Appendix 3.18g - Emission Rates of Portal, Top Openings and Ventilation Exhaust (Hr00-01)

						Hr 00-01 (2015 EIA_19-12-2011.xls)																	Rate (g/km-		Emission Rate (g/s)	
Remarks (Tunnel name - Portal & top opening of underpass in EIA of Rd Works in WK)	WKCD section no.	Road name	Bound	Length (m)	Total (veh/hr)	PC	taxi	LGV3	LGV4	LGV6	HGV7	HGV8	PLB	PV4	PV5	NFB6	NFB7	NFB8	FBSD	FBDD	MC	Total	PM	NOx	PM	NOx
A(I)	73	Lin Cheung Rd (underpass)	Northbound	73	215	53%	0%	23%	0%	2%	2%	5%	5%	2%	2%	0%	0%	2%	2%	0%	0%	100%	0.0955238	1.2304077	0.0004165	0.0053642
B(I)	73	Lin Cheung Rd (underpass)	Northbound	272	215	53%	0%	23%	0%	2%	2%	5%	5%	2%	2%	0%	0%	2%	2%	0%	0%	100%	0.0955238	1.2304077	0.0015517	0.0199873
C(I)	73	Lin Cheung Rd (underpass)	Northbound	110	215	53%	0%	23%	0%	2%	2%	5%	5%	2%	2%	0%	0%	2%	2%	0%	0%	100%	0.0955238	1.2304077	0.0006275	0.0080831
D(I)	73	Lin Cheung Rd (underpass)	Northbound	176	215	53%	0%	23%	0%	2%	2%	5%	5%	2%	2%	0%	0%	2%	2%	0%	0%	100%	0.0955238	1.2304077	0.0010041	0.0129330
E(I)	72	Lin Cheung Rd (underpass)	Southbound	155	265	55%	0%	23%	0%	2%	2%	6%	4%	2%	2%	0%	0%	2%	2%	0%	2%	100%	0.0936651	1.1839523	0.0010687	0.0135086
F(I)	72	Lin Cheung Rd (depressed)	Southbound	172	265	55%	0%	23%	0%	2%	2%	6%	4%	2%	2%	0%	0%	2%	2%	0%	2%	100%	0.0936651	1.1839523	0.0011859	0.0149902
G (I)	118	Lin Cheung Rd (depressed)	Southbound	121	275	53%	2%	22%	0%	4%	2%	5%	4%	2%	2%	0%	0%	2%	2%	0%	2%	100%	0.0924976	1.2001108	0.0008550	0.0110927
H(I)	119	Austin Rd W (depressed)	Eastbound	173	435	32%	1%	51%	0%	1%	1%	5%	2%	1%	1%	0%	0%	0%	1%	1%	2%	100%	0.1342209	1.4577666	0.0028058	0.0304734
I(I)	117	Austin Rd W (depressed)	Eastbound	194	125	36%	0%	56%	0%	0%	0%	4%	4%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0.1379285	1.2475830	0.0009291	0.0084039
J(I)	116	Austin Rd W (depressed)	Westbound	194	165	33%	0%	45%	0%	3%	3%	3%	3%	0%	0%	6%	0%	0%	3%	0%	0%	100%	0.1363135	1.5185645	0.0012121	0.0135026
K(I)	114	Lin Cheung Rd (depressed)	Southbound	95	50	70%	0%	30%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0.0648138	0.5373284	0.0000855	0.0007090
L(I)	112	Lin Cheung Rd (depressed)	Northbound	95	260	54%	2%	23%	0%	2%	2%	6%	4%	2%	2%	0%	0%	2%	2%	0%	0%	100%	0.0950957	1.2108087	0.0006525	0.0083075
M(I)	84	Lin Cheung Rd	Southbound	56	230	54%	0%	24%	0%	2%	2%	4%	4%	2%	2%	0%	0%	2%	2%	0%	0%	100%	0.0939613	1.1887411	0.0003362	0.0042531
N(I)	77	Lin Cheung Rd	Northbound	56	410	52%	1%	22%	0%	2%	2%	5%	5%	2%	1%	1%	0%	2%	1%	0%	1%	100%	0.0963301	1.2034973	0.0006144	0.0076756
O(I)	111	Austin Rd W (depressed)	Eastbound	52	355	34%	1%	49%	0%	1%	1%	4%	3%	1%	0%	0%	0%	0%	1%	1%	1%	100%	0.1312810	1.4683894	0.0006732	0.0075296
P(I)	110	Austin Rd W (depressed)	Westbound	52	205	32%	0%	49%	0%	2%	2%	5%	2%	0%	0%	0%	0%	0%	2%	2%	2%	100%	0.1373062	1.7179691	0.0004066	0.0050871
W(I)	98	West Kowloon Highway (WKH)	Northbound	1970	1145	55%	0%	14%	0%	3%	2%	5%	4%	3%	2%	2%	0%	4%	2%	3%	0%	100%	0.0546631	1.4126668	0.0342503	0.8851339
	A	Internal Rd A	Bothbound	404	40	50%	0%	25%	0%	0%	0%	0%	0%	0%	0%	25%	0%	0%	0%	0%	0%	100%	0.1480281	1.3796668	0.000664482	0.0061932
	B	Internal Rd B	Bothbound	361	65	38%	0%	31%	0%	0%	0%	0%	8%	0%	0%	23%	0%	0%	0%	0%	0%	100%	0.1676717	1.5226167	0.0010929	0.0099245
	C	Internal Rd C	Bothbound	521	30	33%	0%	17%	0%	0%	0%	0%	0%	0%	0%	50%	0%	0%	0%	0%	0%	100%	0.2147230	2.1257746	0.0009323	0.0092294
X(I)	144	Reprovision of Gascoigne Rd Flyover	Westbound	180	965	35%	1%	11%	1%	7%	4%	11%	11%	2%	1%	1%	0%	1%	10%	5%	1%	100%	0.1170200	2.5587013	0.0056462	0.1234573

Note: (I): Tunnel name is based on Portal & top opening of underpass in EIA of Road Works in West Kowloon.

Note: Emission rate is calculated by emission factor provided by Vehicular Emission Control Section of EPD provided the vehicle fleet average emission factors for pollutants mulitplied by traffic flow of each roads.

Scenario 3 30%

				Calculated by the formula shown (extracted from the approved EIA of Road Works at West Kowloon)		Volume source - calculated by number of portal/opening involved		Area source - calculated by emission rate divided by area				
				Emission Rate - Portal/ Opening (g/s)		Emission Rate - Portal/ Opening (g/s) - Volume source		Emission Rate - Portal/ Opening (g/m2-s) - Area source				
			Portal/ opening ID.	PM	NOx	PM	NOx	PM	NOx	(Area)	Formula from Scenario	Emission calculation formula (Extracted from the approved EIA of Road Works at West Kowloon)
			A	0.000124937	0.0016093	--	--	2.5435E-07	3.2762E-06	491.2	1	0.3 x Tunnel Section A
80.935	0.873		B	0.001608973	0.0207246	--	--	4.706E-06	6.0616E-05	341.9	1	2/3 x (0.7 x Tunnel Section A + 1 x Tunnel Section B) + 1/3 x (30.935 / 50) x (0.7 x Tunnel Section A + 1 x Tunnel Section B)
			CE	0.000579153	0.0073828	--	--	9.1162E-07	1.1621E-05	635.3	1	0.3 x Tunnel Section C + 0.3 x (1/3 x (19.065 / 50) x (0.7 x Tunnel Section A + 1 x Tunnel Section B)) + 0.3 x Tunnel Section E
			D1-D7	0.001607331	0.0207035	0.000153079	0.00197176	--	--	--		
			D8-D14			7.65396E-05	0.00098588	--	--	--	1	0.7 x Tunnel Section C + 0.7 x (1/3 x (19.065 / 50 x (0.7 x Tunnel Section A + 1 x Tunnel Section B)) + 1 x Tunnel Section D
			F	0.000580197	0.0073338	--	--	2.0908E-06	2.6428E-05	277.5	1	0.3 x 0.7 x Tunnel Section E + 0.3 x Tunnel Section F
			I1-I4	0.00613467	0.0691844	0.001022445	0.01153073	--	--	--	1	1 x Tunnel Section I + 1 x Tunnel Section G + 1 x Tunnel Section H + 0.14 x Tunnel Section K + 0.7 x 0.38 x Tunnel Section O + 0.7 x 0.7 x Tunnel Section E + 0.7 x Tunnel Section F
			I5-I8			0.000511223	0.00576536	--	--	--		
45.868			JKO1	0.000587634	0.0064926	--	--	3.8091E-07	4.2086E-06	1542.7	1	0.3 x Tunnel Section J + 0.3 x (1 - 0.14) x Tunnel Section K + 0.3 x Tunnel Section O
			L1-L5	0.001148247	0.0138438	0.0001531	0.00184583	--	--	--		
			L6-L10			7.65498E-05	0.00092292	--	--	--	1	1 x Tunnel Section L + 0.7 x 0.24 x Tunnel Section J + 0.7 x 0.62 x Tunnel Section O
			M1-M4	0.000475272	0.0059643	7.92121E-05	0.00099406	--	--	--		
			M5-M8			3.9606E-05	0.00049703	--	--	--	1	0.5 x (Tunnel Section M + Tunnel Section N)
			N1-N4	0.000475272	0.0059643	7.92121E-05	0.00099406	--	--	--		
			N5-N8			3.9606E-05	0.00049703	--	--	--	1	0.5 x (Tunnel Section M + Tunnel Section N)
			P1-P4	0.001102874	0.0126973	0.000183812	0.00211621	--	--	--		
			P5-P8			9.19062E-05	0.00105811	--	--	--	1	1 x Tunnel Section P + 0.7 x 0.76 x Tunnel Section J + 0.7 x 0.86 x Tunnel Section K
			W1-W8	0.034250253	0.8851339	0.002854188	0.07376116	--	--	--		
			W9-W16			0.001427094	0.03688058	--	--	--	1	1 x Tunnel W
			701-710	0.005646217	0.1234573	0.000376414	0.00823049	--	--	--	1	
			711-720			0.000188207	0.00411524	--	--	--	--	1 x Tunnel X
			BaseA	0	0	0	0					1/3 x Basement roads A,B,C
	% of Serving Rd		BaseC	0	0	0	0					1/3 x Basement roads A,B,C
		Out of 500m	801-820			--	--	--	--	--	1	1 x Tunnel Y
		Out of 500m	901-903			--	--	--	--	--		1 x Tunnel Z
		Out of 500m	904-906			--	--	--	--	--	1	
		Out of 500m	V1								from 1-4	--
	4.2%		V01	1.98103E-05	0.000286447	--	--	--	--	--	--	--
	4.2%		V02	1.98103E-05	0.000286447	--	--	--	--	--	--	--
	4.2%		V03	1.98103E-05	0.000286447	--	--	--	--	--	--	--
	4.2%		V04	1.98103E-05	0.000286447	--	--	--	--	--	--	--
	4.2%		V05	1.98103E-05	0.000286447	--	--	--	--	--	--	--
	4.2%		V06	1.98103E-05	0.000286447	--	--	--	--	--	--	--
	4.2%		V07	1.98103E-05	0.000286447	--	--	--	--	--	--	--
	4.2%		V08	1.98103E-05	0.000286447	--	--	--	--	--	--	--
	4.2%		V09	1.98103E-05	0.000286447	--	--	--	--	--	--	--
	4.2%		V10	1.98103E-05	0.000286447	--	--	--	--	--	--	--
	4.2%		V11	1.98103E-05	0.000286447	--	--	--	--	--	--	--
	4.2%	**Road A at B1 Level**	V12	1.98103E-05	0.000286447	--	--	--	--	--	--	--
	4.2%		V13	1.98103E-05	0.000286447	--	--	--	--	--	--	--
	4.2%		V14	1.98103E-05	0.000286447	--	--	--	--	--	--	--
	4.2%		V15	1.98103E-05	0.000286447	--	--	--	--	--	--	--
	4.2%		V16	1.98103E-05	0.000286447	--	--	--	--	--	--	--
	4.2%		V17	1.98103E-05	0.000286447	--	--	--	--	--	--	--
	4.2%		V18	1.98103E-05	0.000286447	--	--	--	--	--	--	--
	4.2%		V19	1.98103E-05	0.000286447	--	--	--	--	--	--	--
	4.2%		V20	1.98103E-05	0.000286447	--	--	--	--	--	--	--
	4.2%		V21	1.98103E-05	0.000286447	--	--	--	--	--	--	--
	4.2%		V22	1.98103E-05	0.000286447	--	--	--	--	--	--	--
	4.2%		V23	1.98103E-05	0.000286447	--	--	--	--	--	--	--
100.0%	4.2%		V24	1.98103E-05	0.000286447	--	--	--	--	--	--	--
	12.5%		V25	0.000109986	0.00160557	--	--	--	--	--	--	--
	12.5%		V26	0.000109986	0.00160557	--	--	--	--	--	--	--
	12.5%		V27	0.000109986	0.00160557	--	--	--	--	--	--	--
	12.5%	**Road B at B1 Level**	V28	0.000109986	0.00160557	--	--	--	--	--	--	--
	12.5%		V29	0.000109986	0.00160557	--	--	--	--	--	--	--
	12.5%		V30	0.000109986	0.00160557	--	--	--	--	--	--	--
	12.5%		V31	0.000109986	0.00160557	--	--	--	--	--	--	--
	16.7%	**Road C at B1 Level**	V32	3.71763E-05	0.000643426	--	--	--	--	--	--	--
100.0%	12.5%	**Road B at B1 Level**	V33	0.000109986	0.00160557	--	--	--	--	--	--	--
	16.7%		V34	3.71763E-05	0.000643426	--	--	--	--	--	--	--
	16.7%		V35	3.71763E-05	0.000643426	--	--	--	--	--	--	--
	16.7%	**Road C at B1 Level**	V36	3.71763E-05	0.000643426	--	--	--	--	--	--	--
	16.7%		V37	3.71763E-05	0.000643426	--	--	--	--	--	--	--
100.0%	16.7%		V38	3.71763E-05	0.000643426	--	--	--	--	--	--	--