

APPENDIX 6-D: OVERALL FLEET EMISSION FACTOR SUMMARY

OVERALL FLEET EMISSION FACTOR SUMMARY, 2000-2020, SCENARIO 1

City/year	Emission Factor (g/km)					
	HC (exh)	HC (evap)	HC (total)	NOx	CO	PM10
2000						
Sydney	1.17	0.94	2.11	1.69	14.94	0.08
Melbourne	1.28	0.96	2.24	1.83	17.49	0.09
Brisbane	1.22	1.08	2.30	1.87	16.28	0.09
Perth	1.30	1.10	2.40	1.80	17.87	0.07
Adelaide	1.31	0.97	2.28	1.76	18.76	0.07
Canberra	1.33	0.96	2.30	1.70	19.64	0.07
Hobart	1.35	0.93	2.27	1.97	19.24	0.09
Darwin	0.93	1.21	2.14	1.65	10.46	0.09
Average	1.24	1.02	2.25	1.78	16.84	0.08
2005						
Sydney	0.93	0.92	1.85	1.40	11.30	0.07
Melbourne	1.11	0.93	2.04	1.68	15.42	0.08
Brisbane	1.03	1.04	2.07	1.64	13.35	0.08
Perth	1.08	1.02	2.10	1.64	15.13	0.07
Adelaide	1.06	0.93	2.00	1.56	15.48	0.07
Canberra	1.04	0.95	1.99	1.37	14.52	0.06
Hobart	1.04	0.90	1.94	1.69	14.70	0.09
Darwin	0.75	1.16	1.91	1.40	7.67	0.08
Average	1.01	0.98	1.99	1.55	13.44	0.08
2010						
Sydney	0.79	0.90	1.70	1.24	9.25	0.06
Melbourne	0.77	0.92	1.68	1.35	9.34	0.07
Brisbane	0.79	1.00	1.79	1.40	9.33	0.08
Perth	0.88	0.99	1.87	1.45	11.94	0.07
Adelaide	0.76	0.92	1.68	1.25	10.18	0.07
Canberra	0.80	0.92	1.73	1.15	10.24	0.06
Hobart	0.76	0.88	1.65	1.45	9.85	0.09
Darwin	0.61	1.14	1.75	1.22	5.23	0.08
Average	0.77	0.96	1.73	1.31	9.42	0.07
2020						
Sydney	0.56	0.90	1.46	0.95	4.18	0.06
Melbourne	0.53	0.92	1.45	1.12	4.21	0.06
Brisbane	0.56	1.00	1.57	1.13	4.28	0.09
Perth	0.49	0.99	1.47	1.07	4.10	0.07
Adelaide	0.48	0.92	1.40	0.94	4.19	0.07
Canberra	0.65	0.92	1.57	0.93	5.62	0.07
Hobart	0.56	0.88	1.44	1.23	4.90	0.10
Darwin	0.55	1.14	1.69	1.08	3.27	0.09
Average	0.55	0.96	1.51	1.06	4.34	0.08

PM10 = Particulates < 10 µm

NOx = Oxides of nitrogen

HC (exh) = Hydrocarbons from exhaust

CO = Carbon monoxide

HC (evap) = Hydrocarbons from evaporatives

OVERALL FLEET EMISSION FACTOR SUMMARY, 2000-2020, SCENARIO 2

City/year	Emission Factor (g/km)					
	HC (exh)	HC (evap)	HC (total)	NOx	CO	PM10
2000						
Sydney	1.17	0.94	2.11	1.69	14.94	0.08

Melbourne	1.28	0.96	2.24	1.83	17.50	0.09
Brisbane	1.22	1.06	2.28	1.87	16.29	0.09
Perth	1.30	1.10	2.39	1.81	17.88	0.07
Adelaide	1.31	0.97	2.28	1.76	18.77	0.07
Canberra	1.33	0.99	2.32	1.70	19.65	0.07
Hobart	1.35	0.93	2.27	1.97	19.25	0.09
Darwin	0.93	1.21	2.14	1.65	10.46	0.09
Average	1.24	1.02	2.25	1.78	16.84	0.08
2005						
Sydney	0.89	0.92	1.81	1.30	10.77	0.07
Melbourne	1.06	0.93	1.99	1.58	14.56	0.07
Brisbane	0.99	1.04	2.03	1.54	12.79	0.08
Perth	1.04	1.02	2.05	1.54	14.38	0.06
Adelaide	1.02	0.93	1.95	1.48	14.64	0.06
Canberra	0.99	0.95	1.93	1.30	13.55	0.06
Hobart	0.98	0.90	1.88	1.59	13.72	0.08
Darwin	0.73	1.16	1.89	1.29	7.66	0.08
Average	0.96	0.98	1.94	1.45	12.76	0.07
2010						
Sydney	0.70	0.90	1.60	0.94	8.64	0.05
Melbourne	0.67	0.92	1.59	1.08	8.53	0.06
Brisbane	0.70	1.00	1.70	1.10	8.67	0.06
Perth	0.79	0.99	1.77	1.17	10.95	0.05
Adelaide	0.68	0.92	1.60	1.01	9.29	0.05
Canberra	0.71	0.92	1.63	0.89	9.17	0.05
Hobart	0.65	0.88	1.54	1.14	8.68	0.06
Darwin	0.55	1.14	1.68	0.90	5.29	0.06
Average	0.68	0.96	1.64	1.03	8.65	0.06
2020						
Sydney	0.40	0.90	1.30	0.41	4.23	0.04
Melbourne	0.37	0.92	1.29	0.51	4.14	0.04
Brisbane	0.38	1.00	1.38	0.51	4.06	0.04
Perth	0.34	0.99	1.33	0.46	3.97	0.04
Adelaide	0.35	0.92	1.27	0.39	4.18	0.04
Canberra	0.47	0.92	1.39	0.40	5.35	0.04
Hobart	0.36	0.88	1.25	0.54	4.33	0.04
Darwin	0.35	1.14	1.49	0.46	3.34	0.04
Average	0.38	0.96	1.34	0.46	4.20	0.04

PM10 = Particulates < 10 µm

NOx = Oxides of nitrogen

HC (exh) = Hydrocarbons from exhaust

CO = Carbon monoxide

HC (evap) = Hydrocarbons from evaporatives

OVERALL FLEET EMISSION FACTOR SUMMARY, 2000-2020, SCENARIO 3

City/year	Emission Factor (g/km)					
	HC (exh)	HC (evap)	HC (total)	NOx	CO	PM10
2000						
Sydney	1.17	0.94	2.11	1.69	14.94	0.08
Melbourne	1.28	0.96	2.24	1.83	17.50	0.09
Brisbane	1.22	1.08	2.30	1.87	16.29	0.09
Perth	1.30	1.10	2.39	1.81	17.88	0.07
Adelaide	1.31	0.97	2.28	1.76	18.77	0.07
Canberra	1.33	0.96	2.30	1.70	19.65	0.07
Hobart	1.35	0.93	2.27	1.97	19.25	0.09

Darwin	0.93	1.21	2.14	1.65	10.46	0.09
Average	1.24	1.02	2.25	1.78	16.84	0.08
2005						
Sydney	0.87	0.91	1.78	1.30	10.29	0.07
Melbourne	1.01	0.90	1.92	1.58	13.94	0.07
Brisbane	0.97	0.99	1.96	1.54	12.30	0.08
Perth	1.01	1.00	2.02	1.54	13.83	0.06
Adelaide	0.99	0.93	1.92	1.48	13.99	0.06
Canberra	0.97	0.94	1.90	1.30	12.98	0.06
Hobart	0.96	0.88	1.84	1.59	13.12	0.08
Darwin	0.71	1.11	1.82	1.29	7.32	0.08
Average	0.94	0.96	1.89	1.45	12.22	0.07
2010						
Sydney	0.65	0.88	1.53	0.92	7.73	0.05
Melbourne	0.62	0.88	1.50	1.07	7.66	0.06
Brisbane	0.65	0.95	1.60	1.09	7.92	0.06
Perth	0.74	0.95	1.69	1.15	10.08	0.06
Adelaide	0.63	0.90	1.53	0.99	8.45	0.05
Canberra	0.66	0.90	1.56	0.88	8.34	0.05
Hobart	0.61	0.86	1.46	1.13	7.80	0.07
Darwin	0.51	1.07	1.58	0.89	4.69	0.06
Average	0.63	0.92	1.56	1.01	7.83	0.06
2020						
Sydney	0.30	0.88	1.19	0.37	2.77	0.04
Melbourne	0.29	0.88	1.17	0.47	2.67	0.04
Brisbane	0.29	0.95	1.24	0.47	2.74	0.04
Perth	0.25	0.95	1.21	0.42	2.61	0.04
Adelaide	0.26	0.90	1.16	0.35	2.71	0.04
Canberra	0.36	0.90	1.26	0.35	3.68	0.04
Hobart	0.27	0.86	1.13	0.51	2.82	0.04
Darwin	0.28	1.07	1.35	0.43	2.31	0.04
Average	0.29	0.92	1.21	0.42	2.79	0.04

PM10 = Particulates < 10 µm

NOx = Oxides of nitrogen

HC (exh) = Hydrocarbons from exhaust

CO = Carbon monoxide

HC (evap) = Hydrocarbons from evaporatives

OVERALL FLEET EMISSION FACTOR SUMMARY, 2000-2020, SCENARIO 4

City/year	Emission Factor (g/km)					
	HC (exh)	HC (evap)	HC (total)	NOx	CO	PM10
2000						
Sydney	1.17	0.94	2.11	1.69	14.94	0.08
Melbourne	1.28	0.96	2.24	1.83	17.50	0.09
Brisbane	1.22	1.08	2.30	1.87	16.29	0.09
Perth	1.30	1.10	2.39	1.81	17.88	0.07
Adelaide	1.31	0.97	2.28	1.76	18.77	0.07
Canberra	1.33	0.96	2.30	1.70	19.65	0.07
Hobart	1.35	0.93	2.27	1.97	19.25	0.09
Darwin	0.93	1.21	2.14	1.65	10.46	0.09
Average	1.24	1.02	2.25	1.78	16.84	0.08
2005						
Sydney	0.87	0.90	1.77	1.31	10.27	0.07
Melbourne	1.03	0.89	1.92	1.59	13.92	0.07
Brisbane	0.97	0.97	1.94	1.55	12.29	0.07

Perth	1.01	0.98	1.99	1.55	13.82	0.06
Adelaide	0.99	0.91	1.90	1.48	13.97	0.06
Canberra	0.96	0.92	1.88	1.30	12.96	0.06
Hobart	0.96	0.87	1.83	1.59	13.10	0.08
Darwin	0.71	1.09	1.80	1.29	7.30	0.07
Average	0.94	0.94	1.88	1.46	12.20	0.07
2010						
Sydney	0.63	0.87	1.51	0.92	7.62	0.05
Melbourne	0.61	0.87	1.48	1.06	7.54	0.06
Brisbane	0.64	0.93	1.58	1.08	7.81	0.06
Perth	0.73	0.93	1.66	1.15	9.97	0.05
Adelaide	0.62	0.88	1.51	0.99	8.34	0.04
Canberra	0.65	0.88	1.54	0.88	8.21	0.04
Hobart	0.60	0.85	1.44	1.12	7.68	0.06
Darwin	0.50	1.05	1.55	0.89	4.60	0.05
Average	0.62	0.91	1.53	1.01	7.72	0.05
2020						
Sydney	0.29	0.87	1.17	0.38	2.64	0.04
Melbourne	0.27	0.87	1.14	0.47	2.53	0.04
Brisbane	0.28	0.93	1.21	0.47	2.61	0.03
Perth	0.24	0.93	1.18	0.43	2.47	0.03
Adelaide	0.24	0.88	1.13	0.35	2.56	0.02
Canberra	0.35	0.88	1.24	0.36	3.53	0.02
Hobart	0.26	0.85	1.11	0.51	2.67	0.03
Darwin	0.27	1.05	1.32	0.43	2.22	0.03
Average	0.28	0.91	1.19	0.42	2.65	0.03

PM10 = Particulates < 10 µm

NOx = Oxides of nitrogen

HC (exh) = Hydrocarbons from exhaust

CO = Carbon monoxide

HC (evap) = Hydrocarbons from evaporatives

OVERALL FLEET EMISSION FACTOR SUMMARY, 2000-2020, SCENARIO 5

City/year	Emission Factor (g/km)					
	HC (exh)	HC (evap)	HC (total)	NOx	CO	PM10
2000						
Sydney	1.17	0.94	2.11	1.69	14.94	0.08
Melbourne	1.28	0.96	2.24	1.83	17.50	0.09
Brisbane	1.22	1.08	2.30	1.87	16.29	0.09
Perth	1.30	1.10	2.39	1.81	17.88	0.07
Adelaide	1.31	0.97	2.28	1.76	18.77	0.07
Canberra	1.33	0.96	2.30	1.70	19.65	0.07
Hobart	1.35	0.93	2.27	1.97	19.25	0.09
Darwin	0.93	1.21	2.14	1.65	10.46	0.09
Average	1.24	1.02	2.25	1.78	16.84	0.08
2005						
Sydney	0.87	0.90	1.77	1.31	10.27	0.07
Melbourne	1.03	0.89	1.92	1.59	13.92	0.07
Brisbane	0.97	0.97	1.94	1.55	12.29	0.07
Perth	1.01	0.98	1.99	1.55	13.82	0.06
Adelaide	0.99	0.91	1.90	1.48	13.97	0.06
Canberra	0.96	0.92	1.88	1.30	12.96	0.06
Hobart	0.96	0.87	1.83	1.59	13.10	0.08
Darwin	0.71	1.09	1.80	1.29	7.30	0.07
Average	0.94	0.94	1.88	1.46	12.20	0.07

2010						
Sydney	0.63	0.87	1.51	0.92	7.61	0.05
Melbourne	0.61	0.87	1.48	1.06	7.54	0.06
Brisbane	0.64	0.93	1.58	1.08	7.81	0.06
Perth	0.73	0.93	1.66	1.15	9.97	0.05
Adelaide	0.62	0.88	1.51	0.99	8.33	0.04
Canberra	0.65	0.88	1.54	0.88	8.20	0.04
Hobart	0.59	0.85	1.44	1.12	7.67	0.06
Darwin	0.50	1.05	1.55	0.89	4.60	0.05
Average	0.62	0.91	1.53	1.01	7.71	0.05
2020						
Sydney	0.29	0.87	1.16	0.38	2.63	0.04
Melbourne	0.27	0.87	1.13	0.47	2.52	0.04
Brisbane	0.28	0.93	1.21	0.47	2.60	0.03
Perth	0.24	0.93	1.17	0.43	2.46	0.03
Adelaide	0.24	0.88	1.13	0.35	2.55	0.02
Canberra	0.35	0.88	1.24	0.36	3.53	0.02
Hobart	0.26	0.85	1.11	0.51	2.66	0.03
Darwin	0.27	1.05	1.32	0.43	2.22	0.03
Average	0.28	0.91	1.18	0.42	2.65	0.03

PM10 = Particulates < 10 µm

NOx = Oxides of nitrogen

HC (exh) = Hydrocarbons from exhaust

CO = Carbon monoxide

HC (evap) = Hydrocarbons from evaporatives

OVERALL FLEET EMISSION FACTOR SUMMARY, 2000-2020, SCENARIO 6

City/year	Emission Factor (g/km)					
	HC (exh)	HC (evap)	HC (total)	NOx	CO	PM10
2000						
Sydney	1.17	0.94	2.11	1.69	14.94	0.08
Melbourne	1.28	0.96	2.24	1.83	17.50	0.09
Brisbane	1.22	1.08	2.30	1.87	16.29	0.09
Perth	1.30	1.10	2.39	1.81	17.88	0.07
Adelaide	1.31	0.97	2.28	1.76	18.77	0.07
Canberra	1.33	0.96	2.30	1.70	19.65	0.07
Hobart	1.35	0.93	2.27	1.97	19.25	0.09
Darwin	0.93	1.21	2.14	1.65	10.46	0.09
Average	1.24	1.02	2.25	1.78	16.84	0.08
2005						
Sydney	0.85	0.89	1.74	1.28	10.09	0.06
Melbourne	1.02	0.88	1.89	1.56	13.71	0.07
Brisbane	0.95	0.96	1.91	1.52	12.11	0.07
Perth	1.00	0.96	1.96	1.52	13.63	0.06
Adelaide	0.97	0.89	1.87	1.46	13.76	0.06
Canberra	0.95	0.90	1.85	1.28	12.77	0.06
Hobart	0.94	0.86	1.80	1.57	12.89	0.07
Darwin	0.70	1.07	1.77	1.27	7.16	0.07
Average	0.92	0.93	1.85	1.43	12.02	0.07
2010						
Sydney	0.63	0.87	1.51	0.92	7.61	0.05
Melbourne	0.61	0.87	1.48	1.06	7.54	0.06
Brisbane	0.64	0.93	1.58	1.08	7.81	0.05
Perth	0.73	0.93	1.66	1.15	9.97	0.05
Adelaide	0.62	0.88	1.51	0.99	8.33	0.04

Canberra	0.65	0.88	1.54	0.88	8.20	0.04
Hobart	0.59	0.85	1.44	1.12	7.67	0.06
Darwin	0.50	1.05	1.55	0.89	4.60	0.05
Average	0.62	0.91	1.53	1.01	7.71	0.05
2020						
Sydney	0.29	0.87	1.16	0.38	2.63	0.04
Melbourne	0.27	0.87	1.13	0.47	2.52	0.04
Brisbane	0.28	0.93	1.21	0.47	2.60	0.03
Perth	0.24	0.93	1.17	0.43	2.46	0.03
Adelaide	0.24	0.88	1.13	0.35	2.55	0.02
Canberra	0.35	0.88	1.24	0.36	3.53	0.02
Hobart	0.26	0.85	1.11	0.51	2.66	0.03
Darwin	0.27	1.05	1.32	0.43	2.22	0.03
Average	0.28	0.91	1.18	0.42	2.65	0.03

PM10 = Particulates < 10 µm

NOx = Oxides of nitrogen

HC (exh) = Hydrocarbons from exhaust

CO = Carbon monoxide

HC (evap) = Hydrocarbons from evaporatives