

Appendix for New Large-Scale Data Instances for CARP and New Variations of CARP

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Data instances for the MC-CARP

This appendix provides information on the data for the three MC-CARP variations.

Tables 1 through 6 hold information regarding the number of nodes, edges, and required edges as well as on the number of edges requiring each of the fractions. The last two columns in each table state the average number of fractions required at each required edge, and the total cost of the required edges.

Tables 7 and 8 provide information about the No-Split MC-CARP instances. For each of the two vehicle files assigned to each graph, the tables state the id of the vehicle file (VF), an estimate on the smallest number of vehicles needed (\hat{K})

calculated as $\max_{f \in \mathcal{F}} \left\lceil \frac{\sum_{(i,j) \in \mathcal{E}_R^f} q_{ij}^f}{\gamma^f W^f} \right\rceil$, and an estimate of the average number of required edges per route Ψ , calculated as $\left\lceil \sum_{f \in \mathcal{F}} \left(\frac{|\mathcal{E}_R^f|}{\hat{K}} \right) / |\mathcal{F}| \right\rceil$.

Tables 9 and 10 provide the id of the four vehicle files that are assigned to each graph for the C-Split MC-CARP, and Tables 11 through 14 give the vehicle file id and time horizon for each of the four vehicle files assigned to each graph for the Multi-Day C-Split MC-CARP.

	$ \mathcal{N} $	$ \mathcal{E} $	$ \mathcal{E}_R $	$ \mathcal{E}_R^0 $	$ \mathcal{E}_R^1 $	$\frac{\sum_{f \in \mathcal{F}} \mathcal{E}_R^f }{ \mathcal{E}_R }$	$\sum_{(i,j) \in \mathcal{E}_R} c_{ij}$
MC-CARP_F1_A	812	1124	783	780	728	1.9	93317
MC-CARP_F10_A	415	565	377	376	348	1.9	44850
MC-CARP_F11_A	191	267	174	173	160	1.9	18101
MC-CARP_F12_A	80	110	72	72	65	1.9	7688
MC-CARP_F13_A	26	33	19	19	17	1.9	1859
MC-CARP_K1_A	11656	12691	8584	8566	5383	1.6	1268717
MC-CARP_K10_A	5102	5518	3744	3735	2349	1.6	447033
MC-CARP_K11_A	3114	3361	2281	2276	1309	1.6	307033
MC-CARP_K12_A	1132	1221	803	802	445	1.6	153120
MC-CARP_K13_A	394	422	283	282	180	1.6	53155
MC-CARP_N1_A	8573	9761	6377	6339	4838	1.8	988151
MC-CARP_N10_A	3698	4187	2802	2790	2010	1.7	444940
MC-CARP_N11_A	2142	2419	1606	1599	1425	1.9	257504
MC-CARP_N12_A	930	1040	702	698	654	1.9	96209
MC-CARP_N13_A	454	502	366	364	340	1.9	39540
MC-CARP_O1_A	10352	11943	8651	8581	8220	1.9	1098481
MC-CARP_O10_A	5882	6982	4827	4791	4511	1.9	557326
MC-CARP_O11_A	2822	3281	2132	2107	1989	1.9	257372
MC-CARP_O12_A	761	852	535	535	498	1.9	60672
MC-CARP_O13_A	228	247	170	170	160	1.9	15298
MC-CARP_S1_A	6149	7110	3797	3797	1893	1.5	463079
MC-CARP_S10_A	3404	3921	2221	2221	1080	1.5	284463
MC-CARP_S11_A	1564	1805	961	961	497	1.5	126463
MC-CARP_S12_A	755	866	407	407	249	1.6	51374
MC-CARP_S13_A	322	374	176	176	133	1.8	20169
MC-CARP_R_F1_A	812	1124	780	766	545	1.7	92896
MC-CARP_R_F10_A	413	563	374	368	260	1.7	44403
MC-CARP_R_F11_A	191	267	172	166	119	1.7	17675
MC-CARP_R_F12_A	80	110	72	72	50	1.7	7688
MC-CARP_R_F13_A	26	33	19	19	12	1.6	1859
MC-CARP_R_K1_A	11656	12691	8584	8562	4091	1.5	1268717
MC-CARP_R_K10_A	5102	5518	3744	3733	1762	1.5	447033
MC-CARP_R_K11_A	3114	3361	2281	2276	1005	1.4	307033
MC-CARP_R_K12_A	1132	1221	803	802	319	1.4	153120
MC-CARP_R_K13_A	394	422	283	282	134	1.5	53155
MC-CARP_R_N1_A	8573	9761	6377	6338	3642	1.6	988151
MC-CARP_R_N10_A	3698	4187	2802	2786	1491	1.5	444940
MC-CARP_R_N11_A	2142	2419	1606	1597	1088	1.7	257504
MC-CARP_R_N12_A	930	1040	702	698	491	1.7	96209
MC-CARP_R_N13_A	454	502	366	364	250	1.7	39540
MC-CARP_R_O1_A	10352	11943	8651	8578	6194	1.7	1098481
MC-CARP_R_O10_A	5882	6982	4827	4789	3394	1.7	557326
MC-CARP_R_O11_A	2822	3281	2132	2106	1483	1.7	257372
MC-CARP_R_O12_A	761	852	535	534	388	1.7	60672
MC-CARP_R_O13_A	228	247	170	170	118	1.7	15298
MC-CARP_R_S1_A	6149	7110	3797	3795	1421	1.4	463079
MC-CARP_R_S10_A	3404	3921	2221	2221	807	1.4	284463
MC-CARP_R_S11_A	1564	1805	961	961	347	1.4	126463
MC-CARP_R_S12_A	755	866	407	407	190	1.5	51374
MC-CARP_R_S13_A	322	374	176	176	104	1.6	20169

Table 1: MC-CARP information for A and R-A graphs.

	$ \mathcal{N} $	$ \mathcal{E} $	$ \mathcal{E}_R $	$ \mathcal{E}_R^0 $	$ \mathcal{E}_R^1 $	$ \mathcal{E}_R^2 $	$\frac{\sum_{f \in \mathcal{F}} \mathcal{E}_R^f }{ \mathcal{E}_R }$	$\sum_{(i,j) \in \mathcal{E}_R} c_{ij}$
MC-CARP_F1_B	812	1124	783	755	704	728	2.8	93317
MC-CARP_F10_B	415	565	377	362	325	348	2.7	44850
MC-CARP_F11_B	191	267	174	167	150	160	2.7	18101
MC-CARP_F12_B	80	110	72	70	63	65	2.8	7688
MC-CARP_F13_B	26	33	19	18	18	17	2.8	1859
MC-CARP_K1_B	11656	12691	8584	8566	8566	5383	2.6	1268717
MC-CARP_K10_B	5102	5518	3744	3735	3735	2349	2.6	447033
MC-CARP_K11_B	3114	3361	2281	2276	2276	1309	2.6	307033
MC-CARP_K12_B	1132	1221	803	802	802	445	2.6	153120
MC-CARP_K13_B	394	422	283	282	282	180	2.6	53155
MC-CARP_N1_B	8573	9761	6377	6339	6339	4838	2.7	988151
MC-CARP_N10_B	3698	4187	2802	2790	2790	2010	2.7	444940
MC-CARP_N11_B	2142	2419	1606	1599	1599	1425	2.9	257504
MC-CARP_N12_B	930	1040	702	698	698	654	2.9	96209
MC-CARP_N13_B	454	502	366	364	364	340	2.9	39540
MC-CARP_O1_B	10352	11943	8651	8581	8581	8220	2.9	1098481
MC-CARP_O10_B	5882	6982	4827	4791	4791	4511	2.9	557326
MC-CARP_O11_B	2822	3281	2132	2107	2107	1989	2.9	257372
MC-CARP_O12_B	761	852	535	535	535	498	2.9	60672
MC-CARP_O13_B	228	247	170	170	170	160	2.9	15298
MC-CARP_S1_B	6149	7110	3797	3797	3797	1893	2.5	463079
MC-CARP_S10_B	3404	3921	2221	2221	2221	1080	2.5	284463
MC-CARP_S11_B	1564	1805	961	961	961	497	2.5	126463
MC-CARP_S12_B	755	866	407	407	407	249	2.6	51374
MC-CARP_S13_B	322	374	176	176	176	133	2.8	20169
MC-CARP_R_F1_B	812	1124	780	631	656	545	2.3	92896
MC-CARP_R_F10_B	413	563	374	308	303	260	2.3	44403
MC-CARP_R_F11_B	191	267	172	144	139	119	2.3	17675
MC-CARP_R_F12_B	80	110	72	60	57	50	2.3	7688
MC-CARP_R_F13_B	26	33	19	15	18	12	2.4	1859
MC-CARP_R_K1_B	11656	12691	8584	8035	8432	4091	2.4	1268717
MC-CARP_R_K10_B	5102	5518	3744	3476	3680	1762	2.4	447033
MC-CARP_R_K11_B	3114	3361	2281	2149	2244	1005	2.4	307033
MC-CARP_R_K12_B	1132	1221	803	750	793	319	2.3	153120
MC-CARP_R_K13_B	394	422	283	268	279	134	2.4	53155
MC-CARP_R_N1_B	8573	9761	6377	5964	6255	3642	2.5	988151
MC-CARP_R_N10_B	3698	4187	2802	2625	2741	1491	2.4	444940
MC-CARP_R_N11_B	2142	2419	1606	1495	1580	1088	2.6	257504
MC-CARP_R_N12_B	930	1040	702	643	690	491	2.6	96209
MC-CARP_R_N13_B	454	502	366	339	358	250	2.6	39540
MC-CARP_R_O1_B	10352	11943	8651	8048	8469	6194	2.6	1098481
MC-CARP_R_O10_B	5882	6982	4827	4497	4710	3394	2.6	557326
MC-CARP_R_O11_B	2822	3281	2132	1975	2073	1483	2.6	257372
MC-CARP_R_O12_B	761	852	535	483	528	388	2.6	60672
MC-CARP_R_O13_B	228	247	170	161	168	118	2.6	15298
MC-CARP_R_S1_B	6149	7110	3797	3557	3743	1421	2.3	463079
MC-CARP_R_S10_B	3404	3921	2221	2094	2199	807	2.3	284463
MC-CARP_R_S11_B	1564	1805	961	914	946	347	2.3	126463
MC-CARP_R_S12_B	755	866	407	381	401	190	2.4	51374
MC-CARP_R_S13_B	322	374	176	170	175	104	2.6	20169

Table 2: MC-CARP information for B and R-B graphs.

	$ \mathcal{N} $	$ \mathcal{E} $	$ \mathcal{E}_R $	$ \mathcal{E}_R^0 $	$ \mathcal{E}_R^1 $	$ \mathcal{E}_R^2 $	$ \mathcal{E}_R^3 $	$\frac{\sum_{f \in \mathcal{F}} \mathcal{E}_R^f }{ \mathcal{E}_R }$	$\sum_{(i,j) \in \mathcal{E}_R} c_{ij}$
MC-CARP_F1_C	801	1112	747	728	102	692	686	3.0	89947
MC-CARP_F10_C	405	554	354	348	49	318	315	2.9	42590
MC-CARP_F11_C	186	261	164	160	21	145	144	2.9	17455
MC-CARP_F12_C	75	104	67	65	4	62	61	2.9	7341
MC-CARP_F13_C	25	31	18	17	3	17	17	3	1774
MC-CARP_K1_C	11656	12691	8584	5383	8566	8566	8566	3.6	1268717
MC-CARP_K10_C	5102	5518	3744	2349	3735	3735	3735	3.6	447033
MC-CARP_K11_C	3114	3361	2281	1309	2276	2276	2276	3.6	307033
MC-CARP_K12_C	1132	1221	803	445	802	802	802	3.6	153120
MC-CARP_K13_C	394	422	283	180	282	282	282	3.6	53155
MC-CARP_N1_C	8573	9761	6377	4838	6339	6339	6339	3.7	988151
MC-CARP_N10_C	3698	4187	2802	2010	2790	2790	2790	3.7	444940
MC-CARP_N11_C	2142	2419	1606	1425	1599	1599	1599	3.9	257504
MC-CARP_N12_C	930	1040	702	654	698	698	698	3.9	96209
MC-CARP_N13_C	454	502	366	340	364	364	364	3.9	39540
MC-CARP_O1_C	10352	11943	8651	8220	8581	8581	8581	3.9	1098481
MC-CARP_O10_C	5882	6982	4827	4511	4791	4791	4791	3.9	557326
MC-CARP_O11_C	2822	3281	2132	1989	2107	2107	2107	3.9	257372
MC-CARP_O12_C	761	852	535	498	535	535	535	3.9	60672
MC-CARP_O13_C	228	247	170	160	170	170	170	3.9	15298
MC-CARP_S1_C	6149	7110	3797	1893	3797	3797	3797	3.5	463079
MC-CARP_S10_C	3404	3921	2221	1080	2221	2221	2221	3.5	284463
MC-CARP_S11_C	1564	1805	961	497	961	961	961	3.5	126463
MC-CARP_S12_C	755	866	407	249	407	407	407	3.6	51374
MC-CARP_S13_C	322	374	176	133	176	176	176	3.8	20169
MC-CARP_R_F1_C	799	1110	728	545	79	520	497	2.3	88031
MC-CARP_R_F10_C	401	550	340	260	35	241	243	2.3	41038
MC-CARP_R_F11_C	186	261	159	119	16	115	109	2.3	16778
MC-CARP_R_F12_C	74	103	64	50	2	47	47	2.3	7044
MC-CARP_R_F13_C	25	31	18	12	2	13	13	2.2	1774
MC-CARP_R_K1_C	11603	12638	8507	4091	6427	6426	6405	2.7	1254993
MC-CARP_R_K10_C	5081	5497	3722	1762	2778	2768	2798	2.7	445071
MC-CARP_R_K11_C	3101	3348	2263	1005	1739	1709	1719	2.7	304408
MC-CARP_R_K12_C	1126	1215	797	319	583	601	587	2.6	152623
MC-CARP_R_K13_C	392	420	282	134	204	206	210	2.7	53115
MC-CARP_R_N1_C	8552	9740	6349	3642	4753	4799	4767	2.8	985093
MC-CARP_R_N10_C	3690	4179	2777	1491	2121	2117	2099	2.8	441176
MC-CARP_R_N11_C	2140	2417	1602	1088	1202	1200	1214	2.9	256925
MC-CARP_R_N12_C	929	1039	700	491	519	503	519	2.9	96084
MC-CARP_R_N13_C	452	500	364	250	275	264	273	2.9	39403
MC-CARP_R_O1_C	10333	11924	8621	6194	6430	6473	6357	3	1094589
MC-CARP_R_O10_C	5873	6973	4806	3394	3573	3561	3587	2.9	555175
MC-CARP_R_O11_C	2816	3275	2120	1483	1588	1547	1596	2.9	256605
MC-CARP_R_O12_C	761	852	535	388	402	392	411	3	60672
MC-CARP_R_O13_C	227	246	169	118	133	127	128	3	15243
MC-CARP_R_S1_C	6125	7086	3765	1421	2838	2862	2854	2.6	459768
MC-CARP_R_S10_C	3393	3909	2211	807	1685	1652	1700	2.6	283591
MC-CARP_R_S11_C	1556	1797	950	347	726	705	727	2.6	125544
MC-CARP_R_S12_C	754	865	405	190	304	318	306	2.8	51242
MC-CARP_R_S13_C	322	374	176	104	140	137	133	2.9	20169

Table 3: MC-CARP information for C and R-C graphs.

	$ \mathcal{N} $	$ \mathcal{E} $	$ \mathcal{E}_R $	$ \mathcal{E}_R^0 $	$ \mathcal{E}_R^1 $	$ \mathcal{E}_R^2 $	$ \mathcal{E}_R^3 $	$\frac{\sum_{f \in \mathcal{F}} \mathcal{E}_R^f }{ \mathcal{E}_R }$	$\sum_{(i,j) \in \mathcal{E}_R} c_{ij}$
MC-CARP_F1_D	812	1124	783	704	754	288	728	3.2	93317
MC-CARP_F10_D	415	565	377	325	361	181	348	3.2	44850
MC-CARP_F11_D	191	267	174	150	167	92	160	3.3	18101
MC-CARP_F12_D	80	110	72	63	70	41	65	3.3	7688
MC-CARP_F13_D	26	33	19	18	18	12	17	3.4	1859
MC-CARP_K1_D	11656	12691	8584	8566	8566	8566	5383	3.6	1268717
MC-CARP_K10_D	5102	5518	3744	3735	3735	3735	2349	3.6	447033
MC-CARP_K11_D	3114	3361	2281	2276	2276	2276	1309	3.6	307033
MC-CARP_K12_D	1132	1221	803	802	802	802	445	3.6	153120
MC-CARP_K13_D	394	422	283	282	282	282	180	3.6	53155
MC-CARP_N1_D	8573	9761	6377	6339	6339	6339	4838	3.7	988151
MC-CARP_N10_D	3698	4187	2802	2790	2790	2790	2010	3.7	444940
MC-CARP_N11_D	2142	2419	1606	1599	1599	1599	1425	3.9	257504
MC-CARP_N12_D	930	1040	702	698	698	698	654	3.9	96209
MC-CARP_N13_D	454	502	366	364	364	364	340	3.9	39540
MC-CARP_O1_D	10352	11943	8651	8581	8581	8581	8220	3.9	1098481
MC-CARP_O10_D	5882	6982	4827	4791	4791	4791	4511	3.9	557326
MC-CARP_O11_D	2822	3281	2132	2107	2107	2107	1989	3.9	257372
MC-CARP_O12_D	761	852	535	535	535	535	498	3.9	60672
MC-CARP_O13_D	228	247	170	170	170	170	160	3.9	15298
MC-CARP_S1_D	6149	7110	3797	3797	3797	3797	1893	3.5	463079
MC-CARP_S10_D	3404	3921	2221	2221	2221	2221	1080	3.5	284463
MC-CARP_S11_D	1564	1805	961	961	961	961	497	3.5	126463
MC-CARP_S12_D	755	866	407	407	407	407	249	3.6	51374
MC-CARP_S13_D	322	374	176	176	176	176	133	3.8	20169
MC-CARP_R_F1_D	812	1124	780	656	580	219	545	2.6	92896
MC-CARP_R_F10_D	413	563	374	303	269	143	260	2.6	44403
MC-CARP_R_F11_D	191	267	172	139	125	74	119	2.7	17675
MC-CARP_R_F12_D	80	110	72	57	53	27	50	2.6	7688
MC-CARP_R_F13_D	26	33	19	18	13	11	12	2.8	1859
MC-CARP_R_K1_D	11656	12691	8584	8432	6447	6397	4091	3	1268717
MC-CARP_R_K10_D	5102	5518	3744	3680	2808	2761	1762	2.9	447033
MC-CARP_R_K11_D	3114	3361	2281	2244	1711	1707	1005	2.9	307033
MC-CARP_R_K12_D	1132	1221	803	793	621	600	319	2.9	153120
MC-CARP_R_K13_D	394	422	283	279	214	214	134	3	53155
MC-CARP_R_N1_D	8573	9761	6377	6255	4717	4736	3642	3	988151
MC-CARP_R_N10_D	3698	4187	2802	2741	2106	2122	1491	3	444940
MC-CARP_R_N11_D	2142	2419	1606	1580	1179	1187	1088	3.1	257504
MC-CARP_R_N12_D	930	1040	702	690	508	488	491	3.1	96209
MC-CARP_R_N13_D	454	502	366	358	273	279	250	3.2	39540
MC-CARP_R_O1_D	10352	11943	8651	8469	6433	6401	6194	3.2	1098481
MC-CARP_R_O10_D	5882	6982	4827	4710	3617	3518	3394	3.2	557326
MC-CARP_R_O11_D	2822	3281	2132	2073	1563	1596	1483	3.1	257372
MC-CARP_R_O12_D	761	852	535	528	409	380	388	3.2	60672
MC-CARP_R_O13_D	228	247	170	168	124	129	118	3.2	15298
MC-CARP_R_S1_D	6149	7110	3797	3743	2852	2862	1421	2.9	463079
MC-CARP_R_S10_D	3404	3921	2221	2199	1693	1613	807	2.8	284463
MC-CARP_R_S11_D	1564	1805	961	946	714	748	347	2.9	126463
MC-CARP_R_S12_D	755	866	407	401	309	311	190	3	51374
MC-CARP_R_S13_D	322	374	176	175	136	140	104	3.2	20169

Table 4: MC-CARP information for D and R-D graphs.

	$ \mathcal{N} $	$ \mathcal{E} $	$ \mathcal{E}_R $	$ \mathcal{E}_R^0 $	$ \mathcal{E}_R^1 $	$ \mathcal{E}_R^2 $	$ \mathcal{E}_R^3 $	$ \mathcal{E}_R^4 $	$ \mathcal{E}_R^5 $	$\frac{\sum_{f \in \mathcal{F}} \mathcal{E}_R^f }{ \mathcal{E}_R }$	$\sum_{(i,j) \in \mathcal{E}_R} c_{ij}$
MC-CARP_F1_E	812	1124	783	754	288	692	102	686	728	4.2	93317
MC-CARP_F10_E	415	565	377	361	181	318	49	315	348	4.2	44850
MC-CARP_F11_E	191	267	174	167	92	145	21	144	160	4.2	18101
MC-CARP_F12_E	80	110	72	70	41	62	4	61	65	4.2	7688
MC-CARP_F13_E	26	33	19	18	12	17	3	17	17	4.4	1859
MC-CARP_K1_E	11656	12691	8584	8566	8566	8566	8566	8566	5383	5.6	1268717
MC-CARP_K10_E	5102	5518	3744	3735	3735	3735	3735	3735	2349	5.6	447033
MC-CARP_K11_E	3114	3361	2281	2276	2276	2276	2276	2276	1309	5.6	307033
MC-CARP_K12_E	1132	1221	803	802	802	802	802	802	445	5.5	153120
MC-CARP_K13_E	394	422	283	282	282	282	282	282	180	5.6	53155
MC-CARP_N1_E	8573	9761	6377	6339	6339	6339	6339	6339	4838	5.7	988151
MC-CARP_N10_E	3698	4187	2802	2790	2790	2790	2790	2790	2010	5.7	444940
MC-CARP_N11_E	2142	2419	1606	1599	1599	1599	1599	1599	1425	5.9	257504
MC-CARP_N12_E	930	1040	702	698	698	698	698	698	654	5.9	96209
MC-CARP_N13_E	454	502	366	364	364	364	364	364	340	5.9	39540
MC-CARP_O1_E	10352	11943	8651	8581	8581	8581	8581	8581	8220	5.9	1098481
MC-CARP_O10_E	5882	6982	4827	4791	4791	4791	4791	4791	4511	5.9	557326
MC-CARP_O11_E	2822	3281	2132	2107	2107	2107	2107	2107	1989	5.9	257372
MC-CARP_O12_E	761	852	535	535	535	535	535	535	498	5.9	60672
MC-CARP_O13_E	228	247	170	170	170	170	170	170	160	5.9	15298
MC-CARP_S1_E	6149	7110	3797	3797	3797	3797	3797	3797	1893	5.5	463079
MC-CARP_S10_E	3404	3921	2221	2221	2221	2221	2221	2221	1080	5.5	284463
MC-CARP_S11_E	1564	1805	961	961	961	961	961	961	497	5.5	126463
MC-CARP_S12_E	755	866	407	407	407	407	407	407	249	5.6	51374
MC-CARP_S13_E	322	374	176	176	176	176	176	176	133	5.8	20169
MC-CARP_R_F1_E	812	1124	780	580	219	520	79	497	545	3.1	92896
MC-CARP_R_F10_E	413	563	374	269	143	241	35	243	260	3.2	44403
MC-CARP_R_F11_E	191	267	172	125	74	115	16	109	119	3.2	17675
MC-CARP_R_F12_E	80	110	72	53	27	47	2	47	50	3.1	7688
MC-CARP_R_F13_E	26	33	19	13	11	13	2	13	12	3.4	1859
MC-CARP_R_K1_E	11656	12691	8584	6447	6397	6426	6427	6405	4091	4.2	1268717
MC-CARP_R_K10_E	5102	5518	3744	2808	2761	2768	2778	2798	1762	4.2	447033
MC-CARP_R_K11_E	3114	3361	2281	1711	1707	1709	1739	1719	1005	4.2	307033
MC-CARP_R_K12_E	1132	1221	803	621	600	601	583	587	319	4.1	153120
MC-CARP_R_K13_E	394	422	283	214	214	206	204	210	134	4.2	53155
MC-CARP_R_N1_E	8573	9761	6377	4717	4736	4799	4753	4767	3642	4.3	988151
MC-CARP_R_N10_E	3698	4187	2802	2106	2122	2117	2121	2099	1491	4.3	444940
MC-CARP_R_N11_E	2142	2419	1606	1179	1187	1200	1202	1214	1088	4.4	257504
MC-CARP_R_N12_E	930	1040	702	508	488	503	519	519	491	4.3	96209
MC-CARP_R_N13_E	454	502	366	273	279	264	275	273	250	4.4	39540
MC-CARP_R_O1_E	10352	11943	8651	6433	6401	6473	6430	6357	6194	4.4	1098481
MC-CARP_R_O10_E	5882	6982	4827	3617	3518	3561	3573	3587	3394	4.4	557326
MC-CARP_R_O11_E	2822	3281	2132	1563	1596	1547	1588	1596	1483	4.4	257372
MC-CARP_R_O12_E	761	852	535	409	380	392	402	411	388	4.5	60672
MC-CARP_R_O13_E	228	247	170	124	129	127	133	128	118	4.5	15298
MC-CARP_R_S1_E	6149	7110	3797	2852	2862	2862	2838	2854	1421	4.1	463079
MC-CARP_R_S10_E	3404	3921	2221	1693	1613	1652	1685	1700	807	4.1	284463
MC-CARP_R_S11_E	1564	1805	961	714	748	705	726	727	347	4.1	126463
MC-CARP_R_S12_E	755	866	407	309	311	318	304	306	190	4.3	51374
MC-CARP_R_S13_E	322	374	176	136	140	137	140	133	104	4.5	20169

Table 5: MC-CARP information for E and R-E graphs.

	$ \mathcal{N} $	$ \mathcal{E} $	$ \mathcal{E}_R $	$ \mathcal{E}_R^0 $	$ \mathcal{E}_R^1 $	$ \mathcal{E}_R^2 $	$ \mathcal{E}_R^3 $	$ \mathcal{E}_R^4 $	$ \mathcal{E}_R^5 $	$ \mathcal{E}_R^6 $	$\frac{\sum_{f \in \mathcal{F}} \mathcal{E}_R^f }{ \mathcal{E}_R }$	$\sum_{(i,j) \in \mathcal{E}_R} c_{ij}$
MC-CARP_F1_G	812	1124	783	754	102	686	692	288	728	544	4.8	93317
MC-CARP_F10_G	415	565	377	361	49	315	318	181	348	212	4.7	44850
MC-CARP_F11_G	191	267	174	167	21	144	145	92	160	81	4.7	18101
MC-CARP_F12_G	80	110	72	70	4	61	62	41	65	30	4.6	7688
MC-CARP_F13_G	26	33	19	18	3	17	17	12	17	9	4.9	1859
MC-CARP_R_F1_G	812	1124	783	580	79	497	520	219	545	418	3.7	93317
MC-CARP_R_F10_G	415	565	377	269	35	243	241	143	260	155	3.6	44850
MC-CARP_R_F11_G	191	267	174	125	16	109	115	74	119	66	3.6	18101
MC-CARP_R_F12_G	80	110	72	53	2	47	47	27	50	20	3.4	7688
MC-CARP_R_F13_G	26	33	19	13	2	13	13	11	12	4	3.6	1859

Table 6: MC-CARP information for G and R-G graphs.

Graph	VF	K	Ψ	VF	K	Ψ	Graph	VF	K	Ψ	VF	K	Ψ
MC-CARP_F1_A	1-3-A	77	10	1-2-A	92	9	MC-CARP_R_F1_A	1-3-A	57	12	1-2-A	69	10
MC-CARP_F10_A	1-2-A	38	10	1-1-A	45	9	MC-CARP_R_F10_A	1-2-A	28	12	1-1-A	34	10
MC-CARP_F11_A	1-2-A	16	11	1-1-A	20	9	MC-CARP_R_F11_A	1-2-A	13	11	1-1-A	15	10
MC-CARP_F12_A	1-2-A	7	10	1-1-A	8	9	MC-CARP_R_F12_A	1-2-A	5	13	1-1-A	6	11
MC-CARP_F13_A	1-2-A	2	9	1-1-A	3	6	MC-CARP_R_F13_A	1-2-A	2	8	1-1-A	2	8
MC-CARP_K1_A	2-2-A	102	69	2-1-A	138	51	MC-CARP_R_K1_A	2-2-A	78	82	2-1-A	104	61
MC-CARP_K10_A	2-2-A	51	60	2-1-A	70	44	MC-CARP_R_K10_A	2-2-A	38	73	2-1-A	52	53
MC-CARP_K11_A	2-2-A	28	65	2-1-A	41	44	MC-CARP_R_K11_A	2-2-A	21	79	2-1-A	31	53
MC-CARP_K12_A	2-2-A	6	104	2-1-A	8	78	MC-CARP_R_K12_A	2-2-A	5	113	2-1-A	7	81
MC-CARP_K13_A	2-2-A	3	77	2-1-A	4	58	MC-CARP_R_K13_A	2-2-A	2	104	2-1-A	3	70
MC-CARP_N1_A	4-2-A	58	97	4-1-A	87	65	MC-CARP_R_N1_A	4-2-A	44	114	4-1-A	65	77
MC-CARP_N10_A	4-2-A	23	105	4-1-A	33	73	MC-CARP_R_N10_A	4-2-A	17	126	4-1-A	26	83
MC-CARP_N11_A	4-2-A	16	95	4-1-A	25	61	MC-CARP_R_N11_A	4-2-A	12	112	4-1-A	19	71
MC-CARP_N12_A	4-2-A	8	85	4-1-A	13	52	MC-CARP_R_N12_A	4-2-A	7	85	4-1-A	10	60
MC-CARP_N13_A	4-2-A	5	71	4-1-A	7	51	MC-CARP_R_N13_A	4-2-A	4	77	4-1-A	5	62
MC-CARP_O1_A	3-3-A	151	56	3-2-A	240	36	MC-CARP_R_O1_A	3-3-A	113	66	3-2-A	179	42
MC-CARP_O10_A	3-3-A	105	45	3-2-A	167	28	MC-CARP_R_O10_A	3-3-A	79	52	3-2-A	125	33
MC-CARP_O11_A	3-3-A	36	57	3-2-A	57	36	MC-CARP_R_O11_A	3-3-A	27	67	3-2-A	43	42
MC-CARP_O12_A	3-2-A	11	47	3-1-A	15	35	MC-CARP_R_O12_A	3-2-A	8	58	3-1-A	11	42
MC-CARP_O13_A	3-2-A	4	42	3-1-A	6	28	MC-CARP_R_O13_A	3-2-A	4	36	3-1-A	5	29
MC-CARP_S1_A	2-2-A	48	60	2-1-A	64	45	MC-CARP_R_S1_A	2-2-A	36	73	2-1-A	48	55
MC-CARP_S10_A	2-2-A	26	64	2-1-A	37	45	MC-CARP_R_S10_A	2-2-A	20	76	2-1-A	28	55
MC-CARP_S11_A	2-2-A	11	67	2-1-A	14	53	MC-CARP_R_S11_A	2-2-A	7	94	2-1-A	10	66
MC-CARP_S12_A	3-2-A	5	66	3-1-A	7	47	MC-CARP_R_S12_A	3-2-A	4	75	3-1-A	5	60
MC-CARP_S13_A	3-2-A	3	52	3-1-A	4	39	MC-CARP_R_S13_A	3-2-A	2	70	3-1-A	3	47
MC-CARP_F1_B	1-3-B	87	9	1-2-B	106	7	MC-CARP_R_F1_B	1-3-B	65	10	1-2-B	79	8
MC-CARP_F10_B	1-2-B	44	8	1-1-B	54	7	MC-CARP_R_F10_B	1-2-B	32	10	1-1-B	40	8
MC-CARP_F11_B	1-2-B	19	9	1-1-B	24	7	MC-CARP_R_F11_B	1-2-B	15	9	1-1-B	18	8
MC-CARP_F12_B	1-2-B	8	9	1-1-B	10	7	MC-CARP_R_F12_B	1-2-B	6	10	1-1-B	7	8
MC-CARP_F13_B	1-2-B	3	6	1-1-B	3	6	MC-CARP_R_F13_B	1-2-B	2	8	1-1-B	2	8
MC-CARP_K1_B	2-2-B	132	57	2-1-B	188	40	MC-CARP_R_K1_B	2-2-B	99	70	2-1-B	141	49
MC-CARP_K10_B	2-2-B	67	49	2-1-B	95	35	MC-CARP_R_K10_B	2-2-B	51	59	2-1-B	72	42
MC-CARP_K11_B	2-2-B	39	51	2-1-B	56	35	MC-CARP_R_K11_B	2-2-B	30	60	2-1-B	42	43
MC-CARP_K12_B	2-2-B	8	86	2-1-B	11	63	MC-CARP_R_K12_B	2-2-B	6	104	2-1-B	9	69
MC-CARP_K13_B	2-2-B	4	62	2-1-B	5	50	MC-CARP_R_K13_B	2-2-B	3	76	2-1-B	4	57
MC-CARP_N1_B	4-2-B	78	75	4-1-B	124	48	MC-CARP_R_N1_B	4-2-B	58	92	4-1-B	92	58
MC-CARP_N10_B	4-2-B	30	85	4-1-B	48	53	MC-CARP_R_N10_B	4-2-B	23	100	4-1-B	36	64
MC-CARP_N11_B	4-2-B	23	67	4-1-B	28	56	MC-CARP_R_N11_B	4-2-B	17	82	4-1-B	21	67
MC-CARP_N12_B	4-2-B	12	57	4-1-B	15	46	MC-CARP_R_N12_B	4-2-B	9	68	4-1-B	11	56
MC-CARP_N13_B	4-2-B	7	51	4-1-B	8	45	MC-CARP_R_N13_B	4-2-B	5	64	4-1-B	6	53
MC-CARP_O1_B	3-3-B	188	46	3-2-B	301	29	MC-CARP_R_O1_B	3-3-B	140	55	3-2-B	225	34
MC-CARP_O10_B	3-3-B	130	37	3-2-B	209	23	MC-CARP_R_O10_B	3-3-B	98	43	3-2-B	157	27
MC-CARP_O11_B	3-3-B	45	46	3-2-B	71	30	MC-CARP_R_O11_B	3-3-B	33	56	3-2-B	53	35
MC-CARP_O12_B	3-2-B	14	38	3-1-B	18	30	MC-CARP_R_O12_B	3-2-B	10	47	3-1-B	14	34
MC-CARP_O13_B	3-2-B	6	28	3-1-B	7	24	MC-CARP_R_O13_B	3-2-B	4	38	3-1-B	6	25
MC-CARP_S1_B	2-2-B	61	52	2-1-B	86	37	MC-CARP_R_S1_B	2-2-B	46	64	2-1-B	64	46
MC-CARP_S10_B	2-2-B	36	52	2-1-B	51	37	MC-CARP_R_S10_B	2-2-B	27	63	2-1-B	38	45
MC-CARP_S11_B	2-2-B	13	63	2-1-B	18	45	MC-CARP_R_S11_B	2-2-B	10	74	2-1-B	14	53
MC-CARP_S12_B	3-2-B	6	60	3-1-B	8	45	MC-CARP_R_S12_B	3-2-B	5	65	3-1-B	7	47
MC-CARP_S13_B	3-2-B	4	41	3-1-B	5	33	MC-CARP_R_S13_B	3-2-B	3	50	3-1-B	4	38

Table 7: No-Split MC-CARP vehicle information for set A, R-A, B, and R-B.

Graph	VF	K	Ψ	VF	K	Ψ	Graph	VF	K	Ψ	VF	K	Ψ
MC-CARP_F1_C	5-3-C	22	26	5-2-C	32	18	MC-CARP_R_F1_C	5-3-C	17	25	5-2-C	25	17
MC-CARP_F10_C	5-3-C	9	29	5-2-C	14	19	MC-CARP_R_F10_C	5-3-C	7	28	5-2-C	10	20
MC-CARP_F11_C	5-2-C	6	20	5-1-C	11	11	MC-CARP_R_F11_C	5-2-C	5	18	5-1-C	9	10
MC-CARP_F12_C	5-2-C	2	24	5-1-C	4	12	MC-CARP_R_F12_C	5-2-C	2	19	5-1-C	4	10
MC-CARP_F13_C	5-2-C	2	7	5-1-C	3	5	MC-CARP_R_F13_C	5-2-C	1	10	5-1-C	2	5
MC-CARP_K1_C	6-2-C	40	195	6-1-C	79	99	MC-CARP_R_K1_C	6-2-C	30	195	6-1-C	59	99
MC-CARP_K10_C	6-2-C	20	170	6-1-C	40	85	MC-CARP_R_K10_C	6-2-C	15	169	6-1-C	30	85
MC-CARP_K11_C	6-2-C	12	170	6-1-C	24	85	MC-CARP_R_K11_C	6-2-C	9	172	6-1-C	17	91
MC-CARP_K12_C	6-2-C	3	238	6-1-C	5	143	MC-CARP_R_K12_C	6-2-C	2	262	6-1-C	4	131
MC-CARP_K13_C	6-2-C	1	257	6-1-C	2	129	MC-CARP_R_K13_C	6-2-C	1	189	6-1-C	2	95
MC-CARP_N1_C	7-2-C	42	142	7-1-C	82	73	MC-CARP_R_N1_C	7-2-C	32	141	7-1-C	62	73
MC-CARP_N10_C	7-2-C	16	163	7-1-C	31	84	MC-CARP_R_N10_C	7-2-C	12	164	7-1-C	24	82
MC-CARP_N11_C	7-2-C	12	130	7-1-C	24	65	MC-CARP_R_N11_C	7-2-C	9	131	7-1-C	18	66
MC-CARP_N12_C	7-2-C	6	115	7-1-C	12	58	MC-CARP_R_N12_C	7-2-C	5	102	7-1-C	10	51
MC-CARP_N13_C	7-2-C	4	90	7-1-C	7	52	MC-CARP_R_N13_C	7-2-C	3	89	7-1-C	5	54
MC-CARP_O1_C	8-2-C	65	131	8-1-C	130	66	MC-CARP_R_O1_C	8-2-C	49	130	8-1-C	98	65
MC-CARP_O10_C	8-2-C	46	103	8-1-C	91	52	MC-CARP_R_O10_C	8-2-C	34	104	8-1-C	68	52
MC-CARP_O11_C	8-2-C	16	130	8-1-C	31	68	MC-CARP_R_O11_C	8-2-C	12	130	8-1-C	24	65
MC-CARP_O12_C	8-2-C	3	176	8-1-C	6	88	MC-CARP_R_O12_C	8-2-C	3	133	8-1-C	5	80
MC-CARP_O13_C	8-2-C	2	84	8-1-C	3	56	MC-CARP_R_O13_C	8-2-C	1	127	8-1-C	2	64
MC-CARP_S1_C	6-2-C	18	185	6-1-C	36	93	MC-CARP_R_S1_C	6-2-C	14	179	6-1-C	28	90
MC-CARP_S10_C	6-2-C	11	176	6-1-C	21	93	MC-CARP_R_S10_C	6-2-C	8	183	6-1-C	16	92
MC-CARP_S11_C	6-2-C	4	212	6-1-C	8	106	MC-CARP_R_S11_C	6-2-C	3	209	6-1-C	6	105
MC-CARP_S12_C	6-2-C	2	184	6-1-C	4	92	MC-CARP_R_S12_C	6-2-C	2	140	6-1-C	3	94
MC-CARP_S13_C	6-2-C	2	83	6-1-C	3	56	MC-CARP_R_S13_C	6-2-C	1	129	6-1-C	2	65
MC-CARP_F1_D	1-4-D	97	7	1-3-D	74	9	MC-CARP_R_F1_D	1-4-D	72	7	1-3-D	56	9
MC-CARP_F10_D	1-4-D	51	6	1-2-D	31	10	MC-CARP_R_F10_D	1-4-D	37	7	1-2-D	25	10
MC-CARP_F11_D	1-4-D	22	7	1-2-D	15	10	MC-CARP_R_F11_D	1-4-D	17	7	1-2-D	13	9
MC-CARP_F12_D	1-4-D	9	7	1-2-D	7	9	MC-CARP_R_F12_D	1-4-D	7	7	1-2-D	4	12
MC-CARP_F13_D	1-2-D	3	6	1-1-D	3	6	MC-CARP_R_F13_D	1-2-D	2	7	1-1-D	2	7
MC-CARP_K1_D	2-3-D	179	44	2-2-D	148	53	MC-CARP_R_K1_D	2-3-D	134	48	2-2-D	113	57
MC-CARP_K10_D	2-3-D	90	38	2-2-D	75	46	MC-CARP_R_K10_D	2-3-D	68	41	2-2-D	57	49
MC-CARP_K11_D	2-3-D	53	39	2-2-D	44	47	MC-CARP_R_K11_D	2-3-D	40	42	2-2-D	33	51
MC-CARP_K12_D	2-2-D	11	65	2-1-D	14	51	MC-CARP_R_K12_D	2-3-D	9	65	2-2-D	7	84
MC-CARP_K13_D	2-2-D	5	52	2-1-D	6	43	MC-CARP_R_K13_D	2-2-D	4	53	2-1-D	5	43
MC-CARP_N1_D	4-3-D	108	56	4-2-D	90	67	MC-CARP_R_N1_D	4-3-D	81	60	4-2-D	68	72
MC-CARP_N10_D	4-3-D	41	64	4-2-D	35	75	MC-CARP_R_N10_D	4-3-D	32	67	4-2-D	26	82
MC-CARP_N11_D	4-2-D	27	58	4-1-D	34	46	MC-CARP_R_N11_D	4-2-D	21	60	4-1-D	26	49
MC-CARP_N12_D	4-2-D	14	50	4-1-D	18	39	MC-CARP_R_N12_D	4-2-D	11	50	4-1-D	14	39
MC-CARP_N13_D	4-2-D	8	45	4-1-D	10	36	MC-CARP_R_N13_D	4-2-D	6	49	4-1-D	7	42
MC-CARP_O1_D	3-4-D	236	36	3-3-D	179	48	MC-CARP_R_O1_D	3-4-D	177	39	3-3-D	134	52
MC-CARP_O10_D	3-4-D	164	29	3-3-D	124	39	MC-CARP_R_O10_D	3-4-D	123	31	3-3-D	93	41
MC-CARP_O11_D	3-4-D	56	38	3-3-D	43	49	MC-CARP_R_O11_D	3-4-D	43	40	3-3-D	32	53
MC-CARP_O12_D	3-2-D	17	31	3-1-D	23	23	MC-CARP_R_O12_D	3-2-D	13	33	3-1-D	18	24
MC-CARP_O13_D	3-2-D	7	24	3-1-D	9	19	MC-CARP_R_O13_D	3-2-D	5	27	3-1-D	7	20
MC-CARP_S1_D	2-3-D	81	41	2-2-D	69	49	MC-CARP_R_S1_D	2-3-D	61	45	2-2-D	52	53
MC-CARP_S10_D	2-3-D	48	41	2-2-D	40	49	MC-CARP_R_S10_D	2-3-D	36	44	2-2-D	30	53
MC-CARP_S11_D	2-3-D	18	47	2-2-D	15	57	MC-CARP_R_S11_D	2-3-D	13	53	2-2-D	11	63
MC-CARP_S12_D	3-2-D	8	46	3-1-D	11	34	MC-CARP_R_S12_D	3-2-D	6	51	3-1-D	8	38
MC-CARP_S13_D	3-2-D	5	34	3-1-D	6	28	MC-CARP_R_S13_D	3-2-D	4	35	3-1-D	5	28

Table 8: No-Split MC-CARP vehicle information for set C, R-C, D, and R-D.

	Vehicle files					Vehicle files			
MC-CARP_F1_B	L5-1	S6-1	M8-2	C7-2	MC-CARP_R_F1_B	L5-1	S6-1	M8-2	C7-2
MC-CARP_F10_B	L3-1	S4-1	M6-2	C5-2	MC-CARP_R_F10_B	L3-1	S4-1	M6-2	C5-2
MC-CARP_F11_B	L1-1	S2-1	M4-2	C4-2	MC-CARP_R_F11_B	L1-1	S2-1	M4-2	C4-2
MC-CARP_F12_B	L1-1	S2-1	M4-2	C2-1	MC-CARP_R_F12_B	L1-1	S2-1	M4-2	C2-1
MC-CARP_F13_B	M3-2	M2-1	M1-2	C1-1	MC-CARP_R_F13_B	M3-2	M2-1	M1-2	C1-1
MC-CARP_K1_B	L5-1	S6-1	M8-2	C7-2	MC-CARP_R_K1_B	L5-1	S6-1	M8-2	C7-2
MC-CARP_K10_B	L3-1	S4-1	M6-2	C5-2	MC-CARP_R_K10_B	L3-1	S4-1	M6-2	C5-2
MC-CARP_K11_B	L2-1	S3-1	M5-2	C4-2	MC-CARP_R_K11_B	L2-1	S3-1	M5-2	C4-2
MC-CARP_K12_B	M3-2	S2-1	M2-1	C2-1	MC-CARP_R_K12_B	M3-2	S2-1	M2-1	C2-1
MC-CARP_K13_B	M3-2	M2-1	M1-2	C1-1	MC-CARP_R_K13_B	M3-2	M2-1	M1-2	C1-1
MC-CARP_N1_B	L4-1	S6-1	M7-2	C6-2	MC-CARP_R_N1_B	L4-1	S6-1	M7-2	C6-2
MC-CARP_N10_B	L2-1	S3-1	M5-2	C4-2	MC-CARP_R_N10_B	L2-1	S3-1	M5-2	C4-2
MC-CARP_N11_B	L1-1	S2-1	M4-2	C3-2	MC-CARP_R_N11_B	L1-1	S2-1	M4-2	C3-2
MC-CARP_N12_B	L1-1	S2-1	M4-2	C2-1	MC-CARP_R_N12_B	L1-1	S2-1	M4-2	C2-1
MC-CARP_N13_B	M3-2	S1-1	M2-1	C2-1	MC-CARP_R_N13_B	M3-2	S1-1	M2-1	C2-1
MC-CARP_O1_B	L6-1	S7-1	M9-2	C8-2	MC-CARP_R_O1_B	L6-1	S7-1	M9-2	C8-2
MC-CARP_O10_B	L6-1	S6-1	M9-2	C7-2	MC-CARP_R_O10_B	L6-1	S6-1	M9-2	C7-2
MC-CARP_O11_B	L3-1	S4-1	M6-2	C5-2	MC-CARP_R_O11_B	L3-1	S4-1	M6-2	C5-2
MC-CARP_O12_B	L1-1	S2-1	M4-2	C2-1	MC-CARP_R_O12_B	L1-1	S2-1	M4-2	C2-1
MC-CARP_O13_B	M3-2	M2-1	M1-2	C1-1	MC-CARP_R_O13_B	M3-2	M2-1	M1-2	C1-1
MC-CARP_S1_B	L3-1	S4-1	M6-2	C5-2	MC-CARP_R_S1_B	L3-1	S4-1	M6-2	C5-2
MC-CARP_S10_B	L2-1	S3-1	M5-2	C4-2	MC-CARP_R_S10_B	L2-1	S3-1	M5-2	C4-2
MC-CARP_S11_B	L1-1	S2-1	M4-2	C3-2	MC-CARP_R_S11_B	L1-1	S2-1	M4-2	C3-2
MC-CARP_S12_B	M3-2	S1-1	M2-1	C2-1	MC-CARP_R_S12_B	M3-2	S1-1	M2-1	C2-1
MC-CARP_S13_B	M3-2	M2-1	M1-2	C1-1	MC-CARP_R_S13_B	M3-2	M2-1	M1-2	C1-1
MC-CARP_F1_D	L5-1	S6-1	M8-1	C7-1	MC-CARP_R_F1_D	L5-1	S6-1	M8-1	C7-1
MC-CARP_F10_D	L3-1	S4-1	M6-1	C5-1	MC-CARP_R_F10_D	L3-1	S4-1	M6-1	C5-1
MC-CARP_F11_D	L1-1	S2-1	M4-1	C4-1	MC-CARP_R_F11_D	L1-1	S2-1	M4-1	C4-1
MC-CARP_F12_D	L1-1	S2-1	M4-1	C2-1	MC-CARP_R_F12_D	L1-1	S2-1	M4-1	C2-1
MC-CARP_F13_D	M3-1	M2-1	M1-1	C1-1	MC-CARP_R_F13_D	M3-1	M2-1	M1-1	C1-1
MC-CARP_K1_D	L5-1	S6-1	M8-1	C7-1	MC-CARP_R_K1_D	L5-1	S6-1	M8-1	C7-1
MC-CARP_K10_D	L3-1	S4-1	M6-1	C5-1	MC-CARP_R_K10_D	L3-1	S4-1	M6-1	C5-1
MC-CARP_K11_D	L2-1	S3-1	M5-1	C4-1	MC-CARP_R_K11_D	L2-1	S3-1	M5-1	C4-1
MC-CARP_K12_D	M3-1	S2-1	M2-1	C2-1	MC-CARP_R_K12_D	M3-1	S2-1	M2-1	C2-1
MC-CARP_K13_D	M3-1	M2-1	M1-1	C1-1	MC-CARP_R_K13_D	M3-1	M2-1	M1-1	C1-1
MC-CARP_N1_D	L4-1	S6-1	M7-1	C6-1	MC-CARP_R_N1_D	L4-1	S6-1	M7-1	C6-1
MC-CARP_N10_D	L2-1	S3-1	M5-1	C4-1	MC-CARP_R_N10_D	L2-1	S3-1	M5-1	C4-1
MC-CARP_N11_D	L1-1	S2-1	M4-1	C3-1	MC-CARP_R_N11_D	L1-1	S2-1	M4-1	C3-1
MC-CARP_N12_D	L1-1	S2-1	M4-1	C2-1	MC-CARP_R_N12_D	L1-1	S2-1	M4-1	C2-1
MC-CARP_N13_D	M3-1	S1-1	M2-1	C2-1	MC-CARP_R_N13_D	M3-1	S1-1	M2-1	C2-1
MC-CARP_O1_D	L6-1	S7-1	M9-1	C8-1	MC-CARP_R_O1_D	L6-1	S7-1	M9-1	C8-1
MC-CARP_O10_D	L6-1	S6-1	M9-1	C7-1	MC-CARP_R_O10_D	L6-1	S6-1	M9-1	C7-1
MC-CARP_O11_D	L3-1	S4-1	M6-1	C5-1	MC-CARP_R_O11_D	L3-1	S4-1	M6-1	C5-1
MC-CARP_O12_D	L1-1	S2-1	M4-1	C2-1	MC-CARP_R_O12_D	L1-1	S2-1	M4-1	C2-1
MC-CARP_O13_D	M3-1	M2-1	M1-1	C1-1	MC-CARP_R_O13_D	M3-1	M2-1	M1-1	C1-1
MC-CARP_S1_D	L3-1	S4-1	M6-1	C5-1	MC-CARP_R_S1_D	L3-1	S4-1	M6-1	C5-1
MC-CARP_S10_D	L2-1	S3-1	M5-1	C4-1	MC-CARP_R_S10_D	L2-1	S3-1	M5-1	C4-1
MC-CARP_S11_D	L1-1	S2-1	M4-1	C3-1	MC-CARP_R_S11_D	L1-1	S2-1	M4-1	C3-1
MC-CARP_S12_D	M3-1	S1-1	M2-1	C2-1	MC-CARP_R_S12_D	M3-1	S1-1	M2-1	C2-1
MC-CARP_S13_D	M3-1	M2-1	M1-1	C1-1	MC-CARP_R_S13_D	M3-1	M2-1	M1-1	C1-1

Table 9: C-Split MC-CARP vehicle information for sets B, R-B, D, and R-D.

	Vehicle files					Vehicle files			
MC-CARP_F1_E	L5-1	S6-1	M8-1	C7-1	MC-CARP_R_F1_E	L5-1	S6-1	M8-1	C7-1
MC-CARP_F10_E	L3-1	S4-1	M6-1	C5-1	MC-CARP_R_F10_E	L3-1	S4-1	M6-1	C5-1
MC-CARP_F11_E	L1-1	S2-1	M4-1	C4-1	MC-CARP_R_F11_E	L1-1	S2-1	M4-1	C4-1
MC-CARP_F12_E	L1-1	S2-1	M4-1	C2-1	MC-CARP_R_F12_E	L1-1	S2-1	M4-1	C2-1
MC-CARP_F13_E	M3-1	M2-1	M1-1	C1-1	MC-CARP_R_F13_E	M3-1	M2-1	M1-1	C1-1
MC-CARP_K1_E	L5-1	S6-1	M8-1	C7-1	MC-CARP_R_K1_E	L5-1	S6-1	M8-1	C7-1
MC-CARP_K10_E	L3-1	S4-1	M6-1	C5-1	MC-CARP_R_K10_E	L3-1	S4-1	M6-1	C5-1
MC-CARP_K11_E	L2-1	S3-1	M5-1	C4-1	MC-CARP_R_K11_E	L2-1	S3-1	M5-1	C4-1
MC-CARP_K12_E	M3-1	S2-1	M2-1	C2-1	MC-CARP_R_K12_E	M3-1	S2-1	M2-1	C2-1
MC-CARP_K13_E	M3-1	M2-1	M1-1	C1-1	MC-CARP_R_K13_E	M3-1	M2-1	M1-1	C1-1
MC-CARP_N1_E	L4-1	S6-1	M7-1	C6-1	MC-CARP_R_N1_E	L4-1	S6-1	M7-1	C6-1
MC-CARP_N10_E	L2-1	S3-1	M5-1	C4-1	MC-CARP_R_N10_E	L2-1	S3-1	M5-1	C4-1
MC-CARP_N11_E	L1-1	S2-1	M4-1	C3-1	MC-CARP_R_N11_E	L1-1	S2-1	M4-1	C3-1
MC-CARP_N12_E	L1-1	S2-1	M4-1	C2-1	MC-CARP_R_N12_E	L1-1	S2-1	M4-1	C2-1
MC-CARP_N13_E	M3-1	S1-1	M2-1	C2-1	MC-CARP_R_N13_E	M3-1	S1-1	M2-1	C2-1
MC-CARP_O1_E	L6-1	S7-1	M9-1	C8-1	MC-CARP_R_O1_E	L6-1	S7-1	M9-1	C8-1
MC-CARP_O10_E	L6-1	S6-1	M9-1	C7-1	MC-CARP_R_O10_E	L6-1	S6-1	M9-1	C7-1
MC-CARP_O11_E	L3-1	S4-1	M6-1	C5-1	MC-CARP_R_O11_E	L3-1	S4-1	M6-1	C5-1
MC-CARP_O12_E	L1-1	S2-1	M4-1	C2-1	MC-CARP_R_O12_E	L1-1	S2-1	M4-1	C2-1
MC-CARP_O13_E	M3-1	M2-1	M1-1	C1-1	MC-CARP_R_O13_E	M3-1	M2-1	M1-1	C1-1
MC-CARP_S1_E	L3-1	S4-1	M6-1	C5-1	MC-CARP_R_S1_E	L3-1	S4-1	M6-1	C5-1
MC-CARP_S10_E	L2-1	S3-1	M5-1	C4-1	MC-CARP_R_S10_E	L2-1	S3-1	M5-1	C4-1
MC-CARP_S11_E	L1-1	S2-1	M4-1	C3-1	MC-CARP_R_S11_E	L1-1	S2-1	M4-1	C3-1
MC-CARP_S12_E	M3-1	S1-1	M2-1	C2-1	MC-CARP_R_S12_E	M3-1	S1-1	M2-1	C2-1
MC-CARP_S13_E	M3-1	M2-1	M1-1	C1-1	MC-CARP_R_S13_E	M3-1	M2-1	M1-1	C1-1
MC-CARP_F1_G	L5-1	S6-1	M8-1	C7-1	MC-CARP_R_F1_G	L5-1	S6-1	M8-1	C7-1
MC-CARP_F10_G	L3-1	S4-1	M6-1	C5-1	MC-CARP_R_F10_G	L3-1	S4-1	M6-1	C5-1
MC-CARP_F11_G	L1-1	S2-1	M4-1	C4-1	MC-CARP_R_F11_G	L1-1	S2-1	M4-1	C4-1
MC-CARP_F12_G	L1-1	S2-1	M4-1	C2-1	MC-CARP_R_F12_G	L1-1	S2-1	M4-1	C2-1
MC-CARP_F13_G	M3-1	M2-1	M1-1	C1-1	MC-CARP_R_F13_G	M3-1	M2-1	M1-1	C1-1

Table 10: C-Split MC-CARP vehicle information for sets E, R-E, G, and R-G.

	Vehicle file	Time horizon	Vehicle file	Time horizon	Vehicle file	Time horizon	Vehicle file	Time horizon
MC-CARP_F1_B	TL5-1	5	TS6-1	5	TM8-2	5	TC7-2	5
MC-CARP_F10_B	TL3-1	5	TS4-1	10	TM6-2	5	TC5-2	5
MC-CARP_F11_B	TL1-1	5	TS2-1	5	TM4-2	5	TC4-2	5
MC-CARP_F12_B	TL1-1	5	TS2-1	5	TM4-2	5	TC2-1	5
MC-CARP_K1_B	TL5-1	5	TS6-1	5	TM8-2	5	TC7-2	5
MC-CARP_K10_B	TL3-1	5	TS4-1	10	TM6-2	5	TC5-2	5
MC-CARP_K11_B	TL2-1	5	TS3-1	5	TM5-2	5	TC4-2	5
MC-CARP_N1_B	TL4-1	5	TS6-1	5	TM7-2	5	TC6-2	10
MC-CARP_N10_B	TL2-1	5	TS3-1	5	TM5-2	5	TC4-2	5
MC-CARP_N11_B	TL1-1	5	TS2-1	5	TM4-2	5	TC3-2	5
MC-CARP_N12_B	TL1-1	5	TS2-1	5	TM4-2	5	TC2-1	5
MC-CARP_O1_B	TL6-1	10	TS7-1	5	TM9-2	10	TC8-2	10
MC-CARP_O10_B	TL6-1	10	TS6-1	5	TM9-2	10	TC7-2	5
MC-CARP_O11_B	TL3-1	5	TS4-1	10	TM6-2	5	TC5-2	5
MC-CARP_O12_B	TL1-1	5	TS2-1	5	TM4-2	5	TC2-1	5
MC-CARP_S1_B	TL3-1	5	TS4-1	10	TM6-2	5	TC5-2	5
MC-CARP_S10_B	TL2-1	5	TS3-1	5	TM5-2	5	TC4-2	5
MC-CARP_S11_B	TL1-1	5	TS2-1	5	TM4-2	5	TC3-2	5
MC-CARP_R_F1_B	TL5-1	5	TS6-1	5	TM8-2	5	TC7-2	5
MC-CARP_R_F10_B	TL3-1	5	TS4-1	10	TM6-2	5	TC5-2	5
MC-CARP_R_F11_B	TL1-1	5	TS2-1	5	TM4-2	5	TC4-2	5
MC-CARP_R_F12_B	TL1-1	5	TS2-1	5	TM4-2	5	TC2-1	5
MC-CARP_R_K1_B	TL5-1	5	TS6-1	5	TM8-2	5	TC7-2	5
MC-CARP_R_K10_B	TL3-1	5	TS4-1	10	TM6-2	5	TC5-2	5
MC-CARP_R_K11_B	TL2-1	5	TS3-1	5	TM5-2	5	TC4-2	5
MC-CARP_R_N1_B	TL4-1	5	TS6-1	5	TM7-2	5	TC6-2	10
MC-CARP_R_N10_B	TL2-1	5	TS3-1	5	TM5-2	5	TC4-2	5
MC-CARP_R_N11_B	TL1-1	5	TS2-1	5	TM4-2	5	TC3-2	5
MC-CARP_R_N12_B	TL1-1	5	TS2-1	5	TM4-2	5	TC2-1	5
MC-CARP_R_O1_B	TL6-1	10	TS7-1	5	TM9-2	10	TC8-2	10
MC-CARP_R_O10_B	TL6-1	10	TS6-1	5	TM9-2	10	TC7-2	5
MC-CARP_R_O11_B	TL3-1	5	TS4-1	10	TM6-2	5	TC5-2	5
MC-CARP_R_O12_B	TL1-1	5	TS2-1	5	TM4-2	5	TC2-1	5
MC-CARP_R_S1_B	TL3-1	5	TS4-1	10	TM6-2	5	TC5-2	5
MC-CARP_R_S10_B	TL2-1	5	TS3-1	5	TM5-2	5	TC4-2	5
MC-CARP_R_S11_B	TL1-1	5	TS2-1	5	TM4-2	5	TC3-2	5

Table 11: Multi-Day C-Split MC-CARP vehicle information for sets B and R-B.

	Vehicle file	Time horizon	Vehicle file	Time horizon	Vehicle file	Time horizon	Vehicle file	Time horizon
MC-CARP_F1_D	TL5-1	5	TS6-1	5	TM8-1	5	TC7-1	5
MC-CARP_F10_D	TL3-1	5	TS4-1	10	TM6-1	5	TC5-1	5
MC-CARP_F11_D	TL1-1	5	TS2-1	5	TM4-1	5	TC4-1	5
MC-CARP_F12_D	TL1-1	5	TS2-1	5	TM4-1	5	TC2-1	5
MC-CARP_K1_D	TL5-1	5	TS6-1	5	TM8-1	5	TC7-1	5
MC-CARP_K10_D	TL3-1	5	TS4-1	10	TM6-1	5	TC5-1	5
MC-CARP_K11_D	TL2-1	5	TS3-1	5	TM5-1	5	TC4-1	5
MC-CARP_N1_D	TL4-1	5	TS6-1	5	TM7-1	5	TC6-1	10
MC-CARP_N10_D	TL2-1	5	TS3-1	5	TM5-1	5	TC4-1	5
MC-CARP_N11_D	TL1-1	5	TS2-1	5	TM4-1	5	TC3-1	5
MC-CARP_N12_D	TL1-1	5	TS2-1	5	TM4-1	5	TC2-1	5
MC-CARP_O1_D	TL6-1	10	TS7-1	5	TM9-1	10	TC8-1	10
MC-CARP_O10_D	TL6-1	10	TS6-1	5	TM9-1	10	TC7-1	5
MC-CARP_O11_D	TL3-1	5	TS4-1	10	TM6-1	5	TC5-1	5
MC-CARP_O12_D	TL1-1	5	TS2-1	5	TM4-1	5	TC2-1	5
MC-CARP_S1_D	TL3-1	5	TS4-1	10	TM6-1	5	TC5-1	5
MC-CARP_S10_D	TL2-1	5	TS3-1	5	TM5-1	5	TC4-1	5
MC-CARP_S11_D	TL1-1	5	TS2-1	5	TM4-1	5	TC3-1	5
MC-CARP_R_F1_D	TL5-1	5	TS6-1	5	TM8-1	5	TC7-1	5
MC-CARP_R_F10_D	TL3-1	5	TS4-1	10	TM6-1	5	TC5-1	5
MC-CARP_R_F11_D	TL1-1	5	TS2-1	5	TM4-1	5	TC4-1	5
MC-CARP_R_F12_D	TL1-1	5	TS2-1	5	TM4-1	5	TC2-1	5
MC-CARP_R_K1_D	TL5-1	5	TS6-1	5	TM8-1	5	TC7-1	5
MC-CARP_R_K10_D	TL3-1	5	TS4-1	10	TM6-1	5	TC5-1	5
MC-CARP_R_K11_D	TL2-1	5	TS3-1	5	TM5-1	5	TC4-1	5
MC-CARP_R_N1_D	TL4-1	5	TS6-1	5	TM7-1	5	TC6-1	10
MC-CARP_R_N10_D	TL2-1	5	TS3-1	5	TM5-1	5	TC4-1	5
MC-CARP_R_N11_D	TL1-1	5	TS2-1	5	TM4-1	5	TC3-1	5
MC-CARP_R_N12_D	TL1-1	5	TS2-1	5	TM4-1	5	TC2-1	5
MC-CARP_R_O1_D	TL6-1	10	TS7-1	5	TM9-1	10	TC8-1	10
MC-CARP_R_O10_D	TL6-1	10	TS6-1	5	TM9-1	10	TC7-1	5
MC-CARP_R_O11_D	TL3-1	5	TS4-1	10	TM6-1	5	TC5-1	5
MC-CARP_R_O12_D	TL1-1	5	TS2-1	5	TM4-1	5	TC2-1	5
MC-CARP_R_S1_D	TL3-1	5	TS4-1	10	TM6-1	5	TC5-1	5
MC-CARP_R_S10_D	TL2-1	5	TS3-1	5	TM5-1	5	TC4-1	5
MC-CARP_R_S11_D	TL1-1	5	TS2-1	5	TM4-1	5	TC3-1	5

Table 12: Multi-Day C-Split MC-CARP vehicle information for sets D and R-D.

	Vehicle file	Time horizon	Vehicle file	Time horizon	Vehicle file	Time horizon	Vehicle file	Time horizon
MC-CARP_F1_E	TL5-1	5	TS6-1	5	TM8-1	5	TC7-1	5
MC-CARP_F10_E	TL3-1	5	TS4-1	10	TM6-1	5	TC5-1	5
MC-CARP_F11_E	TL1-1	5	TS2-1	5	TM4-1	5	TC4-1	5
MC-CARP_F12_E	TL1-1	5	TS2-1	5	TM4-1	5	TC2-1	5
MC-CARP_K1_E	TL5-1	5	TS6-1	5	TM8-1	5	TC7-1	5
MC-CARP_K10_E	TL3-1	5	TS4-1	10	TM6-1	5	TC5-1	5
MC-CARP_K11_E	TL2-1	5	TS3-1	5	TM5-1	5	TC4-1	5
MC-CARP_N1_E	TL4-1	5	TS6-1	5	TM7-1	5	TC6-1	10
MC-CARP_N10_E	TL2-1	5	TS3-1	5	TM5-1	5	TC4-1	5
MC-CARP_N11_E	TL1-1	5	TS2-1	5	TM4-1	5	TC3-1	5
MC-CARP_N12_E	TL1-1	5	TS2-1	5	TM4-1	5	TC2-1	5
MC-CARP_O1_E	TL6-1	10	TS7-1	5	TM9-1	10	TC8-1	10
MC-CARP_O10_E	TL6-1	10	TS6-1	5	TM9-1	10	TC7-1	5
MC-CARP_O11_E	TL3-1	5	TS4-1	10	TM6-1	5	TC5-1	5
MC-CARP_O12_E	TL1-1	5	TS2-1	5	TM4-1	5	TC2-1	5
MC-CARP_S1_E	TL3-1	5	TS4-1	10	TM6-1	5	TC5-1	5
MC-CARP_S10_E	TL2-1	5	TS3-1	5	TM5-1	5	TC4-1	5
MC-CARP_S11_E	TL1-1	5	TS2-1	5	TM4-1	5	TC3-1	5
MC-CARP_R_F1_E	TL5-1	5	TS6-1	5	TM8-1	5	TC7-1	5
MC-CARP_R_F10_E	TL3-1	5	TS4-1	10	TM6-1	5	TC5-1	5
MC-CARP_R_F11_E	TL1-1	5	TS2-1	5	TM4-1	5	TC4-1	5
MC-CARP_R_F12_E	TL1-1	5	TS2-1	5	TM4-1	5	TC2-1	5
MC-CARP_R_K1_E	TL5-1	5	TS6-1	5	TM8-1	5	TC7-1	5
MC-CARP_R_K10_E	TL3-1	5	TS4-1	10	TM6-1	5	TC5-1	5
MC-CARP_R_K11_E	TL2-1	5	TS3-1	5	TM5-1	5	TC4-1	5
MC-CARP_R_N1_E	TL4-1	5	TS6-1	5	TM7-1	5	TC6-1	10
MC-CARP_R_N10_E	TL2-1	5	TS3-1	5	TM5-1	5	TC4-1	5
MC-CARP_R_N11_E	TL1-1	5	TS2-1	5	TM4-1	5	TC3-1	5
MC-CARP_R_N12_E	TL1-1	5	TS2-1	5	TM4-1	5	TC2-1	5
MC-CARP_R_O1_E	TL6-1	10	TS7-1	5	TM9-1	10	TC8-1	10
MC-CARP_R_O10_E	TL6-1	10	TS6-1	5	TM9-1	10	TC7-1	5
MC-CARP_R_O11_E	TL3-1	5	TS4-1	10	TM6-1	5	TC5-1	5
MC-CARP_R_O12_E	TL1-1	5	TS2-1	5	TM4-1	5	TC2-1	5
MC-CARP_R_S1_E	TL3-1	5	TS4-1	10	TM6-1	5	TC5-1	5
MC-CARP_R_S10_E	TL2-1	5	TS3-1	5	TM5-1	5	TC4-1	5
MC-CARP_R_S11_E	TL1-1	5	TS2-1	5	TM4-1	5	TC3-1	5

Table 13: Multi-Day C-Split MC-CARP vehicle information for set E and R-E.

	Vehicle file	Time horizon	Vehicle file	Time horizon	Vehicle file	Time horizon	Vehicle file	Time horizon
MC-CARP_F1_G	TL5-1	5	TS6-1	5	TM8-1	5	TC7-1	5
MC-CARP_F10_G	TL3-1	5	TS4-1	10	TM6-1	5	TC5-1	5
MC-CARP_F11_G	TL1-1	5	TS2-1	5	TM4-1	5	TC4-1	5
MC-CARP_F12_G	TL1-1	5	TS2-1	5	TM4-1	5	TC2-1	5
MC-CARP_R_F1_G	TL5-1	5	TS6-1	5	TM8-1	5	TC7-1	5
MC-CARP_R_F10_G	TL3-1	5	TS4-1	10	TM6-1	5	TC5-1	5
MC-CARP_R_F11_G	TL1-1	5	TS2-1	5	TM4-1	5	TC4-1	5
MC-CARP_R_F12_G	TL1-1	5	TS2-1	5	TM4-1	5	TC2-1	5

Table 14: Multi-Day C-Split MC-CARP vehicle information for set G and R-G.