Appendix 1

Appendix 1 presents the detailed analysis run results from the MCA process. These results matrix sheets include the detailed weighted scores that each option obtained against each of the performance criteria, as well as the final total score and option ranking.

Figure A.1 to Figure A.5 present the results from MCA runs A1 to A5 (covering the 2005-2010 time period). Figure A.6 to A.10 provide the results from MCA runs B1 to B5 (covering the 2011-2025 time period), whilst the results from runs C1 to C5 (2025-2050 time period) can be found in Figure A.11 to Figure A.15.

	Costs				Emissions								Traffic impacts					Social impacts					Feasibility					
Options	Annualised capital cost	Annual operating cost			NOx emissions	PM_{10} emissions	CO emissions	HC emissions	Ground level ozone	CO_2 emissions			Noise	Congestion	Accident rate			Social cohesion	Quality of life	Distribution effects			Public acceptability	Practicality			Total score	Rank
Perfomance criteria weighting factors	60	40	100		10	35	1	9	15	30	100		10	45	45	100		10	50	40	100		40	60	100		500	
Theme weighting factors				30								30					20					10				10	100	
SCR with diesel particulate filter (10% uptake on heavy-duty vehicles) (LOW COST ESTIMATE)	54	24	77.7	23.3	7	23	1	3	15	8	56.7	17.0	0	11	0	11	2	5	25	16	46	4.6	16	30	46	4.6	51.8	3
SCR with diesel particulate filter (10% uptake on heavy-duty vehicles) (HIGH COST ESTIMATE)	44	24	68.3	20.5	7	23	1	3	15	8	56.7	17.0	0	11	0	11	2	5	25	16	46	4.6	16	30	46	4.6	49.0	8
EGR with diesel particulate filter (10% uptake on heavy-duty vehicles) (LOW COST ESTIMATE)	55	24	78.8	23.6	5	23	1	6	10	7	51.6	15.5	0	11	0	11	2	5	25	16	46	4.6	16	30	46	4.6	50.6	4
EGR with diesel particulate filter (10% uptake on heavy-duty vehicles) (HIGH COST ESTIMATE)	44	24	68.6	20.6	5	23	1	6	10	7	51.6	15.5	0	11	0	11	2	5	25	16	46	4.6	16	30	46	4.6	47.5	13
Euro 5 uptake in 2010 (Scenario C)	57	24	81.2	24.4	1	15	0	0	5	6	27.4	8.2	0	11	0	11	2	5	25	24	54	5.4	16	30	46	4.6	44.8	18
Low emission passenger cars (10% of new car sales)	41	30	70.3	21.1	1	4	1	6	5	15	31.4	9.4	5	11	0	16	3	5	25	24	54	5.4	32	60	92	9.2	48.4	11
Low emission passenger cars (40% of new car sales)	0	40	40.0	12.0	4	16	1	9	15	30	74.8	22.5	5	11	0	16	3	5	25	24	54	5.4	32	15	47	4.7	47.8	12
Hybrid-electric buses (Low CO_2 hybrid) (2% of bus fleet by 2010)	58	25	82.6	24.8	0	0	1	6	5	8	19.8	5.9	10	11	0	21	4	5	25	24	54	5.4	40	30	70	7.0	47.4	14
Hybrid-electric buses (Low NOx / PM_{10} hybrid) (2% of bus fleet by 2010)	58	25	82.5	24.8	0	0	1	6	5	8	19.7	5.9	10	11	0	21	4	5	25	24	54	5.4	40	30	70	7.0	47.3	15
Re-engining heavy duty vehicles with CNG/LNG engines (2% of Heavy Duty Vehicles by 2010)	55	26	80.9	24.3	1	3	1	6	15	0	26.1	7.8	10	11	0	21	4	5	25	0	30	3.0	8	0	8	0.8	40.2	21
Increased uptake of biofuels (5.00% of fuel sales)	60	8	68.4	20.5	0	0	0	0	0	16	16.4	4.8	0	11	0	11	2	5	25	24	54	5.4	24	30	54	5.4	38.5	22
Increased uptake of biofuels (to meet 5.75% EU target level)	60	0	60.0	18.0	0	0	0	0	0	21	20.6	6.2	0	11	0	11	2	5	25	24	54	5.4	16	30	46	4.6	36.4	25
Water Diesel Emulsion (50% of buses and 2% of HGVs by 2010)	60	23	83.4	25.0	2	9	0	0	5	8	23.8	7.1	0	11	0	11	2	5	25	24	54	5.4	24	45	69	6.9	46.7	16
Water Diesel Emulsion (all buses and 10% of HGVs from 2006)	60	21	81.3	24.4	5	20	0	0	10	8	41.9	12.6	0	11	0	11	2	5	25	24	54	5.4	24	30	54	5.4	50.0	5
Scrappage scheme (LOW COST ESTIMATE)	60	14	73.8	22.1	10	35	0	3	5	8	60.8	18.3	0	11	0	11	2	5	25	16	46	4.6	32	15	47	4.7	51.9	2
Scrappage scheme (HIGH COST ESTIMATE)	60	2	62.3	18.7	10	35	0	3	5	8	60.8	18.3	0	11	0	11	2	5	25	16	46	4.6	32	15	47	4.7	48.5	10
Low Emission Zones (LOW COST ESTIMATE)	53	24	77.3	23.2	1	24	0	3	5	8	40.7	12.2	0	11	0	11	2	5	25	8	38	3.8	16	30	46	4.6	46.0	17
Low Emission Zones (HIGH COST ESTIMATE)	45	24	69.9	21.0	1	24	0	3	5	8	40.7	12.2	0	11	0	11	2	5	25	8	38	3.8	16	30	46	4.6	43.8	19
Access control measures – restrictions on private cars in urban areas	59	25	84.2	25.3	0	0	0	3	5	8	16.4	4.9	5	45	45	95	19	0	50	24	74	7.4	8	15	23	2.3	58.9	1
Lorry road user charging scheme	60	25	84.8	25.4	0	0	0	3	5	9	17.3	5.2	0	11	0	11	2	5	0	24	29	2.9	32	30	62	6.2	42.0	20
Public transport priority measures (bus lanes and guided busways) (LOW ESTIMATE)	58	25	83.3	25.0	0	0	0	3	5	8	15.9	4.8	0	23	0	23	5	10	50	40	100	10.0	24	30	54	5.4	49.7	6
Public transport priority measures (bus lanes and guided busways) (HIGH ESTIMATE)	58	25	82.5	24.8	0	1	0	3	5	8	16.6	5.0	0	23	0	23	5	10	50	40	100	10.0	24	30	54	5.4	49.6	7
Speed policy review (motorways) (LOW COST ESTIMATE)	60	25	84.7	25.4	1	1	0	3	5	8	18.4	5.5	10	0	0	10	2	5	25	24	54	5.4	0	0	0	0.0	38.3	23
Speed policy review (motorways) (HIGH COST ESTIMATE)	59	25	83.8	25.1	1	1	0	3	5	8	18.4	5.5	10	0	0	10	2	5	25	24	54	5.4	0	0	0	0.0	38.1	24
Car clubs / car sharing schemes	60	25	84.5	25.3	0	0	0	3	5	8	16.4	4.9	0	23	0	23	5	10	50	32	92	9.2	16	30	46	4.6	48.6	9

Figure A.1: Detailed results from MCA run A1 (2005-2010 time period)

	Costs				Emissions								Traffic impacts					Social impacts					Feasibility					
Options	Annualised capital cost	Annual operating cost			NO_x emissions	PM_{10} emissions	CO emissions	HC emissions	Ground level ozone	CO_2 emissions			Noise	Congestion	Accident rate			Social cohesion	Quality of life	Distribution effects			Public acceptability	Practicality			Total score	Rank
Perfomance criteria weighting factors	50	50	100		20	20	10	10	10	30	100		30	30	40	100		30	40	30	100		50	50	100		500	
Theme weighting factors				28								28					8					8				28	100	
SCR with diesel particulate filter (10% uptake on heavy-duty vehicles) (LOW COST ESTIMATE)	45	30	74.8	20.9	14	13	7	3	10	8	55.2	15.5	0	8	0	8	1	15	20	12	47	3.8	20	25	45	12.6	53.4	6
SCR with diesel particulate filter (10% uptake on heavy-duty vehicles) (HIGH COST ESTIMATE)	37	30	66.9	18.7	14	13	7	3	10	8	55.2	15.5	0	8	0	8	1	15	20	12	47	3.8	20	25	45	12.6	51.2	12
EGR with diesel particulate filter (10% uptake on heavy-duty vehicles) (LOW COST ESTIMATE)	45	30	75.8	21.2	10	13	7	7	7	7	49.9	14.0	0	8	0	8	1	15	20	12	47	3.8	20	25	45	12.6	52.1	7
EGR with diesel particulate filter (10% uptake on heavy-duty vehicles) (HIGH COST ESTIMATE)	37	30	67.3	18.8	10	13	7	7	7	7	49.9	14.0	0	8	0	8	1	15	20	12	47	3.8	20	25	45	12.6	49.8	14
Euro 5 uptake in 2010 (Scenario C)	48	30	77.8	21.7	3	8	0	0	3	6	20.8	5.8	0	8	0	8	1	15	20	18	53	4.2	20	25	45	12.6	45.0	19
Low emission passenger cars (10% of new car sales)	34	37	71.0	19.9	2	2	7	7	3	15	35.6	10.0	15	8	0	23	2	15	20	18	53	4.2	40	50	90	25.2	61.1	1
Low emission passenger cars (40% of new car sales)	0	50	50.0	14.0	7	9	10	10	10	30	76.4	21.4	15	8	0	23	2	15	20	18	53	4.2	40	13	53	14.7	56.1	4
Hybrid-electric buses (Low CO_2 hybrid) (2% of bus fleet by 2010)	48	31	79.2	22.2	0	0	7	7	3	8	24.8	6.9	30	8	0	38	3	15	20	18	53	4.2	50	25	75	21.0	57.4	2
Hybrid-electric buses (Low NOx / PM_{10} hybrid) (2% of bus fleet by 2010)	48	31	79.1	22.2	0	0	7	7	3	8	24.7	6.9	30	8	0	38	3	15	20	18	53	4.2	50	25	75	21.0	57.3	3
Re-engining heavy duty vehicles with CNG/LNG engines (2% of Heavy Duty Vehicles by 2010)	46	32	78.2	21.9	2	2	7	7	10	0	27.2	7.6	30	8	0	38	3	15	20	0	35	2.8	10	0	10	2.8	38.1	22
Increased uptake of biofuels (5.00% of fuel sales)	50	11	60.6	17.0	0	0	0	0	0	16	16.4	4.6	0	8	0	8	1	15	20	18	53	4.2	30	25	55	15.4	41.8	21
Increased uptake of biofuels (to meet 5.75% EU target level)	50	0	50.0	14.0	0	0	0	0	0	21	20.8	5.8	0	8	0	8	1	15	20	18	53	4.2	20	25	45	12.6	37.2	23
Water Diesel Emulsion (50% of buses and 2% of HGVs by 2010)	50	29	79.2	22.2	4	5	0	0	3	8	18.9	5.6	0	8	0	8	1	15	20	18	53	4.2	30	38	68	18.9	51.5	11
Water Diesel Emulsion (all buses and 10% of HGVs from 2006)	50	27	76.7	21.5	10	11	0	0	7	8	34.9	9.8	0	8	0	8	1	15	20	18	53	4.2	30	25	55	15.4	51.5	10
Scrappage scheme (LOW COST ESTIMATE)	50	17	66.9	18.7	20	20	3	3	3	8	57.5	16.1	0	8	0	8	1	15	20	12	47	3.8	40	13	53	14.7	53.9	5
Scrappage scheme (HIGH COST ESTIMATE)	50	3	52.9	14.8	20	20	3	3	3	8	57.5	16.1	0	8	0	8	1	15	20	12	47	3.8	40	13	53	14.7	50.0	13
Low Emission Zones (LOW COST ESTIMATE)	44	30	74.6	20.9	2	14	3	3	3	8	33.1	9.3	0	8	0	8	1	15	20	6	41	3.3	20	25	45	12.6	46.6	17
Low Emission Zones (HIGH COST ESTIMATE)	38	31	68.4	19.2	2	14	3	3	3	8	33.1	9.3	0	8	0	8	1	15	20	6	41	3.3	20	25	45	12.6	44.9	20
Access control measures – restrictions on private cars in urban areas	49	31	80.5	22.5	0	0	3	3	3	8	17.9	5.0	15	30	40	85	7	0	40	18	58	4.8	10	13	23	6.3	45.3	18
Lorry road user charging scheme	50	31	81.0	22.7	0	0	3	3	3	9	19.0	5.3	0	8	0	8	1	15	0	18	33	2.8	40	25	65	18.2	49.4	15
Public transport priority measures (bus lanes and guided busways) (LOW ESTIMATE)	49	31	79.8	22.3	0	0	3	3	3	8	17.5	4.9	0	15	0	15	1	30	40	30	100	8.0	30	25	55	15.4	51.8	8
Public transport priority measures (bus lanes and guided busways) (HIGH ESTIMATE)	48	31	79.1	22.2	0	0	3	3	3	8	18.0	5.0	0	15	0	15	1	30	40	30	100	8.0	30	25	55	15.4	51.8	9
Speed policy review (motorways) (LOW COST ESTIMATE)	50	31	80.9	22.7	3	1	3	3	3	8	20.8	5.8	30	0	0	30	2	15	20	18	53	4.2	0	0	0	0.0	35.1	24
Speed policy review (motorways) (HIGH COST ESTIMATE)	49	31	80.2	22.5	3	1	3	3	3	8	20.8	5.8	30	0	0	30	2	15	20	18	53	4.2	0	0	0	0.0	34.9	25
Car clubs / car sharing schemes	50	31	80.7	22.6	0	0	3	3	3	8	18.1	5.1	0	15	0	15	1	30	40	24	94	7.5	20	25	45	12.6	49.0	16

Figure A.2: Detailed results from MCA run A2 (2005-2010 time period)

	Costs				Emissions								Traffic impacts					Social impacts					Feasibility					
Options	Annualised capital cost	Annual operating cost			NOx emissions	PM_{10} emissions	CO emissions	HC emissions	Ground level ozone	CO_2 emissions			Noise	Congestion	Accident rate			Social cohesion	Quality of life	Distribution effects			Public acceptability	Practicality			Total score	Rank
Perfomance criteria weighting factors	60	40	100		20	20	0	5	5	50	100		20	40	40	100		33	33	33	100		50	50	100		500	
Theme weighting factors				35								35					10					5				15	100	
SCR with diesel particulate filter (10% uptake on heavy-duty vehicles) (LOW COST ESTIMATE)	54	24	77.7	27.2	14	13	0	2	5	13	46.9	16.4	0	10	0	10	1	17	17	13	47	2.3	20	25	45	6.8	53.7	3
SCR with diesel particulate filter (10% uptake on heavy-duty vehicles) (HIGH COST ESTIMATE)	44	24	68.3	23.9	14	13	0	2	5	13	46.9	16.4	0	10	0	10	1	17	17	13	47	2.3	20	25	45	6.8	50.4	11
EGR with diesel particulate filter (10% uptake on heavy-duty vehicles) (LOW COST ESTIMATE)	55	24	78.8	27.6	10	13	0	3	3	11	40.9	14.3	0	10	0	10	1	17	17	13	47	2.3	20	25	45	6.8	52.0	9
EGR with diesel particulate filter (10% uptake on heavy-duty vehicles) (HIGH COST ESTIMATE)	44	24	68.6	24.0	10	13	0	3	3	11	40.9	14.3	0	10	0	10	1	17	17	13	47	2.3	20	25	45	6.8	48.4	17
Euro 5 uptake in 2010 (Scenario C)	57	24	81.2	28.4	3	8	0	0	2	10	23.3	8.2	0	10	0	10	1	17	17	20	53	2.7	20	25	45	6.8	47.0	19
Low emission passenger cars (10% of new car sales)	41	30	70.3	24.8	2	2	0	3	2	25	33.7	11.8	10	10	0	20	2	17	17	20	53	2.7	40	50	90	13.5	54.6	2
Low emission passenger cars (40% of new car sales)	0	40	40.0	14.0	7	9	0	5	5	50	76.4	26.7	10	10	0	20	2	17	17	20	53	2.7	40	13	53	7.9	53.3	4
Hybrid-electric buses (Low CO_2 hybrid) (2% of bus fleet by 2010)	58	25	82.6	28.9	0	0	0	3	2	13	18.3	6.4	20	10	0	30	3	17	17	20	53	2.7	50	25	75	11.3	52.3	7
Hybrid-electric buses (Low NOx / PM_{10} hybrid) (2% of bus fleet by 2010)	58	25	82.5	28.9	0	0	0	3	2	13	18.0	6.3	20	10	0	30	3	17	17	20	53	2.7	50	25	75	11.3	52.1	8
Re-engining heavy duty vehicles with CNG/LNG engines (2% of Heavy Duty Vehicles by 2010)	55	26	80.9	28.3	2	2	0	3	5	0	12.2	4.3	20	10	0	30	3	17	17	0	33	1.7	10	0	10	1.5	38.8	25
Increased uptake of biofuels (5.00% of fuel sales)	60	8	68.4	24.0	0	0	0	0	0	27	27.3	9.6	0	10	0	10	1	17	17	20	53	2.7	30	25	55	8.3	45.4	20
Increased uptake of biofuels (to meet 5.75% EU target level)	60	0	60.0	21.0	0	0	0	0	0	34	34.3	12.0	0	10	0	10	1	17	17	20	53	2.7	20	25	45	6.8	43.4	22
Water Diesel Emulsion (50% of buses and 2% of HGVs by 2010)	60	23	83.4	29.2	4	5	0	0	2	13	23.2	8.1	0	10	0	10	1	17	17	20	53	2.7	30	38	68	10.1	51.1	10
Water Diesel Emulsion (all buses and 10% of HGVs from 2006)	60	21	81.3	28.5	10	11	0	0	3	13	36.6	12.8	0	10	0	10	1	17	17	20	53	2.7	30	25	55	8.3	53.2	5
Scrappage scheme (LOW COST ESTIMATE)	60	14	73.6	25.7	20	20	0	2	2	13	55.9	19.5	0	10	0	10	1	17	17	13	47	2.3	40	13	53	7.9	56.5	1
Scrappage scheme (HIGH COST ESTIMATE)	60	2	62.3	21.8	20	20	0	2	2	13	55.9	19.5	0	10	0	10	1	17	17	13	47	2.3	40	13	53	7.9	52.6	6
Low Emission Zones (LOW COST ESTIMATE)	53	24	77.3	27.1	2	14	0	2	2	13	31.4	11.0	0	10	0	10	1	17	17	7	40	2.0	20	25	45	6.8	47.8	18
Low Emission Zones (HIGH COST ESTIMATE)	45	24	69.9	24.5	2	14	0	2	2	13	31.4	11.0	0	10	0	10	1	17	17	7	40	2.0	20	25	45	6.8	45.2	21
Access control measures – restrictions on private cars in urban areas	59	25	84.2	29.5	0	0	0	2	2	13	16.2	5.7	10	40	40	90	9	0	33	20	53	2.7	10	13	23	3.4	50.2	12
Lorry road user charging scheme	60	25	84.8	29.7	0	0	0	2	2	14	18.0	6.3	0	10	0	10	1	17	0	20	37	1.8	40	25	65	9.8	48.6	16
Public transport priority measures (bus lanes and guided busways) (LOW ESTIMATE)	58	25	83.3	29.2	0	0	0	2	2	13	15.9	5.6	0	20	0	20	2	33	33	33	100	5.0	30	25	55	8.3	50.0	13
Public transport priority measures (bus lanes and guided busways) (HIGH ESTIMATE)	58	25	82.5	28.9	0	0	0	2	2	13	16.3	5.7	0	20	0	20	2	33	33	33	100	5.0	30	25	55	8.3	49.9	14
Speed policy review (motorways) (LOW COST ESTIMATE)	60	25	84.7	29.6	3	1	0	2	2	13	19.1	6.7	20	0	0	20	2	17	17	20	53	2.7	0	0	0	0.0	41.0	23
Speed policy review (motorways) (HIGH COST ESTIMATE)	59	25	83.8	29.3	3	1	0	2	2	13	18.1	6.7	20	0	0	20	2	17	17	20	53	2.7	0	0	0	0.0	40.7	24
Car clubs / car sharing schemes	60	25	84.3	29.6	0	0	0	2	2	13	16.7	5.9	0	20	0	20	2	33	33	27	93	4.7	20	25	45	6.8	48.8	15

Figure A.3: Detailed results from MCA run A3 (2005-2010 time period)

	Costs				Emissions								Traffic impacts					Social impacts					Feasibility					
Options	Annualised capital cost	Annual operating cost			NO_x emissions	PM_{10} emissions	CO emissions	HC emissions	Ground level ozone	CO_2 emissions			Noise	Congestion	Accident rate			Social cohesion	Quality of life	Distribution effects			Public acceptability	Practicality			Total score	Rank
Perfomance criteria weighting factors	60	40	100		29	29	1	2	10	29	100		80	10	10	100		5	15	80	100		60	40	100		500	
Theme weighting factors				20								45					5					5				25	100	
SCR with diesel particulate filter (10% uptake on heavy-duty vehicles) (LOW COST ESTIMATE)	54	24	77.7	15.5	21	19	1	1	10	7	58.8	26.5	0	3	0	3	0	3	8	32	42	2.1	24	20	44	11.0	55.2	4
SCR with diesel particulate filter (10% uptake on heavy-duty vehicles) (HIGH COST ESTIMATE)	44	24	68.3	13.7	21	19	1	1	10	7	58.8	26.5	0	3	0	3	0	3	8	32	42	2.1	24	20	44	11.0	53.3	5
EGR with diesel particulate filter (10% uptake on heavy-duty vehicles) (LOW COST ESTIMATE)	55	24	78.8	15.8	14	19	1	1	7	6	48.8	22.0	0	3	0	3	0	3	8	32	42	2.1	24	20	44	11.0	50.9	8
EGR with diesel particulate filter (10% uptake on heavy-duty vehicles) (HIGH COST ESTIMATE)	44	24	68.8	13.7	14	19	1	1	7	6	48.8	22.0	0	3	0	3	0	3	8	32	42	2.1	24	20	44	11.0	48.9	11
Euro 5 uptake in 2010 (Scenario C)	57	24	81.2	16.2	4	12	0	0	3	6	25.7	11.6	0	3	0	3	0	3	8	48	58	2.9	24	20	44	11.0	41.8	15
Low emission passenger cars (10% of new car sales)	41	30	70.3	14.1	3	3	1	1	3	14	25.6	11.5	40	3	0	43	2	3	8	48	58	2.9	48	40	88	22.0	52.6	7
Low emission passenger cars (40% of new car sales)	0	40	40.0	8.0	10	14	1	2	10	29	65.8	29.6	40	3	0	43	2	3	8	48	58	2.9	48	10	58	14.5	57.1	3
Hybrid-electric buses (Low CO_2 hybrid) (2% of bus fleet by 2010)	58	25	82.6	16.5	0	0	1	1	3	8	13.3	6.0	80	3	0	83	4	3	8	48	58	2.9	60	20	80	20.0	49.5	9
Hybrid-electric buses (Low NOx / PM_{10} hybrid) (2% of bus fleet by 2010)	58	25	82.5	16.5	0	0	1	1	3	7	13.3	6.0	80	3	0	83	4	3	8	48	58	2.9	60	20	80	20.0	49.5	10
Re-engining heavy duty vehicles with CNG/LNG engines (2% of Heavy Duty Vehicles by 2010)	55	26	80.9	16.2	3	3	1	1	10	0	17.7	7.9	80	3	0	83	4	3	8	0	10	0.5	12	0	12	3.0	31.8	23
Increased uptake of biofuels (5.00% of fuel sales)	60	8	68.4	13.7	0	0	0	0	0	16	15.9	7.1	0	3	0	3	0	3	8	48	58	2.9	36	20	56	14.0	37.9	19
Increased uptake of biofuels (to meet 5.75% EU target level)	60	0	60.0	12.0	0	0	0	0	0	20	19.9	8.9	0	3	0	3	0	3	8	48	58	2.9	24	20	44	11.0	35.0	21
Water Diesel Emulsion (50% of buses and 2% of HGVs by 2010)	60	23	83.4	16.7	5	8	0	0	3	7	23.7	10.7	0	3	0	3	0	3	8	48	58	2.9	36	30	66	16.5	46.9	12
Water Diesel Emulsion (all buses and 10% of HGVs from 2006)	60	21	81.3	16.3	14	16	0	0	7	7	44.0	19.9	0	3	0	3	0	3	8	48	58	2.9	36	20	56	14.0	53.1	6
Scrappage scheme (LOW COST ESTIMATE)	60	14	73.6	14.7	29	29	0	1	3	7	69.6	31.3	0	3	0	3	0	3	8	32	42	2.1	48	10	58	14.5	62.8	1
Scrappage scheme (HIGH COST ESTIMATE)	60	2	62.3	12.5	29	29	0	1	3	7	69.6	31.3	0	3	0	3	0	3	8	32	42	2.1	48	10	58	14.5	60.5	2
Low Emission Zones (LOW COST ESTIMATE)	53	24	77.3	15.5	3	20	0	1	3	7	34.2	15.4	0	3	0	3	0	3	8	16	26	1.3	24	20	44	11.0	43.3	13
Low Emission Zones (HIGH COST ESTIMATE)	45	24	69.9	14.0	3	20	0	1	3	7	34.2	15.4	0	3	0	3	0	3	8	16	26	1.3	24	20	44	11.0	41.8	16
Access control measures – restrictions on private cars in urban areas	59	25	84.2	16.8	0	0	0	1	3	7	12.1	5.5	40	10	10	60	3	0	15	48	63	3.2	12	10	22	5.5	33.9	22
Lorry road user charging scheme	60	25	84.8	17.0	0	0	0	1	3	8	13.2	5.9	0	3	0	3	0	3	0	48	51	2.5	48	20	68	17.0	42.6	14
Public transport priority measures (bus lanes and guided busways) (LOW ESTIMATE)	58	25	83.3	16.7	0	0	0	1	3	7	11.6	5.2	0	5	0	5	0	5	15	80	100	5.0	36	20	56	14.0	41.2	18
Public transport priority measures (bus lanes and guided busways) (HIGH ESTIMATE)	58	25	82.5	16.5	0	1	0	1	3	7	12.3	5.5	0	5	0	5	0	5	15	80	100	5.0	36	20	56	14.0	41.3	17
Speed policy review (motorways) (LOW COST ESTIMATE)	60	25	84.7	16.9	4	1	0	1	3	7	16.3	7.4	80	0	0	80	4	3	8	48	58	2.9	0	0	0	0.0	31.2	24
Speed policy review (motorways) (HIGH COST ESTIMATE)	59	25	83.8	16.8	4	1	0	1	3	7	16.3	7.4	80	0	0	80	4	3	8	48	58	2.9	0	0	0	0.0	31.0	25
Car clubs / car sharing schemes	60	25	84.5	16.9	0	0	0	1	3	8	12.2	5.5	0	5	0	5	0	5	15	64	84	4.2	24	20	44	11.0	37.8	20

Figure A.4: Detailed results from MCA run A4 (2005-2010 time period)

	Costs				Emissions							Traffic impacts					Social impacts					Feasibility					
Options	Annualised capital cost	Annual operating cost			NOx emissions	PM_{10} emissions	CO emissions	HC emissions	Ground level ozone	CO_2 emissions		Noise	Congestion	Accident rate			Social cohesion	Quality of life	Distribution effects			Public acceptability	Practicality			Total score	Rank
Perfomance criteria weighting factors	60	40	100		17	32	4	6	14	27	100	25	35	40	100		30	40	30	100		40	60	100		500	
Theme weighting factors				30							30					15					10				15	100	
SCR with diesel particulate filter (10% uptake on heavy-duty vehicles) (LOW COST ESTIMATE)	54	24	77.7	23.3	12	21	3	2	14	7	59.0 17.7	0	9	0	9	1	15	20	12	47	4.7	16	30	46	6.9	53.9	2
SCR with diesel particulate filter (10% uptake on heavy-duty vehicles) (HIGH COST ESTIMATE)	44	24	68.3	20.5	12	21	3	2	14	7	59.0 17.7	0	9	0	9	1	15	20	12	47	4.7	16	30	46	6.9	51.1	9
EGR with diesel particulate filter (10% uptake on heavy-duty vehicles) (LOW COST ESTIMATE)	55	24	79.8	23.6	8	21	3	4	9	6	51.7 15.5	0	9	0	9	1	15	20	12	47	4.7	16	30	46	6.9	52.1	5
EGR with diesel particulate filter (10% uptake on heavy-duty vehicles) (HIGH COST ESTIMATE)	44	24	68.6	20.6	8	21	3	4	9	6	51.7 15.5	0	9	0	9	1	15	20	12	47	4.7	16	30	46	6.9	49.0	14
Euro 5 uptake in 2010 (Scenario C)	57	24	81.2	24.4	2	13	0	0	5	6	26.1 7.8	0	9	0	9	1	15	20	18	53	5.3	16	30	46	6.9	45.7	18
Low emission passenger cars (10% of new car sales)	41	30	70.3	21.1	2	4	3	4	5	13	29.9 9.0	13	9	0	21	3	15	20	18	53	5.3	32	60	92	13.8	52.3	3
Low emission passenger cars (40% of new car sales)	0	40	40.0	12.0	6	15	4	6	14	27	71.9 21.6	13	9	0	21	3	15	20	18	53	5.3	32	15	47	7.1	49.1	13
Hybrid-electric buses (Low CO_2 hybrid) (2% of bus fleet by 2010)	58	25	82.6	24.8	0	0	3	4	5	7	18.7 5.6	25	9	0	34	5	15	20	18	53	5.3	40	30	70	10.5	51.3	7
Hybrid-electric buses (Low NOx / PM_{10} hybrid) (2% of bus fleet by 2010)	58	25	82.5	24.8	0	0	3	4	5	7	18.7 5.6	25	9	0	34	5	15	20	18	53	5.3	40	30	70	10.5	51.2	8
Re-engining heavy duty vehicles with CNG/LNG engines (2% of Heavy Duty Vehicles by 2010)	55	26	80.9	24.3	2	3	3	4	14	0	25.5 7.6	25	9	0	34	5	15	20	0	35	3.5	8	0	8	1.2	41.7	21
Increased uptake of biofuels (5.00% of fuel sales)	60	8	68.4	20.5	0	0	0	0	0	15	14.8 4.4	0	9	0	9	1	15	20	18	53	5.3	24	30	54	8.1	39.7	23
Increased uptake of biofuels (to meet 5.75% EU target level)	60	0	60.0	18.0	0	0	0	0	0	19	18.5 5.6	0	9	0	9	1	15	20	18	53	5.3	16	30	46	6.9	37.1	25
Water Diesel Emulsion (50% of buses and 2% of HGVs by 2010)	60	23	83.4	25.0	3	9	0	0	5	7	23.1 6.9	0	9	0	9	1	15	20	18	53	5.3	24	45	69	10.4	48.9	15
Water Diesel Emulsion (all buses and 10% of HGVs from 2006)	60	21	81.3	24.4	8	18	0	0	9	7	42.1 12.6	0	9	0	9	1	15	20	18	53	5.3	24	30	54	8.1	51.8	6
Scrappage scheme (LOW COST ESTIMATE)	60	14	73.6	22.1	17	32	1	2	5	7	63.8 19.1	0	9	0	9	1	15	20	12	47	4.7	32	15	47	7.1	54.3	1
Scrappage scheme (HIGH COST ESTIMATE)	60	2	62.3	18.7	17	32	1	2	5	7	63.8 19.1	0	9	0	9	1	15	20	12	47	4.7	32	15	47	7.1	50.9	10
Low Emission Zones (LOW COST ESTIMATE)	53	24	77.3	23.2	2	22	1	2	5	7	38.2 11.5	0	9	0	9	1	15	20	6	41	4.1	16	30	46	6.9	47.0	17
Low Emission Zones (HIGH COST ESTIMATE)	45	24	69.9	21.0	2	22	1	2	5	7	38.2 11.5	0	9	0	9	1	15	20	6	41	4.1	16	30	46	6.9	44.7	19
Access control measures – restrictions on private cars in urban areas	59	25	84.2	25.3	0	0	1	2	5	7	15.3 4.6	13	35	40	88	13	0	40	18	58	5.8	8	15	23	3.5	52.2	4
Lorry road user charging scheme	60	25	84.8	25.4	0	0	1	2	5	8	16.2 4.9	0	9	0	9	1	15	0	18	33	3.3	32	30	62	9.3	44.2	20
Public transport priority measures (bus lanes and guided busways) (LOW ESTIMATE)	58	25	83.3	25.0	0	0	1	2	5	7	14.8 4.4	0	18	0	18	3	30	40	30	100	10.0	24	30	54	8.1	50.2	11
Public transport priority measures (bus lanes and guided busways) (HIGH ESTIMATE)	58	25	82.5	24.8	0	1	1	2	5	7	15.5 4.6	0	18	0	18	3	30	40	30	100	10.0	24	30	54	8.1	50.1	12
Speed policy review (motorways) (LOW COST ESTIMATE)	60	25	84.7	25.4	2	1	1	2	5	7	18.1 5.4	25	0	0	25	4	15	20	18	53	5.3	0	0	0	0.0	39.9	22
Speed policy review (motorways) (HIGH COST ESTIMATE)	59	25	83.8	25.1	2	1	1	2	5	7	18.1 5.4	25	0	0	25	4	15	20	18	53	5.3	0	0	0	0.0	39.6	24
Car clubs / car sharing schemes	60	25	84.5	25.3	0	0	1	2	5	7	15.3 4.6	0	18	0	18	3	30	40	24	94	8.4	16	30	46	6.9	48.8	16

Figure A.5: Detailed results from MCA run A5 (2005-2010 time period)

Options	Costs				Emissions								Traffic impacts					Social impacts					Feasibility				Total score	Rank
	Annualised capital cost	Annual operating cost			NO_x emissions abatement	PM_{10} emissions abatement	CO emissions	HC emissions	Ground level ozone	CO_2 emissions			Noise	Congestion	Accident rate			Social cohesion	Quality of life	Distribution effects			Public/industry acceptability	Practicality				
Perfomance criteria weighting factors	50	50	100		8	35	0	5	12	40	100		10	45	45	100		10	50	40	100		40	60	100		500	
Theme weighting factors				25								35					20					10				10	100	
Battery-powered electric Vehicles	15	27	42	10	15	11	1	3	15	35	80	28	30	0	0	30	6	0	17	33	50	5	13	20	33	3	52.6	1
H_2 fuel cell vehicles for Captive fleets	0	13	13	3	15	11	1	3	15	18	62	22	30	0	0	30	6	0	17	33	50	5	0	10	10	1	37.1	6
New diesel formulations	30	40	70	18	0	11	0	0	0	18	29	10	0	0	0	0	0	0	17	33	50	5	40	60	100	10	42.5	4
Scrappage scheme for Euro 2, Euro 3 and Euro 4 vehicles	60	0	60	15	7	0	1	1	8	0	17	6	0	0	0	0	0	0	17	22	39	4	13	0	13	1	26.1	11
Road user charging (all Vehicles and all roads)	0	0	0	0	15	11	1	3	15	35	80	28	10	35	35	80	16	0	17	11	28	3	7	10	17	2	48.3	2
Extended Low Emissions Zones	15	0	15	4	22	22	2	4	15	18	83	29	0	0	0	0	0	0	17	11	28	3	0	10	10	1	36.4	8
Freight distribution centres and intermodal freight transfer	15	13	28	7	7	0	1	1	8	18	34	12	10	35	0	45	9	0	17	33	50	5	13	20	33	3	36.4	7
Further integrated land use and transport planning	45	13	58	15	7	0	1	1	8	18	34	12	0	35	0	35	7	33	33	33	100	10	27	10	37	4	47.3	3
Dynamic route planning	30	13	43	11	7	0	1	1	8	0	17	6	0	35	0	35	7	0	17	33	50	5	27	40	67	7	35.4	9
Emissions Trading Scheme for Heavy-duty vehicles and taxis	45	13	58	15	7	0	1	1	8	35	52	18	0	0	0	0	0	0	0	0	0	0	0	10	10	1	33.7	10
Personal Carbon Accounts	45	0	45	11	7	0	1	1	8	35	52	18	0	35	0	35	7	0	0	33	33	3	0	10	10	1	40.7	5

Figure A.6: Detailed results from MCA run B1 (2011-2025 time period)

	Costs				Emissions								Traffic impacts					Social impacts					Feasibility					
Options	Annualised capital cost	Annual operating cost			NO_x emissions abatement	PM_{10} emissions abatement	CO emissions	HC emissions	Ground level ozone	CO_2 emissions			Noise	Congestion	Accident rate			Social cohesion	Quality of life	Distribution effects			Public/industry acceptability	Practicality			Total score	Rank
Perfomance criteria weighting factors	50	50	100		20	20	10	10	10	30	100		30	30	40	100		30	40	30	100		50	50	100		500	
Theme weighting factors				28								28					8					8				28	100	
Battery-powered electric Vehicles	15	27	42	12	15	11	1	3	15	35	80	22	30	0	0	30	2	0	17	33	50	4	13	20	33	9	49.7	2
H_2 fuel cell vehicles for Captive fleets	0	13	13	4	15	11	1	3	15	18	62	17	30	0	0	30	2	0	17	33	50	4	0	10	10	3	30.3	10
New diesel formulations	30	40	70	20	0	11	0	0	0	18	29	8	0	0	0	0	0	0	17	33	50	4	40	60	100	28	59.6	1
Scrappage scheme for Euro 2, Euro 3 and Euro 4 vehicles	60	0	60	17	7	0	1	1	8	0	17	5	0	0	0	0	0	0	17	22	39	3	13	0	13	4	28.4	11
Road user charging (all Vehicles and all roads)	0	0	0	0	15	11	1	3	15	35	80	22	10	35	35	80	6	0	17	11	28	2	7	10	17	5	35.6	5
Extended Low Emissions Zones	15	0	15	4	22	22	2	4	15	18	83	23	0	0	0	0	0	0	17	11	28	2	0	10	10	3	32.3	9
Freight distribution centres and intermodal freight transfer	15	13	28	8	7	0	1	1	8	18	34	10	10	35	0	45	4	0	17	33	50	4	13	20	33	9	34.5	7
Further integrated land use and transport planning	45	13	58	16	7	0	1	1	8	18	34	10	0	35	0	35	3	33	33	33	100	8	27	10	37	10	47.0	3
Dynamic route planning	30	13	43	12	7	0	1	1	8	0	17	5	0	35	0	35	3	0	17	33	50	4	27	40	67	19	42.3	4
Emissions Trading Scheme for Heavy-duty vehicles and taxis	45	13	58	16	7	0	1	1	8	35	52	15	0	0	0	0	0	0	0	0	0	0	0	10	10	3	33.6	8
Personal Carbon Accounts	45	0	45	13	7	0	1	1	8	35	52	15	0	35	0	35	3	0	0	33	33	3	0	10	10	3	35.4	6

Figure A.7: Detailed results from MCA run B2 (2011-2025 time period)

	Costs				Emissions								Traffic impacts					Social impacts					Feasibility					
Options	Annualised capital cost	Annual operating cost			NOx emissions abatement	PM_{10} emissions abatement	CO emissions	HC emissions	Ground level ozone	CO_2 emissions			Noise	Congestion	Accident rate			Social cohesion	Quality of life	Distribution effects			Public/industry acceptability	Practicality			Total score	Rank
Perfomance criteria weighting factors	60	40	100		20	20	0	5	5	50	100		20	40	40	100		33	33	33	100		50	50	100		500	
Theme weighting factors				35								35					10					5				15	100	
Battery-powered electric Vehicles	15	27	42	15	15	11	1	3	15	35	80	28	30	0	0	30	3	0	17	33	50	2	13	20	33	5	53.0	1
H_2 fuel cell vehicles for Captive fleets	0	13	13	5	15	11	1	3	15	18	62	22	30	0	0	30	3	0	17	33	50	2	0	10	10	2	33.4	10
New diesel formulations	30	40	70	25	0	11	0	0	0	18	29	10	0	0	0	0	0	0	17	33	50	2	40	60	100	15	52.0	2
Scrappage scheme for Euro 2, Euro 3 and Euro 4 vehicles	60	0	60	21	7	0	1	1	8	0	17	6	0	0	0	0	0	0	17	22	39	2	13	0	13	2	30.8	11
Road user charging (all Vehicles and all roads)	0	0	0	0	15	11	1	3	15	35	80	28	10	35	35	80	8	0	17	11	28	1	7	10	17	3	39.8	6
Extended Low Emissions Zones	15	0	15	5	22	22	2	4	15	18	83	29	0	0	0	0	0	0	17	11	28	1	0	10	10	2	37.0	8
Freight distribution centres and intermodal freight transfer	15	13	28	10	7	0	1	1	8	18	34	12	10	35	0	45	5	0	17	33	50	2	13	20	33	5	33.9	9
Further integrated land use and transport planning	45	13	58	20	7	0	1	1	8	18	34	12	0	35	0	35	4	33	33	33	100	5	27	10	37	6	46.4	3
Dynamic route planning	30	13	43	15	7	0	1	1	8	0	17	6	0	35	0	35	4	0	17	33	50	2	27	40	67	10	37.1	7
Emissions Trading Scheme for Heavy-duty vehicles and taxis	45	13	58	20	7	0	1	1	8	35	52	18	0	0	0	0	0	0	0	0	0	0	0	10	10	2	40.1	5
Personal Carbon Accounts	45	0	45	16	7	0	1	1	8	35	52	18	0	35	0	35	4	0	0	33	33	2	0	10	10	2	40.6	4

Figure A.8: Detailed results from MCA run B3 (2011-2025 time period)

Options	Costs				Emissions								Traffic impacts					Social impacts					Feasibility				Total score	Rank
	Annualised capital cost	Annual operating cost			NO_x emissions abatement	PM_{10} emissions abatement	CO emissions	HC emissions	Ground level ozone	CO_2 emissions			Noise	Congestion	Accident rate			Social cohesion	Quality of life	Distribution effects			Public/industry acceptability	Practicality				
Perfomance criteria weighting factors	60	40	100		24	31	1	3	10	31	100		80	10	10	100		5	15	80	100		60	40	100		500	
Theme weighting factors				20								45					5					5				25	100	
Battery-powered electric Vehicles	15	27	42	8	15	11	1	3	15	35	80	36	30	0	0	30	2	0	17	33	50	2	13	20	33	8	56.5	1
H_2 fuel cell vehicles for Captive fleets	0	13	13	3	15	11	1	3	15	18	62	28	30	0	0	30	2	0	17	33	50	2	0	10	10	3	37.1	9
New diesel formulations	30	40	70	14	0	11	0	0	0	18	29	13	0	0	0	0	0	0	17	33	50	2	40	60	100	25	54.3	2
Scrappage scheme for Euro 2, Euro 3 and Euro 4 vehicles	60	0	60	12	7	0	1	1	8	0	17	8	0	0	0	0	0	0	17	22	39	2	13	0	13	3	24.9	11
Road user charging (all Vehicles and all roads)	0	0	0	0	15	11	1	3	15	35	80	36	10	35	35	80	4	0	17	11	28	1	7	10	17	4	45.4	3
Extended Low Emissions Zones	15	0	15	3	22	22	2	4	15	18	83	37	0	0	0	0	0	0	17	11	28	1	0	10	10	3	44.0	4
Freight distribution centres and intermodal freight transfer	15	13	28	6	7	0	1	1	8	18	34	15	10	35	0	45	2	0	17	33	50	2	13	20	33	8	34.2	10
Further integrated land use and transport planning	45	13	58	12	7	0	1	1	8	18	34	15	0	35	0	35	2	33	33	33	100	5	27	10	37	9	43.0	5
Dynamic route planning	30	13	43	9	7	0	1	1	8	0	17	8	0	35	0	35	2	0	17	33	50	2	27	40	67	17	37.2	8
Emissions Trading Scheme for Heavy-duty vehicles and taxis	45	13	58	12	7	0	1	1	8	35	52	23	0	0	0	0	0	0	0	0	0	0	0	10	10	3	37.5	7
Personal Carbon Accounts	45	0	45	9	7	0	1	1	8	35	52	23	0	35	0	35	2	0	0	33	33	2	0	10	10	3	38.2	6

Figure A.9: Detailed results from MCA run B4 (2011-2025 time period)

	Costs				Emissions								Traffic impacts					Social impacts					Feasibility					
Options	Annualised capital cost	Annual operating cost			NO_x emissions abatement	PM_{10} emissions abatement	CO emissions	HC emissions	Ground level ozone	CO_2 emissions			Noise	Congestion	Accident rate			Social cohesion	Quality of life	Distribution effects			Public/industry acceptability	Practicality			Total score	Rank
Perfomance criteria weighting factors	60	40	100		22	22	2	4	15	35	100		30	35	35	100		33	33	33	100		40	60	100		500	
Theme weighting factors				35								35					12					5				13	100	
Battery-powered electric Vehicles	15	27	42	15	15	11	1	3	15	35	80	28	30	0	0	30	4	0	17	33	50	2	13	20	33	4	52.9	1
H_2 fuel cell vehicles for Captive fleets	0	13	13	5	15	11	1	3	15	18	62	22	30	0	0	30	4	0	17	33	50	2	0	10	10	1	33.8	10
New diesel formulations	30	40	70	25	0	11	0	0	0	18	29	10	0	0	0	0	0	0	17	33	50	2	40	60	100	13	50.0	2
Scrappage scheme for Euro 2, Euro 3 and Euro 4 vehicles	60	0	60	21	7	0	1	1	8	0	17	6	0	0	0	0	0	0	17	22	39	2	13	0	13	2	30.6	11
Road user charging (all Vehicles and all roads)	0	0	0	0	15	11	1	3	15	35	80	28	10	35	35	80	10	0	17	11	28	1	7	10	17	2	41.0	5
Extended Low Emissions Zones	15	0	15	5	22	22	2	4	15	18	83	29	0	0	0	0	0	0	17	11	28	1	0	10	10	1	36.8	7
Freight distribution centres and intermodal freight transfer	15	13	28	10	7	0	1	1	8	18	34	12	10	35	0	45	5	0	17	33	50	2	13	20	33	4	34.2	9
Further integrated land use and transport planning	45	13	58	20	7	0	1	1	8	18	34	12	0	35	0	35	4	33	33	33	100	5	27	10	37	5	46.4	3
Dynamic route planning	30	13	43	15	7	0	1	1	8	0	17	6	0	35	0	35	4	0	17	33	50	2	27	40	67	9	36.4	8
Emissions Trading Scheme for Heavy-duty vehicles and taxis	45	13	58	20	7	0	1	1	8	35	52	18	0	0	0	0	0	0	0	0	0	0	0	10	10	1	39.9	6
Personal Carbon Accounts	45	0	45	16	7	0	1	1	8	35	52	18	0	35	0	35	4	0	0	33	33	2	0	10	10	1	41.1	4

Figure A.10: Detailed results from MCA run B5 (2011-2025 time period)

	Costs				Emissions								Traffic impacts					Social impacts					Feasibility					
Options	Annualised capital cost	Annual operating cost			NO_x emissions abatement	PM_{10} emissions abatement	CO emissions	HC emissions	Ground level ozone	CO_2 emissions			Noise	Congestion	Accident rate			Social cohesion	Quality of life	Distribution effects			Public/industry acceptability	Practicality			Total score	Rank
Perfomance criteria weighting factors	40	60	100		9	30	0	1	10	50	100		10	45	45	100		10	50	40	100		50	50	100		500	
Theme weighting factors				20								35					20					15				10	100	
Large-scale uptake of hydrogen fuel cell passenger cars	50	50	100	20	17	17	17	17	17	17	100	35	33	0	0	33	7	0	0	33	33	5	33	30	63	6	73.0	1
Automated Highways	17	17	33	7	6	6	6	6	6	0	28	10	0	33	33	67	13	0	33	33	67	10	0	0	0	0	39.7	4
Complete substitution of petrol and diesel by biofuels	33	33	67	13	0	0	0	0	0	8	8	3	0	0	0	0	0	0	0	33	33	5	33	40	73	7	28.6	8
Fast moving-walkways for short urban journeys	0	17	17	3	6	6	6	6	6	0	28	10	0	17	33	50	10	33	0	33	67	10	50	0	50	5	38.1	6
Dedicated road freight systems	0	17	17	3	6	6	6	6	6	0	28	10	0	17	33	50	10	0	0	33	33	5	50	0	50	5	33.1	7
Passenger cars with inter-modal functionality	33	33	67	13	6	6	6	6	6	0	28	10	0	33	33	67	13	0	0	33	33	5	17	0	17	2	43.1	3
Scrappage scheme for Petrol and Diesel vehicles	33	0	33	7	11	11	11	11	11	8	64	22	11	0	0	11	2	0	0	33	33	5	17	10	27	3	38.9	5
Fuel duty differential based on Life-cycle emissions	50	33	83	17	11	11	11	11	11	8	64	22	11	0	0	11	2	0	0	0	0	0	0	50	50	5	46.2	2

Figure A.11: Detailed results from MCA run C1 (2025-2050 time period)

Options	Costs				Emissions								Traffic impacts					Social impacts					Feasibility				Total score	Rank
	Annualised capital cost	Annual operating cost			NOx emissions abatement	PM_{10} emissions abatement	CO emissions	HC emissions	Ground level ozone	CO_2 emissions			Noise	Congestion	Accident rate			Social cohesion	Quality of life	Distribution effects			Public/industry acceptability	Practicality				
Perfomance criteria weighting factors	50	50	100		20	20	10	10	10	30	100		30	30	40	100		30	40	30	100		50	50	100		500	
Theme weighting factors				28								28					8					8				28	100	
Large-scale uptake of hydrogen fuel cell passenger cars	50	50	100	28	17	17	17	17	17	17	100	28	33	0	0	33	3	0	0	33	33	3	33	30	63	18	79.1	1
Automated Highways	17	17	33	9	6	6	6	6	6	0	28	8	0	33	33	67	5	0	33	33	67	5	0	0	0	0	27.8	8
Complete substitution of petrol and diesel by biofuels	33	33	67	19	0	0	0	0	0	8	8	2	0	0	0	0	0	0	0	33	33	3	33	40	73	21	44.2	3
Fast moving-walkways for short urban journeys	0	17	17	5	6	6	6	6	6	0	28	8	0	17	33	50	4	33	0	33	67	5	50	0	50	14	35.8	6
Dedicated road freight systems	0	17	17	5	6	6	6	6	6	0	28	8	0	17	33	50	4	0	0	33	33	3	50	0	50	14	33.1	7
Passenger cars with inter-modal functionality	33	33	67	19	6	6	6	6	6	0	28	8	0	33	33	67	5	0	0	33	33	3	17	0	17	5	39.1	4
Scrappage scheme for Petrol and Diesel vehicles	33	0	33	9	11	11	11	11	11	8	64	18	11	0	0	11	1	0	0	33	33	3	17	10	27	7	38.2	5
Fuel duty differential based on Life-cycle emissions	50	33	83	23	11	11	11	11	11	8	64	18	11	0	0	11	1	0	0	0	0	0	0	50	50	14	56.1	2

Figure A.12: Detailed results from MCA run C2 (2025-2050 time period)

	Costs				Emissions								Traffic impacts					Social impacts					Feasibility					
Options	Annualised capital cost	Annual operating cost			NO_x emissions abatement	PM_{10} emissions abatement	CO emissions	HC emissions	Ground level ozone	CO_2 emissions			Noise	Congestion	Accident rate			Social cohesion	Quality of life	Distribution effects			Public/industry acceptability	Practicality			Total score	Rank
Perfomance criteria weighting factors	60	40	100		20	20	0	5	5	50	100		20	40	40	100		33	33	33	100		50	50	100		500	
Theme weighting factors				35								35					10					5				15	100	
Large-scale uptake of hydrogen fuel cell passenger cars	50	50	100	35	17	17	17	17	17	17	100	35	33	0	0	33	3	0	0	33	33	2	33	30	63	10	84.5	1
Automated Highways	17	17	33	12	6	6	6	6	6	0	28	10	0	33	33	67	7	0	33	33	67	3	0	0	0	0	31.4	7
Complete substitution of petrol and diesel by biofuels	33	33	67	23	0	0	0	0	0	8	8	3	0	0	0	0	0	0	0	33	33	2	33	40	73	11	38.9	5
Fast moving-walkways for short urban journeys	0	17	17	6	6	6	6	6	6	0	28	10	0	17	33	50	5	33	0	33	67	3	50	0	50	8	31.4	6
Dedicated road freight systems	0	17	17	6	6	6	6	6	6	0	28	10	0	17	33	50	5	0	0	33	33	2	50	0	50	8	29.7	8
Passenger cars with inter-modal functionality	33	33	67	23	6	6	6	6	6	0	28	10	0	33	33	67	7	0	0	33	33	2	17	0	17	3	43.9	3
Scrappage scheme for Petrol and Diesel vehicles	33	0	33	12	11	11	11	11	11	8	64	22	11	0	0	11	1	0	0	33	33	2	17	10	27	4	40.8	4
Fuel duty differential based on Life-cycle emissions	50	33	83	29	11	11	11	11	11	8	64	22	11	0	0	11	1	0	0	0	0	0	0	50	50	8	60.1	2

Figure A.13: Detailed results from MCA run C3 (2025-2050 time period)

	Costs				Emissions								Traffic impacts					Social impacts					Feasibility					
Options	Annualised capital cost	Annual operating cost			NO_x emissions abatement	PM_{10} emissions abatement	CO emissions	HC emissions	Ground level ozone	CO_2 emissions			Noise	Congestion	Accident rate			Social cohesion	Quality of life	Distribution effects			Public/industry acceptability	Practicality			Total score	Rank
Perfomance criteria weighting factors	60	40	100		16	35	1	3	10	35	100		80	10	10	100		5	15	80	100		60	40	100		500	
Theme weighting factors				20								45					5					5				25	100	
Large-scale uptake of hydrogen fuel cell passenger cars	50	50	100	20	17	17	17	17	17	17	100	45	33	0	0	33	2	0	0	33	33	2	33	30	63	16	84.2	1
Automated Highways	17	17	33	7	6	6	6	6	6	0	28	12	0	33	33	67	3	0	33	33	67	3	0	0	0	0	25.8	8
Complete substitution of petrol and diesel by biofuels	33	33	67	13	0	0	0	0	0	8	8	4	0	0	0	0	0	0	0	33	33	2	33	40	73	18	37.1	4
Fast moving-walkways for short urban journeys	0	17	17	3	6	6	6	6	6	0	28	12	0	17	33	50	2	33	0	33	67	3	50	0	50	13	34.2	6
Dedicated road freight systems	0	17	17	3	6	6	6	6	6	0	28	12	0	17	33	50	2	0	0	33	33	2	50	0	50	13	32.5	7
Passenger cars with inter-modal functionality	33	33	67	13	6	6	6	6	6	0	28	12	0	33	33	67	3	0	0	33	33	2	17	0	17	4	35.0	5
Scrappage scheme for Petrol and Diesel vehicles	33	0	33	7	11	11	11	11	11	8	64	29	11	0	0	11	1	0	0	33	33	2	17	10	27	7	44.3	3
Fuel duty differential based on Life-cycle emissions	50	33	83	17	11	11	11	11	11	8	64	29	11	0	0	11	1	0	0	0	0	0	0	50	50	13	58.5	2

Figure A.14: Detailed results from MCA run C4 (2025-2050 time period)

Options	Costs				Emissions								Traffic impacts					Social impacts					Feasibility				Total score	Rank
	Annualised capital cost	Annual operating cost			NOx emissions abatement	PM_{10} emissions abatement	CO emissions	HC emissions	Ground level ozone	CO_2 emissions			Noise	Congestion	Accident rate			Social cohesion	Quality of life	Distribution effects			Public/industry acceptability	Practicality				
Perfomance criteria weighting factors	40	60	100		12	35	2	5	11	35	100		30	35	35	100		33	33	33	100		60	40	100		500	
Theme weighting factors				30								35					10					10				15	100	
Large-scale uptake of hydrogen fuel cell passenger cars	50	50	100	30	17	17	17	17	17	17	100	35	33	0	0	33	3	0	0	33	33	3	33	30	63	10	81.2	1
Automated Highways	17	17	33	10	6	6	6	6	6	0	28	10	0	33	33	67	7	0	33	33	67	7	0	0	0	0	33.1	7
Complete substitution of petrol and diesel by biofuels	33	33	67	20	0	0	0	0	0	8	8	3	0	0	0	0	0	0	0	33	33	3	33	40	73	11	37.2	5
Fast moving-walkways for short urban journeys	0	17	17	5	6	6	6	6	6	0	28	10	0	17	33	50	5	33	0	33	67	7	50	0	50	8	33.9	6
Dedicated road freight systems	0	17	17	5	6	6	6	6	6	0	28	10	0	17	33	50	5	0	0	33	33	3	50	0	50	8	30.6	8
Passenger cars with inter-modal functionality	33	33	67	20	6	6	6	6	6	0	28	10	0	33	33	67	7	0	0	33	33	3	17	0	17	3	42.2	3
Scrappage scheme for Petrol and Diesel vehicles	33	0	33	10	11	11	11	11	11	8	64	22	11	0	0	11	1	0	0	33	33	3	17	10	27	4	40.8	4
Fuel duty differential based on Life-cycle emissions	50	33	83	25	11	11	11	11	11	8	64	22	11	0	0	11	1	0	0	0	0	0	0	50	50	8	56.0	2

Figure A.15: Detailed results from MCA run C5 (2025-2050 time period)