

## Appendix E Vehicle Emission Factors

## Appendix E - Vehicle Emission Factors

**Table E-1 Base Year 2010 Link Information and Emission Factors**

Link ID	Link Name	Traffic Flows				Vehicle Type		Vehicle Speed (km/hr)	Emission Factors (g/km)					
		AADT	Hourly Avg	AM	PM Peak	% Cars	% HCV		CO	CO <sub>2</sub>	VOC	NO <sub>x</sub>	PM <sub>10</sub> (exhaust)	PM <sub>10</sub> (brake and tyre)
1	North of School Road	16,798	700	1,680	1,680	62.0%	7.5%	100	5.33	297.10	0.26	1.18	0.07	0.01
2	North of Mill Road	16,606	692	1661	1661	68.8%	8.4%	50	4.32	242.20	0.34	0.86	0.06	0.01
3	North of Riverbank Road	16,606	692	1661	1661	68.8%	8.4%	50	4.32	242.20	0.34	0.86	0.06	0.01
4	SH1 – Mill Road Intersection	16,606	692	1661	1661	68.8%	8.4%	10	14.40	500.19	0.94	1.23	0.14	0.01
5	SH1 – Mill Road Intersection	16,606	692	1661	1661	68.8%	8.4%	10	14.40	500.19	0.94	1.23	0.14	0.01
6	SH1 – Mill Road Intersection	16,606	692	1661	1661	68.8%	8.4%	10	14.40	500.19	0.94	1.23	0.14	0.01
7	School Rd	554	23	55	55	67.3%	8.2%	40	4.66	279.09	0.40	0.93	0.08	0.01
8	Gear Rd	1915	80	191	191	65.8%	8.0%	50	4.21	263.36	0.37	0.95	0.07	0.01
9	Mill Road	1661	69	166	166	68.8%	8.4%	10	14.40	500.19	0.94	1.23	0.14	0.01

## Appendix E - Vehicle Emission Factors

**Table E-2 2021 Without Project Link Information and Emission Factors**

Link ID	Link Name	Traffic Flows				Vehicle Type		Vehicle Speed (km/hr)	Emission Factors (g/km)					
		AADT	Hourly Avg	AM	PM Peak	% Cars	% HCV		CO	CO <sub>2</sub>	VOC	NO <sub>x</sub>	PM <sub>10</sub> (exhaust)	PM <sub>10</sub> (brake and tyre)
Link_1	SH1 (Taylors Road to Waitohu Valley Road)	14,603	608	1,200	1,220	86.0%	14.0%	70	1.73	229.42	0.10	0.62	0.02	0.01
Link_2	SH1 (Taylors Road to Waitohu Valley Road)	14,603	608	1,200	1,220	86.0%	14.0%	70	1.73	229.42	0.10	0.62	0.02	0.01
Link_3	Waitohu Valley Road	415	17	36	42	84.5%	15.5%	50	1.88	254.69	0.13	0.69	0.03	0.01
Link_4	Dittmer St	169	7	12	19	100.0%	0.0%	50	2.14	181.31	0.13	0.26	0.01	0.01
Link_5	County Road	10	0	1	1	100.0%	0.0%	50	2.14	181.31	0.13	0.26	0.01	0.01
Link_6	County Road	10	0	1	1	100.0%	0.0%	50	2.14	181.31	0.13	0.26	0.01	0.01
Link_7	County Road	10	0	1	1	100.0%	0.0%	50	2.14	181.31	0.13	0.26	0.01	0.01
Link_8	County Road	10	0	1	1	100.0%	0.0%	50	2.14	181.31	0.13	0.26	0.01	0.01
Link_9	County Road	10	0	1	1	100.0%	0.0%	50	2.14	181.31	0.13	0.26	0.01	0.01
Link_10	Te Manuao Road	1,818	76	204	180	96.0%	4.0%	50	2.07	200.25	0.13	0.37	0.02	0.01
Link_11	SH1 Waitohu Valley Rd - Te Manuao Road	14,691	612	1,212	1,220	86.0%	14.0%	50	1.91	247.59	0.13	0.65	0.03	0.01
Link_12	SH1 (Te Manuao Road to Mill Road)	15,456	644	1,335	1,289	86.5%	13.5%	50	1.92	245.22	0.13	0.64	0.03	0.01
Link_13	SH1 (Te Manuao Road to Mill Road)	15,456	644	1,335	1,289	86.5%	13.5%	50	1.92	245.22	0.13	0.64	0.03	0.01
Link_14	SH1 (Te Manuao Road to Mill Road)	15,456	644	1,335	1,289	86.5%	13.5%	50	1.92	245.22	0.13	0.64	0.03	0.01
Link_15	SH1 (Te Manuao Road to Mill Road)	15,456	644	1,335	1,289	86.5%	13.5%	50	1.92	245.22	0.13	0.64	0.03	0.01
Link_16	SH1 (Te Manuao Road to Mill Road)	15,456	644	1,335	1,289	86.5%	13.5%	50	1.92	245.22	0.13	0.64	0.03	0.01
Link_17	SH1 (Te Manuao Road to Mill Road)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Link_18	SH1 (Te Manuao Road to Mill Road)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Link_19	SH1 (Te Manuao Road to Mill Road)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Link_20	SH1 (Te Manuao Road to Mill Road)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Link_21	SH1 North of Mill Road (intersection approach)	15,456	644	1,335	1,289	86.5%	13.5%	10	5.12	544.03	0.45	1.19	0.08	0.01
Link_22	SH1 Roundabout	15,456	644	1,335	1,289	86.5%	13.5%	10	5.12	544.03	0.45	1.19	0.08	0.01
Link_23	SH1 Roundabout	15,456	644	1,335	1,289	86.5%	13.5%	10	5.12	544.03	0.45	1.19	0.08	0.01
Link_24	SH1 Roundabout	15,456	644	1,335	1,289	86.5%	13.5%	10	5.12	544.03	0.45	1.19	0.08	0.01
Link_25	SH1 Roundabout	15,456	644	1,335	1,289	86.5%	13.5%	10	5.12	544.03	0.45	1.19	0.08	0.01
Link_26	SH1 Roundabout	15,456	644	1,335	1,289	86.5%	13.5%	10	5.12	544.03	0.45	1.19	0.08	0.01
Link_27	SH1 Roundabout	15,456	644	1,335	1,289	86.5%	13.5%	10	5.12	544.03	0.45	1.19	0.08	0.01
Link_28	SH1 Roundabout	15,456	644	1,335	1,289	86.5%	13.5%	10	5.12	544.03	0.45	1.19	0.08	0.01
Link_29	SH1 Roundabout	15,456	644	1,335	1,289	86.5%	13.5%	10	5.12	544.03	0.45	1.19	0.08	0.01
Link_30	SH1 South of Mill Road (intersection approach)	12,249	510	1,073	1,102	84.5%	15.5%	10	5.04	560.93	0.44	1.30	0.09	0.01
Link_31	Rahui Road	1,586	66	135	133	92.5%	7.5%	50	2.01	216.82	0.13	0.47	0.02	0.01

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Link ID	Link Name	Traffic Flows				Vehicle Type		Vehicle Speed (km/hr)	Emission Factors (g/km)					
		AADT	Hourly Avg	AM	PM Peak	% Cars	% HCV		CO	CO <sub>2</sub>	VOC	NO <sub>x</sub>	PM <sub>10</sub> (exhaust)	PM <sub>10</sub> (brake and tyre)
Link_32	Rahui Road	1,586	66	135	133	92.5%	7.5%	10	5.38	493.33	0.45	0.86	0.06	0.01
Link_33	Rahui Road	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Link_34	Rahui Road	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Link_35	Mill Road	5,871	245	531	472	91.5%	8.5%	50	2.00	221.55	0.13	0.50	0.02	0.01
Link_36	Mill Road	4,226	176	467	404	92.0%	8.0%	50	2.01	219.18	0.13	0.49	0.02	0.01
Link_37	Mill Road	5,871	245	531	472	91.5%	8.5%	10	5.33	501.78	0.45	0.92	0.06	0.01
Link_38	Dunstan Street	2,344	98	135	146	92.0%	8.0%	50	2.01	219.18	0.13	0.49	0.02	0.01
Link_39	Dunstan Street	1,654	69	102	123	92.5%	7.5%	50	2.01	216.82	0.13	0.47	0.02	0.01
Link_40	Arthur Street	916	38	48	54	91.5%	8.5%	50	2.00	221.55	0.13	0.50	0.02	0.01
Link_41	Waerenga Road	2,460	103	272	254	82.0%	18.0%	50	1.84	266.52	0.13	0.76	0.03	0.01
Link_42	SH1 (Mill Road - Arthur Road)	12,249	510	1,073	1,102	84.5%	15.5%	50	1.88	254.69	0.13	0.69	0.03	0.01
Link_43	SH1 (Mill Road - Arthur Road)	12,250	510	1,073	1,102	84.5%	15.5%	50	1.88	254.69	0.13	0.69	0.03	0.01
Link_44	SH1 (Arthur - Waerenga Road)	13,116	547	1,115	1,154	85.0%	15.0%	50	1.89	252.32	0.13	0.68	0.03	0.01
Link_45	SH1 (Waerenga Road - Riverbank Road)	14,826	618	1,172	1,276	83.5%	16.5%	50	1.87	259.42	0.13	0.72	0.03	0.01
Link_46	SH1 (Waerenga Road - Riverbank Road)	14,826	618	1,172	1,276	83.5%	16.5%	50	1.87	259.42	0.13	0.72	0.03	0.01
Link_47	SH1 (Waerenga Road - Riverbank Road)	14,826	618	1,172	1,276	83.5%	16.5%	50	1.87	259.42	0.13	0.72	0.03	0.01
Link_48	Rail Link	15	10	N/A	N/A	N/A	N/A	30	N/A	N/A	N/A	N/A	N/A	N/A
Link_49	Rail Link	15	10	N/A	N/A	N/A	N/A	30	N/A	N/A	N/A	N/A	N/A	N/A
Link_50	Rail Link	15	10	N/A	N/A	N/A	N/A	30	N/A	N/A	N/A	N/A	N/A	N/A
Link_51	Rail Link	15	10	N/A	N/A	N/A	N/A	30	N/A	N/A	N/A	N/A	N/A	N/A
Link_52	Rail Link	15	10	N/A	N/A	N/A	N/A	30	N/A	N/A	N/A	N/A	N/A	N/A
Link_53	Rail Link	15	10	N/A	N/A	N/A	N/A	30	N/A	N/A	N/A	N/A	N/A	N/A
Link_54	Rail Link	15	10	N/A	N/A	N/A	N/A	30	N/A	N/A	N/A	N/A	N/A	N/A
Link_55	Rail Link	15	10	N/A	N/A	N/A	N/A	30	N/A	N/A	N/A	N/A	N/A	N/A
Link_56	Rail Link	15	10	N/A	N/A	N/A	N/A	30	N/A	N/A	N/A	N/A	N/A	N/A
Link_57	Rail Link	15	10	N/A	N/A	N/A	N/A	30	N/A	N/A	N/A	N/A	N/A	N/A
Link_58	Rail Link	15	10	N/A	N/A	N/A	N/A	30	N/A	N/A	N/A	N/A	N/A	N/A
Link_59	Rail Link	15	10	N/A	N/A	N/A	N/A	30	N/A	N/A	N/A	N/A	N/A	N/A
Link_60	Expressway	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Link_61	Expressway	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Link_62	Expressway	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Link_63	Expressway	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A



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Link ID	Link Name	Traffic Flows				Vehicle Type		Vehicle Speed (km/hr)	Emission Factors (g/km)						
		AADT	Hourly Avg	AM	PM Peak	% Cars	% HCV		CO	CO <sub>2</sub>	VOC	NO <sub>x</sub>	PM <sub>10</sub> (exhaust)	PM <sub>10</sub> (brake and tyre)	
Link_64	Expressway	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Link_65	Expressway	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Link_66	Expressway	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Link_67	Expressway	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Link_68	Expressway	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Link_69	Expressway	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Link_70	Expressway	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Link_71	Expressway	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Link_72	Expressway	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Link_73	Otaki On ramp north	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Link_74	Otaki On ramp north	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Link_75	Otaki On ramp north	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Link_76	Otaki On ramp north	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Link_77	Otaki On ramp north	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Link_78	Otaki On ramp north	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Link_79	Otaki On ramp north	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Link_80	Expressway	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Link_81	SH1	19059	794	1,517	1,560	78.0%	22.0%	80	1.66	259.26	0.10	0.81	0.03	0.01	
Link_82	SH1	19884	829	1,606	1,597	78.0%	22.0%	80	1.66	259.26	0.10	0.81	0.03	0.01	
Link_83	SH1	19884	829	1,606	1,597	78.0%	22.0%	80	1.66	259.26	0.10	0.81	0.03	0.01	
Link_84	SH1	19884	829	1,606	1,597	78.0%	22.0%	80	1.66	259.26	0.10	0.81	0.03	0.01	
Link_85	SH1	19884	829	1,606	1,597	78.0%	22.0%	80	1.66	259.26	0.10	0.81	0.03	0.01	
Link_86	SH1	19884	829	1,606	1,597	78.0%	22.0%	80	1.66	259.26	0.10	0.81	0.03	0.01	
Link_87	Te Horo Beach Road	994	41	79	80	83.0%	17.0%	50	1.86	261.79	0.13	0.74	0.03	0.01	
Link_88	Te Horo Beach Road	994	41	79	80	83.0%	17.0%	50	1.86	261.79	0.13	0.74	0.03	0.01	
Link_89	Te Horo Beach Road	994	41	79	80	83.0%	17.0%	50	1.86	261.79	0.13	0.74	0.03	0.01	
Link_90	Te Horo Beach Road	994	41	79	80	83.0%	17.0%	50	1.86	261.79	0.13	0.74	0.03	0.01	
Link_91	Te Horo Beach Road	994	41	79	80	83.0%	17.0%	50	1.86	261.79	0.13	0.74	0.03	0.01	
Link_92	School Road	3192	133	268	309	93.0%	7.0%	50	2.02	214.45	0.13	0.46	0.02	0.01	
Link_93	School Road	3192	133	268	309	93.0%	7.0%	50	2.02	214.45	0.13	0.46	0.02	0.01	
Link_94	School Road	1471	61	128	155	92.0%	8.0%	50	2.01	219.18	0.13	0.49	0.02	0.01	
Link_95	Gear Road	1781	74	144	159	93.0%	7.0%	50	2.02	214.45	0.13	0.46	0.02	0.01	

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Link ID	Link Name	Traffic Flows				Vehicle Type		Vehicle Speed (km/hr)	Emission Factors (g/km)					
		AADT	Hourly Avg	AM	PM Peak	% Cars	% HCV		CO	CO <sub>2</sub>	VOC	NO <sub>x</sub>	PM <sub>10</sub> (exhaust)	PM <sub>10</sub> (brake and tyre)
Link_96	Gear Road	1781	74	144	159	93.0%	7.0%	50	2.02	214.45	0.13	0.46	0.02	0.01
Link_97	Gear Road	1781	74	144	159	93.0%	7.0%	50	2.02	214.45	0.13	0.46	0.02	0.01
Link_98	Overbridge/School Road/Option	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Link_99	Overbridge/School Road/Option	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Link_100	Overbridge/School Road/Option	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Link_101	Overbridge/School Road/Option	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Link_102	Overbridge/School Road/Option	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Link_103	Overbridge/School Road/Option	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Link_104	Overbridge/School Road/Option	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Link_105	Overbridge/School Road/Option	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Link_106	Overbridge/School Road/Option	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Link_107	Gear Road Option	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Link_108	Gear Road Option	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Link_109	Gear Road Option	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Link_110	Gear Road Option	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

## Appendix E - Vehicle Emission Factors

Table E-3 2021 With Project Link Information and Emission Factors

Link ID	Link Name	Traffic Flows				Vehicle Type		Vehicle Speed (km/hr)	Emission Factors (g/km)					
		AADT	Hourly Avg	AM	PM Peak	% Cars	% HCV		CO	CO <sub>2</sub>	VOC	NO <sub>x</sub>	PM <sub>10</sub> (exhaust)	PM <sub>10</sub> (brake and tyre)
Link_1	SH1 (Taylors Road to Waitohu Valley Road)	2,994.0	125	287	284	93.0%	7.0%	70	1.84	202.69	0.11	0.45	0.02	0.01
Link_2	SH1 (Taylors Road to Waitohu Valley Road)	2,994.0	125	287	284	93.0%	7.0%	70	1.84	202.69	0.11	0.45	0.02	0.01
Link_3	Waitohu Valley Road	315.0	13	28	28	81.5%	18.5%	50	1.83	268.89	0.13	0.78	0.03	0.01
Link_4	Dittmer St	26.0	1	2	2	100.0%	0.0%	50	2.14	181.31	0.13	0.26	0.01	0.01
Link_5	County Road	10.0	0	1	1	100.0%	0.0%	50	2.14	181.31	0.13	0.26	0.01	0.01
Link_6	County Road	10.0	0	1	1	100.0%	0.0%	50	2.14	181.31	0.13	0.26	0.01	0.01
Link_7	County Road	10.0	0	1	1	100.0%	0.0%	50	2.14	181.31	0.13	0.26	0.01	0.01
Link_8	County Road	10.0	0	1	1	100.0%	0.0%	50	2.14	181.31	0.13	0.26	0.01	0.01
Link_9	County Road	10.0	0	1	1	100.0%	0.0%	50	2.14	181.31	0.13	0.26	0.01	0.01
Link_10	Te Manuao Road	1,536.0	64	180	152	96.0%	4.0%	50	2.07	200.25	0.13	0.37	0.02	0.01
Link_11	SH1 Waitohu Valley Rd - Te Manuao Road	3,216.0	134	309	300	83.5%	16.5%	50	1.87	259.42	0.13	0.72	0.03	0.01
Link_12	SH1 (Te Manuao Road to Mill Road)	4,378.0	182	463	403	89.5%	10.5%	50	1.96	231.02	0.13	0.55	0.02	0.01
Link_13	SH1 (Te Manuao Road to Mill Road)	4,378.0	182	463	403	89.5%	10.5%	50	1.96	231.02	0.13	0.55	0.02	0.01
Link_14	SH1 (Te Manuao Road to Mill Road)	4,378.0	182	463	403	89.5%	10.5%	50	1.96	231.02	0.13	0.55	0.02	0.01
Link_15	SH1 (Te Manuao Road to Mill Road)	6,648.0	277	667	578	85.5%	14.5%	50	1.90	249.95	0.13	0.67	0.03	0.01
Link_16	SH1 (Te Manuao Road to Mill Road)	6,648.0	277	667	578	85.5%	14.5%	50	1.90	249.95	0.13	0.67	0.03	0.01
Link_17	SH1 (Te Manuao Road to Mill Road)	6,648.0	277	667	578	85.5%	14.5%	50	1.90	249.95	0.13	0.67	0.03	0.01
Link_18	SH1 (Te Manuao Road to Mill Road)	6,648.0	277	667	578	85.5%	14.5%	50	1.90	249.95	0.13	0.67	0.03	0.01
Link_19	SH1 (Te Manuao Road to Mill Road)	6,648.0	277	667	578	85.5%	14.5%	50	1.90	249.95	0.13	0.67	0.03	0.01
Link_20	SH1 (Te Manuao Road to Mill Road)	6,648.0	277	667	578	85.5%	14.5%	50	1.90	249.95	0.13	0.67	0.03	0.01
Link_21	SH1 North of Mill Road (intersection approach)	6,648.0	277	667	578	85.5%	14.5%	10	5.08	552.48	0.45	1.25	0.09	0.01
Link_22	SH1 Roundabout	6,648.0	277	667	578	85.5%	14.5%	10	5.08	552.48	0.45	1.25	0.09	0.01
Link_23	SH1 Roundabout	6,648.0	277	667	578	85.5%	14.5%	10	5.08	552.48	0.45	1.25	0.09	0.01
Link_24	SH1 Roundabout	6,648.0	277	667	578	85.5%	14.5%	10	5.08	552.48	0.45	1.25	0.09	0.01
Link_25	SH1 Roundabout	6,648.0	277	667	578	85.5%	14.5%	10	5.08	552.48	0.45	1.25	0.09	0.01
Link_26	SH1 Roundabout	6,648.0	277	667	578	85.5%	14.5%	10	5.08	552.48	0.45	1.25	0.09	0.01
Link_27	SH1 Roundabout	6,648.0	277	667	578	85.5%	14.5%	10	5.08	552.48	0.45	1.25	0.09	0.01
Link_28	SH1 Roundabout	6,648.0	277	667	578	85.5%	14.5%	10	5.08	552.48	0.45	1.25	0.09	0.01
Link_29	SH1 Roundabout	6,648.0	277	667	578	85.5%	14.5%	10	5.08	552.48	0.45	1.25	0.09	0.01
Link_30	SH1 South of Mill Road (intersection approach)	3,558.0	148	411	429	78.5%	21.5%	10	4.78	611.63	0.44	1.64	0.11	0.01
Link_31	Rahui Road	1,675.0	70	143	140	92.0%	8.0%	50	2.01	219.18	0.13	0.49	0.02	0.01

Appendix E - Vehicle Emission Factors

Link ID	Link Name	Traffic Flows				Vehicle Type		Vehicle Speed (km/hr)	Emission Factors (g/km)					
		AADT	Hourly Avg	AM	PM Peak	% Cars	% HCV		CO	CO <sub>2</sub>	VOC	NO <sub>x</sub>	PM <sub>10</sub> (exhaust)	PM <sub>10</sub> (brake and tyre)
Link_32	Rahui Road	1,675.0	70	143	140	92.0%	8.0%	50	2.01	219.18	0.13	0.49	0.02	0.01
Link_33	Rahui Road	1,666.0	69	142	139	92.0%	8.0%	50	2.01	219.18	0.13	0.49	0.02	0.01
Link_34	Rahui Road	1,666.0	69	142	139	92.0%	8.0%	10	5.36	497.56	0.45	0.89	0.06	0.01
Link_35	Mill Road	5,740.0	239	517	426	90.5%	9.5%	50	1.98	226.28	0.13	0.53	0.02	0.01
Link_36	Mill Road	5,158.0	215	458	400	91.0%	9.0%	50	2.08	279.74	0.16	0.78	0.04	0.01
Link_37	Mill Road	5,740.0	239	517	426	90.5%	9.5%	10	5.29	510.23	0.45	0.97	0.07	0.01
Link_38	Dunstan Street	2,185.0	91	130	104	94.5%	5.5%	50	2.05	207.35	0.13	0.42	0.02	0.01
Link_39	Dunstan Street	1,549.0	65	98	81	92.5%	7.5%	50	2.01	216.82	0.13	0.47	0.02	0.01
Link_40	Arthur Street	868.0	36	49	54	95.0%	5.0%	50	2.05	204.98	0.13	0.40	0.02	0.01
Link_41	Waerenga Road	2,519.0	105	274	290	82.0%	18.0%	50	1.84	266.52	0.13	0.76	0.03	0.01
Link_42	SH1 (Mill Road - Arthur Road)	3,558	148	411	429	78.5%	21.5%	50	1.78	283.09	0.13	0.86	0.03	0.01
Link_43	SH1 (Mill Road - Arthur Road)	3,558	148	411	429	78.5%	21.5%	50	1.78	283.09	0.13	0.86	0.03	0.01
Link_44	SH1 (Arthur - Waerenga Road)	4,345	181	452	476	80.5%	19.5%	50	1.82	273.62	0.13	0.80	0.03	0.01
Link_45	SH1 (Waerenga Road - Riverbank Road)	5,937	247	503	555	78.5%	21.5%	50	1.78	283.09	0.13	0.86	0.03	0.01
Link_46	SH1 (Waerenga Road - Riverbank Road)	5,937	247	503	555	78.5%	21.5%	50	1.78	283.09	0.13	0.86	0.03	0.01
Link_47	SH1 (Waerenga Road - Riverbank Road)	5,937	247	503	555	78.5%	21.5%	50	1.78	283.09	0.13	0.86	0.03	0.01
Link_48	Rail Link	15	10	N/A	N/A	N/A	N/A	30	N/A	N/A	N/A	N/A	N/A	N/A
Link_49	Rail Link	15	10	N/A	N/A	N/A	N/A	30	N/A	N/A	N/A	N/A	N/A	N/A
Link_50	Rail Link	15	10	N/A	N/A	N/A	N/A	30	N/A	N/A	N/A	N/A	N/A	N/A
Link_51	Rail Link	15	10	N/A	N/A	N/A	N/A	30	N/A	N/A	N/A	N/A	N/A	N/A
Link_52	Rail Link	15	10	N/A	N/A	N/A	N/A	30	N/A	N/A	N/A	N/A	N/A	N/A
Link_53	Rail Link	15	10	N/A	N/A	N/A	N/A	30	N/A	N/A	N/A	N/A	N/A	N/A
Link_54	Rail Link	15	10	N/A	N/A	N/A	N/A	30	N/A	N/A	N/A	N/A	N/A	N/A
Link_55	Rail Link	15	10	N/A	N/A	N/A	N/A	30	N/A	N/A	N/A	N/A	N/A	N/A
Link_56	Rail Link	15	10	N/A	N/A	N/A	N/A	30	N/A	N/A	N/A	N/A	N/A	N/A
Link_57	Rail Link	15	10	N/A	N/A	N/A	N/A	30	N/A	N/A	N/A	N/A	N/A	N/A
Link_58	Rail Link	15	10	N/A	N/A	N/A	N/A	30	N/A	N/A	N/A	N/A	N/A	N/A
Link_59	Rail Link	15	10	N/A	N/A	N/A	N/A	30	N/A	N/A	N/A	N/A	N/A	N/A
Link_60	Expressway	9014	376	681	725	87.0%	13.0%	100	2.23	243.37	0.10	0.65	0.02	0.01
Link_61	Expressway	9014	376	681	725	87.0%	13.0%	100	2.23	243.37	0.10	0.65	0.02	0.01
Link_62	Expressway	9014	376	681	725	87.0%	13.0%	100	2.23	243.37	0.10	0.65	0.02	0.01
Link_63	Expressway	9014	376	681	725	87.0%	13.0%	100	2.23	243.37	0.10	0.65	0.02	0.01



### Appendix E - Vehicle Emission Factors

Link ID	Link Name	Traffic Flows				Vehicle Type		Vehicle Speed (km/hr)	Emission Factors (g/km)					
		AADT	Hourly Avg	AM	PM Peak	% Cars	% HCV		CO	CO <sub>2</sub>	VOC	NO <sub>x</sub>	PM <sub>10</sub> (exhaust)	PM <sub>10</sub> (brake and tyre)
Link_64	Expressway	9014	376	681	725	87.0%	13.0%	100	2.23	243.37	0.10	0.65	0.02	0.01
Link_65	Expressway	9014	376	681	725	87.0%	13.0%	100	2.23	243.37	0.10	0.65	0.02	0.01
Link_66	Expressway	9014	376	681	725	87.0%	13.0%	100	2.23	243.37	0.10	0.65	0.02	0.01
Link_67	Expressway	9014	376	681	725	87.0%	13.0%	100	2.23	243.37	0.10	0.65	0.02	0.01
Link_68	Expressway	9014	376	681	725	87.0%	13.0%	100	2.23	243.37	0.10	0.65	0.02	0.01
Link_69	Expressway	9014	376	681	725	87.0%	13.0%	100	2.23	243.37	0.10	0.65	0.02	0.01
Link_70	Expressway	9014	376	681	725	87.0%	13.0%	100	2.23	243.37	0.10	0.65	0.02	0.01
Link_71	Expressway	9014	376	681	725	87.0%	13.0%	100	2.23	243.37	0.10	0.65	0.02	0.01
Link_72	Expressway	9014	376	681	725	87.0%	13.0%	100	2.23	243.37	0.10	0.65	0.02	0.01
Link_73	Otaki On ramp north	2749	115	243	222	84.0%	16.0%	10	5.02	565.16	0.44	1.33	0.09	0.01
Link_74	Otaki On ramp north	2749	115	243	222	84.0%	16.0%	70	1.70	237.06	0.10	0.67	0.02	0.01
Link_75	Otaki On ramp north	2749	115	243	222	84.0%	16.0%	70	1.70	237.06	0.10	0.67	0.02	0.01
Link_76	Otaki On ramp north	2749	115	243	222	84.0%	16.0%	70	1.70	237.06	0.10	0.67	0.02	0.01
Link_77	Otaki On ramp north	2749	115	243	222	84.0%	16.0%	70	1.70	237.06	0.10	0.67	0.02	0.01
Link_78	Otaki On ramp north	2749	115	243	222	84.0%	16.0%	70	1.70	237.06	0.10	0.67	0.02	0.01
Link_79	Otaki On ramp north	2749	115	243	222	84.0%	16.0%	70	1.70	237.06	0.10	0.67	0.02	0.01
Link_80	Expressway	16274	678	1,293	1,291	77.0%	23.0%	100	2.01	276.09	0.09	0.87	0.03	0.01
Link_81	SH1	2806	117	229	267	86.0%	14.0%	80	1.79	230.36	0.10	0.63	0.02	0.01
Link_82	SH1	3657	152	317	309	85.0%	15.0%	80	1.77	233.97	0.10	0.65	0.02	0.01
Link_83	SH1	3657	152	317	309	85.0%	15.0%	80	1.77	233.97	0.10	0.65	0.02	0.01
Link_84	SH1	3657	152	317	309	85.0%	15.0%	80	1.77	233.97	0.10	0.65	0.02	0.01
Link_85	SH1	3657	152	317	309	85.0%	15.0%	80	1.77	233.97	0.10	0.65	0.02	0.01
Link_86	SH1	3657	152	317	309	85.0%	15.0%	80	1.77	233.97	0.10	0.65	0.02	0.01
Link_87	Te Horo Beach Road	3614	151	304	341	89.0%	11.0%	50	1.96	233.39	0.13	0.57	0.02	0.01
Link_88	Te Horo Beach Road	959	40	76	78	82.0%	18.0%	50	1.84	266.52	0.13	0.76	0.03	0.01
Link_89	Te Horo Beach Road	959	40	76	78	82.0%	18.0%	50	1.84	266.52	0.13	0.76	0.03	0.01
Link_90	Te Horo Beach Road	959	40	76	78	82.0%	18.0%	50	1.84	266.52	0.13	0.76	0.03	0.01
Link_91	Te Horo Beach Road	959	40	76	78	82.0%	18.0%	50	1.84	266.52	0.13	0.76	0.03	0.01
Link_92	School Road	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Link_93	School Road	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

## Appendix E - Vehicle Emission Factors

Link ID	Link Name	Traffic Flows				Vehicle Type		Vehicle Speed (km/hr)	Emission Factors (g/km)						
		AADT	Hourly Avg	AM	PM Peak	% Cars	% HCV		CO	CO <sub>2</sub>	VOC	NO <sub>x</sub>	PM <sub>10</sub> (exhaust)	PM <sub>10</sub> (brake and tyre)	
Link_94	School Road	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Link_95	Gear Road	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Link_96	Gear Road	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Link_97	Gear Road	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Link_98	Overbridge/School Road/Option	2751	115	234	271	92.0%	8.0%	50	2.01	219.18	0.13	0.49	0.02	0.01	
Link_99	Overbridge/School Road/Option	2751	115	234	271	92.0%	8.0%	50	2.01	219.18	0.13	0.49	0.02	0.01	
Link_100	Overbridge/School Road/Option	2751	115	234	271	92.0%	8.0%	50	2.01	219.18	0.13	0.49	0.02	0.01	
Link_101	Overbridge/School Road/Option	2751	115	234	271	92.0%	8.0%	50	2.01	219.18	0.13	0.49	0.02	0.01	
Link_102	Overbridge/School Road/Option	2751	115	234	271	92.0%	8.0%	50	2.01	219.18	0.13	0.49	0.02	0.01	
Link_103	Overbridge/School Road/Option	2751	115	234	271	92.0%	8.0%	50	2.01	219.18	0.13	0.49	0.02	0.01	
Link_104	Overbridge/School Road/Option	2751	115	234	271	92.0%	8.0%	50	2.01	219.18	0.13	0.49	0.02	0.01	
Link_105	Overbridge/School Road/Option	2751	115	234	271	92.0%	8.0%	50	2.01	219.18	0.13	0.49	0.02	0.01	
Link_106	Overbridge/School Road/Option	1244	52	110	135	91.0%	9.0%	50	1.99	223.92	0.13	0.51	0.02	0.01	
Link_107	Gear Road Option	1567	65	129	142	92.0%	8.0%	50	2.01	219.18	0.13	0.49	0.02	0.01	
Link_108	Gear Road Option	1567	65	129	142	92.0%	8.0%	50	2.01	219.18	0.13	0.49	0.02	0.01	
Link_109	Gear Road Option	1567	65	129	142	92.0%	8.0%	50	2.01	219.18	0.13	0.49	0.02	0.01	
Link_110	Gear Road Option	1567	65	129	142	92.0%	8.0%	50	2.01	219.18	0.13	0.49	0.02	0.01	

## Appendix E - Vehicle Emission Factors

Table E-4 2031 Without Project Link Information and Emission Factors

Link ID	Link Name	Traffic Flows				Vehicle Type		Vehicle Speed (km/hr)	Emission Factors (g/km)					
		AADT	Hourly Avg	AM	PM Peak	% Cars	% HCV		CO	CO <sub>2</sub>	VOC	NO <sub>x</sub>	PM <sub>10</sub> (exhaust)	PM <sub>10</sub> (brake and tyre)
Link 1	SH1 (Taylors Road to Waitohu Valley Road)	14,928.0	622	1,187.0	1,254.0	87.0%	13.0%	70	1.27	206.26	0.08	0.58	0.02	0.01
Link 2	SH1 (Taylors Road to Waitohu Valley Road)	14,928.0	622	1,187.0	1,254.0	87.0%	13.0%	70	1.27	206.26	0.08	0.58	0.02	0.01
Link 3	Waitohu Valley Road	393.0	16	34.0	39.0	87.5%	12.5%	50	1.41	220.42	0.10	0.59	0.03	0.01
Link 4	Dittmer St	193.0	8	13.0	20.0	100.0%	0%	50	1.54	158.85	0.10	0.25	0.01	0.01
Link 5	County Road	7.0	0	1.0	1.0	100.0%	0.0%	50	1.54	158.85	0.10	0.25	0.01	0.01
Link 6	County Road	7.0	0	1.0	1.0	100.0%	0.0%	50	1.54	158.85	0.10	0.25	0.01	0.01
Link 7	County Road	7.0	0	1.0	1.0	100.0%	0.0%	50	1.54	158.85	0.10	0.25	0.01	0.01
Link 8	County Road	7.0	0	1.0	1.0	100.0%	0.0%	50	1.54	158.85	0.10	0.25	0.01	0.01
Link 9	County Road	7.0	0	329.0	281.0	95.5%	4.5%	50	1.49	181.02	0.10	0.37	0.02	0.01
Link 10	Te Manuao Road	3,012.0	126	329.0	281.0	95.5%	4.5%	50	1.49	181.02	0.10	0.37	0.02	0.01
Link 11	SH1 Waitohu Valley Rd - Te Manuao Road	14,960.0	623	1,197.0	1,250.0	87.0%	13.0%	50	1.40	222.88	0.10	0.61	0.03	0.01
Link 12	SH1 (Te Manuao Road to Mill Road)	16,673.0	695	1,432.0	1,392.0	88.5%	11.5%	50	1.42	215.49	0.10	0.56	0.03	0.01
Link 13	SH1 (Te Manuao Road to Mill Road)	16,673.0	695	1,432.0	1,392.0	88.5%	11.5%	50	1.42	215.49	0.10	0.56	0.03	0.01
Link 14	SH1 (Te Manuao Road to Mill Road)	16,673.0	695	1,432.0	1,392.0	88.5%	11.5%	50	1.42	215.49	0.10	0.56	0.03	0.01
Link 15	SH1 (Te Manuao Road to Mill Road)	16,673.0	695	1,432.0	1,392.0	88.5%	11.5%	50	1.42	215.49	0.10	0.56	0.03	0.01
Link 16	SH1 (Te Manuao Road to Mill Road)	16,673.0	695	1,432.0	1,392.0	88.5%	11.5%	50	1.42	215.49	0.10	0.56	0.03	0.01
Link 17	SH1 (Te Manuao Road to Mill Road)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Link 18	SH1 (Te Manuao Road to Mill Road)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Link 19	SH1 (Te Manuao Road to Mill Road)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Link 20	SH1 (Te Manuao Road to Mill Road)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Link 21	SH1 North of Mill Road (intersection approach)	16,673.0	695	1,432.0	1,392.0	88.5%	11.5%	10	3.80	469.36	0.35	1.10	0.08	0.01
Link 22	SH1 Roundabout	16,673.0	695	1,432.0	1,392.0	88.5%	11.5%	10	3.80	469.36	0.35	1.10	0.08	0.01
Link 23	SH1 Roundabout	16,673.0	695	1,432.0	1,392.0	88.5%	11.5%	10	3.80	469.36	0.35	1.10	0.08	0.01
Link 24	SH1 Roundabout	16,673.0	695	1,432.0	1,392.0	88.5%	11.5%	10	3.80	469.36	0.35	1.10	0.08	0.01
Link 25	SH1 Roundabout	16,673.0	695	1,432.0	1,392.0	88.5%	11.5%	10	3.80	469.36	0.35	1.10	0.08	0.01
Link 26	SH1 Roundabout	16,673.0	695	1,432.0	1,392.0	88.5%	11.5%	10	3.80	469.36	0.35	1.10	0.08	0.01
Link 27	SH1 Roundabout	16,673.0	695	1,432.0	1,392.0	88.5%	11.5%	10	3.80	469.36	0.35	1.10	0.08	0.01
Link 28	SH1 Roundabout	16,673.0	695	1,432.0	1,392.0	88.5%	11.5%	10	3.80	469.36	0.35	1.10	0.08	0.01
Link 29	SH1 Roundabout	16,673.0	695	1,432.0	1,392.0	88.5%	11.5%	10	3.80	469.36	0.35	1.10	0.08	0.01
Link 30	SH1 South of Mill Road (intersection approach)	13,331.0	555	1,155.0	1,170.0	86.5%	13.5%	10	3.75	487.27	0.35	1.21	0.09	0.01
Link 31	Rahui Road	1,272.0	53	111.0	110.0	93.5%	6.5%	50	1.47	190.87	0.10	0.43	0.02	0.01
Link 32	Rahui Road	1,272.0	53	111.0	110.0	93.5%	6.5%	10	3.94	424.58	0.35	0.83	0.07	0.01

## Appendix E - Vehicle Emission Factors

Link ID	Link Name	Traffic Flows				Vehicle Type		Vehicle Speed (km/hr)	Emission Factors (g/km)						
		AADT	Hourly Avg	AM	PM Peak	% Cars	% HCV		CO	CO <sub>2</sub>	VOC	NO <sub>x</sub>	PM <sub>10</sub> (exhaust)	PM <sub>10</sub> (brake and tyre)	
Link_33	Rahui Road	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Link_34	Rahui Road	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Link_35	Mill Road	5,517.0	230	492.0	455.0	94.0%	6.0%	50	1.47	188.40	0.10	0.41	0.02	0.01	
Link_36	Mill Road	5,158.0	215	458.0	400.0	91.0%	9.0%	50	1.44	203.18	0.10	0.50	0.02	0.01	
Link_37	Mill Road	5,517.0	230	492.0	455.0	94.0%	6.0%	10	3.95	420.11	0.35	0.81	0.07	0.01	
Link_38	Dunstan Street	2,501.0	104	174.0	186.0	95.5%	4.5%	50	1.49	181.02	0.10	0.37	0.02	0.01	
Link_39	Dunstan Street	1,926.0	80	155.0	182.0	93.0%	7.0%	50	1.46	193.33	0.10	0.44	0.02	0.01	
Link_40	Arthur Street	1,138.0	47	64.0	61.0	94.0%	6.0%	50	1.47	188.40	0.10	0.41	0.02	0.01	
Link_41	Waerenga Road	2,368.0	99	294.0	244.0	88.5%	11.5%	50	1.42	215.49	0.10	0.56	0.03	0.01	
Link_42	SH1 (Mill Road - Arthur Road)	13,331.0	555	1,155.0	1,170.0	86.5%	13.5%	50	1.39	225.34	0.10	0.62	0.03	0.01	
Link_43	SH1 (Mill Road - Arthur Road)	13,331.0	555	1,155.0	1,170.0	86.5%	13.5%	50	1.39	225.34	0.10	0.62	0.03	0.01	
Link_44	SH1 (Arthur - Waerenga Road)	14,479.0	603	1,219.0	1,234.0	86.5%	13.5%	50	1.39	225.34	0.10	0.62	0.03	0.01	
Link_45	SH1 (Waerenga Road - Riverbank Road)	16,316.0	680	1,323.0	1,408.0	85.0%	15.0%	50	1.38	232.73	0.10	0.66	0.03	0.01	
Link_46	SH1 (Waerenga Road - Riverbank Road)	16,316.0	680	1,323.0	1,408.0	85.0%	15.0%	50	1.38	232.73	0.10	0.66	0.03	0.01	
Link_47	SH1 (Waerenga Road - Riverbank Road)	16,316.0	680	1,323.0	1,408.0	85.0%	15.0%	50	1.38	232.73	0.10	0.66	0.03	0.01	
Link_48	Rail Link	15	10	N/A	N/A	N/A	N/A	30	N/A	N/A	N/A	N/A	N/A	N/A	
Link_49	Rail Link	15	10	N/A	N/A	N/A	N/A	30	N/A	N/A	N/A	N/A	N/A	N/A	
Link_50	Rail Link	15	10	N/A	N/A	N/A	N/A	30	N/A	N/A	N/A	N/A	N/A	N/A	
Link_51	Rail Link	15	10	N/A	N/A	N/A	N/A	30	N/A	N/A	N/A	N/A	N/A	N/A	
Link_52	Rail Link	15	10	N/A	N/A	N/A	N/A	30	N/A	N/A	N/A	N/A	N/A	N/A	
Link_53	Rail Link	15	10	N/A	N/A	N/A	N/A	30	N/A	N/A	N/A	N/A	N/A	N/A	
Link_54	Rail Link	15	10	N/A	N/A	N/A	N/A	30	N/A	N/A	N/A	N/A	N/A	N/A	
Link_55	Rail Link	15	10	N/A	N/A	N/A	N/A	30	N/A	N/A	N/A	N/A	N/A	N/A	
Link_56	Rail Link	15	10	N/A	N/A	N/A	N/A	30	N/A	N/A	N/A	N/A	N/A	N/A	
Link_57	Rail Link	15	10	N/A	N/A	N/A	N/A	30	N/A	N/A	N/A	N/A	N/A	N/A	
Link_58	Rail Link	15	10	N/A	N/A	N/A	N/A	30	N/A	N/A	N/A	N/A	N/A	N/A	
Link_59	Rail Link	15	10	N/A	N/A	N/A	N/A	30	N/A	N/A	N/A	N/A	N/A	N/A	
Link_60	Expressway	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Link_61	Expressway	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Link_62	Expressway	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Link_63	Expressway	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Link_64	Expressway	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Link_65	Expressway	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	

## Appendix E - Vehicle Emission Factors

Link ID	Link Name	Traffic Flows				Vehicle Type		Vehicle Speed (km/hr)	Emission Factors (g/km)						
		AADT	Hourly Avg	AM	PM Peak	% Cars	% HCV		CO	CO <sub>2</sub>	VOC	NO <sub>x</sub>	PM <sub>10</sub> (exhaust)	PM <sub>10</sub> (brake and tyre)	
Link_66	Expressway	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Link_67	Expressway	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Link_68	Expressway	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Link_69	Expressway	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Link_70	Expressway	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Link_71	Expressway	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Link_72	Expressway	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Link_73	Otaki On ramp north	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Link_74	Otaki On ramp north	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Link_75	Otaki On ramp north	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Link_76	Otaki On ramp north	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Link_77	Otaki On ramp north	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Link_78	Otaki On ramp north	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Link_79	Otaki On ramp north	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Link_80	Expressway	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Link_81	SH1	19951	831	1615	1659	79%	21%	80	0.84	227.29	0.05	0.61	0.02	0.01	
Link_82	SH1	21119	880	1737	1719	78%	22%	80	0.83	231.18	0.05	0.63	0.02	0.01	
Link_83	SH1	21119	880	1737	1719	78%	22%	80	0.83	231.18	0.05	0.63	0.02	0.01	
Link_84	SH1	21119	880	1737	1719	78%	22%	80	0.83	231.18	0.05	0.63	0.02	0.01	
Link_85	SH1	21119	880	1737	1719	78%	22%	80	0.83	231.18	0.05	0.63	0.02	0.01	
Link_86	SH1	21119	880	1737	1719	78%	22%	80	0.83	231.18	0.05	0.63	0.02	0.01	
Link_87	Te Horo Beach Road	640	27	50	51	86%	14%	50	0.92	216.85	0.08	0.50	0.02	0.01	
Link_88	Te Horo Beach Road	640	27	50	51	86%	14%	50	0.92	216.85	0.08	0.50	0.02	0.01	
Link_89	Te Horo Beach Road	640	27	50	51	86%	14%	50	0.92	216.85	0.08	0.50	0.02	0.01	
Link_90	Te Horo Beach Road	640	27	50	51	86%	14%	50	0.92	216.85	0.08	0.50	0.02	0.01	
Link_91	Te Horo Beach Road	640	27	50	51	86%	14%	50	0.92	216.85	0.08	0.50	0.02	0.01	
Link_92	School Road	4817	201	382	433	85%	15%	50	0.91	221.83	0.08	0.52	0.02	0.01	
Link_93	School Road	4817	201	382	433	85%	15%	50	0.91	221.83	0.08	0.52	0.02	0.01	
Link_94	School Road	1852	77	156	191	89%	11%	50	0.94	201.89	0.08	0.43	0.01	0.01	
Link_95	Gear Road	3079	128	234	251	82%	18%	50	0.89	236.79	0.08	0.60	0.02	0.01	
Link_96	Gear Road	3079	128	234	251	82%	18%	50	0.89	236.79	0.08	0.60	0.02	0.01	
Link_97	Gear Road	3079	128	234	251	82%	18%	50	0.89	236.79	0.08	0.60	0.02	0.01	
Link_98	Overbridge/School Road/Option	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

## Appendix E - Vehicle Emission Factors

Link ID	Link Name	Traffic Flows				Vehicle Type		Vehicle Speed (km/hr)	Emission Factors (g/km)						
		AADT	Hourly Avg	AM	PM Peak	% Cars	% HCV		CO	CO <sub>2</sub>	VOC	NO <sub>x</sub>	PM <sub>10</sub> (exhaust)	PM <sub>10</sub> (brake and tyre)	
Link_99	Overbridge/School Road/Option	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Link_100	Overbridge/School Road/Option	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Link_101	Overbridge/School Road/Option	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Link_102	Overbridge/School Road/Option	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Link_103	Overbridge/School Road/Option	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Link_104	Overbridge/School Road/Option	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Link_105	Overbridge/School Road/Option	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Link_106	Overbridge/School Road/Option	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Link_107	Gear Road Option	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Link_108	Gear Road Option	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Link_109	Gear Road Option	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Link_110	Gear Road Option	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

## Appendix E - Vehicle Emission Factors

Table E-5 2031 With Project Link Information and Emission Factors

Link ID	Link Name	Traffic Flows				Vehicle Type		Vehicle Speed (km/hr)	Emission Factors (g/km)					
		AADT	Hourly Avg	AM	PM Peak	% Cars	% HCV		CO	CO <sub>2</sub>	VOC	NO <sub>x</sub>	PM <sub>10</sub> (exhaust)	PM <sub>10</sub> (brake and tyre)
Link 1	SH1 (Taylors Road to Waitohu Valley Road)	2,766.0	115.3	230.0	274.0	89.0%	11.0%	70	0.88	187.13	0.06	0.40	0.01	0.01
Link 2	SH1 (Taylors Road to Waitohu Valley Road)	2,766.0	115.3	230.0	274.0	89.0%	11.0%	70	0.88	187.13	0.06	0.40	0.01	0.01
Link 3	Waitohu Valley Road	287.0	12.0	26.0	25.0	77.5%	22.5%	50	0.85	259.22	0.08	0.71	0.02	0.01
Link 4	Dittmer St	49.0	2.0	3.0	3.0	100.0%	0.0%	50	1.02	147.06	0.08	0.16	0.00	0.01
Link 5	County Road	6.0	0.3	-	1.0	100.0%	0.0%	50	1.02	147.06	0.08	0.16	0.00	0.01
Link 6	County Road	6.0	0.3	-	1.0	100.0%	0.0%	50	1.02	147.06	0.08	0.16	0.00	0.01
Link 7	County Road	6.0	0.3	-	1.0	100.0%	0.0%	50	1.02	147.06	0.08	0.16	0.00	0.01
Link 8	County Road	6.0	0.3	-	1.0	100.0%	0.0%	50	1.02	147.06	0.08	0.16	0.00	0.01
Link 9	County Road	6.0	0.3	-	1.0	100.0%	0.0%	50	1.02	147.06	0.08	0.16	0.00	0.01
Link 10	Te Manuao Road	2,733.0	113.9	306.0	255.0	92.0%	8.0%	50	0.96	186.94	0.08	0.35	0.01	0.01
Link 11	SH1 Waitohu Valley Rd - Te Manuao Road	2,935.0	122.3	249.0	287.0	80.5%	19.5%	50	0.88	244.26	0.08	0.63	0.02	0.01
Link 12	SH1 (Te Manuao Road to Mill Road)	5,172.0	215.5	526.0	463.0	86.0%	14.0%	50	0.92	216.85	0.08	0.50	0.02	0.01
Link 13	SH1 (Te Manuao Road to Mill Road)	5,172.0	215.5	526.0	463.0	86.0%	14.0%	50	0.92	216.85	0.08	0.50	0.02	0.01
Link 14	SH1 (Te Manuao Road to Mill Road)	5,172.0	215.5	526.0	463.0	86.0%	14.0%	50	0.92	216.85	0.08	0.50	0.02	0.01
Link 15	SH1 (Te Manuao Road to Mill Road)	7,266.0	302.8	700.0	615.0	81.0%	19.0%	50	0.88	241.77	0.08	0.62	0.02	0.01
Link 16	SH1 (Te Manuao Road to Mill Road)	7,266.0	302.8	700.0	615.0	81.0%	19.0%	50	0.88	241.77	0.08	0.62	0.02	0.01
Link 17	SH1 (Te Manuao Road to Mill Road)	7,266.0	302.8	700.0	615.0	81.0%	19.0%	50	0.88	241.77	0.08	0.62	0.02	0.01
Link 18	SH1 (Te Manuao Road to Mill Road)	7,266.0	302.8	700.0	615.0	81.0%	19.0%	50	0.88	241.77	0.08	0.62	0.02	0.01
Link 19	SH1 (Te Manuao Road to Mill Road)	7,266.0	302.8	700.0	615.0	81.0%	19.0%	50	0.88	241.77	0.08	0.62	0.02	0.01
Link 20	SH1 (Te Manuao Road to Mill Road)	7,266.0	302.8	700.0	615.0	81.0%	19.0%	50	0.88	241.77	0.08	0.62	0.02	0.01
Link 21	SH1 North of Mill Road (intersection approach)	7,266.0	302.8	700.0	615.0	81.0%	19.0%	10	2.53	527.06	0.25	1.20	0.07	0.01
Link 22	SH1 Roundabout	7,266.0	302.8	700.0	615.0	81.0%	19.0%	10	2.53	527.06	0.25	1.20	0.07	0.01
Link 23	SH1 Roundabout	7,266.0	302.8	700.0	615.0	81.0%	19.0%	10	2.53	527.06	0.25	1.20	0.07	0.01
Link 24	SH1 Roundabout	7,266.0	302.8	700.0	615.0	81.0%	19.0%	10	2.53	527.06	0.25	1.20	0.07	0.01
Link 25	SH1 Roundabout	7,266.0	302.8	700.0	615.0	81.0%	19.0%	10	2.53	527.06	0.25	1.20	0.07	0.01
Link 26	SH1 Roundabout	7,266.0	302.8	700.0	615.0	81.0%	19.0%	10	2.53	527.06	0.25	1.20	0.07	0.01
Link 27	SH1 Roundabout	7,266.0	302.8	700.0	615.0	81.0%	19.0%	10	2.53	527.06	0.25	1.20	0.07	0.01
Link 28	SH1 Roundabout	7,266.0	302.8	700.0	615.0	81.0%	19.0%	10	2.53	527.06	0.25	1.20	0.07	0.01
Link 29	SH1 Roundabout	7,266.0	302.8	700.0	615.0	81.0%	19.0%	10	2.53	527.06	0.25	1.20	0.07	0.01
Link 30	SH1 South of Mill Road (intersection approach)	4,355.0	181.5	459.0	476.0	73.5%	26.5%	10	2.37	593.96	0.25	1.56	0.09	0.01
Link 31	Rahui Road	1,309.0	54.5	115.0	112.0	93.0%	7.0%	50	0.97	181.95	0.08	0.33	0.01	0.01
Link 32	Rahui Road	1,309.0	54.5	115.0	112.0	93.0%	7.0%	50	0.97	181.95	0.08	0.33	0.01	0.01

### Appendix E - Vehicle Emission Factors

Link ID	Link Name	Traffic Flows				Vehicle Type		Vehicle Speed (km/hr)	Emission Factors (g/km)					
		AADT	Hourly Avg	AM	PM Peak	% Cars	% HCV		CO	CO <sub>2</sub>	VOC	NO <sub>x</sub>	PM <sub>10</sub> (exhaust)	PM <sub>10</sub> (brake and tyre)
Link_33	Rahui Road	1,304.0	54.3	115.0	111.0	93.0%	7.0%	50	0.97	181.95	0.08	0.33	0.01	0.01
Link_34	Rahui Road	1,304.0	54.3	115.0	111.0	93.0%	7.0%	10	2.78	420.03	0.26	0.63	0.03	0.01
Link_35	Mill Road	5,360.0	223.3	451.0	367.0	90.0%	10.0%	50	0.95	196.91	0.08	0.40	0.01	0.01
Link_36	Mill Road	4,549.0	189.5	395.0	352.0	92.0%	8.0%	50	0.96	186.94	0.08	0.35	0.01	0.01
Link_37	Mill road	5,360.0	223.3	451.0	367.0	90.0%	10.0%	10	2.72	446.79	0.26	0.77	0.04	0.01
Link_38	Dunstan Street	2,072.0	86.3	140.0	103.0	93.5%	6.5%	50	0.97	179.46	0.08	0.32	0.01	0.01
Link_39	Dunstan Street	1,583.0	66.0	94.0	75.0	93.0%	7.0%	50	0.97	181.95	0.08	0.33	0.01	0.01
Link_40	Arthur Street	1,058.0	44.1	93.0	85.0	84.0%	16.0%	50	0.90	226.82	0.08	0.55	0.02	0.01
Link_41	Waerenga Road	2,429.0	101.2	292.0	296.0	86.0%	14.0%	50	0.92	216.85	0.08	0.50	0.02	0.01
Link_42	SH1 (Mill Road - Arthur Road)	4,355	181.5	459	476	73.5%	26.5%	50	0.82	279.16	0.07	0.80	0.03	0.01
Link_43	SH1 (Mill Road - Arthur Road)	4,355	181.5	459	476	73.5%	26.5%	50	0.82	279.16	0.07	0.80	0.03	0.01
Link_44	SH1 (Arthur - Waerenga Road)	5,378	224.1	549	557	75.5%	24.5%	50	0.84	269.19	0.07	0.76	0.03	0.01
Link_45	SH1 (Waerenga Road - Riverbank Road)	6,862	285.9	594	622	76.0%	24.0%	50	0.84	266.69	0.08	0.74	0.03	0.01
Link_46	SH1 (Waerenga Road - Riverbank Road)	6,862	285.9	594	622	76.0%	24.0%	50	0.84	266.69	0.08	0.74	0.03	0.01
Link_47	SH1 (Waerenga Road - Riverbank Road)	6,862	285.9	594	622	76.0%	24.0%	50	0.84	266.69	0.08	0.74	0.03	0.01
Link_48	Rail Link	15	10	N/A	N/A	N/A	N/A	30	N/A	N/A	N/A	N/A	N/A	N/A
Link_49	Rail Link	15	10	N/A	N/A	N/A	N/A	30	N/A	N/A	N/A	N/A	N/A	N/A
Link_50	Rail Link	15	10	N/A	N/A	N/A	N/A	30	N/A	N/A	N/A	N/A	N/A	N/A
Link_51	Rail Link	15	10	N/A	N/A	N/A	N/A	30	N/A	N/A	N/A	N/A	N/A	N/A
Link_52	Rail Link	15	10	N/A	N/A	N/A	N/A	30	N/A	N/A	N/A	N/A	N/A	N/A
Link_53	Rail Link	15	10	N/A	N/A	N/A	N/A	30	N/A	N/A	N/A	N/A	N/A	N/A
Link_54	Rail Link	15	10	N/A	N/A	N/A	N/A	30	N/A	N/A	N/A	N/A	N/A	N/A
Link_55	Rail Link	15	10	N/A	N/A	N/A	N/A	30	N/A	N/A	N/A	N/A	N/A	N/A
Link_56	Rail Link	15	10	N/A	N/A	N/A	N/A	30	N/A	N/A	N/A	N/A	N/A	N/A
Link_57	Rail Link	15	10	N/A	N/A	N/A	N/A	30	N/A	N/A	N/A	N/A	N/A	N/A
Link_58	Rail Link	15	10	N/A	N/A	N/A	N/A	30	N/A	N/A	N/A	N/A	N/A	N/A
Link_59	Rail Link	15	10	N/A	N/A	N/A	N/A	30	N/A	N/A	N/A	N/A	N/A	N/A
Link_60	Expressway	9488	395.3	736	781	85.0%	15.0%	100	1.11	219.57	0.05	0.52	0.01	0.01
Link_61	Expressway	9488	395.3	736	781	85.0%	15.0%	100	1.11	219.57	0.05	0.52	0.01	0.01
Link_62	Expressway	9488	395.3	736	781	85.0%	15.0%	100	1.11	219.57	0.05	0.52	0.01	0.01
Link_63	Expressway	9488	395.3	736	781	85.0%	15.0%	100	1.11	219.57	0.05	0.52	0.01	0.01
Link_64	Expressway	9488	395.3	736	781	85.0%	15.0%	100	1.11	219.57	0.05	0.52	0.01	0.01
Link_65	Expressway	9488	395.3	736	781	85.0%	15.0%	100	1.11	219.57	0.05	0.52	0.01	0.01





## Appendix E - Vehicle Emission Factors

Link ID	Link Name	Traffic Flows				Vehicle Type		Vehicle Speed (km/hr)	Emission Factors (g/km)					
		AADT	Hourly Avg	AM	PM Peak	% Cars	% HCV		CO	CO <sub>2</sub>	VOC	NO <sub>x</sub>	PM <sub>10</sub> (exhaust)	PM <sub>10</sub> (brake and tyre)
Link_66	Expressway	9488	395.3	736	781	85.0%	15.0%	100	1.11	219.57	0.05	0.52	0.01	0.01
Link_67	Expressway	9488	395.3	736	781	85.0%	15.0%	100	1.11	219.57	0.05	0.52	0.01	0.01
Link_68	Expressway	9488	395.3	736	781	85.0%	15.0%	100	1.11	219.57	0.05	0.52	0.01	0.01
Link_69	Expressway	9488	395.3	736	781	85.0%	15.0%	100	1.11	219.57	0.05	0.52	0.01	0.01
Link_70	Expressway	9488	395.3	736	781	85.0%	15.0%	100	1.11	219.57	0.05	0.52	0.01	0.01
Link_71	Expressway	9488	395.3	736	781	85.0%	15.0%	100	1.11	219.57	0.05	0.52	0.01	0.01
Link_72	Expressway	9488	395.3	736	781	85.0%	15.0%	100	1.11	219.57	0.05	0.52	0.01	0.01
Link_73	Otaki On ramp north	2788	116.2	230	206	78.0%	22.0%	10	2.47	553.82	0.25	1.34	0.08	0.01
Link_74	Otaki On ramp north	2788	116.2	230	206	78.0%	22.0%	70	0.80	232.03	0.06	0.64	0.02	0.01
Link_75	Otaki On ramp north	2788	116.2	230	206	78.0%	22.0%	70	0.80	232.03	0.06	0.64	0.02	0.01
Link_76	Otaki On ramp north	2788	116.2	230	206	78.0%	22.0%	70	0.80	232.03	0.06	0.64	0.02	0.01
Link_77	Otaki On ramp north	2788	116.2	230	206	78.0%	22.0%	70	0.80	232.03	0.06	0.64	0.02	0.01
Link_78	Otaki On ramp north	2788	116	230	206	78.0%	22.0%	70	0.80	232.03	0.06	0.64	0.02	0.01
Link_79	Otaki On ramp north	2788	116	230	206	78.0%	22.0%	70	0.80	232.03	0.06	0.64	0.02	0.01
Link_80	Expressway	17122	713	1401	1380	80.0%	20.0%	100	1.06	236.44	0.05	0.62	0.02	0.01
Link_81	SH1	2699	112	208	268	79.0%	21.0%	80	0.84	227.29	0.05	0.61	0.02	0.01
Link_82	SH1	3822	159	323	327	79.0%	21.0%	80	0.84	227.29	0.05	0.61	0.02	0.01
Link_83	SH1	3822	159	323	327	79.0%	21.0%	80	0.84	227.29	0.05	0.61	0.02	0.01
Link_84	SH1	3822	159	323	327	79.0%	21.0%	80	0.84	227.29	0.05	0.61	0.02	0.01
Link_85	SH1	3822	159	323	327	79.0%	21.0%	80	0.84	227.29	0.05	0.61	0.02	0.01
Link_86	SH1	3822	159	323	327	79.0%	21.0%	80	0.84	227.29	0.05	0.61	0.02	0.01
Link_87	Te Horo Beach Road	4658	194	374	421	83.0%	17.0%	50	0.89	231.80	0.08	0.57	0.02	0.01
Link_88	Te Horo Beach Road	595	25	47	48	85.0%	15.0%	50	0.91	221.83	0.08	0.52	0.02	0.01
Link_89	Te Horo Beach Road	595	25	47	48	85.0%	15.0%	50	0.91	221.83	0.08	0.52	0.02	0.01
Link_90	Te Horo Beach Road	595	25	47	48	85.0%	15.0%	50	0.91	221.83	0.08	0.52	0.02	0.01
Link_91	Te Horo Beach Road	595	25	47	48	85.0%	15.0%	50	0.91	221.83	0.08	0.52	0.02	0.01
Link_92	School Road	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Link_93	School Road	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Link_94	School Road	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Link_95	Gear Road	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Link_96	Gear Road	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Link_97	Gear Road	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

## Appendix E - Vehicle Emission Factors

Link ID	Link Name	Traffic Flows				Vehicle Type		Vehicle Speed (km/hr)	Emission Factors (g/km)					
		AADT	Hourly Avg	AM	PM Peak	% Cars	% HCV		CO	CO <sub>2</sub>	VOC	NO <sub>x</sub>	PM <sub>10</sub> (exhaust)	PM <sub>10</sub> (brake and tyre)
Link_98	Overbridge/School Road/Option	4194	175	336	382	83.0%	17.0%	50	0.89	231.80	0.08	0.57	0.02	0.01
Link_99	Overbridge/School Road/Option	4194	175	336	382	83.0%	17.0%	50	0.89	231.80	0.08	0.57	0.02	0.01
Link_100	Overbridge/School Road/Option	4194	175	336	382	83.0%	17.0%	50	0.89	231.80	0.08	0.57	0.02	0.01
Link_101	Overbridge/School Road/Option	4194	175	336	382	83.0%	17.0%	50	0.89	231.80	0.08	0.57	0.02	0.01
Link_102	Overbridge/School Road/Option	4194	175	336	382	83.0%	17.0%	50	0.89	231.80	0.08	0.57	0.02	0.01
Link_103	Overbridge/School Road/Option	4194	175	336	382	83.0%	17.0%	50	0.89	231.80	0.08	0.57	0.02	0.01
Link_104	Overbridge/School Road/Option	4194	175	336	382	83.0%	17.0%	50	0.89	231.80	0.08	0.57	0.02	0.01
Link_105	Overbridge/School Road/Option	4194	175	336	382	83.0%	17.0%	50	0.89	231.80	0.08	0.57	0.02	0.01
Link_106	Overbridge/School Road/Option	1585	66	136	167	88.0%	12.0%	50	0.93	206.88	0.08	0.45	0.02	0.01
Link_107	Gear Road Option	2723	113	209	223	80.0%	20.0%	50	0.87	246.76	0.08	0.65	0.02	0.01
Link_108	Gear Road Option	2723	113	209	223	80.0%	20.0%	50	0.87	246.76	0.08	0.65	0.02	0.01
Link_109	Gear Road Option	2723	113	209	223	80.0%	20.0%	50	0.87	246.76	0.08	0.65	0.02	0.01
Link_110	Gear Road Option	2723	113	209	223	80.0%	20.0%	50	0.87	246.76	0.08	0.65	0.02	0.01