trip Length Distribution, Trips <300km





Trip Length Distribution Plots – PM

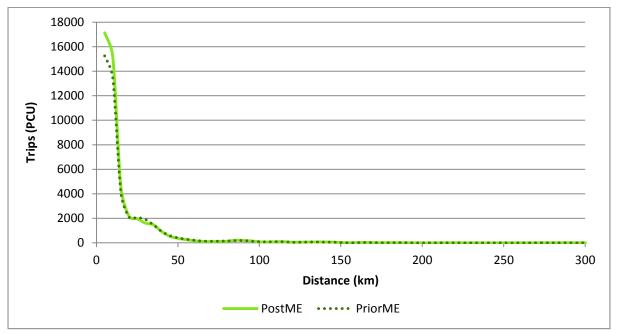
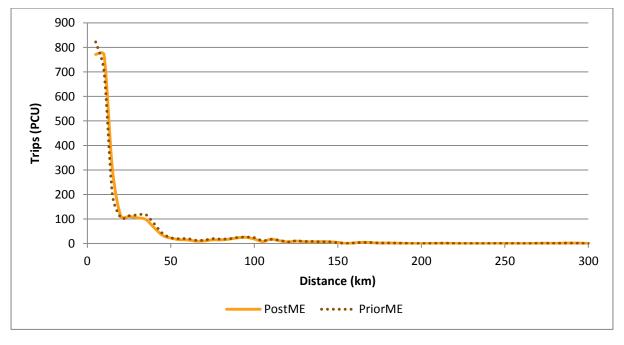


Figure C-7: PM Car Trip Length Distribution, Trips <300km

Figure C-8: PM LGV Trip Length Distribution, Trips <300km



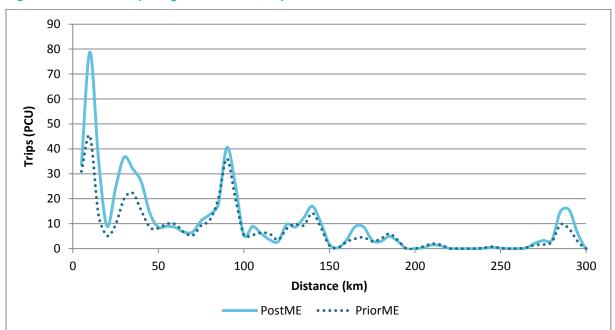


Figure C-9: PM HGV Trip Length Distribution, Trips <300km

Appendix D: Screenline and Cordon Calibration

Screenline / Cordon	Total Count Sites	Sites meeting Criteria A	% pass for criteria A	Observed count LB (vehs)	Observed Count (vehs)	Observed count UB (vehs)	Modelled Actual Flow (Vehs)	Difference (vehs)	% Diff
RSI Inbound Cordon	24	23	96%	18398	22296	26194	2206100	-235	-1%
RSI Outbound Cordon	24	22	92%	9673	12414	15154	1194300	-470	-4%
Canal EB	6	6	100%	4828	5685	6541	567400	-10	0%
Canal WB	6	4	67%	6867	8084	9301	766800	-416	-5%
СМК ІВ	12	10	83%	7538	9222	10906	941500	193	2%
CMK Outbound	12	11	92%	2321	3548	4775	341800	-130	-4%
Southern SB	7	7	100%	3897	4750	5603	453800	-212	-4%
Southern NB	7	6	86%	4219	5097	5975	486600	-231	-5%
A422 NB	7	7	100%	4383	5249	6116	516300	-86	-2%
A422 SB	7	7	100%	7307	8519	9732	842600	-94	-1%
Western EB	5	5	100%	3352	4051	4749	373500	-316	-8%
Western WB	5	4	80%	2191	2737	3283	248900	-248	-9%
Newport Pagnell Inbound	7	6	86%	1994	2694	3394	258300	-111	-4%
Newport Pagnell Outbound	7	7	100%	2538	3341	4144	345400	113	3%
M1 NB	5	5	100%	12653	14187	15721	1396200	-225	-2%
M1 SB	5	5	100%	11551	13046	14540	1312300	77	1%
Total excluding M1	132	132	100%	74363	91679	108996	8955900	-2120	-2%
Total Excluding M1 and RSI	84	77	92%	46292	56970	67647	5555500	-1415	-2%

Table D-1: AM Peak Calibration Count Summary Statistics by Flow

Table D-2: AM Peak Calibration Count Summary Statistics by GEH

Screenline / Cordon	Number of Count Sites	Number of Sites GEH < 5	% Sites	SL GEH
RSI Inbound	24	22	92%	2
RSI Outbound	24	22	92%	4
Canal EB	6	6	100%	0
Canal WB	6	5	83%	5
СМК ІВ	12	10	83%	2
CMK Outbound	12	11	92%	2
Southern SB	7	7	100%	3
Southern NB	7	6	86%	3
A422 NB	7	7	100%	1
A422 SB	7	7	100%	1
Western EB	5	5	100%	5
Western WB	5	4	80%	5
Newport Pagnell IB	7	7	100%	2
Newport Pagnell OB	7	7	100%	2
M1 NB	5	5	100%	2
M1 SB	5	5	100%	1
Total excluding M1	132	122	92%	
Total Excluding M1 and RSI	84	78	93%	

Screenline / Cordon	Number of Count Sites	Number of Sites Flow or GEH criteria met	% Sites Flow or GEH criteria met
RSI Inbound	24	23	96%
RSI Outbound	24	23	96%
Canal EB	6	6	100%
Canal WB	6	5	83%
СМК ІВ	12	10	83%
CMK Outbound	12	11	92%
Southern SB	7	7	100%
Southern NB	7	6	86%
A422 NB	7	7	100%
A422 SB	7	7	100%
Western EB	5	5	100%
Western WB	5	4	80%
Newport Pagnell IB	7	7	100%
Newport Pagnell OB	7	7	100%
M1 NB	5	5	100%
M1 SB	5	5	100%
Total excluding M1	132	124	94%
Total Excluding M1 and RSI	84	78	93%

 Table D-3: AM Peak Calibration Count Summary Statistics by either Flow or GEH

Screenline / Cordon	Total Count Sites	Sites meeting Criteria A	% pass for criteria A	Observed count LB (vehs)	Observed Count (vehs)	Observed count UB (vehs)	Modelled Actual Flow (Vehs)	Difference (vehs)	% Diff
RSI Inbound Cordon	24	24	100%	6817	9372	11927	9359	-13	0%
RSI Outbound Cordon	24	24	100%	7157	9724	12291	9715	-9	0%
Canal EB	6	6	100%	3405	4090	4775	4096	6	0%
Canal WB	6	6	100%	3361	4027	4694	4027	0	0%
СМК ІВ	12	12	100%	3824	5087	6350	5044	-43	-1%
CMK Outbound	12	11	92%	4050	5281	6511	5126	-155	-3%
Southern SB	7	7	100%	2453	3165	3876	3154	-10	0%
Southern NB	7	7	100%	2394	3100	3805	3100	0	0%
A422 NB	7	7	100%	3242	4023	4805	3993	-30	-1%
A422 SB	7	7	100%	3233	4000	4766	3985	-15	0%
Western EB	5	5	100%	1602	2135	2667	2019	-116	-5%
Western WB	5	4	80%	1689	2216	2744	2052	-164	-7%
Newport Pagnell Inbound	7	7	100%	936	1636	2336	1636	0	0%
Newport Pagnell Outbound	7	7	100%	891	1591	2291	1586	-5	0%
M1 NB	5	5	100%	11597	13044	14491	13003	-41	0%
M1 SB	5	5	100%	10257	11691	13126	11891	200	2%
Total excluding M1	132	140	106%	42654	56521	70387	56005	-515	-1%
Total Excluding M1 and RSI	84	82	98%	28680	37425	46170	36931	-494	-1%

Table D-4: Inter-Peak Calibration Count Summary Statistics by Flow

Table D-5: Inter-Peak Calibration Count Summary Statistics by GEH

Screenline / Cordon	Number of Count Sites	Number of Sites GEH < 5	% Sites	SL GEH
RSI Inbound	24	24	100%	0
RSI Outbound	24	24	100%	0
Canal EB	6	6	100%	0
Canal WB	6	6	100%	0
СМК ІВ	12	12	100%	1
CMK Outbound	12	11	92%	2
Southern SB	7	7	100%	0
Southern NB	7	7	100%	0
A422 NB	7	7	100%	0
A422 SB	7	7	100%	0
Western EB	5	4	80%	3
Western WB	5	4	80%	4
Newport Pagnell IB	7	7	100%	0
Newport Pagnell OB	7	7	100%	0
M1 NB	5	5	100%	0
M1 SB	5	5	100%	2
Total excluding M1	132	129	98%	
Total Excluding M1 and RSI	84	81	96%	

Screenline / Cordon	Number of Count Sites	Number of Sites Flow or GEH criteria met	% Sites Flow or GEH criteria met
RSI Inbound	24	24	100%
RSI Outbound	24	24	100%
Canal EB	6	6	100%
Canal WB	6	6	100%
СМК ІВ	12	12	100%
CMK Outbound	12	11	92%
Southern SB	7	7	100%
Southern NB	7	7	100%
A422 NB	7	7	100%
A422 SB	7	7	100%
Western EB	5	5	100%
Western WB	5	4	80%
Newport Pagnell IB	7	7	100%
Newport Pagnell OB	7	7	100%
M1 NB	5	5	100%
M1 SB	5	5	100%
Total excluding M1	132	130	98%
Total Excluding M1 and RSI	84	82	98%

Table D-6: Inter-Peak Calibration Count Summary Statistics by either Flow or GEH

Screenline / Cordon	Total Count Sites	Sites meeting Criteria A	% pass for criteria A	Observed count LB (vehs)	Observed Count (vehs)	Observed count UB (vehs)	Modelled Actual Flow (Vehs)	Difference (vehs)	% Diff
RSI Inbound Cordon	24	24	100%	10625	13598	16571	13486	-112	-1%
RSI Outbound Cordon	24	22	92%	16609	20191	23773	19886	-306	-2%
Canal EB	6	5	83%	6648	7825	9003	7867	42	1%
Canal WB	6	6	100%	5493	6463	7432	6462	0	0%
СМК ІВ	12	11	92%	4102	5380	6658	5212	-168	-3%
CMK Outbound	12	10	83%	7552	9074	10595	8844	-230	-3%
Southern SB	7	7	100%	4402	5295	6188	5277	-18	0%
Southern NB	7	7	100%	3905	4746	5587	4836	91	2%
A422 NB	7	7	100%	6605	7774	8942	7647	-127	-2%
A422 SB	7	7	100%	4912	5862	6812	5863	1	0%
Western EB	5	4	80%	2219	2794	3368	2679	-115	-4%
Western WB	5	5	100%	3234	3898	4562	3782	-116	-3%
Newport Pagnell Inbound	7	7	100%	2514	3318	4123	3338	19	1%
Newport Pagnell Outbound	7	7	100%	1970	2670	3370	2670	0	0%
M1 NB	5	5	100%	12933	14453	15973	14417	-36	0%
M1 SB	5	5	100%	13162	14675	16187	14638	-37	0%
Total excluding M1	132	135	102%	76262	93529	110796	92749	-780	-1%
Total Excluding M1 and RSI	84	79	94%	49028	59739	70451	59377	-362	-1%

Table D-7: PM Peak Calibration Count Summary Statistics by Flow

Table D-8: PM Peak Calibration Count Summary Statistics by GEH

Screenline / Cordon	Number of Count Sites	Number of Sites GEH < 5	% Sites GEH < 5	SL GEH
RSI Inbound	24	24	100%	1
RSI Outbound	24	22	92%	2
Canal EB	6	5	83%	0
Canal WB	6	6	100%	0
СМК ІВ	12	12	100%	2
CMK Outbound	12	10	83%	2
Southern SB	7	7	100%	0
Southern NB	7	7	100%	1
A422 NB	7	7	100%	1
A422 SB	7	7	100%	0
Western EB	5	4	80%	2
Western WB	5	4	80%	2
Newport Pagnell IB	7	7	100%	0
Newport Pagnell OB	7	7	100%	0
M1 NB	5	5	100%	0
M1 SB	5	5	100%	0
Total excluding M1	132	125	95%	
Total Excluding M1 and RSI	84	79	94%	

Screenline / Cordon	Number of Count Sites	Number of Sites Flow or GEH criteria met	% Sites Flow or GEH criteria met
RSI Inbound	24	24	100%
RSI Outbound	24	22	92%
Canal EB	6	5	83%
Canal WB	6	6	100%
СМК ІВ	12	12	100%
CMK Outbound	12	10	83%
Southern SB	7	7	100%
Southern NB	7	7	100%
A422 NB	7	7	100%
A422 SB	7	7	100%
Western EB	5	4	80%
Western WB	5	5	100%
Newport Pagnell IB	7	7	100%
Newport Pagnell OB	7	7	100%
M1 NB	5	5	100%
M1 SB	5	5	100%
Total excluding M1	132	126	95%
Total Excluding M1 and RSI	84	80	95%

 Table D-9: PM Peak Calibration Count Summary Statistics by either Flow or GEH

Appendix E: Screenline Validation

Screenline / Cordon	Number of Count Sites	Number of Sites meeting Criteria A	% pass for criteria A	Observed LB (vehs)	Observed Count (vehs)	Observed UB (vehs)	Modelled Actual Flow (Vehs)	Difference (vehs)	% Diff
Northern SB	6	4	67%	5072	5967	6862	6026	59	1%
Northern NB	6	2	33%	3868	4607	5347	4265	-342	-7%
Railway EB	7	4	57%	8818	10288	11758	10024	-264	-3%
Railway WB	7	3	43%	5497	6476	7455	6129	-347	-5%
Total	26	13	50%	23254	27338	31422	26444	-894	-3%

Table E-1: AM Peak Validation Count Summary Statistics by Flow

Table E-2: AM Peak Validation Count Summary Statistics by GEH

Screenline / Cordon	Number of Count Sites	Number of Sites GEH < 5	"% Sites	SL GEH
Northern SB	6	4	67%	1
Northern NB	6	2	33%	5
Railway EB	7	4	57%	3
Railway WB	7	3	43%	4
Total	26	13	50%	

Table E-3: AM Peak Validation Count Summary Statistics by either Flow or GEH

Screenline / Cordon	Number of Count Sites	Number of Sites Flow or GEH criteria met	"% Sites
Northern SB	6	4	67%
Northern NB	6	2	33%
Railway EB	7	4	57%
Railway WB	7	3	43%
Total	26	13	50%

Screenline / Cordon	Number of Count Sites	Number of Sites meeting Criteria A	% pass for criteria A	Observed LB (vehs)	Observed Count (vehs)	Observed UB (vehs)	Modelled Actual Flow (Vehs)	Difference (vehs)	% Diff
Northern SB	6	2	33%	2346	2955	3563	3233	279	9%
Northern NB	6	2	33%	2496	3141	3785	3214	73	2%
Railway EB	7	2	29%	4171	5031	5892	5051	20	0%
Railway WB	7	3	43%	4261	5119	5977	5171	52	1%
Total	26	9	35%	13274	16245	19217	16669	424	3%

Table E-4: Inter-Peak Validation Count Summary Statistics by Flow

Table E-5: Inter-Peak Validation Count Summary Statistics by GEH

Screenline / Cordon	Number of Count Sites	Number of Sites GEH < 5	"% Sites	SL GEH
Northern SB	6	3	50%	5
Northern NB	6	2	33%	1
Railway EB	7	2	29%	0
Railway WB	7	4	57%	1
Total	26	11	42%	

Table E-6: Inter-Peak Validation Count Summary Statistics by either Flow or GEH

Screenline / Cordon	Number of Count Sites	Number of Sites Flow or GEH criteria met	"% Sites
Northern SB	6	3	50%
Northern NB	6	2	33%
Railway EB	7	2	29%
Railway WB	7	4	57%
Total	26	11	42%

Table E-7: PM Peak Validation Count Summa	ry Statistics by Flow
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Screenline / Cordon	Number of Count Sites	Number of Sites meeting Criteria A	% pass for criteria A	Observed LB (vehs)	Observed Count (vehs)	Observed UB (vehs)	Modelled Actual Flow (Vehs)	Difference (vehs)	% Diff
Northern SB	6	2	33%	3894	4597	5300	3927	-670	-15%
Northern NB	6	3	50%	4607	5429	6251	4670	-759	-14%
Railway EB	7	2	29%	6253	7356	8459	7284	-72	-1%
Railway WB	7	4	57%	8236	9658	11080	9896	238	2%
Total	26	11	42%	22989	27040	31091	25777	-1263	-5%

Table E-8: PM Peak Validation Count Summary Statistics by GEH

Screenline / Cordon	Number of Count Sites	Number of Sites GEH < 5	"% Sites	SL GEH
Northern SB	6	2	33%	10
Northern NB	6	4	67%	11
Railway EB	7	2	29%	1
Railway WB	7	4	57%	2
Total	26	12	46%	

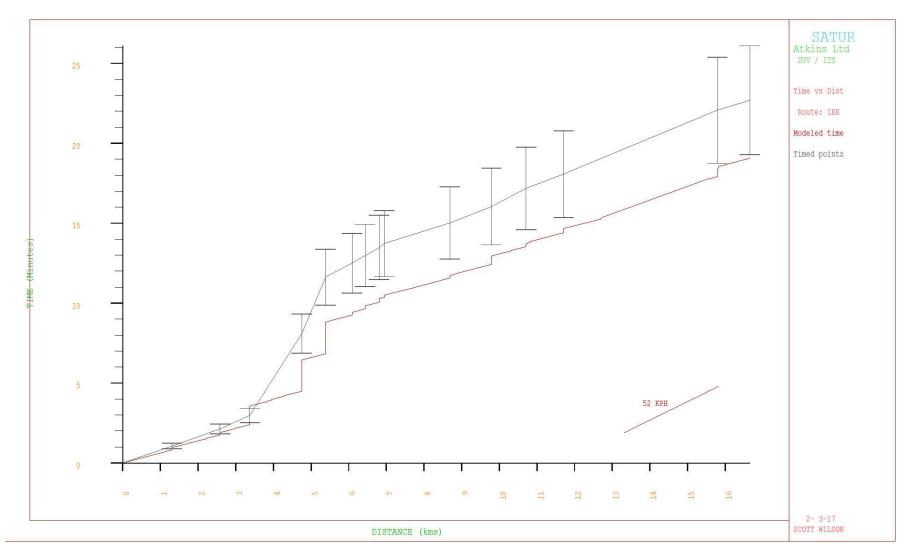
Table E-9: PM Peak Validation Count Summary Statistics by either Flow or GEH

Screenline / Cordon	Number of Count Sites	Number of Sites Flow or GEH criteria met	"% Sites
Northern SB	6	2	33%
Northern NB	6	4	67%
Railway EB	7	2	29%
Railway WB	7	4	57%
Total	26	12	46%

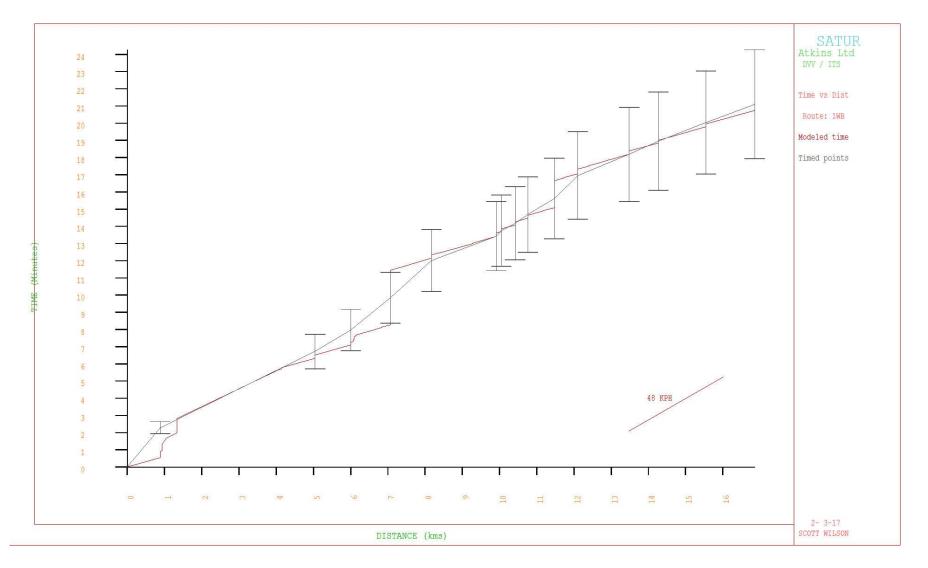
Appendix F: Journey Time Validation

Journey Time Plots - AM

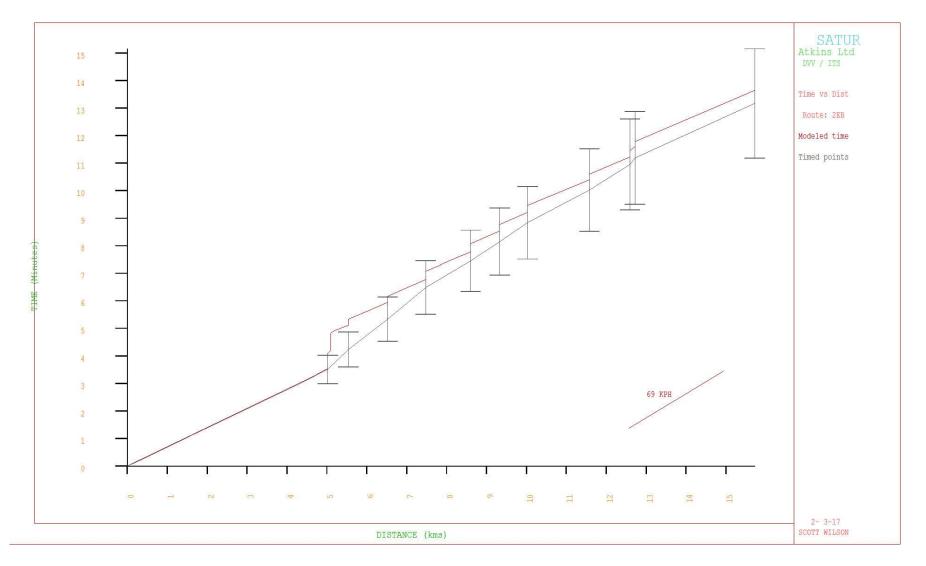
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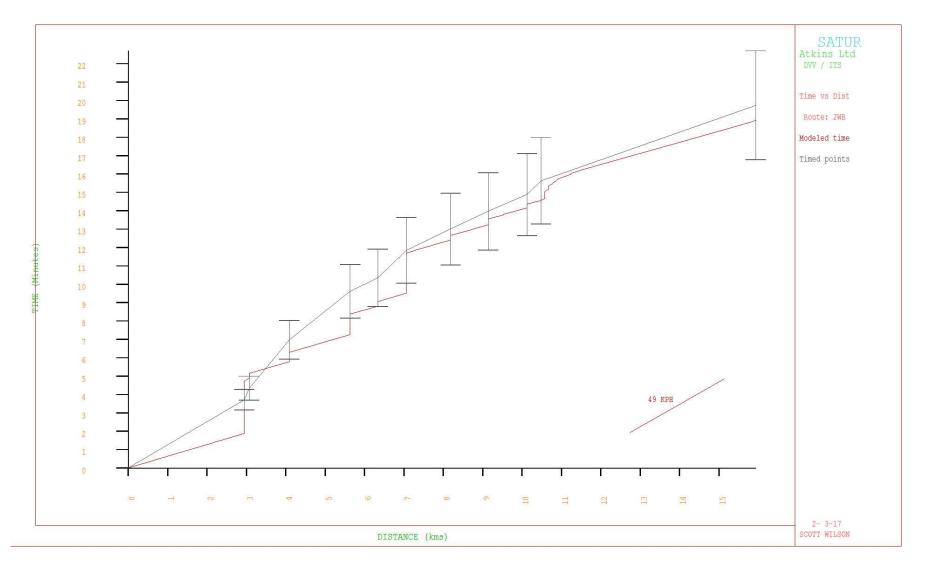
Route 1 WB



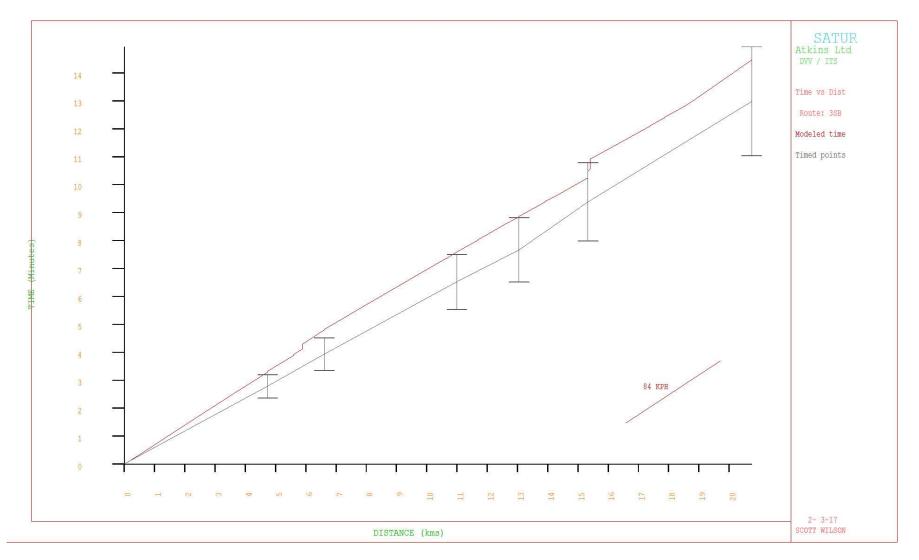
Route 2 EB



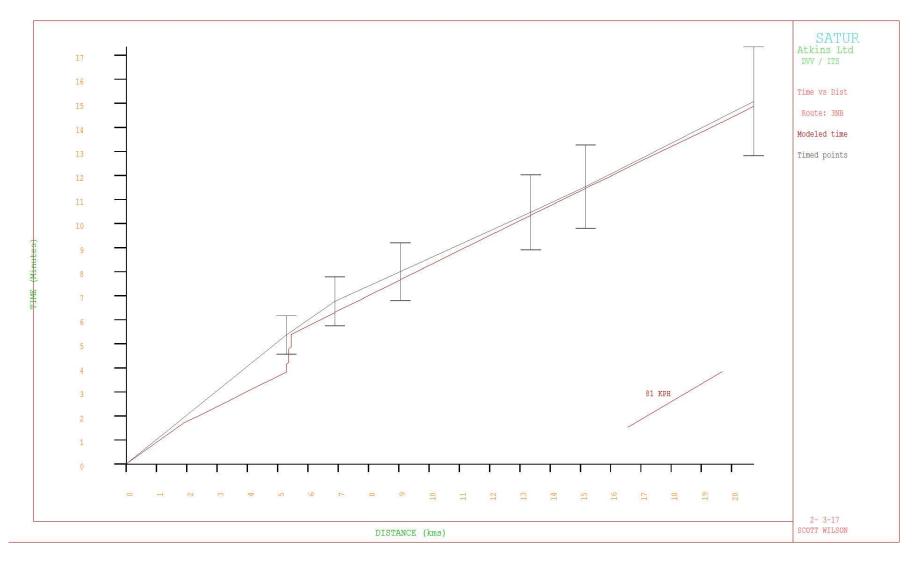
Route 2 WB



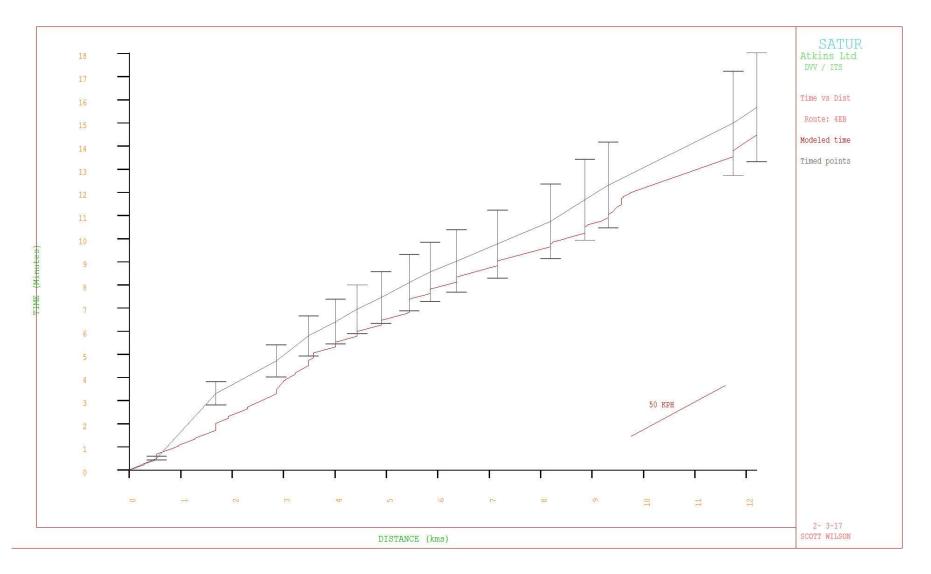
Route 3 SB MKMMM



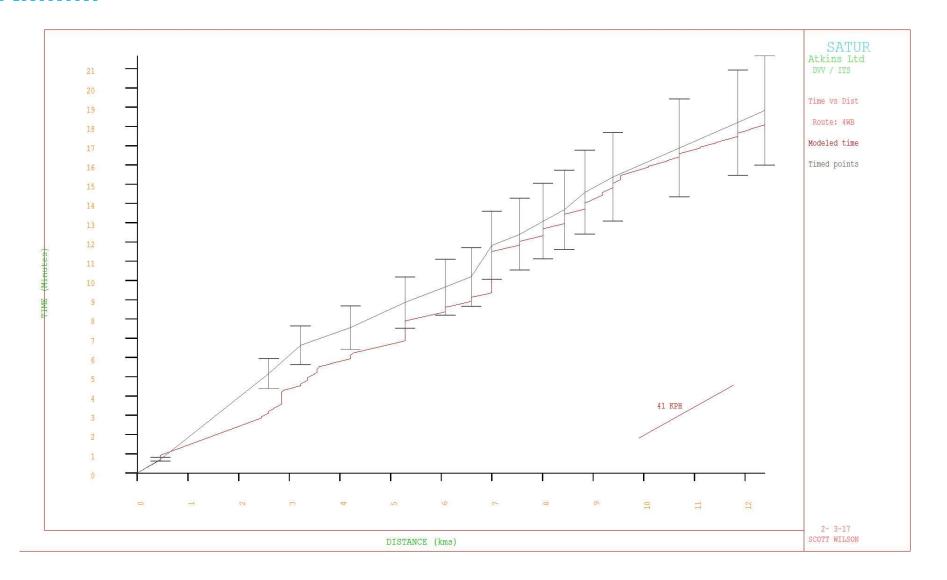
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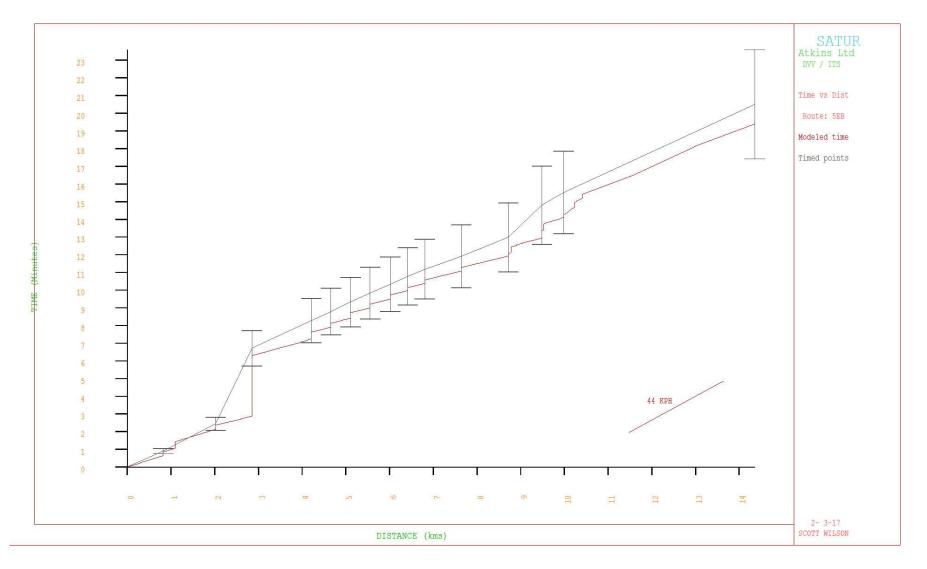
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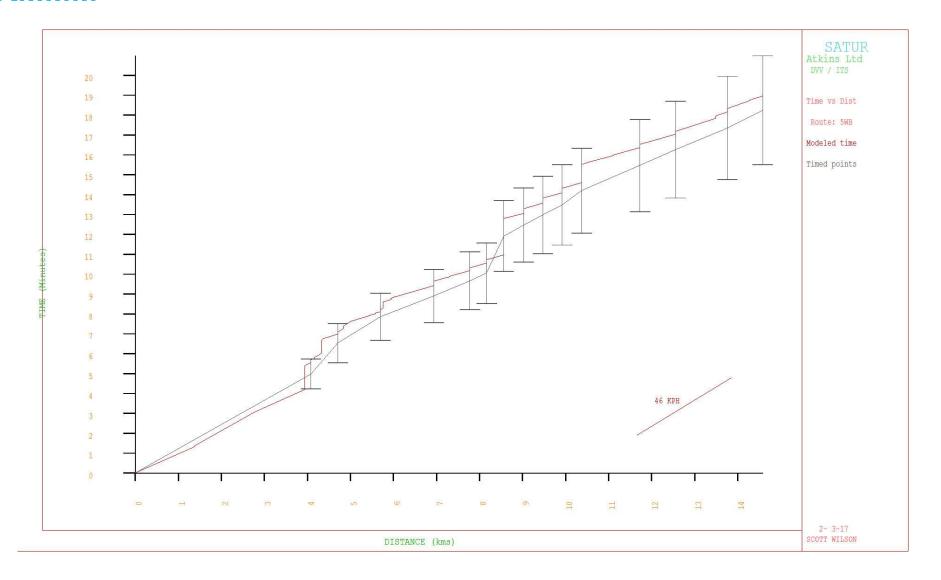
Route 4 WB



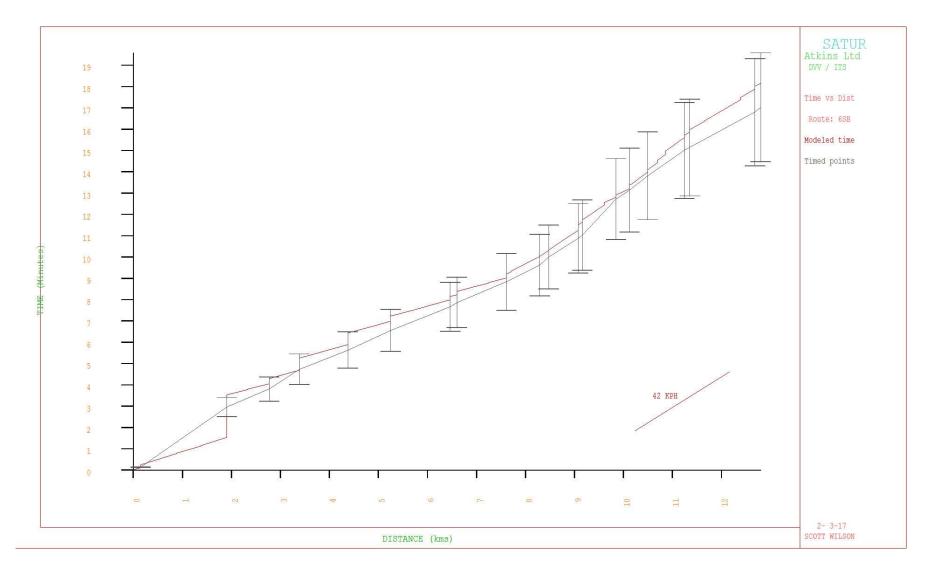
Route 5 EB



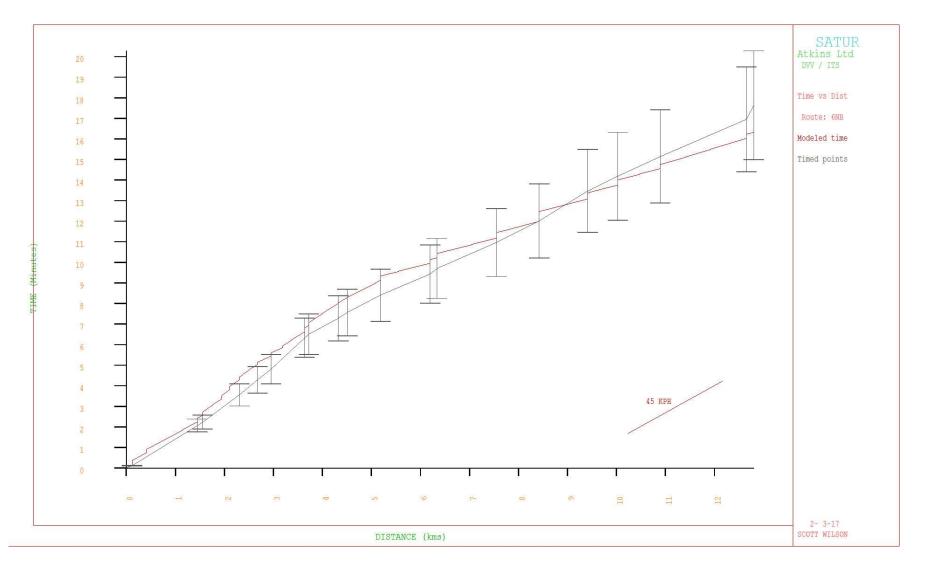
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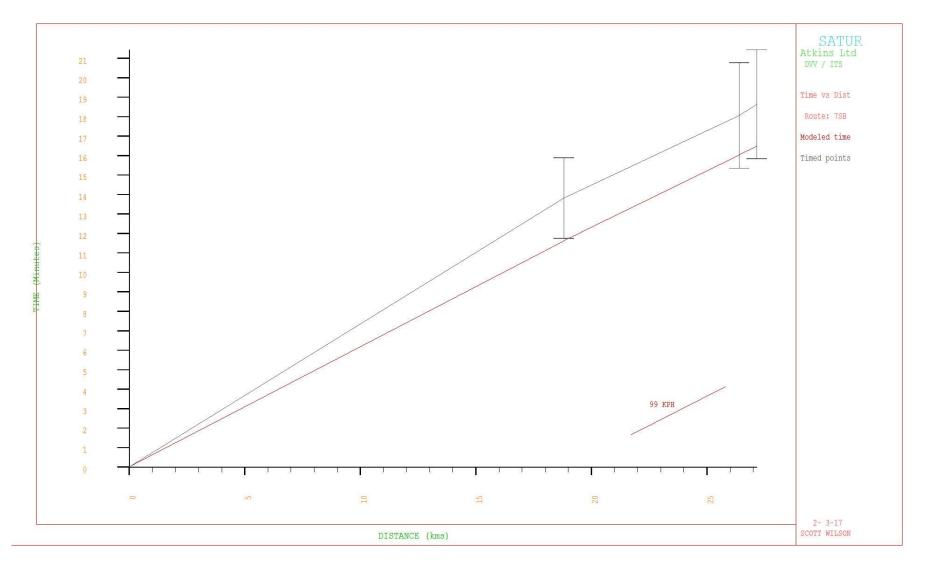
Route 6 SB



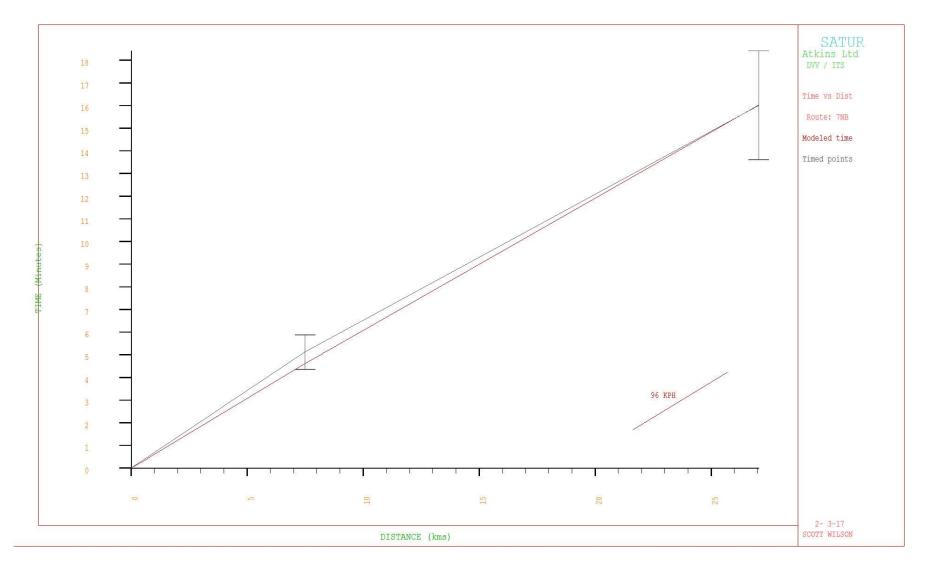
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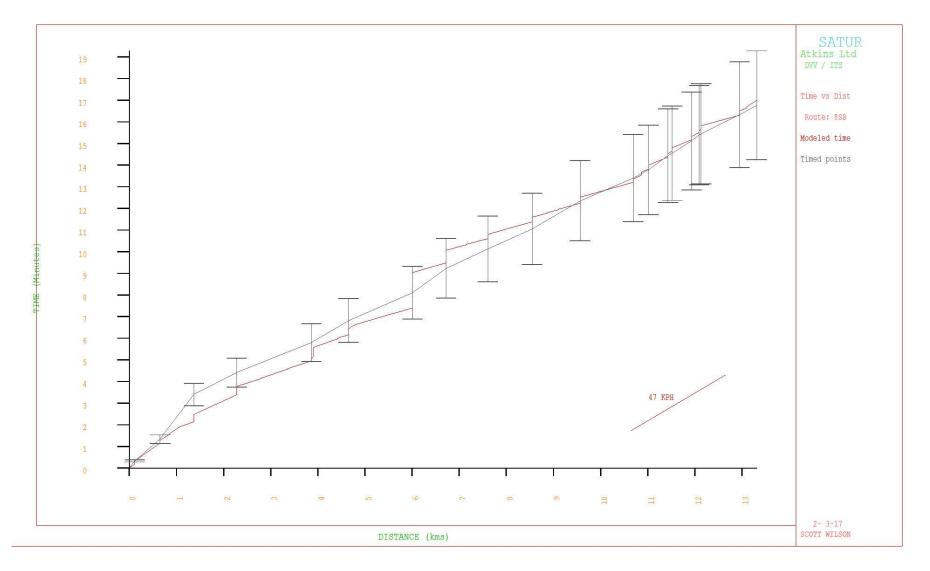
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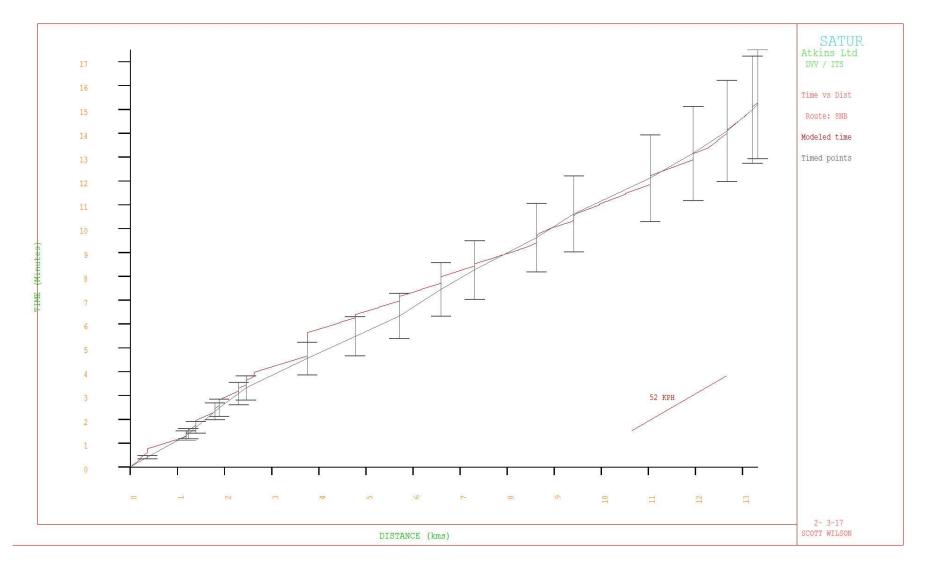
Route 7 NB



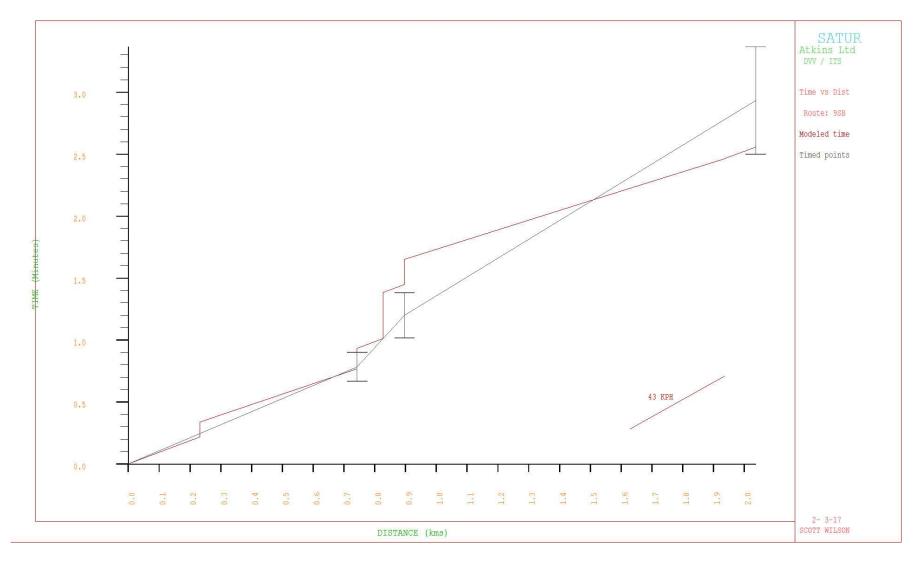
Route 8 SB



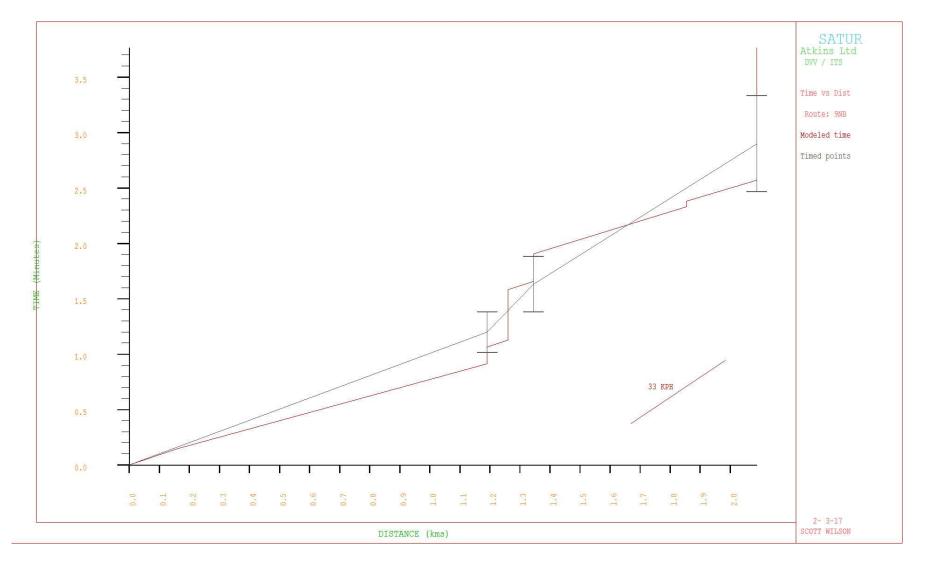
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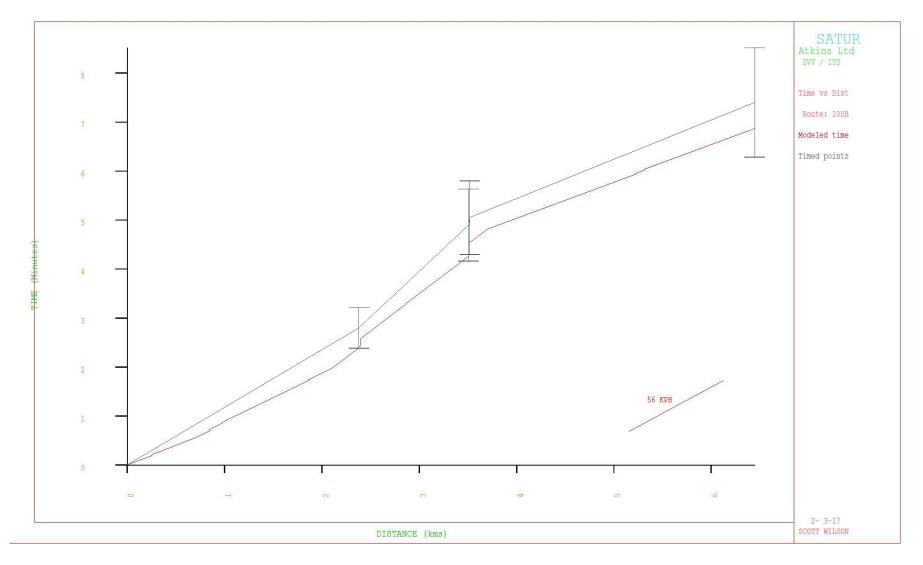
Route 9 SB MKMMM



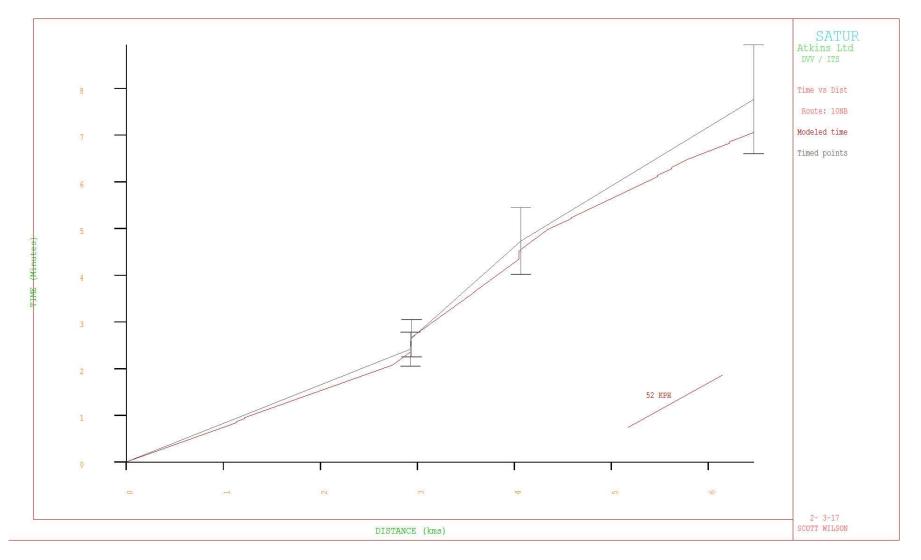
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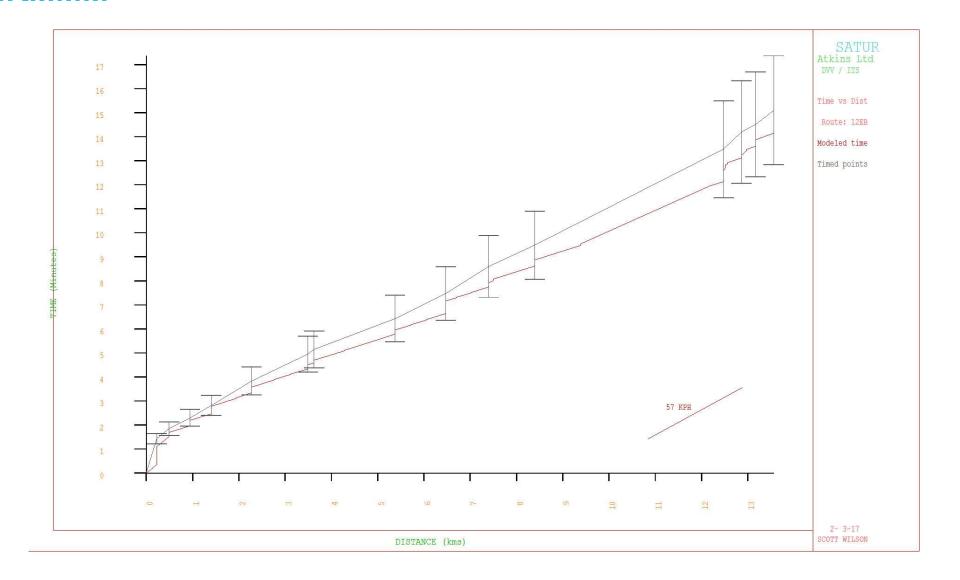
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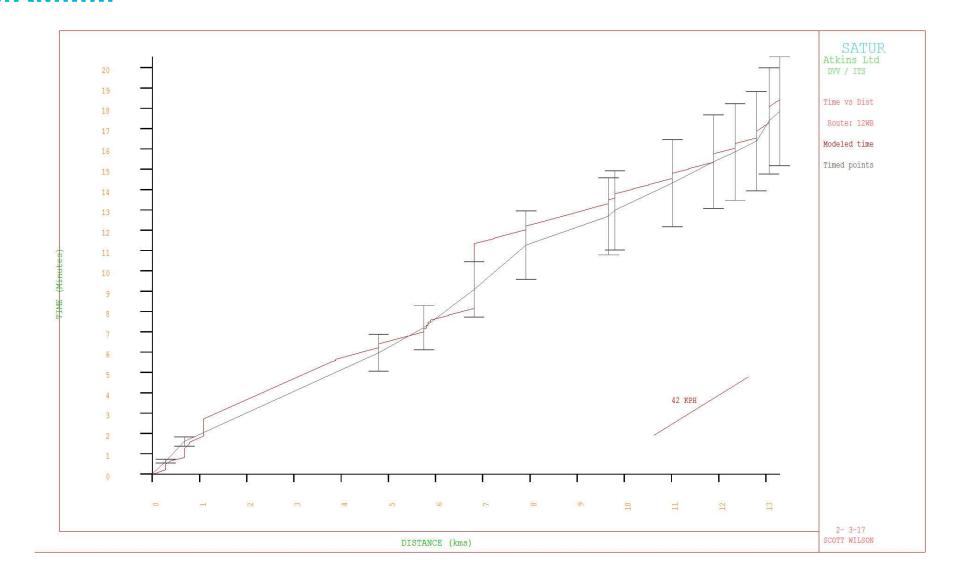
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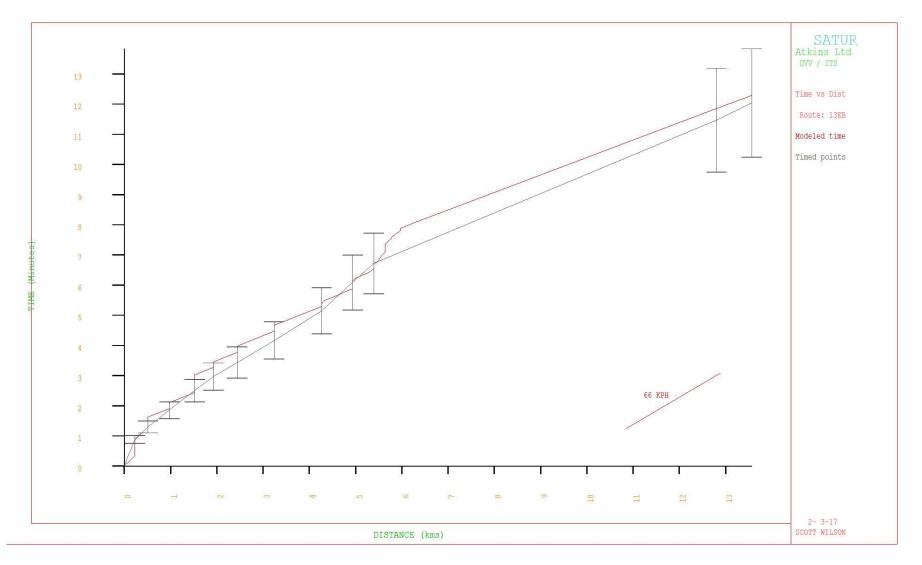
Route 12 WB



Route 12 WB

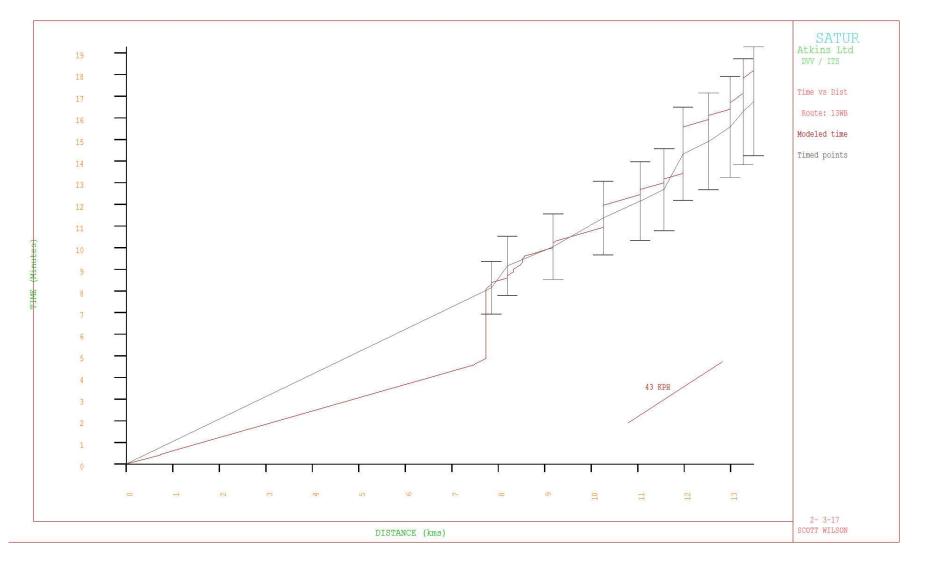


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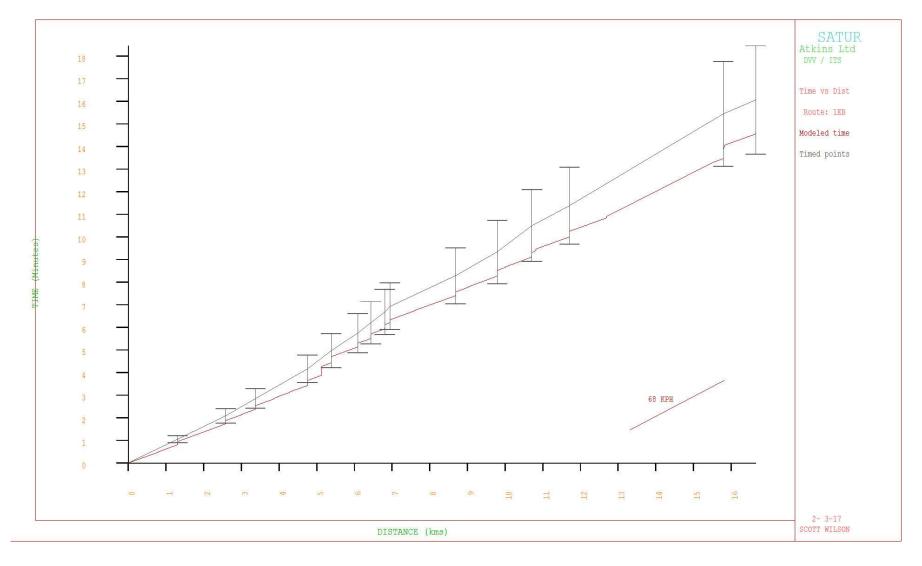
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MKMMM

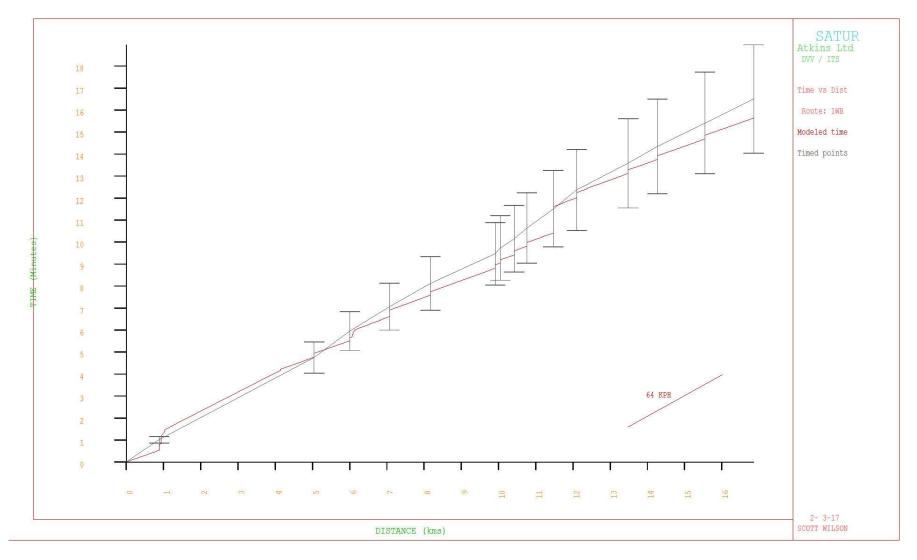


Journey Time Plots - IP

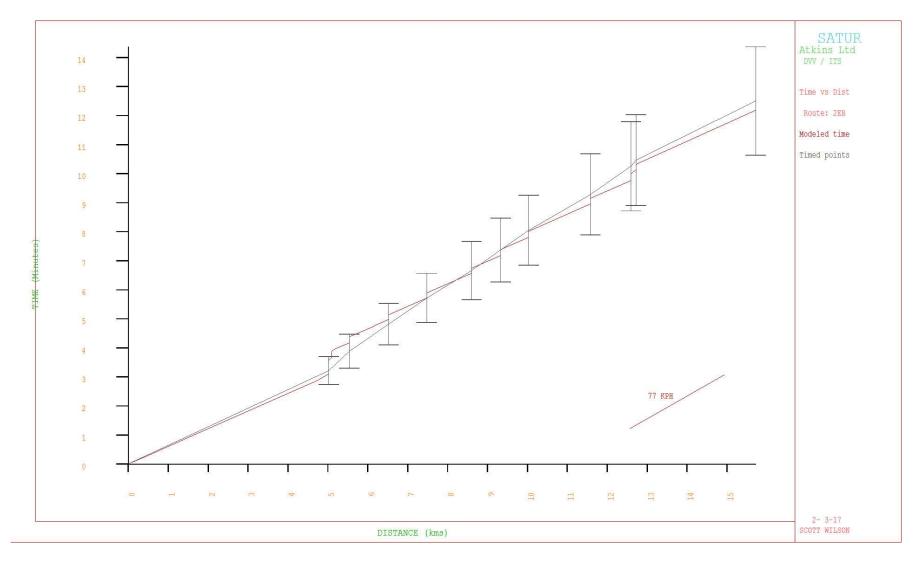
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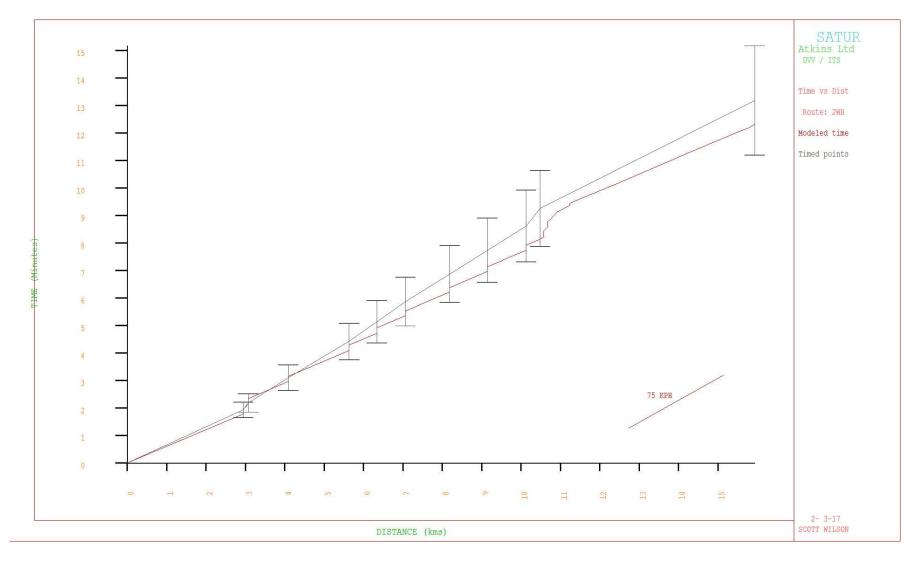
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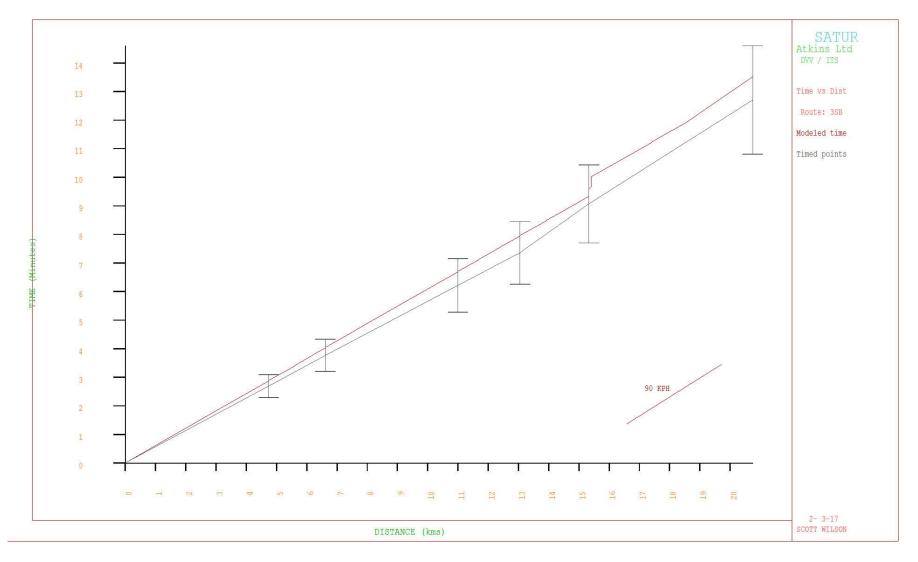
Route 2 EB



Route 2 WB

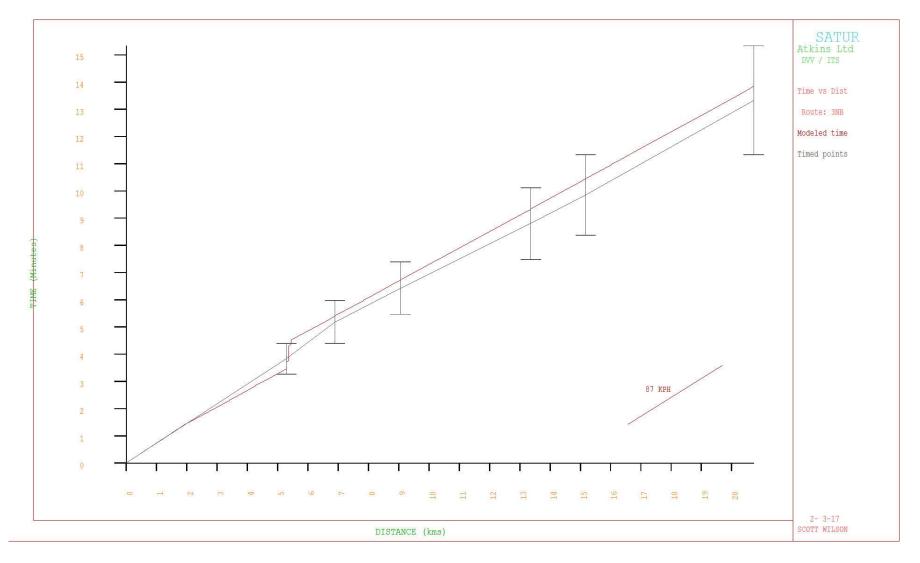


Route 3 SB MKMMM

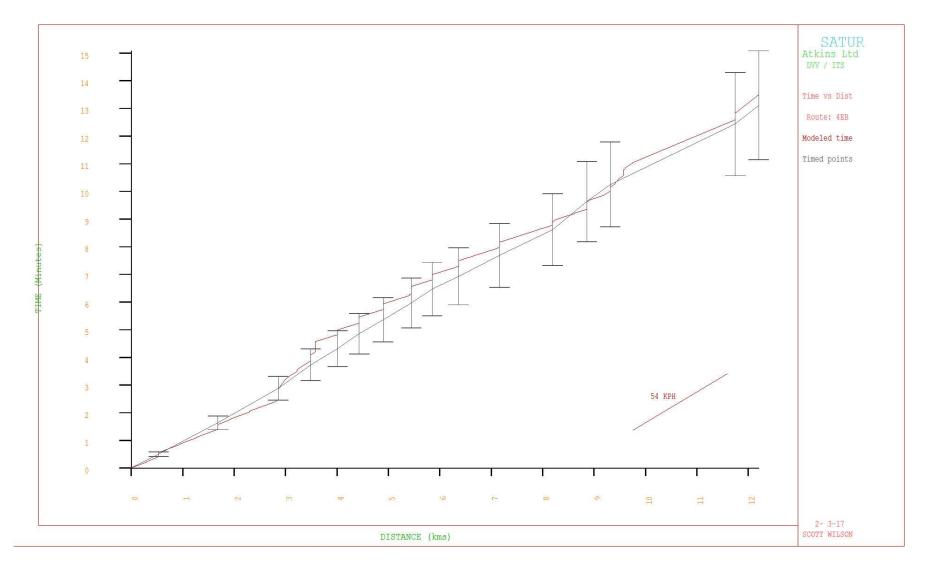




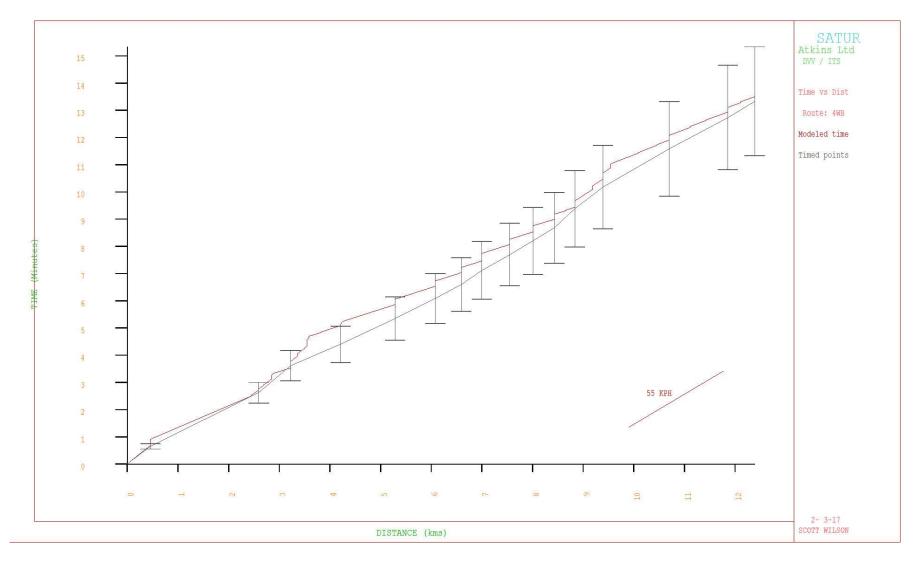
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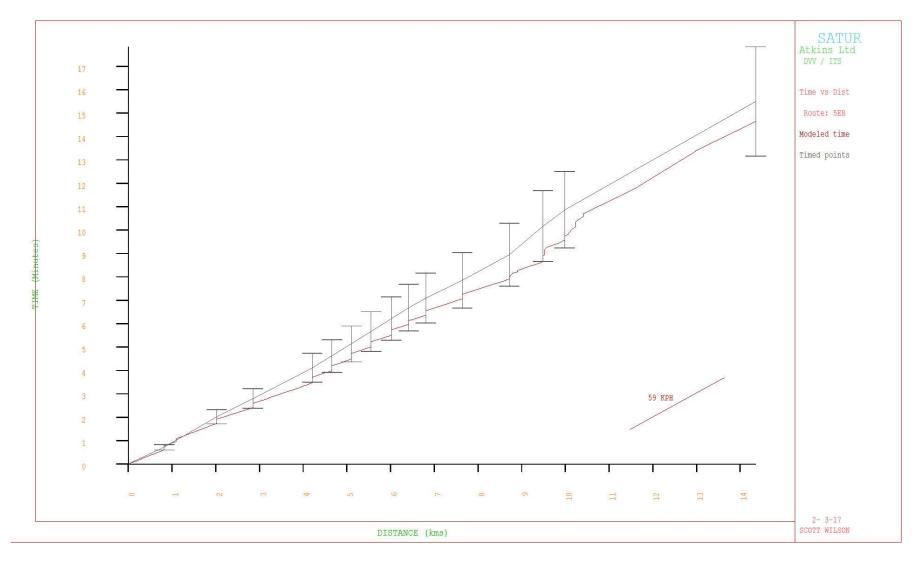
Route 4 EB



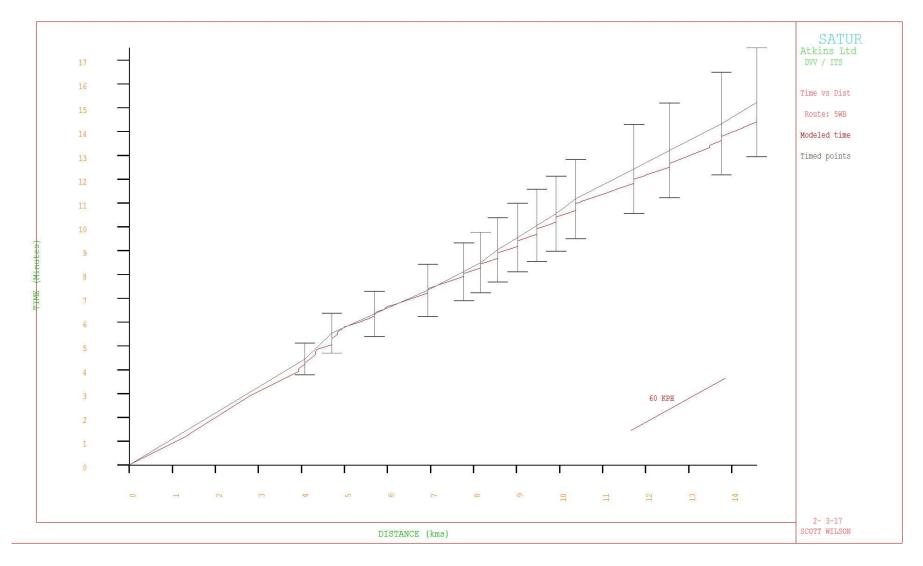
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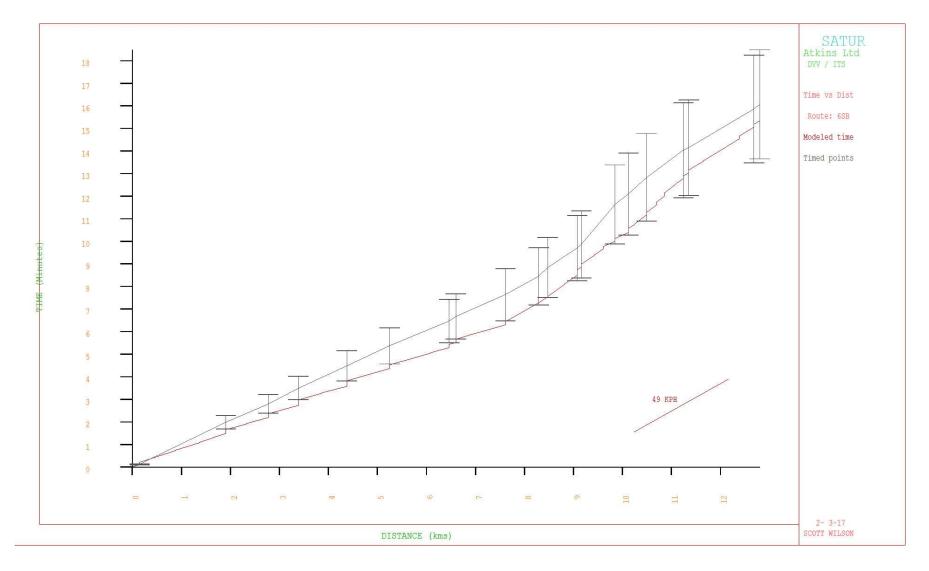
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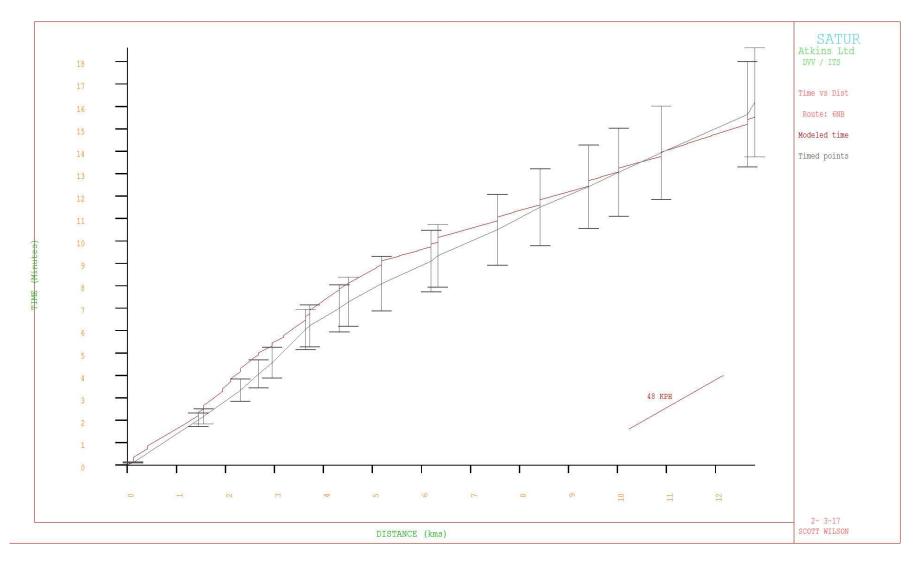
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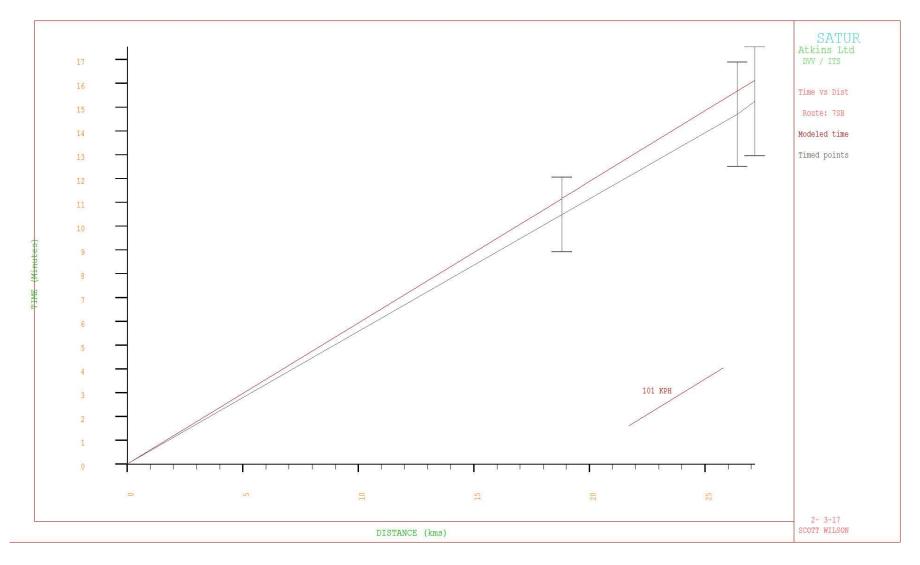
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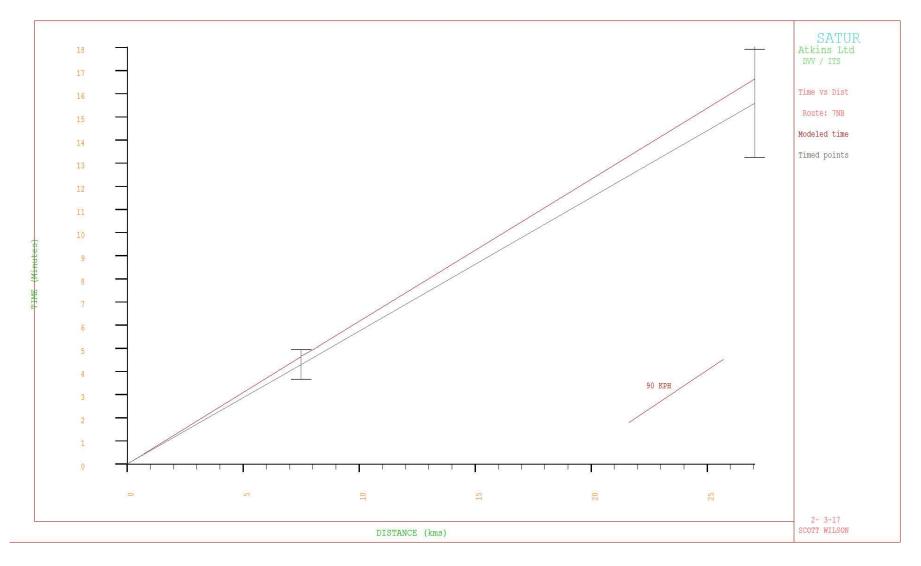
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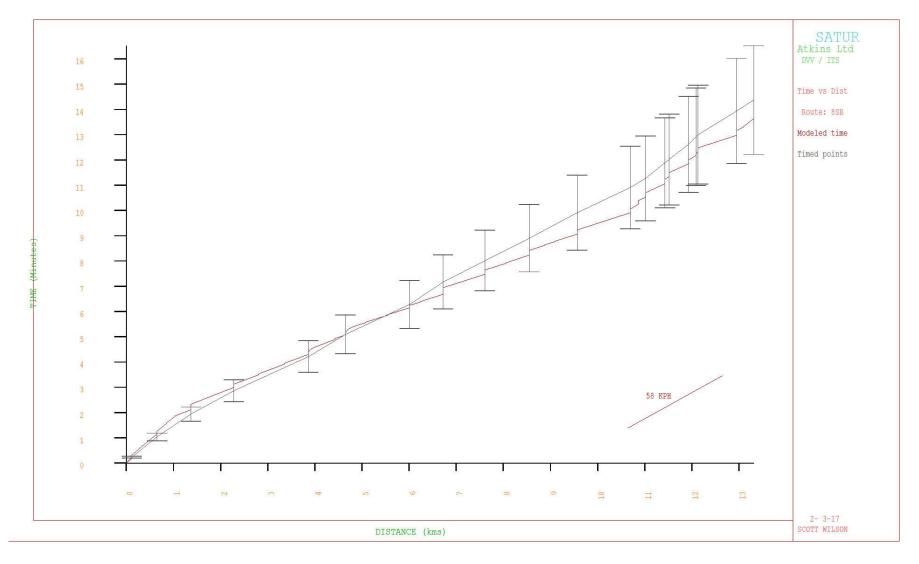
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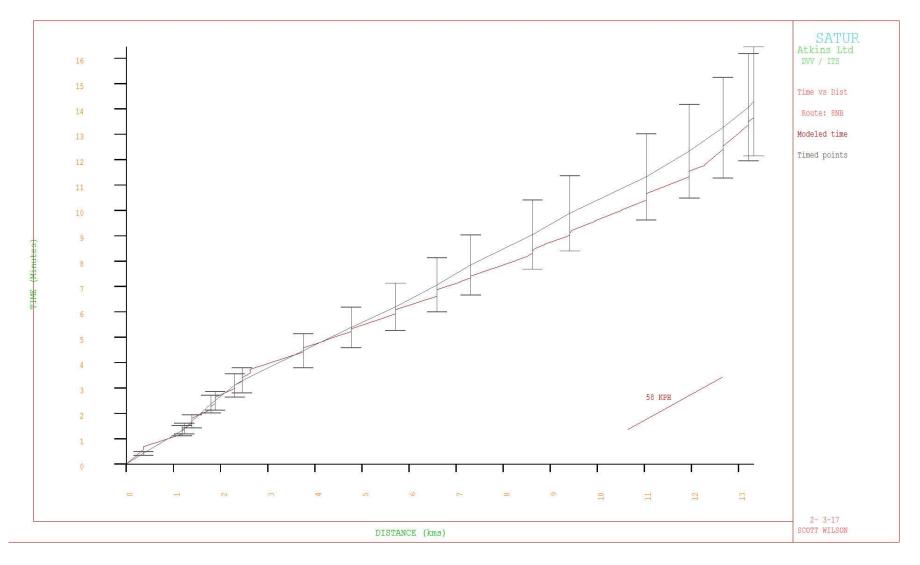
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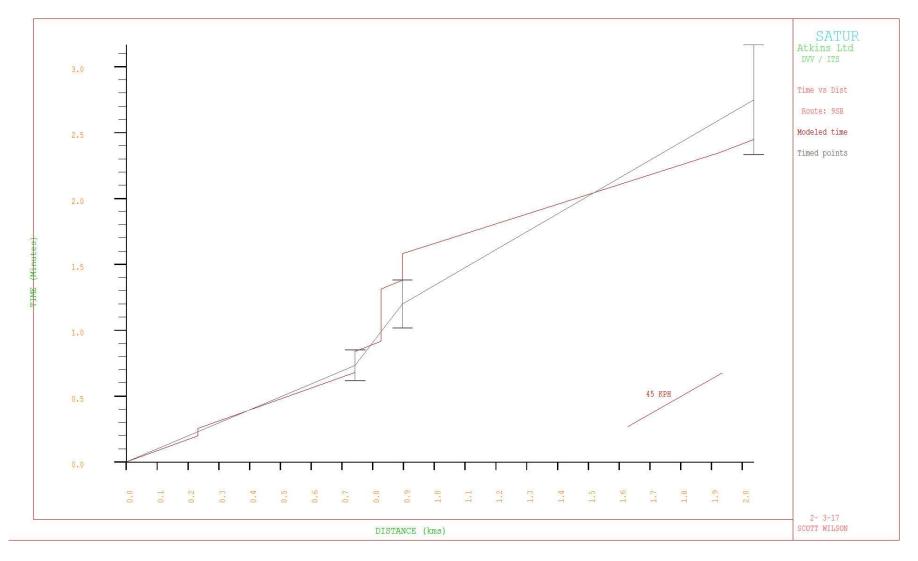
Route 8 SB



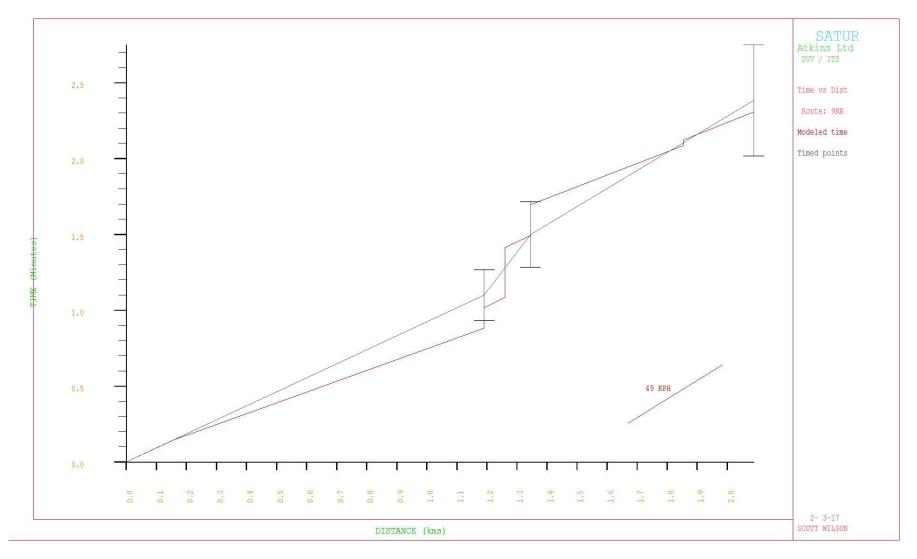
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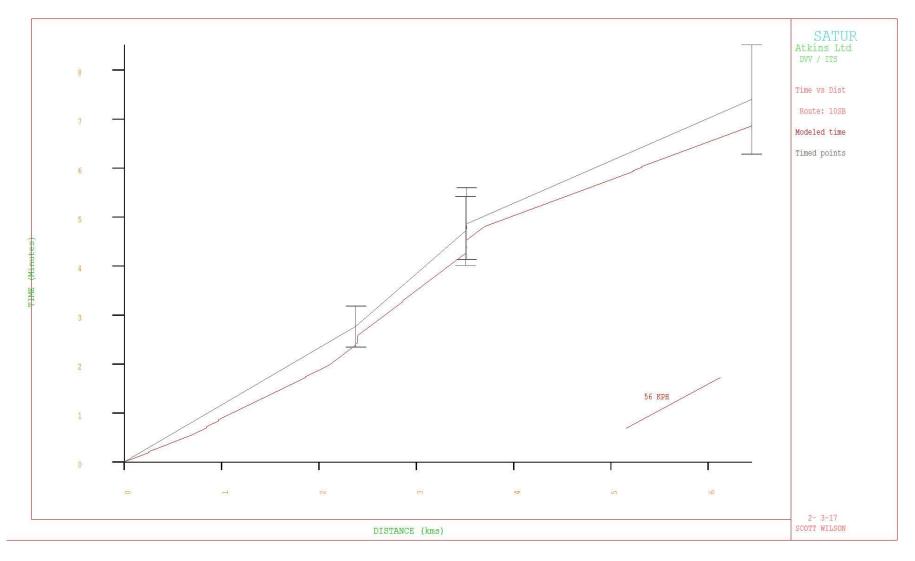
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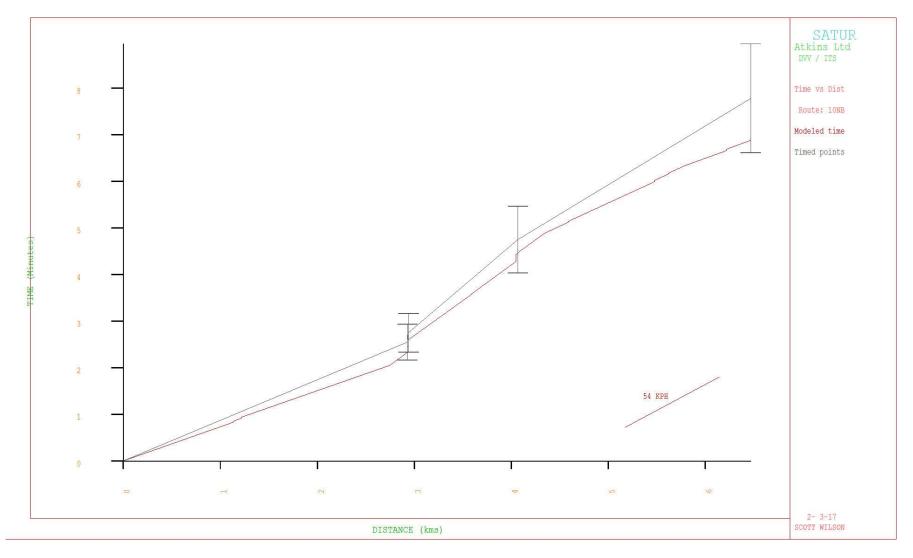
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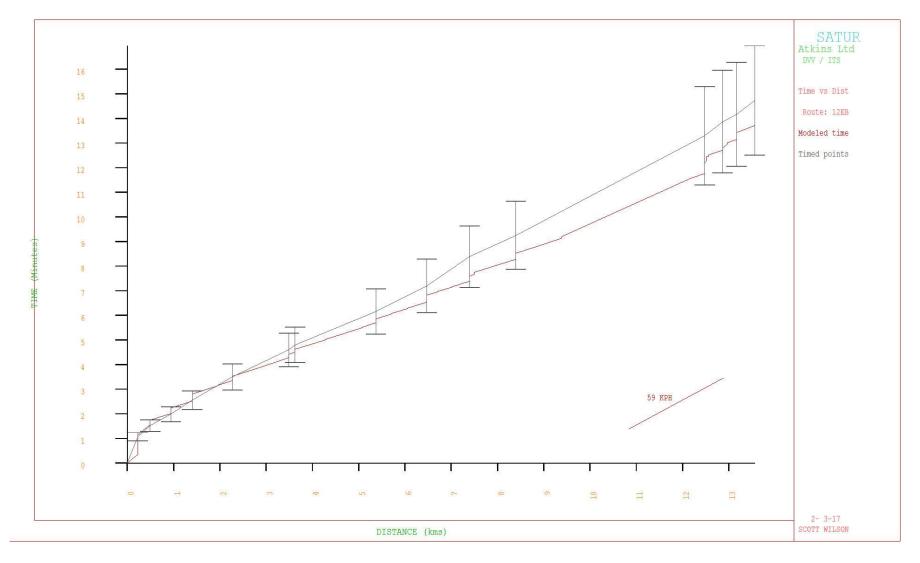
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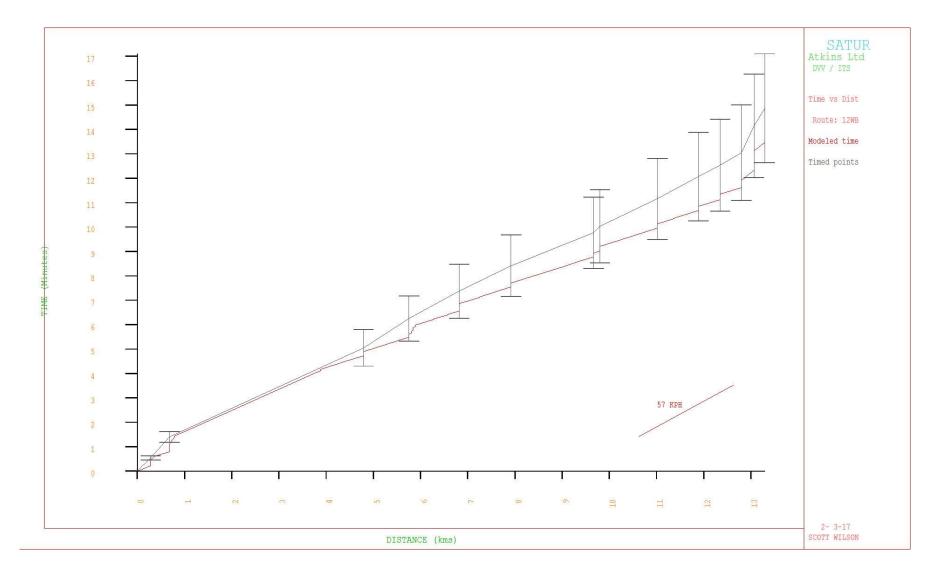
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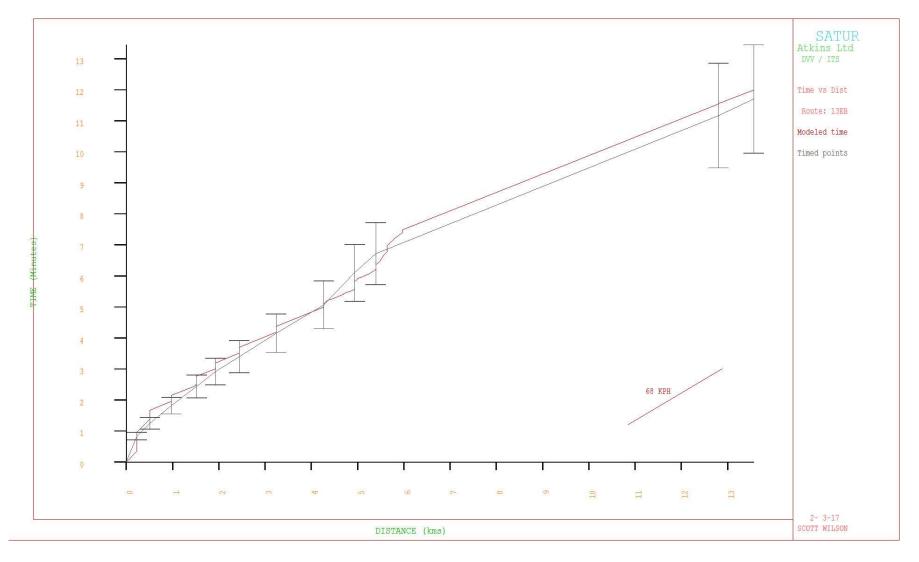
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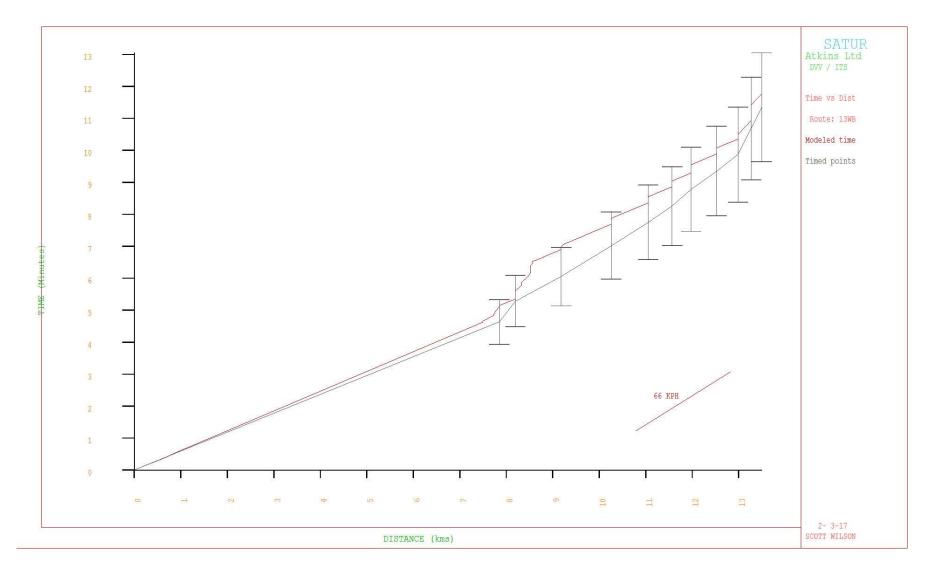
Route 12 WB



Route 13 EB

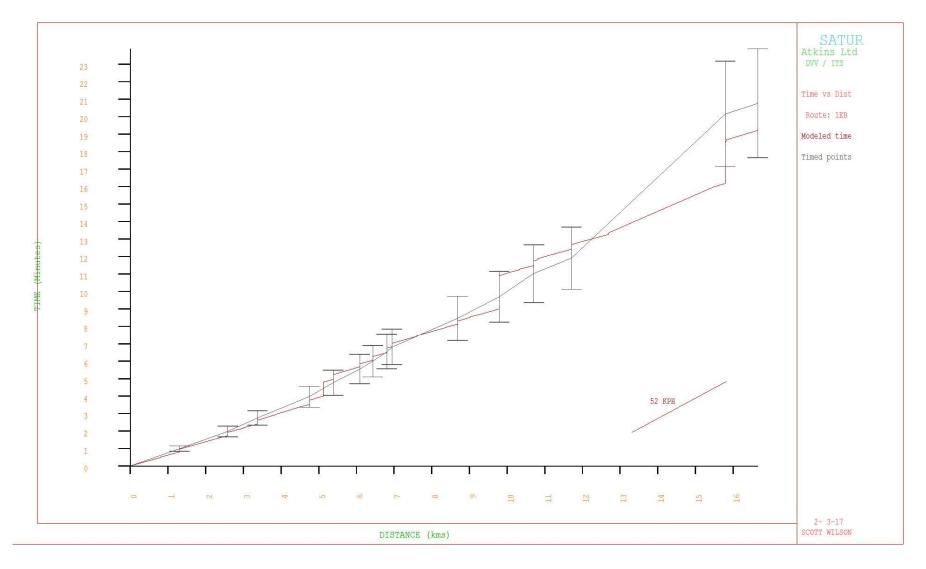


Route 13 WB

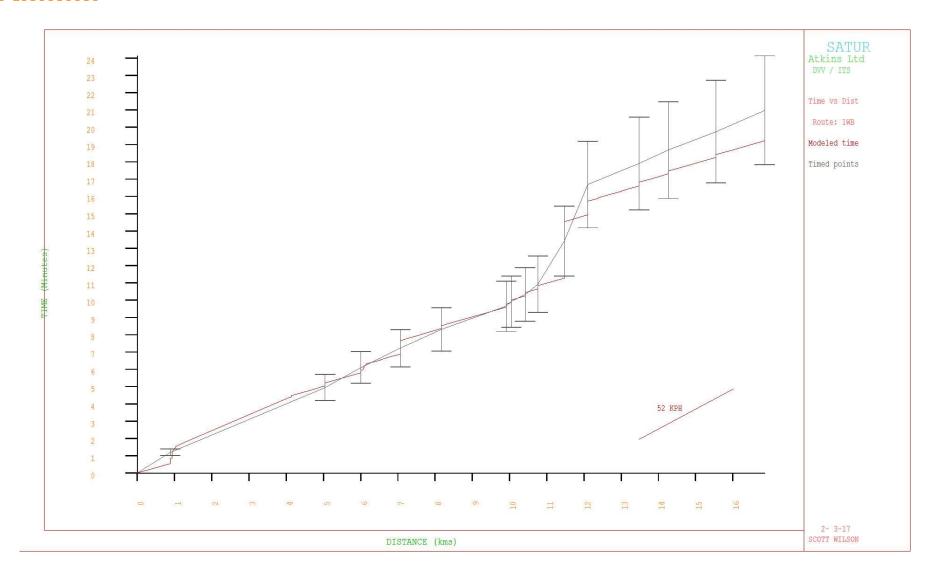


Journey Time Plots - PM

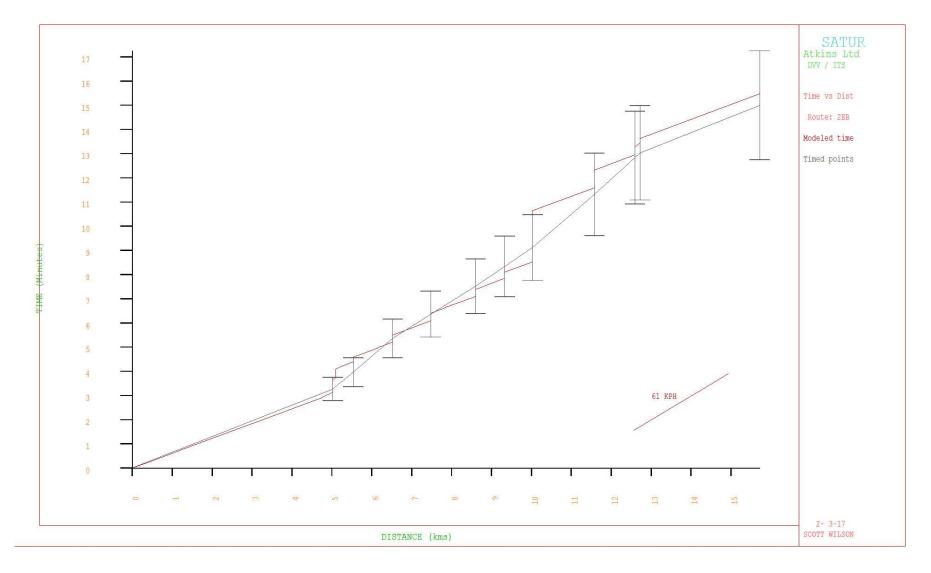
Route 1 EB



Route 1 WB

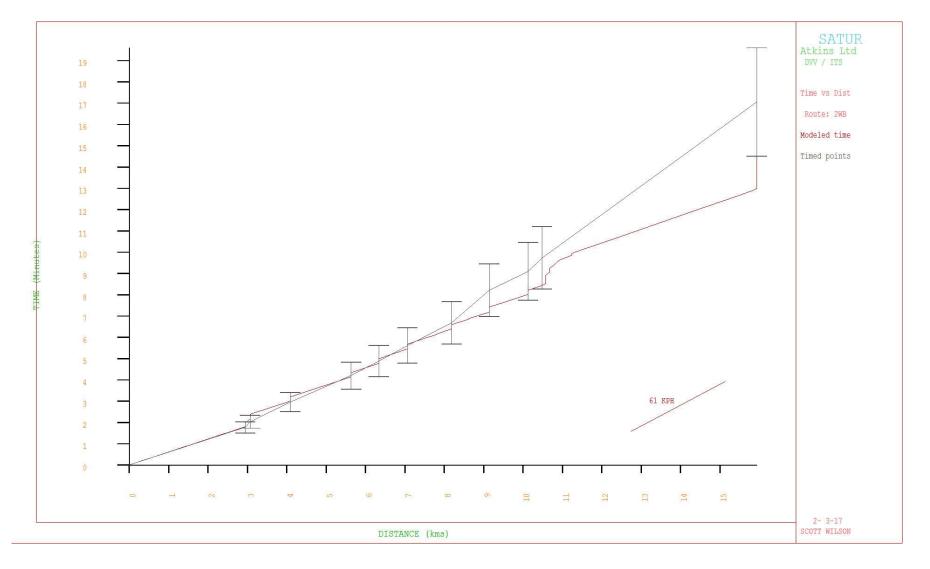


Route 2 EB

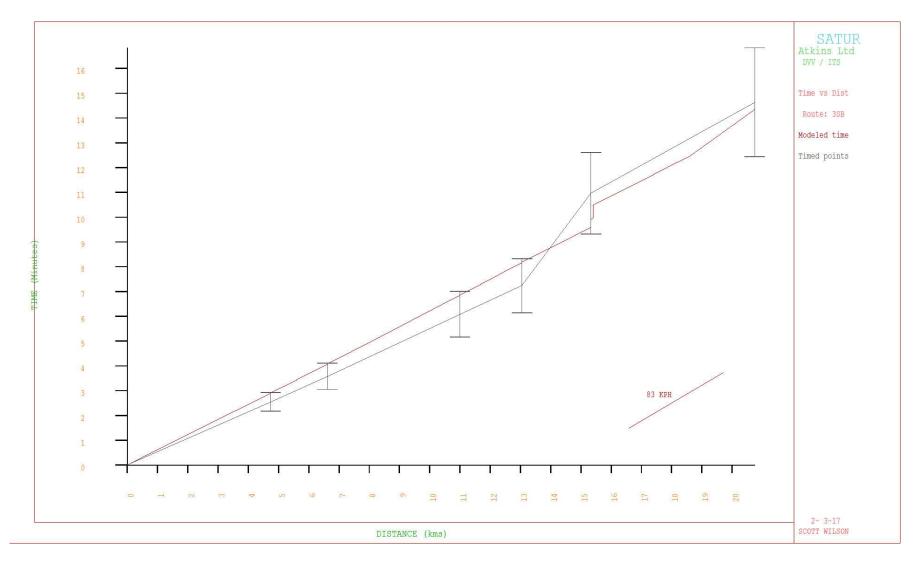


Route 2 WB

MKMMM

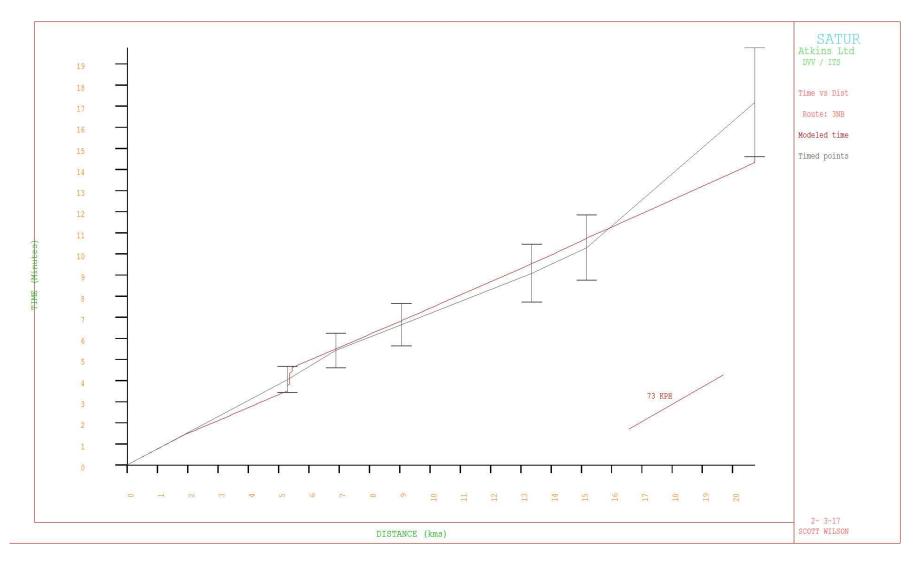


Route 3 SB MKMMM

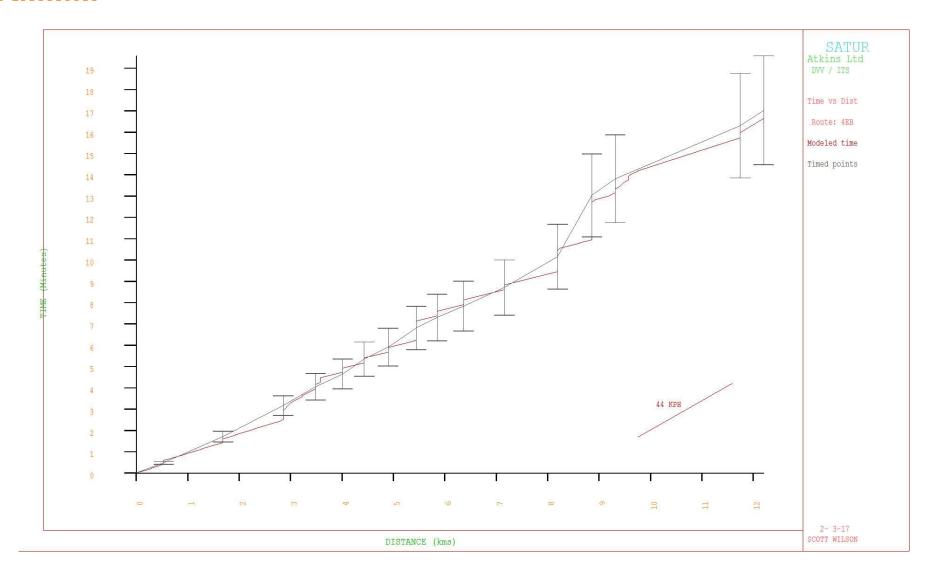


PM

Route 3 NB MKMMM

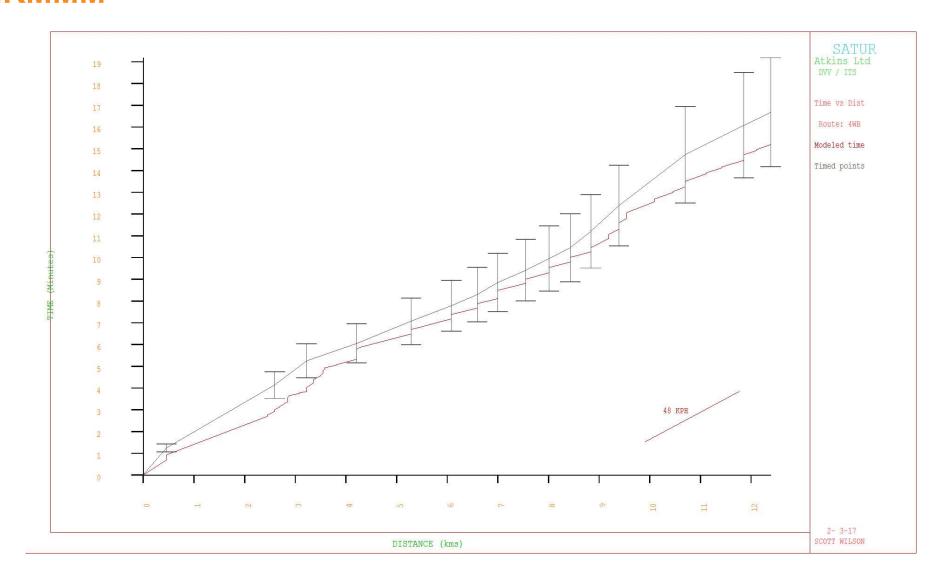


Route 4 EB

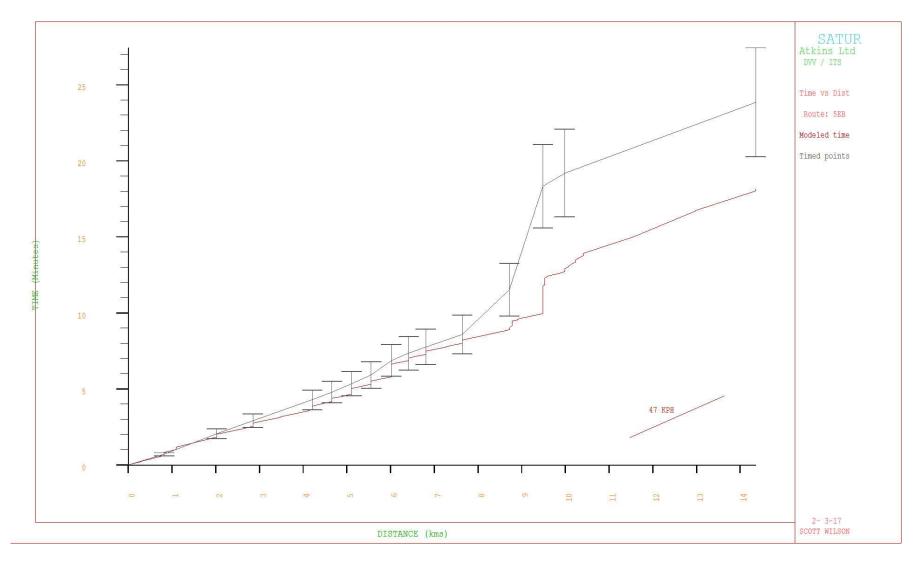


PM

Route 4 WB

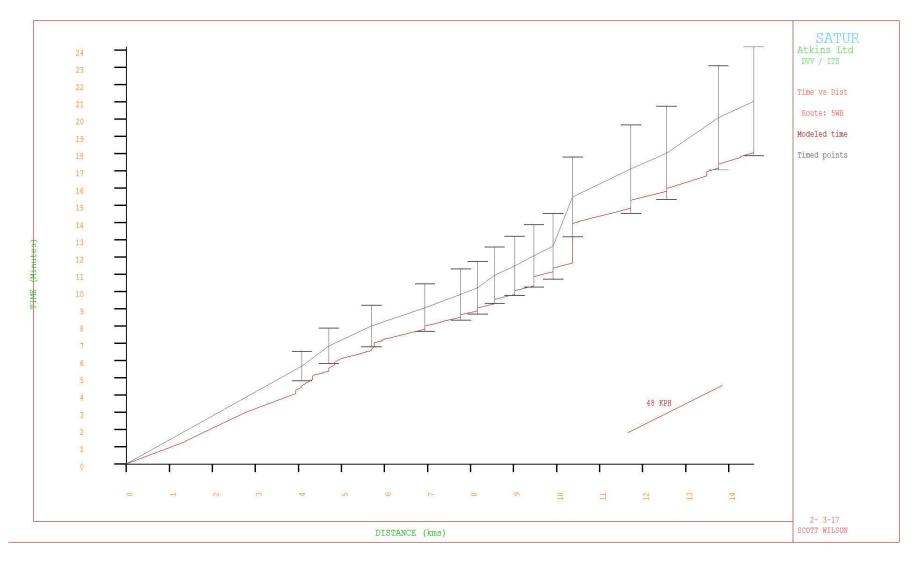


Route 5 EB

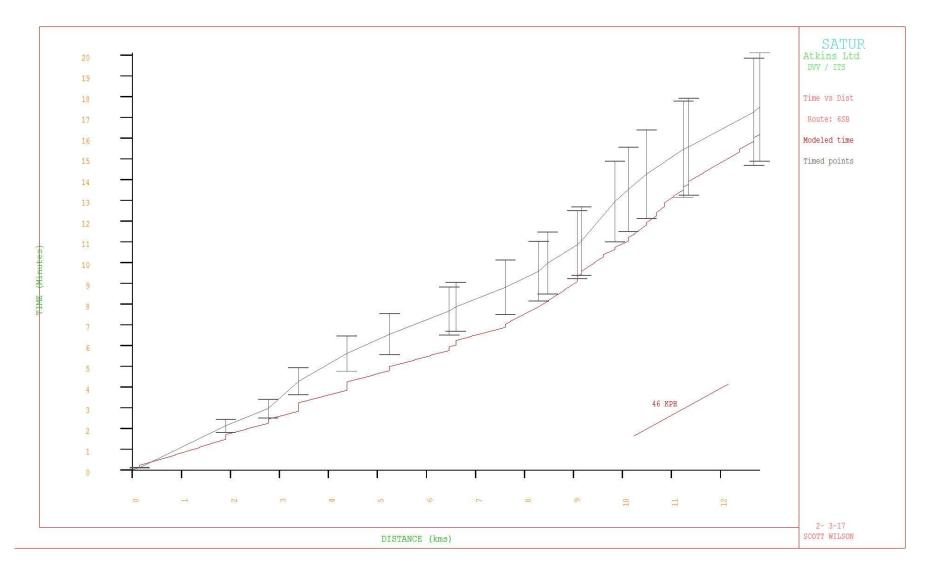


Route 5 WB

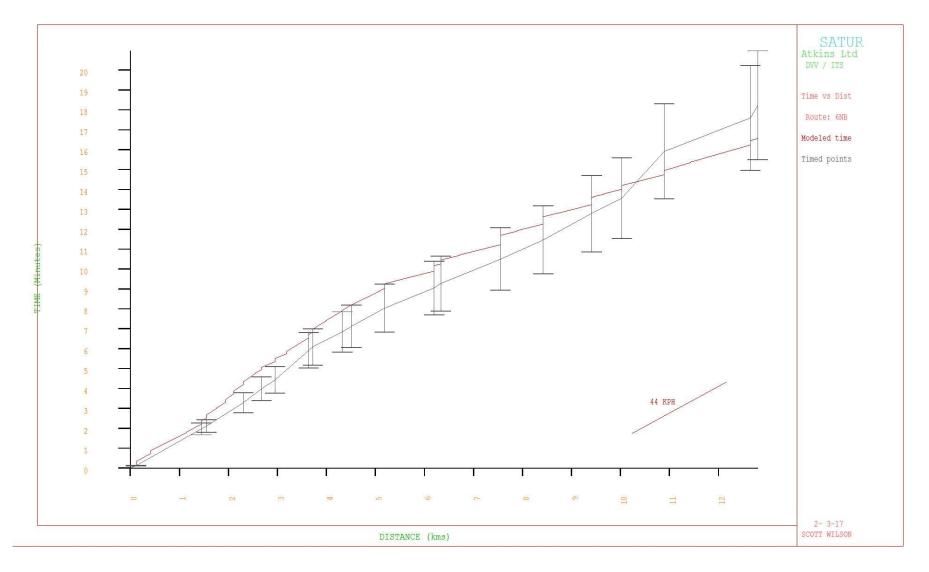




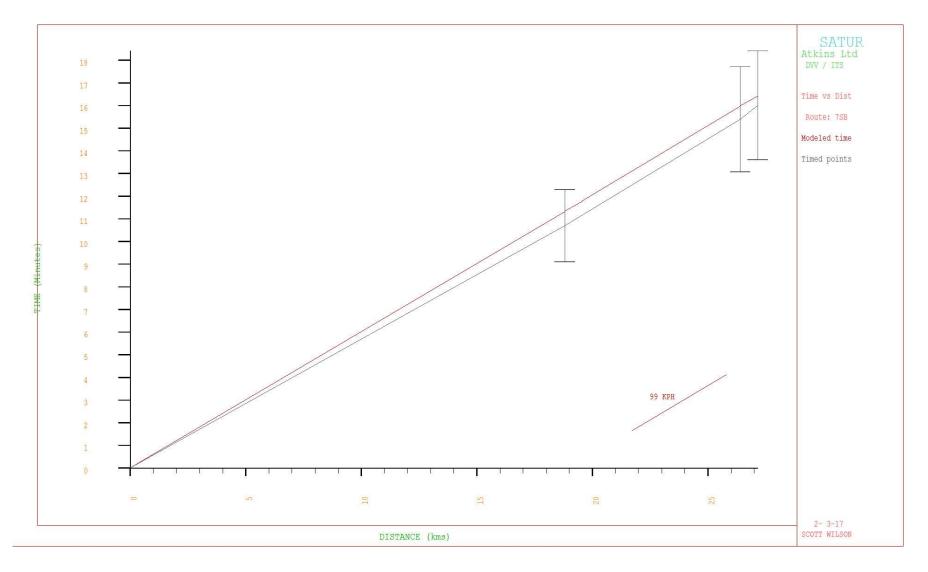
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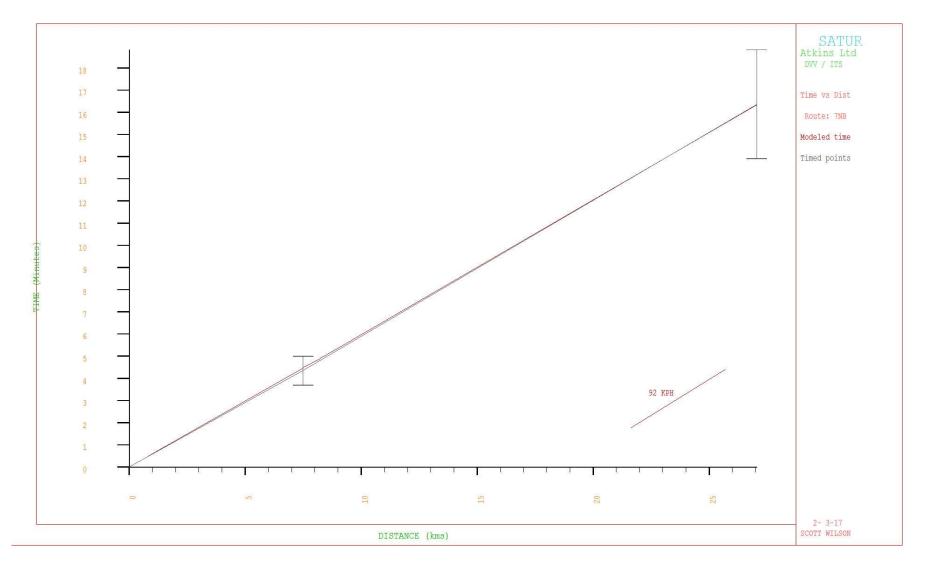
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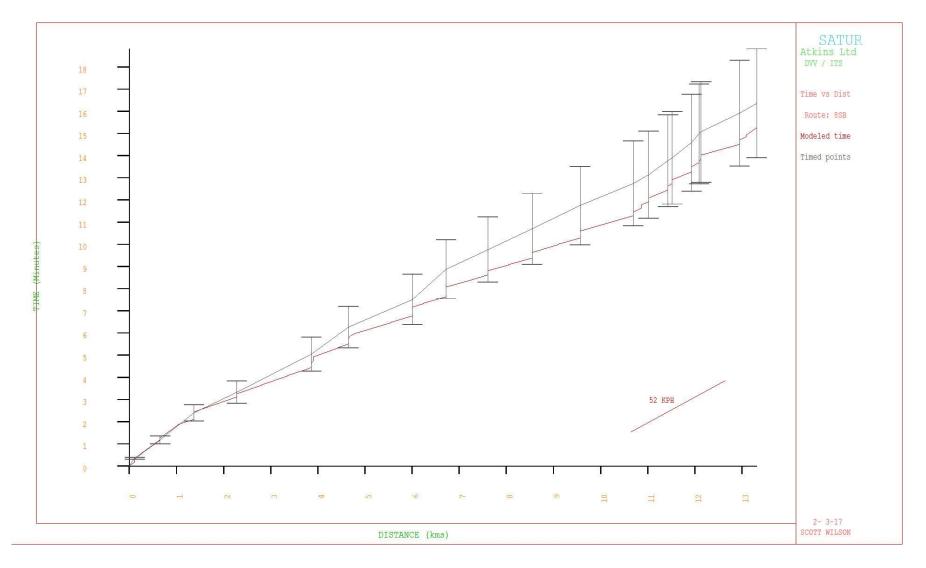
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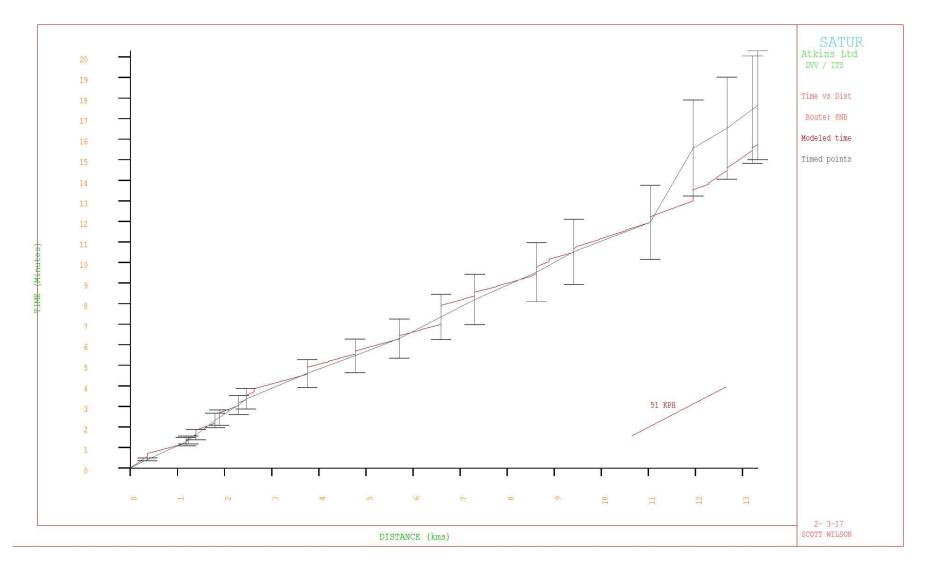
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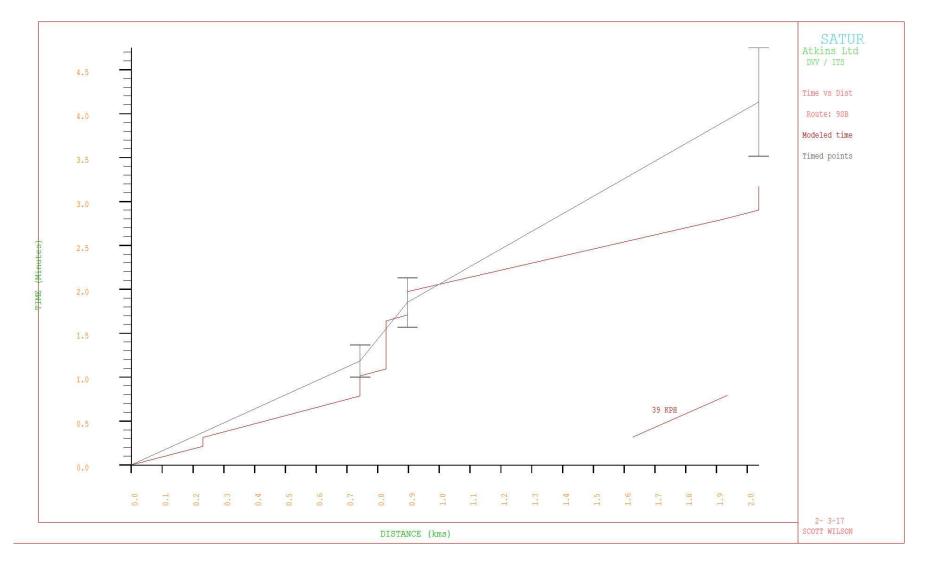
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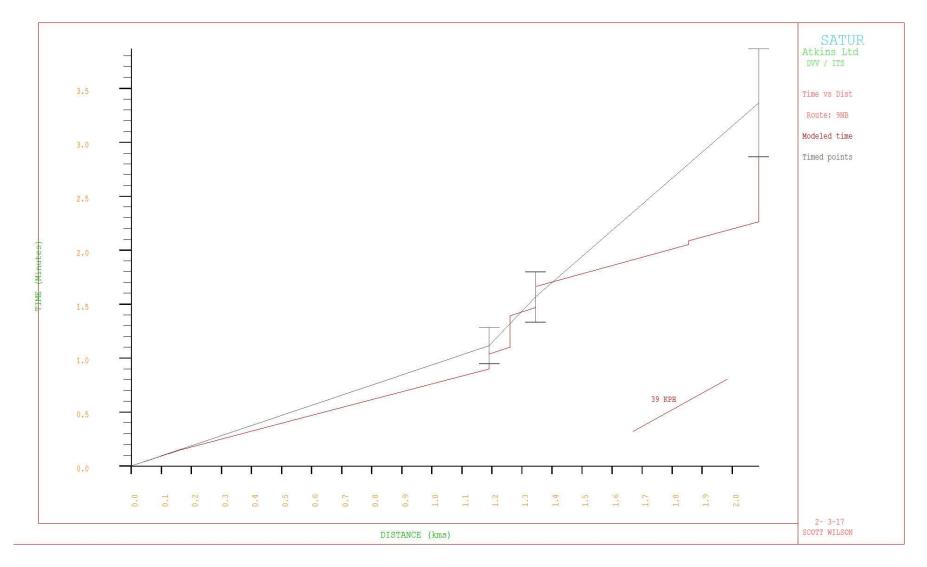
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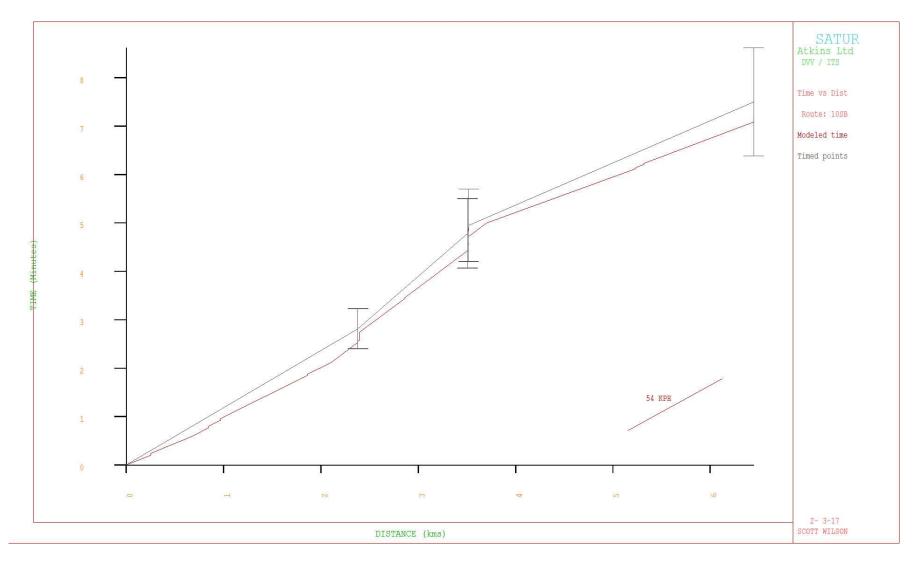
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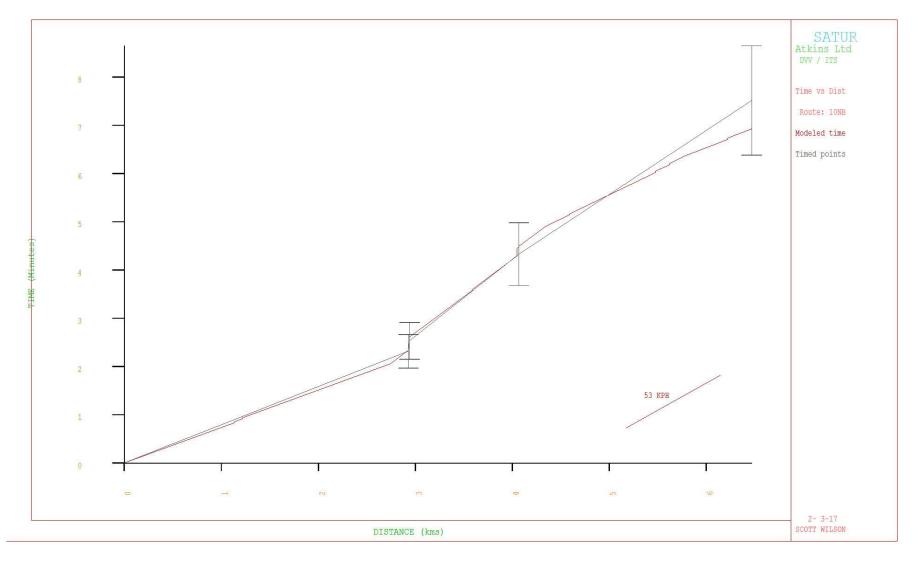
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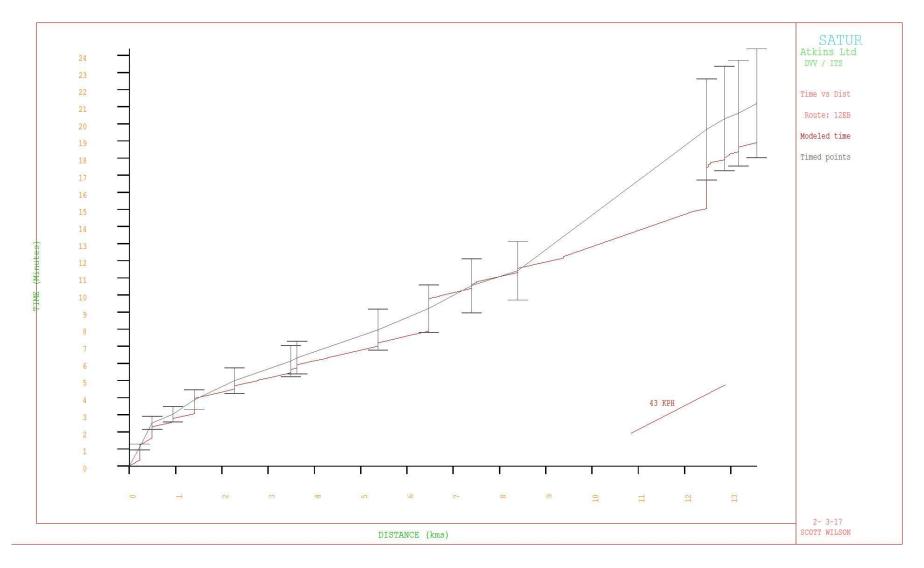
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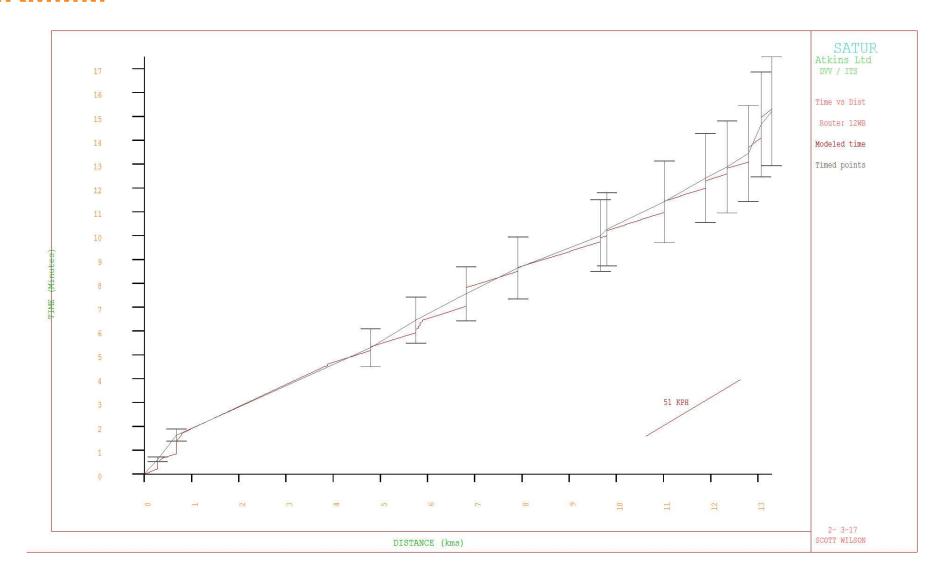
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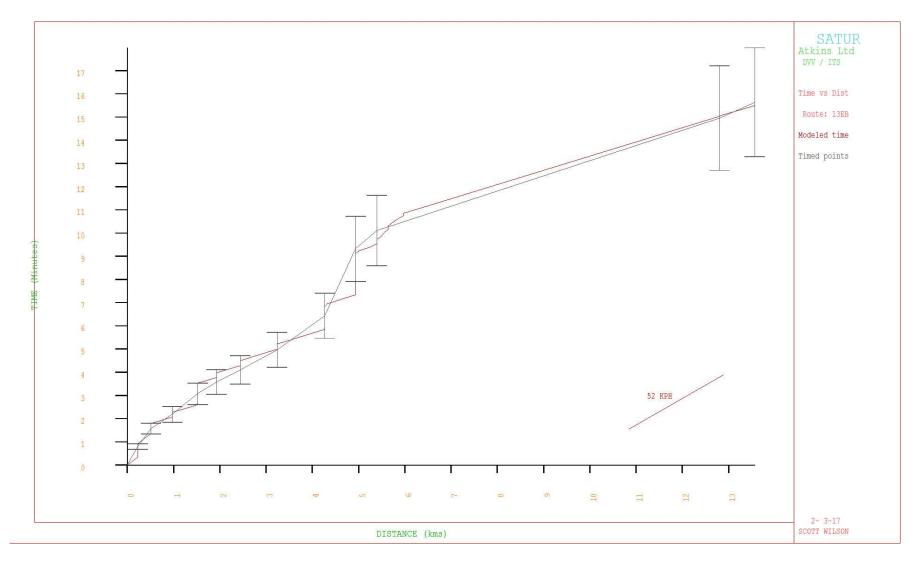
Route 12 EB MKMMM



Route 12 WB



Route 13 EB MKMMM



Route 13 WB

