Figure 8-19 Link Speed Plot (mph) – AM Peak

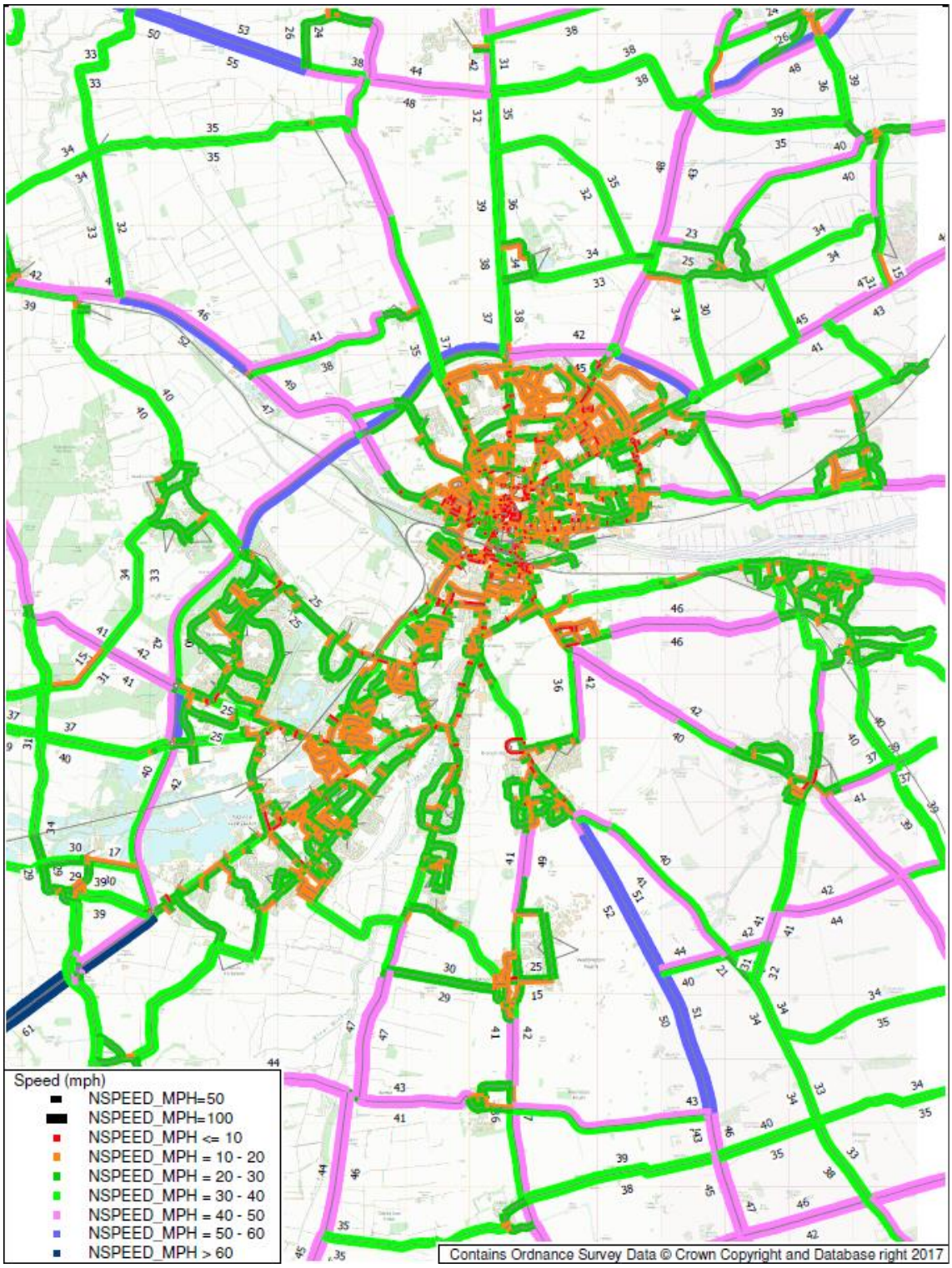


Figure 8-20 Link Speed Plot (mph) – Inter-Peak

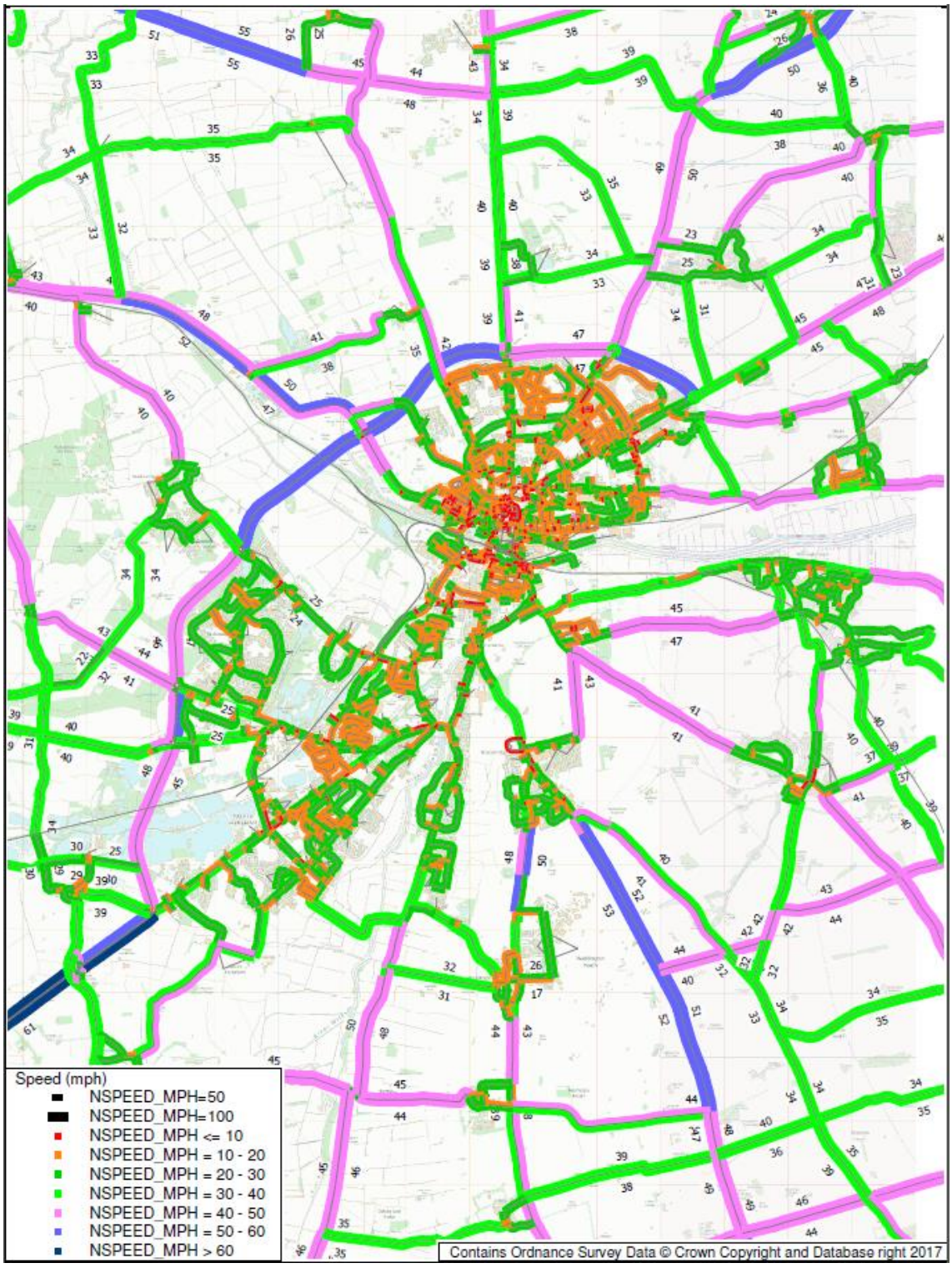
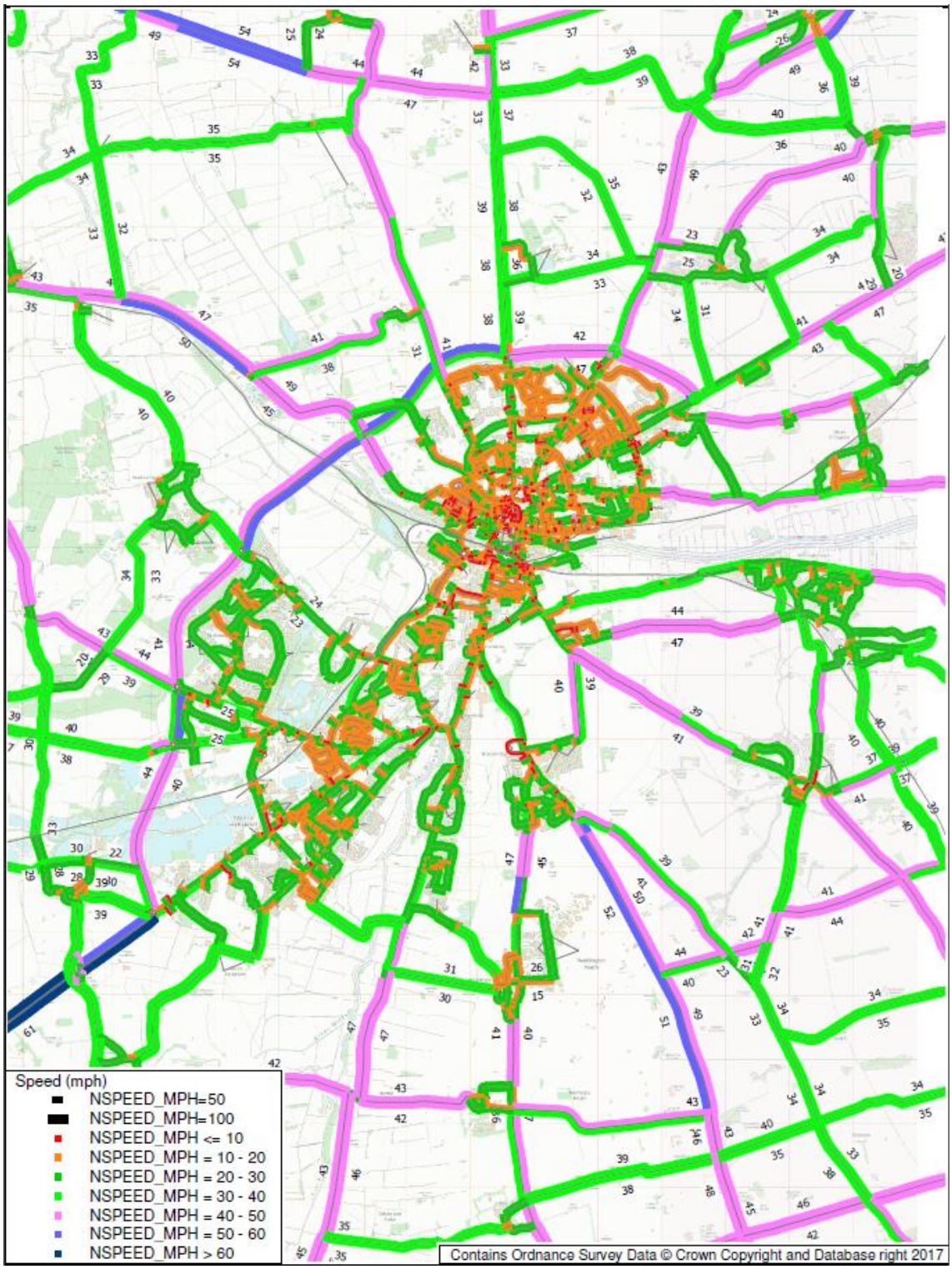


Figure 8-21 Link Speed Plot (mph) – PM Peak



9 Summary and Conclusions

9.1 Summary of Development

The Greater Lincoln Transport Model was developed for a base year of 2016 in SATURN software, with the model assisted by a comprehensive data collection program.

An observed prior matrix was derived from mobile phone origin-destination data which provided a fully observed matrix of movements sampled over a month long period for all modes within the mobile phone data collection study area. The data was processed by Citilogik through cell tracking of Vodafone mobile devices and developed into travel demand matrices using tested processes and algorithms.

The data was verified initially by Citilogik and then subsequently by WSP as part of the matrix development to establish strengths and limitations against standard modelling metrics, including trip rates and trip length profiles. A gravity model was used to form a synthetic matrix based on NTEM Version 7.2 trip ends to infill anonymised cells, a consequence of data protection for low cell totals, and short distance trips which were not fully represented within the mobile phone data. Matrix estimation was then carried out to produce a final assignment.

9.2 Summary of Standards

The base year model validation was developed closely to the guidance in TAG Unit M3.1*Highway Assignment Modelling*. Satisfactory convergence has been achieved for all three assignment periods.

Screenline flows are closely reflected across all three periods. For the AM peak and inter-peak, 100% of screenlines achieve a GEH of four or lower and 94% of screenlines likewise in the PM peak.

Link and turn validation is shown to be consistently high in terms of both flow and GEH reporting criteria across all three periods. Combining the calibration and validation counts into a single dataset, 96% of counts in the AM peak and inter-peak periods and 94% of counts in the PM peak achieve a GEH of five or lower, above the minimum threshold of 85%.

The journey time validation across all three periods exceeds the required standard of 85% of modelled journey time routes being within 15% or 1 minute of the observed data. Upwards of 97% of routes achieve the criteria in the AM peak and inter peak models.

9.3 Summary of Fitness for Purpose

The updated 2016 Greater Lincoln Transport Model is fit for purpose. The base year models form a suitable platform on which to develop future year forecasts and for application in variable demand modelling.

Appendices

Appendix A – Traffic Count Database

Attached.

Appendix B – Speed Flow Curves

Index	Description	S0	S2	Capacity	N	HGV
Motorways						
1	Motorway D4 Carriageways (70mph)	112	82	9320	2.78	96
2	Motorway D4 Carriageways (70mph)	111	81	9320	2.78	96
3	Motorway D4 Carriageways (70mph)	110	80	9320	2.78	96
4	Motorway D3 Carriageways (70mph)	111	81	6990	2.78	96
5	Motorway D3 Carriageways (70mph)	110	80	6990	2.78	96
6	Motorway D3 Carriageways (70mph)	109	78	6990	2.79	96
7	Motorway D2 Carriageways (70mph)	105	74	4660	2.88	96
8	Motorway D2 Carriageways (70mph)	104	73	4660	2.88	96
9	Motorway D2 Carriageways (70mph)	102	71	4660	2.89	96
10	Motorway D2 Carriageways (70mph)	101	70	4660	2.89	96
Dual Carriageway: Rural						
11	All-Purpose D3 Carriageways (70mph)	109	82	6300	2.70	96
12	All-Purpose D3 Carriageways (70mph)	108	81	6300	2.70	96
13	All-Purpose D2 Carriageways (70mph)	105	78	4200	2.71	96
14	All-Purpose D2 Carriageways (70mph)	101	74	4200	2.79	96
15	All-Purpose D3 Carriageways (60mph)	98	72	6300	2.71	96
16	All-Purpose D3 Carriageways (60mph)	95	71	6300	2.71	
17	All-Purpose D2 Carriageways (60mph)	96	70	4200	2.71	
18	All-Purpose D2 Carriageways (60mph)	93	69	4200	2.79	
19	All-Purpose D3 Carriageways (50mph)	80	56	5580	2.82	
20	All-Purpose D3 Carriageways (50mph)	79	55	5580	2.83	
21	All-Purpose D2 Carriageways (50mph)	80	56	3720	2.82	
22	All-Purpose D2 Carriageways (50mph)	78	55	3720	2.83	
Dual Carriageway: Suburban/Urban						
31	D3 Carriageways (40mph)	64	35	4710	2.42	
32	D3 Carriageways (40mph)	64	35	4380	2.10	
33	D3 Carriageways (40mph)	64	35	4110	1.79	
34	D2 Carriageways (40mph)	64	35	3280	2.79	
35	D2 Carriageways (40mph)	64	35	3100	2.35	
36	D2 Carriageways (40mph)	64	35	2900	2.01	
37	D3 Carriageways (30mph)	48	25	4290	2.61	
38	D3 Carriageways (30mph)	45	25	4020	2.09	
39	D3 Carriageways (30mph)	43	25	3720	1.59	
40	D2 Carriageways (30mph)	48	25	2760	2.37	
41	D2 Carriageways (30mph)	45	25	2580	1.84	
42	D2 Carriageways (30mph)	43	25	2380	1.41	
Single Carriageway: Rural						
51	Single Carriageways: SW2-9.0m A Road 60mph	92	60	1720	2.25	
52	Single Carriageways: S2-7.3m A Road 60mph	90	59	1390	2.08	
53	Single Carriageways: S2-7.0m A Road 60mph	87	57	1330	2.07	
54	Single Carriageways: S2-6.6m A Road 60mph	83	56	1240	2.06	
55	Single Carriageways: S2-6.3m B Road 60mph	81	54	1170	2.02	
56	Single Carriageways: S2-6.0m B Road 60mph	76	54	1090	2.00	
57	Single Carriageways: S2-5.6m B Road 60mph	73	53	970	1.94	
58	Single Carriageways: S2-5.2m Other Road 60mph	76	54	830	1.88	

59	Single Carriageways: S2-5.0m Other Road 60mph	66	51	750	1.88	
60	Single Carriageways: S2-4.6m Other Road 60mph	57	40	570	1.84	
61	Single Carriageways: S2-4.4m Other Road 60mph	54	35	440	1.58	
62	Single Carriageways: S2-7.3m A Road 50mph	80	50	1590	2.25	
63	Single Carriageways: S2-7.3m A Road 50mph	80	50	1390	2.08	
64	Single Carriageways: S2-7.0m A Road 50mph	76	47	1330	2.07	
65	Single Carriageways: S2-6.6m A Road 50mph	73	46	1240	2.06	
66	Single Carriageways: S2-6.3m B Road 50mph	70	45	1170	2.02	
67	Single Carriageways: S2-6.0m B Road 50mph	66	45	1090	2.00	
68	Single Carriageways: S2-5.6m B Road 50mph	63	45	970	1.94	
69	Single Carriageways: S2-5.2m Other Road 50mph	61	40	830	1.88	
70	Single Carriageways: S2-5.0m Other Road 50mph	56	35	750	1.88	
Single Carriageway: Suburban						
71	Suburban Roads - Single 40mph (Good)	63	25	1380	2.51	
72	Suburban Roads - Single 40mph (Good)	60	25	1240	2.16	
73	Suburban Roads - Single 40mph (Average)	57	25	1200	1.94	
74	Suburban Roads - Single 40mph (Average)	54	25	1060	1.72	
75	Suburban Roads - Single 40mph (Poor)	51	25	980	1.53	
76	Suburban Roads - Single 30mph (Good)	48	25	1300	3.91	
77	Suburban Roads - Single 30mph (Good)	46	25	1210	2.61	
78	Suburban Roads - Single 30mph (Average)	44	25	1170	2.40	
79	Suburban Roads - Single 30mph (Average)	42	25	950	1.37	
80	Suburban Roads - Single 30mph (Poor)	38	25	860	1.32	
Single Carrigeway: Urban						
81	Urban Non-central 50% development	48	25	930	1.97	
82	Urban Non-central 80% development	48	25	930	1.65	
83	Urban Non central 90% development	47	25	840	1.52	
84	Urban Central INT = 2	38	15	910	1.87	
85	Urban Central INT = 4.5	33	15	710	1.72	
86	Urban Central INT = 9	30	15	560	1.61	
87	Urban Central INT = 15	20	10	560	1.61	
88	Special cobble street	10	5	250	1.61	
Small Town						
91	Small Town 10% development	64	30	1400	2.95	
92	Small Town 25% development	60	30	1370	2.96	
93	Small Town 40% development	58	30	1300	2.94	
94	Small Town 60% development	48	25	1370	3.91	
95	Small Town 80% development	48	25	1240	3.35	
96	Small Town 95% development	45	25	1120	2.81	
97	Small Town 95% development - 20mph	32	15	950	1.72	

Appendix C – Verification of MPOD Data

Technical note attached.

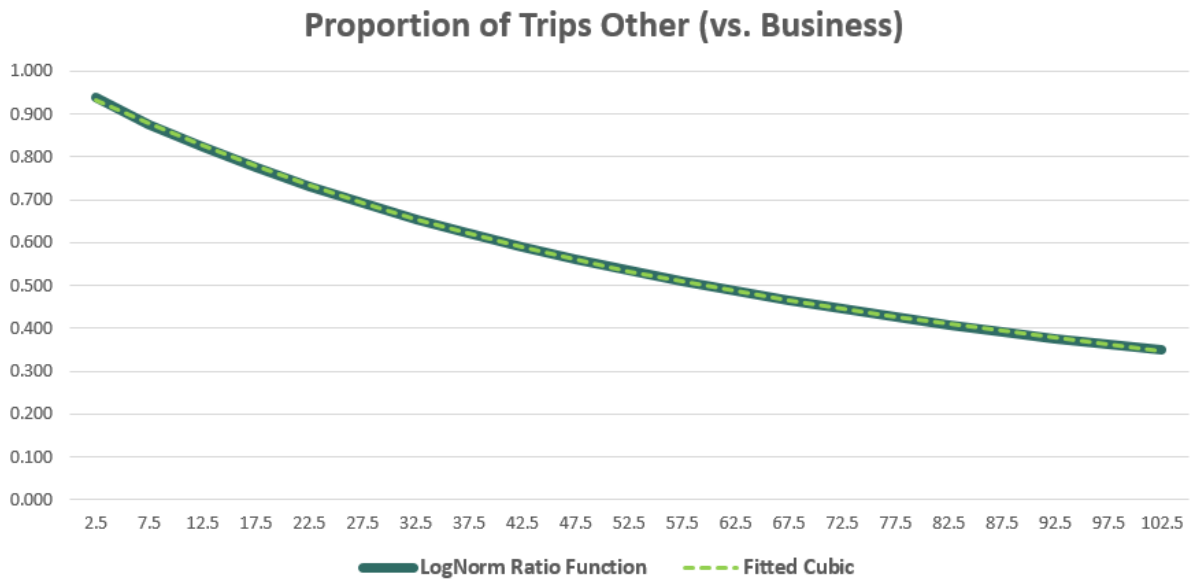
Appendix D – MPOD Data Purpose Split

Chapter 6 of the main report described the methodology for fitting continuous functions – based on fitting log normal distributions to observed NTS trip length distributions – to derive purpose splits varying by distance.

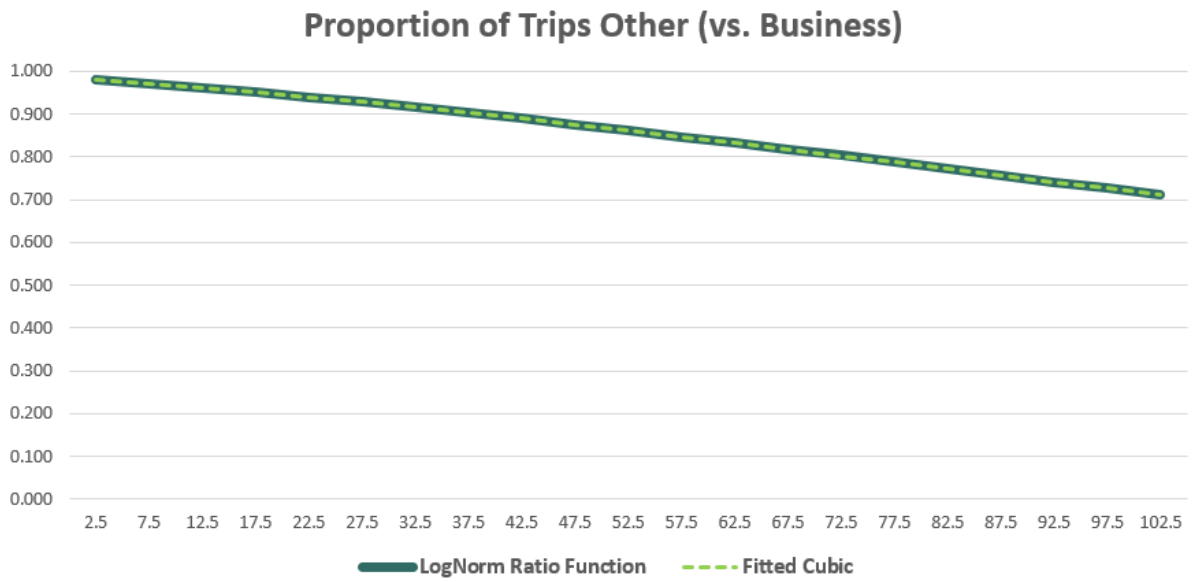
The table below lists the parameters which defined each of the fitted curves – either a cubic (degree 3) or quartic (degree 4) polynomial – followed by plots for each of these in turn.

Purpose	Period	x^0	x^1	x^2	x^3	x^4
Home Based Other (vs. Business)	AM	0.9628429	-0.0121081	0.0000906	-0.0000003	
	IP	0.9839508	-0.0016090	-0.0000174	0.0000001	
	PM	0.9891655	-0.0060670	-0.0000074	0.0000001	
NHB Other (vs. Business)	AM	0.7668500	-0.0179374	0.0002224	-0.0000010	
	IP	0.8699483	-0.0104435	0.0001091	-0.0000005	
	PM	0.8747958	-0.0052449	0.0000531	-0.0000002	
Home Based Education (vs. Commute)	AM	0.6294478	-0.0473695	0.0012988	-0.0000148	0.0000001
	IP	0.7108725	-0.0444450	0.0010998	-0.0000118	0.0000000
	PM	0.3039633	-0.0189304	0.0005098	-0.0000058	0.0000000
NHB Education (vs. Commute)	AM	0.4342107	-0.0300090	0.0008039	-0.0000091	0.0000000
	IP	0.5976496	-0.0093195	0.0000780	-0.0000003	
	PM	0.7458270	-0.0041369	0.0000591	-0.0000003	

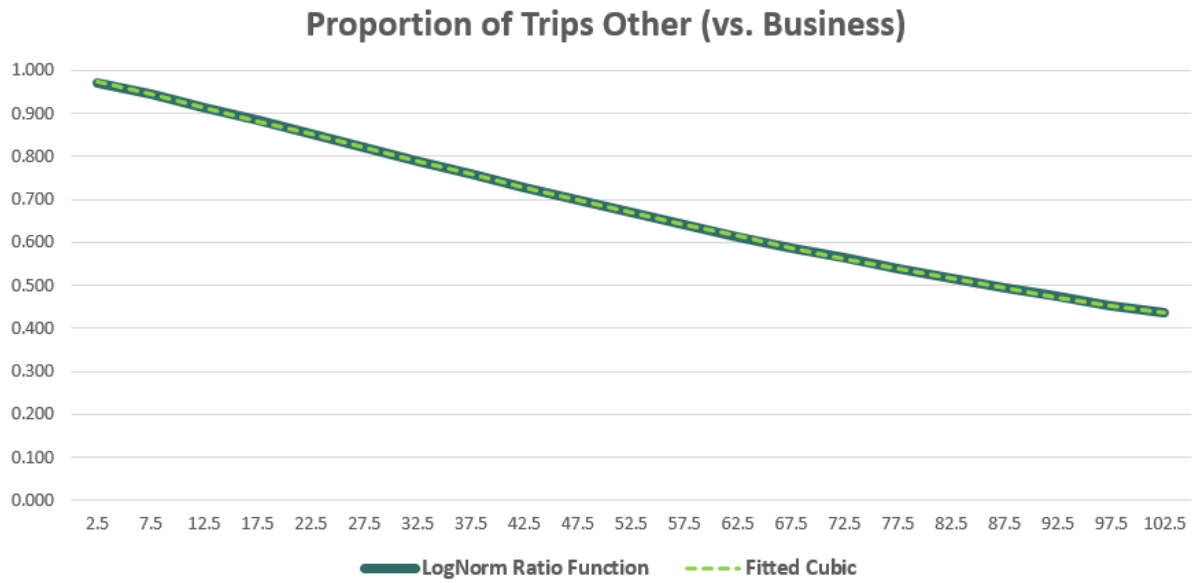
AM Home Based Other (vs. Business)



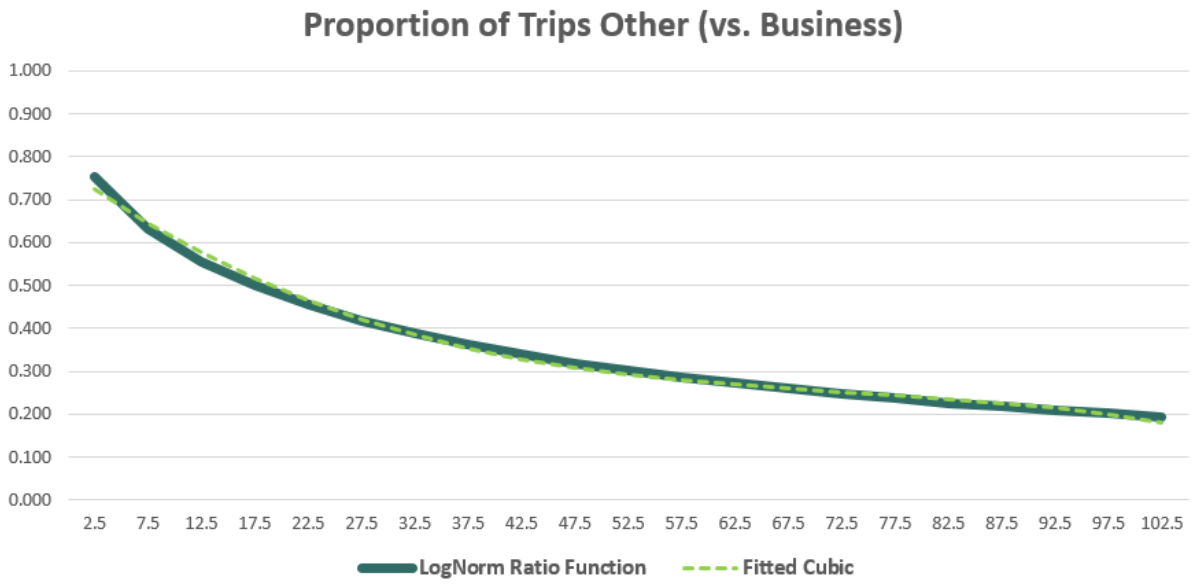
IP Home Based Other (vs. Business)



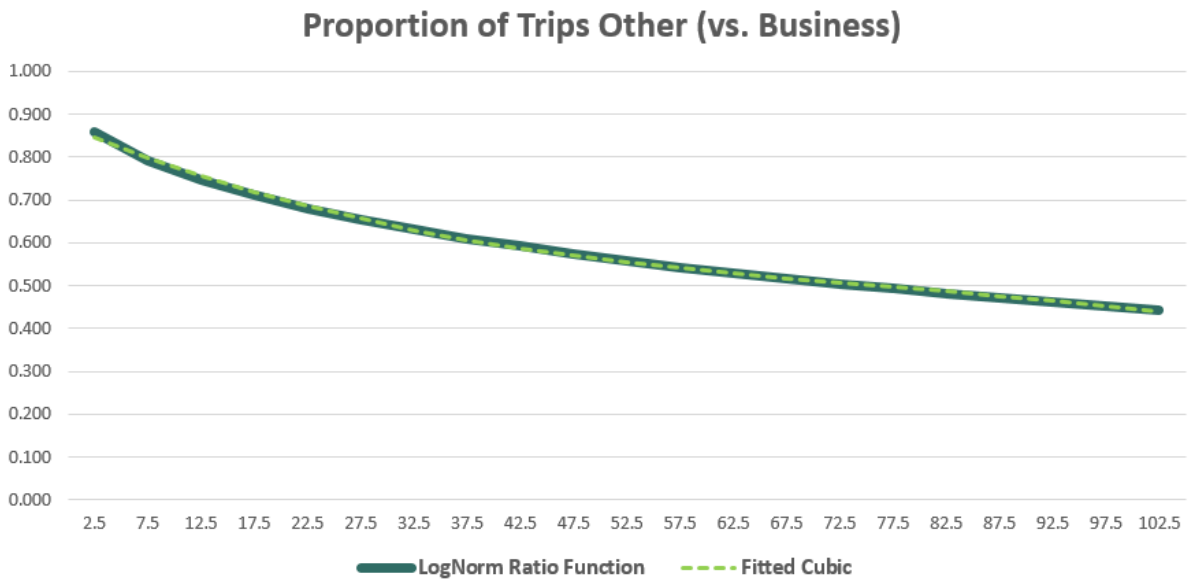
PM Home Based Other (vs. Business)



AM Non-Home Based Other (vs. Business)



IP Non-Home Based Other (vs. Business)



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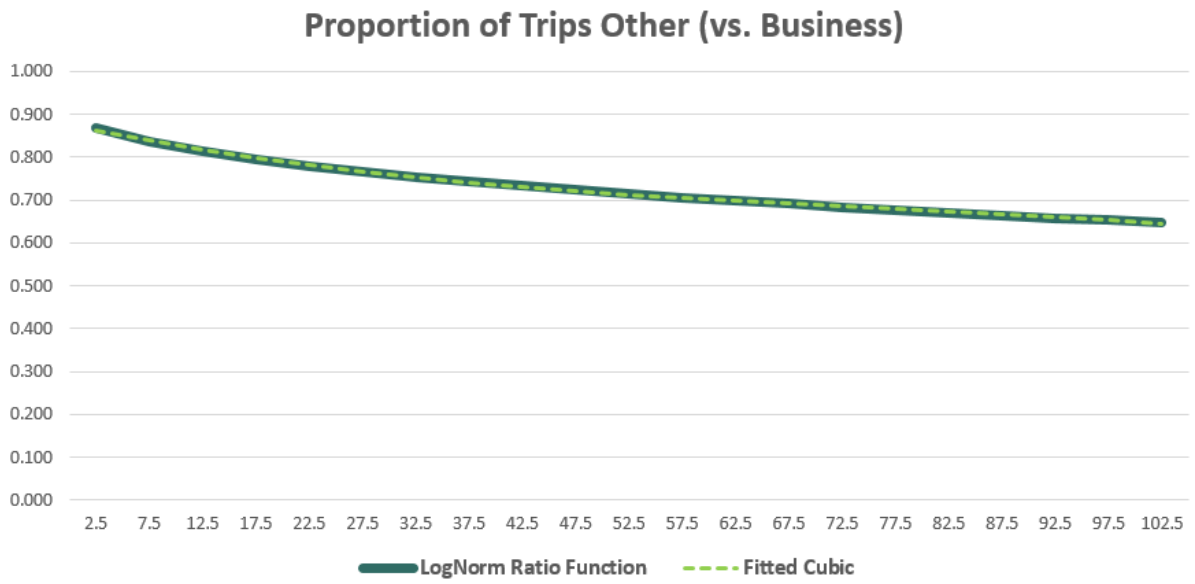
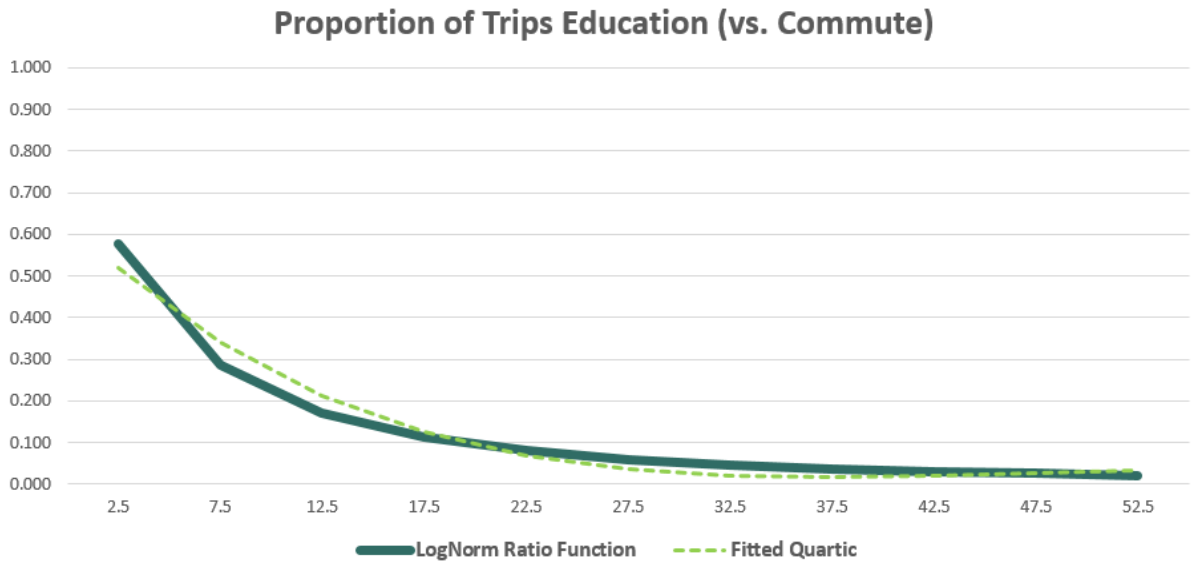
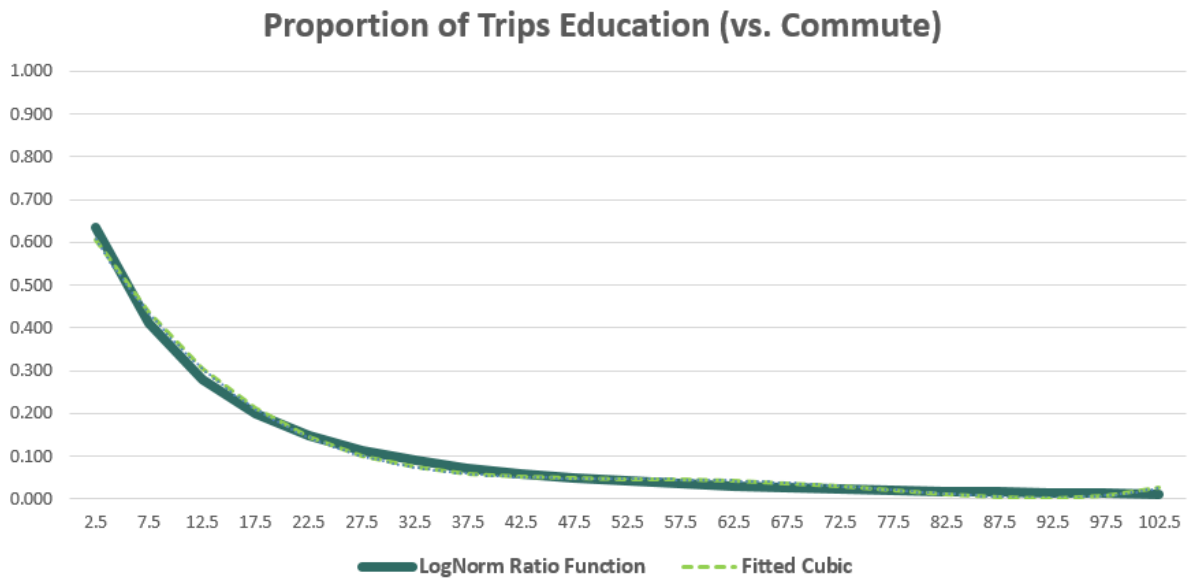


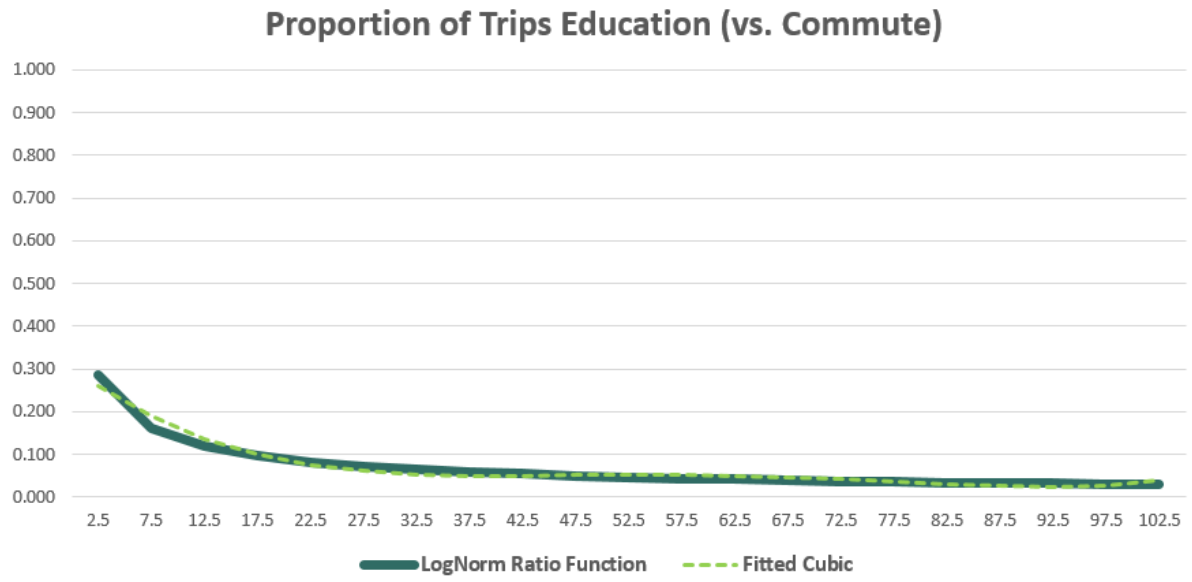
AM Home Based Education (vs. Commute)



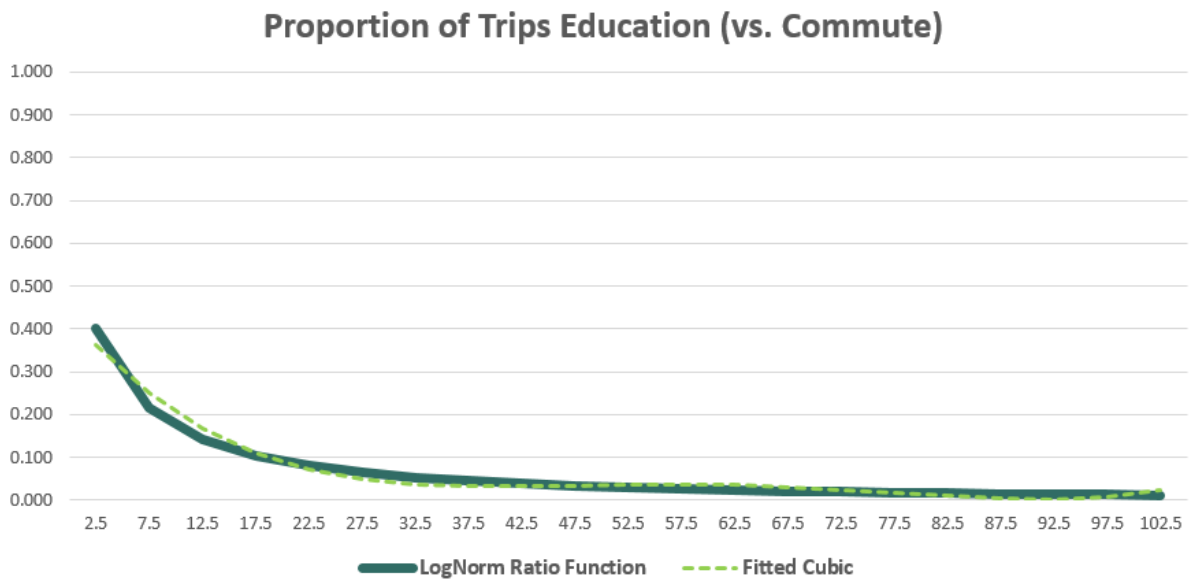
IP Home Based Education (vs. Commute)



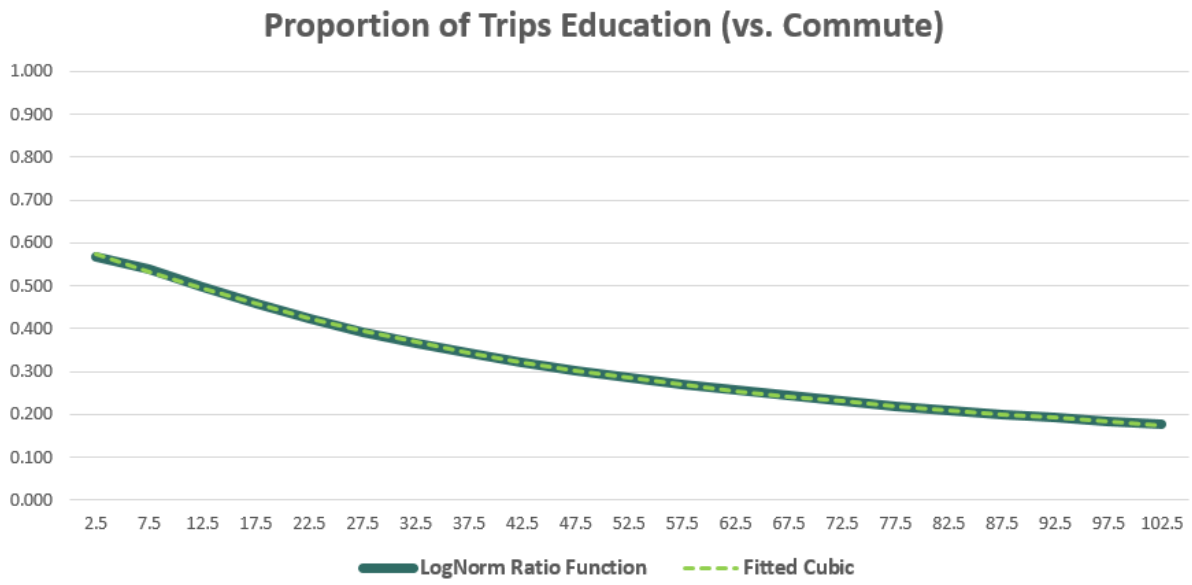
PM Home Based Education (vs. Commute)



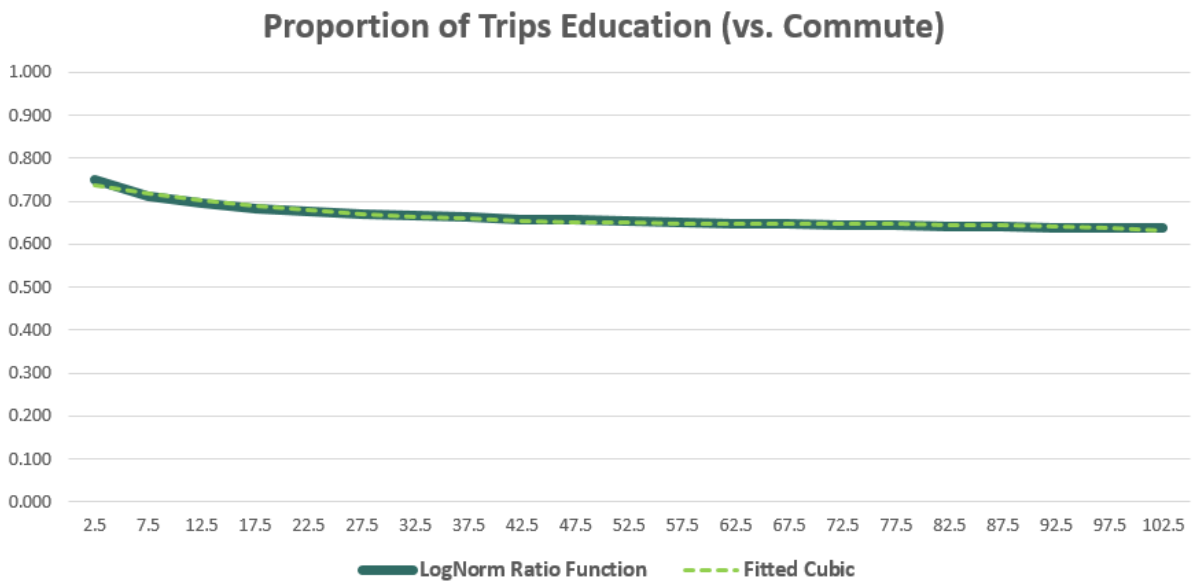
AM Non-Home Based Education (vs. Commute)



IP Non-Home Based Education (vs. Commute)



PM Non-Home Based Education (vs. Commute)



Appendix E – Network Acceptance Checks

Technical note attached.

Appendix F – Effects of Matrix Estimation

Reporting attached.

Appendix G – Screenline Validation Performance

Tabulations attached.

Appendix H – Link Flow Validation Performance

Tabulations and images attached.

Appendix I – Journey Time Validation Performance

Tabulations and images attached.

Appendix J – GLHAM Model Outputs

Model flow and model speed outputs attached.

CountID	RdName	RdClass	Type	Dir	Cal/Val	AM Peak			Inter Peak			PM Peak		
						Car	LGV	HGV	Car	LGV	HGV	Car	LGV	HGV
JTC 1_Nov16	A1434 Newark Road E	A	MCC_Turn	WB	Cal	70	9	2	29	5	3	31	2	0
JTC 1_Nov16	A1434 Newark Road E	A	MCC_Turn	WB	Cal	567	73	48	419	58	39	453	36	16
JTC 1_Nov16	Boundary Lane	U	MCC_Turn	NB	Cal	242	35	13	87	18	12	137	19	3
JTC 1_Nov16	Boundary Lane	U	MCC_Turn	NB	Cal	12	1	2	20	5	2	19	3	0
JTC 1_Nov16	A1434 Newark Road W	A	MCC_Turn	EB	Cal	308	64	54	452	58	39	766	87	22
JTC 1_Nov16	A1434 Newark Road W	A	MCC_Turn	EB	Cal	121	23	8	87	18	12	211	38	6
JTC 2_Nov16	Station Road	U	MCC_Turn	SB	Cal	52	10	5	104	12	5	59	8	2
JTC 2_Nov16	Station Road	U	MCC_Turn	SB	Cal	191	28	14	139	20	8	258	20	1
JTC 2_Nov16	Station Road	U	MCC_Turn	SB	Cal	44	11	6	42	8	7	85	8	1
JTC 2_Nov16	A1434 Newark Road E	A	MCC_Turn	WB	Cal	116	6	4	85	6	7	130	6	3
JTC 2_Nov16	A1434 Newark Road E	A	MCC_Turn	WB	Cal	271	47	35	382	40	31	421	30	20
JTC 2_Nov16	A1434 Newark Road E	A	MCC_Turn	WB	Cal	105	12	5	72	7	5	41	10	4
JTC 2_Nov16	Moor Lane	U	MCC_Turn	NB	Cal	79	13	6	83	10	4	119	2	0
JTC 2_Nov16	Moor Lane	U	MCC_Turn	NB	Cal	357	36	12	112	19	7	162	16	3
JTC 2_Nov16	Moor Lane	U	MCC_Turn	NB	Cal	99	13	6	91	7	3	96	9	1
JTC 2_Nov16	A1434 Newark Road W	A	MCC_Turn	EB	Cal	61	11	10	47	8	6	52	8	5
JTC 2_Nov16	A1434 Newark Road W	A	MCC_Turn	EB	Cal	363	47	31	391	47	28	455	51	10
JTC 2_Nov16	A1434 Newark Road W	A	MCC_Turn	EB	Cal	99	5	8	78	10	3	96	4	2
JTC 3_Nov16	Lincoln Road	U	MCC_Turn	SB	Cal	32	7	0	13	2	1	10	2	0
JTC 3_Nov16	Lincoln Road	U	MCC_Turn	SB	Cal	241	24	8	363	40	14	548	46	2
JTC 3_Nov16	Chapel Lane	U	MCC_Turn	WB	Cal	295	27	12	13	3	0	13	0	0
JTC 3_Nov16	Chapel Lane	U	MCC_Turn	WB	Cal	75	8	1	20	3	2	14	3	0
JTC 3_Nov16	Mill Lane	U	MCC_Turn	NB	Cal	162	19	2	75	10	6	140	3	4
JTC 3_Nov16	Mill Lane	U	MCC_Turn	NB	Cal	366	14	9	179	16	10	274	30	7
JTC 3_Nov16	Moor Lane	U	MCC_Turn	EB	Cal	213	29	23	202	26	11	238	24	7
JTC 3_Nov16	Moor Lane	U	MCC_Turn	EB	Cal	35	5	0	68	8	6	120	8	1
JTC 3_Nov16	Lincoln Road	U	MCC_Link	NB	Cal	511	26	14	382	42	21	505	54	14
JTC 3_Nov16	Chapel Lane	U	MCC_Link	EB	Cal	176	33	19	32	6	2	31	5	0
JTC 3_Nov16	Mill Lane	U	MCC_Link	SB	Cal	176	21	6	283	29	13	436	36	2
JTC 3_Nov16	Moor Lane	U	MCC_Link	WB	Cal	557	54	16	236	31	13	385	22	5
JTC 4_Nov16	Brant Road N	U	MCC_Turn	SB	Cal	92	14	3	114	15	7	195	13	4
JTC 4_Nov16	Brant Road N	U	MCC_Turn	SB	Cal	311	35	15	88	10	4	187	14	5
JTC 4_Nov16	Brant Road S	U	MCC_Turn	NB	Cal	155	12	1	29	5	1	37	7	1
JTC 4_Nov16	Brant Road S	U	MCC_Turn	NB	Cal	106	21	3	122	24	9	364	70	4
JTC 4_Nov16	Meadow Lane	U	MCC_Turn	EB	Cal	259	30	11	125	17	5	244	29	3
JTC 4_Nov16	Meadow Lane	U	MCC_Turn	EB	Cal	82	28	10	40	7	2	48	8	0
JTC 5_Nov16	Kingsley Road	U	MCC_Turn	SB	Cal	98	6	3	86	11	4	174	13	2
JTC 5_Nov16	Kingsley Road	U	MCC_Turn	SB	Cal	60	30	12	100	13	5	230	2	4
JTC 5_Nov16	Whisby Road E	U	MCC_Turn	WB	Cal	44	5	3	13	4	5	3	0	1
JTC 5_Nov16	Whisby Road E	U	MCC_Turn	WB	Cal	324	75	36	244	58	35	543	57	13
JTC 5_Nov16	Teal Park Road	U	MCC_Turn	NB	Cal	10	3	2	25	5	2	37	2	0
JTC 5_Nov16	Teal Park Road	U	MCC_Turn	NB	Cal	3	6	4	23	5	5	30	2	2
JTC 5_Nov16	Whisby Road W	U	MCC_Turn	EB	Cal	249	15	2	87	9	4	114	10	2
JTC 5_Nov16	Whisby Road W	U	MCC_Turn	EB	Cal	501	55	28	165	39	34	166	35	9
JTC 6_Nov16	B1190 Doddington Rd E	B	MCC_Turn	WB	Val	152	15	2	65	6	3	64	4	0
JTC 6_Nov16	B1190 Doddington Rd E	B	MCC_Turn	WB	Val	439	86	32	316	52	32	584	47	11
JTC 6_Nov16	Sadler Road	U	MCC_Turn	NB	Val	63	38	8	114	14	5	297	17	2
JTC 6_Nov16	Sadler Road	U	MCC_Turn	NB	Val	16	6	1	58	8	3	74	8	0
JTC 6_Nov16	B1190 Doddington Rd W	B	MCC_Turn	EB	Val	511	46	28	311	48	28	454	73	10
JTC 6_Nov16	B1190 Doddington Rd W	B	MCC_Turn	EB	Val	290	20	3	96	14	6	79	10	6
JTC 7_Nov16	Whisby Road E	U	MCC_Turn	WB	Cal	304	45	22	233	40	20	252	30	3
JTC 7_Nov16	Whisby Road E	U	MCC_Turn	WB	Cal	216	30	16	126	25	14	152	22	7
JTC 7_Nov16	Whisby Road E	U	MCC_Turn	WB	Cal	0	0	0	1	0	0	1	1	0
JTC 7_Nov16	Station Road	U	MCC_Turn	NB	Cal	313	56	20	135	24	15	273	38	6
JTC 7_Nov16	Station Road	U	MCC_Turn	NB	Cal	223	38	20	175	29	16	206	14	7
JTC 7_Nov16	Station Road	U	MCC_Turn	NB	Cal	0	0	1	1	0	0	0	0	0
JTC 7_Nov16	Whisby Road W	U	MCC_Turn	EB	Cal	82	29	14	107	21	9	109	13	3
JTC 7_Nov16	Whisby Road W	U	MCC_Turn	EB	Cal	309	47	20	178	32	20	375	48	14
JTC 8_Nov16	A1534 Newark Road N	A	MCC_Turn	WB	Cal	323	61	19	335	44	29	361	50	11
JTC 8_Nov16	A1534 Newark Road N	A	MCC_Turn	WB	Cal	7	2	0	18	1	1	16	0	0
JTC 8_Nov16	A1534 Newark Road S	A	MCC_Turn	EB	Cal	411	45	14	398	25	16	361	31	8
JTC 8_Nov16	A1534 Newark Road S	A	MCC_Turn	EB	Cal	301	55	25	330	39	23	400	58	11
JTC 8_Nov16	B1003 Tritton Road	B	MCC_Turn	SB	Cal	1	1	0	15	1	0	16	0	0
JTC 8_Nov16	B1003 Tritton Road	B	MCC_Turn	SB	Cal	107	17	12	339	24	11	425	35	10
JTC 9_Nov16	A1434 Newark Road N	A	MCC_Turn	SB	Val	263	46	28	333	42	27	417	35	12
JTC 9_Nov16	A1434 Newark Road N	A	MCC_Turn	SB	Val	251	45	13	184	39	25	206	42	14
JTC 9_Nov16	A1434 Newark Road S	A	MCC_Turn	NB	Val	47	1	0	30	2	1	91	22	1
JTC 9_Nov16	A1434 Newark Road S	A	MCC_Turn	NB	Val	310	37	25	307	38	21	286	21	9
JTC 9_Nov16	B1190 Doddington Road	B	MCC_Turn	EB	Val	95	29	19	153	22	15	148	17	5
JTC 9_Nov16	B1190 Doddington Road	B	MCC_Turn	EB	Val	37	1	0	12	1	0	13	3	0
JTC 10_Nov16	Boultham Park Road	U	MCC_Turn	SB	Cal	50	20	1	138	15	1	210	26	2
JTC 10_Nov16	Boultham Park Road	U	MCC_Turn	SB	Cal	98	16	5	133	12	6	201	35	6
JTC 10_Nov16	Boultham Park Road	U	MCC_Turn	SB	Cal	45	7	6	63	8	7	101	19	8
JTC 10_Nov16	Boultham Park Road	U	MCC_Turn	SB	Cal	2	0	0	4	1	0	10	1	0
JTC 10_Nov16	Rookery Lane	U	MCC_Turn	WB	Cal	8	3	0	31	3	0	21	3	1
JTC 10_Nov16	Rookery Lane	U	MCC_Turn	WB	Cal	122	21	3	109	17	6	86	19	1
JTC 10_Nov16	Rookery Lane	U	MCC_Turn	WB	Cal	230	29	2	167	20	3	164	22	0
JTC 10_Nov16	Rookery Lane	U	MCC_Turn	WB	Cal	1	0	0	2	1	0	0	0	0
JTC 10_Nov16	Moorland Avenue	U	MCC_Turn	NB	Cal	11	3	0	23	3	1	20	5	0
JTC 10_Nov16	Moorland Avenue	U	MCC_Turn	NB	Cal	146	21	8	117	11	6	136	17	7
JTC 10_Nov16	Moorland Avenue	U	MCC_Turn	NB	Cal	6	1	1	25	3	0	21	3	0
JTC 10_Nov16	Moorland Avenue	U	MCC_Turn	NB	Cal	0	0	0	2	1	0	4	0	0
JTC 10_Nov16	Skellingthorpe Road	U	MCC_Turn	EB	Cal	61	17	6	69	8	8	85	7	4
JTC 10_Nov16	Skellingthorpe Road	U	MCC_Turn	EB	Cal	64	21	6	113	15	8	139	21	2
JTC 10_Nov16	Skellingthorpe Road	U	MCC_Turn	EB	Cal	21	0	1	45	5	1	62	5	0
JTC 10_Nov16	Skellingthorpe Road	U	MCC_Turn	EB	Cal	0	0	0	0	0	0	0	0	0
JTC 11_Nov16	Rookery Lane	U	MCC_Turn	SB	Cal	131	15	8	218	26	6	270	29	0
JTC 11_Nov16	Rookery Lane	U	MCC_Turn	SB	Cal	112	9	2	98	12	3	93	8	2
JTC 11_Nov16	A1434 Newark Road E	A	MCC_Turn	WB	Cal	699	105	55	649	102	59	915	108	24
JTC 11_Nov16	A1434 Newark Road E	A	MCC_Turn	WB	Cal	256	33	5	207	29	5	234	39	4
JTC 11_Nov16	Hykeham Road	U	MCC_Turn	NB	Cal	13	3	1	24	3	1	12	3	0
JTC 11_Nov16	Hykeham Road	U	MCC_Turn	NB	Cal	279	31	9	229	26	16	244	24	11
JTC 11_Nov16	A1434 Newark Road W	A	MCC_Turn	EB	Cal	350	67	42	445	57	29	401	40	13
JTC 11_Nov16	A1434 Newark Road W	A	MCC_Turn	EB	Cal	30	4	1	25	2	1	28	0	0
JTC 11_Nov16	Rookery Lane	U	MCC_Link	NB	Cal	370	50	5	304	41	9	295	46	4
JTC 11_Nov16	A1434 Newark Road E	A	MCC_Link	EB	Cal	646	96	60	796	97	47	853	85	25
JTC 11_Nov16	Hykeham Road	U	MCC_Link	SB	Cal	278	24	16	247	28	15	421	32	8
JTC 11_Nov16	A1434 Newark Road W	A	MCC_Link	WB	Cal	577	98	42	548	91	47	627	87	17
JTC 12_Nov16	A1434 Newark Road E	A	MCC_Turn	WB	Val	138	22	7	165	21	8	263	31	8
JTC 12_Nov16	A1434 Newark Road E	A	MCC_Turn	WB	Val	568	100	48	544	87	50	695	73	19
JTC 12_Nov16	Brant Road	U	MCC_Turn	NB	Val	391	43	12	320	44	13	468	73	11
JTC 12_Nov16	Brant Road	U	MCC_Turn	NB	Val	277	19	5	156	22	11	170	13	10
JTC 12_Nov16	A1434 Newark Road W	A	MCC_Turn	EB	Val	499	62	50	516	68	37	504	56	20
JTC 12_Nov16	A1434 Newark Road W	A	MCC_Turn	EB	Val	161	31	10	284	29	11	354	37	3
JTC 13_Nov16	A15 London Road N	A	MCC_Turn	SB	Cal	25	8	0	48	4	1	131	4	1
JTC 13_Nov16	A15 London Road N	A	MCC_Turn	SB	Cal	259	46	27	316	34	23	522	21	13
JTC 13_Nov16	A15 London Road N	A	MCC_Turn	SB	Cal	25	0	0	5	0	0	4	0	0
JTC 13_Nov16	B1131 Canwick Avenue	B	MCC_Turn	WB	Cal	453	58	36	291	46	30	525	31	2
JTC 13_Nov16	B1131 Canwick Avenue	B	MCC_Turn	WB	Cal	29	1	1	4	0	0	1	0	0
JTC 13_Nov16	B1131 Canwick Avenue	B	MCC_Turn	WB	Cal	96	2	2	37	5	2	56	2	0
JTC 13_Nov16	A15 London Road S	A	MCC_Turn	NB	Cal	51	1	1	6	1	0	1	0	0
JTC 13_Nov16	A15 London Road S	A	MCC_Turn	NB	Cal	443	41	24	304	43	30	346	39	10
JTC 13_Nov16	A15 London Road S	A	MCC_Turn	NB	Cal	309	42	22	265	47	22	424	31	12
JTC 14_Nov16	A15 London Road	A	MCC_Turn	SB	Val	330	74	42	300	35	38	568	27	16
JTC 14_Nov16	A15 London Road	A	MCC_Turn	SB	Val	373	37	16	291	34	12	511	32	7
JTC 14_Nov16	A15 Sleaford Road	A	MCC_Turn	NB	Val	11	3	3	27	5	2	43	1	0
JTC 14_Nov16	A15 Sleaford Road	A	MCC_Turn	NB	Val	368	42	33	274	41	42	322	20	15

JTC 14_Nov16	Grantham Road	U	MCC_Turn	NEB	Val	469	31	16	277	35	12	449	47	8
JTC 14_Nov16	Grantham Road	U	MCC_Turn	NEB	Val	19	5	3	26	5	3	52	3	1
JTC 15_Nov16	A15 Sleaford Road N	A	MCC_Turn	SB	Cal	86	15	3	35	9	2	88	25	4
JTC 15_Nov16	A15 Sleaford Road N	A	MCC_Turn	SB	Cal	253	49	23	232	45	21	371	71	33
JTC 15_Nov16	Bloxholm Lane	U	MCC_Turn	WB	Cal	1	0	0	1	0	0	0	0	0
JTC 15_Nov16	Bloxholm Lane	U	MCC_Turn	WB	Cal	92	2	3	30	8	1	47	25	0
JTC 15_Nov16	A15 Sleaford Road S	A	MCC_Turn	NB	Cal	292	56	26	231	44	21	261	50	23
JTC 15_Nov16	A15 Sleaford Road S	A	MCC_Turn	NB	Cal	1	0	0	1	0	0	1	0	0
JTC 16_Nov16	B1188 Lincoln Road	B	MCC_Turn	NWB	Val	21	4	1	24	3	3	52	6	0
JTC 16_Nov16	B1188 Lincoln Road	B	MCC_Turn	NWB	Val	418	33	14	292	39	22	327	23	6
JTC 16_Nov16	B1131 Canwick Avenue	B	MCC_Turn	NB	Val	386	35	22	250	38	22	332	32	11
JTC 16_Nov16	B1131 Canwick Avenue	B	MCC_Turn	NB	Val	15	0	2	20	2	1	14	2	0
JTC 16_Nov16	B1188 Canwick Hill	B	MCC_Turn	SEB	Val	197	57	24	321	39	22	521	26	9
JTC 16_Nov16	B1188 Canwick Hill	B	MCC_Turn	SEB	Val	285	64	37	292	38	23	579	35	4
JTC 17_Nov16	B1188 Canwick Hill N	B	MCC_Turn	SB	Cal	55	8	5	116	13	5	199	11	1
JTC 17_Nov16	B1188 Canwick Hill N	B	MCC_Turn	SB	Cal	433	118	55	586	73	41	1022	52	16
JTC 17_Nov16	Heighington Road	U	MCC_Turn	WB	Cal	50	3	3	26	5	2	50	12	0
JTC 17_Nov16	Heighington Road	U	MCC_Turn	WB	Cal	164	8	2	44	5	4	33	5	1
JTC 17_Nov16	B1188 Canwick Hill S	B	MCC_Turn	NB	Cal	791	67	36	513	76	42	582	49	16
JTC 17_Nov16	B1188 Canwick Hill S	B	MCC_Turn	NB	Cal	24	3	2	26	3	1	67	3	1
JTC 18_Nov16	A15 St Catherines	A	MCC_Turn	SB	Val	474	44	25	378	37	30	546	24	13
JTC 18_Nov16	A15 St Catherines	A	MCC_Turn	SB	Val	446	95	44	555	97	45	842	96	20
JTC 18_Nov16	A15 Cross O'Cliff Hill	A	MCC_Turn	NB	Val	149	21	12	100	18	12	114	19	3
JTC 18_Nov16	A15 Cross O'Cliff Hill	A	MCC_Turn	NB	Val	546	39	17	264	31	24	351	40	10
JTC 18_Nov16	A1434 St Catherines	A	MCC_Turn	NB	Val	729	82	58	626	90	45	653	70	25
JTC 19_Nov16	B1262 High Street	B	MCC_Turn	SB	Cal	107	27	6	171	22	6	200	10	2
JTC 19_Nov16	B1262 High Street	B	MCC_Turn	SB	Cal	337	53	27	385	53	31	636	46	17
JTC 19_Nov16	B1262 High Street	B	MCC_Turn	SB	Cal	9	1	0	10	2	1	9	1	0
JTC 19_Nov16	A15 South Park	A	MCC_Turn	WB	Cal	443	57	34	428	63	36	553	48	15
JTC 19_Nov16	A15 South Park	A	MCC_Turn	WB	Cal	209	30	6	183	21	7	130	12	2
JTC 19_Nov16	A15 South Park	A	MCC_Turn	WB	Cal	1	0	0	1	1	0	0	0	0
JTC 19_Nov16	A15 St Catherines	A	MCC_Turn	NB	Cal	680	68	34	353	54	31	440	41	15
JTC 19_Nov16	A15 St Catherines	A	MCC_Turn	NB	Cal	501	54	31	408	58	36	451	47	14
JTC 19_Nov16	A15 St Catherines	A	MCC_Turn	NB	Cal	112	17	8	107	14	9	139	18	3
JTC 20_Nov16	B1262 High Street N	B	MCC_Turn	SB	Cal	181	57	15	237	34	17	400	21	10
JTC 20_Nov16	B1262 High Street N	B	MCC_Turn	SB	Cal	86	14	11	117	16	8	165	21	6
JTC 20_Nov16	B1262 High Street S	B	MCC_Turn	NB	Cal	389	45	4	288	33	8	239	16	0
JTC 20_Nov16	B1262 High Street S	B	MCC_Turn	NB	Cal	474	69	22	250	33	18	274	26	11
JTC 20_Nov16	B1360 Dixon Street	B	MCC_Turn	EB	Cal	156	19	5	93	16	9	87	8	4
JTC 20_Nov16	B1360 Dixon Street	B	MCC_Turn	EB	Cal	216	27	6	295	31	7	302	27	2
JTC 21_Nov16	Boultham Park Road N	U	MCC_Turn	SB	Cal	1	0	0	4	1	0	8	1	0
JTC 21_Nov16	Boultham Park Road N	U	MCC_Turn	SB	Cal	27	3	1	18	3	0	28	2	0
JTC 21_Nov16	Boultham Park Road N	U	MCC_Turn	SB	Cal	28	3	0	23	3	1	19	1	0
JTC 21_Nov16	B1360 Dixon Street E	B	MCC_Turn	WB	Cal	133	9	13	148	14	14	213	23	10
JTC 21_Nov16	B1360 Dixon Street E	B	MCC_Turn	WB	Cal	372	36	7	353	48	13	272	23	0
JTC 21_Nov16	B1360 Dixon Street E	B	MCC_Turn	WB	Cal	4	0	0	4	1	0	9	1	0
JTC 21_Nov16	Boultham Park Road S	U	MCC_Turn	NB	Cal	316	41	2	177	24	3	156	16	0
JTC 21_Nov16	Boultham Park Road S	U	MCC_Turn	NB	Cal	60	4	0	25	4	0	73	9	0
JTC 21_Nov16	Boultham Park Road S	U	MCC_Turn	NB	Cal	199	22	11	112	11	14	111	9	7
JTC 21_Nov16	B1360 Dixon Street W	B	MCC_Turn	EB	Cal	23	3	0	30	4	1	48	4	0
JTC 21_Nov16	B1360 Dixon Street W	B	MCC_Turn	EB	Cal	227	42	7	374	41	10	374	22	6
JTC 21_Nov16	B1360 Dixon Street W	B	MCC_Turn	EB	Cal	78	19	1	160	19	2	213	27	0
JTC 22_Nov16	B1003 Tritton Road N	B	MCC_Turn	SB	Val	690	111	26	1021	112	34	1093	76	15
JTC 22_Nov16	B1003 Tritton Road S	B	MCC_Turn	NB	Val	981	152	38	829	102	31	794	63	12
JTC 22_Nov16	Green Lane	U	MCC_Turn	EB	Val	41	27	3	129	22	3	184	14	2
JTC 23_Nov16	Rope Walk E	U	MCC_Turn	WB	Cal	16	1	1	68	3	1	56	0	0
JTC 23_Nov16	Rope Walk E	U	MCC_Turn	WB	Cal	220	55	32	234	43	32	331	14	15
JTC 23_Nov16	The Sidings	U	MCC_Turn	NB	Cal	19	2	2	294	9	1	146	9	0
JTC 23_Nov16	The Sidings	U	MCC_Turn	NB	Cal	8	1	0	59	3	1	37	2	1
JTC 23_Nov16	Rope Walk W	U	MCC_Turn	EB	Cal	502	73	42	265	46	32	338	14	14
JTC 23_Nov16	Rope Walk W	U	MCC_Turn	EB	Cal	103	5	0	243	8	2	355	5	0
JTC 24_Nov16	St Mark Street	U	MCC_Turn	WB	Val	278	44	29	275	37	27	294	16	13
JTC 24_Nov16	St Mark Street	U	MCC_Turn	WB	Val	95	14	1	64	8	3	50	6	2
JTC 24_Nov16	Rope Walk	U	MCC_Turn	EB	Val	119	15	8	71	6	4	83	2	1
JTC 24_Nov16	Rope Walk	U	MCC_Turn	EB	Val	253	44	30	269	40	29	355	23	17
JTC 25_Nov16	Tentecroft Street	U	MCC_Turn	WB	Cal	94	14	15	98	18	22	161	16	21
JTC 25_Nov16	Tentecroft Street	U	MCC_Turn	WB	Cal	178	22	15	187	23	17	209	15	11
JTC 25_Nov16	B1262 High Street	B	MCC_Turn	NB	Cal	188	25	9	174	22	9	195	16	4
JTC 25_Nov16	B1262 High Street	B	MCC_Turn	NB	Cal	112	14	19	54	13	19	51	4	11
JTC 25_Nov16	St Mark Street	U	MCC_Turn	EB	Cal	127	18	13	117	14	15	142	8	10
JTC 25_Nov16	St Mark Street	U	MCC_Turn	EB	Cal	133	15	6	132	17	6	208	12	3
JTC 26_Nov16	B1262 High Street N	B	MCC_Turn	SB	Cal	38	2	2	40	6	1	44	5	1
JTC 26_Nov16	B1262 High Street N	B	MCC_Turn	SB	Cal	189	28	19	190	29	27	324	23	23
JTC 26_Nov16	Portland Street	U	MCC_Turn	WB	Cal	68	3	1	65	7	1	92	6	0
JTC 26_Nov16	B1262 High Street S	B	MCC_Turn	NB	Cal	300	39	28	227	35	27	246	19	16
JTC 26_Nov16	B1262 High Street S	B	MCC_Turn	NB	Cal	128	12	1	85	11	2	136	9	0
JTC 27_Nov16	Temp Bus Station	U	MCC_Turn	SB	Val	1	0	27	4	1	27	1	0	29
JTC 27_Nov16	Temp Bus Station	U	MCC_Turn	SB	Val	0	0	0	0	0	0	0	0	0
JTC 27_Nov16	Temp Bus Station	U	MCC_Turn	SB	Val	0	0	25	2	1	30	3	1	30
JTC 27_Nov16	Tentecroft Street E	U	MCC_Turn	WB	Val	25	1	1	9	1	0	7	3	0
JTC 27_Nov16	Tentecroft Street E	U	MCC_Turn	WB	Val	260	46	29	261	43	21	307	23	4
JTC 27_Nov16	Tentecroft Street E	U	MCC_Turn	WB	Val	0	0	22	3	2	27	1	0	28
JTC 27_Nov16	Magistrates Court car park	U	MCC_Turn	NB	Val	17	4	0	14	2	0	32	1	0
JTC 27_Nov16	Magistrates Court car park	U	MCC_Turn	NB	Val	0	0	0	0	0	0	0	0	0
JTC 27_Nov16	Magistrates Court car park	U	MCC_Turn	NB	Val	4	0	0	6	1	0	11	1	0
JTC 27_Nov16	Tentecroft Street W	U	MCC_Turn	EB	Val	4	0	28	3	0	29	3	0	25
JTC 27_Nov16	Tentecroft Street W	U	MCC_Turn	EB	Val	174	33	22	154	28	15	183	10	4
JTC 27_Nov16	Tentecroft Street W	U	MCC_Turn	EB	Val	64	4	2	9	1	0	5	0	0
JTC 28_Nov16	Car park	U	MCC_Turn	SB	Cal	2	2	2	9	2	1	4	0	0
JTC 28_Nov16	Car park	U	MCC_Turn	SB	Cal	1	3	1	6	1	1	8	1	0
JTC 28_Nov16	Car park	U	MCC_Turn	SB	Cal	4	0	2	8	2	2	12	1	0
JTC 28_Nov16	East-West Link E	U	MCC_Turn	WB	Cal	48	17	5	85	17	10	68	9	2
JTC 28_Nov16	East-West Link E	U	MCC_Turn	WB	Cal	150	37	42	202	36	38	221	22	24
JTC 28_Nov16	East-West Link E	U	MCC_Turn	WB	Cal	10	3	2	6	2	1	2	1	0
JTC 28_Nov16	Kesteven Street	U	MCC_Turn	NB	Cal	134	7	6	65	9	8	81	7	6
JTC 28_Nov16	Kesteven Street	U	MCC_Turn	NB	Cal	6	1	0	5	1	1	3	0	0
JTC 28_Nov16	Kesteven Street	U	MCC_Turn	NB	Cal	137	30	6	153	21	14	73	6	3
JTC 28_Nov16	East-West Link W	U	MCC_Turn	EB	Cal	19	0	3	8	2	2	6	0	0
JTC 28_Nov16	East-West Link W	U	MCC_Turn	EB	Cal	108	28	27	112	16	21	125	6	11
JTC 28_Nov16	East-West Link W	U	MCC_Turn	EB	Cal	39	5	16	46	10	22	63	6	23
JTC 29_Nov16	East-West Link	U	MCC_Turn	SB	Cal	149	17	15	83	15	17	25	5	7
JTC 29_Nov16	East-West Link	U	MCC_Turn	SB	Cal	100	36	21	191	25	19	183	8	7
JTC 29_Nov16	Great Northern Terrace	U	MCC_Turn	WB	Cal	16	19	12	73	14	11	73	4	2
JTC 29_Nov16	Great Northern Terrace	U	MCC_Turn	WB	Cal	2	4	1	18	5	2	29	2	2
JTC 29_Nov16	Great Northern Terrace	U	MCC_Turn	WB	Cal	14	19	10	55	10	11	40	8	5
JTC 29_Nov16	Kesteven Street S	U	MCC_Turn	NB	Cal	22	13	4	47	12	2	75	6	1
JTC 29_Nov16	Kesteven Street S	U	MCC_Turn	NB	Cal	203	37	40	240	44	38	247	26	21
JTC 29_Nov16	Kesteven Street S	U	MCC_Turn	NB	Cal	50	11	5	52	15	10	23	3	5
JTC 30_Nov16	A15 Canwick Road S	A	MCC_Turn	NB	Cal	251	25	14	202	29	23	131	11	9
JTC 30_Nov16	A15 Canwick Road S	A	MCC_Turn	NB	Cal	1190	105	48	778	107	55	957	83	28
JTC 30_Nov16	Portland Street	U	MCC_Turn	EB	Cal	127	40	28	177	40	35	229	24	24
JTC 31_Nov16	A15 Canwick Road N	A	MCC_Turn	SB	Val	286	49	40	347	72	53	344	43	45
JTC 31_Nov16	A15 Canwick Road N	A	MCC_Turn	SB	Val	788	105	45	821	107	57	1408	116	31
JTC 31_Nov16	Kesteven Street	U	MCC_Turn	WB	Val	83	51	29	267	41	28	308	17	9
JTC 31_Nov16	A15 Canwick Road S	A	MCC_Turn	NB	Val	1458	116	54	971	133	75	1035	100	39
JTC 32_Nov16	A57 Wigford Way N	A	MCC_Turn	SB	Cal	93	17	8	102	11	6	70	6	1
JTC 32_Nov16	A57 Wigford Way N	A	MCC_Turn	SB	Cal	82	1	1	32	3	1	34	5	0
JTC 32_Nov16	A57 Wigford Way S	A	MCC_Turn	NB	Cal	3	1	0	11	1	0	6	2	0
JTC 32_Nov16	A57 Wigford Way S	A	MCC_Turn	NB	Cal	49	13	5	129	13	8	131	9	1

JTC 32_Nov16	Brayford Wharf East	U	MCC_Turn	EB	Cal	148	22	5	151	14	8	206	9	2
JTC 32_Nov16	Brayford Wharf East	U	MCC_Turn	EB	Cal	23	5	1	31	2	2	25	3	0
JTC 33_Nov16	A15 Lindum Road	A	MCC_Turn	SB	Cal	47	2	0	19	2	0	29	1	0
JTC 33_Nov16	A15 Lindum Road	A	MCC_Turn	SB	Cal	605	73	45	520	65	56	706	49	32
JTC 33_Nov16	B1308 Monks Road	B	MCC_Turn	WB	Cal	43	17	9	96	21	11	102	15	3
JTC 33_Nov16	B1308 Monks Road	B	MCC_Turn	WB	Cal	217	24	10	246	35	8	287	14	1
JTC 33_Nov16	A15 Broadgate	A	MCC_Turn	NB	Cal	220	20	8	142	24	11	150	17	7
JTC 33_Nov16	A15 Broadgate	A	MCC_Turn	NB	Cal	951	93	40	581	89	56	824	103	47
JTC 33_Nov16	Silver Street	U	MCC_Turn	EB	Cal	41	8	5	89	10	4	55	1	0
JTC 33_Nov16	Silver Street	U	MCC_Turn	EB	Cal	92	12	5	153	15	8	162	10	3
JTC 33_Nov16	Silver Street	U	MCC_Turn	EB	Cal	355	41	16	258	44	15	420	35	11
JTC 33_Nov16	Silver Street	U	MCC_Turn	EB	Cal	355	47	20	300	43	30	363	25	3
JTC 34_Nov16	B1273 Yarborough Road	B	MCC_Turn	SB	Cal	1	0	1	2	0	0	2	1	0
JTC 34_Nov16	B1273 Yarborough Road	B	MCC_Turn	SB	Cal	127	28	4	75	12	2	52	3	1
JTC 34_Nov16	B1273 Yarborough Road	B	MCC_Turn	SB	Cal	283	30	12	245	27	11	199	12	4
JTC 34_Nov16	Victoria Terrace	U	MCC_Turn	WB	Cal	4	0	0	2	1	0	2	0	0
JTC 34_Nov16	Victoria Terrace	U	MCC_Turn	WB	Cal	3	0	0	1	0	0	1	0	0
JTC 34_Nov16	Victoria Terrace	U	MCC_Turn	WB	Cal	8	0	0	3	1	0	5	0	0
JTC 34_Nov16	B1308 Yarborough Road	B	MCC_Turn	NWB	Cal	1	0	1	2	0	0	2	0	0
JTC 34_Nov16	B1308 Yarborough Road	B	MCC_Turn	NWB	Cal	58	5	3	65	12	4	78	6	2
JTC 34_Nov16	B1308 Yarborough Road	B	MCC_Turn	NWB	Cal	0	0	0	1	0	0	1	0	0
JTC 34_Nov16	B1273 The Avenue	B	MCC_Turn	NB	Cal	357	55	15	412	45	16	320	20	6
JTC 35_Nov16	A15 Wragby Road	A	MCC_Turn	SB	Val	489	59	43	484	58	45	518	41	20
JTC 35_Nov16	A15 Wragby Road	A	MCC_Turn	SB	Val	2	1	0	3	1	0	3	1	0
JTC 35_Nov16	A15 Lindum Road	A	MCC_Turn	NB	Val	276	39	9	214	31	17	376	46	15
JTC 35_Nov16	A15 Lindum Road	A	MCC_Turn	NB	Val	771	65	33	525	69	45	617	63	31
JTC 35_Nov16	Pottergate	U	MCC_Turn	EB	Val	7	1	0	2	0	0	2	0	0
JTC 35_Nov16	Pottergate	U	MCC_Turn	EB	Val	27	1	6	5	1	10	4	1	10
JTC 36_Nov16	Northgate	U	MCC_Turn	SB	Cal	332	27	11	159	18	10	191	21	0
JTC 36_Nov16	Northgate	U	MCC_Turn	SB	Cal	46	3	13	18	1	25	15	0	11
JTC 36_Nov16	Northgate	U	MCC_Turn	SB	Cal	1	2	2	2	0	0	1	0	0
JTC 36_Nov16	Eastgate E	U	MCC_Turn	WB	Cal	5	4	0	5	0	0	8	0	0
JTC 36_Nov16	Eastgate E	U	MCC_Turn	WB	Cal	0	0	0	2	0	0	0	0	0
JTC 36_Nov16	Eastgate E	U	MCC_Turn	WB	Cal	183	13	6	177	22	9	268	26	7
JTC 36_Nov16	Priory Gate	U	MCC_Turn	NB	Cal	0	0	0	1	0	0	1	0	0
JTC 36_Nov16	Priory Gate	U	MCC_Turn	NB	Cal	270	67	24	194	29	38	327	45	15
JTC 36_Nov16	Priory Gate	U	MCC_Turn	NB	Cal	10	0	0	7	1	0	8	0	0
JTC 36_Nov16	Eastgate W	U	MCC_Turn	EB	Cal	55	10	9	71	8	10	55	3	1
JTC 36_Nov16	Eastgate W	U	MCC_Turn	EB	Cal	74	13	2	75	11	2	57	3	0
JTC 36_Nov16	Eastgate W	U	MCC_Turn	EB	Cal	8	0	2	6	1	0	3	1	0
JTC 37_Nov16	A15 Wragby Road N	A	MCC_Turn	SB	Val	7	1	1	15	3	1	18	0	0
JTC 37_Nov16	A15 Wragby Road N	A	MCC_Turn	SB	Val	390	40	37	374	51	50	410	55	37
JTC 37_Nov16	A15 Wragby Road N	A	MCC_Turn	SB	Val	17	1	0	36	4	1	31	1	0
JTC 37_Nov16	B1308 Greetwell Road	B	MCC_Turn	WB	Val	80	11	16	141	14	12	144	8	8
JTC 37_Nov16	B1308 Greetwell Road	B	MCC_Turn	WB	Val	125	10	6	155	19	3	264	12	3
JTC 37_Nov16	B1308 Greetwell Road	B	MCC_Turn	WB	Val	8	0	0	13	1	0	30	1	0
JTC 37_Nov16	A15 Wragby Road S	A	MCC_Turn	NB	Val	21	0	0	14	4	0	20	1	1
JTC 37_Nov16	A15 Wragby Road S	A	MCC_Turn	NB	Val	181	35	30	233	44	30	314	47	20
JTC 37_Nov16	A15 Wragby Road S	A	MCC_Turn	NB	Val	218	39	11	211	41	14	138	31	15
JTC 38_Nov16	Queensway	U	MCC_Turn	SB	Cal	363	16	4	169	17	5	151	15	3
JTC 38_Nov16	Queensway	U	MCC_Turn	SB	Cal	6	0	2	4	2	0	5	1	0
JTC 38_Nov16	B1308 Greetwell Road E	B	MCC_Turn	WB	Cal	153	22	17	279	27	10	447	17	5
JTC 38_Nov16	B1308 Greetwell Road E	B	MCC_Turn	WB	Cal	94	11	1	86	9	2	180	5	0
JTC 38_Nov16	B1308 Greetwell Road W	B	MCC_Turn	EB	Cal	1	0	0	3	1	0	3	0	0
JTC 38_Nov16	B1308 Greetwell Road W	B	MCC_Turn	EB	Cal	429	31	9	312	38	13	252	33	9
JTC 39_Nov16	Lee Road	U	MCC_Turn	SB	Cal	92	6	8	23	2	1	21	7	2
JTC 39_Nov16	Lee Road	U	MCC_Turn	SB	Cal	116	8	3	43	6	2	49	4	1
JTC 39_Nov16	Lee Road	U	MCC_Turn	SB	Cal	43	5	1	17	4	1	17	1	0
JTC 39_Nov16	A15 Wragby Road E	A	MCC_Turn	WB	Cal	215	5	3	106	10	3	83	10	1
JTC 39_Nov16	A15 Wragby Road E	A	MCC_Turn	WB	Cal	335	36	30	261	36	33	292	25	13
JTC 39_Nov16	A15 Wragby Road E	A	MCC_Turn	WB	Cal	62	3	0	38	3	1	55	1	0
JTC 39_Nov16	Queensway	U	MCC_Turn	NB	Cal	11	0	0	1	0	0	1	0	0
JTC 39_Nov16	Queensway	U	MCC_Turn	NB	Cal	63	8	0	49	6	1	124	6	0
JTC 39_Nov16	Queensway	U	MCC_Turn	NB	Cal	31	3	1	39	4	1	63	2	0
JTC 39_Nov16	A15 Wragby Road W	A	MCC_Turn	EB	Cal	34	2	2	31	4	2	116	4	1
JTC 39_Nov16	A15 Wragby Road W	A	MCC_Turn	EB	Cal	247	35	24	283	42	34	470	47	24
JTC 39_Nov16	A15 Wragby Road W	A	MCC_Turn	EB	Cal	23	3	2	23	3	1	28	1	0
JTC 40_Nov16	B1182 Ruskin Avenue	B	MCC_Turn	SB	Cal	195	17	5	275	31	8	267	17	3
JTC 40_Nov16	B1182 Ruskin Avenue	B	MCC_Turn	SB	Cal	350	16	12	169	19	20	181	15	8
JTC 40_Nov16	A15 Wragby Road E	A	MCC_Turn	WB	Cal	299	21	21	238	31	23	242	16	10
JTC 40_Nov16	A15 Wragby Road E	A	MCC_Turn	WB	Cal	141	25	3	195	21	5	214	21	3
JTC 40_Nov16	A15 Wragby Road W	A	MCC_Turn	EB	Cal	145	12	18	77	7	15	116	7	7
JTC 40_Nov16	A15 Wragby Road W	A	MCC_Turn	EB	Cal	278	32	21	282	35	29	386	36	15
JTC 41_Nov16	B1182 Nettleham Road	B	MCC_Turn	SB	Cal	117	8	2	97	11	5	119	10	0
JTC 41_Nov16	B1182 Nettleham Road	B	MCC_Turn	SB	Cal	273	19	5	117	10	5	123	8	6
JTC 41_Nov16	B1182 Nettleham Road	B	MCC_Turn	SB	Cal	307	22	3	231	20	5	287	32	1
JTC 41_Nov16	B1182 Nettleham Road	B	MCC_Turn	SB	Cal	2	0	0	1	1	0	1	0	0
JTC 41_Nov16	B1182 Ruskin Avenue	B	MCC_Turn	WB	Cal	54	5	0	21	3	1	18	1	1
JTC 41_Nov16	B1182 Ruskin Avenue	B	MCC_Turn	WB	Cal	237	42	15	228	21	8	295	22	3
JTC 41_Nov16	B1182 Ruskin Avenue	B	MCC_Turn	WB	Cal	58	5	2	50	5	5	67	4	3
JTC 41_Nov16	B1182 Ruskin Avenue	B	MCC_Turn	WB	Cal	2	0	0	1	0	0	2	0	0
JTC 41_Nov16	Nettleham Road	U	MCC_Turn	NB	Cal	55	7	3	68	7	2	155	7	0
JTC 41_Nov16	Nettleham Road	U	MCC_Turn	NB	Cal	189	21	4	172	16	6	314	26	6
JTC 41_Nov16	Nettleham Road	U	MCC_Turn	NB	Cal	28	3	0	29	2	1	46	3	1
JTC 41_Nov16	Nettleham Road	U	MCC_Turn	NB	Cal	1	0	0	1	0	0	1	0	0
JTC 41_Nov16	B1273 Longdales Road	B	MCC_Turn	EB	Cal	184	21	6	231	18	4	239	16	3
JTC 41_Nov16	B1273 Longdales Road	B	MCC_Turn	EB	Cal	447	37	7	341	43	16	383	37	8
JTC 41_Nov16	B1273 Longdales Road	B	MCC_Turn	EB	Cal	178	14	7	44	6	2	51	6	2
JTC 41_Nov16	B1273 Longdales Road	B	MCC_Turn	EB	Cal	5	0	0	3	0	0	1	0	0
JTC 42_Nov16	Nettleham Road N	U	MCC_Turn	SB	Val	241	19	10	68	9	2	73	7	2
JTC 42_Nov16	Nettleham Road N	U	MCC_Turn	SB	Val	310	17	3	89	8	4	83	4	6
JTC 42_Nov16	Lee Road	U	MCC_Turn	WB	Val	77	5	0	34	3	1	52	1	0
JTC 42_Nov16	Lee Road	U	MCC_Turn	WB	Val	94	10	1	83	9	3	252	12	1
JTC 42_Nov16	Nettleham Road S	U	MCC_Turn	NB	Val	168	26	4	164	15	6	274	21	7
JTC 42_Nov16	Nettleham Road S	U	MCC_Turn	NB	Val	17	2	2	16	3	1	14	3	1
JTC 43_Nov16	B1226 Riseholme Road	B	MCC_Turn	SB	Cal	217	22	9	158	22	10	211	26	7
JTC 43_Nov16	B1226 Riseholme Road	B	MCC_Turn	SB	Cal	331	30	10	171	18	7	228	11	6
JTC 43_Nov16	B1226 Riseholme Road	B	MCC_Turn	SB	Cal	111	27	8	122	16	7	139	8	3
JTC 43_Nov16	B1226 Riseholme Road	B	MCC_Turn	SB	Cal	1	2	0	1	0	0	1	0	0
JTC 43_Nov16	B1273 Longdales Road	B	MCC_Turn	WB	Cal	120	10	0	49	3	1	55	1	0
JTC 43_Nov16	B1273 Longdales Road	B	MCC_Turn	WB	Cal	312	36	8	327	30	6	384	29	1
JTC 43_Nov16	B1273 Longdales Road	B	MCC_Turn	WB	Cal	153	23	11	131	17	8	259	12	3
JTC 43_Nov16	B1273 Longdales Road	B	MCC_Turn	WB	Cal	1	0	0	2	0	0	7	0	0
JTC 43_Nov16	Newport	U	MCC_Turn	NB	Cal	48	2	3	61	9	2	136	11	1
JTC 43_Nov16	Newport	U	MCC_Turn	NB	Cal	201	23	5	154	26	8	312	29	9
JTC 43_Nov16	Newport	U	MCC_Turn	NB	Cal	48	6	0	56	5	2	76	2	1
JTC 43_Nov16	Newport	U	MCC_Turn	NB	Cal	3	2	0	4	0	0	0	0	0
JTC 43_Nov16	B1273 Yarborough Crescent	B	MCC_Turn	EB	Cal	141	27	8	131	21	6	155	10	6
JTC 43_Nov16	B1273 Yarborough Crescent	B	MCC_Turn	EB	Cal	421	45	11	383	39	8	365	34	4
JTC 43_Nov16	B1273 Yarborough Crescent	B	MCC_Turn	EB	Cal	126	10	2	53	5	3	58	5	1
JTC 43_Nov16	B1273 Yarborough Crescent	B	MCC_Turn	EB	Cal	3	0	0	1	1	0	1	0	0
JTC 44_Nov16	B1273 Yarborough Crescent	B	MCC_Turn	WB	Cal	125	22	3	99	11	2	82	6	0
JTC 44_Nov16	B1273 Yarborough Crescent	B	MCC_Turn	WB	Cal	270	36	15	308	36	12	333	24	5
JTC 44_Nov16	B1273 Yarborough Crescent	B	MCC_Turn	WB	Cal	71	5	2	81	8	2	218	24	0
JTC 44_Nov16	B1273 Yarborough Crescent	B	MCC_Turn	WB	Cal	0	0	0	5	0	0	0	0	0
JTC 44_Nov16	Burton Road	U	MCC_Turn	NB	Cal	30	2	0	46	5	2	64	5	0
JTC 44_Nov16	Burton Road	U	MCC_Turn	NB	Cal	70	7	6	85	10	6	252	13	4
JTC 44_Nov16	Burton Road	U	MCC_Turn	NB	Cal	67	10	1	105	12	3	135	9	1
JTC 44_Nov16	Burton Road	U	MCC_Turn	NB	Cal	1	0	0	7	1	0	6	0	0

JTC 44_Nov16	B1273 Yarborough Road	B	MCC_Turn	EB	Cal	77	26	2	115	18	5	241	22	1
JTC 44_Nov16	B1273 Yarborough Road	B	MCC_Turn	EB	Cal	465	62	20	386	46	13	385	21	6
JTC 44_Nov16	B1273 Yarborough Road	B	MCC_Turn	EB	Cal	130	14	5	97	13	4	75	7	2
JTC 44_Nov16	B1273 Yarborough Road	B	MCC_Turn	EB	Cal	1	0	0	3	1	1	1	0	0
JTC 44_Nov16	B1398 Burton Road	B	MCC_Turn	SB	Cal	179	11	3	88	10	1	106	7	0
JTC 44_Nov16	B1398 Burton Road	B	MCC_Turn	SB	Cal	324	12	4	86	8	5	91	12	3
JTC 44_Nov16	B1398 Burton Road	B	MCC_Turn	SB	Cal	170	24	1	105	16	5	105	15	4
JTC 44_Nov16	B1398 Burton Road	B	MCC_Turn	SB	Cal	0	0	0	1	0	0	1	0	0
ATC1_Nov16	A1500 Till Bridge Lane	A	ATC	EB	Cal	284	55	26	122	23	11	192	37	17
ATC1_Nov16	A1500 Till Bridge Lane	A	ATC	WB	Cal	193	37	17	132	25	12	289	56	26
ATC2_Nov16	B1398 High Street	B	ATC	SB	Cal	198	42	7	81	17	3	107	23	4
ATC2_Nov16	B1398 High Street	B	ATC	NB	Cal	81	17	3	78	17	3	187	40	7
ATC3_Nov16	A15	A	ATC	SB	Cal	457	70	102	310	60	82	424	76	85
ATC3_Nov16	A15	A	ATC	NB	Cal	371	78	100	334	61	77	499	78	56
ATC4_Nov16	Hackthorn Road	U	ATC	SB	Cal	72	15	3	49	10	2	68	15	3
ATC4_Nov16	Hackthorn Road	U	ATC	NB	Cal	79	17	3	49	10	2	72	15	3
ATC5_Nov16	A158 Station Road	A	ATC	WB	Cal	520	77	46	390	58	47	434	50	15
ATC5_Nov16	A158 Station Road	A	ATC	EB	Cal	379	56	34	405	60	49	545	62	19
ATC6_Nov16	Ferry Road	U	ATC	WB	Cal	181	24	8	56	10	3	70	8	3
ATC6_Nov16	Ferry Road	U	ATC	EB	Cal	56	7	3	66	11	4	154	17	6
ATC7_Nov16	B1188 Sleaford Road	B	ATC	NB	Cal	305	65	11	219	46	8	328	70	12
ATC7_Nov16	B1188 Sleaford Road	B	ATC	SB	Cal	267	57	10	214	45	8	368	78	14
ATC8_Nov16	A15 Sleaford Road	A	ATC	NB	Cal	504	80	34	317	59	37	504	65	18
ATC8_Nov16	A15 Sleaford Road	A	ATC	SB	Cal	359	57	24	242	45	28	492	63	17
ATC9_Nov16	A607 Grantham Road	A	ATC	NB	Cal	251	48	23	203	39	18	341	66	31
ATC9_Nov16	A607 Grantham Road	A	ATC	SB	Cal	312	60	28	199	38	18	292	56	26
ATC10_Nov16	Hopyard Lane	U	ATC	NB	Cal	81	17	3	49	10	2	100	21	4
ATC10_Nov16	Hopyard Lane	U	ATC	SB	Cal	85	18	3	47	10	2	74	16	3
ATC11_Nov16	Norton Road	U	ATC	NB	Cal	19	4	1	27	6	1	53	11	2
ATC11_Nov16	Norton Road	U	ATC	SB	Cal	58	12	2	24	5	1	21	4	1
ATC12_Nov16	A46	A	ATC	NB	Cal	989	177	128	800	155	141	1405	186	83
ATC12_Nov16	A46	A	ATC	SB	Cal	1076	192	139	789	153	139	1100	146	65
ATC13_Nov16	Collingham Road	U	ATC	EB	Cal	46	10	2	30	6	1	35	7	1
ATC13_Nov16	Collingham Road	U	ATC	WB	Cal	32	7	1	30	6	1	39	8	1
ATC14_Nov16	Swinderby Road	U	ATC	EB	Cal	5	1	0	4	1	0	6	1	0
ATC14_Nov16	Swinderby Road	U	ATC	WB	Cal	4	1	0	4	1	0	4	1	0
ATC15_Nov16	Swinderby Road	U	ATC	EB	Cal	21	4	1	10	2	0	15	3	1
ATC15_Nov16	Swinderby Road	U	ATC	WB	Cal	16	3	1	11	2	0	12	3	0
ATC16_Nov16	Eagle Road	U	ATC	EB	Cal	29	6	1	19	4	1	15	3	1
ATC16_Nov16	Eagle Road	U	ATC	WB	Cal	15	3	1	19	4	1	25	5	1
ATC17_Nov16	Wigsley Road	U	ATC	EB	Cal	23	5	1	19	4	1	24	5	1
ATC17_Nov16	Wigsley Road	U	ATC	WB	Cal	25	5	1	18	4	1	21	4	1
ATC18_Nov16	Brown Lane	U	ATC	EB	Cal	23	5	1	18	4	1	22	5	1
ATC18_Nov16	Brown Lane	U	ATC	WB	Cal	21	4	1	19	4	1	20	4	1
ATC19_Nov16	A57	A	ATC	EB	Cal	354	68	32	236	45	21	363	70	33
ATC19_Nov16	A57	A	ATC	WB	Cal	320	61	29	249	48	22	371	71	33
ATC20_Nov16	B1190 Carr Lane	B	ATC	SB	Cal	337	72	13	160	34	6	224	48	8
ATC20_Nov16	B1190 Carr Lane	B	ATC	NB	Cal	239	51	9	170	36	6	362	77	14
ATC21_Nov16	A57 Lincoln Road	A	ATC	EB	Val	474	72	54	336	65	30	463	53	29
ATC21_Nov16	A57 Lincoln Road	A	ATC	WB	Val	358	55	41	358	69	32	538	62	34
ATC22_Nov16	B1398 Middle Street	B	ATC	SB	Val	430	91	16	156	33	6	268	57	10
ATC22_Nov16	B1398 Middle Street	B	ATC	NB	Val	122	26	5	120	25	4	288	61	11
ATC23_Nov16	A15	A	ATC	SB	Val	485	75	108	373	72	99	478	86	96
ATC23_Nov16	A15	A	ATC	NB	Val	419	88	112	386	71	89	574	90	64
ATC24_Nov16	A46 Welton Road	A	ATC	NB	Cal	459	69	18	397	58	26	725	84	18
ATC24_Nov16	A46 Welton Road	A	ATC	SB	Cal	733	110	29	373	55	25	428	50	11
ATC25_Nov16	B1188 Sleaford Road	B	ATC	NB	Val	319	46	17	218	32	16	273	31	7
ATC25_Nov16	B1188 Sleaford Road	B	ATC	SB	Val	220	32	12	233	34	17	409	46	10
ATC26_Nov16	A15 Sleaford Road	A	ATC	NB	Val	291	49	27	228	32	33	282	19	10
ATC26_Nov16	A15 Sleaford Road	A	ATC	SB	Val	271	46	26	228	32	33	447	31	15
ATC27_Nov16	A607 Grantham Road	A	ATC	NB	Cal	616	72	29	294	37	17	416	37	7
ATC27_Nov16	A607 Grantham Road	A	ATC	SB	Cal	385	45	18	324	40	19	615	55	11
ATC28_Nov16	Station Road	U	ATC	WB	Cal	306	65	11	236	50	9	432	92	16
ATC28_Nov16	Station Road	U	ATC	EB	Cal	335	71	13	222	47	8	257	55	10
ATC29_Nov16	Somerton Gate Lane	U	ATC	WB	Cal	31	7	1	22	5	1	62	13	2
ATC29_Nov16	Somerton Gate Lane	U	ATC	EB	Cal	24	5	1	11	2	0	13	3	0
ATC30_Nov16	Low Road	U	ATC	NB	Cal	268	30	11	134	18	6	316	42	8
ATC30_Nov16	Low Road	U	ATC	SB	Cal	201	23	8	138	18	6	223	30	6
ATC31_Nov16	South Hykeham Road	U	ATC	NB	Cal	148	31	6	64	14	2	94	20	4
ATC31_Nov16	South Hykeham Road	U	ATC	SB	Cal	76	16	3	56	12	2	77	16	3
ATC32_Nov16	Middle Lane	U	ATC	EB	Cal	92	20	3	66	14	2	127	27	5
ATC32_Nov16	Middle Lane	U	ATC	WB	Cal	129	28	5	55	12	2	76	16	3
ATC33_Nov16	Moor Lane	U	ATC	EB	Cal	57	12	2	32	7	1	21	5	1
ATC33_Nov16	Moor Lane	U	ATC	WB	Cal	41	9	2	41	9	2	20	4	1
ATC34_Nov16	Whisby Road	U	ATC	EB	Cal	285	25	29	91	14	12	99	12	2
ATC34_Nov16	Whisby Road	U	ATC	WB	Cal	74	11	16	89	13	10	393	43	8
ATC35_Nov16	B1190 Lincoln Road	B	ATC	EB	Val	337	48	29	194	37	20	213	39	6
ATC35_Nov16	B1190 Lincoln Road	B	ATC	WB	Val	228	38	27	227	35	15	406	37	7
ATC36_Nov16	Lincoln Road	U	ATC	WB	Cal	184	27	7	179	39	12	269	33	9
ATC36_Nov16	Lincoln Road	U	ATC	EB	Cal	295	32	10	175	37	7	190	40	7
ATC37_Nov16	A57 Saxilby Road	A	ATC	WB	Cal	351	53	40	370	71	33	512	59	32
ATC37_Nov16	A57 Saxilby Road	A	ATC	EB	Cal	457	70	52	416	80	37	521	60	33
ATC38_Nov16	B1398 Middle Street	B	ATC	NB	Cal	182	39	7	162	34	6	436	93	16
ATC38_Nov16	B1398 Middle Street	B	ATC	SB	Cal	445	95	17	147	31	5	224	48	8
ATC39_Nov16	A15	A	ATC	NB	Cal	434	91	116	408	75	94	524	82	58
ATC39_Nov16	A15	A	ATC	SB	Cal	514	79	114	413	80	110	507	91	102
ATC40_Nov16	A46 Lincoln Road	A	ATC	NB	Val	568	89	33	513	62	37	892	83	24
ATC40_Nov16	A46 Lincoln Road	A	ATC	SB	Val	859	71	30	503	68	30	593	68	15
ATC44_Nov16	Brant Road	U	ATC	NB	Val	399	55	18	280	43	15	458	61	7
ATC44_Nov16	Brant Road	U	ATC	SB	Val	322	45	14	257	39	13	347	46	6
ATC45_Nov16	Lincoln Road	U	ATC	NB	Val	312	29	12	215	25	11	322	28	5
ATC45_Nov16	Lincoln Road	U	ATC	SB	Val	309	29	12	212	25	11	306	26	5
ATC46_Nov16	A1434 Newark Road	A	ATC	EB	Val	552	87	34	574	54	32	645	71	17
ATC46_Nov16	A1434 Newark Road	A	ATC	WB	Val	443	70	27	524	49	29	538	59	14
ATC47_Nov16	B1190 Doddington Road	B	ATC	WB	Cal	579	99	38	484	82	17	531	51	11
ATC47_Nov16	B1190 Doddington Road	B	ATC	EB	Cal	370	63	24	432	73	16	456	44	10
ATC48_Nov16	B1378 Skellingthorpe Road	B	ATC	WB	Val	274	53	21	414	57	16	488	52	14
ATC48_Nov16	B1378 Skellingthorpe Road	B	ATC	EB	Val	337	48	22	361	50	18	379	60	15
ATC50_Nov16	Long Leys Road	U	ATC	WB	Val	212	36	8	208	35	8	363	61	13
ATC50_Nov16	Long Leys Road	U	ATC	EB	Val	264	45	10	169	29	6	227	38	8
ATC51_Nov16	B1398 Burton Road	B	ATC	NB	Val	209	24	7	261	31	10	606	48	8
ATC51_Nov16	B1398 Burton Road	B	ATC	SB	Val	481	56	15	249	30	10	313	25	4
ATC52_Nov16	B1226 Riseholme Road	B	ATC	NB	Val	526	62	18	496	58	19	650	49	12
ATC52_Nov16	B1226 Riseholme Road	B	ATC	SB	Val	597	71	21	428	50	16	538	40	10
ATC53_Nov16	B1182 Nettleham Road	B	ATC	NB	Val	362	35	10	453	45	17	621	51	11
ATC53_Nov16	B1182 Nettleham Road	B	ATC	SB	Val	677	65	18	462	46	17	552	46	9
ATC55_Nov16	B1308 Greetwell Road	B	ATC	EB	Val	296	23	10	304	33	11	316	22	5
ATC55_Nov16	B1308 Greetwell Road	B	ATC	WB	Val	411	32	13	288	31	10	306	21	5
ATC56_Nov16	B1308 Monks Road	B	ATC	EB	Cal	461	63	24	554	78	29	651	50	17
ATC56_Nov16	B1308 Monks Road	B	ATC	WB	Cal	432	59	22	431	61	23	459	35	12
ATC57_Nov16	B1190 Washingborough Road	B	ATC	EB	Val	133	28	5	212	45	8	258	55	10
ATC57_Nov16	B1190 Washingborough Road	B	ATC	WB	Val	302	64	11	254	54	10	207	44	8
ATC58_Nov16	B1188 Canwick Road	B	ATC	NB	Val	923	73	37	578	84	48	623	55	18
ATC58_Nov16	B1188 Canwick Road	B	ATC	SB	Val	474	123	58	678	83	45	1166	61	17
ATC61_Nov16	Boultham Park Road	U	ATC	NB	Val	533	66	16	306	37	12	334	30	5
ATC61_Nov16	Boultham Park Road	U	ATC	SB	Val	259	32	8	319	39	13	470	43	7
ATC62_Nov16	B1003 Tritton Road	B	ATC	NB	Val	769	133	31	687	85	24	537	41	8
ATC62_Nov16	B1003 Tritton Road	B	ATC	SB	Val	368	64	15	730	90	25	875	67	13
ATC63_Nov16	B1003 Tritton Road	B	ATC	NB	Cal	1138	196	45	960	119	33	826	63	12

ATC63_Nov16	B1003 Tritton Road	B	ATC	SB	Cal	571	99	23	1010	125	35	1189	91	17
ATC64_Nov16	A57 Carholme Road	A	ATC	EB	Cal	660	99	34	586	58	33	611	45	5
ATC64_Nov16	A57 Carholme Road	A	ATC	WB	Cal	542	81	28	606	60	34	657	49	6
ATC65_Nov16	West Parade	U	ATC	EB	Cal	101	17	4	60	10	2	67	11	2
ATC65_Nov16	West Parade	U	ATC	WB	Cal	63	11	2	76	13	3	103	17	4
ATC67_Nov16	Carline Road	U	ATC	WB	Cal	54	9	2	29	5	1	39	7	1
ATC67_Nov16	Carline Road	U	ATC	EB	Cal	73	12	3	26	4	1	38	6	1
ATC68_Nov16	Upper Long Leys Road	U	ATC	EB	Cal	22	4	1	24	4	1	21	4	1
ATC68_Nov16	Upper Long Leys Road	U	ATC	WB	Cal	150	25	5	144	24	5	161	27	6
ATC69_Nov16	Burton Road	U	ATC	NB	Cal	137	23	5	156	26	6	304	51	11
ATC69_Nov16	Burton Road	U	ATC	SB	Cal	414	70	15	232	39	8	223	38	8
ATC70_Nov16	Saxon Street	U	ATC	NB	Cal	42	7	2	25	4	1	38	6	1
ATC70_Nov16	Saxon Street	U	ATC	SB	Cal	28	5	1	19	3	1	25	4	1
ATC71_Nov16	Hereward Street	U	ATC	NB	Cal	11	2	0	8	1	0	13	2	0
ATC71_Nov16	Hereward Street	U	ATC	SB	Cal	13	2	0	8	1	0	10	2	0
ATC72_Nov16	Newport	U	ATC	NB	Cal	240	40	9	244	41	9	387	65	14
ATC72_Nov16	Newport	U	ATC	SB	Cal	448	76	16	229	39	8	246	41	9
ATC73_Nov16	Nettleham Road	U	ATC	NB	Cal	211	18	5	191	20	7	301	19	7
ATC73_Nov16	Nettleham Road	U	ATC	SB	Cal	370	32	8	139	14	5	167	11	4
ATC75_Nov16	A15 Wragby Road	A	ATC	NB	Cal	795	67	34	561	74	48	599	61	30
ATC75_Nov16	A15 Wragby Road	A	ATC	SB	Cal	544	66	48	492	60	46	526	43	20
ATC76_Nov16	Lindum Terrace	U	ATC	WB	Cal	121	20	4	64	11	2	127	21	5
ATC77_Nov16	B1308 Monks Road	B	ATC	EB	Val	285	39	15	257	36	13	353	27	9
ATC77_Nov16	B1308 Monks Road	B	ATC	WB	Val	204	28	10	282	40	15	273	21	7
ATC78_Nov16	St Rumbold's Street	U	ATC	EB	Cal	76	13	3	75	13	3	109	18	4
ATC78_Nov16	St Rumbold's Street	U	ATC	WB	Cal	321	54	12	172	29	6	257	43	9
ATC79_Nov16	Waterside North	U	ATC	EB	Cal	10	2	0	13	2	0	6	1	0
ATC79_Nov16	Waterside North	U	ATC	WB	Cal	146	25	5	90	15	3	130	22	5
ATC80_Nov16	Waterside South	U	ATC	EB	Cal	41	7	1	24	4	1	5	1	0
ATC80_Nov16	Waterside South	U	ATC	WB	Cal	21	4	1	39	7	1	96	16	3
ATC82_Nov16	B1262 High Street	B	ATC	NB	Val	300	39	28	227	35	27	246	19	16
ATC82_Nov16	B1262 High Street	B	ATC	SB	Val	227	30	21	230	36	28	368	29	24
ATC83_Nov16	Brayford Wharf East	U	ATC	NB	Val	151	24	15	178	24	18	214	12	9
ATC83_Nov16	Brayford Wharf East	U	ATC	SB	Val	65	10	7	45	6	4	37	2	2
ATC84_Nov16	B1273 Brayford Way	B	ATC	NB	Val	910	157	36	885	110	31	991	76	14
ATC84_Nov16	B1273 Brayford Way	B	ATC	SB	Val	958	165	38	1019	126	35	1127	86	16
ATC86_Nov16	Boultham Avenue	U	ATC	EB	Val	57	7	2	47	6	2	103	9	2
ATC86_Nov16	Boultham Avenue	U	ATC	WB	Val	31	4	1	30	4	1	50	5	1
ATC90_Nov16	Scorer Street	U	ATC	EB	Val	152	20	14	83	13	10	131	10	8
ATC90_Nov16	Scorer Street	U	ATC	WB	Val	97	13	9	81	12	10	110	9	7
ATC91_Nov16	Monson Street	U	ATC	EB	Val	7	1	1	14	2	2	19	1	1
ATC91_Nov16	Monson Street	U	ATC	WB	Val	68	9	6	64	10	8	115	9	7
ATC92_Nov16	Portland Street	U	ATC	EB	Val	117	15	11	101	16	12	128	10	8
ATC92_Nov16	Portland Street	U	ATC	WB	Val	49	6	5	41	6	5	51	4	3
ATC94_Nov16	Silver Street	U	ATC	EB	Val	610	85	27	636	77	27	751	47	14
ATC95_Nov16	B1308 Clasketgate	B	ATC	WB	Val	424	59	19	471	57	20	523	33	10
ATC96_Nov16	Steep Hill	U	ATC	EB	Val	10	2	0	4	1	0	3	0	0
ATC97_Nov16	Eastgate	U	ATC	EB	Val	130	12	4	130	16	7	131	12	3
ATC98_Nov16	Church Lane	U	ATC	EB	Val	307	52	11	181	30	7	203	34	7
ATC98_Nov16	Church Lane	U	ATC	WB	Val	538	91	19	411	69	15	567	96	20
ATC99_Nov16	A1434 Newark Road	A	ATC	EB	Val	416	55	33	488	60	34	673	61	18
ATC99_Nov16	A1434 Newark Road	A	ATC	WB	Val	545	72	43	488	60	34	583	53	16
LL_MCC_36848_Jun13	Brant Road	U	MCC_Link	NB	Cal	355	37	9	266	38	14	402	56	12
LL_MCC_36848_Jun13	Brant Road	U	MCC_Link	SB	Cal	371	45	21	288	35	11	417	53	9
HUB_MCC_M3_Jul16	A15 Canwick Road	A	MCC_Turn	SB	Cal	458	77	33	631	84	47	1145	86	27
HUB_MCC_M3_Jul16	A15 Canwick Road	A	MCC_Turn	SB	Cal	399	65	31	462	81	44	613	53	13
HUB_MCC_M3_Jul16	B1188 Canwick Road	B	MCC_Turn	NB	Cal	284	32	9	182	27	8	121	22	4
HUB_MCC_M3_Jul16	B1188 Canwick Road	B	MCC_Turn	NB	Cal	934	85	30	569	79	38	585	68	20
HUB_MCC_M3_Jul16	A15 South Park Avenue	A	MCC_Turn	EB	Cal	482	64	48	391	59	34	397	51	10
HUB_MCC_M3_Jul16	A15 South Park Avenue	A	MCC_Turn	EB	Cal	129	43	13	217	26	10	333	31	6
LEB_MCC_J1_Mar15	A46 Lincoln Road	A	MCC_Turn	SB	Cal	121	7	5	87	12	2	80	10	9
LEB_MCC_J1_Mar15	A46 Lincoln Road	A	MCC_Turn	SB	Cal	796	62	24	394	53	19	547	58	15
LEB_MCC_J1_Mar15	A158	A	MCC_Turn	WB	Cal	88	3	4	40	5	2	52	5	2
LEB_MCC_J1_Mar15	A158	A	MCC_Turn	WB	Cal	394	49	41	389	62	47	553	78	42
LEB_MCC_J1_Mar15	B1182 Lincoln Road	B	MCC_Turn	NB	Cal	90	22	12	150	21	8	88	5	2
LEB_MCC_J1_Mar15	B1182 Lincoln Road	B	MCC_Turn	NB	Cal	318	25	10	336	28	9	490	29	9
LEB_MCC_J1_Mar15	A46 Bypass	A	MCC_Turn	EB	Cal	187	46	17	136	24	15	325	37	20
LEB_MCC_J1_Mar15	A46 Bypass	A	MCC_Turn	EB	Cal	567	108	66	490	80	47	529	67	39
LEB_MCC_J1_Mar15	A46	A	MCC_Link	NB	Cal	555	79	30	488	59	26	927	82	38
LEB_MCC_J1_Mar15	B1182 Lincoln Road	B	MCC_Link	SB	Cal	759	49	20	437	44	14	527	48	21
LEB_MCC_J1_Mar15	A158	A	MCC_Link	EB	Cal	596	98	67	486	79	45	530	67	42
LEB_MCC_J1_Mar15	A46 Bypass	A	MCC_Link	WB	Cal	652	97	62	612	104	64	680	94	36
LEB_MCC_J2_Mar15	B1182 Nettleham Road N	B	MCC_Turn	SB	Cal	110	10	4	99	15	7	107	10	6
LEB_MCC_J2_Mar15	B1182 Nettleham Road N	B	MCC_Turn	SB	Cal	585	36	14	306	25	7	371	28	9
LEB_MCC_J2_Mar15	B1182 Nettleham Road N	B	MCC_Turn	SB	Cal	68	2	1	103	7	2	88	10	3
LEB_MCC_J2_Mar15	Outer Circle Drive	U	MCC_Turn	WB	Cal	102	11	8	130	10	3	169	11	3
LEB_MCC_J2_Mar15	Outer Circle Drive	U	MCC_Turn	WB	Cal	17	1	1	51	3	1	48	2	0
LEB_MCC_J2_Mar15	Outer Circle Drive	U	MCC_Turn	WB	Cal	85	24	13	146	20	9	155	12	5
LEB_MCC_J2_Mar15	B1182 Nettleham Road S	B	MCC_Turn	NB	Cal	83	3	2	110	6	1	107	10	0
LEB_MCC_J2_Mar15	B1182 Nettleham Road S	B	MCC_Turn	NB	Cal	262	19	12	306	26	7	444	24	5
LEB_MCC_J2_Mar15	B1182 Nettleham Road S	B	MCC_Turn	NB	Cal	79	5	4	82	8	2	69	7	0
LEB_MCC_J2_Mar15	Searby Road	U	MCC_Turn	EB	Cal	45	3	1	125	5	2	119	8	0
LEB_MCC_J2_Mar15	Searby Road	U	MCC_Turn	EB	Cal	22	2	2	38	2	1	43	4	0
LEB_MCC_J2_Mar15	Searby Road	U	MCC_Turn	EB	Cal	52	3	1	89	4	0	102	5	2
LEB_MCC_J3_Mar15	A15 Wragby Road E	A	MCC_Turn	WB	Cal	479	50	29	333	51	18	200	24	23
LEB_MCC_J3_Mar15	A15 Wragby Road E	A	MCC_Turn	WB	Cal	278	16	10	199	19	11	198	18	14
LEB_MCC_J3_Mar15	A15 Wragby Road E	A	MCC_Turn	WB	Cal	33	4	4	28	3	2	19	6	3
LEB_MCC_J3_Mar15	B1308 Outer Circle Drive	B	MCC_Turn	NB	Cal	101	11	4	132	16	2	107	8	0
LEB_MCC_J3_Mar15	B1308 Outer Circle Drive	B	MCC_Turn	NB	Cal	120	31	19	235	27	8	258	16	6
LEB_MCC_J3_Mar15	B1308 Outer Circle Drive	B	MCC_Turn	NB	Cal	121	35	18	313	44	16	535	28	8
LEB_MCC_J3_Mar15	A15 Wragby Road W	A	MCC_Turn	EB	Cal	25	1	1	55	4	2	58	6	0
LEB_MCC_J3_Mar15	A15 Wragby Road W	A	MCC_Turn	EB	Cal	164	16	9	241	25	12	453	36	5
LEB_MCC_J3_Mar15	A15 Wragby Road W	A	MCC_Turn	EB	Cal	118	12	6	177	18	3	157	17	2
LEB_MCC_J3_Mar15	Outer Circle Drive N	U	MCC_Turn	SB	Cal	8	0	1	18	2	0	52	4	0
LEB_MCC_J3_Mar15	Outer Circle Drive N	U	MCC_Turn	SB	Cal	129	12	7	156	20	8	129	11	6
LEB_MCC_J3_Mar15	Outer Circle Drive N	U	MCC_Turn	SB	Cal	26	2	0	30	2	1	30	0	3
LEB_MCC_J4_Mar15	A15 Bunkers Hill E	A	MCC_Turn	WB	Cal	223	13	5	94	12	1	167	25	2
LEB_MCC_J4_Mar15	A15 Bunkers Hill E	A	MCC_Turn	WB	Cal	494	50	39	400	57	28	291	35	30
LEB_MCC_J4_Mar15	Hawthorn Road	U	MCC_Turn	NB	Cal	76	4	0	83	9	2	106	10	8
LEB_MCC_J4_Mar15	Hawthorn Road	U	MCC_Turn	NB	Cal	122	7	2	74	8	2	105	8	8
LEB_MCC_J4_Mar15	A15 Bunkers Hill W	A	MCC_Turn	EB	Cal	218	52	28	409	56	27	758	48	9
LEB_MCC_J4_Mar15	A15 Bunkers Hill W	A	MCC_Turn	EB	Cal	90	3	2	94	8	2	163	11	2
LEB_MCC_J5_Mar15	A158 Wragby Road E	A	MCC_Turn	WB	Cal	633	54	43	442	66	42	438	83	44
LEB_MCC_J5_Mar15	A15 Bunkers Hill	A	MCC_Turn	EB	Cal	152	26	12	216	30	17	362	29	12
LEB_MCC_J5_Mar15	A15 Bunkers Hill	A	MCC_Turn	EB	Cal	182	34	17	260	34	11	490	29	5
LEB_MCC_J5_Mar15	A158	A	MCC_Turn	SB	Cal	207	61	35	231	40	27	266	32	23
LEB_MCC_J5_Mar15	A158	A	MCC_Turn	SB	Cal	388	36	33	256	39	18	264	34	21
LEB_MCC_J5_Mar15	A158	A	MCC_Link	WB	Cal	482	50	44	431	67	48	605	86	44
LEB_MCC_J5_Mar15	A158 Wragby Road E	A	MCC_Link	EB	Cal	388	94	52	491	73	39	756	61	27
LEB_MCC_J5_Mar15	A15 Bunkers Hill	A	MCC_Link	WB	Cal	691	66	44	483	68	29	458	59	33
LEB_MCC_J6_Mar15	A158 Wragby Road E E	A	MCC_Turn	WB	Val	571	49	42	409	62	42	412	82	42
LEB_MCC_J6_Mar15	A158 Wragby Road E E	A	MCC_Turn	WB	Val	4	1	0	5	1	0	9	0	0
LEB_MCC_J6_Mar15	A158 Wragby Road E W	A	MCC_Turn	EB	Val	59	3	0	50	5	1	103	7	0
LEB_MCC_J6_Mar15	A158 Wragby Road E W	A	MCC_Turn	EB	Val	332	92	52	441	68	38	657	54	27
LEB_MCC_J6_Mar15	Greetwell Lane	U	MCC_Turn	SB	Val	6	0	1	6	2	0	4	0	0
LEB_MCC_J6_Mar15	Greetwell Lane	U	MCC_Turn	SB	Val	61	8	0	32	3	0	29	0	0
LEB_MCC_J7_Mar15	A158 Wragby Road E E	A	MCC_Turn	WB	Cal	552	46	42	389	59	41	405	82	41
LEB_MCC_J7_Mar15	A158 Wragby Road E E	A	MCC_Turn	WB	Cal	104	5	1	39	6	1	95	6	0
LEB_MCC_J7_Mar15	A158 Wragby Road E W	A	MCC_Turn	EB	Cal	21	2	1	25	3	1	48	2	0

LEB_MCC_J7_Mar15	A158 Wragby Road E W	A	MCC_Turn	EB	Cal	337	90	52	410	65	37	597	49	27
LEB_MCC_J7_Mar15	Lodge Lane	U	MCC_Turn	SB	Cal	56	8	3	39	4	1	88	5	0
LEB_MCC_J7_Mar15	Lodge Lane	U	MCC_Turn	SB	Cal	9	3	1	17	2	1	17	0	0
LEB_MCC_J8_Mar15	A158 Wragby Road E E	A	MCC_Turn	WB	Val	106	10	1	31	2	2	53	1	0
LEB_MCC_J8_Mar15	A158 Wragby Road E E	A	MCC_Turn	WB	Val	543	42	38	375	55	39	398	81	41
LEB_MCC_J8_Mar15	Kennel Lane	U	MCC_Turn	NB	Val	113	9	3	53	8	3	101	8	2
LEB_MCC_J8_Mar15	Kennel Lane	U	MCC_Turn	NB	Val	55	5	2	33	5	2	81	1	0
LEB_MCC_J8_Mar15	A158 Wragby Road E W	A	MCC_Turn	EB	Val	322	86	52	403	60	36	574	46	26
LEB_MCC_J8_Mar15	A158 Wragby Road E W	A	MCC_Turn	EB	Val	70	10	4	48	8	3	105	7	2
LEB_MCC_J9_Mar15	Carlton Blvd	U	MCC_Turn	WB	Cal	344	23	4	210	18	2	154	9	0
LEB_MCC_J9_Mar15	Carlton Blvd	U	MCC_Turn	WB	Cal	171	18	6	277	14	1	266	10	0
LEB_MCC_J9_Mar15	B1308 Outer Circle Road S	B	MCC_Turn	NB	Cal	175	62	26	385	63	22	540	35	14
LEB_MCC_J9_Mar15	B1308 Outer Circle Road S	B	MCC_Turn	NB	Cal	93	6	4	210	14	1	225	9	5
LEB_MCC_J9_Mar15	B1308 Outer Circle Road N	B	MCC_Turn	SB	Cal	90	4	3	98	10	1	156	10	3
LEB_MCC_J9_Mar15	B1308 Outer Circle Road N	B	MCC_Turn	SB	Cal	548	68	36	414	70	25	268	44	27
LEB_MCC_J10_Mar15	Hawthorn Road E	U	MCC_Turn	WB	Cal	117	8	0	50	3	0	43	5	0
LEB_MCC_J10_Mar15	Hawthorn Road E	U	MCC_Turn	WB	Cal	110	6	1	91	10	2	96	15	9
LEB_MCC_J10_Mar15	St Augustine Road	U	MCC_Turn	NB	Cal	74	3	1	58	5	1	111	6	6
LEB_MCC_J10_Mar15	St Augustine Road	U	MCC_Turn	NB	Cal	59	3	0	59	3	0	106	3	0
LEB_MCC_J10_Mar15	Hawthorn Road W	U	MCC_Turn	EB	Cal	116	8	3	114	12	2	179	25	5
LEB_MCC_J10_Mar15	Hawthorn Road W	U	MCC_Turn	EB	Cal	232	9	3	64	7	1	115	10	2
LEB_MCC_J11_Mar15	Hawthorn Road E	U	MCC_Turn	WB	Val	151	11	4	59	7	2	93	5	3
LEB_MCC_J11_Mar15	Hawthorn Road E	U	MCC_Turn	WB	Val	86	4	0	45	5	2	47	10	6
LEB_MCC_J11_Mar15	Croft Lane	U	MCC_Turn	NB	Val	109	9	0	90	6	1	96	10	3
LEB_MCC_J11_Mar15	Croft Lane	U	MCC_Turn	NB	Val	94	10	3	63	7	3	131	7	2
LEB_MCC_J11_Mar15	Hawthorn Road W	U	MCC_Turn	EB	Val	69	3	2	55	4	1	70	10	2
LEB_MCC_J11_Mar15	Hawthorn Road W	U	MCC_Turn	EB	Val	147	6	2	102	10	1	162	20	2
LEB_MCC_J12_Mar15	High Street	U	MCC_Turn	WB	Cal	104	3	1	54	5	3	62	7	8
LEB_MCC_J12_Mar15	High Street	U	MCC_Turn	WB	Cal	85	8	3	32	7	2	56	4	2
LEB_MCC_J12_Mar15	Hawthorn Road	U	MCC_Turn	EB	Cal	82	6	3	55	6	2	123	6	0
LEB_MCC_J12_Mar15	Hawthorn Road	U	MCC_Turn	EB	Cal	81	6	3	54	5	2	81	10	5
LEB_MCC_J12_Mar15	Kennel Lane	U	MCC_Turn	SB	Cal	47	12	3	35	6	3	87	8	2
LEB_MCC_J12_Mar15	Kennel Lane	U	MCC_Turn	SB	Cal	132	8	3	43	4	1	73	2	0
LEB_MCC_J13_Mar15	Croft Lane	U	MCC_Turn	SB	Cal	170	8	1	68	8	1	77	16	2
LEB_MCC_J13_Mar15	Croft Lane	U	MCC_Turn	SB	Cal	131	6	4	63	6	2	62	5	3
LEB_MCC_J13_Mar15	Church Lane	U	MCC_Turn	NB	Cal	5	1	0	5	1	0	3	0	0
LEB_MCC_J13_Mar15	Church Lane	U	MCC_Turn	NB	Cal	82	14	3	60	7	1	109	10	0
LEB_MCC_J13_Mar15	High Street	U	MCC_Turn	EB	Cal	61	3	0	65	4	3	109	6	6
LEB_MCC_J13_Mar15	High Street	U	MCC_Turn	EB	Cal	3	0	0	5	1	0	3	0	0
LEB_MCC_J14_Mar15	B1308 Outer Circle Road	B	MCC_Turn	SB	Cal	499	91	28	381	63	18	420	35	17
LEB_MCC_J14_Mar15	B1308 Outer Circle Road	B	MCC_Turn	SB	Cal	366	29	16	270	28	6	170	16	8
LEB_MCC_J14_Mar15	B1308 Greetwell Road E	B	MCC_Turn	SB	Cal	340	16	1	87	14	3	69	7	3
LEB_MCC_J14_Mar15	B1308 Greetwell Road E	B	MCC_Turn	WB	Cal	221	15	6	114	12	3	70	5	5
LEB_MCC_J14_Mar15	B1308 Allenby Road	B	MCC_Turn	NB	Cal	199	39	15	282	48	17	430	33	15
LEB_MCC_J14_Mar15	B1308 Allenby Road	B	MCC_Turn	NB	Cal	31	4	4	66	7	1	262	14	3
LEB_MCC_J14_Mar15	B1308 Greetwell Road W	B	MCC_Turn	EB	Cal	155	26	12	355	40	8	334	15	12
LEB_MCC_J14_Mar15	B1308 Greetwell Road W	B	MCC_Turn	EB	Cal	74	13	7	133	22	6	161	13	14
LEB_MCC_J14_Mar15	B1308 Outer Circle Road	B	MCC_Link	NB	Cal	356	68	25	604	83	22	728	42	26
LEB_MCC_J14_Mar15	B1308 Greetwell Road E	B	MCC_Link	EB	Cal	92	23	9	207	24	5	517	31	12
LEB_MCC_J14_Mar15	B1308 Allenby Road	B	MCC_Link	SB	Cal	852	102	32	427	77	23	394	38	24
LEB_MCC_J14_Mar15	B1308 Greetwell Road W	B	MCC_Link	WB	Cal	587	41	24	357	38	11	275	28	15
LEB_MCC_J15_Mar15	Waterford Lane	U	MCC_Turn	SB	Val	6	0	1	4	1	0	1	0	0
LEB_MCC_J15_Mar15	Waterford Lane	U	MCC_Turn	SB	Val	51	3	2	26	3	3	20	3	5
LEB_MCC_J15_Mar15	Fiskerton Road E	U	MCC_Turn	WB	Val	475	29	4	145	17	4	116	10	3
LEB_MCC_J15_Mar15	Fiskerton Road E	U	MCC_Turn	WB	Val	6	0	0	3	0	0	2	1	0
LEB_MCC_J15_Mar15	Fiskerton Road W	U	MCC_Turn	EB	Val	14	1	1	32	3	3	88	1	5
LEB_MCC_J15_Mar15	Fiskerton Road W	U	MCC_Turn	EB	Val	76	22	9	167	20	3	417	30	6
LEB_MCC_J16_Mar15	Church Lane	U	MCC_Turn	SB	Cal	18	2	0	21	2	0	29	1	2
LEB_MCC_J16_Mar15	Church Lane	U	MCC_Turn	SB	Cal	145	4	1	39	2	1	25	1	0
LEB_MCC_J16_Mar15	Fiskerton Road East	U	MCC_Turn	WB	Cal	287	20	4	78	10	3	74	10	3
LEB_MCC_J16_Mar15	Fiskerton Road East	U	MCC_Turn	WB	Cal	39	3	0	18	1	1	24	4	0
LEB_MCC_J16_Mar15	Fiskerton Road	U	MCC_Turn	EB	Cal	22	9	3	39	4	1	86	6	0
LEB_MCC_J16_Mar15	Fiskerton Road	U	MCC_Turn	EB	Cal	36	14	7	97	13	3	289	21	6
LEB_MCC_J17_Mar15	Ferry Road	U	MCC_Turn	WB	Val	232	16	3	64	9	2	70	13	3
LEB_MCC_J17_Mar15	Ferry Road	U	MCC_Turn	WB	Val	61	9	2	28	8	2	51	10	6
LEB_MCC_J17_Mar15	High Street	U	MCC_Turn	NB	Val	9	2	2	7	1	1	2	0	0
LEB_MCC_J17_Mar15	High Street	U	MCC_Turn	NB	Val	26	8	5	80	12	2	188	10	8
LEB_MCC_J17_Mar15	Chapel Road	U	MCC_Turn	EB	Val	41	10	4	29	5	2	80	10	6
LEB_MCC_J17_Mar15	Chapel Road	U	MCC_Turn	EB	Val	7	0	1	5	0	1	10	0	0
LLPT_MCC_S1_May16	A46 Bypass N	A	MCC_Turn	SB	Cal	614	144	119	584	102	107	862	92	83
LLPT_MCC_S1_May16	A46 Bypass N	A	MCC_Turn	SB	Cal	164	31	14	168	18	14	260	24	9
LLPT_MCC_S1_May16	A1434 Newark Road	A	MCC_Turn	WB	Cal	778	99	60	470	79	50	597	60	24
LLPT_MCC_S1_May16	A46 Bypass W	A	MCC_Turn	NB	Cal	15	9	4	24	5	5	31	7	3
LLPT_MCC_S1_May16	A46 Bypass W	A	MCC_Turn	NB	Cal	1140	160	173	863	148	135	1299	170	107
LLPT_MCC_S1_May16	Middle Lane	U	MCC_Turn	EB	Cal	33	9	8	28	4	4	34	9	5
LLPT_MCC_S1_May16	Middle Lane	U	MCC_Turn	EB	Cal	78	17	8	95	13	5	116	13	3
LLPT_MCC_S1_May16	A46 Bypass N	A	MCC_Link	NB	Cal	1113	139	144	692	124	119	967	144	102
LLPT_MCC_S1_May16	A1434 Newark Road	A	MCC_Link	EB	Cal	537	89	76	593	80	47	911	95	29
LLPT_MCC_S1_May16	A46 Bypass W	A	MCC_Link	SB	Cal	1016	212	159	854	152	140	1204	120	98
LLPT_MCC_S1_May16	Middle Lane	U	MCC_Link	WB	Cal	156	29	6	93	13	13	117	15	5
LLPT_MCC_S2_May16	A46 Bypass N	A	MCC_Turn	SB	Val	318	31	15	105	34	15	127	26	14
LLPT_MCC_S2_May16	A46 Bypass N	A	MCC_Turn	SB	Val	736	135	130	648	101	111	902	106	86
LLPT_MCC_S2_May16	Whisby Road E	U	MCC_Turn	WB	Val	103	49	17	144	25	13	321	17	5
LLPT_MCC_S2_May16	Whisby Road E	U	MCC_Turn	WB	Val	125	37	20	187	29	15	391	26	4
LLPT_MCC_S2_May16	A46 Bypass S	A	MCC_Turn	NB	Val	5	0	5	12	2	4	5	1	1
LLPT_MCC_S2_May16	A46 Bypass S	A	MCC_Turn	NB	Val	1138	137	148	698	125	113	998	130	87
LLPT_MCC_S2_May16	Whisby Road W	U	MCC_Turn	EB	Val	68	8	17	56	5	9	56	9	1
LLPT_MCC_S2_May16	Whisby Road W	U	MCC_Turn	EB	Val	155	12	5	62	13	7	62	5	1
LLPT_MCC_S2_May16	A46 Bypass S	A	MCC_Link	SB	Val	824	176	141	779	122	122	1155	108	90
LLPT_MCC_S2_May16	Whisby Road W	U	MCC_Link	WB	Val	78	12	17	107	16	12	256	28	5
LLPT_MCC_S2_May16	A46 Bypass N	A	MCC_Turn	SB	Val	318	31	15	105	34	15	127	26	14
LLPT_MCC_S3_May16	A46 Bypass N	A	MCC_Turn	SB	Cal	320	30	17	152	26	16	161	32	16
LLPT_MCC_S3_May16	A46 Bypass N	A	MCC_Turn	SB	Cal	799	124	123	604	111	104	831	107	91
LLPT_MCC_S3_May16	B1190 Doddington Road	B	MCC_Turn	WB	Cal	188	23	10	127	14	10	165	22	6
LLPT_MCC_S3_May16	B1190 Doddington Road	B	MCC_Turn	WB	Cal	367	64	26	354	29	14	662	46	7
LLPT_MCC_S3_May16	A46 Bypass S	A	MCC_Turn	NB	Cal	50	9	17	53	9	9	88	11	3
LLPT_MCC_S3_May16	A46 Bypass S	A	MCC_Turn	NB	Cal	912	152	145	724	118	110	1069	132	81
LLPT_MCC_S3_May16	B1190 Lincoln Road	B	MCC_Turn	EB	Cal	7	2	1	18	1	1	11	2	2
LLPT_MCC_S3_May16	B1190 Lincoln Road	B	MCC_Turn	EB	Cal	312	44	27	171	35	18	200	37	4
LLPT_MCC_S3_May16	A46 Bypass N	A	MCC_Link	NB	Cal	947	174	154	802	126	116	1202	126	83
LLPT_MCC_S3_May16	B1190 Doddington Road	B	MCC_Link	EB	Cal	708	75	37	414	72	32	590	90	21
LLPT_MCC_S3_May16	A46 Bypass S	A	MCC_Link	SB	Cal	1072	160	148	764	133	124	1028	138	100
LLPT_MCC_S3_May16	B1190 Lincoln Road	B	MCC_Link	WB	Cal	227	38	27	221	34	15	367	34	6
LLPT_MCC_S4_May16	A46 Bypass N	A	MCC_Turn	SB	Val	159	28	6	207	27	6	361	38	5
LLPT_MCC_S4_May16	A46 Bypass N	A	MCC_Turn	SB	Val	1047	151	140	758	139	118	1047	146	106
LLPT_MCC_S4_May16	B1378 Skellingthorpe Road	B	MCC_Turn	WB	Val	43	11	3	51	6	2	45	5	0
LLPT_MCC_S4_May16	B1378 Skellingthorpe Road	B	MCC_Turn	WB	Val	392	37	8	300	44	9	367	49	8
LLPT_MCC_S4_May16	A46 Bypass S	A	MCC_Turn	NB	Val	26	2	3	34	5	5	34	2	3
LLPT_MCC_S4_May16	A46 Bypass S	A	MCC_Turn	NB	Val	940	186	151	775	133	113	1182	131	80
LLPT_MCC_S4_May16	Lincoln Road	U	MCC_Turn	EB	Val	124	14	1	77	13	4	74	15	1
LLPT_MCC_S4_May16	Lincoln Road	U	MCC_Turn	EB	Val	157	14	7	144	18	5	150	26	10
LLPT_MCC_S4_May16	B1378 Skellingthorpe Road	B	MCC_Link	EB	Val	304	42	13	341	44	10	528	64	13
LLPT_MCC_S4_May16	A46 Bypass S	A	MCC_Link	SB	Val	1082	157	144	775	137	122	991	140	108
LLPT_MCC_S4_May16	Lincoln Road	U	MCC_Link	WB	Val	184	26	8	213	33	11	300	30	10
LLPT_MCC_S5_May16	A57 Saxilby Road N	A	MCC_Turn	EB	Cal	112	15	21	131	25	14	191	17	12
LLPT_MCC_S5_May16	A57 Saxilby Road N	A	MCC_Turn	EB	Cal	410	44	26	311	48	26	449	42	12
LLPT_MCC_S5_May16	A46 Bypass E	A	MCC_Turn	SB	Cal	72	10	5	58	12	9	72	6	7
LLPT_MCC_S5_May16	A46 Bypass E	A	MCC_Turn	SB	Cal	929	137	128	800	132	122	1059	160	108
LLPT_MCC_S5_May16	A57 Saxilby Road S	A	MCC_Turn	WB	Cal	194	31	17	183	27	12	288	16	8

LLPT_MCC_S5_May16	A57 Saxilby Road S	A	MCC_Turn	WB	Cal	221	33	29	218	31	18	310	19	8
LLPT_MCC_S5_May16	A46 Bypass W	A	MCC_Turn	NB	Cal	102	15	12	118	17	7	171	16	4
LLPT_MCC_S5_May16	A46 Bypass W	A	MCC_Turn	NB	Cal	1251	217	140	901	153	115	1278	165	81
LLPT_MCC_S5_May16	A57 Saxilby Road N	A	MCC_Turn	WB	Cal	377	47	49	427	63	38	606	56	24
LLPT_MCC_S5_May16	A57 Saxilby Road S	A	MCC_Turn	EB	Cal	646	80	38	414	62	39	482	54	23
LLPT_MCC_S6_May16	A15	A	MCC_Turn	SB	Val	75	16	11	69	9	15	77	5	13
LLPT_MCC_S6_May16	A15	A	MCC_Turn	SB	Val	447	65	105	328	68	91	420	84	87
LLPT_MCC_S6_May16	A46 Bypass E	A	MCC_Turn	WB	Val	72	10	2	65	5	2	50	4	1
LLPT_MCC_S6_May16	A46 Bypass E	A	MCC_Turn	WB	Val	609	85	67	541	95	63	641	93	45
LLPT_MCC_S6_May16	B1226 Riseholme Road	B	MCC_Turn	NB	Val	188	31	4	209	19	8	292	23	9
LLPT_MCC_S6_May16	B1226 Riseholme Road	B	MCC_Turn	NB	Val	280	43	17	213	37	9	309	43	4
LLPT_MCC_S6_May16	A46 Bypass W	A	MCC_Turn	EB	Val	168	48	76	160	33	63	216	37	45
LLPT_MCC_S6_May16	A46 Bypass W	A	MCC_Turn	EB	Val	941	149	70	728	125	54	1094	93	48
LLPT_MCC_S6_May16	A15	A	MCC_Link	NB	Val	403	84	108	378	69	87	534	83	60
LLPT_MCC_S6_May16	A46 Bypass E	A	MCC_Link	EB	Val	725	156	76	637	109	63	844	101	50
LLPT_MCC_S6_May16	B1226 Riseholme Road	B	MCC_Link	SB	Val	673	56	32	437	63	23	612	70	23
LLPT_MCC_S6_May16	A46 Bypass W	A	MCC_Link	EB	Cal	1092	197	146	881	156	116	1310	160	90
LLPT_MCC_S6_May16	A46 Bypass W	A	MCC_Link	WB	Val	990	148	136	859	149	131	1120	162	117
WGC_MCC_J9_Jul16	B1378 Skellingthorpe Road S	B	MCC_Turn	WB	Cal	186	30	13	209	33	9	274	31	11
WGC_MCC_J9_Jul16	B1378 Skellingthorpe Road S	B	MCC_Turn	WB	Cal	115	29	10	181	21	6	199	19	3
WGC_MCC_J9_Jul16	Birchwood Avenue	U	MCC_Turn	NB	Cal	136	13	2	149	22	5	131	18	1
WGC_MCC_J9_Jul16	Birchwood Avenue	U	MCC_Turn	NB	Cal	200	27	13	189	22	11	202	25	9
WGC_MCC_J9_Jul16	B1378 Skellingthorpe Road N	B	MCC_Turn	EB	Cal	141	22	10	163	27	7	194	38	7
WGC_MCC_J9_Jul16	B1378 Skellingthorpe Road N	B	MCC_Turn	EB	Cal	161	20	9	187	45	8	238	29	3
WGC_MCC_J10_Jul16	Pershore Way	U	MCC_Turn	SB	Cal	78	14	8	92	10	6	72	9	3
WGC_MCC_J10_Jul16	Pershore Way	U	MCC_Turn	SB	Cal	264	22	1	116	18	2	125	8	2
WGC_MCC_J10_Jul16	B1190 Doddington Road E	B	MCC_Turn	WB	Cal	310	43	34	104	21	8	371	32	11
WGC_MCC_J10_Jul16	B1190 Doddington Road E	B	MCC_Turn	WB	Cal	57	14	8	269	50	25	153	21	8
WGC_MCC_J10_Jul16	B1190 Doddington Road W	B	MCC_Turn	EB	Cal	101	20	4	143	39	3	307	45	2
WGC_MCC_J10_Jul16	B1190 Doddington Road W	B	MCC_Turn	EB	Cal	253	45	28	230	48	23	207	35	8
WGC_MCC_J11_Jul16	Birchwood Avenue E	U	MCC_Turn	SB	Val	375	32	10	218	27	6	201	23	7
WGC_MCC_J11_Jul16	Birchwood Avenue E	U	MCC_Turn	SB	Val	58	6	2	20	3	1	27	5	0
WGC_MCC_J11_Jul16	B1190 Doddington Road E	B	MCC_Turn	WB	Val	377	63	40	357	65	34	382	41	15
WGC_MCC_J11_Jul16	B1190 Doddington Road E	B	MCC_Turn	WB	Val	126	23	11	220	26	7	297	39	2
WGC_MCC_J11_Jul16	B1190 Doddington Road W	B	MCC_Turn	EB	Val	10	4	2	26	6	0	46	8	0
WGC_MCC_J11_Jul16	B1190 Doddington Road W	B	MCC_Turn	EB	Val	256	52	33	333	63	30	328	38	12
MIDRTM_MCC_2177_Mar15	A158	A	MCC_Link	EB	Val	333	120	58	376	78	42	479	77	20
MIDRTM_MCC_4581_Mar15	A158	A	MCC_Link	WB	Val	456	80	38	332	77	45	371	88	29
MIDRTM_ATC_5427_Mar15	A113	A	ATC	SB	Cal	130	25	12	88	17	8	93	18	8
MIDRTM_ATC_5426_Mar15	A113	A	ATC	NB	Cal	100	19	9	91	18	8	141	27	13
MIDRTM_ATC_2516_Mar15	A1133	A	ATC	SB	Cal	266	51	24	210	40	19	210	40	19
MIDRTM_ATC_2573_Mar15	A1133	A	ATC	NB	Cal	162	31	15	200	38	18	296	57	27
MIDRTM_ATC_1660_Mar15	A1500	A	ATC	WB	Val	116	22	10	101	19	9	142	27	13
MIDRTM_ATC_1693_Mar15	A1500	A	ATC	EB	Val	150	29	13	92	18	8	117	23	11
MIDRTM_ATC_2561_Mar15	A17	A	ATC	EB	Cal	511	98	46	491	95	44	566	109	51
MIDRTM_ATC_1432_Mar15	A17	A	ATC	WB	Cal	517	99	46	557	107	50	533	102	48
MIDRTM_ATC_5554_Mar15	A46	A	ATC	NB	Cal	276	53	25	173	33	16	204	39	18
MIDRTM_ATC_5555_Mar15	A46	A	ATC	SB	Cal	209	40	19	175	34	16	272	52	24
MIDRTM_ATC_6894_Mar15	A1	A	ATC	NB	Cal	898	180	205	994	199	227	1119	224	256
MIDRTM_ATC_6895_Mar15	A1	A	ATC	SB	Cal	1056	211	241	948	190	217	996	199	228
MIDRTM_ATC_2174_Mar15	B1190	B	ATC	WB	Val	86	15	3	75	13	3	81	14	3
MIDRTM_ATC_1803_Mar15	B1190	B	ATC	EB	Val	72	12	3	71	12	3	78	13	3
MIDRTM_ATC_2279_Mar15	BRIDGE ROAD	U	ATC	NB	Cal	221	47	8	138	29	5	184	39	7
MIDRTM_ATC_2276_Mar15	BRIDGE ROAD	U	ATC	SB	Cal	173	37	6	136	29	5	239	51	9
MIDRTM_ATC_2255_Mar15	SWINDERBY ROAD	U	ATC	EB	Val	5	1	0	8	2	0	10	2	0
MIDRTM_ATC_2261_Mar15	STAPLEFORD LANE	U	ATC	SB	Cal	68	15	3	36	8	1	33	7	1
MIDRTM_ATC_2564_Mar15	STAPLEFORD LANE	U	ATC	NB	Cal	29	6	1	43	9	2	67	14	3
DfTMAJ_MCC_7742_Sep2015	A6075	A	MCC_Link	EB	Cal	137	12	12	75	15	11	147	18	8
DfTMAJ_MCC_7742_Sep2015	A6075	A	MCC_Link	WB	Cal	136	15	17	64	13	11	160	27	3
DfTMAJ_MCC_18614_Jun2013	A17	A	MCC_Link	EB	Cal	346	80	106	353	47	87	364	49	77
DfTMAJ_MCC_18614_Jun2013	A17	A	MCC_Link	WB	Cal	288	53	84	344	64	106	305	74	65
DfTMAJ_MCC_27398_Apr2015	A631	A	MCC_Link	EB	Cal	105	47	29	190	34	21	343	41	10
DfTMAJ_MCC_27398_Apr2015	A631	A	MCC_Link	WB	Cal	133	30	28	138	33	19	147	35	5
DfTMAJ_MCC_38473_Sep2013	A46	A	MCC_Link	EB	Cal	276	107	31	235	60	27	454	78	24
DfTMAJ_MCC_38473_Sep2013	A46	A	MCC_Link	WB	Cal	382	85	34	249	65	31	374	65	16
DfTMAJ_MCC_70299_Jun2015	A6075	A	MCC_Link	NB	Val	103	29	10	76	27	10	131	23	8
DfTMAJ_MCC_70299_Jun2015	A6075	A	MCC_Link	SB	Val	107	22	23	80	27	18	172	28	10
DfTMAJ_MCC_77389_Jun2015	A1434	A	MCC_Link	EB	Val	302	78	29	384	65	23	636	82	13
DfTMAJ_MCC_77389_Jun2015	A1434	A	MCC_Link	WB	Val	608	89	27	392	60	30	517	38	11
DfTMIN_MCC_940400_Oct2015	B1188	B	MCC_Link	NB	Cal	112	25	11	87	20	7	166	20	2
DfTMIN_MCC_940400_Oct2015	B1188	B	MCC_Link	SB	Cal	159	28	10	85	20	6	143	12	7
DfTMIN_MCC_940464_Mar2015	Lincoln Road	U	MCC_Link	NB	Val	103	23	10	41	11	13	139	24	12
DfTMIN_MCC_940464_Mar2015	Lincoln Road	U	MCC_Link	SB	Val	112	18	7	42	14	13	112	9	10
LincsLab_ATC_228_2016	A607 Boothby Graffoe	A	ATC	SB	Cal	237	46	21	190	36	17	330	63	30
LincsLab_ATC_228_2016	A607 Boothby Graffoe	A	ATC	NB	Cal	291	56	26	204	39	18	315	61	28
LEB_ATC_EW2_Jun2014	Hawthorn Road	U	ATC	EB	Val	195	19	17	166	14	10	299	25	18
LEB_ATC_EW2_Jun2014	Hawthorn Road	U	ATC	WB	Val	183	15	15	137	13	11	149	15	11
LEB_ATC_NS2_Jun14	B1273 Brayford Way	B	ATC	NB	Cal	837	138	64	907	110	54	1145	83	33
LEB_ATC_NS2_Jun14	B1273 Brayford Way	B	ATC	SB	Cal	930	122	60	831	107	47	996	96	34
LEB_ATC_2.3_Nov2015	Heighington Road	U	ATC	WB	Cal	196	14	5	74	8	5	72	6	2
LEB_ATC_2.3_Nov2015	Heighington Road	U	ATC	EB	Cal	79	22	5	132	22	7	218	44	4
LEB_ATC_2.4_Nov2015	B1190 Washingborough Road	B	ATC	WB	Cal	331	37	19	196	27	22	158	26	14
LEB_ATC_2.4_Nov2015	B1190 Washingborough Road	B	ATC	EB	Cal	83	28	22	156	27	16	244	33	9
LEB_ATC_7.2_Nov15	Wolsley Way	U	ATC	WB	Cal	202	22	6	124	17	6	139	15	1
LEB_ATC_7.2_Nov15	Wolsley Way	U	ATC	EB	Cal	122	17	15	149	16	10	254	28	7
LEB_ATC_7.3_Nov15	Outer Circle Drive	U	ATC	SB	Val	246	41	19	234	30	11	246	22	7
LEB_ATC_7.3_Nov15	Outer Circle Drive	U	ATC	NB	Val	256	40	34	341	38	19	375	30	9
LEB_ATC_7.4_Nov15	Oval Approach	U	ATC	WB	Cal	47	5	2	30	2	3	31	3	3
LEB_ATC_7.4_Nov15	Oval Approach	U	ATC	EB	Cal	28	4	2	26	3	1	33	3	2
LEB_ATC_7.6_Nov15	Byron Avenue	U	ATC	WB	Cal	21	2	2	10	1	0	8	2	0
LEB_ATC_7.6_Nov15	Byron Avenue	U	ATC	EB	Cal	6	2	1	11	2	1	22	2	1
LEB_ATC_7.16_Nov15	B1190 Washingborough Road	B	ATC	WB	Cal	310	49	32	246	31	27	177	28	17
LEB_ATC_7.16_Nov15	B1190 Washingborough Road	B	ATC	EB	Cal	102	27	25	194	29	23	257	27	11
TPS_ATC_210_Nov15	B1241 Sturton Road	B	ATC	NB	Cal	150	21	3	90	14	2	178	11	0
TPS_ATC_210_Nov15	B1241 Sturton Road	B	ATC	SB	Cal	166	15	2	98	8	2	161	6	0
TPS_ATC_209_Nov15	A156 Lincoln Road	A	ATC	NB	Cal	158	24	5	148	21	5	231	14	1
TPS_ATC_209_Nov15	A156 Lincoln Road	A	ATC	SB	Cal	133	16	2	159	16	4	167	9	1
TPS_ATC_11428074_Mar15	A57 Dunham Road	A	ATC	EB	Cal	306	59	27	244	47	22	369	71	33
TPS_ATC_11428074_Mar15	A57 Dunham Road	A	ATC	WB	Cal	300	58	27	243	47	22	341	66	31
TPS_ATC_449_Mar15	B1164	B	ATC	NB	Cal	58	12	2	46	10	2	76	16	3
TPS_ATC_449_Mar15	B1164	B	ATC	SB	Cal	50	11	2	45	10	2	67	14	3
WGC_ATC_S'thorpeRd_Jul16	Skellingthorpe Road	B	ATC	EB	Cal	382	64	14	359	61	13	363	61	13
WGC_ATC_S'thorpeRd_Jul16	Skellingthorpe Road	B	ATC	WB	Cal	242	41	9	375	63	14	471	79	17
TRAD_ATC_30015904_7073/1_2016	A46 northbound between A1133 and A1434	A	ATC	NB	Val	1123	164	172	889	153	140	1391	185	115
TRAD_ATC_30015905_7074/1_2016	A46 southbound between A1434 and A1133	A	ATC	SB	Val	1077	224	168	888	158	146	1215	121	99
TRAD_ATC_30013947_8003/1_2016	A46 northbound between B1378 and A57	A	ATC	NB	Val	1327	228	149	991	168	119	1432	179	84
TRAD_ATC_30013948_8004/1_2016	A46 southbound between A57 and B1378	A	ATC	SB	Val	1129	180	147	971	185	139	1336	189	115
TRAD_ATC_30013943_8001/1_2014	A46 northbound between A1133 and A1434	A	ATC	NB	Val	972	187	87	866	167	78	1362	262	122
TRAD_ATC_30013944_8005/1_2015	A46 southbound between A1434 and A1133	A	ATC	SB	Val	1071	206	96	920	177	83	1076	207	97
TRAD_ATC_30013557_6550/1_2016	A46 northbound between A617 and A1	A	ATC	NB	Cal	958	166	59	818	141	50	968	167	60
TRAD_ATC_30013558_6550/2_2016	A46 southbound between A1 and A617	A	ATC	SB	Cal	910	157	56	862	149	53	1017	176	63
TRAD_ATC_30013534_6532/1_2016	A1 southbound between A57/A614 and B6387	A	ATC	SB	Cal	1135	227	259	1163	233	266	1267	253	290
TRAD_ATC_30013533_6533/1_2016	A1 northbound between B6387 and A57/A614	A	ATC	NB	Cal	1175	235	269	1219	244	279	1368	274	313
TRAD_ATC_30013532_6531/1_2013	A1 southbound exit for A6075	A	ATC	SB	Cal	65	13	6	46	9	4	64	12	6
TRAD_ATC_30013530_6530_1_2016	A1 northbound exit for A6075	A	ATC	NB	Cal	80	15	7	50	10	4	75	14	7
TRAD_ATC_30013527_6529/2_2016	A1 southbound within the B6325 junction	A	ATC	SB	Cal	1051	210	240	1022	204	234	1117	223	255
TRAD_ATC_30013528_6529/1_2016	A1 southbound exit for B6325	A	ATC	SB	Cal	214	41	19	126	24	11	191	37	17
TRAD_ATC_30013526_6528/1_2016	A1 northbound exit for B6325	A	ATC	NB	Cal	141	27	13	86	16	8	158	30	14
TRAD_ATC_30013525_6528/2_2016	A1 northbound within the B6325 junction	A	ATC	NB	Cal	938	188	214	1087	217	248	1177	235	269

TRAD_ATC_30013524_6527/1_2016	A1 northbound exit for A46	A	ATC	NB	Cal	515	89	32	403	70	25	511	88	32
TRAD_ATC_30013523_6527/2_2016	A1 northbound within the A46 junction	A	ATC	NB	Cal	782	156	179	849	170	194	965	193	220
TRAD_ATC_30013522_6526/1_2016	A1 southbound exit for A46	A	ATC	SB	Cal	463	80	29	342	59	21	392	68	24
TRAD_ATC_30013521_6526/2_2016	A1 southbound within the A46 junction	A	ATC	SB	Cal	816	163	186	768	154	176	895	179	205
TRAD_ATC_30013520_6525/1_2016	A1 southbound exit for B6326	A	ATC	SB	Cal	145	28	13	106	20	10	269	52	24
TRAD_ATC_30013519_6525/2_2016	A1 southbound within the B6326 junction	A	ATC	SB	Cal	948	190	217	876	175	200	964	193	220
TRAD_ATC_30013518_6524/1_2016	A1 northbound exit for B6326	A	ATC	NB	Cal	118	23	11	96	19	9	193	37	17
TRAD_ATC_30013517_6524/2_2016	A1 northbound within the B6326 junction	A	ATC	NB	Cal	888	178	203	981	196	224	1133	227	259
TRAD_ATC_30013516_6523/1_2014	A1 southbound between B6326 and B1174 near Grantham (north)	A	ATC	SB	Cal	1220	244	279	1027	205	235	1154	231	264
TRAD_ATC_30013515_6522/1_2016	A1 northbound between A52 and B1174 near Grantham (north)	A	ATC	NB	Cal	1074	215	245	1154	231	264	1331	266	304
TRAD_ATC_9778_30360804_2016	CROMWELL	A	ATC	NB	Val	1110	222	254	1189	238	272	1380	276	315
TRAD_ATC_30360803_9777_2016	CROMWELL	A	ATC	SB	Val	1205	241	275	1088	218	249	1250	250	286
TRAD_ATC_30360794_9714_2016	Shirebridge	A	ATC	NB	Val	1086	217	248	1162	232	266	1443	289	330
TRAD_ATC_30360764_2062_2016	Winthorpe (South of A1133)	A	ATC	NB	Cal	1136	218	102	1036	199	93	1533	295	138
TRAD_ATC_30361627_2063_2016	Winthorpe (South of A1133)	A	ATC	SB	Cal	1328	255	119	1034	199	93	1195	230	107
TRAD_ATC_30013505_2016	A1	A	ATC	NB	Cal	1097	219	251	1261	252	288	1418	284	324
LEB_ATC_01_2006	A156	A	ATC	NB	Cal	421	52	13	265	44	13	451	44	8
LEB_ATC_01_2006	A156	A	ATC	SB	Cal	356	37	23	267	34	15	376	25	8
LEB_ATC_30_2006	B1190	B	ATC	EB	Cal	134	24	5	89	12	5	176	14	2
LEB_ATC_30_2006	B1190	B	ATC	WB	Cal	166	19	4	84	14	3	155	17	1
LEB_ATC_31_2006	B1191	B	ATC	EB	Cal	167	24	6	111	13	3	168	11	3
LEB_ATC_31_2006	B1191	B	ATC	WB	Cal	149	14	1	111	15	2	179	15	1

1 Verification of Mobile Network Data

Project:	Greater Lincoln Transport Model	Date:	10/03/2017
		TN Ref:	TN/01
Subject:	Verification of Mobile Network Data		
Author:	Ben Patey	**Project Ref:**	1073461
Reviewed:	Paul Smith		

1.1 Introduction

Mouchel has been commissioned by Lincolnshire County Council (LCC) to develop the Greater Lincoln Transport Model (GLTM). A requirement of this process is to develop base year matrices for the SATURN highway assignment model. Citilogik were appointed to derive origin destination (OD) matrices from Mobile Network Data (MND) supplied by Vodafone.

This technical note summarises the outcomes of the verification checks undertaken by Mouchel on the MND data, including:

- Range and Logic Checks;
- Anonymisation Checks;
- Trip Rate Checks;
- Trip Purpose and Direction Checks;
- Trip Length Distribution Checks; and
- Mode of Travel Checks.

The final section contains a reference note around the use of TEMPRO v7 data in this technical note against the recent release of TEMPRO v7.2.

Attached to this technical note are two appendices, supplied with the data by Citilogik:

- Appendix A: Lincolnshire MND Project Methodology Note; and
- Appendix B: Lincolnshire MND Project Verification Note.

These two documents describe in greater detail the technical details and assumptions used to generate the MND matrices which are alluded to in this note.

1.2 MND Data Definitions

The following definitions, summarised from Appendix A, are used in this note.

- Vodafone customers communicate their positions with the networks of Vodafone **cells**.

- Each of these communications is referred to as an **event**.
- Vodafone replaces the customer details recorded in the event with an encrypted ID, known as the **device ID**. This allows movements of mobile devices to be tracked in a way that is not compromised.
- The time between consecutive events being registered for a particular device are registered by the same cell is called the **dwell time**.
- A **trip** for a mobile device user is defined from the time of the last event registered in the starting dwell cell until the time of the first event registered in the finishing dwell cell.
- If a dwell exceeds a 30 minute threshold, the device is deemed to be **static**. Therefore, a **static** trip is recorded by a mobile device not moving for over 30 minutes within the coverage area of a single cell.
- A cut off speed of 5km/hr was used to classify **motorised** and **slow** mode trips.
- **Rail** trips were extracted from the motorised category by comparing the observed journey path of an MND trip to predefined sequence which resemble rail routes.

1.3 MND Period

The mobile phone data was collected over a four week period split into two segments, to avoid a school half-term week, from 03/10/2016 to 16/10/2016 and from 14/11/2016 to 20/11/2016. There was a network technical fault that corrupted the data on one of the Sundays therefore the trips were recorded for 20 weekdays, 4 Saturdays and 3 Sundays.

1.4 MND Zone Types

Mouchel supplied Citilogik with a zone system in which to receive the processed MND data. This consisted of 524 zones, which a spacial geography of:

- LSOA within Lincoln district, plus the towns within the study area;
- MSOA for the remainder of the study area; and
- District and aggregations thereof outside of the study area based on route choice and proximity to the study area.

The study area was defined by eleven districts:

- The seven districts within Lincolnshire, namely Lincoln, Boston, East Lindsey, North Kesteven, South Holland, South Kesteven and West Lindsey;
- Bassetlaw and Newark and Sherwood in Nottinghamshire; and
- North East Lincolnshire and North Lincolnshire in Humberside.

The mobile phone raw events available for this project were available for all zones within the Geofence. This is a rectangular area drawn around the study area which includes a buffer region of external zones adjacent to the study area boundaries. Only

trips relating to the study area, i.e. trips from, to and traversing the study area are including in the matrix. Therefore:

- Trips for external zones within or overlapping the Geofence are only included if they interact with the study area; and
- Trips for external zones wholly outside the Geofence are only included if they interact with the study area, but they are allocated to the zone where they crossed the Geofence – not the actual origin or destination.

For brevity, external zones within the Geofence will, for this note, be referred to herein as Geofence zones; this definition does not include the study area zones. The external zones outside of the Geofence will simply be referred to as external zones.

For this reason, the analysis presented in this note is based only trips which start and/or end within the study area. The Geofence zones only have partial coverage therefore including them in comparisons with independent datasets such as TEMPRO would not be direct comparison, especially for magnitudes and trip rates.

The zone system definitions are presented in Figure 1-1 below.

1.5 MND Devices and Expansion

The sample collected will only cover the subset of the population who use Vodafone devices. This is estimated at around a 24% share of the UK mobile market[1]. A subset of Vodafone devices are not tracked as part of the data collection process. Those excluded include roamers, minors, data only devices (e.g. tablets) and some public sector devices.

The sample is expanded by Citilogik to the population at the zone level, in a process which takes into account mobile phone penetration and local market share. This process is summarised in more detail in Section 9 of Appendix A.

1.6 Report Keys

The MND data was supplied with five variables, using the following indexing system.

- Mode
  - 0 = Rail
  - 1 = Motorised
  - 2 = Static
  - 3 = Other/Slow

[1] https://www.statista.com/statistics/261003/vodafones-market-share-by-country/

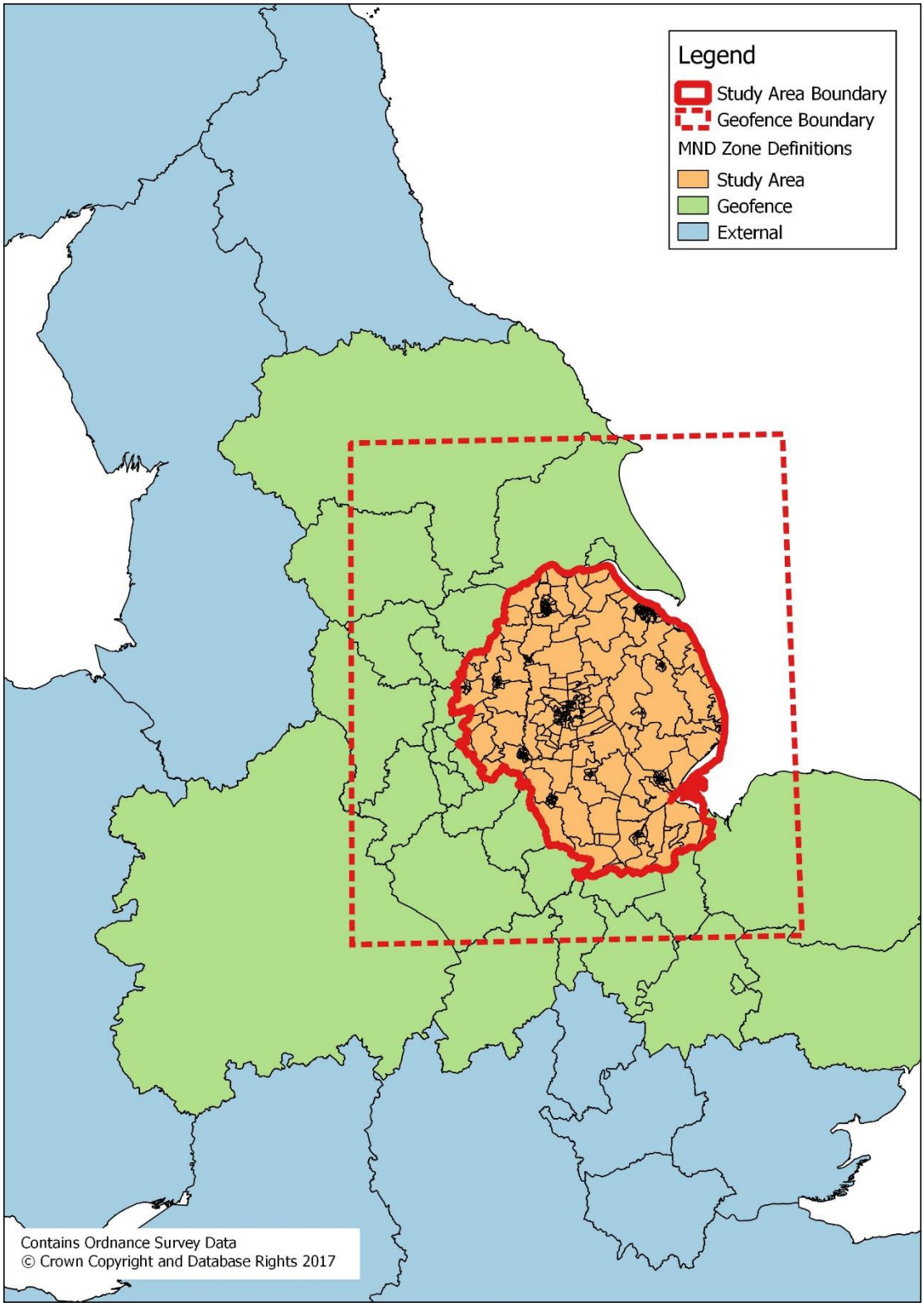
- Period
  - 0 = AM (07:00-09:59)
  - 1 = IP (10:00-15:59)
  - 2 = PM (16:00-18:59)
  - 3 = OVERNIGHT

- Day Classification
  - 1 = Weekday
  - 2 = Saturday
  - 3 = Sunday

- Purpose
  - 1 = Home Based Work
  - 2 = Home Based Other
  - 3 = Non-Home Based Work
  - 4 = Non-Home Based Other
  - 5 = Unknown

- Home Direction
  - 1 = From Home
  - 2 = To Home
  - 3 = Non-Home Based

Figure 1-1 MND Zone System Definitions



2 Citilogik Verification Checks

2.1 Summary

The first verifications of the MND data were carried out by Citilogik prior to anonymisation. These verifications are to demonstrate that the processes implemented by Citilogik have been applied correctly and to flag any deficiencies, should they occur, owing to limitations in the algorithms, so that Mouchel can address these as part of the transport model prior matrix development.

These checks are documented in full in Appendix B. Citilogik summarise that:

"The mobile phone travel demand matrices produced for Lincolnshire are in line with outputs from other MND studies, and whilst showing differences against other datasets, these are not considered to be the result of incorrect processing of the MND."

The verification tests were carried out for the study area only, since trips for zones in the Geofence are only partially observed where they interact with the study area. The tests also exclude the static since "they do not interact with the transport network". The main checks which were carried out were:

- Comparisons of the device trip rates against NTS. The device trip rate is 3.16 trips per working day compared to NTS national reporting of 2.5 trips per average day (hence including weekends);
- Symmetry checks for origins vs destinations and 'from home' vs 'to home' for different subsets of mode, which showed strong correlation for each;
- Logic checks on the proportion of daily flow by time period for different combinations of direction and purpose to confirm the flow patterns by time period are in line with expected patterns; and
- Correlation plots between against population for different subsets of the trip matrix.

The limitations reported by Citilogik are as follows:

- There is an underrepresentation of home based trips, identified through comparison with NTS data.

This can be caused in MND data processing if an event is not triggered with the inferred home cell at the home end of the trip. To try and alleviate this, a 1.5km catchment area

around the inferred home cell was defined, and any trip ending within the catchment area classified as home based.

- Specifically, there is a shortfall in home based work trips, however a certain proportion of these will be included within the home based other category.

The shortfall in work trips can be caused for in MND processing if a usual work location cannot be inferred, due to varying work patterns and locations.

- There is an overrepresentation of rail trips in the MND, with 6.5% mode share, compared to NTS national reporting, which gives a 3% mode share for rail.

This is a result of short range trips being assigned to rail as the result of the cell to cell routeing following rail routes. The rail allocation algorithm is applied after trips have been categorised as motorised, so the excess rail trips should be highway motorised.

Mouchel has proceeded to carry out further verification checks on the data to investigate these issues, plus the impact of anonymisation. These are documented in the following chapters.

3 Range and Logic Checks

3.1 Logic Checks

The permutations of purpose, direction and mode were checked to assure that the outcomes were logical, and to understand the relationships between the less descriptive elements including the unknown mode trips and static trips.

The numbers in the tables below refer to those listed in the report keys in Section 1.6.

Purpose and Direction Combinations

As expected, the home-based and non-home based components of purpose and direction match. All unknown purpose trips are classified as non-home based.

Table 3-1 Purpose and Direction Combinations within the MND Dataset

Purpose	Direction
1	1
1	2
2	1
2	2
3	3
4	3
5	3

Mode and Purpose Combinations

All of the unknown purpose trips are static, however, the converse is not true. Some of the static trips are home based other.

Table 3-2 Mode and Purpose Combinations within the MND Dataset

Mode	Purpose		Mode	Purpose
0	1		2	2
0	2		2	3
0	3		2	4
0	4		2	5
1	1		3	1
1	2		3	2
1	3		3	3
1	4		3	4

Mode and Direction Combinations

None of the static trips are from home, but some are to home. Combining this with the table above, we see that the static trips are either unknown or to home other.

Table 3-3 Mode and Direction Combinations within the MND Dataset

Mode	Direction		Mode	Direction
0	1		2	2
0	2		2	3
0	3		3	1
1	1		3	2
1	2		3	3
1	3			

3.2 Range Checks

In the zone system supplied to Citilogik, the 524 zones are classified as follows:

- 487 study area zones;
- 27 Geofence zones; and
- 10 external zones.

Since the trips to/from external zones are allocated to a Geofence zone instead, the potential matrix size is 514^2 = 264,196 cells.

When all modes, time periods, day types, purposes and directions are included, the number of OD pairs with non-zero trips is 137,640 (52%).

Restricted to weekdays only, but with all other combinations included, the number of non-zero OD pairs is 130,731 (49%). The results for this broken down by time period are summarised in Table 3-4.

Table 3-4 Proportion of MND Matrix with Non-Zero Entries - Weekdays Only

Time Period	AM	IP	PM	ON
OD Pairs with Trips	88,408	103,315	83,878	85,228
% of Matrix Non-Zero	33%	39%	32%	32%

3.3 Area Compression

The proportions of the total matrix by high level areas are presented in Table 3-5. This gives a high level indication of the magnitude of interaction between Lincoln, the rest of Lincolnshire and the Geofence region. Since, at this stage, the composition of the static trips is unknown, they are excluded from the table. Further, since the trips for

external zones have been allocated to Geofence zones, see Section 1-4, these have been aggregated into a single category for this table. The zone definitions were presented in Figure 1-1.

From this table, we see that within the MND matrix:

- 69.7% of the trips are intra-study area (i.e. indexes 1 and 2 combined);
- 20.1% of the trips are between the study area and the Geofence/external region; and
- 10.2% of the trips are 'through' trips between two Geofence/external zones.

We can also summarise that, for Lincoln district:

- 4.5% of the trip origins go to the Geofence/external region; and
- 4.4% of the trip destinations come from the Geofence/external region.

In summary, long distance trips only make up a small proportion of the travel within Lincoln. Further, it presents a reassurance, albeit at a very high level, of symmetry in the matrix at a daily level – this is presented later in Figure 4-1.

Table 3-5 Area to Area Proportions of the Overall MND Matrix - Weekdays Only

Proportions of the overall MND Matrix		1	2	3
Lincoln District	1	3.7%	2.7%	0.3%
Rest of Study Area	2	2.7%	60.6%	9.8%
Geofence and Externals	3	0.3%	9.8%	10.2%

3.4 Time of Day

The following graphs shows the time of day breakdown within the MND matrix.

- Figure 3-1 shows the percentage of average weekday flow by time period for peak period, and for the corresponding average peak hours. Over the full period, the inter-peak has the highest volume of trips. However, for average peak hours the AM has the highest volume of trips, with the PM very close.

- Figure 3-2 shows the same data but disaggregated by purpose; specifically the percentage of average weekday flow by peak period by purpose. In each time period, 'Other' has a greater share than 'Work' (noting that 'Work' in this context, using the labels from Citilogik, is referring to commuting).

Figure 3-1 Percentage of Average Weekday Flow by Time Period

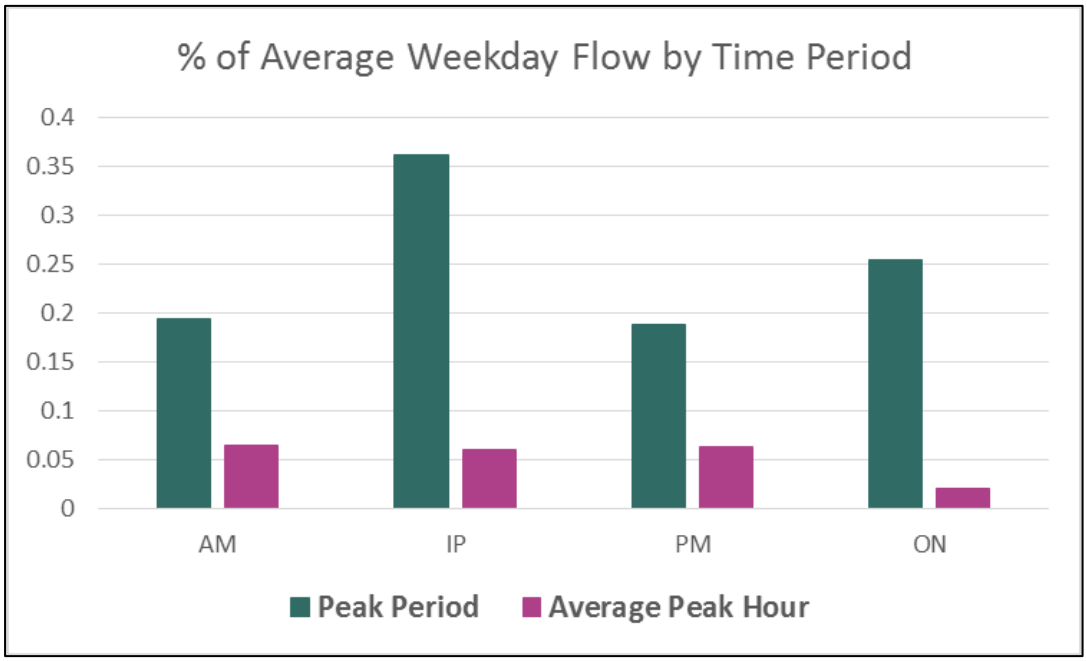
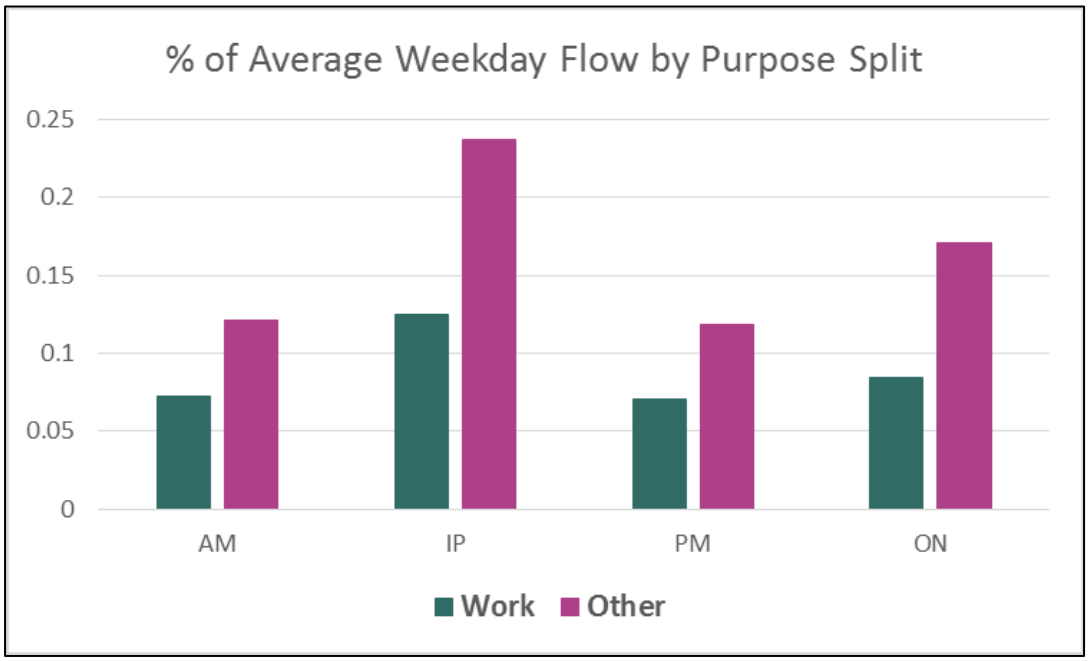


Figure 3-2 Percentage of Average Weekday Flow by Time Period and Purpose



4 Anonymisation

4.1 Anonymisation by Row and Column – MND Matrix

For confidentiality reasons, no cell in the matrix provided by Citilogik for the various permutations of the variables could have a value of less than 15. In such instances, the trip total was rounded by 15 prior to being supplied to Mouchel. For the avoidance of doubt, this does not include zero-cells – they were simply excluded from the data provided. It should be noted that the sample expansion process left most cells with values that were not precise integer values. Thus, cells which genuinely had 15 trips would appear in the matrix with some spurious decimals (e.g. '15.000018'). Mouchel are, therefore, confident that there is negligible risk of confusing an anonymised cell with a cell containing genuine data.

The percentage of cells that have been anonymised in the MND matrix dataset are summarised in Table 4-1 below, by row and column. This analysis has been restricted to weekdays, but includes all time periods and all combinations of mode, purpose and direction that were identified in Tables 3-1 to 3-3.

The analysis is also presented in Figure 4-1 and Figure 4-2 which show, for rows and columns respectively, the percentage of cells anonymised for each zone. These show that geographically, the cells most affected by anonymisation are mostly external to the study area. Note that the zones which are white are those which have no trips due to insufficient mast density – see Section 1.4.

There is little difference between the row and column totals which gives a very high level indication of symmetry. The average and the median are very similar, and whilst the maximum values are considerably higher than those two metrics, the 85th percentiles reassure that for the majority of zones, the percentage of anonymised rows or columns is at most 6.7%.

Table 4-1 Anonymisation by Row and Column - MND Cell Matrix

Summary	% of Rows Anonymised	% of Columns Anonymised
Average	4.5%	4.5%
Median	4.3%	4.3%
Minimum	0.0%	0.0%
Maximum	12.7%	12.8%
85th Pecentile	6.7%	6.6%

Figure 4-1 Percentage of Cells in Row Anonymised

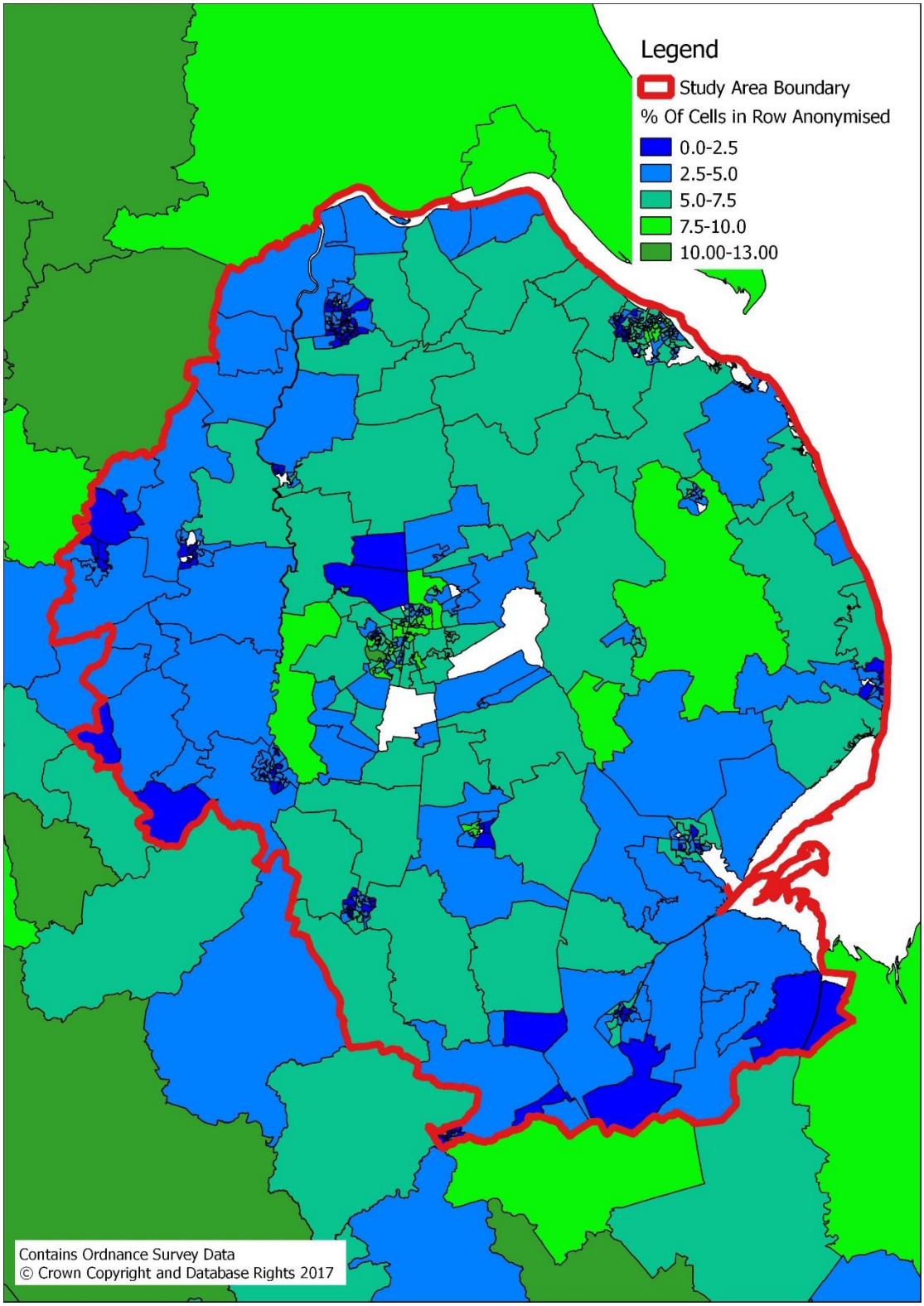
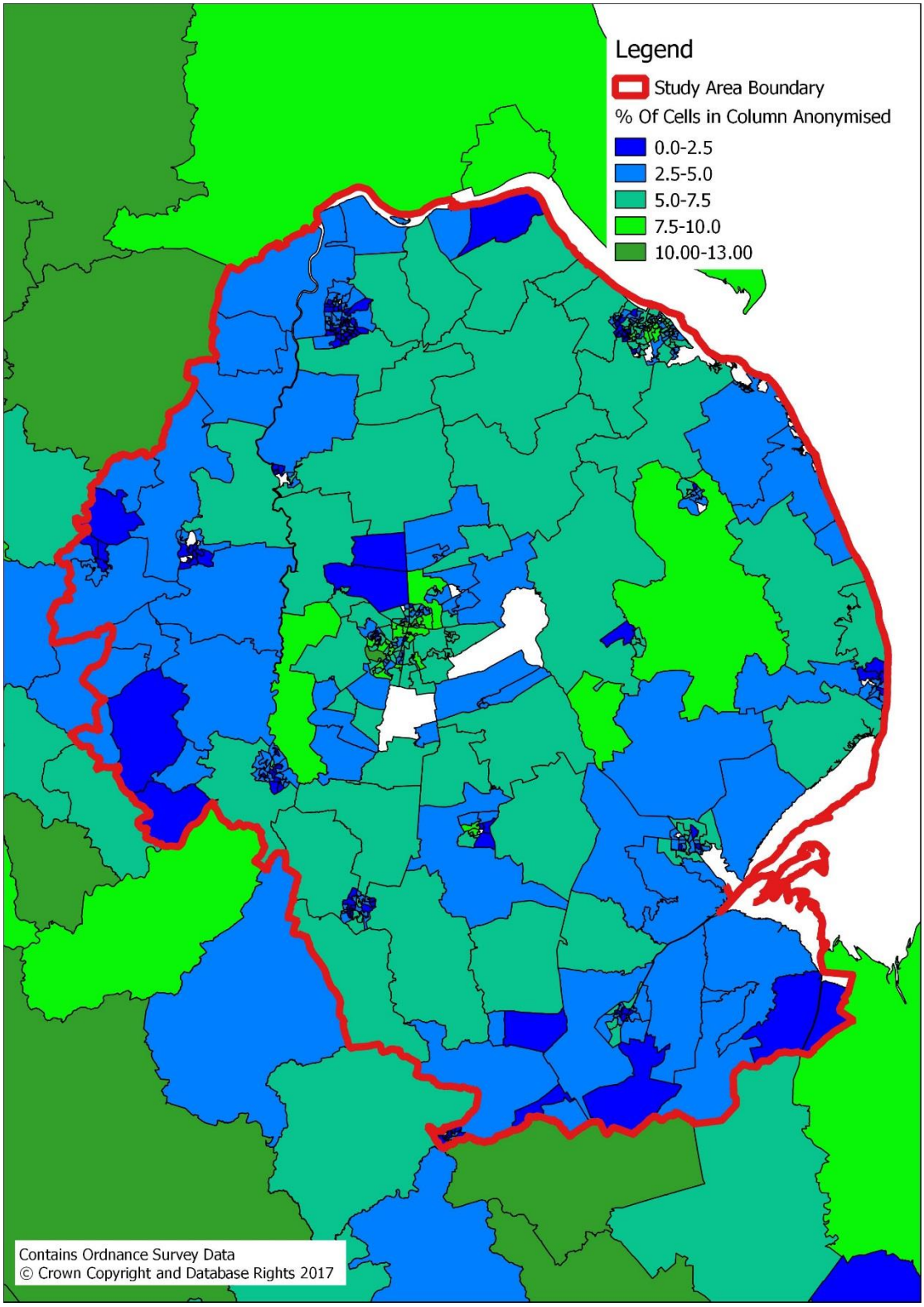


Figure 4-2 Percentage of Cells in Column Anonymised



4.2 Zero Trip Zones

There are 27 zones in the study area with no trip ends at all. The majority of these are LSOA definitions in the urban areas in the wider county, however there are two of particular interest immediately south and east respectively of Lincoln city centre.

- Those two zones are rural and it was confirmed by Citilogik that they have no trips associated to them due to minimal or no overlap with cell coverage areas.

- For the zones in or around the towns in the wider county, it is expected that this is caused by low mast density compared to the detailed zoning at LSOA level.

4.3 Further Symmetry Considerations

The symmetry within the dataset is demonstrated in Figure 4-3 and Figure 4-4. Both plots have an R^2 value greater than 0.999 and low intercept values which indicate a strong relationship in each plot between their respective variables.

- The former shows that the dataset has the appropriate balance for each zone of origin trips against destination trips with no outliers. It gives confidence that trips for a traveller within the matrix start from the same zone where their last recorded trip ended.

- The latter shows that within the dataset, each time a traveller leaves home they will make a corresponding return trip home at some point during the course of the day.

Since the MND covers a four week period, a cell value of 15 for a weekday represents ¾ of a trip on an average weekday. Given the low anonymization threshold and the low percentage of anonymised cells it is reasonable to assume that the process does not have much impact on the quality of the MND.

Figure 4-3 Origin vs Destination Symmetry

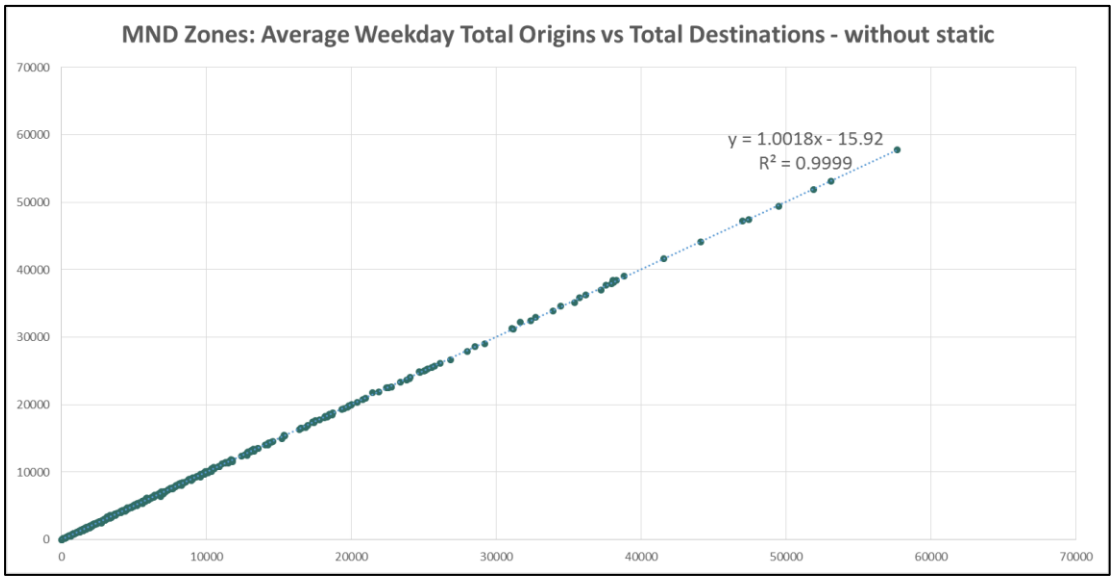
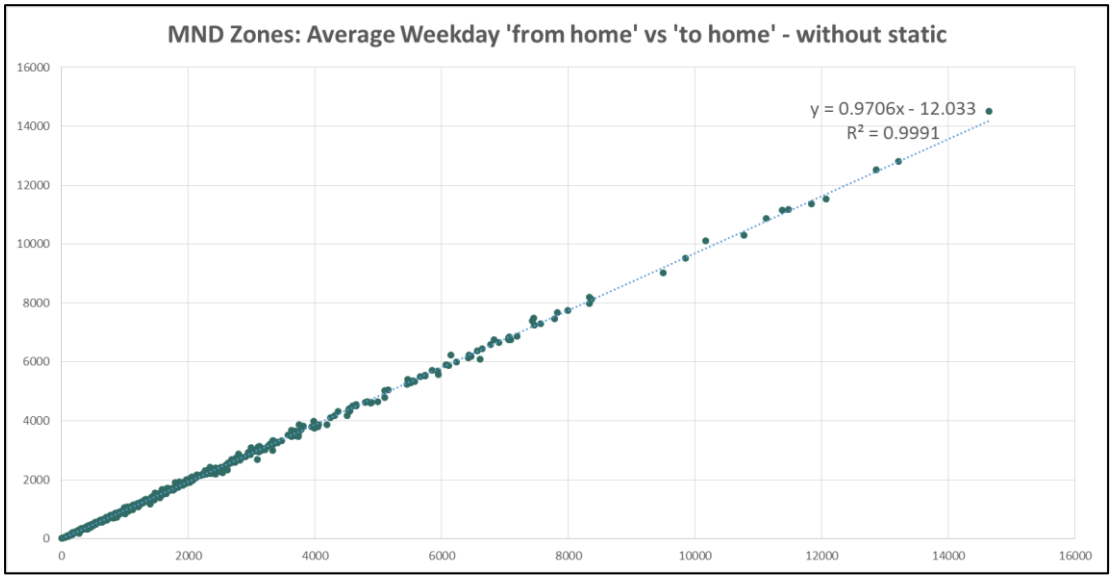


Figure 4-4 'From home' vs 'to home' Symmetry



4.4 Corresponding Trip End Datasets

Mouchel has also been provided with the trip end datasets which correspond to the MND origin destination matrix. The same confidentiality threshold has been applied to the trip end datasets, however that will have been based on the origin or destination total for a particular zone, as opposed to the individual cells. Whilst individual cell values may fall below the confidentiality threshold for a particular zone, the zone would have very low trips if the total origins or destinations fell below the threshold.

The following logic checks were verified for the trip end and (cell) matrix datasets:

- The row sum for a particular zone in the (cell) matrix is greater than or equal to the origin value for that zone in the trip end dataset; and
- The column sum for a particular zone in the (cell) matrix is greater than or equal to the destination value for that zone in the trip end dataset.

5 Trip Rates Checks

5.1 Origin Trip Rates – Impact of Static Trips

The first comparison was to establish the significance of the static trips within the matrix. The average weekday origin trip rates – i.e. total distinct trips – were calculated by district, based on population data from the 2011 census expanded to 2016 using ONS mid-year population estimates. The results are presented in Table 5-1.

We see that the static trips account for roughly half of the matrix, as summarised in Table 5-2, and their inclusion leads to unrealistically high origin trip rates. When the static trips are excluded, the origin trip rates range from 2.93 to 3.83. Aggregated to the whole study area, this gives a weekday average value of 3.11 distinct trips per person for the study area.

Table 5-1 Average Weekday Origin Person Trip Rates by District – All Purposes

District	All Modes		Motorised, Rail and Slow	
	Total Origins	Origin Trip Rate	Total Origins	Origin Trip Rate
Bassetlaw	752,465	6.95	361,325	3.34
Boston	406,964	6.42	200,325	3.16
East Lindsey	770,670	5.72	380,652	2.83
Lincoln	646,254	6.74	328,160	3.42
Newark and Sherwood	744,488	6.29	359,516	3.04
North East Lincolnshire	833,877	5.55	441,823	2.94
North Kesteven	791,660	7.47	405,787	3.83
North Lincolnshire	1,040,701	6.19	503,198	2.99
South Holland	563,853	6.19	273,320	3.00
South Kesteven	827,285	6.20	400,495	3.00
West Lindsey	489,957	5.81	246,968	2.93

Table 5-2 Average Weekday MND Matrix Trip Totals

Static Trips	3,966,606	50.41%
Non-Static Trips	3,901,568	49.59%

5.2 Comparison with TEMPRO – Home Based Productions

The average weekday home based production trip rates were calculated as a sense check, and compared against TEMPRO. This analysis is presented in Table 5-3 below for two cases:

- Motorised, Rail and Slow MND modes versus all TEMPRO modes; and
- Motorised and Rail only in MND versus TEMPRO for car and PT modes only.

The static trips were excluded from this analysis.

Citilogik had noted in their conclusions, see Chapter 12 of Appendix A, that their own verification checks had highlighted a shortfall in home based trips compared to NTS and this is evidenced by this analysis.

Table 5-3 Average Weekday Home Based Production Person Trip Rates

District	Motorised, Rail and Slow Trip Rates			Motorised and Rail Only Trip Rates		
	MND	TEMPRO	Difference	MND	TEMPRO	Difference
Bassetlaw	0.79	1.07	-27%	0.63	0.85	-26%
Boston	0.91	1.06	-14%	0.66	0.84	-21%
East Lindsey	0.72	1.03	-30%	0.59	0.83	-28%
Lincoln	0.93	1.09	-15%	0.58	0.79	-26%
Newark and Sherwood	0.82	1.05	-22%	0.62	0.86	-28%
North East Lincolnshire	0.81	1.09	-26%	0.59	0.80	-25%
North Kesteven	1.00	1.06	-6%	0.79	0.87	-9%
North Lincolnshire	0.74	1.06	-30%	0.57	0.85	-34%
South Holland	0.83	1.05	-21%	0.66	0.87	-24%
South Kesteven	0.74	1.07	-31%	0.57	0.86	-34%
West Lindsey	0.75	1.04	-28%	0.63	0.86	-27%

5.3 Comparison with TEMPRO – Total Trips

It was suggested by Citilogik that some of the shortfall in home based trips is linked to the home end of the trip not being 'snapped' to the inferred home location, thus it may be recorded as a non-home based trip instead. To investigate this, the total trips in the MND dataset were compared against the total trips in TEMPRO for the same two cases used in Section 5.2, with the static trips again excluded from the MND data. This analysis is presented in Table 5-4.

Also presented is the same comparator but for highway trips only; i.e. motorised trips in MND compared against car and bus modes only in TEMPRO. This has been added to evidence the magnitude of the rail element in the MND matrix. It was noted by Citilogik in their conclusions that, for the study area, the rail proportion of all trips was 6.5% against high level NTS reporting of 3% nationally. They attributed this to short range trips being assigned as rail due to the cell to cell routing following rail routes.

We see that at the *delta*-difference for MPOD / TEMPRO ranges from 1.20 to 1.29 between the three comparators. Note that, at this stage, the MND data still includes the Goods Vehicles (GVs) therefore it would be expected that the MND matrix should be higher to a reasonable extent in this comparison. The preliminary analysis of the available MCCs suggests an indicative global value of around 15%. Taking this account, the *delta*-differences are generally of a magnitude of what would be expected.

For Lincoln district, we see that this actually has a lower *delta*-difference for the highway modes only comparison in Table 5-5. This may be a facet of the potential excess allocation to rail that Citilogik suggested may have occurred.

This analysis also suggests that the static trips should be excluded from the matrix build process. The *delta*-differences presented here demonstrate that, in general, the MND matrix is of a reasonable order of magnitude compared with TEMPRO when they are excluded. Including the static trips would, by the result in Table 5-2, indicatively double the *delta*-differences calculated here and the MND matrix would be significantly disproportionate magnitude when compared to TEMPRO.

Table 5-4 Average Weekday Total Two-Way Trips – All Purposes

District	Motorised, Rail and Slow Total Trips			Motorised and Rail Only Total Trips		
	MND	TEMPRO	δ Difference	MND	TEMPRO	δ Difference
Bassetlaw	722,995	558,068	1.30	607,435	439,799	1.38
Boston	400,780	312,584	1.28	306,395	252,485	1.21
East Lindsey	759,860	670,744	1.13	648,057	524,485	1.24
Lincoln	656,290	578,848	1.13	436,994	435,992	1.00
Newark and Sherwood	719,982	600,328	1.20	577,485	487,149	1.19
North East Lincolnshire	884,576	826,727	1.07	686,739	617,237	1.11
North Kesteven	811,288	473,226	1.71	669,344	385,607	1.74
North Lincolnshire	1,005,512	776,109	1.30	817,785	611,722	1.34
South Holland	546,910	372,952	1.47	446,185	310,080	1.44
South Kesteven	801,870	647,246	1.24	652,389	512,945	1.27
West Lindsey	492,599	382,414	1.29	432,812	310,205	1.40
TOTAL	7,802,663	6,199,246	**1.26**	6,281,619	4,887,706	**1.29**

Table 5-5 Average Weekday Total Two-Way Highway Trips – All Purposes

District	Motorised Only Total Trips		
	MND	TEMPRO	δ Difference
Bassetlaw	578,346	432,843	1.34
Boston	256,986	248,646	1.03
East Lindsey	623,811	516,485	1.21
Lincoln	370,395	422,604	0.88
Newark and Sherwood	550,578	476,795	1.15
North East Lincolnshire	567,350	601,917	0.94
North Kesteven	606,764	377,963	1.61
North Lincolnshire	787,452	600,081	1.31
South Holland	405,172	305,780	1.33
South Kesteven	600,789	502,719	1.20
West Lindsey	411,477	305,085	1.35
TOTAL	5,759,121	4,790,918	**1.20**

6 Trip Purpose and Home Based / NHB Checks

6.1 Comparison with TEMPRO – Purpose Splits

A trip will only be classified as 'Work' within the MND matrix if the data processing algorithms were able to infer a regular work location for the device over the data capture period. It is acknowledged by Citilogik that the assignment of devices to work locations can be difficult where people do not have a regular work location. The Work / Other purpose split within the MND matrix has been compared against the TEMPRO purpose split.

This analysis is presented for motorised, rail and slow modes in both datasets for an average weekday, as per previous analysis. The home based and non-home based differentiation was ignored, with both elements combined for this check.

Note that, as commented in Section 1.2, 'Work' used in this context, taken from the MND definitions, is referring to commute trips and not employer business, which are categorised within 'Other' in the MND data. TEMPRO also refers to commuting as 'HB Work' and 'NHB Work', distinct from employer business.

Initially, when aggregating the TEMPRO purposes into two categories of Work and Other, education was assigned into the Other grouping. These results are presented in Table 6-1, and demonstrate a 16% difference in the purpose split between the two datasets.

A second comparison was carried out with the TEMPRO definitions redefined whereby education was moved into the Work grouping, rather than other. These results are presented in Table 6-2 and show the Work/Other purpose split between the MND matrix and TEMPRO to be very close.

Table 6-1 Work/Other Split Proportions - Education aggregated with 'Other'

Purpose	MND	TEMPRO
Work (HB and NHB)	0.37	0.21
Other (HB and NHB)	0.63	0.79

Table 6-2 Work/Other Split Proportions - Education aggregated with 'Work'

Purpose	MND	TEMPRO
Work (HB and NHB)	0.37	0.35
Other (HB and NHB)	0.63	0.65

6.2 Comparison with TEMPRO – Home Based / Non-home Based Splits

It was observed in Section 5-2 that there is a shortfall in home based trips in the MND data. The home based / non-home based proportions have been compared against TEMPRO, as per the purpose split, for motorised, rail and slow modes for an average weekday. Education trips in TEMPRO have been aggregated into Work for the data presented in Table 6-3.

This analysis shows that there is an underrepresentation of home based trips in the MND dataset compared to TEMPRO. As discussed in Section 5-2, Citilogik attribute this difference due to issues with 'snapping' the trip end to the inferred home location. This can be caused by cell coverage area overlap and a journey does not register an event with its 'home cell', and subsequently, is recorded as non-home based. A catchment area of 1.5km was applied to mitigate for this, calibrated for Lincolnshire.

This will need to be reconciled at an early stage in the matrix build process. Further analysis will need to be undertaken to establish whether this is to be achieved through reallocating trips into home based, through scaling the respective matrices or another method. Since a catchment area has been applied to minimise the 'lost' home trip ends, it may be the case that trips wrongly assigned as non-home based will not have been allocated to the home zone, in which case reallocation would not be appropriate.

Table 6-3 HB / NHB Split Proportions - Education Aggregated with Work

Purpose	MND	TEMPRO	Difference
HB Work	0.18	0.33	-0.15
HB Other	0.34	0.55	-0.21
NHB Work	0.19	0.02	0.17
NHB Other	0.29	0.10	0.19

7 Trip Length Distribution Checks

7.1 Comparison with NTS

A prior expected weakness of mobile phone data is that there will be a shortfall in short distance trips. This can be caused by trips not moving outside of the coverage age of a single cell, in particular for rural areas where the mast density is lower.

The trip length distributions for the MND data have been compared to those from National Travel Survey (NTS) data for all of the East Midlands, to assure a statistically significant sample. Following the purpose split checks in Section 6, education has been combined with commuting into NTS – corresponding to the MND category 'Work'.

It was acknowledged by Citilogik that there is an excess of short distance trips which have been classified as rail. This is evidenced through comparing the plots presented in Figure 7-1 and Figure 7-2.

- In Figure 7-1, both data sets are presented for highway motorised only. There is a significant shortfall in shorter distance trips compared to NTS.

- In Figure 7-2, both data sets are presented for highway motorised and rail combined. There is still a shortfall in short distance trips however the discrepancy is much less than in Figure 7-1.

In Section 8, there is further identification of illogical rail trips. Combined with the Citilogik suggestion of a short distance rail excess, it is likely that a significant section of the rail component will need to be transferred to highway.

Further comparisons are shown in Figure 7-3 to Figure 7-6 to disaggregate the data by home based / non-home based and by purpose. For the reasons discussed above, the MND and NTS data presented in those graphs include both highway and rail, otherwise that problem would still be present and mask any other conclusions that further disaggregation could inform. From Figure 7-3 to Figure 7-6, we can see that:

- The MND TLD for Home Based Work matches very closely to NTS. Further, A TLD for education only would typically be shorter than commute therefore this provides further evidence that education in the MND data is within the 'Work' category.

- The shortfall in distance trips is more prevalent in the non-home based graphs. However, from Section 6, we know that there is an over-representation of non-home based trips, so this check may need to be revisited when that has been rectified.

Figure 7-1 TLD Comparison: All Purposes – Highway Motorised Only

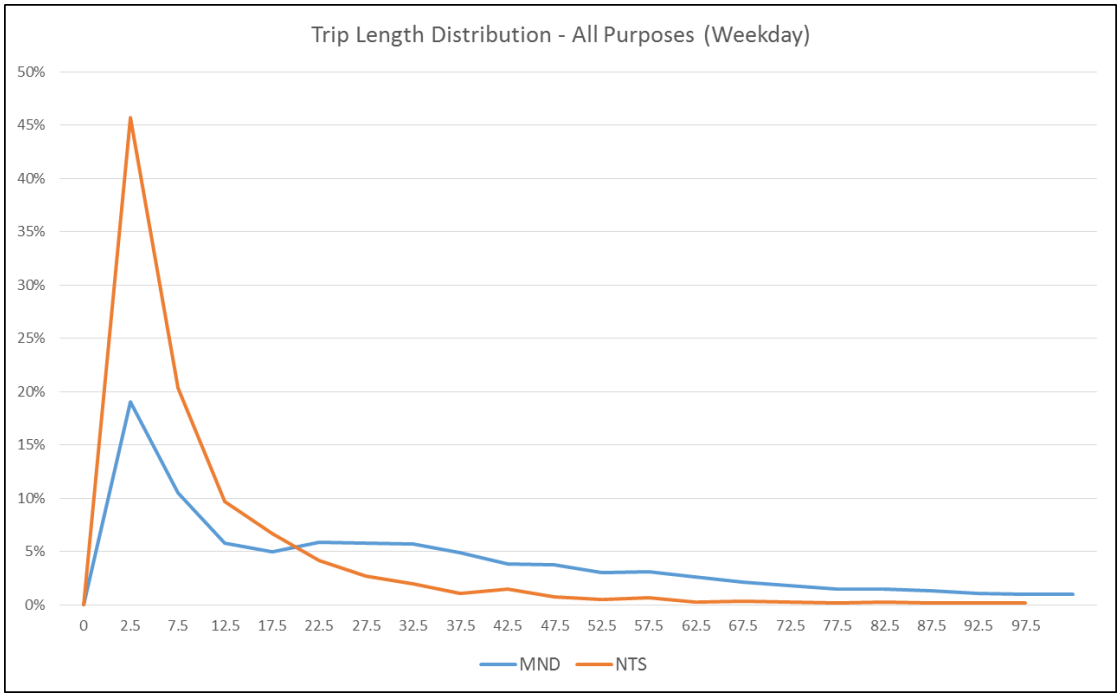


Figure 7-2 TLD Comparison: All Purposes – Highway and Rail Combined

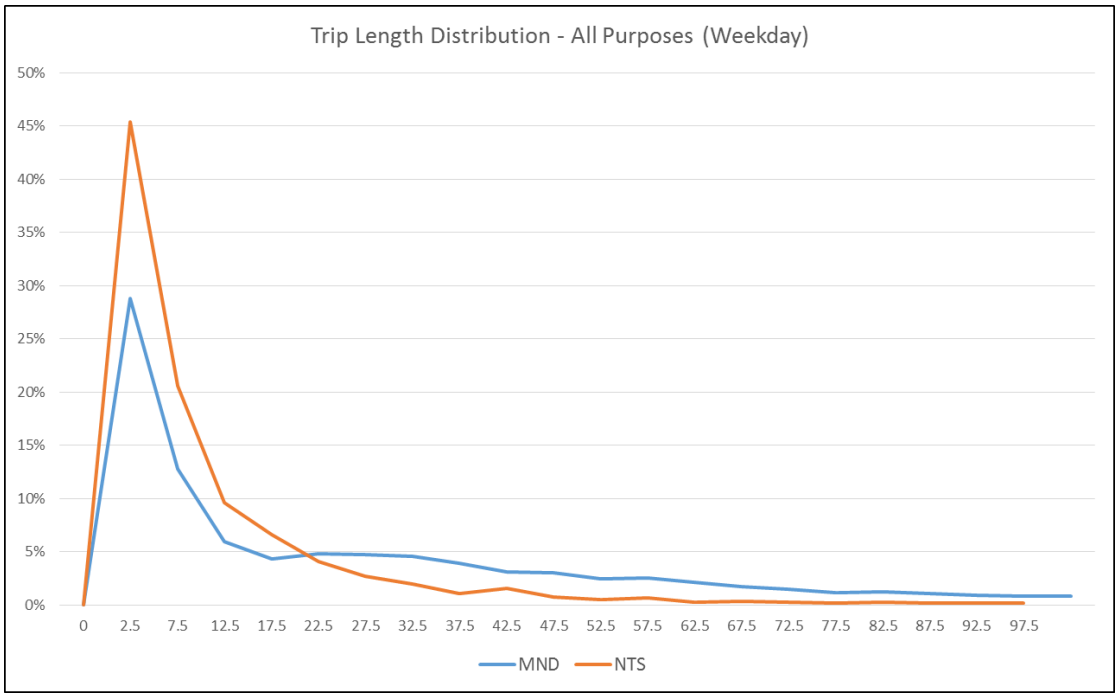


Figure 7-3 TLD Comparison: Home Based Work (as *commute* and *education*)

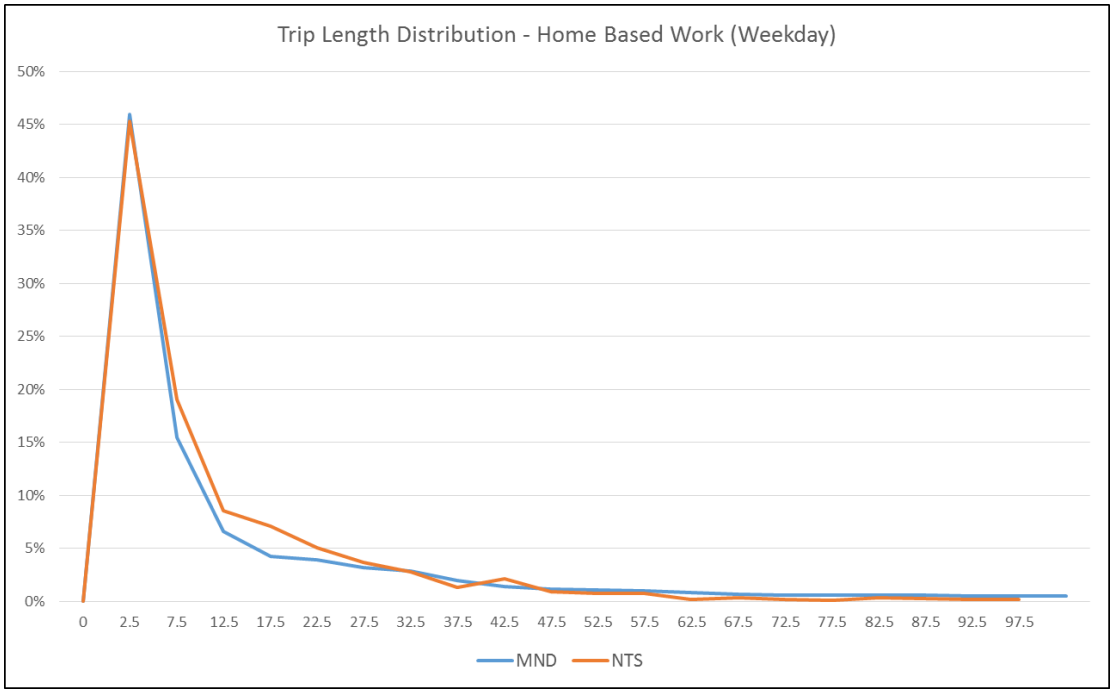


Figure 7-4 TLD Comparison: Home Based Other (as *business* and *other*)

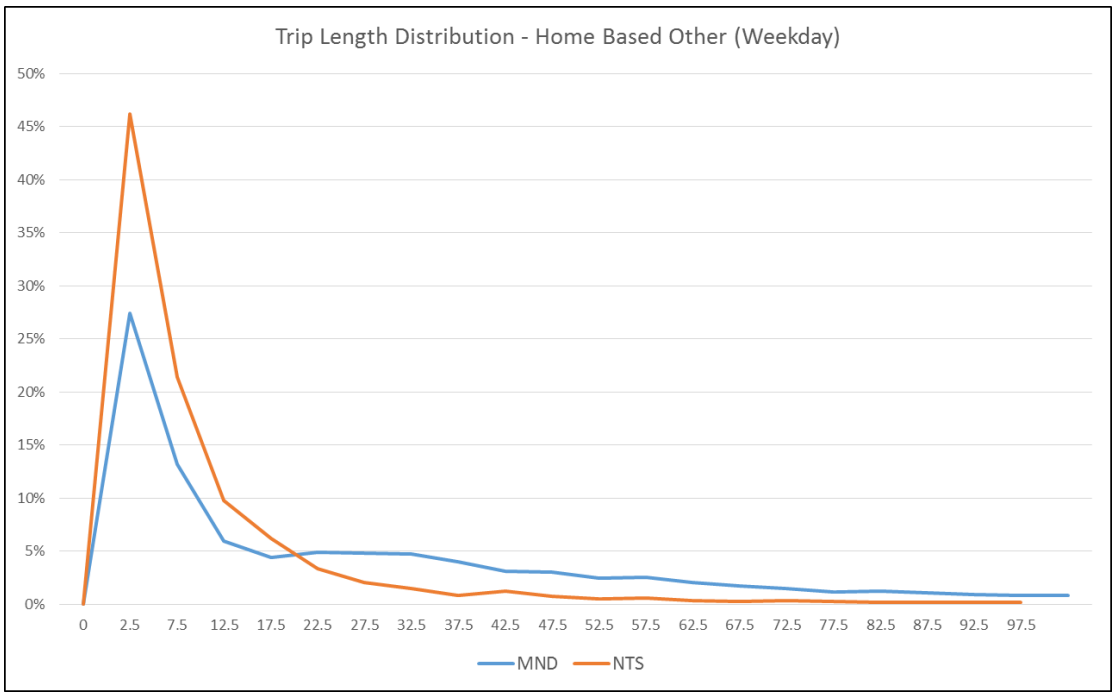


Figure 7-5 TLD Comparison: NHB Work (as *commute* and *education*)

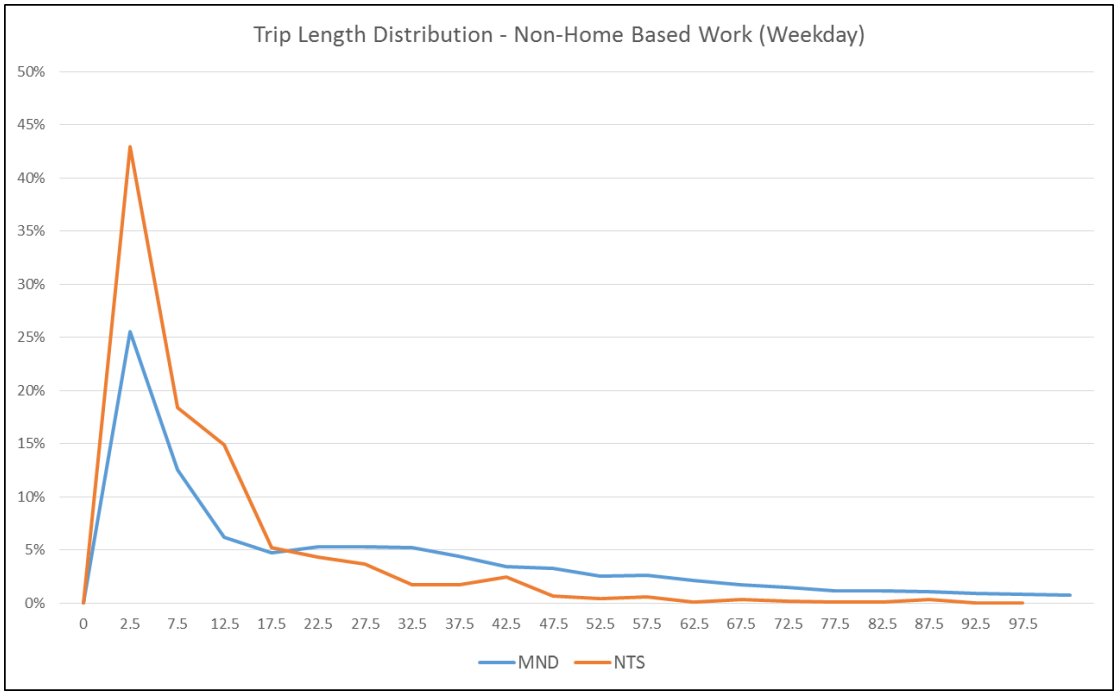
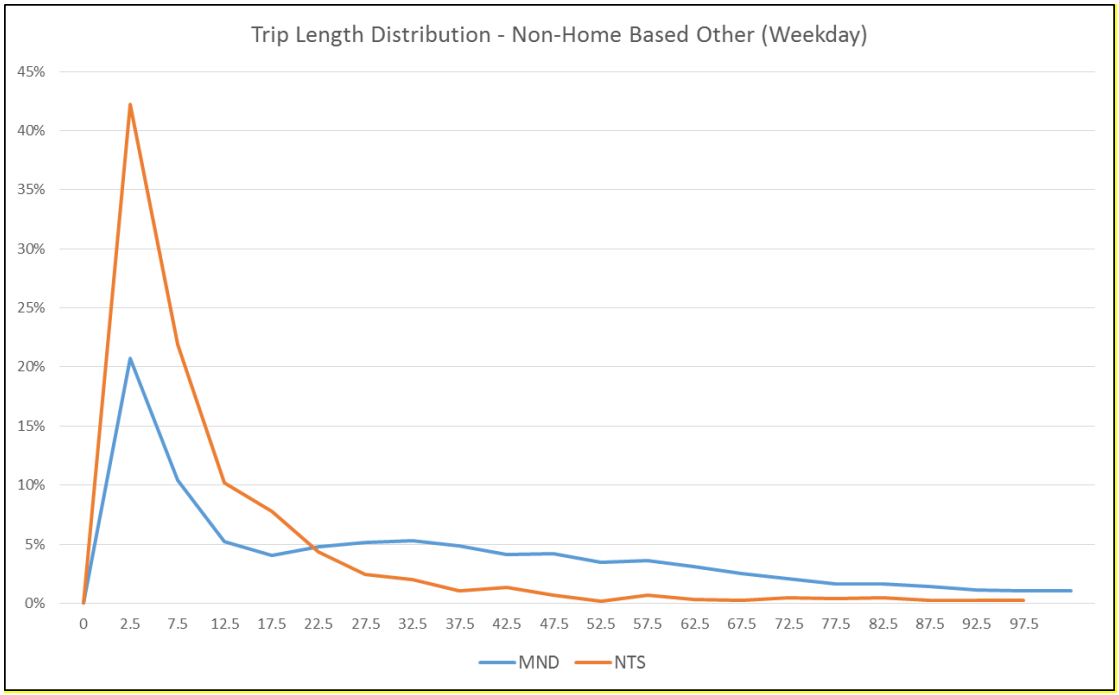


Figure 7-6 TLD Comparison: NHB Other (as *business* and *other*)



8 Rail Matrix and Mode Split Checks

8.1 Inter-District Distribution

As part of the data processing undertaken by Citilogik, summarised in Section 1-2, trips were first classified as motorised based on the average travel speed, then disaggregated into 'Rail' and 'Motorised' (the latter therefore referring to 'highway motorised') through analysing trip paths against pre-defined rail routes.

The total rail origin and destination trips for an average weekday have been tabulated in Table 8-1, plus the percentage difference between Destination total and Origin total. The overall totals show a very high level of symmetry, likewise for the Geofence/external subcomponent and for the study area as a whole aggregated. There are some discrepancies at a district level, most noticeably for East Lindsey, West Lindsey and South Kesteven.

Table 8-1 Rail Matrix Symmetry by District - Average Weekday

District	Origins	Destinations	Difference (D O)
Bassetlaw	14,345	14,743	3%
Boston	24,395	25,014	3%
East Lindsey	13,052	11,193	-14%
Lincoln	33,126	33,472	1%
Newark and Sherwood	13,582	13,325	-2%
North East Lincolnshire	59,188	60,202	2%
North Kesteven	31,483	31,097	-1%
North Lincolnshire	15,187	15,145	0%
South Holland	20,456	20,557	0%
South Kesteven	25,225	26,375	5%
West Lindsey	11,133	10,202	-8%
Study Area Combined	**261,173**	**261,326**	**0%**
Geofence/External	**130,458**	**130,304**	**0%**
TOTAL	**391,630**	**391,630**	**0.0%**

As a sense check on the distribution of the rail trips, desire lines have been plotted for total trips on an average weekday for the inter-district elements within the study area. These are shown in Figure 8-1, with the desire lines mapped between district centroids (which based on polygon shape rather than placed at any specific population centre).

The total trips for these movements, limited to those with greater than 1,000 trips for an average weekday, are summarised in Table 8-1. Two of the routes within the list would appear to be illogical for such volumes, highlighted in light green.

- Boston to South Holland

The major population centres are Boston and Spalding respectively. Rail trips would have to travel via Sleaford (in North Kesteven) which appears to be a convoluted route, compared to travelling by car or bus. This is supported by using Google Maps route planner which did not propose rail as a standard option for that trip.

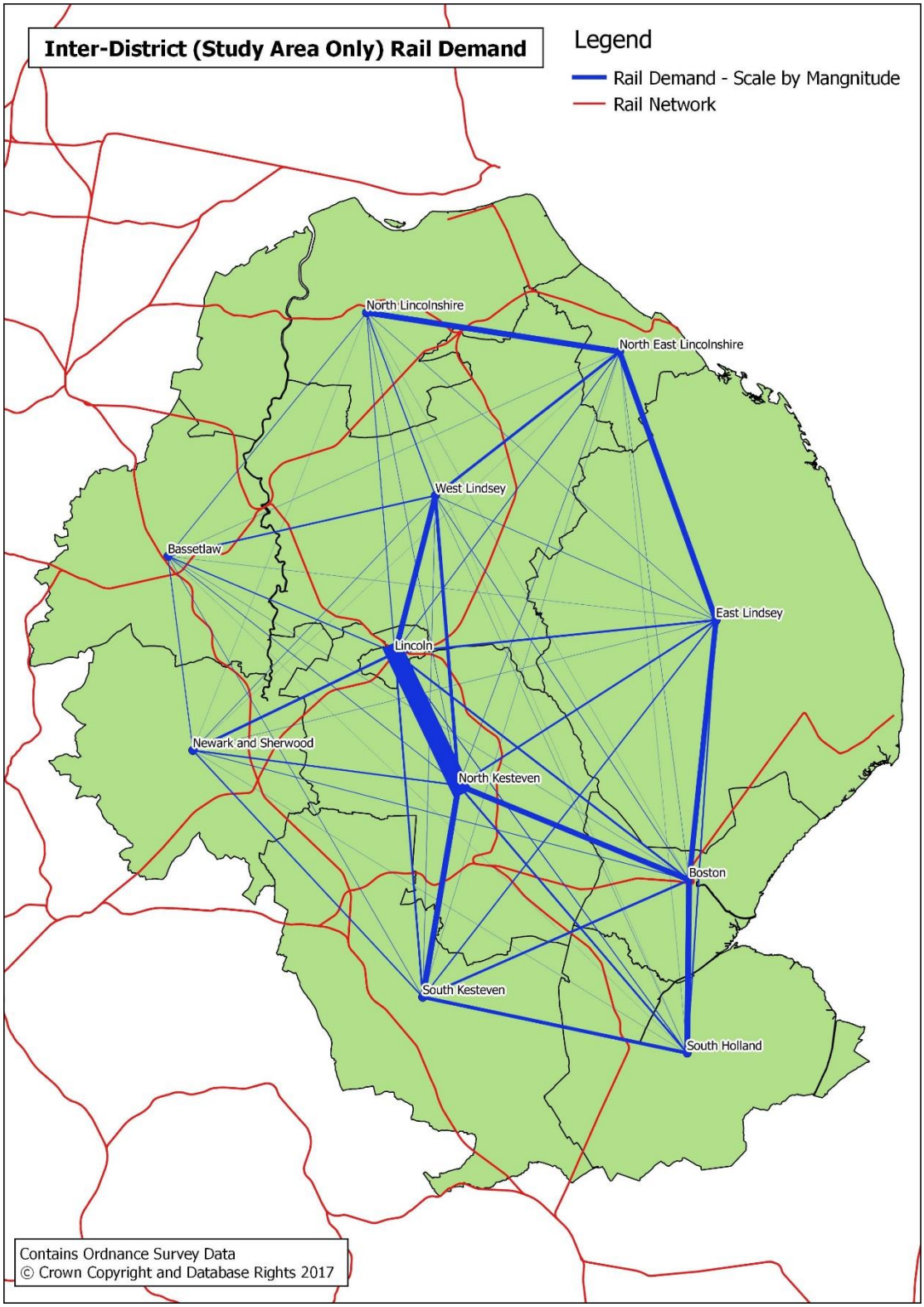
- East Lindsey to North East Lincolnshire

The major population centres are Skegness for East Lindsey and Grimsby and Cleethorpes for North East Lincolnshire. There is no rail connection between these areas on the east coast, with Skegness and Cleethorpes at the end of their respective lines. Rail trips would have to travel via four districts to make this journey. Using Google Maps route planner, this could involve up to three connections, unless the majority of the trip was using another mode anyway.

Table 8-2 Inter-District Rail Trips - Average Weekday (>1000 trips)

Origin District	Destination District	Trips
North Kesteven	Lincoln	8,761
Lincoln	North Kesteven	8,561
North Kesteven	South Kesteven	2,703
South Holland	Boston	2,697
North Lincolnshire	North East Lincolnshire	2,652
East Lindsey	North East Lincolnshire	2,626
Boston	South Holland	2,573
North East Lincolnshire	North Lincolnshire	2,553
West Lindsey	Lincoln	2,553
North Kesteven	Boston	2,532
East Lindsey	Boston	2,468
Boston	North Kesteven	2,454
South Kesteven	North Kesteven	2,384
Boston	East Lindsey	2,268
Lincoln	West Lindsey	2,199
North East Lincolnshire	East Lindsey	1,911
South Kesteven	South Holland	1,598
South Holland	South Kesteven	1,551
West Lindsey	North Kesteven	1,525
North Kesteven	West Lindsey	1,425
West Lindsey	North East Lincolnshire	1,264
Newark and Sherwood	Lincoln	1,182
Lincoln	Newark and Sherwood	1,153
South Kesteven	Boston	1,083
Boston	South Kesteven	1,024

Figure 8-3 Desire Lines for Rail Demand in MND Matrix



8.2 Rail Magnitude Check – Comparison with TEMPRO

It was commented by Citilogik in their conclusions that there may be an overrepresentation of rail trips within the matrix. Their analysis showed 6.5% of trips in the MND matrix were assigned as rail compared to a high level value national mode share of 3% for rail reported by NTS.

The previous analysis highlighted potential anomalies within the distribution, with some areas showing unexpected rail trip paths against the available rail routes. The magnitudes by district have compared against TEMPRO and are presented in Table 8-4 below. This shows that, aggregated over the study area, the rail component of the MND matrix is 5.4 times higher than TEMPRO.

We had seen previously in Table 5-4 that the magnitude of the MND matrix for highway motorised and rail combined showed a reasonable comparison against TEMPRO, accounting for the caveats raised regarding GV removal. This suggests that, when all motorised trips – both highway and rail – are considered, the MND matrix from Citilogik is of an expected magnitude but there is issue with how trips have subsequently been defined as highway motorised or rail.

Table 8-4 Average Weekday Two-Way Rail Trips – All Purposes

District	MND	TEMPRO	δ Difference
Bassetlaw	29,088	6,957	4.18
Boston	49,408	3,839	12.87
East Lindsey	24,245	8,000	3.03
Lincoln	66,598	13,388	4.97
Newark and Sherwood	26,908	10,355	2.60
North East Lincolnshire	119,389	15,318	7.79
North Kesteven	62,580	7,644	8.19
North Lincolnshire	30,332	11,640	2.61
South Holland	41,013	4,300	9.54
South Kesteven	51,601	10,225	5.05
West Lindsey	21,336	5,120	4.17
TOTAL	**522,499**	**96,786**	**5.40**

8.3 Mode Split – Comparison with TEMPRO

To confirm the findings in Section 8-2, the mode split in the MND matrix and TEMPRO for an average weekday have been compared.

The analysis is presented in Table 8-5 for all motorised and static trips, and in Table 8-6 for motorised only trips. The former verifies that the slow mode component of the MND matrix is of a similar proportion to that in TEMPRO, but that there is an excess of rail trips, which is confirmed by the latter. This difference, at a high level is 6%, which

is similar to the 5.4 times excess in magnitude reported previously in Table 8-4. Combined with the previous analysis, this suggests that there are both distribution and magnitude issues with the rail component of the MND matrix.

Table 8-5 Mode Split Proportions - MND versus TEMPRO - including slow modes

Mode Split	MND	TEMPRO
Rail	7%	2%
Motorised (highway)	74%	77%
Slow	19%	21%

Table 8-6 Mode Split Proportions - MND versus TEMPRO - motorised only

Mode Split	MND	TEMPRO
Rail	8%	2%
Motorised (highway)	92%	98%

8.4 Reallocation to Highway

Aside from the district level checks, it was also acknowledge by Citilogik that there is an excess of short distance rail trips as the result of the cell to cell routeing following rail routes. These include short distance intra-zonal and inter-zonal rail trips for zones with no stations inside and which would not pass between rail stations.

Analysis in GIS will be required using spatial queries to filter out the illogical short distance trips and to reallocate these to highway. This could include analysis of minimum distance to stations, or analysis of station catchment areas. However, the latter would only make sense for attraction ends, since people with access to a car may travel further to a departure station if there are quicker and/or more direct services, especially for longer distance rail trips.

9 Conclusions

9.1 Summary of Findings

- The all-day weekday MND matrix has 49% of cells with non-zero trips. By time period, this ranges from 32% - 39%.

- The majority of trips in the matrix are intra-study area (~70%).

- Long distance trips to or from or to the Geofence and external regions make up only a small proportion (~4.5%), by direction, of the travel demand for Lincoln district.

- The proportion of anonymised cells is low, on average 4.5% of a row of column. The majority of the zones most affected by anonymisation are external to the study area.

- Comparison with TEMPRO total trips showed that the MND matrix was of a reasonable order of magnitude with static trips are excluded. Since including the static trips would double the magnitude, they will likely need to be removed from the dataset used for the matrix build.

- Removing the static trips would implicitly remove all of the trips with unknown purpose, therefore no mitigation would be required for that.

- The purpose split between Work and Other in the MND dataset closely reflected the purpose split in TEMPRO when education and work where defined together in TEMPRO. There is potential that education trips have been allocated to Work purpose in the MND matrix.

- There is an underrepresentation of Home Based trips in the MND matrix when compared against TEMPRO. Further analysis is required to determine how this should be mitigated in the matrix build.

- There is a shortfall in short distance trips for all purposes combined, however this is more prevalent in the non-home based segments. The Home Based Work TLD is a good match to NTS when education is presumed to be within the ‘Work’ category, providing supporting evidence to that theory.

- There is an excess of rail trips, which should actually be classified as highway motorised. Some of these are short distance trips which do not travel a sufficient distance to pass two stations however there are also some routes identified as illogical for rail trips at a district level.

9.2 Actions for Matrix Build Process

- The anonymised cells will be removed from the data. These will be infilled using synthetic matrix techniques. This approach will also be taken for the zones which had zero trips due to insufficient mast density.

- An adjustment will need to be made to rectify the home based / non-home based proportion discrepancy. This could be implemented at a district level based on TEMPRO targets.

- A subset of the rail matrix will need to be transferred into highway motorised. An independent data source will be required to inform the magnitude of this change. Further GIS analysis may be required to determine which of the short distance rail trips are illogical, so that all illogical rail trips are included in the transfer.

- Other non-car highway trips – LGVs, HGVs and bus – will need to be subtracted from the highway motorised component. These will require independent data sources to generate matrices of volumes or proportions to operate this removal.

- The matrix build will initially assume that the 'Work' category, i.e. *commuting*, also contains *education* trips for the reasons discussed in this note. A method will still be required to segment the 'Other' category into *employer business* and *other* assignment user classes.

10 Reference Note – TEMPRO Versions

10.1 TEMPRO Update Comparison

The analysis presented in this technical note was undertaken using the TEMPRO v7 dataset for 2016, prior to the recent release of TEMPRO v7.2. This work has been to verify the conclusions presented by Citilogik and to inform what adjustments will be required to the data as part of the matrix development process.

The differences between the two versions of TEMPRO for average weekday trips across all modes for 2016 for the study area are presented in Table 10-1 below, as a high level comparator between the two versions. The differences are generally less than a percent which implies that there is little change for the study area between the two datasets for 2016. A similar check showed that the population values for 2016 also differ by generally less than a percent. Based on those two checks, implicitly the outturn trip rates would also be similar.

Table 10-1 TEMPRO 7 vs TEMPRO 7.2 Average Weekday Trips - All Modes

District	Total Origins			Total Destinations		
	v7.0	v7.2	Diff.	v7.0	v7.2	Diff.
Boston	156,851	157,518	0.4%	155,733	156,341	0.4%
East Lindsey	335,577	337,105	0.5%	335,167	336,866	0.5%
Lincoln	287,357	284,806	-0.9%	291,491	288,984	-0.9%
North Kesteven	238,039	239,674	0.7%	235,187	236,770	0.7%
South Holland	187,558	189,220	0.9%	185,394	186,912	0.8%
South Kesteven	323,561	323,173	-0.1%	323,685	323,340	-0.1%
West Lindsey	191,272	193,356	1.1%	191,142	193,176	1.1%
Bassetlaw	278,656	279,597	0.3%	279,412	280,407	0.4%
Newark and Sherwood	301,014	300,437	-0.2%	299,314	298,745	-0.2%
North East Lincolnshire	412,009	408,653	-0.8%	414,718	411,363	-0.8%
North Lincolnshire	389,409	388,550	-0.2%	386,700	385,840	-0.2%

In conclusion, the comparison shows that the revised TEMPRO dataset would not materially change the conclusions presented in this note. However, any use of TEMPRO data within the matrix build process, or for any other part of the GLTM modelling, will use TEMPRO v7.2 data.

1 Network Acceptance Checks

Project:	Greater Lincoln Transport Model	Date:	22/08/2017
		TN Ref:	TN/02
Subject:	Network Acceptance Checks		
Author:	Ed Atkinson	**Project Ref:**	1073461
Reviewed:	Ben Patey		

1.1 Introduction

Mouchel has been commissioned by Lincolnshire County Council (LCC) to develop the Greater Lincoln Transport Model (GLTM). This technical note describes the network tests which were undertaken prior to the calibration and validation process.

1.2 Purpose of the Tests

This note sets out the requirements for a series of tests in order to provide evidence that:

- The network building is complete to the agreed standard;
- The network and inputs have been appropriately checked, the SATURN warnings have been reviewed and formal testing has been carried out against a list of potential errors; and
- The network coding is satisfactory, as far as can be determined, before commencement of the calibration/validation stage.

The overall objective of the process is to ensure, as far as practically possible, that coding errors arising from human error in the network building are eliminated before calibration/validation process starts. The initial network should be coded in accordance with the agreed principles defined in the Model Specification Report (MSR). However, it is recognised that there may be a subsequent amendments to the network following feedback from the network calibration/validation process.

For each test, background information on the purpose is provided along with a list of information that will be reviewed. Furthermore, the acceptance criteria will also be used as the basis for assessing whether the network meets the requirements of the study for this stage of the model development.

1.3 Description of Tests Undertaken

The following tests are to be carried out to ensure the network coding is in a satisfactory state before commencement of the calibration/validation stage. There were six types of test carried out, as described below:

- Test 1 – Completeness Check
  This is to ensure that the network produced is complete according to the Model Specification Report.

- Test 2 – SATURN Compilation Check
  This is to ensure that all the errors/warnings produced by SATNET has been reviewed and checked.

- Test 3 – Inspection of Key Junctions
  This is to ensure that all the key junctions within the study area have been coded correctly.

- Test 4 – Network Routeing
  This is to ensure that routeing check on the unloaded network is plausible and realistic.

- Test 5 – Link Consistency Tests
  This is to ensure that link type, distance, speed limit, etc. are consistent between directions and along a road.

- Test 6 – Flat Matrix Assignment Test
  This is to ensure that model assignment with a flat matrix produce plausible results of routeing and also to investigate whether or not locations with excessively high delays are as a result of significant flows or due to coding error.

The following chapters describe in detail the steps and findings of each of the tests for GLTM.

2 Test 1 – Completeness Check

2.1 Background

The purpose of this test is to prove that the network produced is complete, including simulation and buffer network. Upon the completion of this test, it can be confirmed that the initial network development process has been concluded in accordance with the model specification.

2.2 Information required

The information with regard to this test will be provided, as below:

- Map of the simulation and buffer network, as agreed with the Lincolnshire County Council;
- Source of signal timing for signalised junctions: e.g. from Local Authority, from donor models, or using template signal junction coding;
- A map showing locations of signalised junctions by different sources;
- A spreadsheet providing signal timings for signalised junctions, with a technical note detailing signal data collection and assumption; and
- The full network in both GIS and SATURN network.DAT

2.3 Acceptance Criteria

The acceptance checks for this test would ensure:

- Coding of the network is complete, except for omissions previously agreed by the project team;
- Network coverage is as specified in the Model Specification Report (MSR) for both simulation and buffer networks;
- Reporting total number of nodes coded and checked; and
- The density of the network is as specified in the MSR.

2.4 Summary

Figure 2-1 shows the network that has been coded for the study region and Figure 2-2 shows the network coverage for the external area. As agreed with Lincolnshire County Council and specified in the MSR, all the roads within the study boundary have been

coded in the simulation network and roads outside the study boundary have been coded as buffer network.

A total of 10,519 links have been coded in the GLTM network covering a combined modelled distance of 15,064km, as summarised in Table 2-1.

A total of 2,557 nodes have been coded in the GLTM network as summarised in Table 2-2 below.

Table 2-1 Summary of Link Coding by Road Type

Road Type	Number of Modelled Links	Total Modelled Length (km)
Motorway	1,494	4,290
A Road	3,961	6,752
B Road	1,405	2,430
Local Road	3,659	1,593
Total	**10,519**	**15,064**

Table 2-2 Summary of Junction Coding by Type

SATURN Type	Description	Number of Nodes
0	External node	300
1	Priority junction	1341
	Exploded roundabout	48
2	Mini-roundabout	10
3	Signalised junction	104
	Exploded signalised roundabout	3
4	Dummy	0
5	Roundabout (with U-turns)	18
n/a	Zone centroids	733
	Total	**2,557**

Figure 2-1 Model Network - Study Area

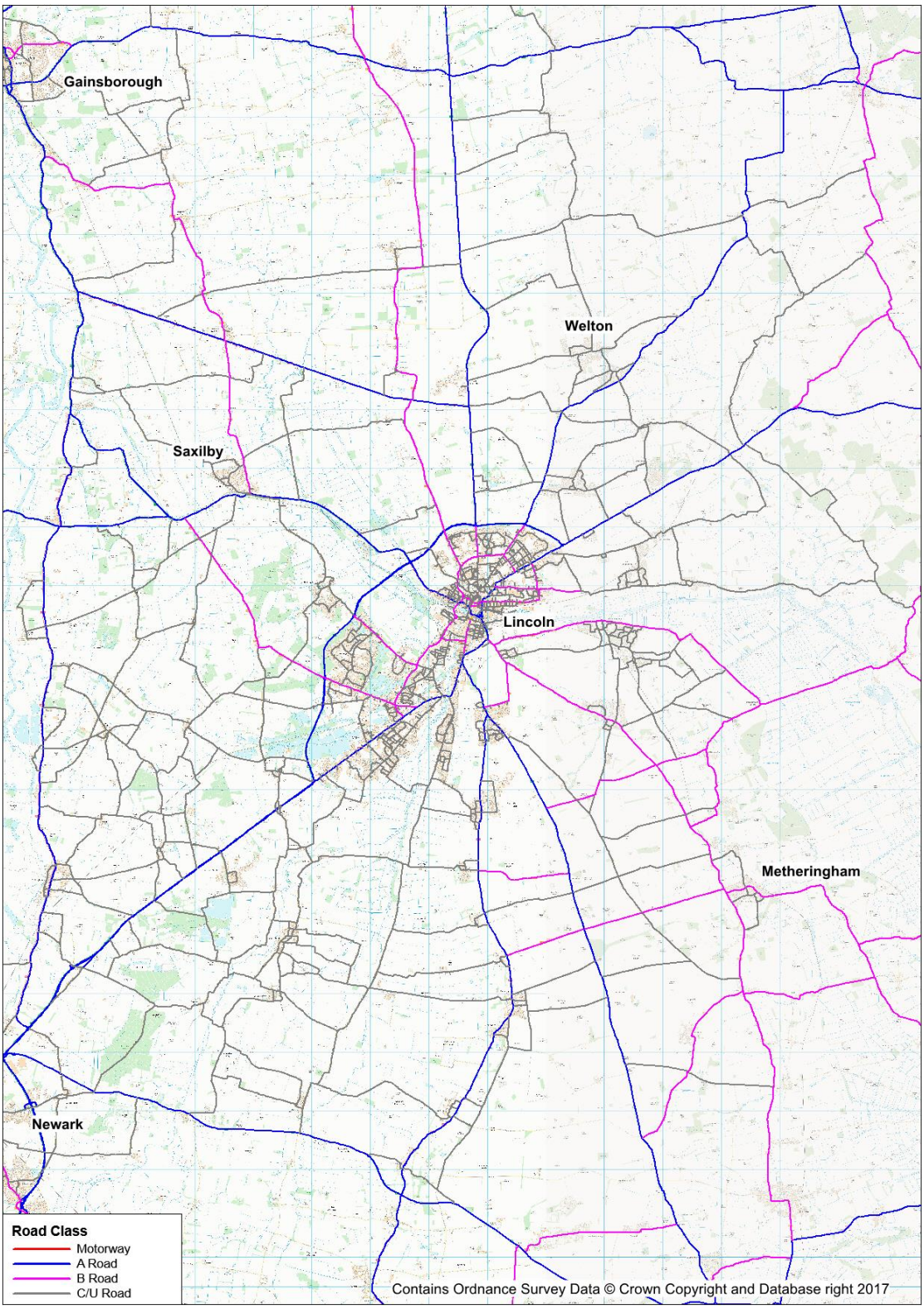
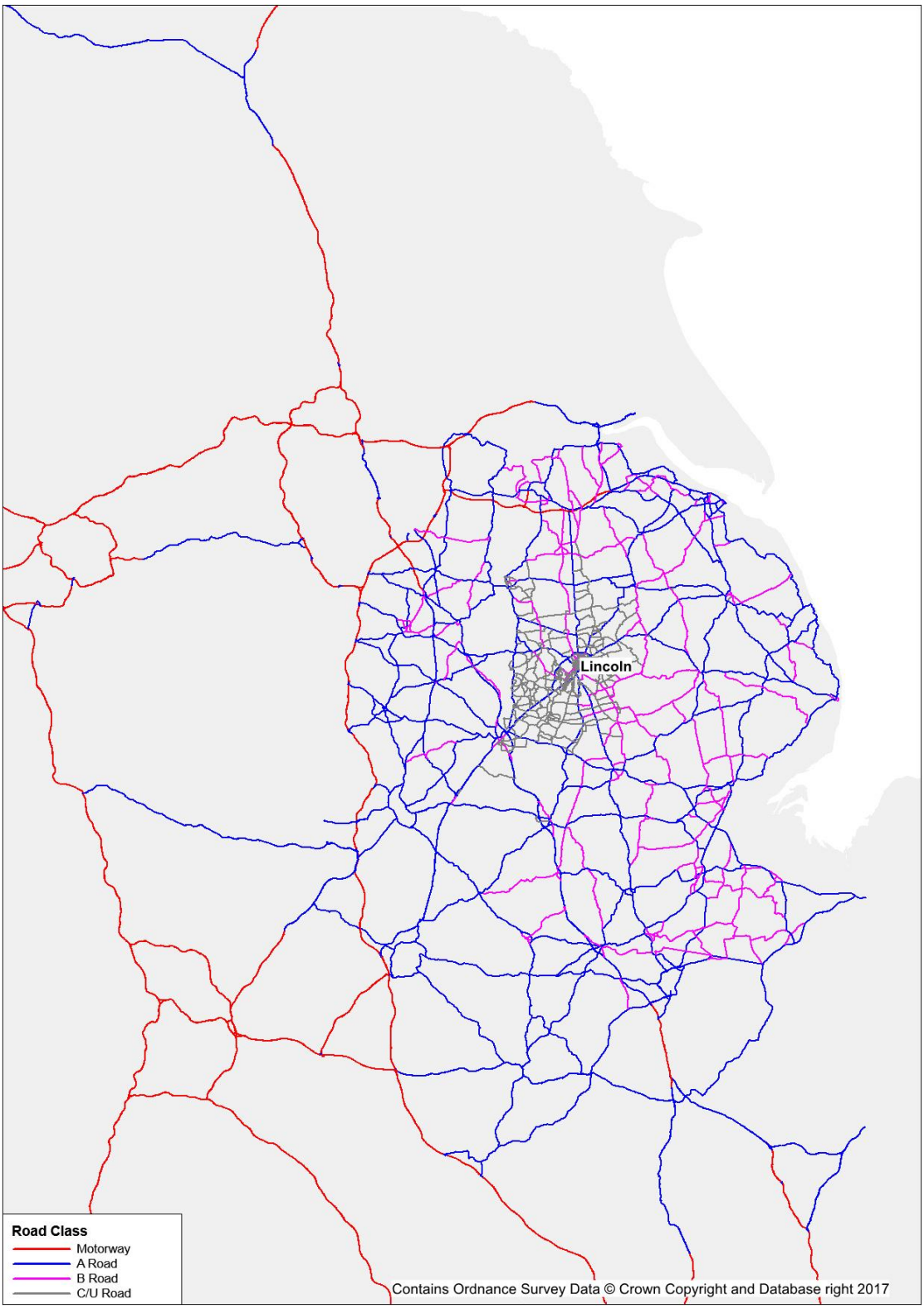


Figure 2-2 Model Network - External Area



3 Test 2 – SATURN Compilation Test

3.1 Background

The purpose of this test is to prove that the network, including the buffer network, may be compiled in SATURN with the option “Set WRIGHT = TRUE” without raising unacceptable errors. The test should confirm that the initial network development has been successfully built using SATNET.

3.2 Information required

The following information will be reviewed:

- A list of SATURN warnings, with annotation or accompanying documentation explaining the serious warnings and why they can be safely ignored. Specifically this will include a table summarising the “SATNET Network Building Report” with the total number of serious warnings and Non-Fatal errors and comments stating that why these are acceptable.

3.3 Acceptance Criteria

The acceptance checks should ensure that:

- There should be no Fatal or Semi-Fatal errors as specified by SATURN; and
- For other SATURN serious warnings or warning, a satisfactory explanation for each warning should be provided for the coding with the core modelled area

3.4 Summary

Table 3-1 below provides a list of all the warnings produced from SATNET.

Table 3-1 Summary of Total Warnings/Errors from SATNET

SEGMENT	WARNING	SERIOUS	NON FATAL	NAFF	FATAL	Total
&OPTION	0	0	0	0	0	**0**
NETWORK TITLE	0	0	0	0	0	**0**
&PARAM	0	0	0	0	0	**0**
11111 SIMULATION	563	2134	0	0	0	**0**
22222 SIM CCs	0	2	0	0	0	**0**
33333 BUFFER	674	61	0	0	0	**0**
44444 RESTRICTs	0	0	0	0	0	**0**
55555 CO-ORDS	1	0	0	0	0	**0**
66666 ROUTES	51	4	0	0	0	**0**
77777 COUNTS	6	0	0	0	0	**0**
88888 GEN COSTS	0	0	0	0	0	**0**
Total	**1,295**	**3,320**	**0**	**0**	**0**	**4,615**

Table 3-2 below provides a detailed list of the warnings and their comments.

Table 3-2 Detailed List of Warnings from SATNET

Code	Description	Quantity	Comments
Warnings: 1,295 warnings			
1	Rather high or low speed	3	Links within industrial/business park area (car park connectors)
4	An X marker has no opposing major flows	1	One way street
8	Priority marker X has appeared for 2 or more turns on 1 link	1	Correct for junction layout
12	More than one give way turn sharing a single lane at a priority junction. See Section 6.4.9.	106	Opposed right-turn at priority junctions, single lane approach
16	Rather long inter-green time for a stage	14	Observed signal timings
19	Total stage plus intergreen times not equal input cycle time	1	Checking
20	Coded as F, a permanent filter at traffic signals, but also explicitly mentioned in one or more stages. Since by definition it is 100% green it is not necessary to code it explicitly.	3	Observed signal timings
23	The total upstream saturation entry flows seem to be inconsistent with the number of lanes at the downstream end.	5	Checking
30	The calculated speed is outside the expected range KPHMIN to KPHMAX	22	Speed obtained from TM JT data in buffer network
32	Simulation link distances and/or times differ in reverse directions	4	Different capacity indices applied due to different number of lanes by direction

Code	Description	Quantity	Comments
33	Suspicious link distance - Input values differ markedly	973	Road geometry/curvature – see Test 5
39	Repeated bus route name / the route name field is blank	45	SATURN limitation in bus route labelling
42	A counted link bridged by a Centroid Connector	6	Checked for impact on count – no action
43	A turn is coded as a right turn but is not the last.	5	Junctions at dual carriageway where the last turn is the U-turn, or junctions where banned turn is coded
51	The saturation flow per lane is high (>MAXLSF)	2	Lane markings at roundabouts
53	Two priority movements share the same exit but neither has a turn priority marker	4	Lane gain on slip-roads to main carriageway
68	A priority marker G looks suspiciously like a merge! (M)	5	Dedicated left turn lane at traffic signals
73	Bus route with U-turns at non-simulation nodes	6	Ignored
76	Possible underestimated stack capacity > 5 at "XY" nodes	1	Ignore
84	An inter-green time is redundant – all turns continuously green	23	Observed signal timings
96	A give-way turn (priority marker G) has both shared and unshared lanes. While this can occur commonly – and therefore "correctly" - in real life, it does cause potential convergence problems with the lane choice algorithm so, if you are otherwise undecided, code separate unshared lanes.	31	Lane markings at exploded roundabouts
98	Possible opportunity for a Clear Exit Priority Modifier?	34	Ignore
Serious Warnings: 3,320 warnings			
109	Some of your in-links may not have been defined in strict clockwise order. A series of left-hand turns (Ignoring one-way streets) through the following nodes fails to return to Its starting point as it should, or else requires more than 20 steps to do so. Please check these node sequences on a map. See Section 6.4.8. N.B. If your network contains overpasses etc. this may be the explanation, in which case ignore this error.	96	Checked
111	No opposing turns found for a turn with a priority marker	2	Due to junction arms not included in the model network

Code	Description	Quantity	Comments
112	Zone connected to both external sim nodes and other types	2	Ignore
113	Input simulation arms not in (counter-)clockwise order	2	Ignore
124	A nearside turn which is all green but not a filter	8	Due to pedestrian crossing at junction
135	More than one give way turn sharing the single lane: major arm at a priority junction; see Section 6.4.9.	788	Insufficient space for right-turn traffic to wait in the road without blocking ahead traffic
136	Suspicious link distance compared to crow-fly distance	91	Road geometry/curvature
137	The turn saturation flows per lane differ widely; see Section 6.4.6.3.	1027	Saturation flows coded at roundabout
138	Saturation flows differ widely between roundabout arms	1	Saturation flows coded at roundabout
152	A single-lane arm at signals which includes an X-marked turn; see Section 6.4.	19	Bus only arm which is opposed
154	X-turn shares identical lanes with the turn inside it but that turn could use lanes further inside to avoid being blocked by the X-turn	3	Insufficient space for X-turn traffic to avoid blocking ahead traffic
157	Mid-link capacity either >> or << stop-line saturation flows	116	Checking during calibration
159	CLICKS speed on a link < the normal speed at capacity	1119	Checking during calibration
161	An X-turn at a priority junction has no major turns opposing	1	Junction layout
167	Buffer zones to stub links: different directionalities;5.5.4	4	External area centroid – ignore
178	Strange stage sequencing for an X-turn at signals	11	Observed signal timings
183	LCY for a node differs from its neighbours	37	Checked
187	Mixture of late cut-offs and opposed stages for sig. X-turns	1	Observed signal timings

4 Test 3 – Inspection of Key Junctions

4.1 Background

The purpose of this test is to demonstrate that the key junctions and intersections, that by definition have the greatest influence in the model calibration and validation, are coded appropriately. The test will focus on the subjective aspects of the junction coding process.

The test should therefore confirm that:

- The characteristics of the selected key junctions/intersections have been appropriately characterised in a consistent manner; and
- For each selected key junctions/intersections, the junctions have been correctly coded as agreed in the MSR.

4.2 Information required

Identify all the key junctions/intersections within the core modelled areas. For GLTM, these junctions will be the major intersections on routes around the city centre.

4.3 Acceptance Criteria

To ensure that the process uses and evidence-based approach, a detailed check of the coded network with available source of information including OS ITN, aerial photography and signal timing sheets, using the following pro-forma:

Junction Type	Items to be tested	Acceptance
All Junctions		
All	Junction type	Correct definition
	Number of lanes at stop-line	Consistent and appropriate representations based on the available data sources
	Number of lanes on the main (mid-) link approach	
	Main Link type classification (and resulting cruise speed)	
	Representation of flares and the coded length(s)	
	Selected GAP values within pre-determined range	
	Lane definitions for each turn	
	Representation of Bus Lanes	
	Turn Priority Markers	

Junction Type	Items to be tested	Acceptance
	Saturation Flow	
	Stacking capacity	
Specific Checks by Junction Type		
Signalised	Coding of Filters	Correct based on signal timings data
	Definition of Stages	
	Cycle time and Offset	
	Green times	
	Inter-green times	
Roundabout	Time to circle roundabout	Consistent and appropriate representations based on the available data sources
Priority	Right turn on major arm definition	Consistent and appropriate representations based on the available data sources

The quality of the model will then be established to determine if there are any serious deficiencies or differences in approach that may have a detrimental impact on the model calibration and validation process. If required, a suitable mitigation process will be determined.

4.4 Summary

All the major junctions/intersections in network have been coded. The network has been then reviewed and amended where appropriate to accommodate the detailed zones plan for the study area. The junction coding was based on Google Maps with the following information:

- Junction type: priority, signalised junction, normal roundabout, large roundabout, and signalised roundabout;
- Junction layout: number of approaches, number of lanes on approach, flare lane, roundabout diameters for roundabouts;
- Signal timings were obtained from LCC.

5 Test 4 – Network Routeing

5.1 Background

The purpose of this test is to prove that the network routeing for all vehicle types, are sensible, particularly for longer distance trips around Lincoln.

The test should then confirm that the route choice through the coded network, based on unloaded conditions, are realistic and appropriately differentiates between the principle vehicle groups.

5.2 Information required

Text a series of key strategic routes in the core modelled area will be identified and used as the basis of the test. Plots of paths for each identified pairs of places will then be presented showing how vehicles route through the network.

5.3 Acceptance Criteria

Paths should show plausible routeings, in particular for areas that are unexpectedly avoided or unexpectedly attractive on the unloaded network.

Differences in routeings between the principle vehicle groups (arising from banned links and turns) should be justified through reference to the source data.

5.4 Summary

Guidance presented in TAG Unit M3-1 proposes the number of routes to be tested is derived from the formula:

- Number of OD Pairs = (Number of Zones)$^{0.25}$ x Number of User Classes

Based on the proposed zone system for the base year with 733 zones, this amounts to 26 routes.

Figures 5-1 to 5-26 provide checks on routeing between different OD pairs. The routes all appear plausible with traffic taking the most obvious route in all cases.

Figure 5-1 Routeing Check – Newark to Market Rasen

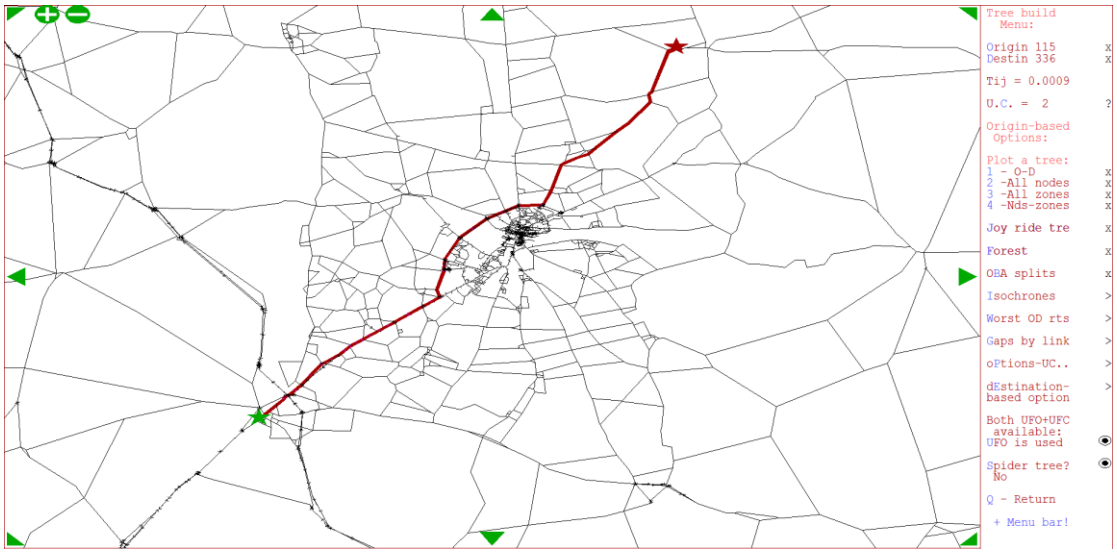


Figure 5-2 Routeing Check – Saxilby to Sleaford

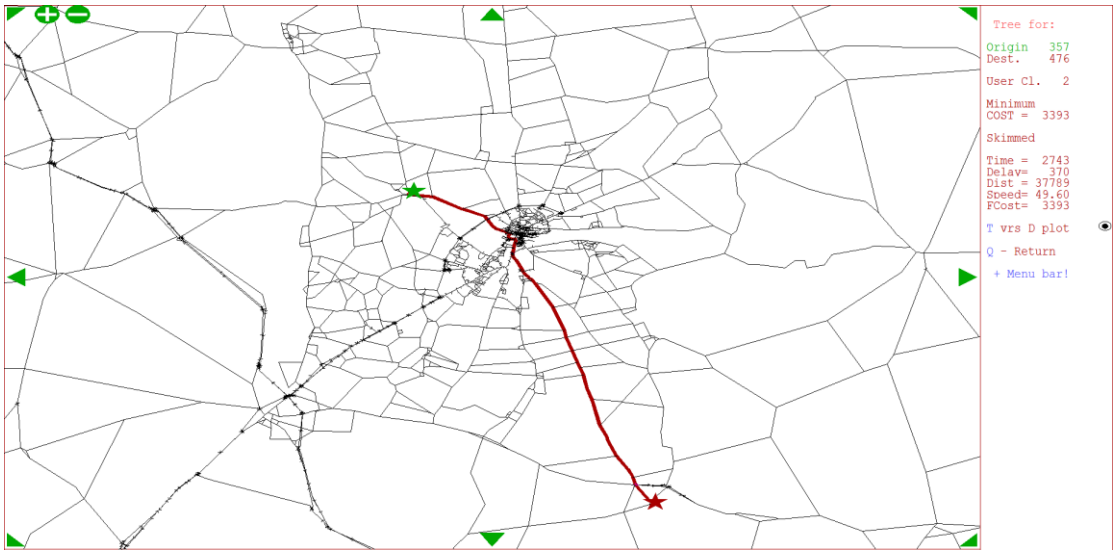


Figure 5-3 Routeing Check – A1 (Markham Moor) to Washingborough

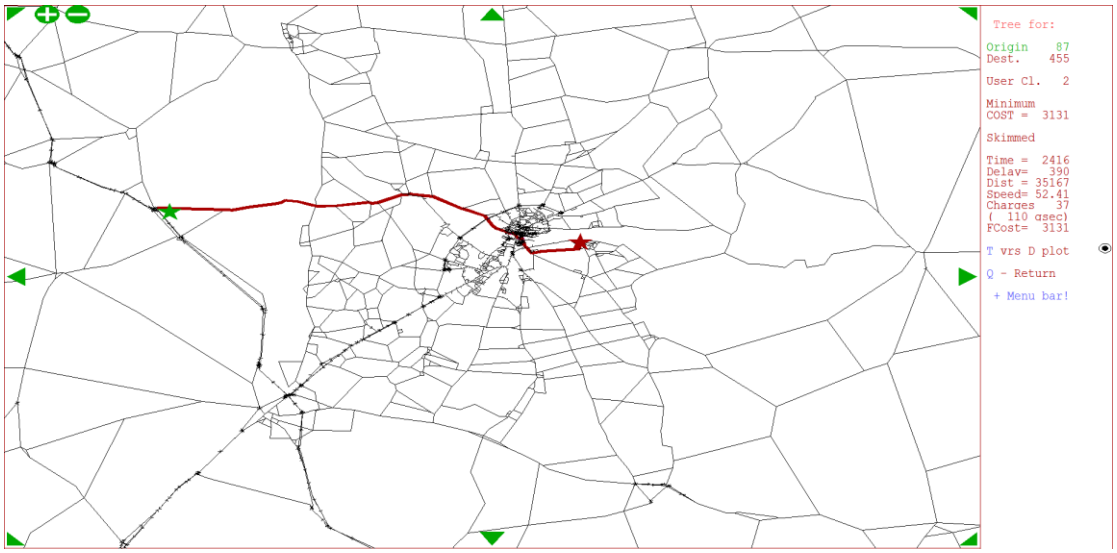


Figure 5-4 Routeing Check – Skellingthorpe to Carlton Centre

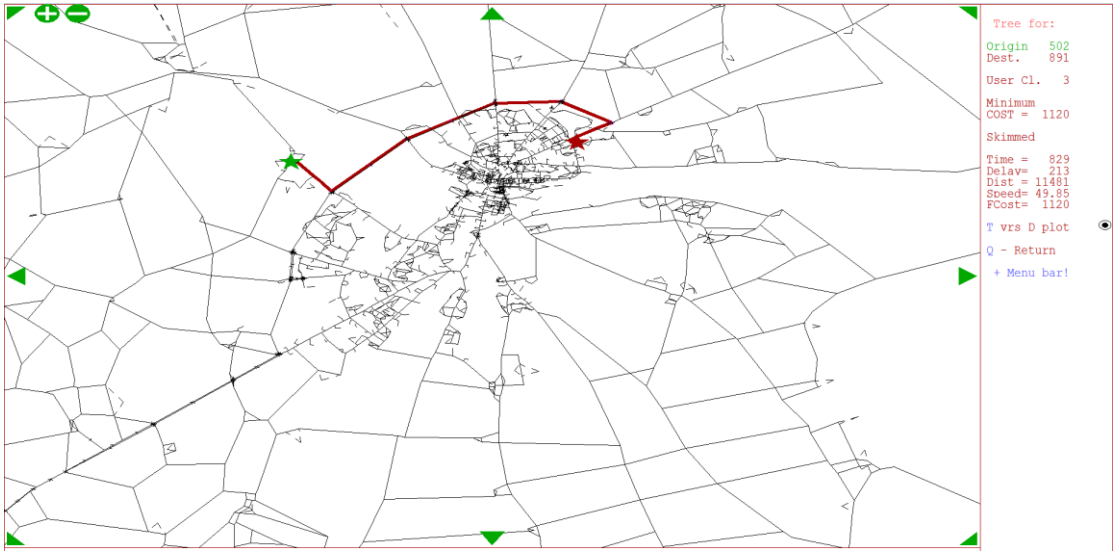


Figure 5-5 Routeing Check – Sudbrooke to North Hykeham

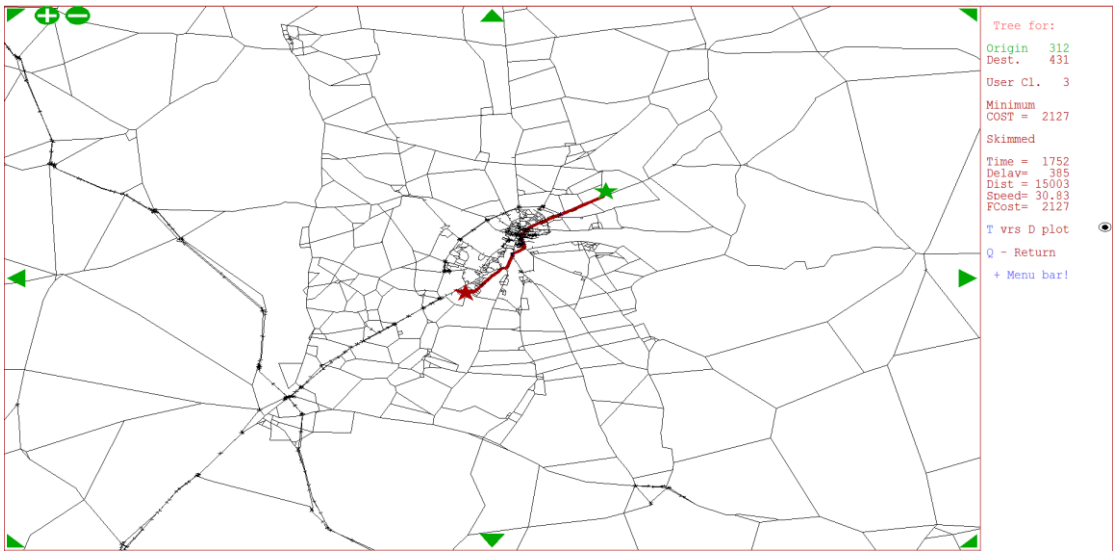


Figure 5-6 Routeing Check – Cherry Willingham to Waddington

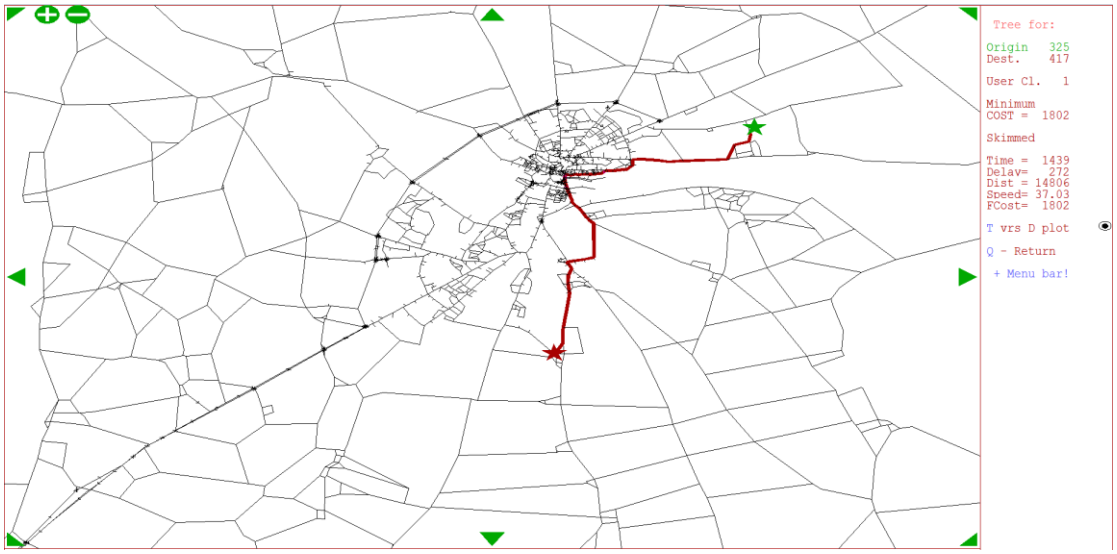


Figure 5-7 Routeing Check – A46/A1434 to City Centre

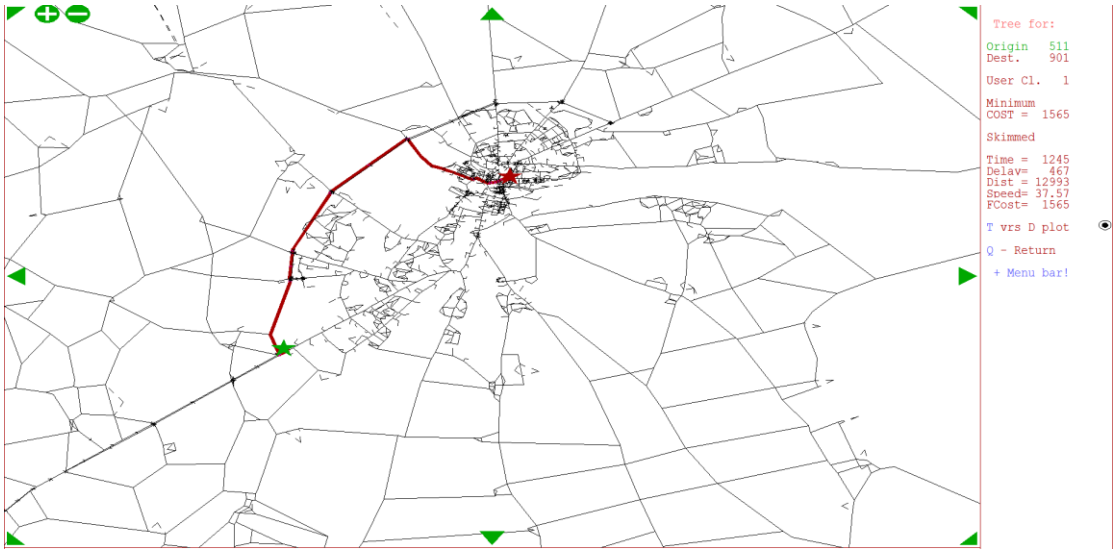


Figure 5-8 Routeing Check – Long Leys Road to Bracebridge Low Fields

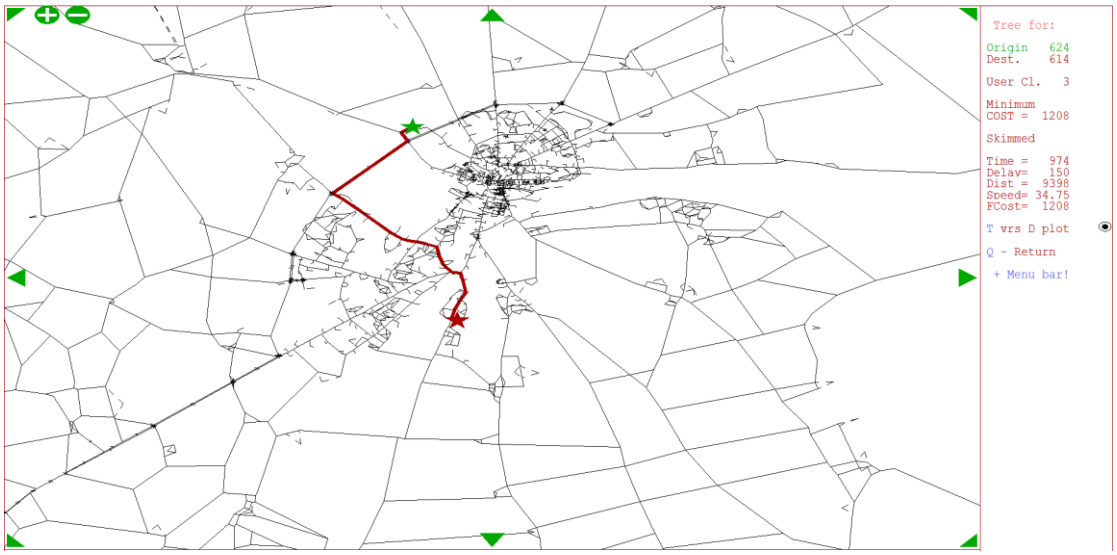


Figure 5-9 Routeing Check – Branston to Lincoln Cathedral

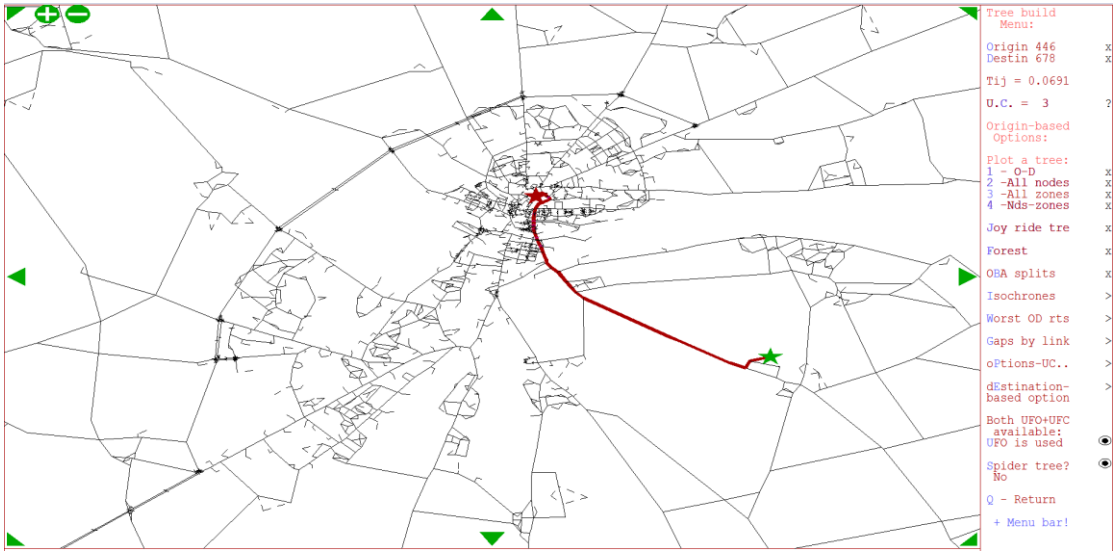


Figure 5-10 Routeing Check – Stonefield Industrial Park to Saxilby

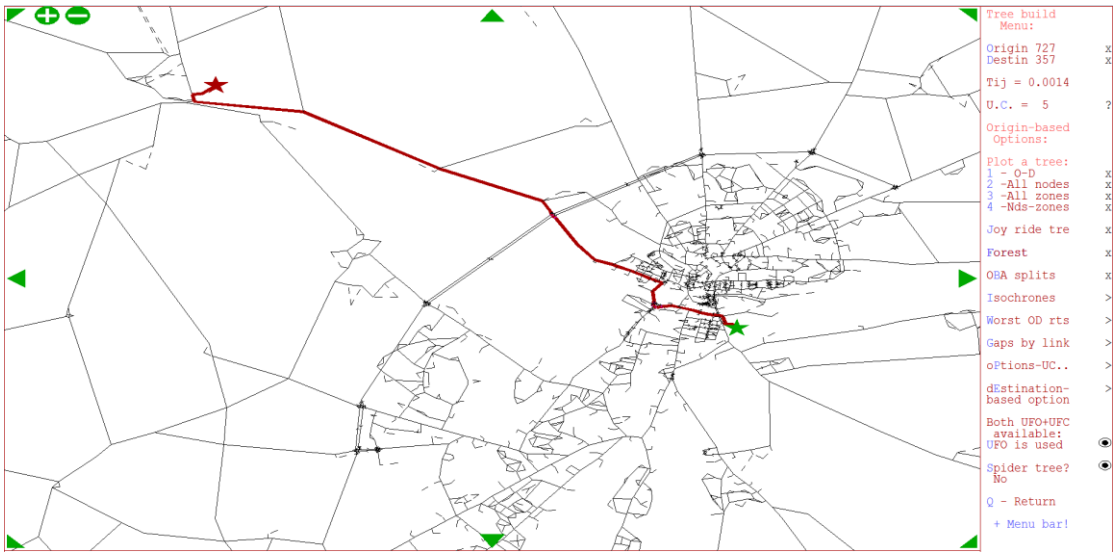


Figure 5-11 Routeing Check – Birchwood to Allenby Road Industrial Park

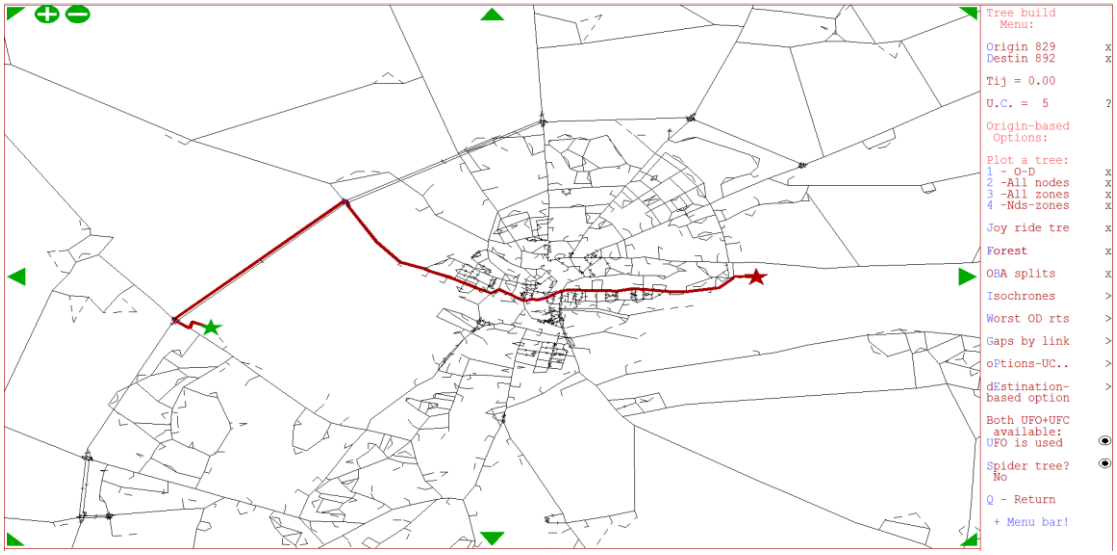


Figure 5-12 Routeing Check – Market Rasen to City Centre

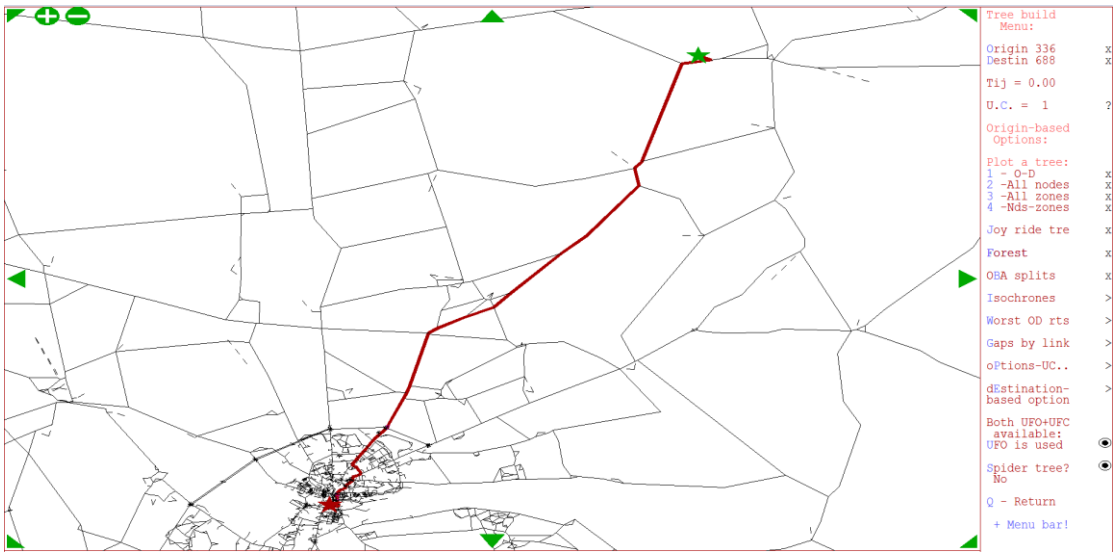


Figure 5-13 Routeing Check –Washingborough to Newark

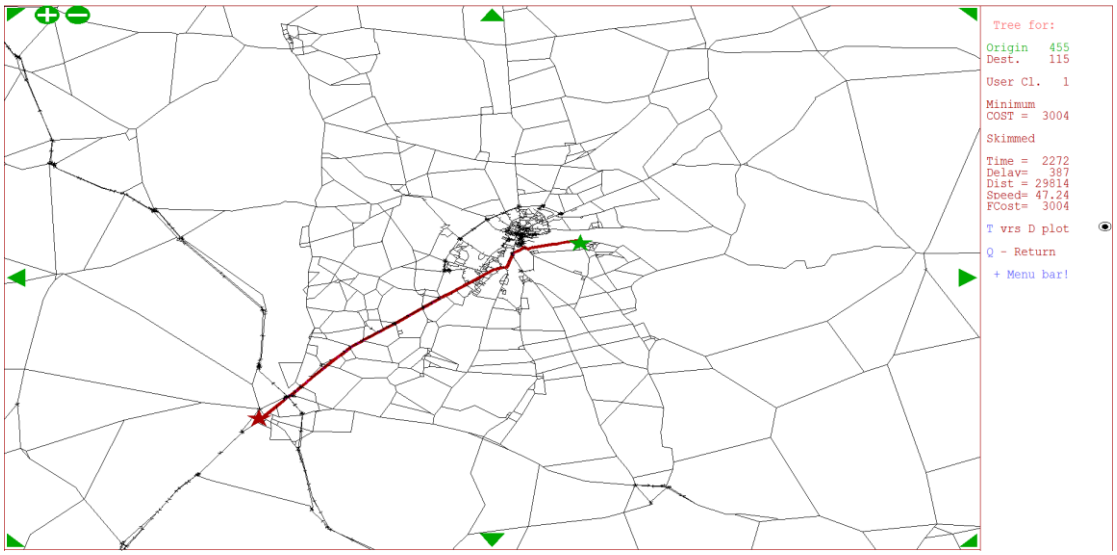


Figure 5-14 Routeing Check – Wragby to North Hykeham

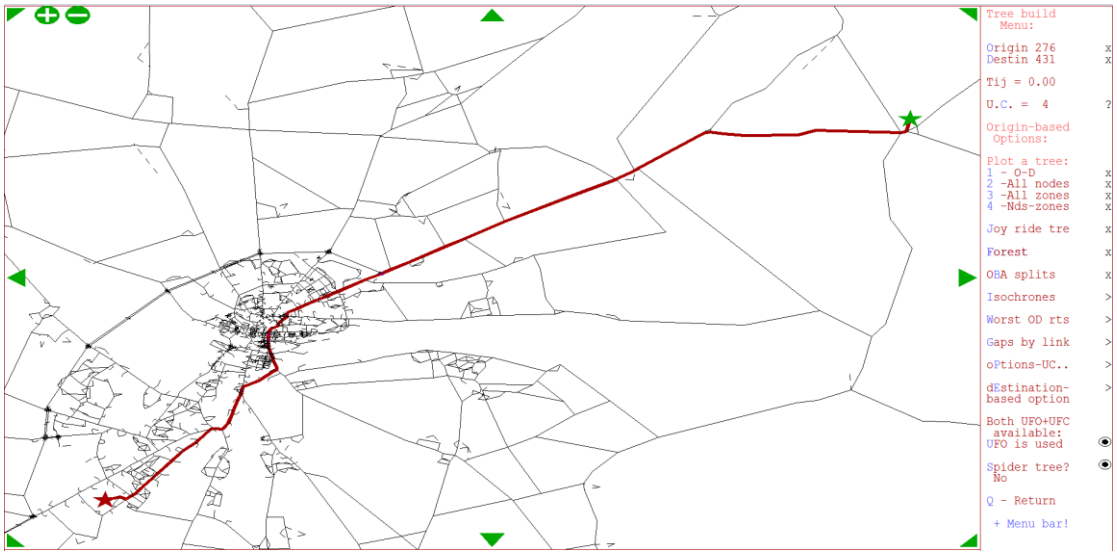


Figure 5-15 Routeing Check – Heighington to North Carlton

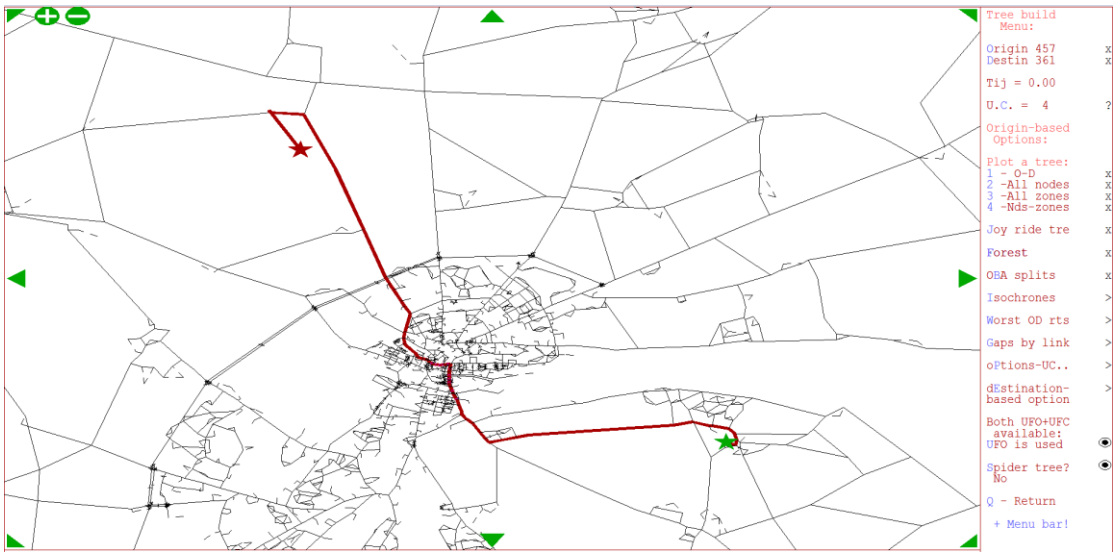


Figure 5-16 Routeing Check – Welton to South Hykeham

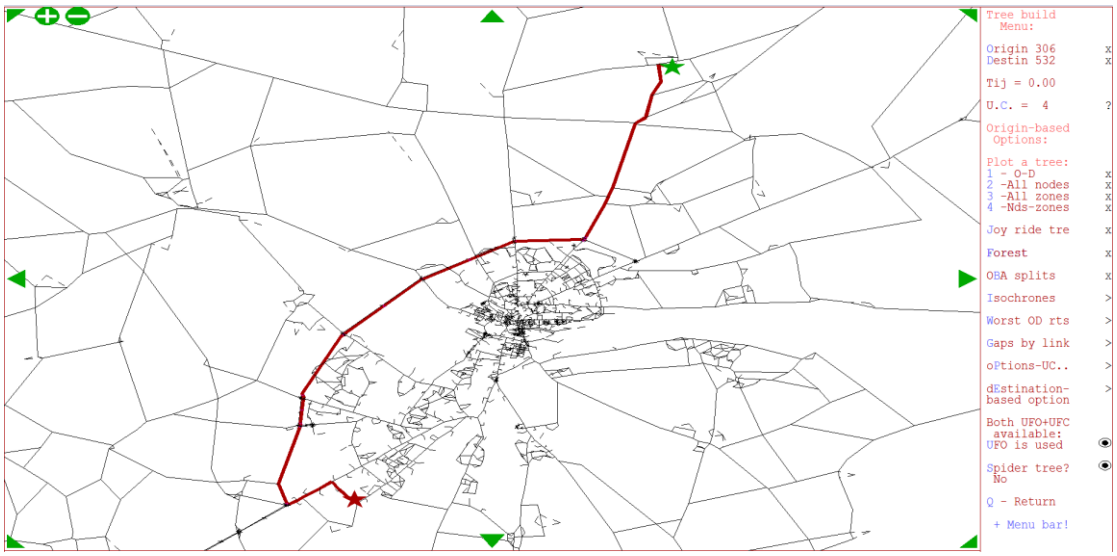


Figure 5-17 Routeing Check – Doddington to Reepham

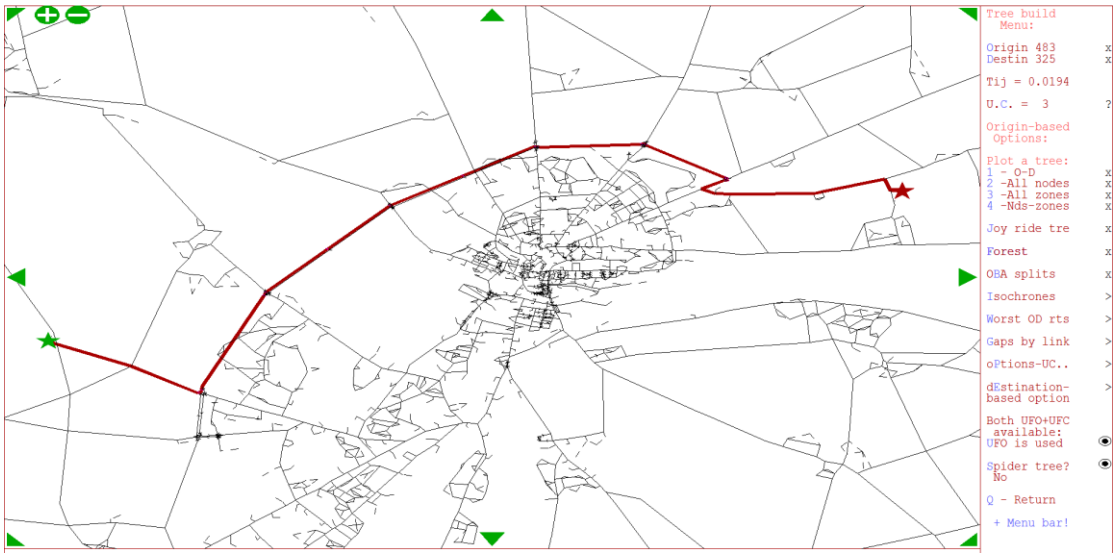


Figure 5-18 Routeing Check – Thorpe on the Hill to City Centre

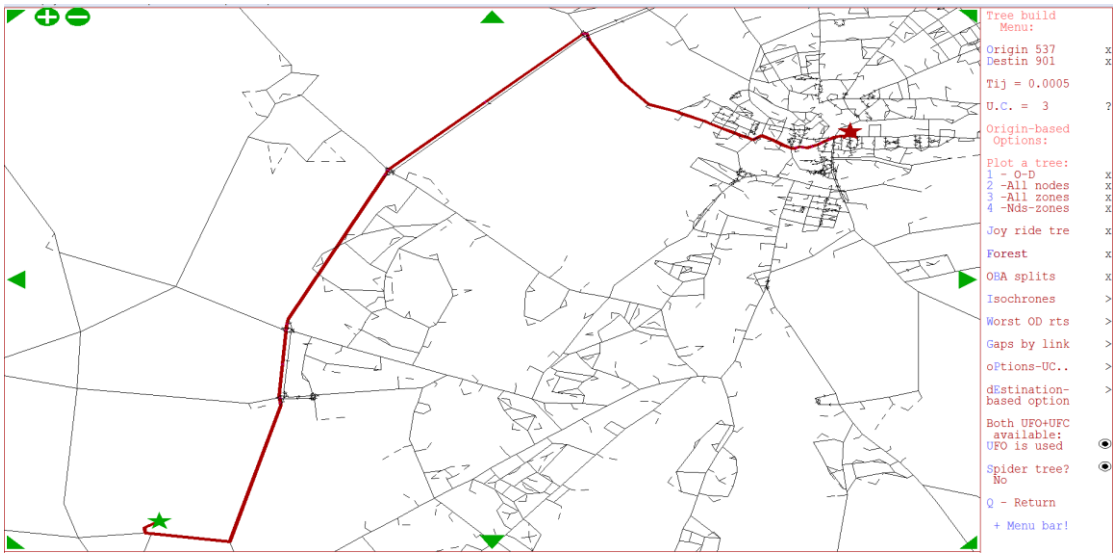


Figure 5-19 Routeing Check – North Hykeham to City Centre

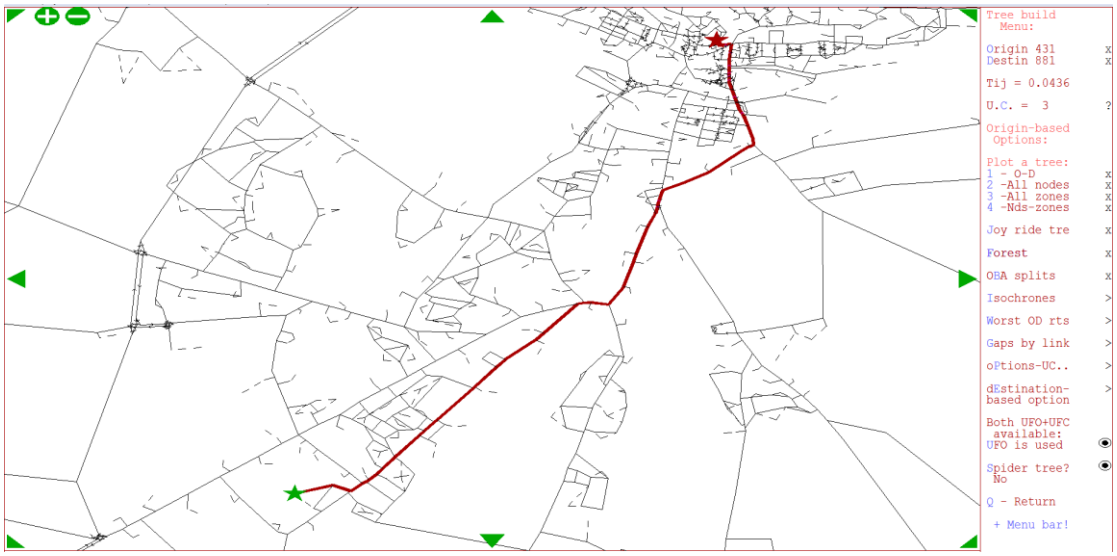


Figure 5-20 Routeing Check – Cherry Willingham to Sleaford

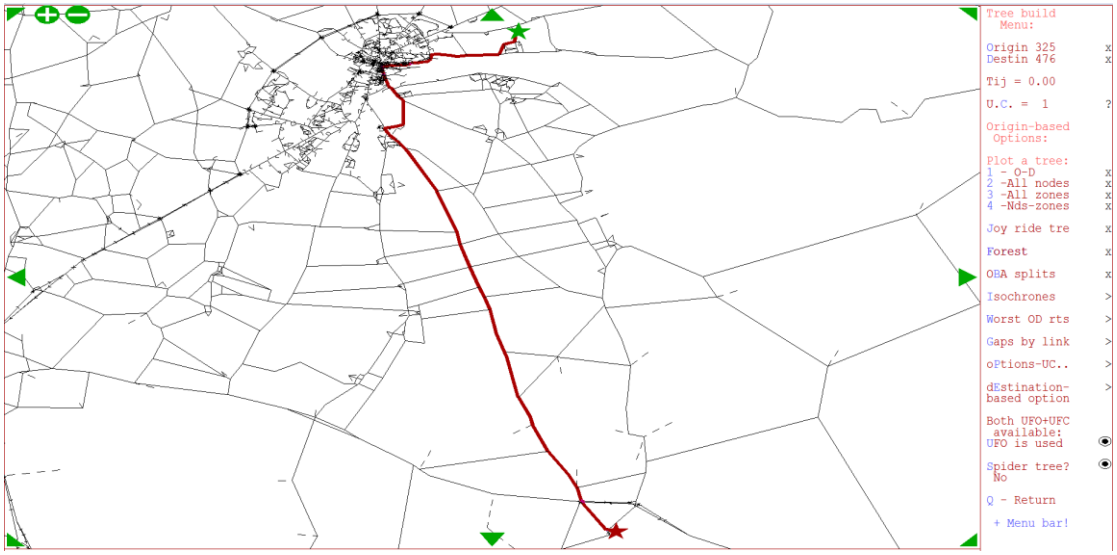


Figure 5-21 Routeing Check – Skellingthorpe to North Hykeham

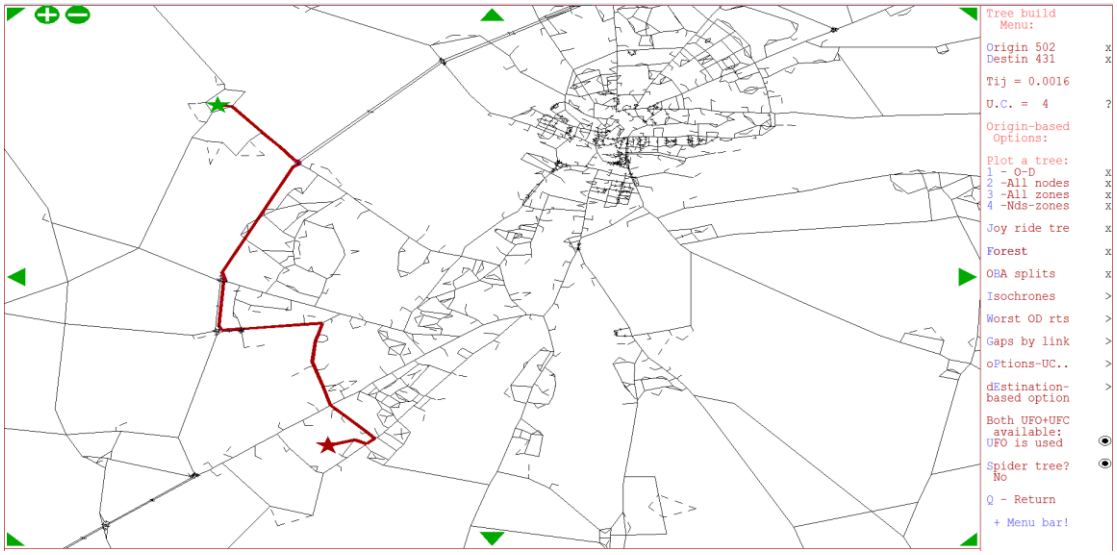


Figure 5-22 Routeing Check – Gainsborough to City Centre

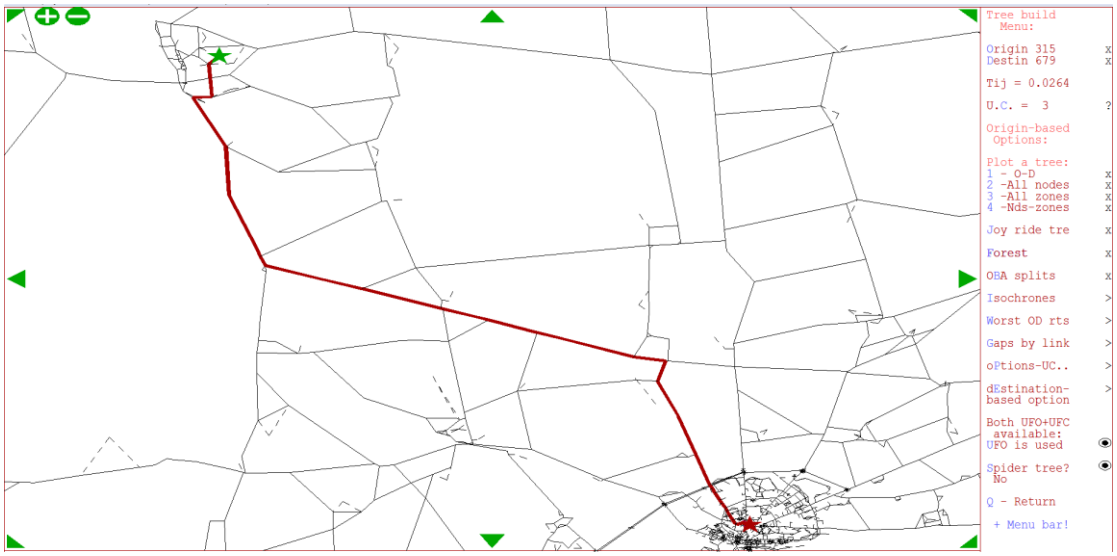


Figure 5-23 Routeing Check – East Drayton to Skegness

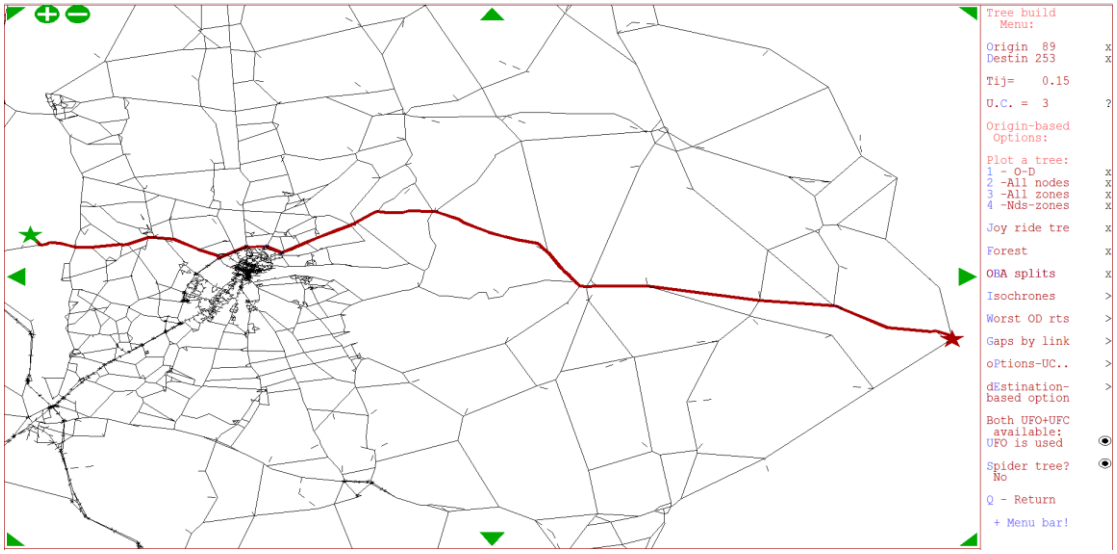


Figure 5-24 Routeing Check – London to Hull

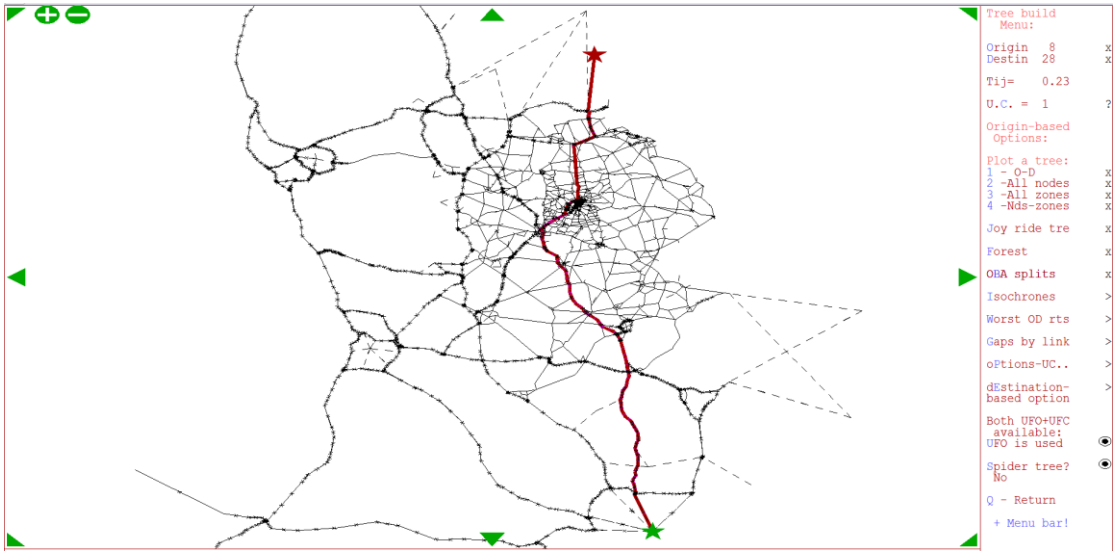


Figure 5-25 Routeing Check – London to North East

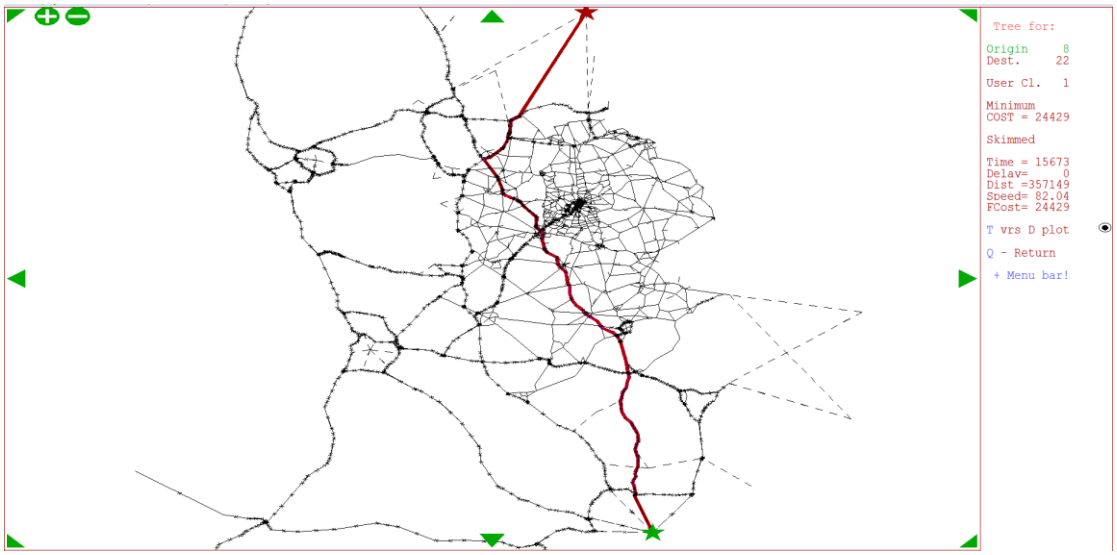
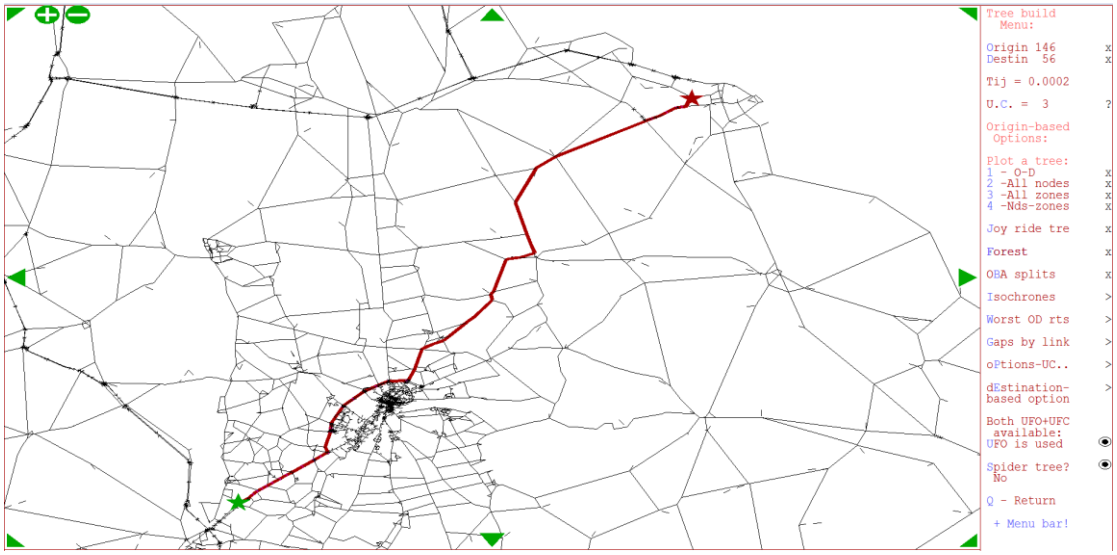


Figure 5-26 Routeing Check – A46 (north east of Newark) to Grimsby



6 Test 5 – Link Consistency Tests

6.1 Background

The purpose of this test is to check that the network link types are consistent along a road and in both directions, to confirm that network lengths and coded link capacities are appropriately coded. The test should confirm that the network structure has been constructed in accordance with the model specification report.

6.2 Information required

The following information should be required for the purpose of the tests:

- Map showing link types for each direction of a link. Changes in link types along the same stretch of road should be compared with source data. Map of cruise speed as derived from Trafficmaster Journey time data will be used to determine the appropriate link type (i.e. speed-flow curve).

- Maps showing the extent of the types of speed-flow curves and capacities used in the simulation area. For buffer network, the assumption of unlimited capacity with speed taken from the Trafficmaster JT data will be used.

- Tables showing the SATURN link lengths compared with crow-fly distance; and tables showing SATURN link lengths compared with GIS data.

6.3 Acceptance Criteria

For the core modelled area:

- There should be no change in link type between directions, unless this can be justified by difference in number of lanes, speed limit;

- Dual carriageway should have the same link type link both direction, except where indicated by difference in speed limit, number of lanes, etc. from source data; and

- Change in link type should be consistent providing changes in speed limit when moving toward town centre from rural area.

For the non-core modelled area:

- If any significant findings arise from the checks, a series of mitigation measures will be implemented either at this stage or during calibration/validation stage.

6.4 Summary

Table 6-1 below provides a summary of the difference between coded link lengths from SATURN compared to crow-fly distance.

It is noted that all the –ve (i.e. coded length < crow-fly distance) are due to the fact that the coded length is input as integer whereas the crow-fly distance is calculated based on XY coordinates of the nodes, i.e. not rounded to integer.

Table 6-1 Coded Link Length vs. Crow-Fly Distance Summary

Coded Length	Less than	Between (ve for Crow Fly > Coded Length)								Greater than
	20%	20 & 15%	15 & 10%	10 & 5%	5 & 0%	0 & 5%	5 & 10%	10 & 15%	15 & 20%	> 20%
0- 500m	0	0	0	1	1138	3441	401	174	121	125
500- 1000m	0	0	0	0	98	1241	91	56	29	51
1000- 2000m	0	0	0	0	32	1079	167	59	32	34
2000- 5000m	0	0	0	0	7	857	264	78	38	41
5000-10000m	0	0	0	0	3	303	148	49	32	24
10000-20000m	0	0	0	0	0	99	64	18	10	6
Over 20000m	0	0	0	0	0	2	8	4	0	2
Total	**0**	**0**	**0**	**1**	**1278**	**7022**	**1143**	**438**	**262**	**283**

7 Test 6 – Flat Matrix Assignment Test

7.1 Background

The purpose of this test is to ensure that the model assignment with a flat matrix produce plausible results in terms of routeing and also to investigate whether or not locations with excessively high delays are as a result of significant flows or due to coding error.

7.2 Information required

Plots identifying key strategic places in the core modelled area used to check routeing with additional bandwidth plots showing the magnitude of traffic flow on links in the core modelled area and links where high delays occur.

7.3 Acceptance Criteria

Paths should show plausible routeings, in particular for areas that are unexpectedly avoided or unexpectedly attractive on the unloaded network.

Differences in routeings between the principle vehicle groups (arising from banned links and turns) should be justified through reference to the source data.

Traffic flow bandwidth plots should show key routes in the network carrying more traffic than other routes.

Delay plots should show congestion occurring on key routes with significant traffic flows particularly in urban areas.

7.4 Summary

Figures 7-1, 7-3 and 7-5 are bandwidth plots which show the magnitude of traffic flow on links across the GLTM study area. The plots suggest the magnitude between the key strategic links and more minor links is correct with routes such as the A46 and A15 carrying more traffic than the B- and C- rural roads.

Figures 7-2, 7-4 and 7-6 highlight nodes were significant delay occurs (the radius of the circles being proportional to the level of delay). These indicate that the majority of delay is occurring at expected locations in the urban areas and city centre.

Figure 7-1 Flat Matrix Flow Plot – AM Peak

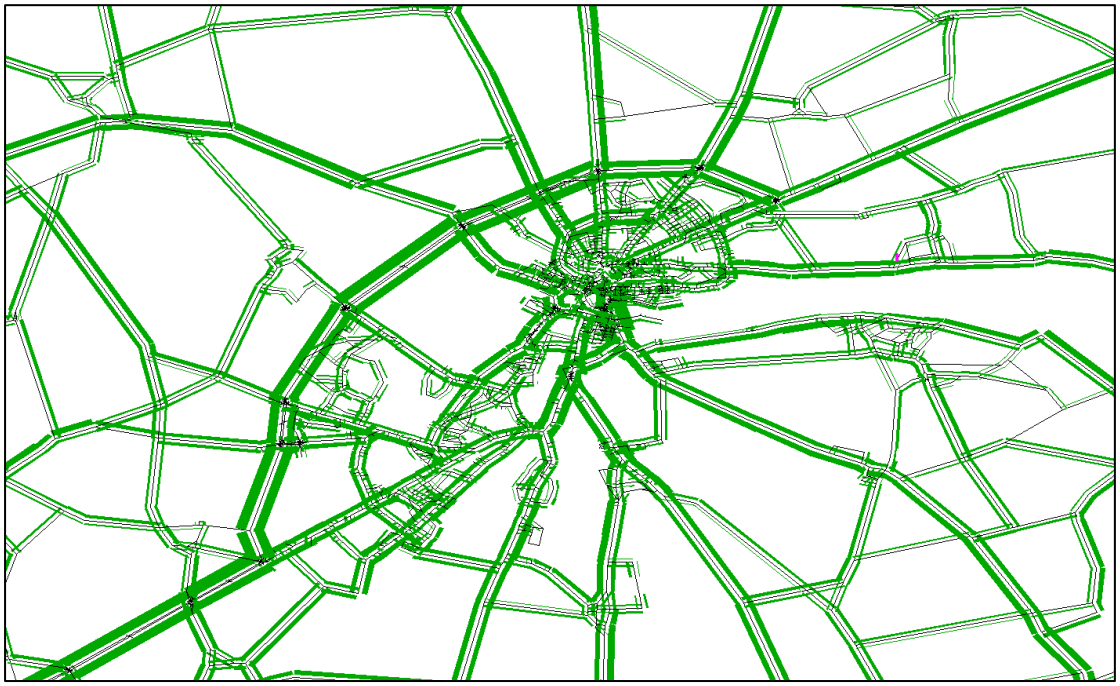


Figure 7-2 Flat Matrix Junction Delay Plot – AM Peak

Figure 7-3 Flat Matrix Flow Plot – Inter Peak

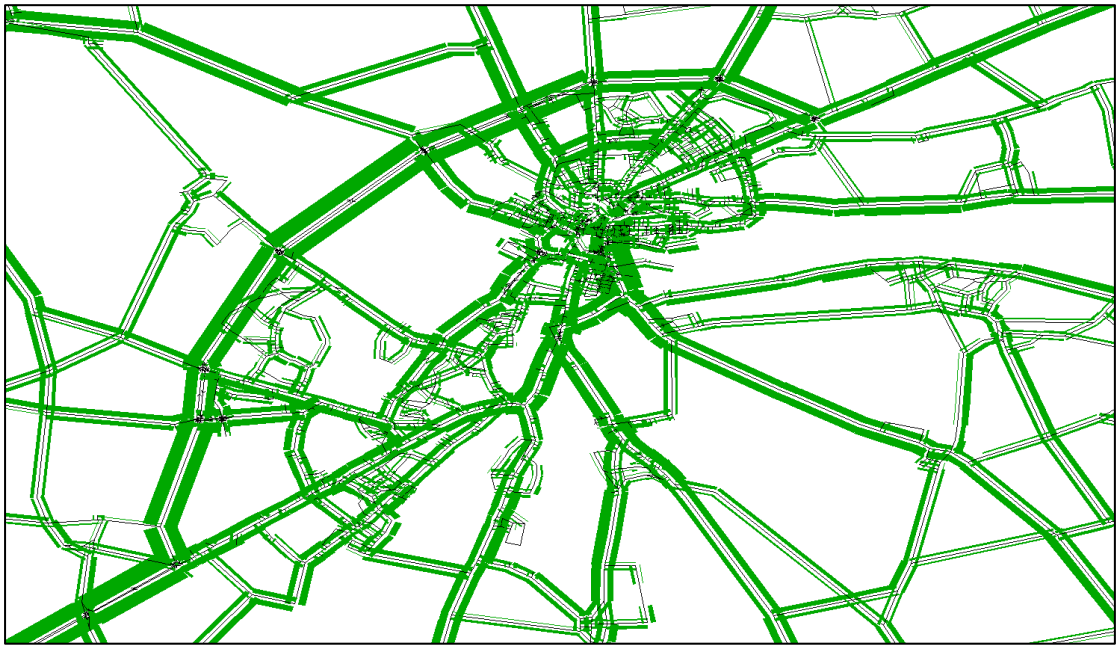


Figure 7-4 Flat Matrix Junction Delay Plot – Inter Peak

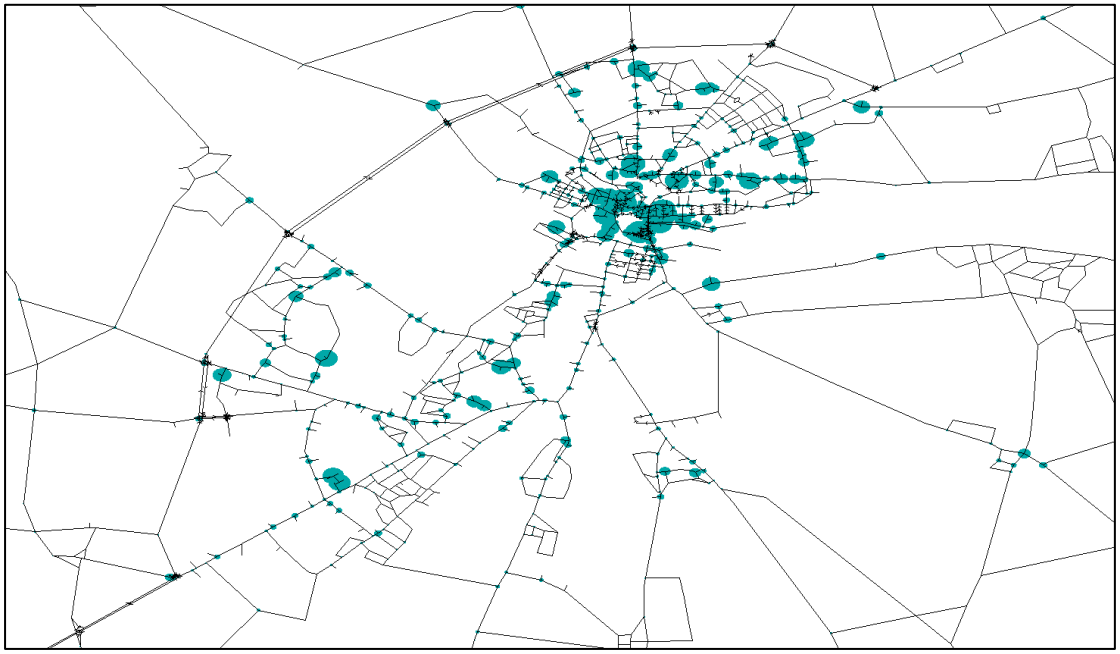


Figure 7-5 Flat Matrix Flow Plot – PM Peak

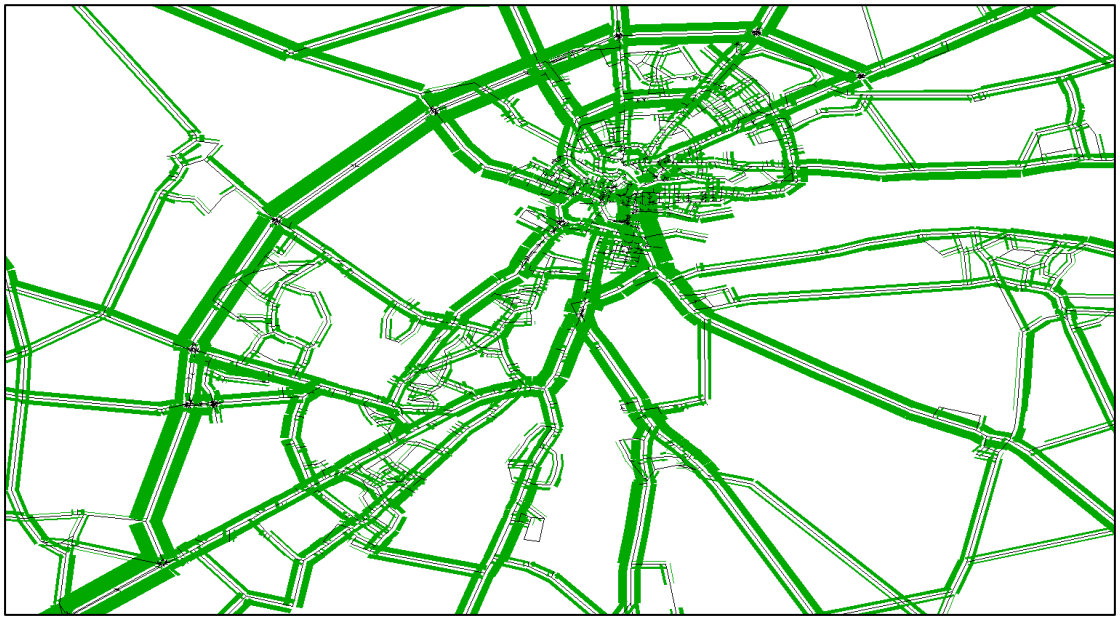
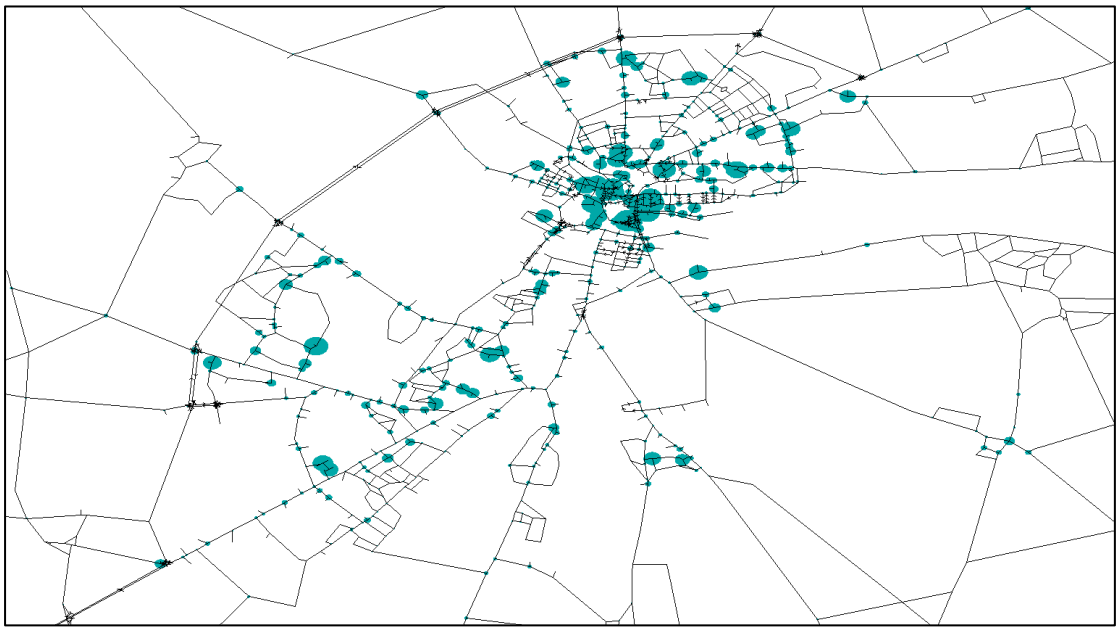
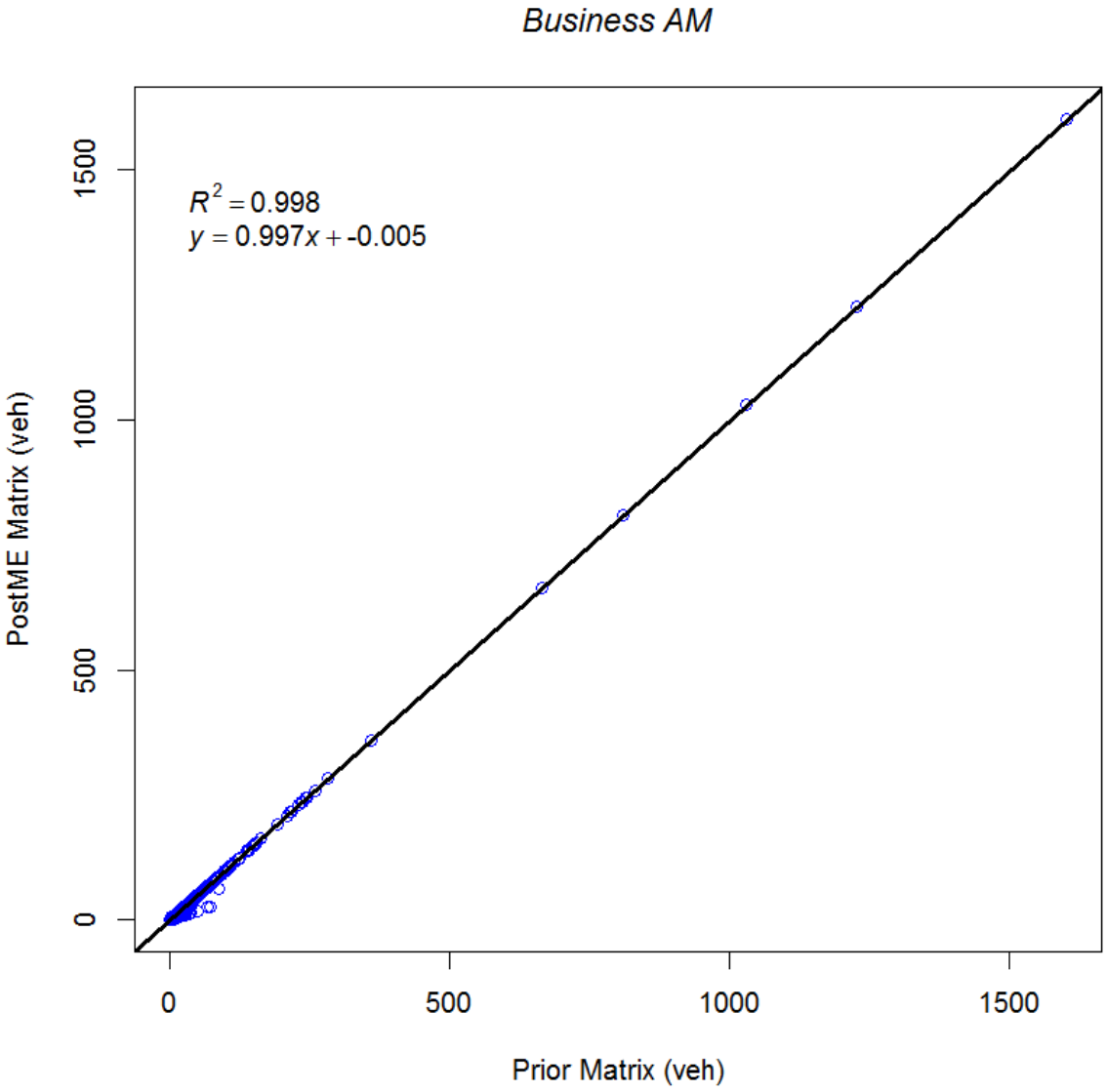
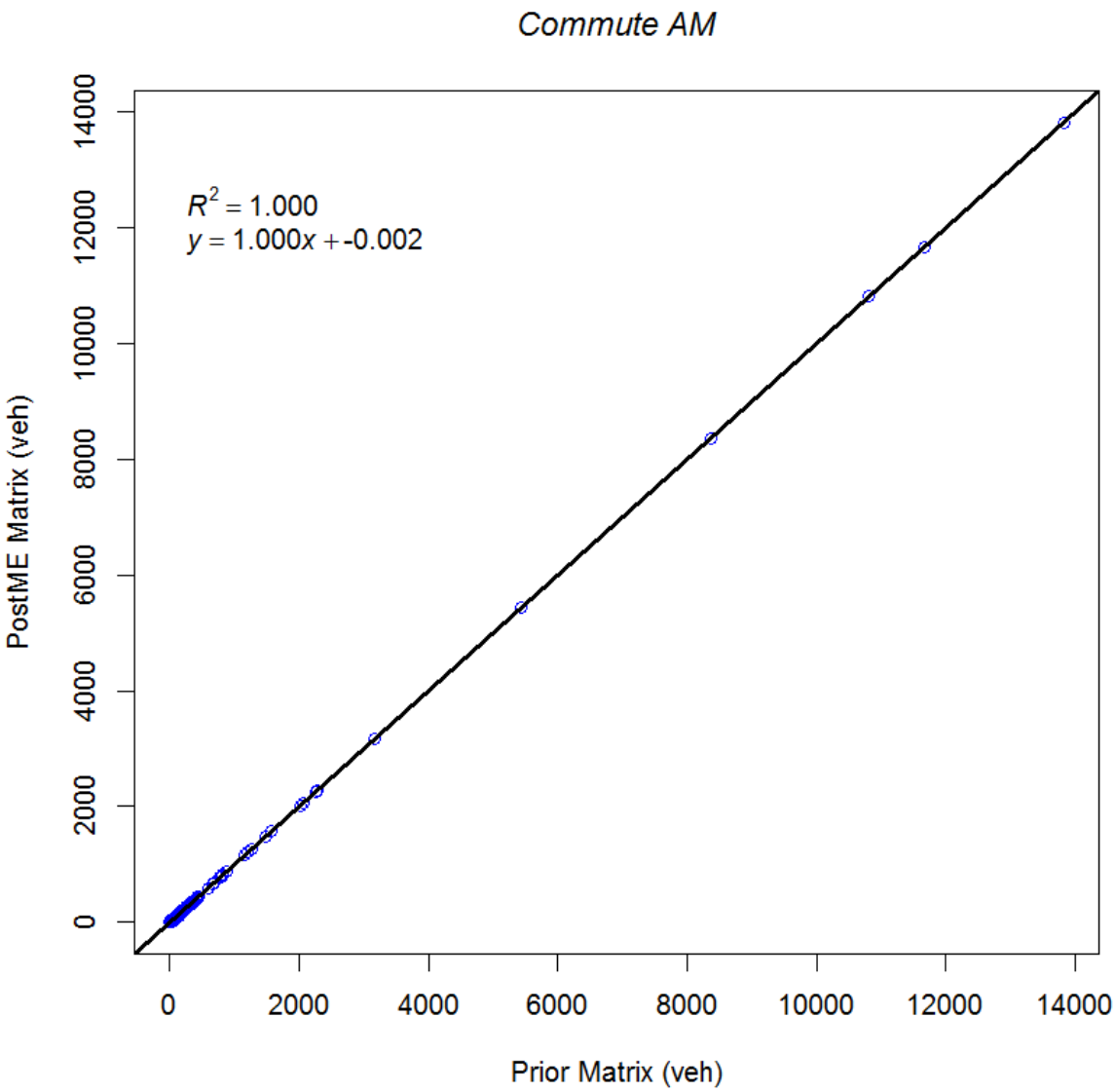


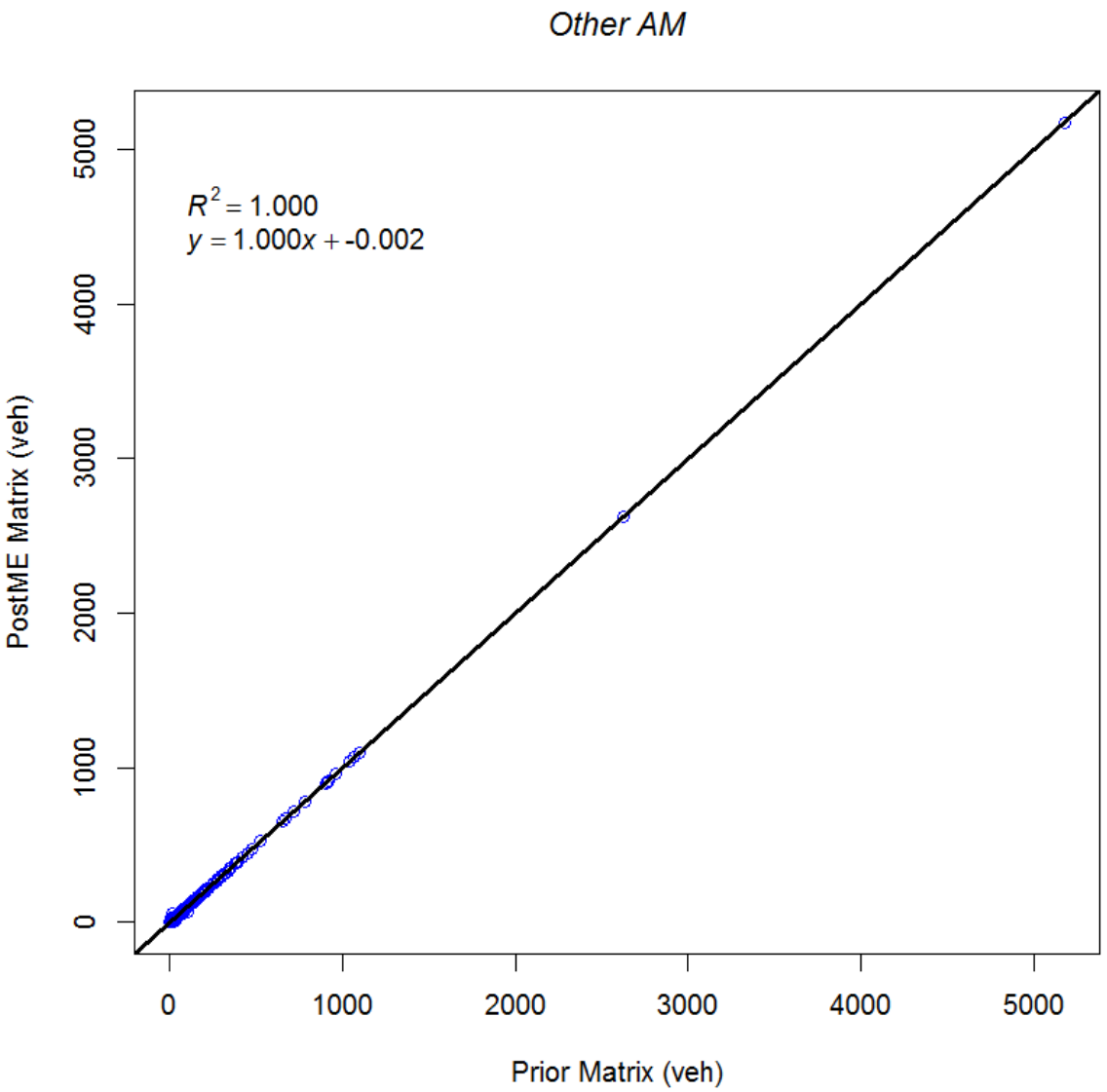
Figure 7-6 Flat Matrix Junction Delay Plot – PM Peak

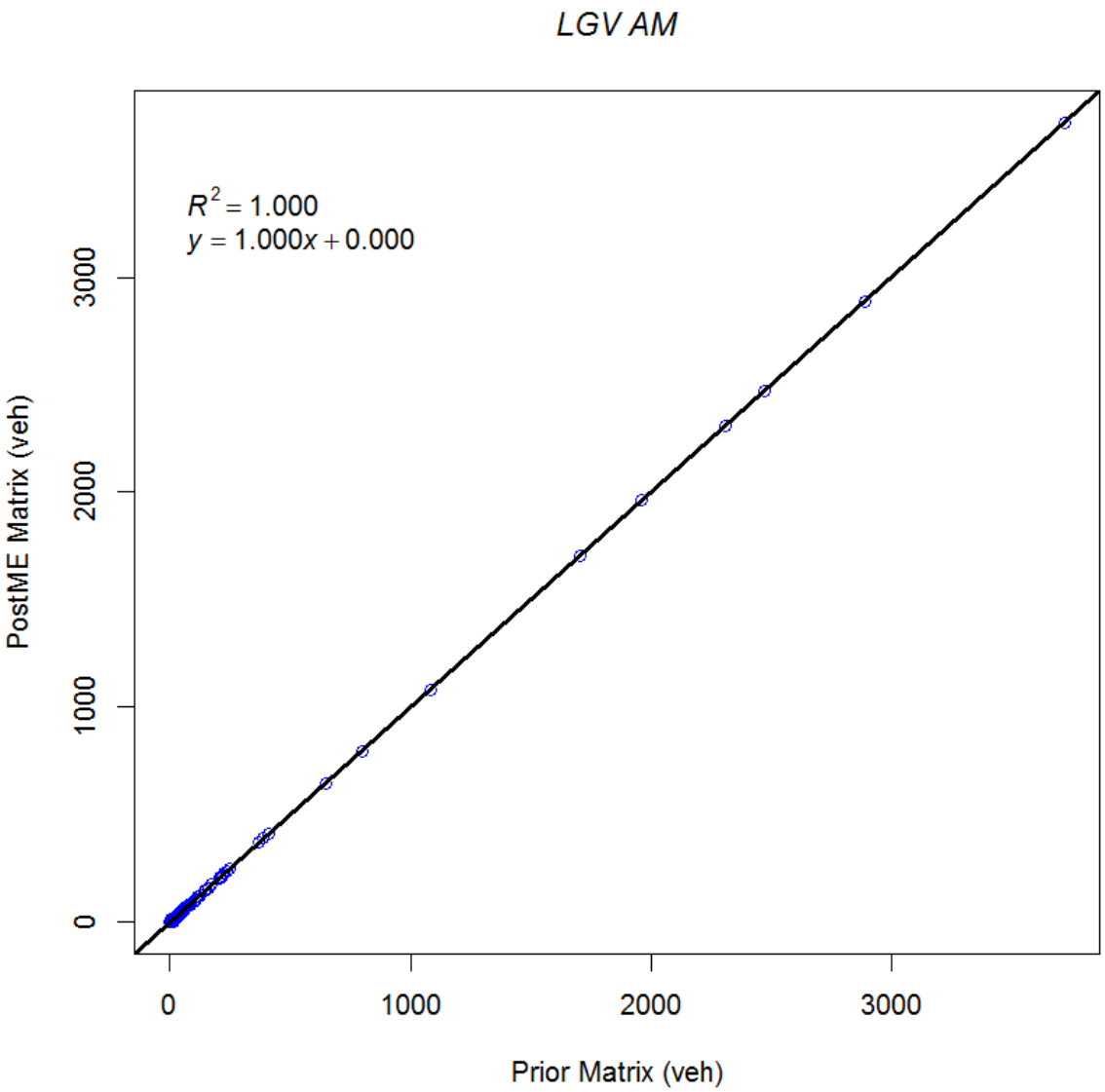


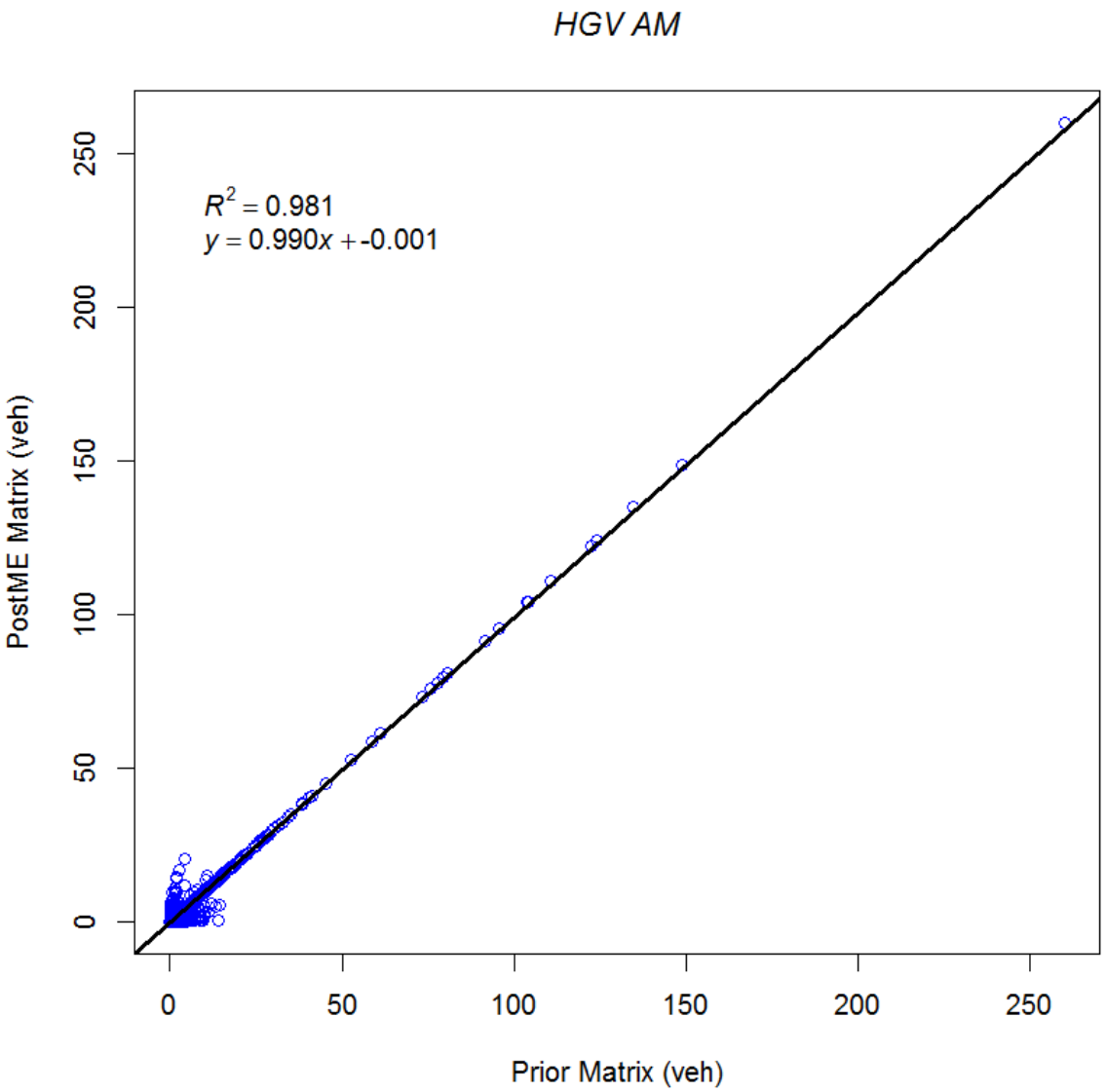
Zonal Cell Values – AM Peak



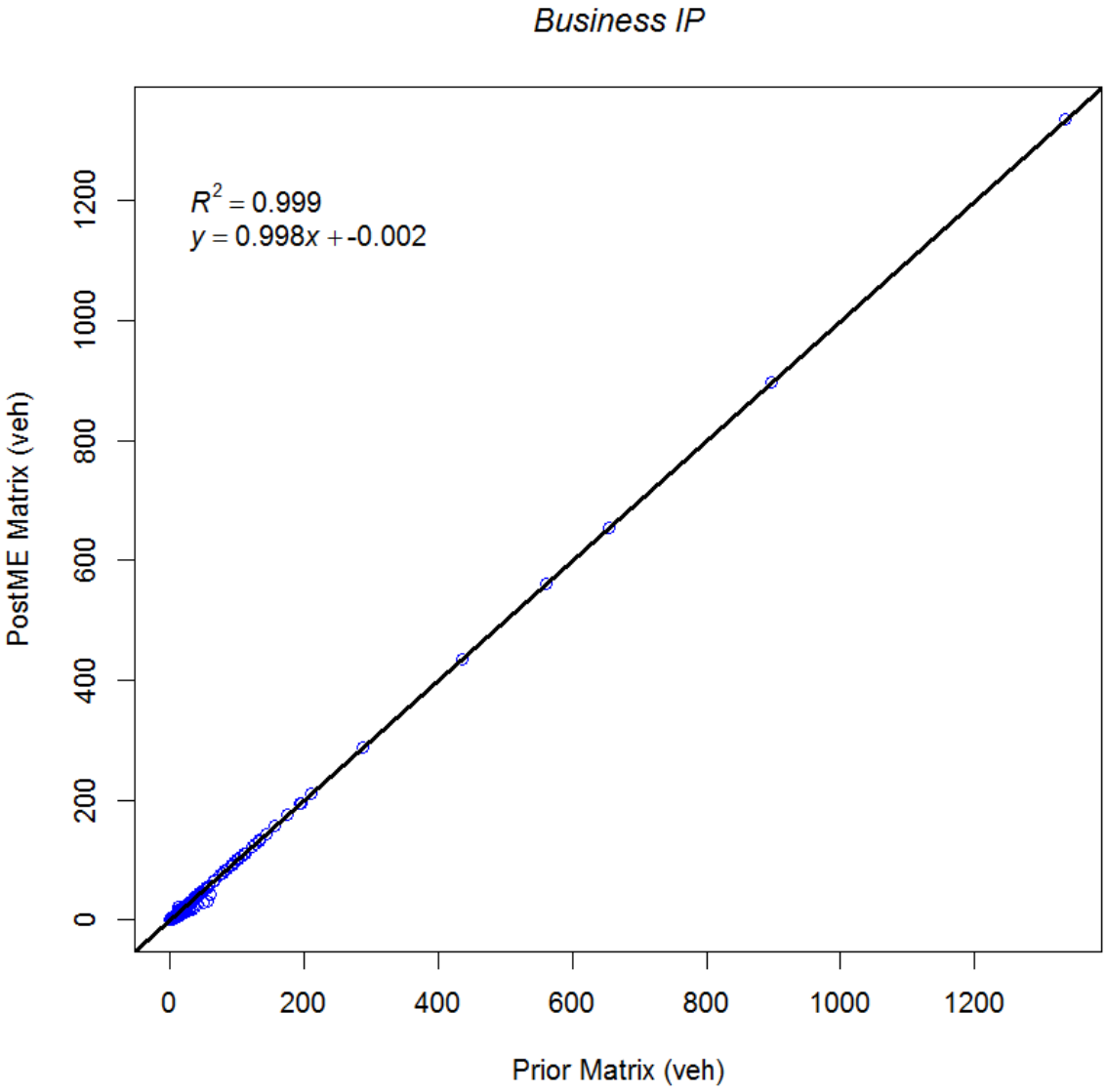

Commute AM
$R^2 = 1.000$
$y = 1.000x + -0.002$
PostME Matrix (veh)
Prior Matrix (veh)
0
2000
4000
6000
8000
10000
12000
14000

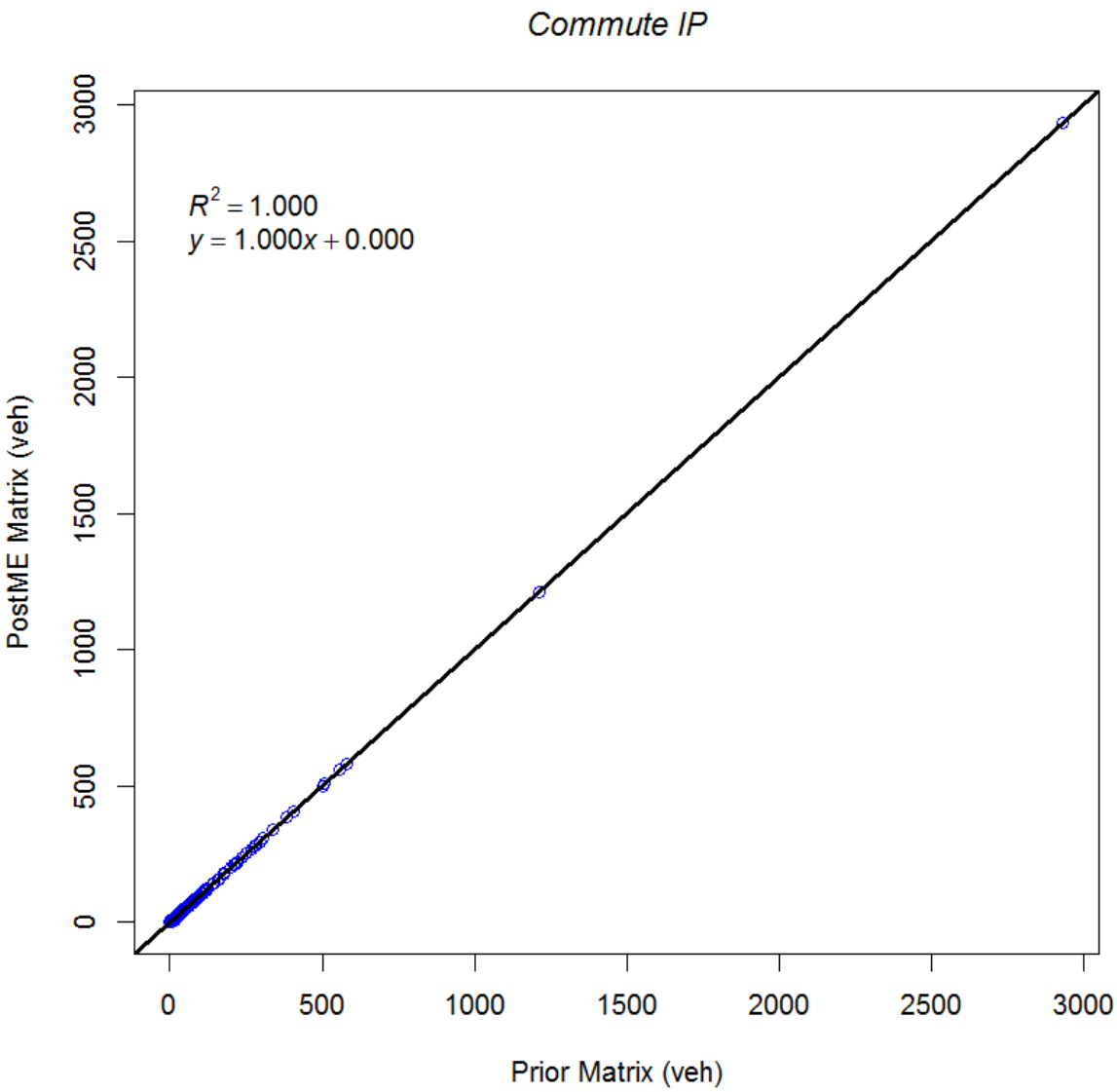

Other AM
$R^2 = 1.000$
$y = 1.000x + -0.002$
PostME Matrix (veh)
Prior Matrix (veh)
0
1000
2000
3000
4000
5000

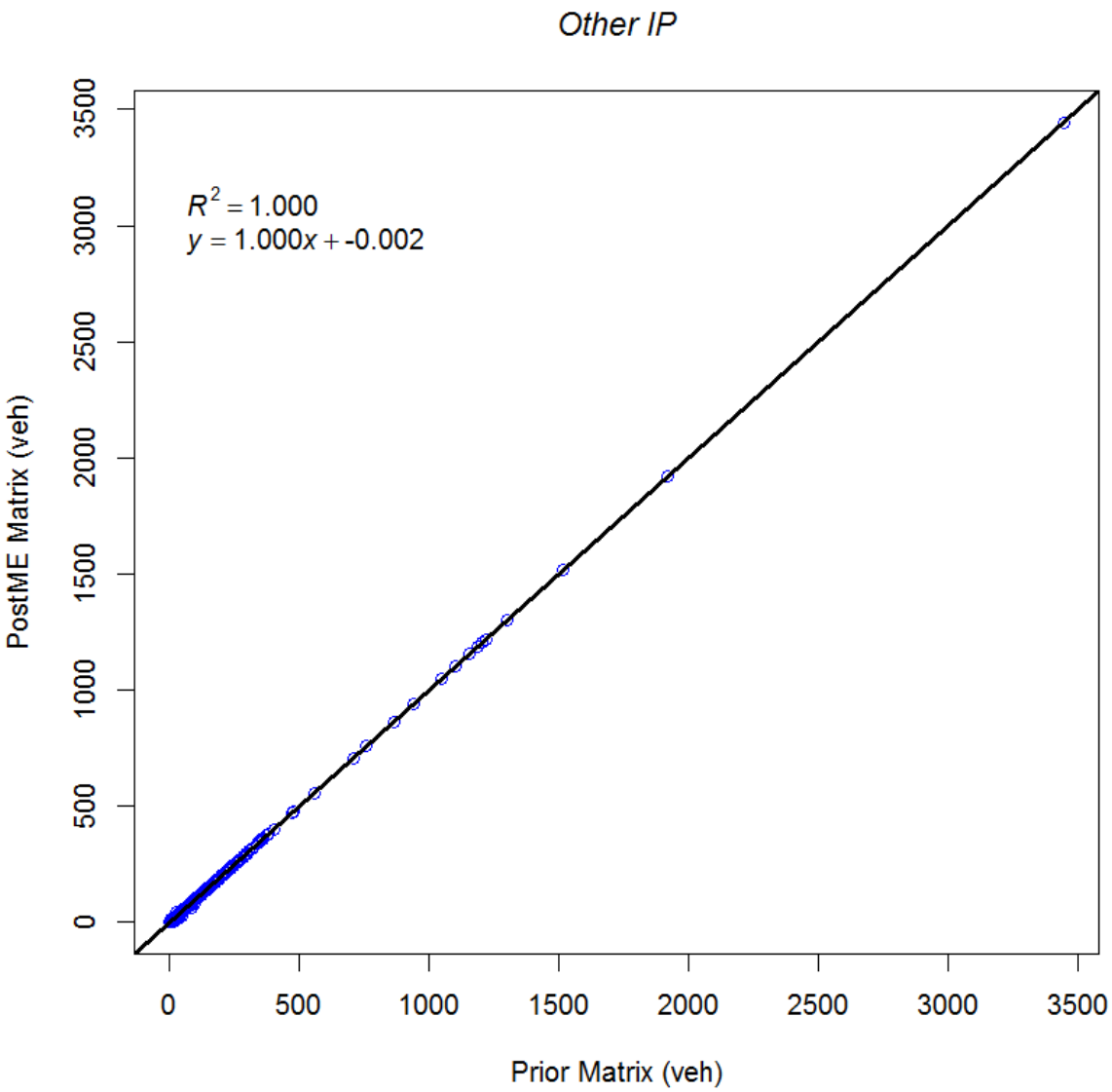

LGV AM
$R^2 = 1.000$
$y = 1.000x + 0.000$
PostME Matrix (veh)
Prior Matrix (veh)
0
1000
2000
3000

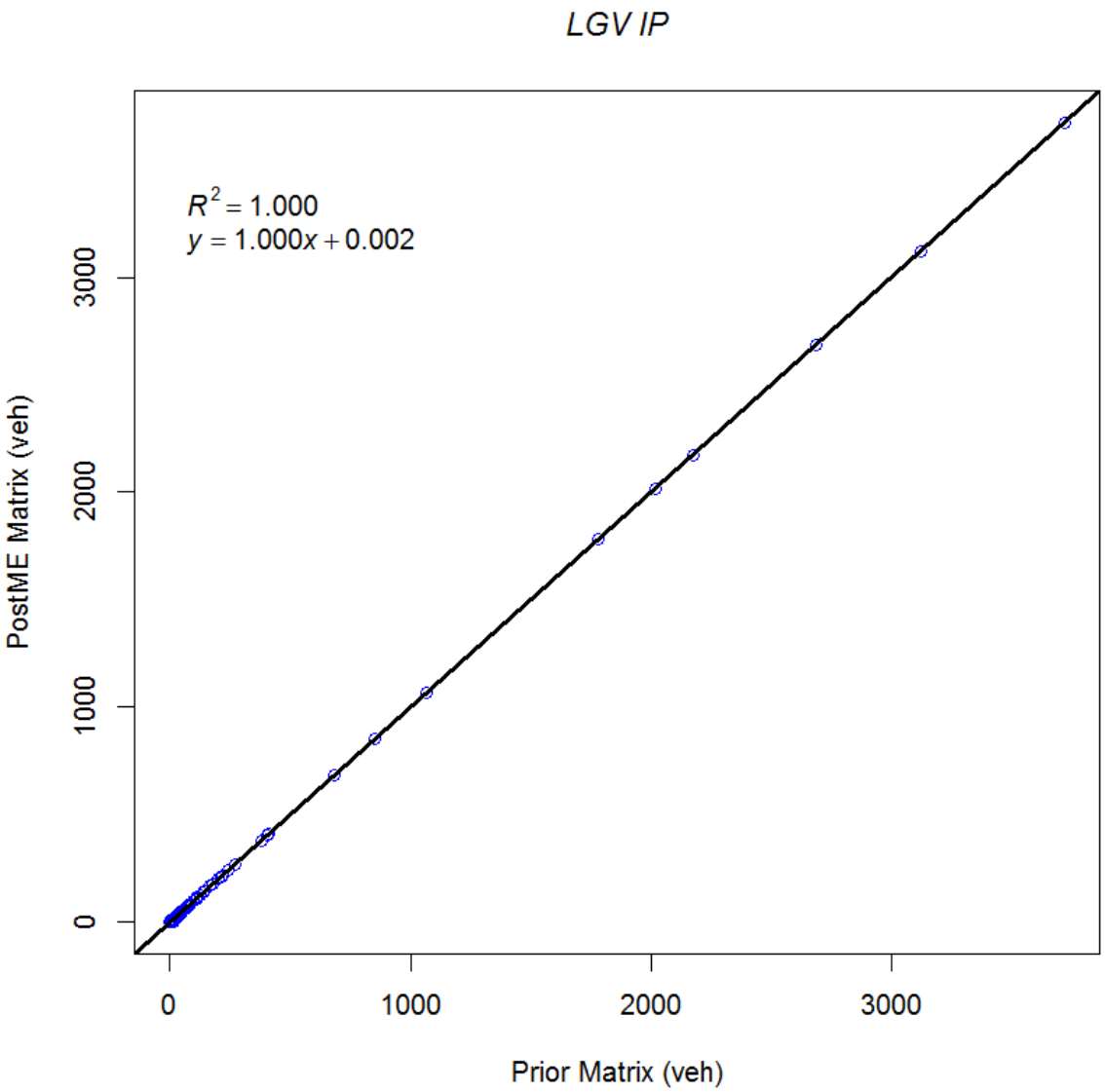

HGV AM
$R^2 = 0.981$
$y = 0.990x + -0.001$
PostME Matrix (veh)
Prior Matrix (veh)
0
50
100
150
200
250

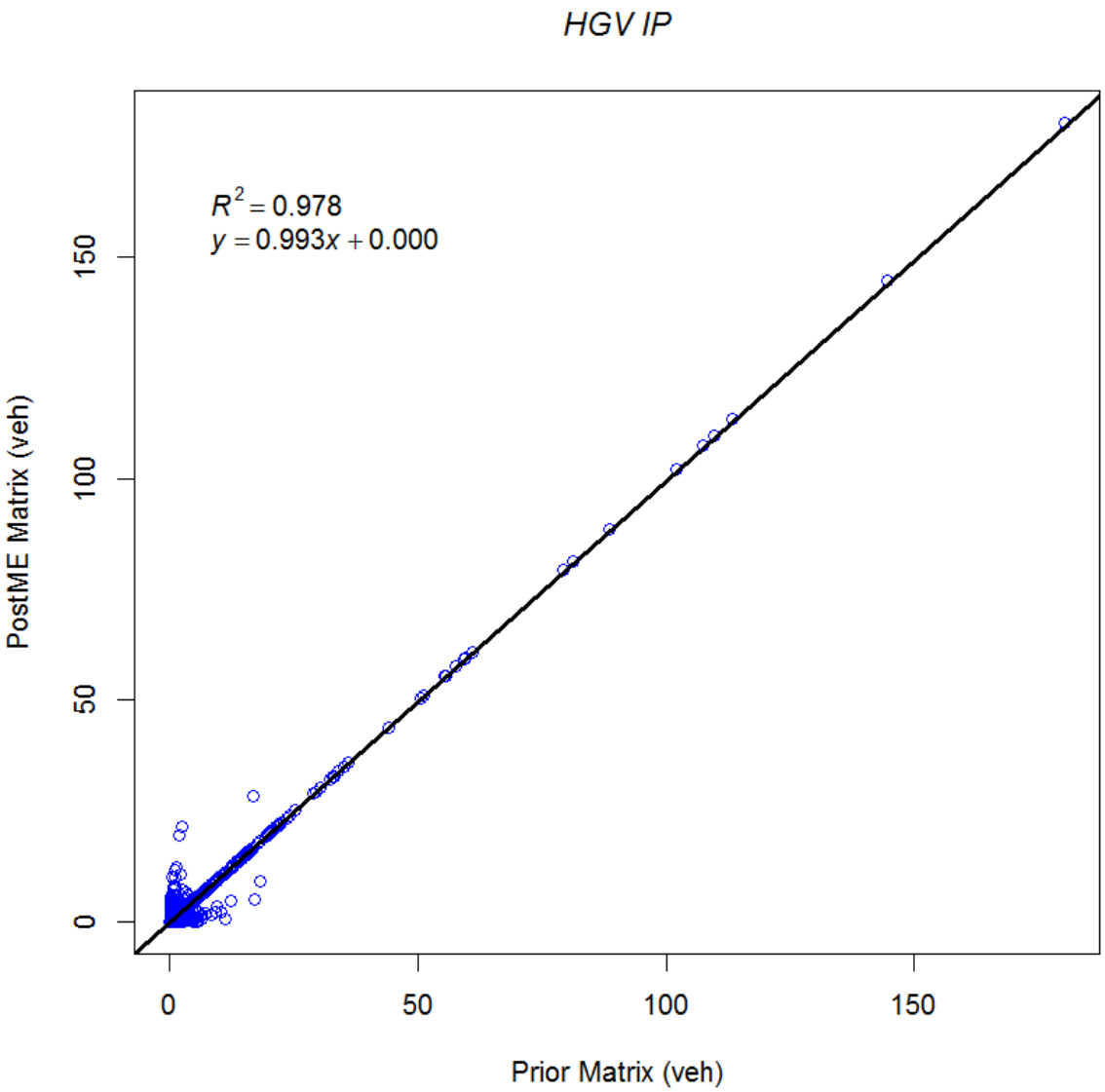
Zonal Cell Values – Inter Peak



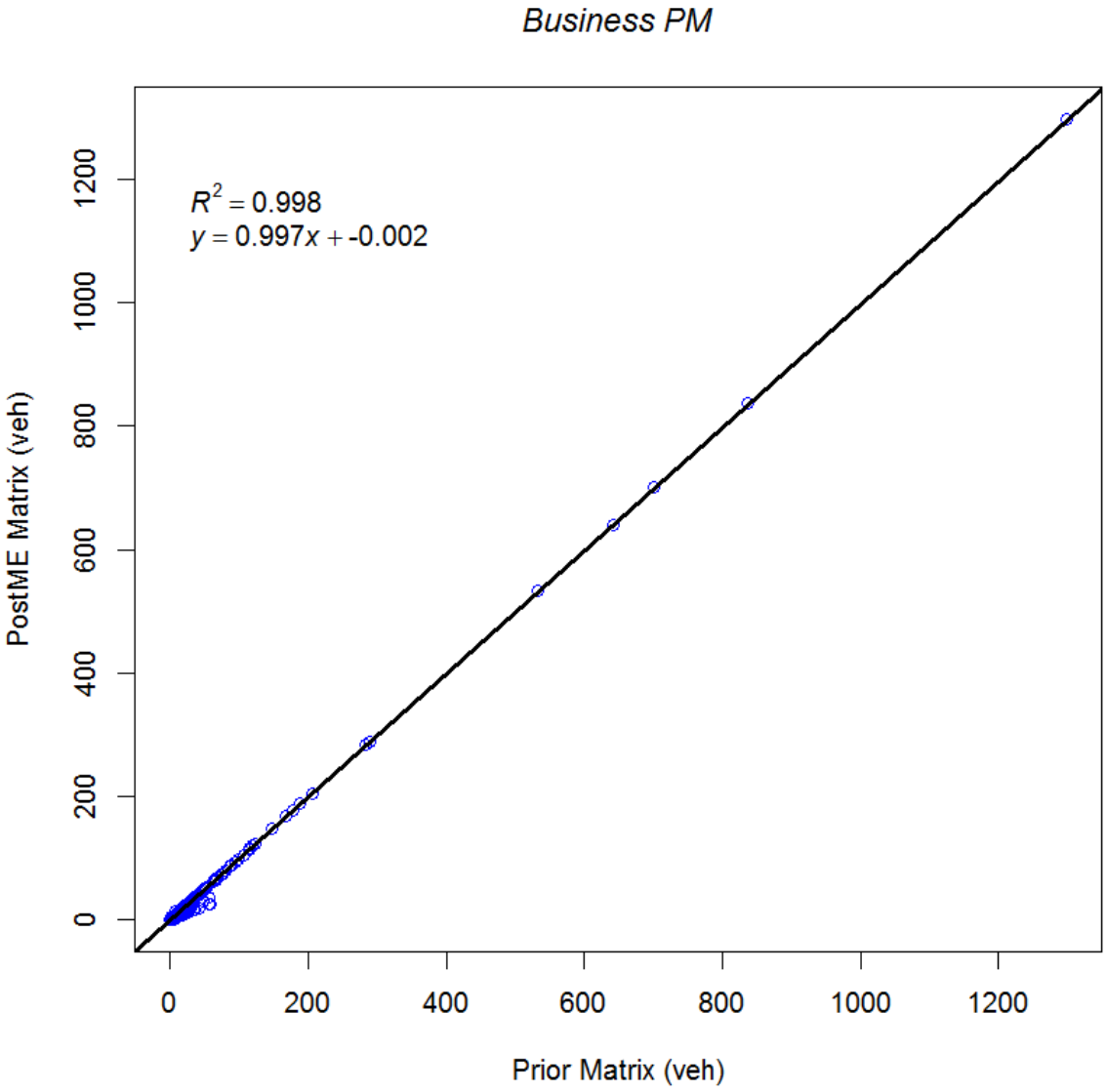

Commute IP
$R^2 = 1.000$
$y = 1.000x + 0.000$
PostME Matrix (veh)
Prior Matrix (veh)
0
500
1000
1500
2000
2500
3000

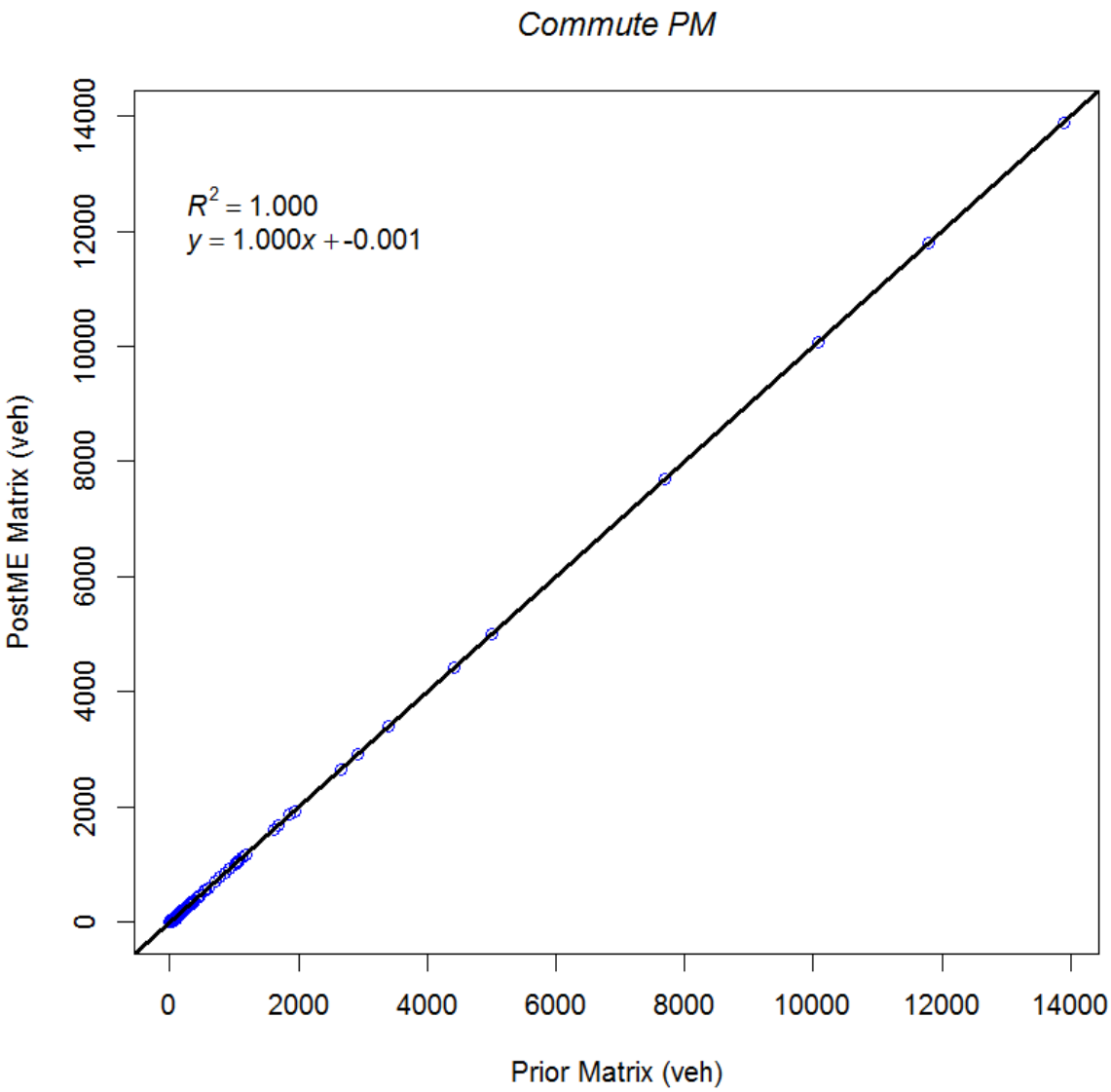

Other IP
$R^2 = 1.000$
$y = 1.000x + -0.002$
PostME Matrix (veh)
Prior Matrix (veh)
0
500
1000
1500
2000
2500
3000
3500

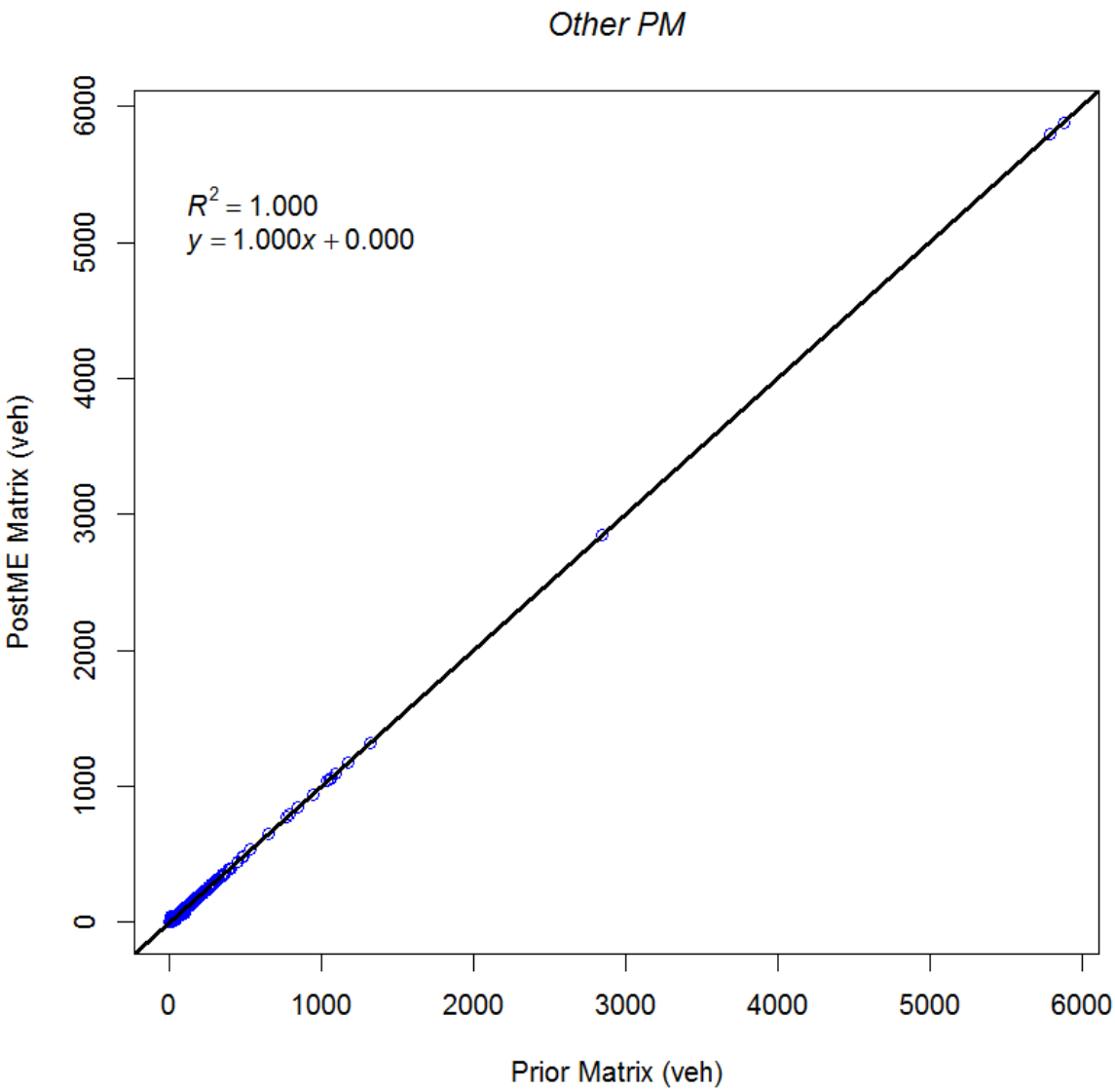

LGV IP
$R^2 = 1.000$
$y = 1.000x + 0.002$
PostME Matrix (veh)
Prior Matrix (veh)
0
1000
2000
3000

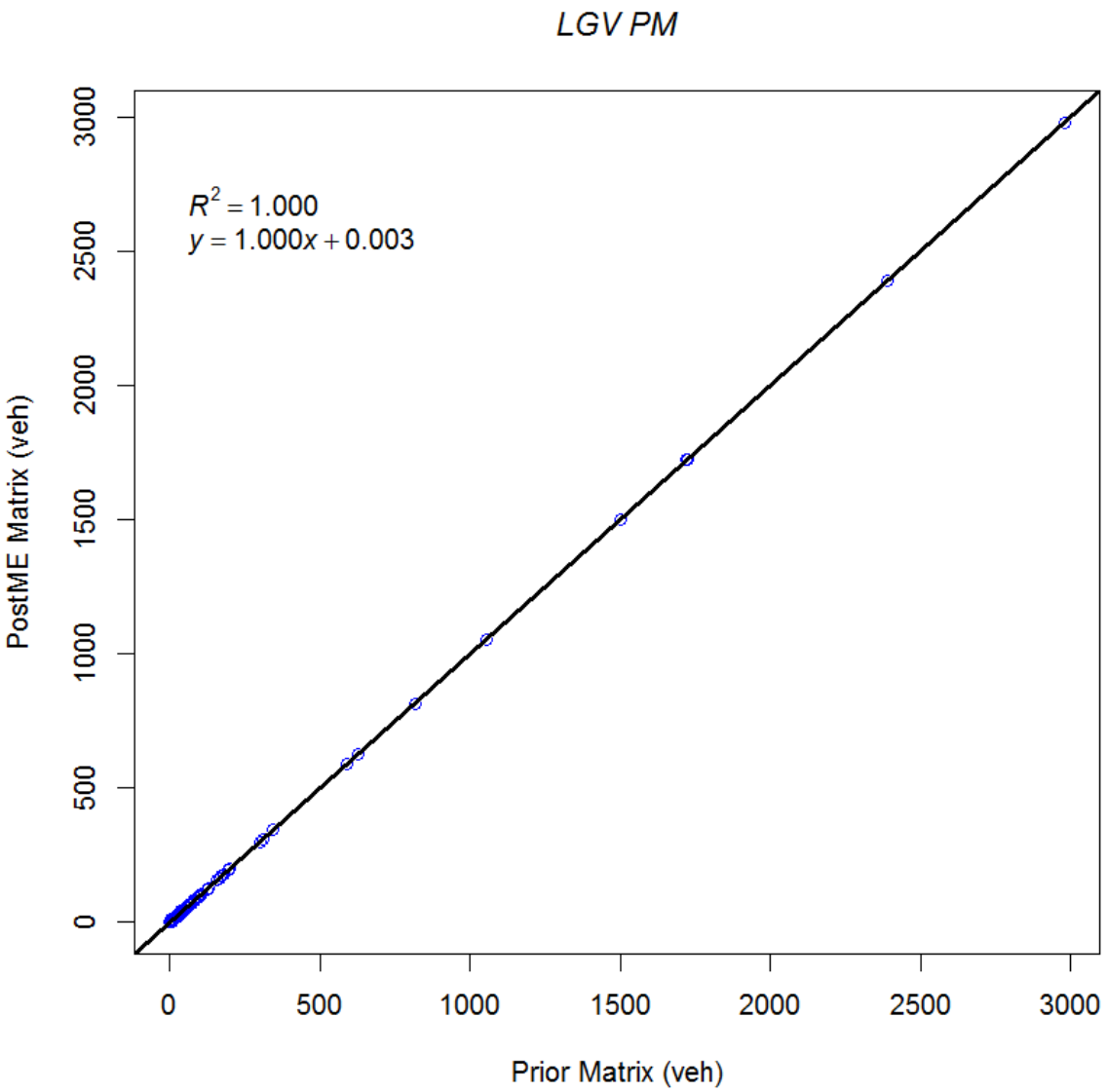

HGV IP
$R^2 = 0.978$
$y = 0.993x + 0.000$
PostME Matrix (veh)
Prior Matrix (veh)
0
50
100
150

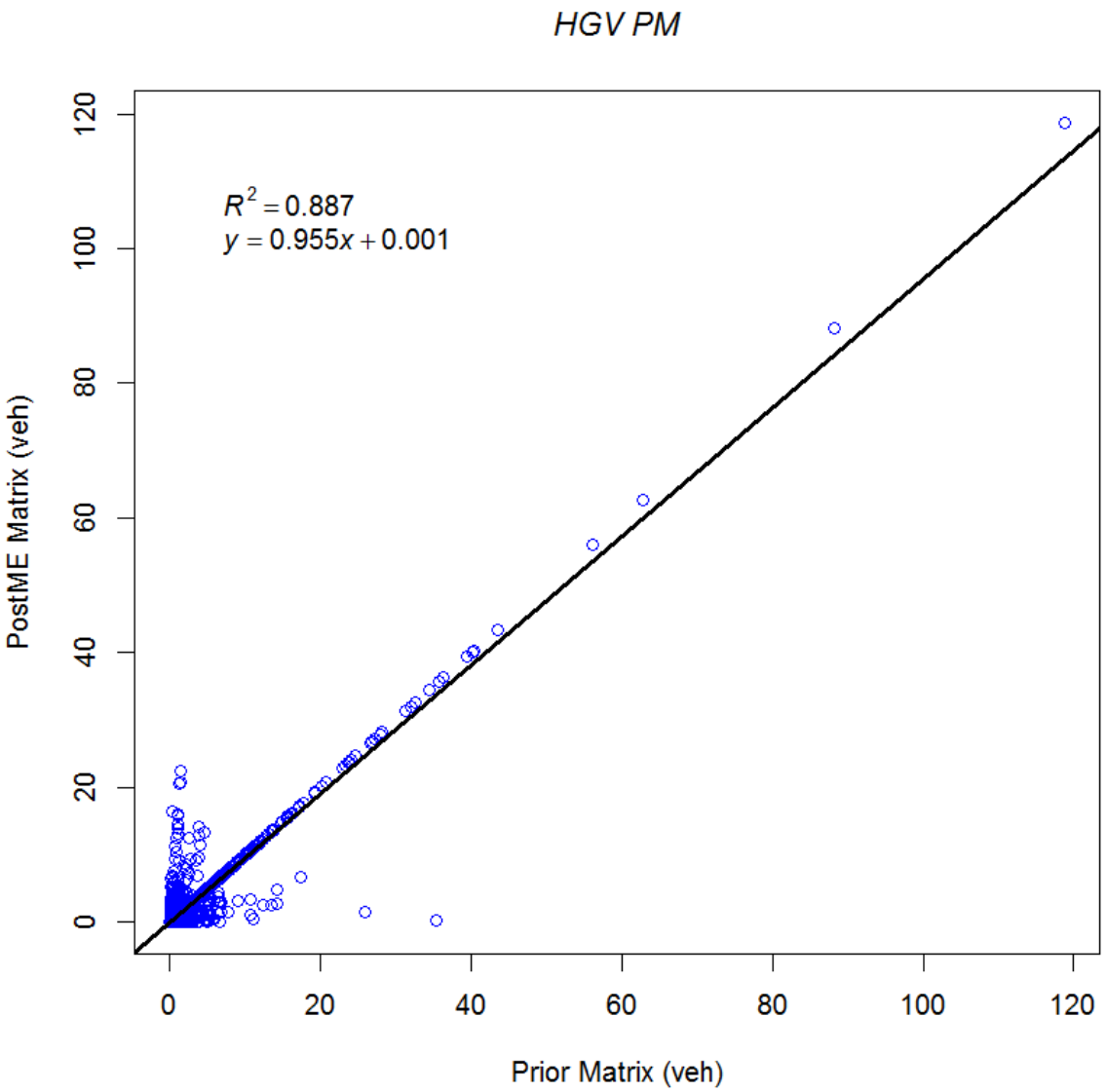
Zonal Cell Values – PM Peak



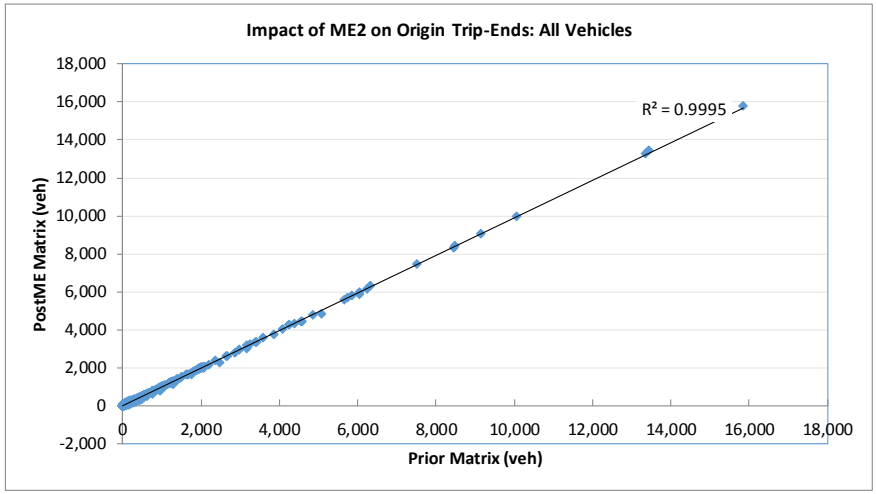

Commute PM
$R^2 = 1.000$
$y = 1.000x + -0.001$
PostME Matrix (veh)
Prior Matrix (veh)
0
2000
4000
6000
8000
10000
12000
14000

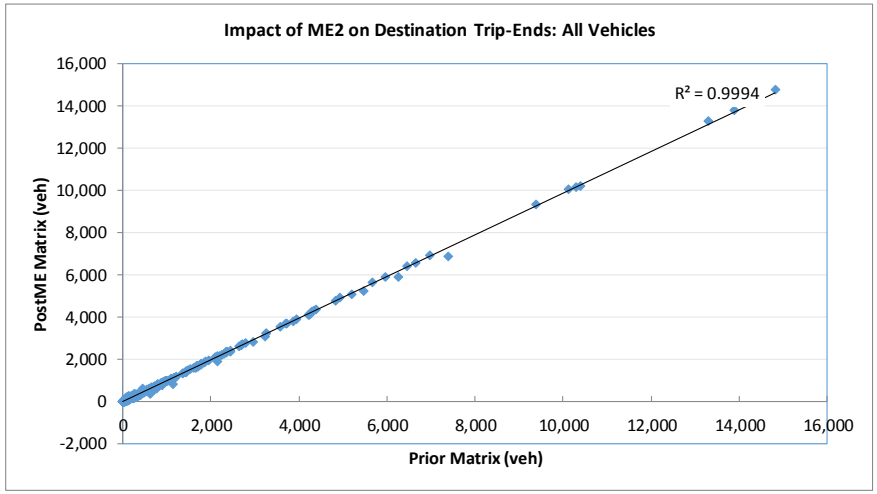

Other PM
$R^2 = 1.000$
$y = 1.000x + 0.000$
PostME Matrix (veh)
Prior Matrix (veh)
0
1000
2000
3000
4000
5000
6000

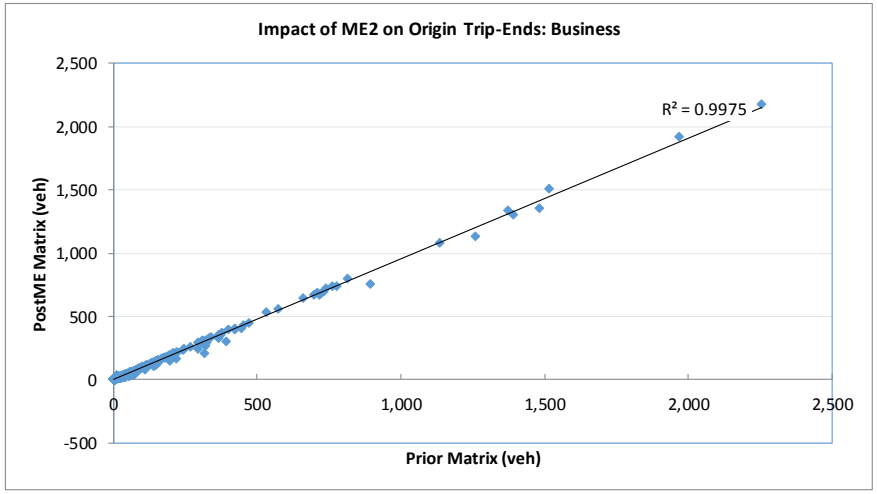

LGV PM
$R^2 = 1.000$
$y = 1.000x + 0.003$
PostME Matrix (veh)
Prior Matrix (veh)
0
500
1000
1500
2000
2500
3000

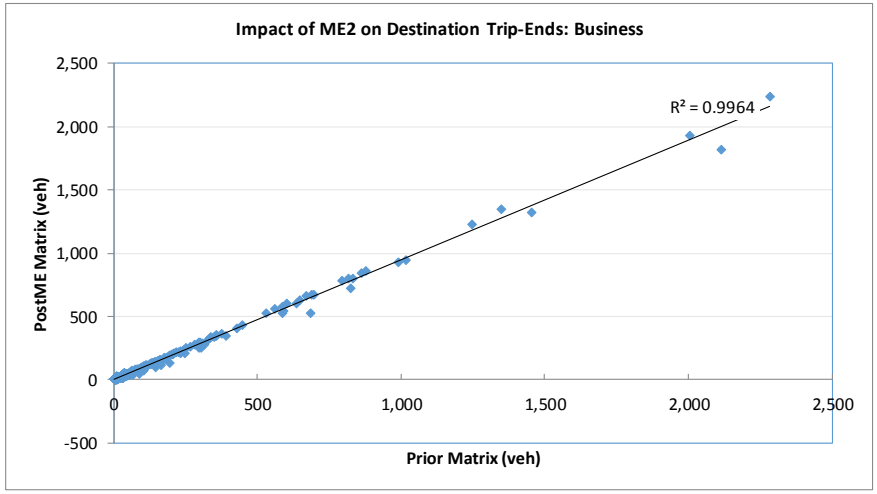

HGV PM
$R^2 = 0.887$
$y = 0.955x + 0.001$
PostME Matrix (veh)
Prior Matrix (veh)
0
20
40
60
80
100
120

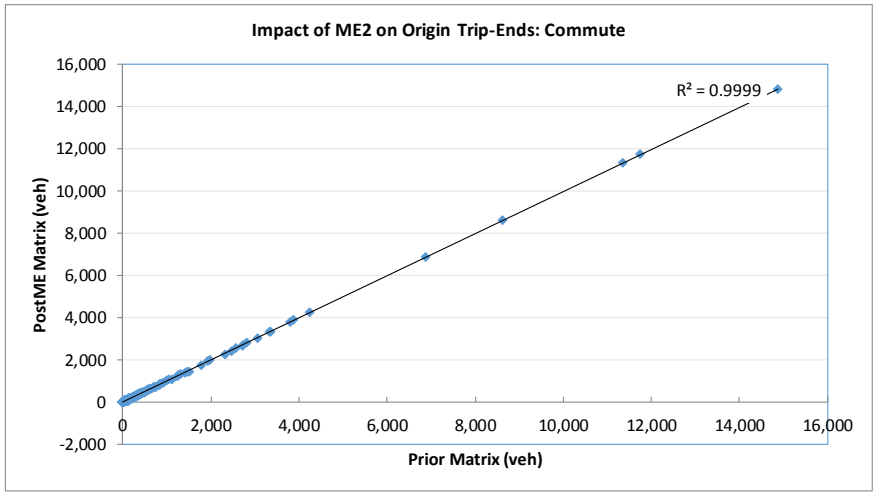
Zonal Trip Ends – AM Peak

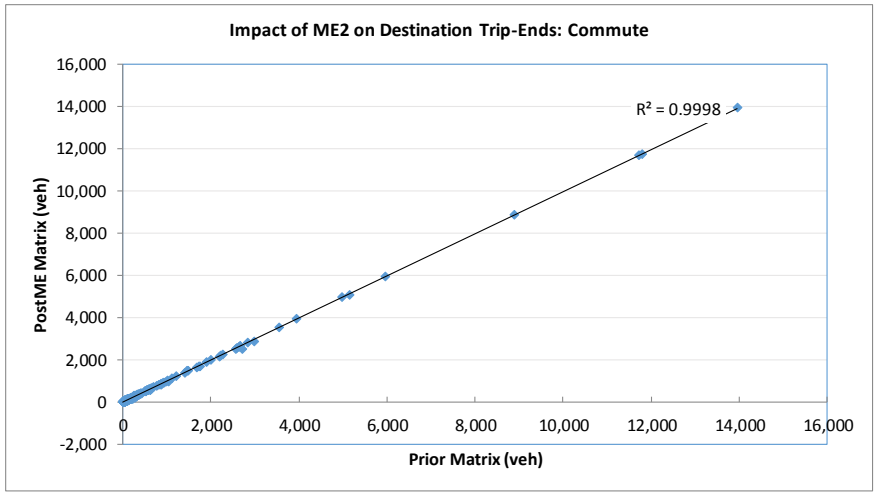


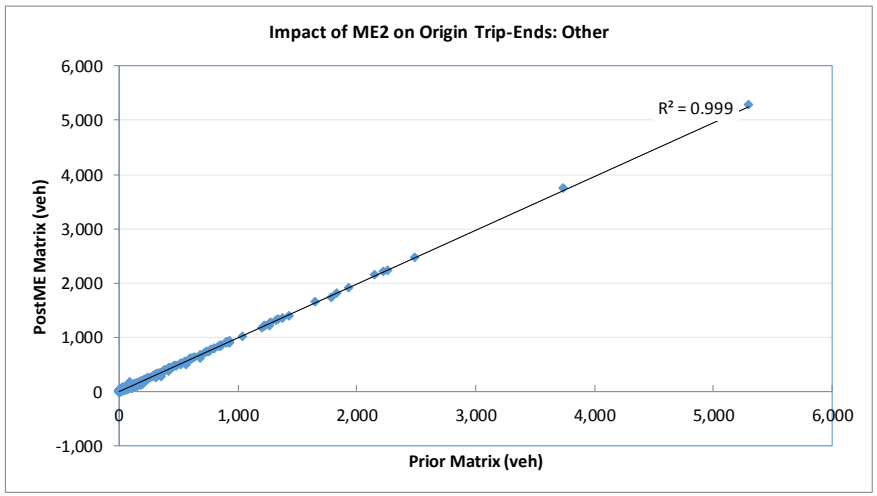


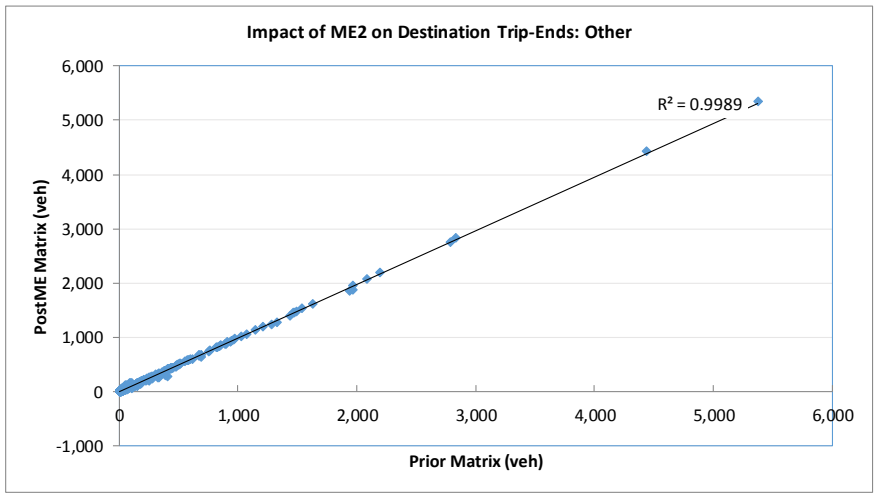


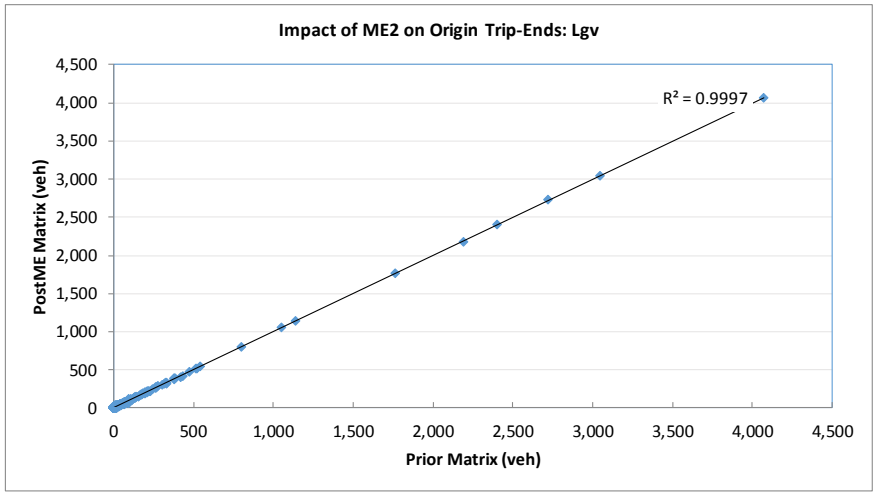


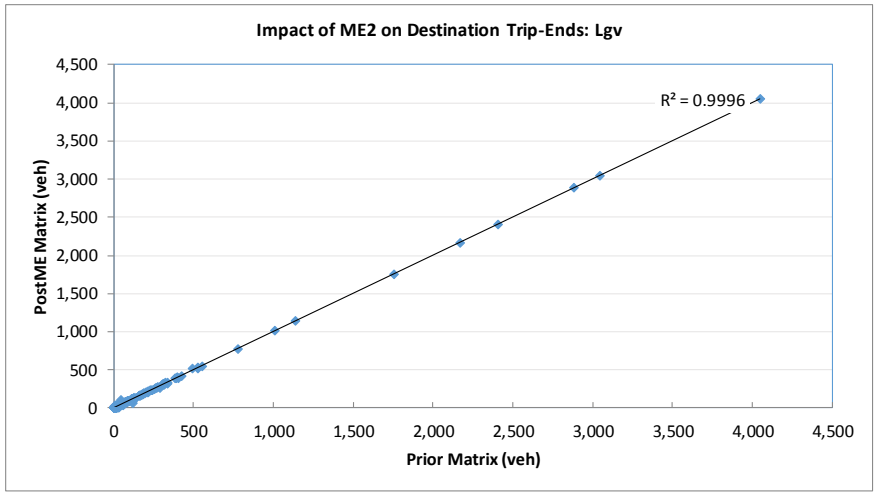

Impact of ME2 on Origin Trip-Ends: Commute
R² = 0.9999
PostME Matrix (veh)
Prior Matrix (veh)
16,000
14,000
12,000
10,000
8,000
6,000
4,000
2,000
0
-2,000
0
2,000
4,000
6,000
8,000
10,000
12,000
14,000
16,000

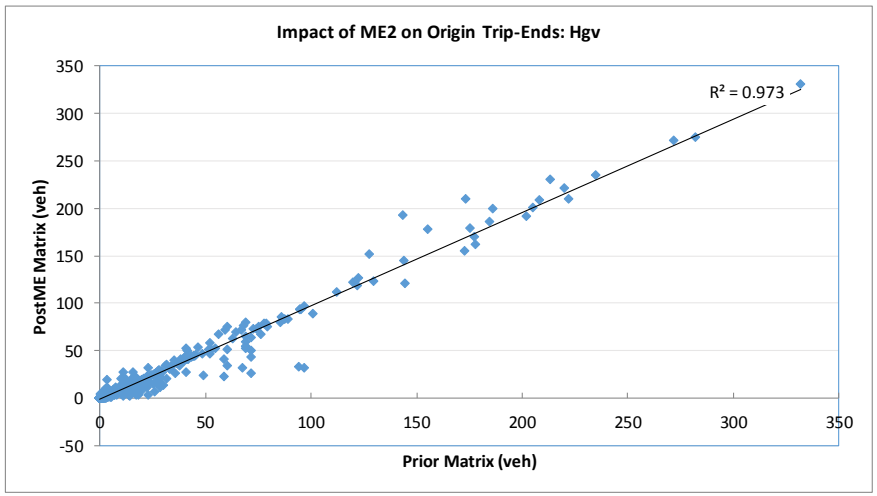

Impact of ME2 on Destination Trip-Ends: Commute
R² = 0.9998
PostME Matrix (veh)
Prior Matrix (veh)
16,000
14,000
12,000
10,000
8,000
6,000
4,000
2,000
0
-2,000
0
2,000
4,000
6,000
8,000
10,000
12,000
14,000
16,000

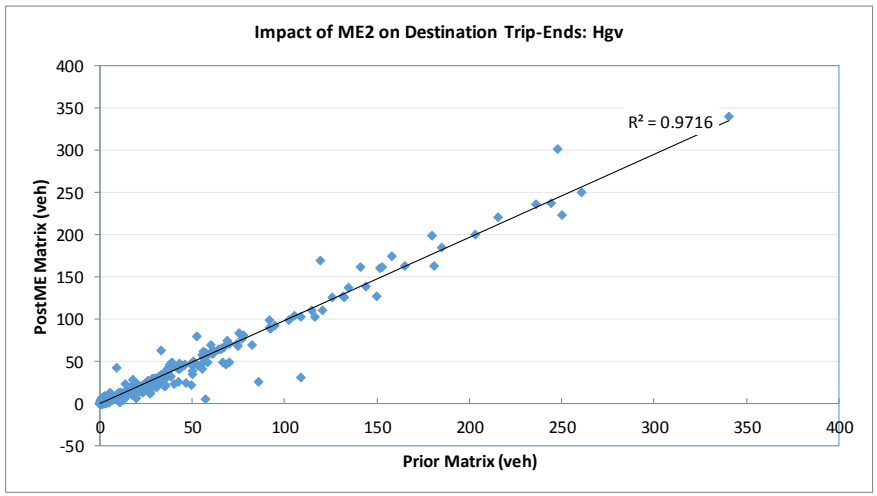

Impact of ME2 on Origin Trip-Ends: Other
R² = 0.999
PostME Matrix (veh)
Prior Matrix (veh)
6,000
5,000
4,000
3,000
2,000
1,000
0
-1,000
0
1,000
2,000
3,000
4,000
5,000
6,000


Impact of ME2 on Destination Trip-Ends: Other
R² = 0.9989
PostME Matrix (veh)
Prior Matrix (veh)
6,000
5,000
4,000
3,000
2,000
1,000
0
-1,000
0
1,000
2,000
3,000
4,000
5,000
6,000

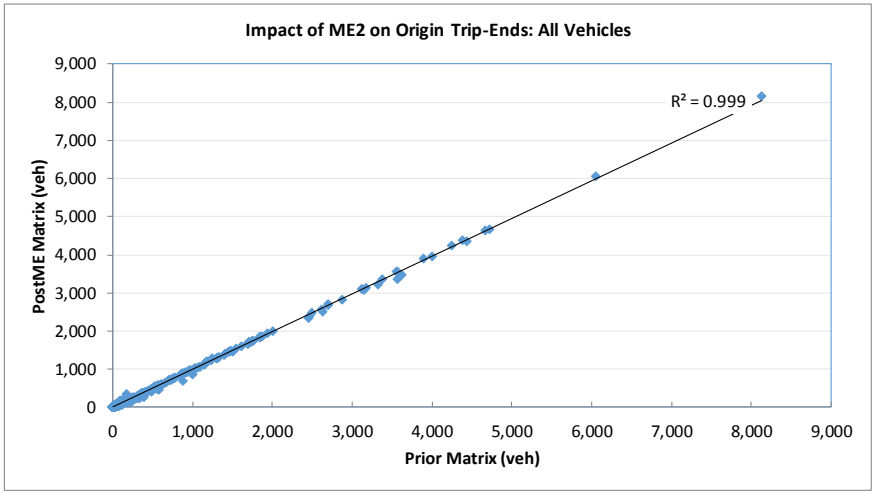

Impact of ME2 on Origin Trip-Ends: Lgv
PostME Matrix (veh)
Prior Matrix (veh)
R² = 0.9997
0
500
1,000
1,500
2,000
2,500
3,000
3,500
4,000
4,500

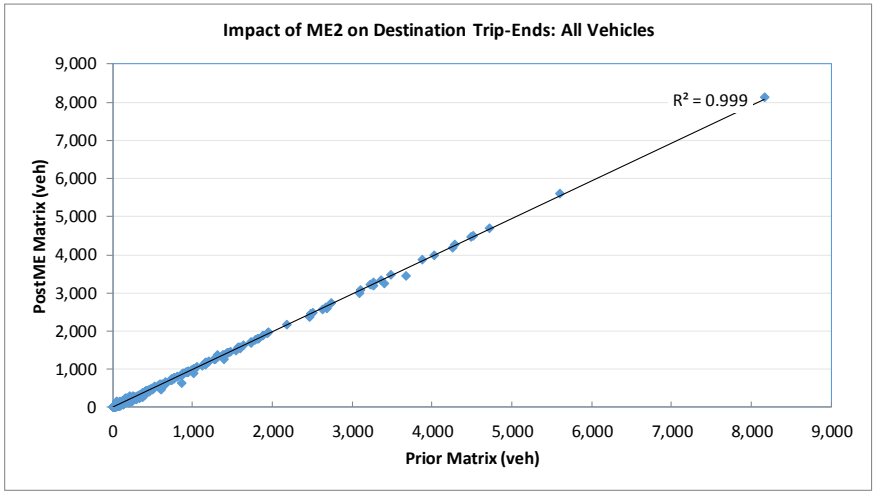

Impact of ME2 on Destination Trip-Ends: Lgv
PostME Matrix (veh)
Prior Matrix (veh)
R² = 0.9996
0
500
1,000
1,500
2,000
2,500
3,000
3,500
4,000
4,500

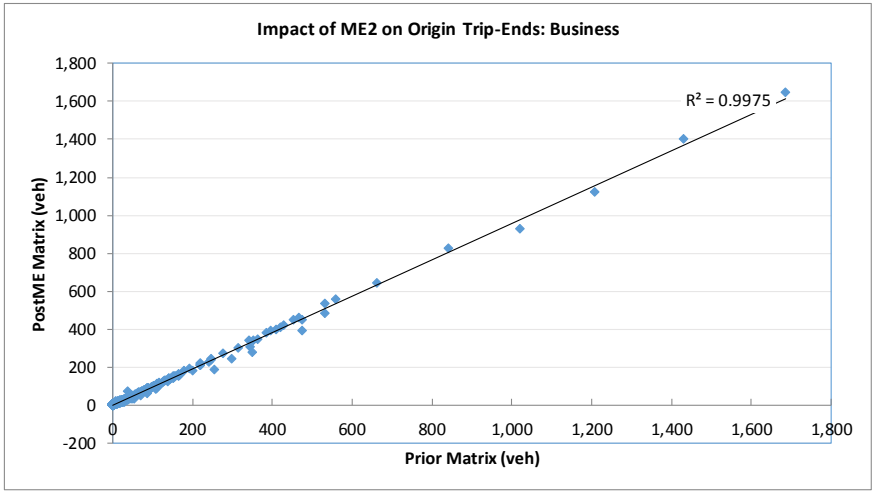

Impact of ME2 on Origin Trip-Ends: Hgv
PostME Matrix (veh)
Prior Matrix (veh)
R² = 0.973
-50
0
50
100
150
200
250
300
350

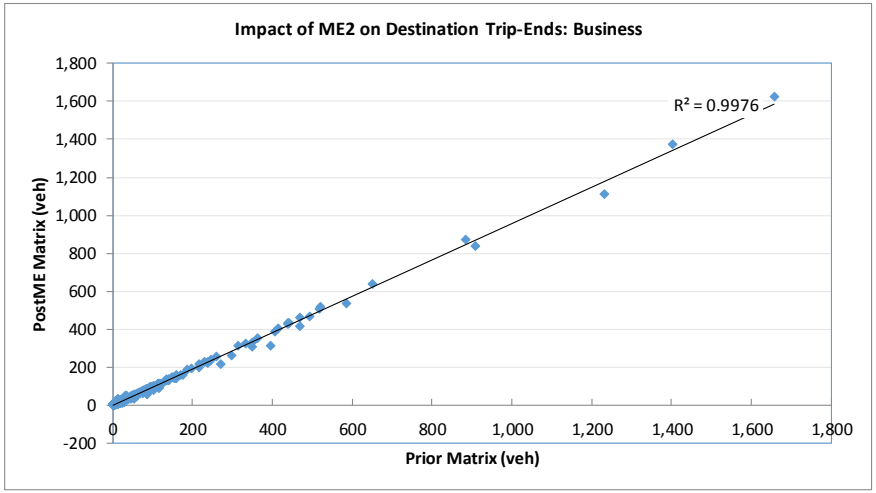

Impact of ME2 on Destination Trip-Ends: Hgv
PostME Matrix (veh)
Prior Matrix (veh)
R² = 0.9716
-50
0
50
100
150
200
250
300
350
400

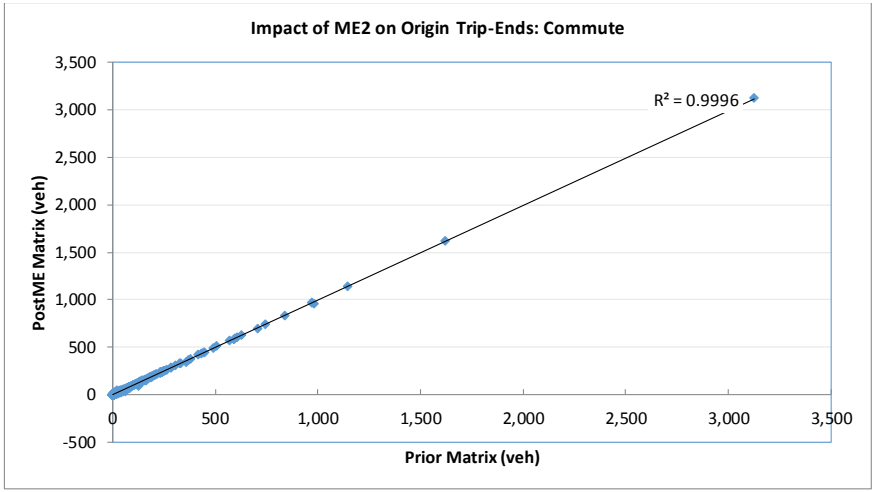
Zonal Trip Ends – Inter Peak

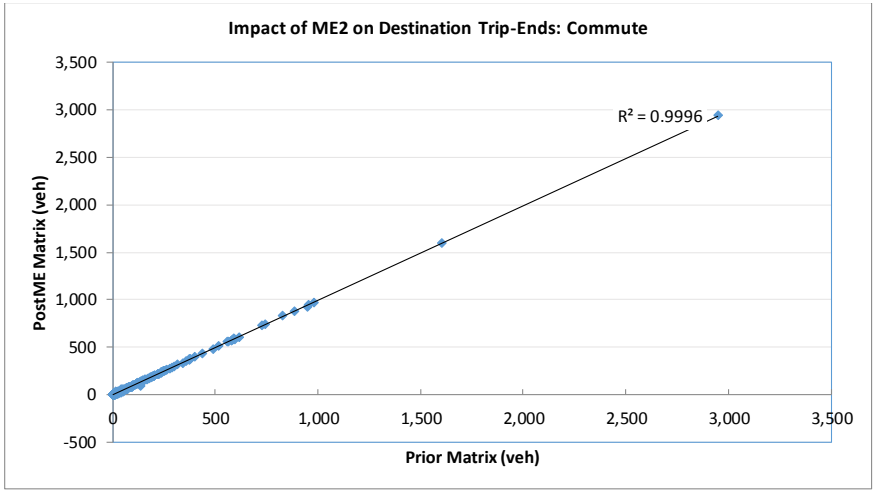


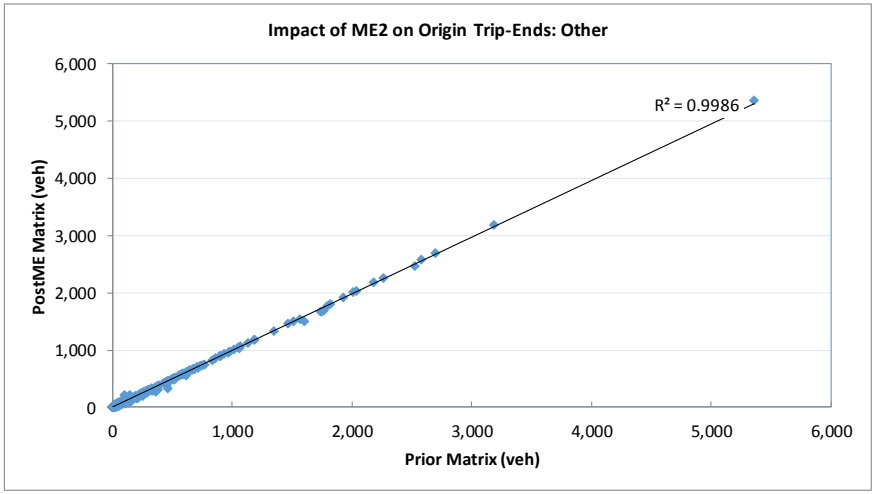


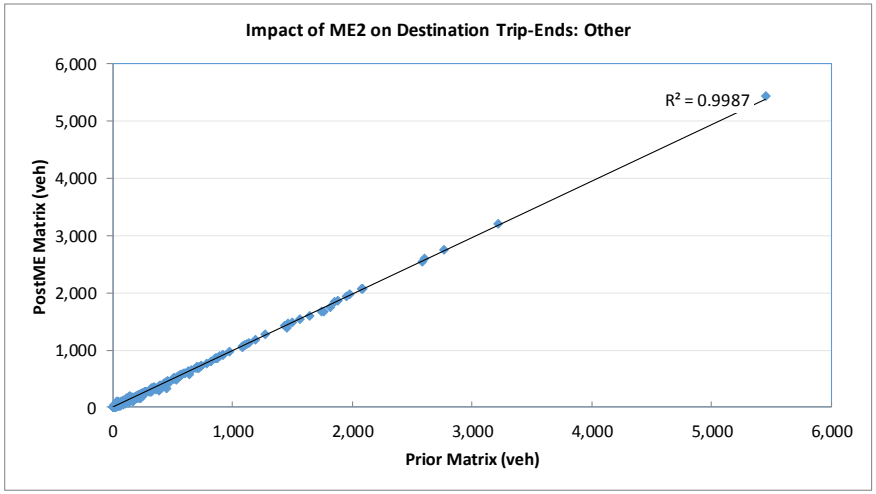


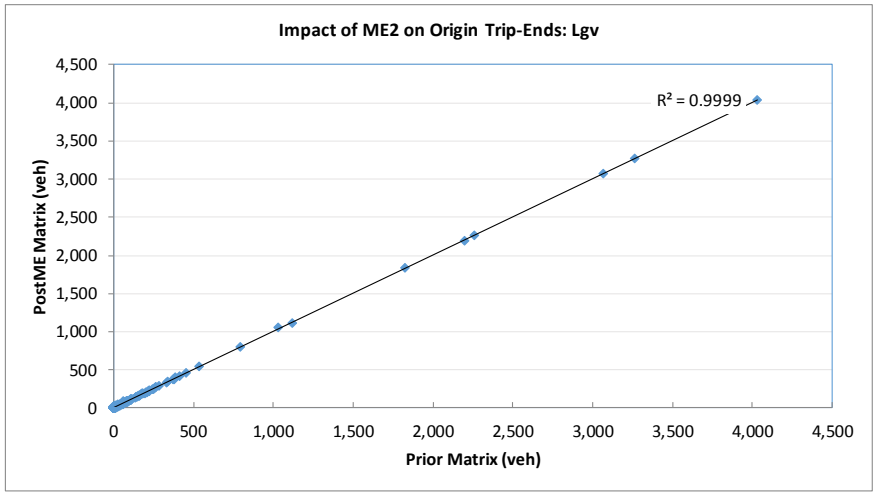


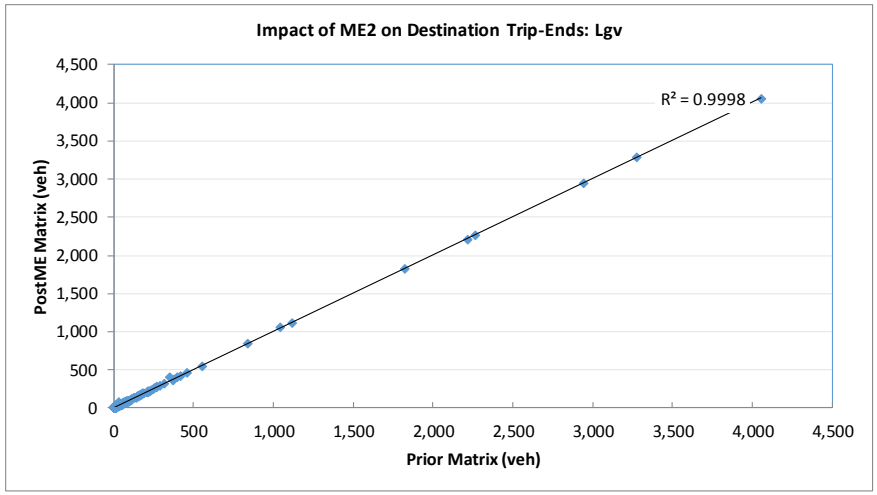

Impact of ME2 on Origin Trip-Ends: Commute
PostME Matrix (veh)
Prior Matrix (veh)
R² = 0.9996
3,500
3,000
2,500
2,000
1,500
1,000
500
0
-500
0
500
1,000
1,500
2,000
2,500
3,000
3,500

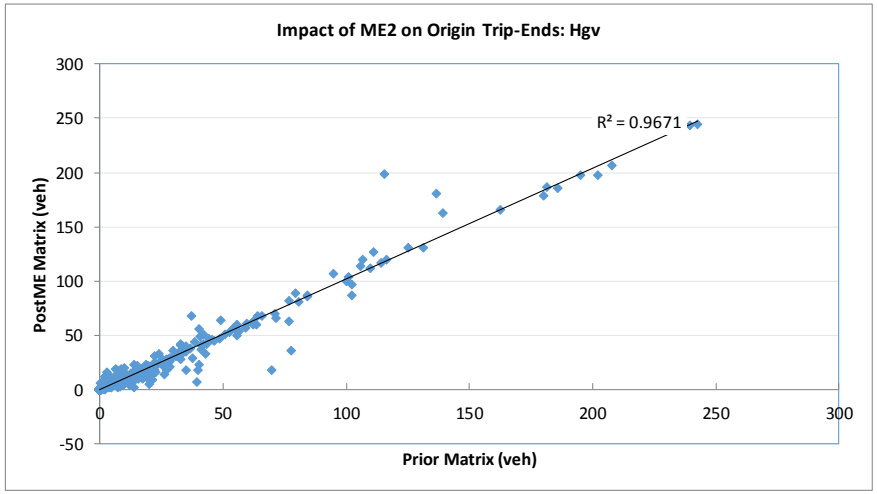

Impact of ME2 on Destination Trip-Ends: Commute
PostME Matrix (veh)
Prior Matrix (veh)
R² = 0.9996
3,500
3,000
2,500
2,000
1,500
1,000
500
0
-500
0
500
1,000
1,500
2,000
2,500
3,000
3,500

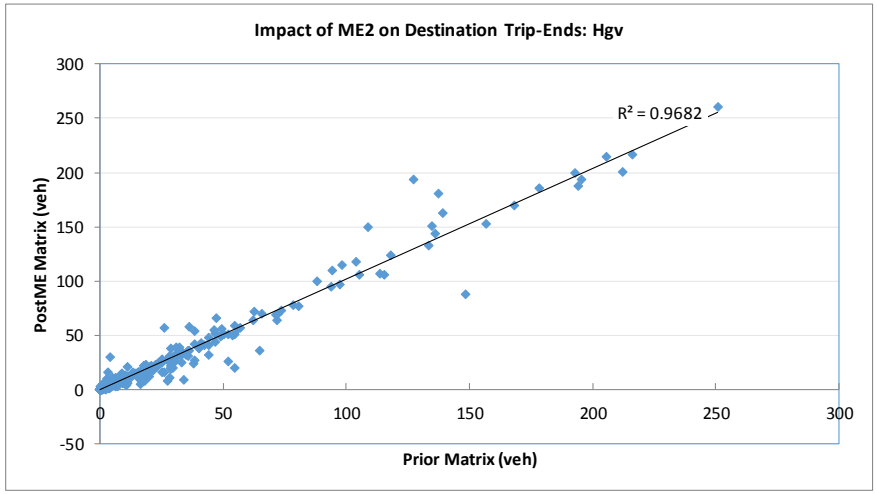

Impact of ME2 on Origin Trip-Ends: Other
PostME Matrix (veh)
Prior Matrix (veh)
R² = 0.9986
6,000
5,000
4,000
3,000
2,000
1,000
0
0
1,000
2,000
3,000
4,000
5,000
6,000


Impact of ME2 on Destination Trip-Ends: Other
PostME Matrix (veh)
Prior Matrix (veh)
R² = 0.9987
6,000
5,000
4,000
3,000
2,000
1,000
0
0
1,000
2,000
3,000
4,000
5,000
6,000

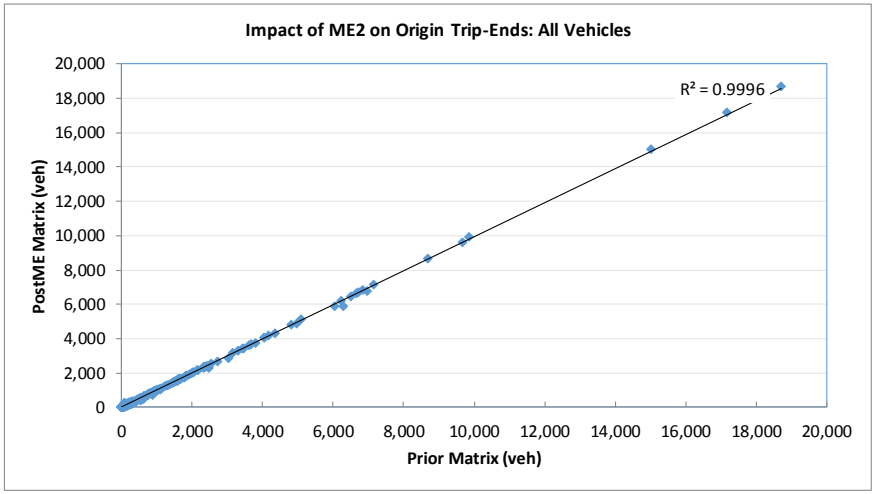

Impact of ME2 on Origin Trip-Ends: Lgv
R² = 0.9999
PostME Matrix (veh)
Prior Matrix (veh)
0
500
1,000
1,500
2,000
2,500
3,000
3,500
4,000
4,500

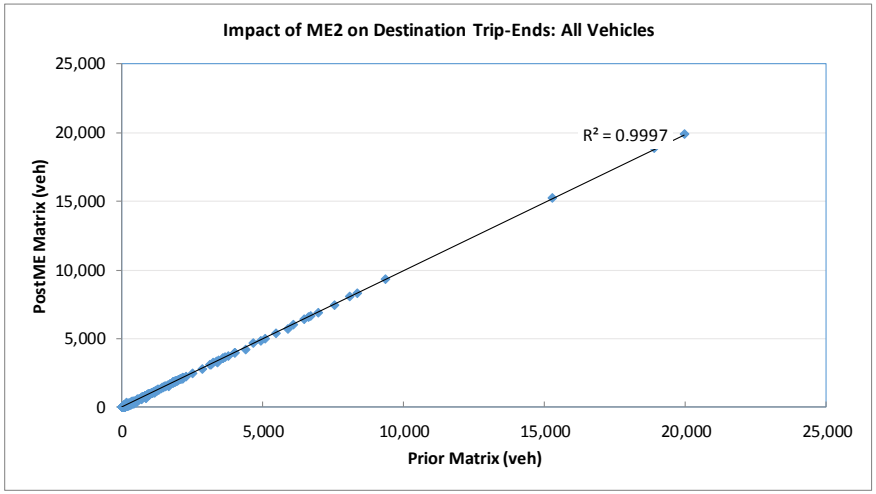

Impact of ME2 on Destination Trip-Ends: Lgv
R² = 0.9998
PostME Matrix (veh)
Prior Matrix (veh)
0
500
1,000
1,500
2,000
2,500
3,000
3,500
4,000
4,500

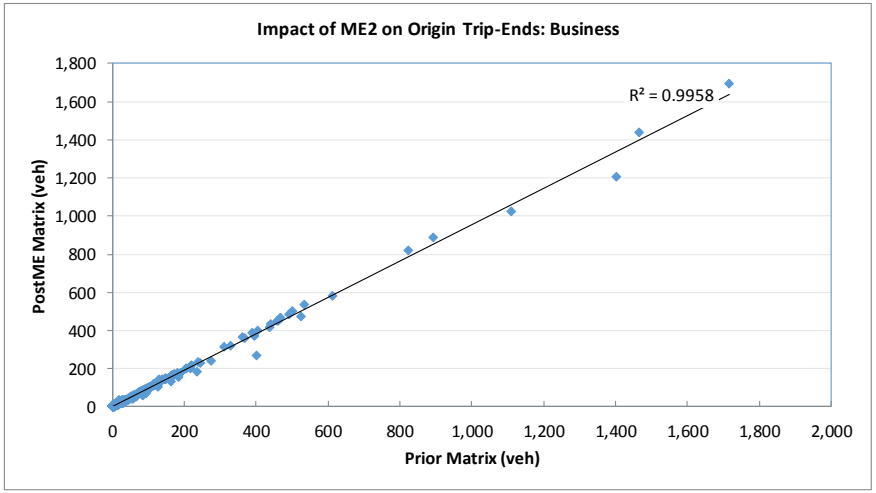

Impact of ME2 on Origin Trip-Ends: Hgv
R² = 0.9671
PostME Matrix (veh)
Prior Matrix (veh)
-50
0
50
100
150
200
250
300

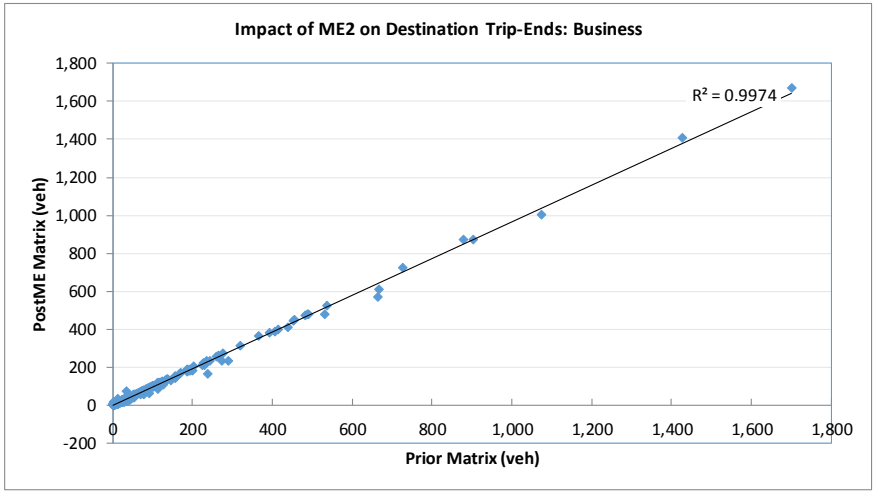

Impact of ME2 on Destination Trip-Ends: Hgv
R² = 0.9682
PostME Matrix (veh)
Prior Matrix (veh)
-50
0
50
100
150
200
250
300

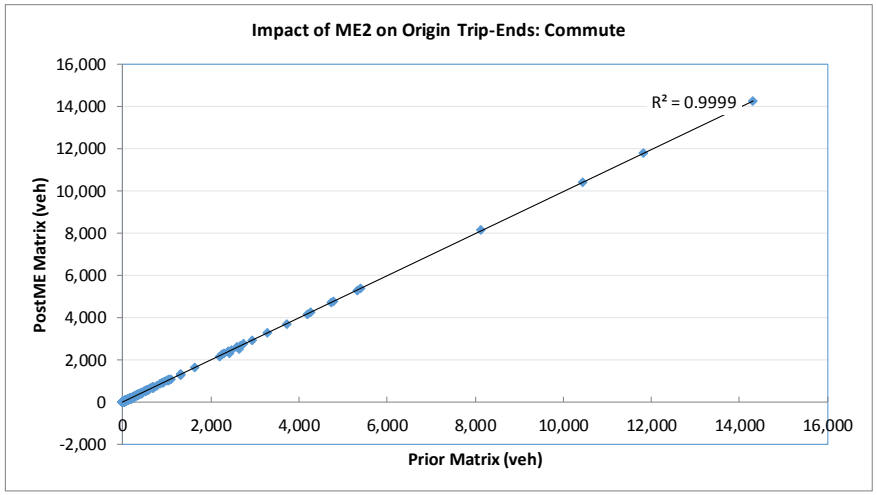
Zonal Trip Ends – PM Peak

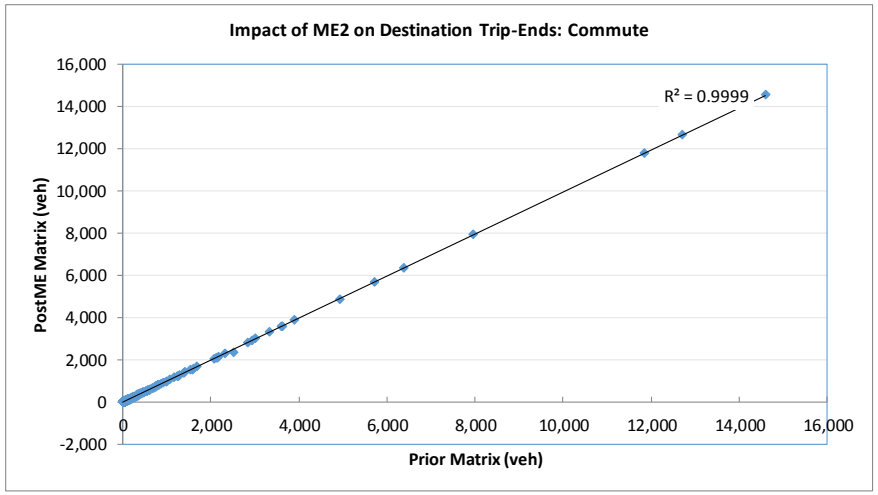


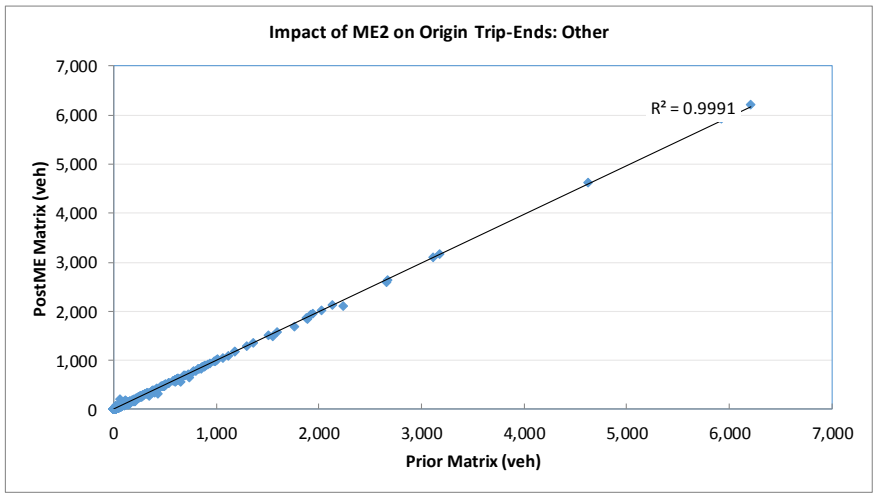


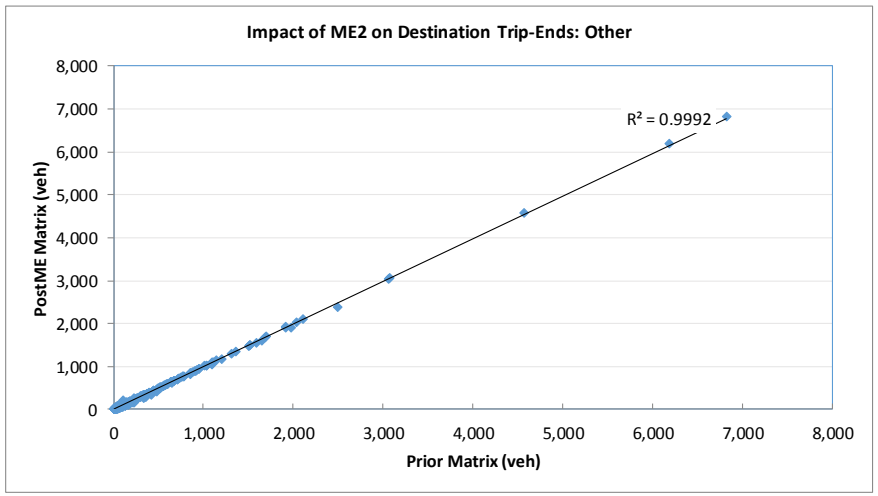


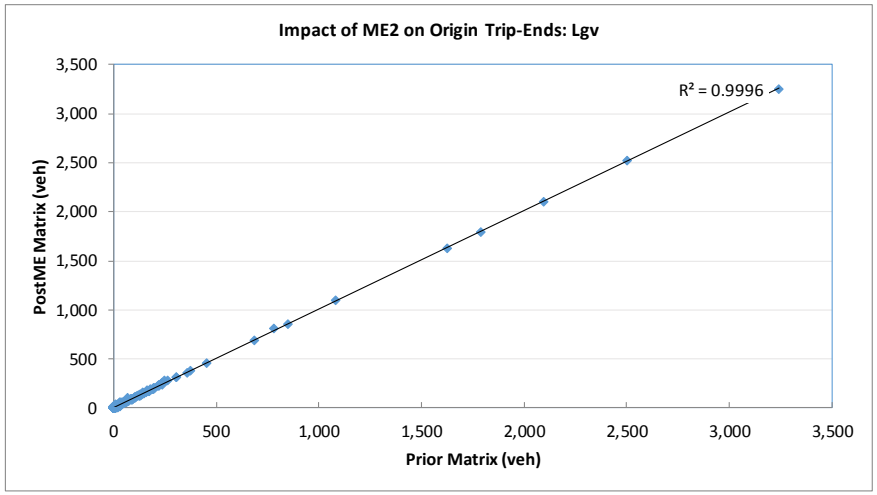


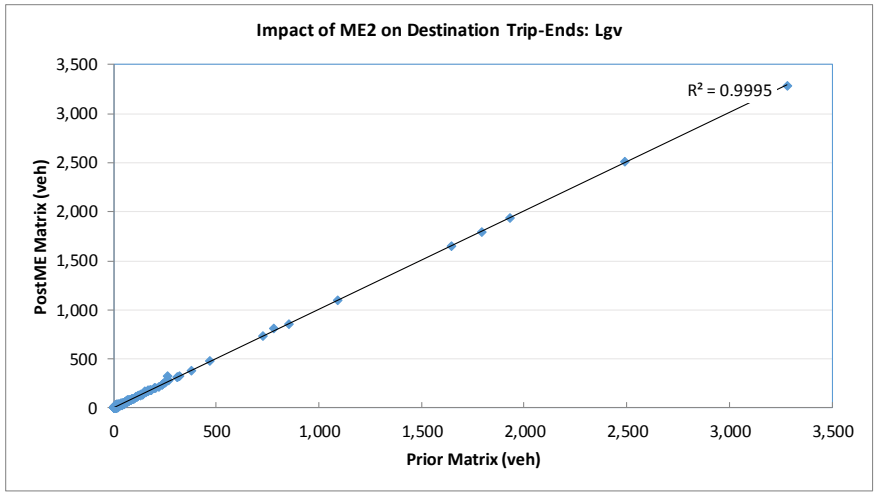

Impact of ME2 on Origin Trip-Ends: Commute
PostME Matrix (veh)
Prior Matrix (veh)
R² = 0.9999
16,000
14,000
12,000
10,000
8,000
6,000
4,000
2,000
0
-2,000
0
2,000
4,000
6,000
8,000
10,000
12,000
14,000
16,000

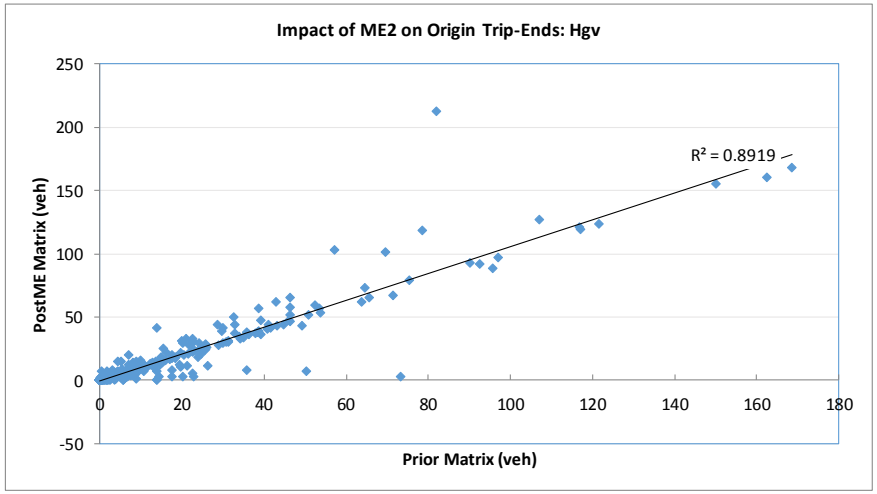

Impact of ME2 on Destination Trip-Ends: Commute
PostME Matrix (veh)
Prior Matrix (veh)
R² = 0.9999
16,000
14,000
12,000
10,000
8,000
6,000
4,000
2,000
0
-2,000
0
2,000
4,000
6,000
8,000
10,000
12,000
14,000
16,000

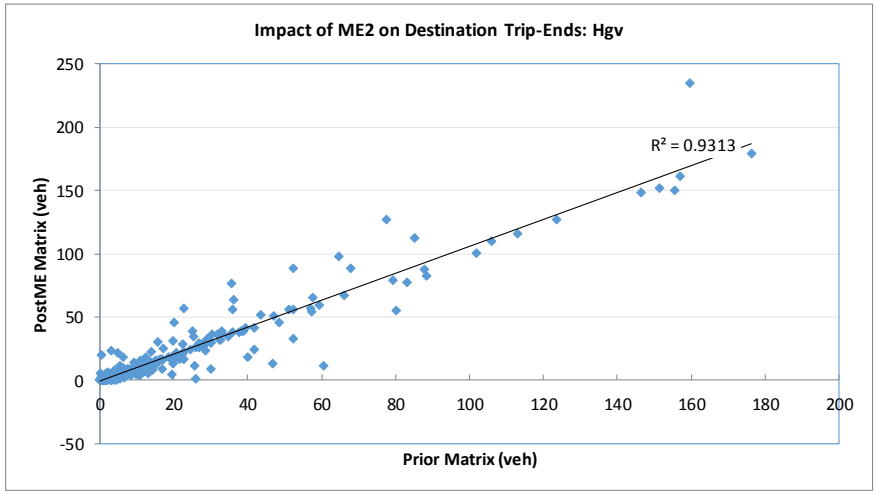

Impact of ME2 on Origin Trip-Ends: Other
PostME Matrix (veh)
Prior Matrix (veh)
R² = 0.9991
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
0
1,000
2,000
3,000
4,000
5,000
6,000
7,000


Impact of ME2 on Destination Trip-Ends: Other
PostME Matrix (veh)
Prior Matrix (veh)
R² = 0.9992
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
0
1,000
2,000
3,000
4,000
5,000
6,000
7,000
8,000


Impact of ME2 on Origin Trip-Ends: Lgv
PostME Matrix (veh)
Prior Matrix (veh)
R² = 0.9996
0
500
1,000
1,500
2,000
2,500
3,000
3,500


Impact of ME2 on Destination Trip-Ends: Lgv
PostME Matrix (veh)
Prior Matrix (veh)
R² = 0.9995
0
500
1,000
1,500
2,000
2,500
3,000
3,500


Impact of ME2 on Origin Trip-Ends: Hgv
PostME Matrix (veh)
Prior Matrix (veh)
R² = 0.8919
-50
0
50
100
150
200
250
0
20
40
60
80
100
120
140
160
180

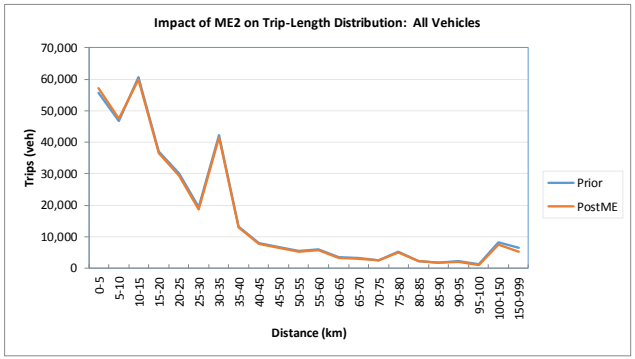

Impact of ME2 on Destination Trip-Ends: Hgv
PostME Matrix (veh)
Prior Matrix (veh)
R² = 0.9313
-50
0
50
100
150
200
250
0
20
40
60
80
100
120
140
160
180
200

Trip Length Distribution Comparison – AM Peak

All Vehicles

Distance	0-0	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60	60-65	65-70	70-75	75-80	80-85	85-90	90-95	95-100	100-150	150-999
Prior Trips (veh)	5	55,736	46,771	60,611	37,049	29,976	19,282	42,229	13,281	7,989	6,747	5,360	5,839	3,455	3,326	2,503	5,210	2,230	1,804	2,169	1,228	8,132	6,568
PostME Trips (veh)	5	57,291	47,528	60,018	36,617	29,222	18,515	41,548	12,870	7,711	6,537	5,132	5,632	3,268	3,087	2,370	5,059	2,130	1,696	2,039	1,099	7,409	5,112
Prior veh.km	0	179,715	348,901	765,921	673,677	674,466	523,169	1,408,880	491,630	336,371	320,494	281,244	338,731	215,161	224,469	180,724	406,606	182,782	157,869	202,591	119,651	998,182	1,484,948
PostME veh.km	0	183,787	354,234	758,303	665,872	657,522	502,145	1,386,714	476,291	324,525	310,499	269,250	326,797	203,461	208,463	171,075	394,823	174,573	148,397	190,624	107,212	907,574	1,137,783

Band	Distance (km)		Trips (veh)		Trip.kms		Length (km)		%Diff
	from	to	Prior	PostME	Prior	PostME	Prior	PostME	
1	0	0	5	5	0	0	0.0	0.0	#DIV/0!
2	0	5	55,736	57,291	179,715	183,787	3.2	3.2	-0.5%
3	5	10	46,771	47,528	348,901	354,234	7.5	7.5	-0.1%
4	10	15	60,611	60,018	765,921	758,303	12.6	12.6	0.0%
5	15	20	37,049	36,617	673,677	665,872	18.2	18.2	0.0%
6	20	25	29,976	29,222	674,466	657,522	22.5	22.5	0.0%
7	25	30	19,282	18,515	523,169	502,145	27.1	27.1	0.0%
8	30	35	42,229	41,548	1,408,880	1,386,714	33.4	33.4	0.0%
9	35	40	13,281	12,870	491,630	476,291	37.0	37.0	0.0%
10	40	45	7,989	7,711	336,371	324,525	42.1	42.1	0.0%
11	45	50	6,747	6,537	320,494	310,499	47.5	47.5	0.0%
12	50	55	5,360	5,132	281,244	269,250	52.5	52.5	0.0%
13	55	60	5,839	5,632	338,731	326,797	58.0	58.0	0.0%
14	60	65	3,455	3,268	215,161	203,461	62.3	62.3	0.0%
15	65	70	3,326	3,087	224,469	208,463	67.5	67.5	0.1%
16	70	75	2,503	2,370	180,724	171,075	72.2	72.2	0.0%
17	75	80	5,210	5,059	406,606	394,823	78.0	78.0	0.0%
18	80	85	2,230	2,130	182,782	174,573	82.0	82.0	0.0%
19	85	90	1,804	1,696	157,869	148,397	87.5	87.5	0.0%
20	90	95	2,169	2,039	202,591	190,624	93.4	93.5	0.1%
21	95	100	1,228	1,099	119,651	107,212	97.4	97.5	0.1%
22	100	150	8,132	7,409	998,182	907,574	122.7	122.5	-0.2%
23	150	999	6,568	5,112	1,484,948	1,137,783	226.1	222.6	-1.6%
Total			**367,498**	**361,890**	**10,516,184**	**9,859,924**	**28.62**	**27.25**	**-4.8%**

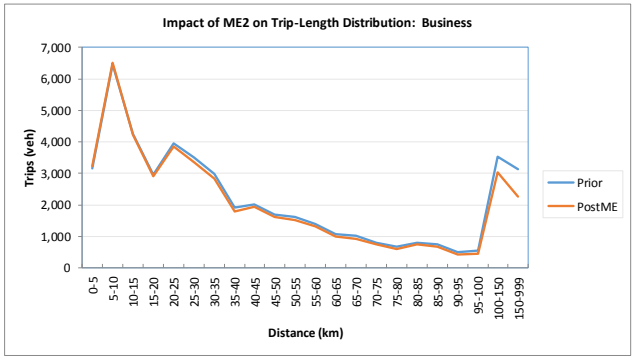


	Prior	PostME
Mean	28.62	27.25
SD	35.66	32.91

Business

Distance	0-0	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60	60-65	65-70	70-75	75-80	80-85	85-90	90-95	95-100	100-150	150-999
Prior Trips (veh)	0	3,154	6,473	4,245	2,955	3,961	3,512	2,989	1,901	2,024	1,682	1,605	1,400	1,067	1,014	802	680	794	734	488	540	3,539	3,141
PostME Trips (veh)	0	3,237	6,520	4,215	2,914	3,842	3,360	2,843	1,795	1,943	1,622	1,523	1,328	994	914	744	603	735	659	417	445	3,042	2,252
Prior veh.km	0	12,531	46,296	55,037	52,106	88,665	95,767	97,241	71,563	85,282	79,893	84,246	80,992	66,705	68,292	58,095	52,794	65,175	64,295	45,130	52,692	437,454	711,870
PostME veh.km	0	12,763	46,643	54,607	51,332	85,993	91,610	92,456	67,596	81,846	77,085	79,918	76,855	62,115	61,565	53,942	46,797	60,317	57,725	38,571	43,447	374,825	504,384

Band	Distance (km)		Trips (veh)		Trip.kms		Length (km)		%Diff
	from	to	Prior	PostME	Prior	PostME	Prior	PostME	
1	0	0	0	0	0	0	0.0	0.0	#DIV/0!
2	0	5	3,154	3,237	12,531	12,763	4.0	3.9	-0.7%
3	5	10	6,473	6,520	46,296	46,643	7.2	7.2	0.0%
4	10	15	4,245	4,215	55,037	54,607	13.0	13.0	-0.1%
5	15	20	2,955	2,914	52,106	51,332	17.6	17.6	-0.1%
6	20	25	3,961	3,842	88,665	85,993	22.4	22.4	0.0%
7	25	30	3,512	3,360	95,767	91,610	27.3	27.3	0.0%
8	30	35	2,989	2,843	97,241	92,456	32.5	32.5	0.0%
9	35	40	1,901	1,795	71,563	67,596	37.6	37.7	0.0%
10	40	45	2,024	1,943	85,282	81,846	42.1	42.1	0.0%
11	45	50	1,682	1,622	79,893	77,085	47.5	47.5	0.0%
12	50	55	1,605	1,523	84,246	79,918	52.5	52.5	0.0%
13	55	60	1,400	1,328	80,992	76,855	57.8	57.9	0.0%
14	60	65	1,067	994	66,705	62,115	62.5	62.5	0.0%
15	65	70	1,014	914	68,292	61,565	67.3	67.4	0.1%
16	70	75	802	744	58,095	53,942	72.5	72.5	0.0%
17	75	80	680	603	52,794	46,797	77.6	77.5	-0.1%
18	80	85	794	735	65,175	60,317	82.0	82.0	0.0%
19	85	90	734	659	64,295	57,725	87.6	87.6	0.0%
20	90	95	488	417	45,130	38,571	92.4	92.4	0.0%
21	95	100	540	445	52,692	43,447	97.5	97.6	0.1%
22	100	150	3,539	3,042	437,454	374,825	123.6	123.2	-0.3%
23	150	999	3,141	2,252	711,870	504,384	226.6	224.0	-1.2%
Total			**48,702**	**45,948**	**2,472,120**	**2,122,392**	**50.76**	**46.19**	**-9.0%**

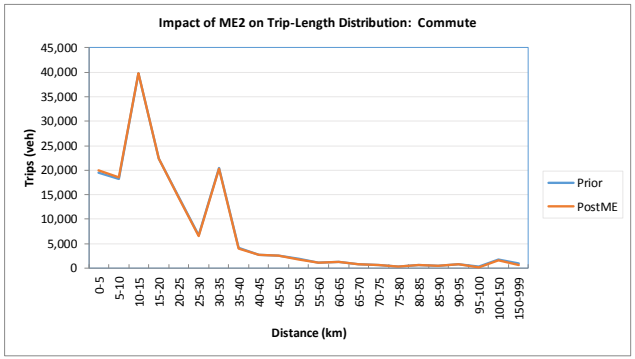


	Prior	PostME
Mean	50.76	46.19
SD	59.66	54.08

Commute

Distance	0-0	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60	60-65	65-70	70-75	75-80	80-85	85-90	90-95	95-100	100-150	150-999
Prior Trips (veh)	1	19,560	18,240	39,850	22,380	14,416	6,783	20,500	4,077	2,709	2,584	1,867	1,159	1,289	771	648	333	637	444	807	240	1,723	1,023
PostME Trips (veh)	1	19,964	18,543	39,731	22,292	14,176	6,546	20,286	3,972	2,629	2,540	1,807	1,115	1,247	724	622	302	619	415	784	214	1,596	686
Prior veh.km	0	64,318	139,444	506,620	414,943	326,554	183,913	686,100	153,210	114,521	122,116	98,473	67,135	79,829	51,999	46,714	25,875	52,178	38,800	75,943	23,392	206,217	243,331
PostME veh.km	0	65,437	141,676	504,954	413,314	321,147	177,420	679,105	149,301	111,119	120,046	95,287	64,610	77,195	48,894	44,846	23,398	50,695	36,260	73,864	20,846	190,244	160,236

Band	Distance (km)		Trips (veh)		Trip.kms		Length (km)		%Diff
	from	to	Prior	PostME	Prior	PostME	Prior	PostME	
1	0	0	1	1	0	0	0.0	0.0	#DIV/0!
2	0	5	19,560	19,964	64,318	65,437	3.3	3.3	-0.3%
3	5	10	18,240	18,543	139,444	141,676	7.6	7.6	-0.1%
4	10	15	39,850	39,731	506,620	504,954	12.7	12.7	0.0%
5	15	20	22,380	22,292	414,943	413,314	18.5	18.5	0.0%
6	20	25	14,416	14,176	326,554	321,147	22.7	22.7	0.0%
7	25	30	6,783	6,546	183,913	177,420	27.1	27.1	0.0%
8	30	35	20,500	20,286	686,100	679,105	33.5	33.5	0.0%
9	35	40	4,077	3,972	153,210	149,301	37.6	37.6	0.0%
10	40	45	2,709	2,629	114,521	111,119	42.3	42.3	0.0%
11	45	50	2,584	2,540	122,116	120,046	47.3	47.3	0.0%
12	50	55	1,867	1,807	98,473	95,287	52.7	52.7	0.0%
13	55	60	1,159	1,115	67,135	64,610	57.9	57.9	0.0%
14	60	65	1,289	1,247	79,829	77,195	61.9	61.9	0.0%
15	65	70	771	724	51,999	48,894	67.5	67.5	0.1%
16	70	75	648	622	46,714	44,846	72.1	72.1	0.0%
17	75	80	333	302	25,875	23,398	77.6	77.6	0.0%
18	80	85	637	619	52,178	50,695	82.0	82.0	0.0%
19	85	90	444	415	38,800	36,260	87.4	87.4	0.0%
20	90	95	807	784	75,943	73,864	94.1	94.2	0.1%
21	95	100	240	214	23,392	20,846	97.5	97.6	0.1%
22	100	150	1,723	1,596	206,217	190,244	119.7	119.2	-0.4%
23	150	999	1,023	686	243,331	160,236	237.9	233.6	-1.8%
Total			**162,041**	**160,809**	**3,721,626**	**3,569,894**	**22.97**	**22.20**	**-3.3%**

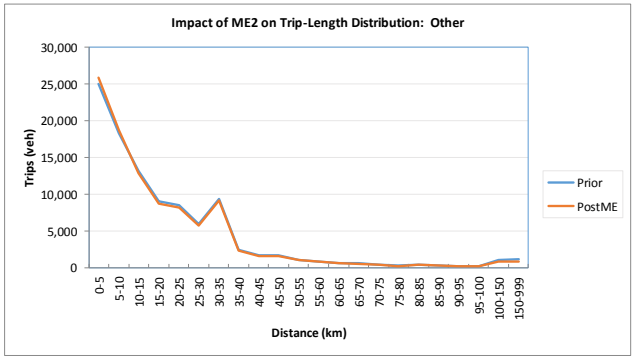


	Prior	PostME
Mean	22.97	22.20
SD	26.19	23.65

Other

Distance	0-0	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60	60-65	65-70	70-75	75-80	80-85	85-90	90-95	95-100	100-150	150-999
Prior Trips (veh)	2	25,078	18,296	13,245	9,009	8,560	5,977	9,340	2,458	1,714	1,682	1,080	841	632	595	400	287	442	308	206	194	1,040	1,120
PostME Trips (veh)	2	25,899	18,700	12,907	8,760	8,238	5,697	9,132	2,328	1,639	1,628	1,023	802	591	538	377	254	421	279	181	167	886	828
Prior veh.km	0	81,133	135,811	163,168	158,525	190,299	163,200	314,108	92,817	72,149	80,464	56,231	48,596	39,447	40,095	28,992	22,226	36,113	26,914	18,983	18,903	127,496	253,660
PostME veh.km	0	83,332	138,778	158,867	154,004	183,127	155,560	307,338	87,991	68,984	77,899	53,255	46,351	36,865	36,248	27,280	19,706	34,327	24,453	16,759	16,287	108,020	184,984

Band	Distance (km)		Trips (veh)		Trip.kms		Length (km)		%Diff
	from	to	Prior	PostME	Prior	PostME	Prior	PostME	
1	0	0	2	2	0	0	0.0	0.0	#DIV/0!
2	0	5	25,078	25,899	81,133	83,332	3.2	3.2	-0.5%
3	5	10	18,296	18,700	135,811	138,778	7.4	7.4	0.0%
4	10	15	13,245	12,907	163,168	158,867	12.3	12.3	-0.1%
5	15	20	9,009	8,760	158,525	154,004	17.6	17.6	-0.1%
6	20	25	8,560	8,238	190,299	183,127	22.2	22.2	0.0%
7	25	30	5,977	5,697	163,200	155,560	27.3	27.3	0.0%
8	30	35	9,340	9,132	314,108	307,338	33.6	33.7	0.1%
9	35	40	2,458	2,328	92,817	87,991	37.8	37.8	0.1%
10	40	45	1,714	1,639	72,149	68,984	42.1	42.1	0.0%
11	45	50	1,682	1,628	80,464	77,899	47.8	47.8	0.0%
12	50	55	1,080	1,023	56,231	53,255	52.1	52.1	-0.1%
13	55	60	841	802	48,596	46,351	57.8	57.8	0.0%
14	60	65	632	591	39,447	36,865	62.4	62.4	0.0%
15	65	70	595	538	40,095	36,248	67.3	67.4	0.1%
16	70	75	400	377	28,992	27,280	72.4	72.4	0.0%
17	75	80	287	254	22,226	19,706	77.5	77.5	-0.1%
18	80	85	442	421	36,113	34,327	81.6	81.6	0.0%
19	85	90	308	279	26,914	24,453	87.5	87.5	0.0%
20	90	95	206	181	18,983	16,759	92.4	92.4	0.0%
21	95	100	194	167	18,903	16,287	97.3	97.4	0.0%
22	100	150	1,040	886	127,496	108,020	122.6	121.9	-0.5%
23	150	999	1,120	828	253,660	184,984	226.4	223.4	-1.3%
Total			**102,504**	**101,277**	**2,169,333**	**2,020,415**	**21.16**	**19.95**	**-5.7%**

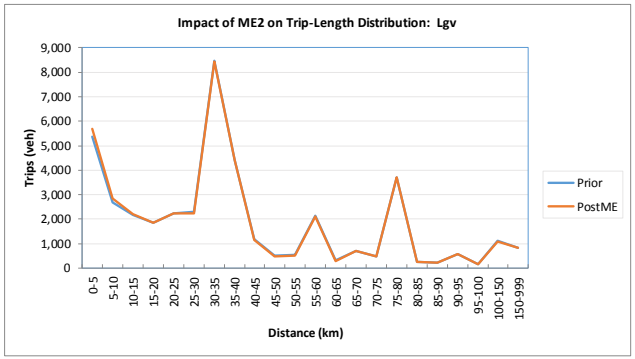


	Prior	PostME
Mean	21.16	19.95
SD	30.05	27.21

Lgv

Distance	0-0	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60	60-65	65-70	70-75	75-80	80-85	85-90	90-95	95-100	100-150	150-999
Prior Trips (veh)	2	5,383	2,685	2,167	1,839	2,237	2,289	8,475	4,425	1,172	513	526	2,125	316	707	483	3,708	253	224	566	158	1,102	841
PostME Trips (veh)	2	5,696	2,846	2,218	1,851	2,227	2,234	8,429	4,404	1,152	493	509	2,093	297	694	471	3,705	239	222	559	156	1,088	837
Prior veh.km	0	15,103	19,227	27,301	32,873	50,871	60,797	281,190	158,490	48,779	24,359	27,527	123,789	19,724	47,934	34,667	290,000	20,767	19,629	53,052	15,435	136,829	182,201
PostME veh.km	0	15,873	20,344	27,924	33,067	50,615	59,273	279,694	157,726	47,935	23,430	26,635	121,937	18,540	47,085	33,770	289,758	19,652	19,418	52,418	15,200	135,360	181,481

Band	Distance (km)		Trips (veh)		Trip.kms		Length (km)		%Diff
	from	to	Prior	PostME	Prior	PostME	Prior	PostME	
1	0	0	2	2	0	0	0.0	0.0	#DIV/0!
2	0	5	5,383	5,696	15,103	15,873	2.8	2.8	-0.7%
3	5	10	2,685	2,846	19,227	20,344	7.2	7.1	-0.2%
4	10	15	2,167	2,218	27,301	27,924	12.6	12.6	-0.1%
5	15	20	1,839	1,851	32,873	33,067	17.9	17.9	0.0%
6	20	25	2,237	2,227	50,871	50,615	22.7	22.7	0.0%
7	25	30	2,289	2,234	60,797	59,273	26.6	26.5	-0.1%
8	30	35	8,475	8,429	281,190	279,694	33.2	33.2	0.0%
9	35	40	4,425	4,404	158,490	157,726	35.8	35.8	0.0%
10	40	45	1,172	1,152	48,779	47,935	41.6	41.6	0.0%
11	45	50	513	493	24,359	23,430	47.5	47.5	0.0%
12	50	55	526	509	27,527	26,635	52.4	52.4	0.0%
13	55	60	2,125	2,093	123,789	121,937	58.3	58.3	0.0%
14	60	65	316	297	19,724	18,540	62.5	62.5	0.0%
15	65	70	707	694	47,934	47,085	67.8	67.8	0.0%
16	70	75	483	471	34,667	33,770	71.7	71.7	0.0%
17	75	80	3,708	3,705	290,000	289,758	78.2	78.2	0.0%
18	80	85	253	239	20,767	19,652	82.2	82.2	0.0%
19	85	90	224	222	19,629	19,418	87.5	87.5	0.0%
20	90	95	566	559	53,052	52,418	93.7	93.7	0.0%
21	95	100	158	156	15,435	15,200	97.6	97.6	0.0%
22	100	150	1,102	1,088	136,829	135,360	124.1	124.4	0.2%
23	150	999	841	837	182,201	181,481	216.6	216.9	0.1%
Total			**42,194**	**42,419**	**1,690,545**	**1,677,137**	**40.07**	**39.54**	**-1.3%**

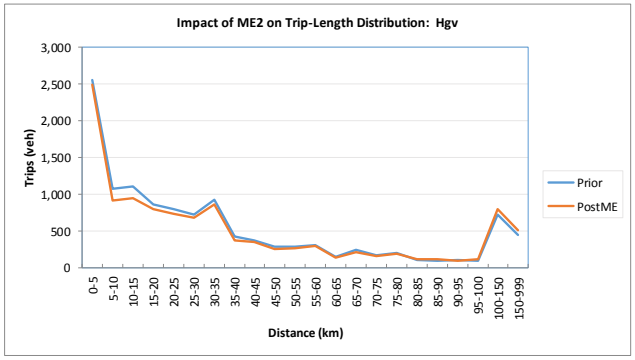


	Prior	PostME
Mean	40.06	39.54
SD	38.38	38.39

Hgv

Distance	0-0	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60	60-65	65-70	70-75	75-80	80-85	85-90	90-95	95-100	100-150	150-999
Prior Trips (veh)	1	2,561	1,077	1,104	866	802	722	925	421	370	287	283	313	152	239	170	201	104	94	102	95	728	443
PostME Trips (veh)	1	2,495	919	948	800	740	678	858	370	347	253	271	293	140	217	156	194	116	121	97	117	797	510
Prior veh.km	0	6,629	8,123	13,795	15,229	18,076	19,492	30,241	15,550	15,640	13,662	14,767	18,218	9,457	16,149	12,257	15,712	8,550	8,230	9,483	9,228	90,187	93,887
PostME veh.km	0	6,382	6,793	11,952	14,154	16,640	18,281	28,122	13,677	14,641	12,039	14,156	17,044	8,745	14,671	11,238	15,164	9,582	10,542	9,011	11,431	99,125	106,698

Band	Distance (km)		Trips (veh)		Trip.kms		Length (km)		%Diff
	from	to	Prior	PostME	Prior	PostME	Prior	PostME	
1	0	0	1	1	0	0	0.0	0.0	#DIV/0!
2	0	5	2,561	2,495	6,629	6,382	2.6	2.6	-1.2%
3	5	10	1,077	919	8,123	6,793	7.5	7.4	-2.0%
4	10	15	1,104	948	13,795	11,952	12.5	12.6	0.9%
5	15	20	866	800	15,229	14,154	17.6	17.7	0.5%
6	20	25	802	740	18,076	16,640	22.5	22.5	-0.1%
7	25	30	722	678	19,492	18,281	27.0	27.0	-0.1%
8	30	35	925	858	30,241	28,122	32.7	32.8	0.2%
9	35	40	421	370	15,550	13,677	37.0	37.0	0.0%
10	40	45	370	347	15,640	14,641	42.3	42.2	-0.1%
11	45	50	287	253	13,662	12,039	47.6	47.6	0.0%
12	50	55	283	271	14,767	14,156	52.2	52.3	0.0%
13	55	60	313	293	18,218	17,044	58.1	58.2	0.0%
14	60	65	152	140	9,457	8,745	62.3	62.3	-0.1%
15	65	70	239	217	16,149	14,671	67.5	67.6	0.2%
16	70	75	170	156	12,257	11,238	72.2	72.2	0.0%
17	75	80	201	194	15,712	15,164	78.0	78.1	0.1%
18	80	85	104	116	8,550	9,582	82.4	82.3	-0.1%
19	85	90	94	121	8,230	10,542	87.3	87.2	-0.1%
20	90	95	102	97	9,483	9,011	92.7	92.6	-0.1%
21	95	100	95	117	9,228	11,431	97.1	97.6	0.4%
22	100	150	728	797	90,187	99,125	123.8	124.4	0.5%
23	150	999	443	510	93,887	106,698	212.0	209.3	-1.3%
Total			**12,058**	**11,437**	**462,562**	**470,087**	**38.36**	**41.10**	**7.1%**



	Prior	PostME
Mean	38.36	41.10
SD	48.41	51.29

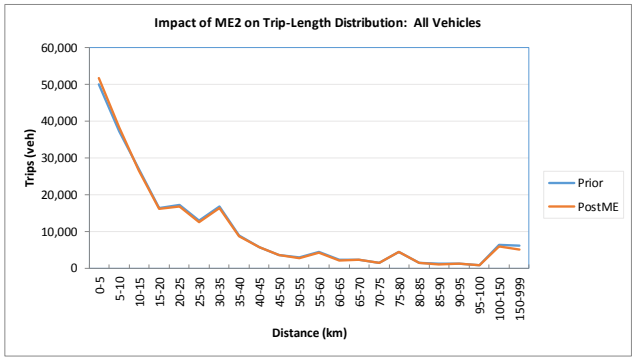
Trip Length Distribution Comparison – Inter Peak

GLTM Effects of Matrix Estimation

All Vehicles

Distance	0-0	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60	60-65	65-70	70-75	75-80	80-85	85-90	90-95	95-100	100-150	150-999
Prior Trips (veh)	7	50,000	37,375	27,021	16,382	17,342	12,895	16,736	8,991	5,814	3,652	2,874	4,363	2,280	2,305	1,510	4,474	1,455	1,190	1,256	862	6,315	6,129
PostME Trips (veh)	7	51,862	38,404	26,626	16,090	16,840	12,504	16,377	8,819	5,712	3,610	2,818	4,310	2,182	2,234	1,470	4,411	1,420	1,121	1,190	824	5,887	5,181
Prior veh.km	0	157,172	278,257	344,348	289,903	387,865	350,069	550,065	330,678	243,675	174,151	150,367	253,497	142,319	155,240	109,178	349,369	119,412	104,144	116,805	83,992	784,432	1,405,673
PostME veh.km	0	162,306	285,572	339,361	284,571	376,652	339,441	538,500	324,267	239,341	172,163	147,382	250,392	136,139	150,552	106,262	344,461	116,524	98,077	110,691	80,407	730,765	1,172,965

Band	Distance (km)		Trips (veh)		Trip.kms		Length (km)		%Diff
	from	to	Prior	PostME	Prior	PostME	Prior	PostME	
1	0	0	7	7	0	0	0.0	0.0	#DIV/0!
2	0	5	50,000	51,862	157,172	162,306	3.1	3.1	-0.4%
3	5	10	37,375	38,404	278,257	285,572	7.4	7.4	-0.1%
4	10	15	27,021	26,626	344,348	339,361	12.7	12.7	0.0%
5	15	20	16,382	16,090	289,903	284,571	17.7	17.7	-0.1%
6	20	25	17,342	16,840	387,865	376,652	22.4	22.4	0.0%
7	25	30	12,895	12,504	350,069	339,441	27.1	27.1	0.0%
8	30	35	16,736	16,377	550,065	538,500	32.9	32.9	0.0%
9	35	40	8,991	8,819	330,678	324,267	36.8	36.8	0.0%
10	40	45	5,814	5,712	243,675	239,341	41.9	41.9	0.0%
11	45	50	3,652	3,610	174,151	172,163	47.7	47.7	0.0%
12	50	55	2,874	2,818	150,367	147,382	52.3	52.3	0.0%
13	55	60	4,363	4,310	253,497	250,392	58.1	58.1	0.0%
14	60	65	2,280	2,182	142,319	136,139	62.4	62.4	0.0%
15	65	70	2,305	2,234	155,240	150,552	67.4	67.4	0.0%
16	70	75	1,510	1,470	109,178	106,262	72.3	72.3	0.0%
17	75	80	4,474	4,411	349,369	344,461	78.1	78.1	0.0%
18	80	85	1,455	1,420	119,412	116,524	82.1	82.1	0.0%
19	85	90	1,190	1,121	104,144	98,077	87.5	87.5	0.0%
20	90	95	1,256	1,190	116,805	110,691	93.0	93.0	0.0%
21	95	100	862	824	83,992	80,407	97.4	97.5	0.1%
22	100	150	6,315	5,887	784,432	730,765	124.2	124.1	-0.1%
23	150	999	6,129	5,181	1,405,673	1,172,965	229.3	226.4	-1.3%
Total			**231,220**	**229,891**	**6,880,611**	**6,506,790**	**29.76**	**28.30**	**-4.9%**

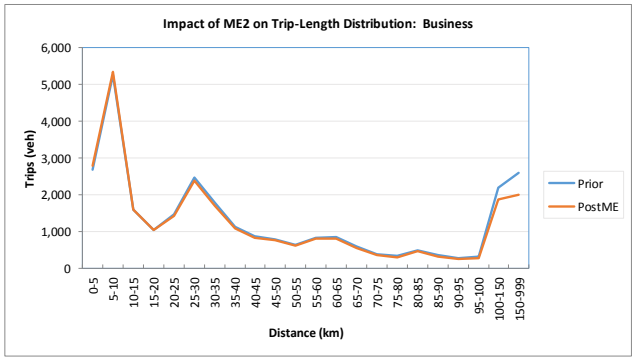


	Prior	PostME
Mean	29.76	28.30
SD	42.09	39.57

Business

Distance	0-0	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60	60-65	65-70	70-75	75-80	80-85	85-90	90-95	95-100	100-150	150-999
Prior Trips (veh)	0	2,679	5,262	1,604	1,050	1,480	2,472	1,782	1,139	863	777	645	821	845	591	382	341	495	369	283	314	2,185	2,609
PostME Trips (veh)	0	2,787	5,344	1,601	1,045	1,434	2,375	1,700	1,092	831	756	622	800	807	554	358	305	470	328	250	271	1,864	1,997
Prior veh.km	0	10,524	37,636	20,763	18,557	33,211	67,389	57,764	42,983	36,318	37,198	33,751	47,648	52,707	39,585	27,744	26,482	40,597	32,276	26,149	30,584	271,190	606,284
PostME veh.km	0	10,797	38,239	20,727	18,446	32,189	64,759	55,084	41,241	34,949	36,209	32,521	46,434	50,361	37,103	25,949	23,672	38,581	28,677	23,044	26,386	230,431	459,634

Band	Distance (km)		Trips (veh)		Trip.kms		Length (km)		%Diff
	from	to	Prior	PostME	Prior	PostME	Prior	PostME	
1	0	0	0	0	0	0	0.0	0.0	#DIV/0!
2	0	5	2,679	2,787	10,524	10,797	3.9	3.9	-1.4%
3	5	10	5,262	5,344	37,636	38,239	7.2	7.2	0.1%
4	10	15	1,604	1,601	20,763	20,727	12.9	12.9	0.0%
5	15	20	1,050	1,045	18,557	18,446	17.7	17.7	-0.1%
6	20	25	1,480	1,434	33,211	32,189	22.4	22.4	0.0%
7	25	30	2,472	2,375	67,389	64,759	27.3	27.3	0.0%
8	30	35	1,782	1,700	57,764	55,084	32.4	32.4	0.0%
9	35	40	1,139	1,092	42,983	41,241	37.7	37.8	0.1%
10	40	45	863	831	36,318	34,949	42.1	42.1	0.0%
11	45	50	777	756	37,198	36,209	47.9	47.9	0.0%
12	50	55	645	622	33,751	32,521	52.3	52.3	0.0%
13	55	60	821	800	47,648	46,434	58.0	58.0	0.0%
14	60	65	845	807	52,707	50,361	62.4	62.4	0.0%
15	65	70	591	554	39,585	37,103	67.0	67.0	0.0%
16	70	75	382	358	27,744	25,949	72.5	72.6	0.0%
17	75	80	341	305	26,482	23,672	77.6	77.6	-0.1%
18	80	85	495	470	40,597	38,581	82.0	82.0	0.0%
19	85	90	369	328	32,276	28,677	87.5	87.5	0.0%
20	90	95	283	250	26,149	23,044	92.3	92.3	0.0%
21	95	100	314	271	30,584	26,386	97.4	97.5	0.1%
22	100	150	2,185	1,864	271,190	230,431	124.1	123.6	-0.4%
23	150	999	2,609	1,997	606,284	459,634	232.4	230.1	-1.0%
Total			**28,989**	**27,591**	**1,597,342**	**1,375,432**	**55.10**	**49.85**	**-9.5%**

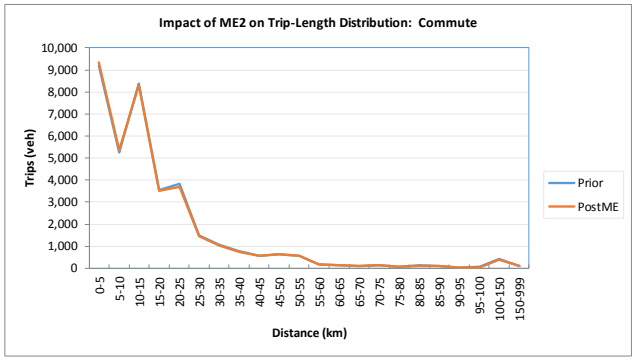


	Prior	PostME
Mean	55.10	49.85
SD	69.06	63.57

Commute

Distance	0-0	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60	60-65	65-70	70-75	75-80	80-85	85-90	90-95	95-100	100-150	150-999
Prior Trips (veh)	1	9,212	5,263	8,384	3,556	3,825	1,492	1,056	763	556	644	580	176	157	107	150	55	125	110	40	54	420	119
PostME Trips (veh)	1	9,354	5,369	8,320	3,497	3,707	1,467	1,033	754	551	641	578	172	151	105	146	52	122	104	36	49	400	90
Prior veh.km	0	28,830	39,422	108,712	63,176	85,351	41,044	34,504	28,769	23,353	30,247	30,472	10,209	9,845	7,184	10,829	4,265	10,357	9,587	3,658	5,285	52,346	27,074
PostME veh.km	0	29,244	40,184	107,878	62,074	82,723	40,383	33,766	28,445	23,139	30,138	30,338	9,979	9,406	7,027	10,596	4,027	10,138	9,061	3,280	4,807	49,854	20,224

Band	Distance (km)		Trips (veh)		Trip.kms		Length (km)		%Diff
	from	to	Prior	PostME	Prior	PostME	Prior	PostME	
1	0	0	1	1	0	0	0.0	0.0	#DIV/0!
2	0	5	9,212	9,354	28,830	29,244	3.1	3.1	-0.1%
3	5	10	5,263	5,369	39,422	40,184	7.5	7.5	-0.1%
4	10	15	8,384	8,320	108,712	107,878	13.0	13.0	0.0%
5	15	20	3,556	3,497	63,176	62,074	17.8	17.8	-0.1%
6	20	25	3,825	3,707	85,351	82,723	22.3	22.3	0.0%
7	25	30	1,492	1,467	41,044	40,383	27.5	27.5	0.0%
8	30	35	1,056	1,033	34,504	33,766	32.7	32.7	0.0%
9	35	40	763	754	28,769	28,445	37.7	37.7	0.0%
10	40	45	556	551	23,353	23,139	42.0	42.0	0.0%
11	45	50	644	641	30,247	30,138	47.0	47.0	0.0%
12	50	55	580	578	30,472	30,338	52.5	52.5	0.0%
13	55	60	176	172	10,209	9,979	57.9	57.9	0.0%
14	60	65	157	151	9,845	9,406	62.5	62.5	0.0%
15	65	70	107	105	7,184	7,027	67.1	67.0	-0.1%
16	70	75	150	146	10,829	10,596	72.4	72.4	0.0%
17	75	80	55	52	4,265	4,027	77.5	77.5	0.0%
18	80	85	125	122	10,357	10,138	83.2	83.2	0.0%
19	85	90	110	104	9,587	9,061	87.4	87.5	0.0%
20	90	95	40	36	3,658	3,280	92.1	92.1	0.0%
21	95	100	54	49	5,285	4,807	97.8	98.0	0.1%
22	100	150	420	400	52,346	49,854	124.5	124.5	0.0%
23	150	999	119	90	27,074	20,224	227.2	224.7	-1.1%
Total			**36,843**	**36,697**	**664,518**	**646,712**	**18.04**	**17.62**	**-2.3%**

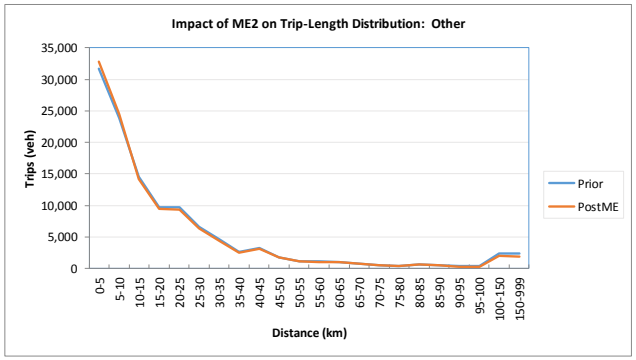


	Prior	PostME
Mean	18.04	17.62
SD	22.71	21.59

Other

Distance	0-0	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60	60-65	65-70	70-75	75-80	80-85	85-90	90-95	95-100	100-150	150-999
Prior Trips (veh)	3	31,753	23,868	14,482	9,642	9,686	6,588	4,566	2,593	3,225	1,739	1,108	1,084	994	781	528	426	583	476	311	316	2,331	2,361
PostME Trips (veh)	3	32,777	24,517	14,169	9,406	9,343	6,333	4,337	2,478	3,152	1,697	1,062	1,043	940	726	498	385	553	433	275	275	2,044	1,846
Prior veh.km	0	100,465	179,809	182,678	169,979	215,697	179,585	148,205	97,892	135,231	83,229	57,900	62,723	62,001	52,381	38,281	33,063	47,630	41,672	28,688	30,723	289,401	545,226
PostME veh.km	0	103,304	184,530	178,723	165,668	208,052	172,685	140,820	93,619	132,155	81,253	55,482	60,356	58,631	48,680	36,113	29,865	45,185	37,880	25,394	26,799	253,029	421,747

Band	Distance (km)		Trips (veh)		Trip.kms		Length (km)		%Diff
	from	to	Prior	PostME	Prior	PostME	Prior	PostME	
1	0	0	3	3	0	0	0.0	0.0	#DIV/0!
2	0	5	31,753	32,777	100,465	103,304	3.2	3.2	-0.4%
3	5	10	23,868	24,517	179,809	184,530	7.5	7.5	-0.1%
4	10	15	14,482	14,169	182,678	178,723	12.6	12.6	0.0%
5	15	20	9,642	9,406	169,979	165,668	17.6	17.6	-0.1%
6	20	25	9,686	9,343	215,697	208,052	22.3	22.3	0.0%
7	25	30	6,588	6,333	179,585	172,685	27.3	27.3	0.0%
8	30	35	4,566	4,337	148,205	140,820	32.5	32.5	0.0%
9	35	40	2,593	2,478	97,892	93,619	37.8	37.8	0.1%
10	40	45	3,225	3,152	135,231	132,155	41.9	41.9	0.0%
11	45	50	1,739	1,697	83,229	81,253	47.9	47.9	0.0%
12	50	55	1,108	1,062	57,900	55,482	52.2	52.2	0.0%
13	55	60	1,084	1,043	62,723	60,356	57.8	57.9	0.0%
14	60	65	994	940	62,001	58,631	62.4	62.4	0.0%
15	65	70	781	726	52,381	48,680	67.0	67.0	0.0%
16	70	75	528	498	38,281	36,113	72.5	72.5	0.0%
17	75	80	426	385	33,063	29,865	77.6	77.5	0.0%
18	80	85	583	553	47,630	45,185	81.8	81.7	0.0%
19	85	90	476	433	41,672	37,880	87.6	87.6	0.0%
20	90	95	311	275	28,688	25,394	92.2	92.2	0.0%
21	95	100	316	275	30,723	26,799	97.4	97.4	0.0%
22	100	150	2,331	2,044	289,401	253,029	124.2	123.8	-0.3%
23	150	999	2,361	1,846	545,226	421,747	230.9	228.4	-1.1%
Total			**119,442**	**118,293**	**2,782,458**	**2,559,969**	**23.30**	**21.64**	**-7.1%**

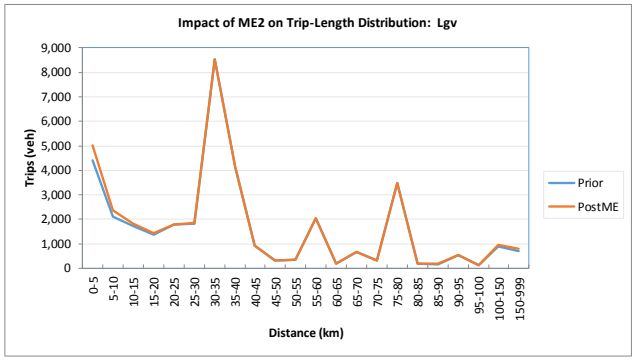


	Prior	PostME
Mean	23.30	21.64
SD	38.61	35.24

Lgv

Distance	0-0	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60	60-65	65-70	70-75	75-80	80-85	85-90	90-95	95-100	100-150	150-999
Prior Trips (veh)	3	4,404	2,111	1,721	1,382	1,773	1,825	8,534	4,140	920	305	337	2,052	183	656	323	3,483	177	167	550	115	880	712
PostME Trips (veh)	3	5,006	2,376	1,814	1,438	1,803	1,840	8,547	4,154	925	314	345	2,058	185	673	332	3,496	182	184	555	130	949	785
Prior veh.km	0	12,204	15,037	21,702	24,878	40,576	48,013	283,337	147,814	38,147	14,545	17,608	119,629	11,449	44,640	23,189	272,432	14,567	14,595	51,663	11,176	109,558	156,661
PostME veh.km	0	13,860	16,867	22,866	25,873	41,233	48,436	283,792	148,328	38,361	14,946	18,053	119,961	11,553	45,787	23,841	273,443	14,972	16,088	52,076	12,716	118,442	172,517

Band	Distance (km)		Trips (veh)		Trip.kms		Length (km)		%Diff
	from	to	Prior	PostME	Prior	PostME	Prior	PostME	
1	0	0	3	3	0	0	0.0	0.0	#DIV/0!
2	0	5	4,404	5,006	12,204	13,860	2.8	2.8	-0.1%
3	5	10	2,111	2,376	15,037	16,867	7.1	7.1	-0.3%
4	10	15	1,721	1,814	21,702	22,866	12.6	12.6	-0.1%
5	15	20	1,382	1,438	24,878	25,873	18.0	18.0	-0.1%
6	20	25	1,773	1,803	40,576	41,233	22.9	22.9	-0.1%
7	25	30	1,825	1,840	48,013	48,436	26.3	26.3	0.0%
8	30	35	8,534	8,547	283,337	283,792	33.2	33.2	0.0%
9	35	40	4,140	4,154	147,814	148,328	35.7	35.7	0.0%
10	40	45	920	925	38,147	38,361	41.4	41.5	0.0%
11	45	50	305	314	14,545	14,946	47.6	47.6	0.0%
12	50	55	337	345	17,608	18,053	52.3	52.3	0.0%
13	55	60	2,052	2,058	119,629	119,961	58.3	58.3	0.0%
14	60	65	183	185	11,449	11,553	62.5	62.5	-0.1%
15	65	70	656	673	44,640	45,787	68.0	68.0	0.0%
16	70	75	323	332	23,189	23,841	71.8	71.7	0.0%
17	75	80	3,483	3,496	272,432	273,443	78.2	78.2	0.0%
18	80	85	177	182	14,567	14,972	82.2	82.2	0.0%
19	85	90	167	184	14,595	16,088	87.5	87.4	0.0%
20	90	95	550	555	51,663	52,076	93.9	93.8	0.0%
21	95	100	115	130	11,176	12,716	97.5	97.5	0.0%
22	100	150	880	949	109,558	118,442	124.4	124.9	0.3%
23	150	999	712	785	156,661	172,517	220.1	219.8	-0.1%
Total			**36,751**	**38,092**	**1,493,420**	**1,534,013**	**40.64**	**40.27**	**-0.9%**

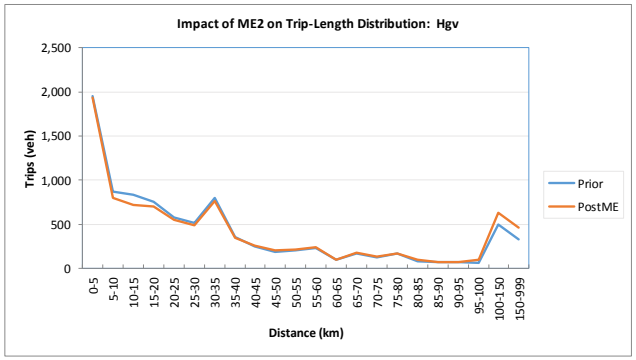


	Prior	PostME
Mean	40.63	40.27
SD	38.06	38.95

Hgv

Distance	0-0	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60	60-65	65-70	70-75	75-80	80-85	85-90	90-95	95-100	100-150	150-999
Prior Trips (veh)	0	1,952	870	830	752	577	519	798	357	250	187	204	229	101	169	127	168	76	69	72	64	498	328
PostME Trips (veh)	0	1,938	798	722	704	552	488	760	342	253	201	211	236	99	176	135	173	93	73	74	99	630	462
Prior veh.km	0	5,150	6,353	10,493	13,314	13,029	14,038	26,255	13,220	10,625	8,931	10,636	13,289	6,316	11,449	9,135	13,127	6,261	6,015	6,647	6,224	61,936	70,429
PostME veh.km	0	5,101	5,752	9,167	12,509	12,454	13,179	25,039	12,633	10,737	9,618	10,988	13,661	6,187	11,954	9,763	13,454	7,648	6,370	6,897	9,700	79,009	98,843

Band	Distance (km)		Trips (veh)		Trip.kms		Length (km)		%Diff
	from	to	Prior	PostME	Prior	PostME	Prior	PostME	
1	0	0	0	0	0	0	0.0	0.0	#DIV/0!
2	0	5	1,952	1,938	5,150	5,101	2.6	2.6	-0.2%
3	5	10	870	798	6,353	5,752	7.3	7.2	-1.2%
4	10	15	830	722	10,493	9,167	12.6	12.7	0.5%
5	15	20	752	704	13,314	12,509	17.7	17.8	0.4%
6	20	25	577	552	13,029	12,454	22.6	22.6	-0.1%
7	25	30	519	488	14,038	13,179	27.1	27.0	-0.2%
8	30	35	798	760	26,255	25,039	32.9	33.0	0.2%
9	35	40	357	342	13,220	12,633	37.0	37.0	0.0%
10	40	45	250	253	10,625	10,737	42.5	42.5	0.0%
11	45	50	187	201	8,931	9,618	47.8	47.8	-0.1%
12	50	55	204	211	10,636	10,988	52.2	52.1	-0.1%
13	55	60	229	236	13,289	13,661	58.0	58.0	-0.1%
14	60	65	101	99	6,316	6,187	62.7	62.7	0.1%
15	65	70	169	176	11,449	11,954	67.6	67.8	0.2%
16	70	75	127	135	9,135	9,763	72.2	72.1	-0.1%
17	75	80	168	173	13,127	13,454	78.0	78.0	0.0%
18	80	85	76	93	6,261	7,648	82.3	82.3	0.0%
19	85	90	69	73	6,015	6,370	87.4	87.4	0.0%
20	90	95	72	74	6,647	6,897	92.9	92.7	-0.2%
21	95	100	64	99	6,224	9,700	97.4	97.8	0.4%
22	100	150	498	630	61,936	79,009	124.5	125.4	0.7%
23	150	999	328	462	70,429	98,843	214.8	213.9	-0.4%
Total			**9,196**	**9,218**	**342,873**	**390,664**	**37.28**	**42.38**	**13.7%**



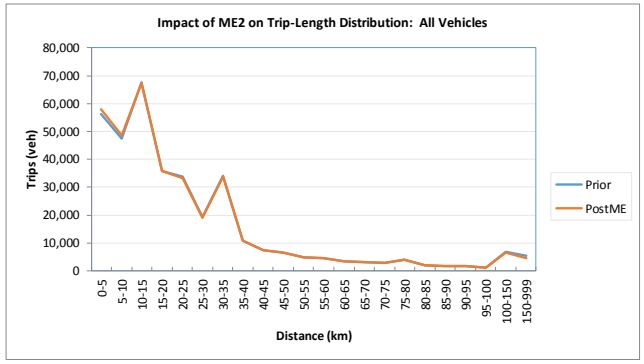
	Prior	PostME
Mean	37.28	42.38
SD	47.97	53.72

Trip Length Distribution Comparison – PM Peak

All Vehicles

Distance	0-0	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60	60-65	65-70	70-75	75-80	80-85	85-90	90-95	95-100	100-150	150-999
Prior Trips (veh)	6	56,370	47,462	67,616	35,798	33,686	19,361	34,161	10,832	7,492	6,493	4,816	4,673	3,404	3,133	2,852	4,069	1,972	1,656	1,768	986	6,805	5,468
PostME Trips (veh)	6	58,064	48,573	67,375	35,752	33,307	19,070	33,798	10,702	7,442	6,497	4,764	4,639	3,325	3,106	2,839	4,030	1,959	1,630	1,714	981	6,661	4,662
Prior veh.km	0	178,337	354,230	859,080	650,706	762,576	527,124	1,140,850	401,590	315,201	308,181	253,626	270,934	212,358	211,191	205,191	317,402	162,204	144,839	165,291	96,099	839,655	1,256,585
PostME veh.km	0	183,340	362,498	856,049	649,683	754,041	519,246	1,128,999	396,801	313,155	308,334	250,820	268,941	207,373	209,444	204,276	314,360	161,174	142,505	160,291	95,793	821,964	1,047,269

Band	Distance (km)		Trips (veh)		Trip.kms		Length (km)		%Diff
	from	to	Prior	PostME	Prior	PostME	Prior	PostME	
1	0	0	6	6	0	0	0.0	0.0	#DIV/0!
2	0	5	56,370	58,064	178,337	183,340	3.2	3.2	-0.2%
3	5	10	47,462	48,573	354,230	362,498	7.5	7.5	0.0%
4	10	15	67,616	67,375	859,080	856,049	12.7	12.7	0.0%
5	15	20	35,798	35,752	650,706	649,683	18.2	18.2	0.0%
6	20	25	33,686	33,307	762,576	754,041	22.6	22.6	0.0%
7	25	30	19,361	19,070	527,124	519,246	27.2	27.2	0.0%
8	30	35	34,161	33,798	1,140,850	1,128,999	33.4	33.4	0.0%
9	35	40	10,832	10,702	401,590	396,801	37.1	37.1	0.0%
10	40	45	7,492	7,442	315,201	313,155	42.1	42.1	0.0%
11	45	50	6,493	6,497	308,181	308,334	47.5	47.5	0.0%
12	50	55	4,816	4,764	253,626	250,820	52.7	52.6	0.0%
13	55	60	4,673	4,639	270,934	268,941	58.0	58.0	0.0%
14	60	65	3,404	3,325	212,358	207,373	62.4	62.4	0.0%
15	65	70	3,133	3,106	211,191	209,444	67.4	67.4	0.0%
16	70	75	2,852	2,839	205,191	204,276	71.9	71.9	0.0%
17	75	80	4,069	4,030	317,402	314,360	78.0	78.0	0.0%
18	80	85	1,972	1,959	162,204	161,174	82.2	82.3	0.0%
19	85	90	1,656	1,630	144,839	142,505	87.5	87.4	0.0%
20	90	95	1,768	1,714	165,291	160,291	93.5	93.5	0.1%
21	95	100	986	981	96,099	95,793	97.4	97.6	0.2%
22	100	150	6,805	6,661	839,655	821,964	123.4	123.4	0.0%
23	150	999	5,468	4,662	1,256,585	1,047,269	229.8	224.7	-2.2%
Total			**360,873**	**360,890**	**9,633,247**	**9,356,357**	**26.69**	**25.93**	**-2.9%**

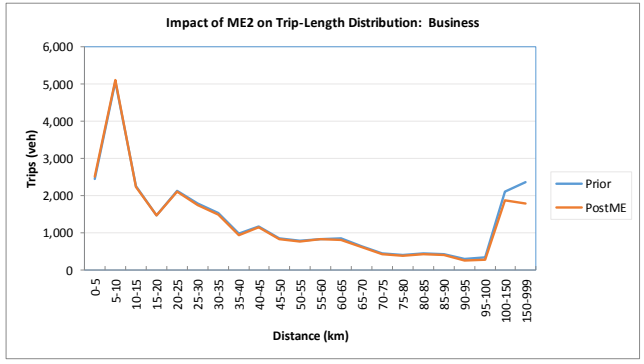


	Prior	PostME
Mean	26.69	25.93
SD	34.11	32.15

Business

Distance	0-0	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60	60-65	65-70	70-75	75-80	80-85	85-90	90-95	95-100	100-150	150-999
Prior Trips (veh)	0	2,459	5,072	2,254	1,469	2,130	1,783	1,543	970	1,174	845	793	831	841	631	436	409	436	431	288	334	2,109	2,366
PostME Trips (veh)	0	2,521	5,116	2,246	1,479	2,107	1,754	1,495	946	1,154	834	773	826	818	607	423	379	427	401	256	283	1,878	1,780
Prior veh.km	0	9,783	36,217	29,368	25,935	47,647	48,710	50,097	36,555	49,450	40,183	41,795	48,191	52,626	42,246	31,678	31,723	35,772	37,731	26,600	32,533	262,055	549,508
PostME veh.km	0	9,969	36,553	29,262	26,093	47,127	47,921	48,549	35,667	48,592	39,669	40,726	47,851	51,138	40,697	30,737	29,415	34,973	35,123	23,665	27,551	233,145	407,449

Band	Distance (km)		Trips (veh)		Trip.kms		Length (km)		%Diff
	from	to	Prior	PostME	Prior	PostME	Prior	PostME	
1	0	0	0	0	0	0	0.0	0.0	#DIV/0!
2	0	5	2,459	2,521	9,783	9,969	4.0	4.0	-0.6%
3	5	10	5,072	5,116	36,217	36,553	7.1	7.1	0.1%
4	10	15	2,254	2,246	29,368	29,262	13.0	13.0	0.0%
5	15	20	1,469	1,479	25,935	26,093	17.7	17.6	-0.1%
6	20	25	2,130	2,107	47,647	47,127	22.4	22.4	0.0%
7	25	30	1,783	1,754	48,710	47,921	27.3	27.3	0.0%
8	30	35	1,543	1,495	50,097	48,549	32.5	32.5	0.0%
9	35	40	970	946	36,555	35,667	37.7	37.7	0.0%
10	40	45	1,174	1,154	49,450	48,592	42.1	42.1	0.0%
11	45	50	845	834	40,183	39,669	47.6	47.6	0.0%
12	50	55	793	773	41,795	40,726	52.7	52.7	0.0%
13	55	60	831	826	48,191	47,851	58.0	58.0	0.0%
14	60	65	841	818	52,626	51,138	62.5	62.5	0.0%
15	65	70	631	607	42,246	40,697	67.0	67.0	0.1%
16	70	75	436	423	31,678	30,737	72.6	72.6	0.0%
17	75	80	409	379	31,723	29,415	77.6	77.5	0.0%
18	80	85	436	427	35,772	34,973	82.0	82.0	0.0%
19	85	90	431	401	37,731	35,123	87.6	87.6	0.0%
20	90	95	288	256	26,600	23,665	92.3	92.3	0.0%
21	95	100	334	283	32,533	27,551	97.4	97.5	0.1%
22	100	150	2,109	1,878	262,055	233,145	124.2	124.1	-0.1%
23	150	999	2,366	1,780	549,508	407,449	232.3	228.9	-1.4%
Total			**29,606**	**28,506**	**1,566,406**	**1,371,872**	**52.91**	**48.13**	**-9.0%**



	Prior	PostME
Mean	52.91	48.13
SD	66.11	60.15