

Appendix 3.18c - Emission Rates of Portal, Top Openings and Ventilation Exhaust (H00-01)

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)	Hr 00-01 (2015 EIA, 19-12-2011.xls)																						Rate (g/km-PM)		Emission Rate (g/s)	
						PC	taxi	LGV3	LGV4	LGV6	XGV	HGV8	PLB	PV4	PV5	NFB6	NFB7	NFB8	FBSD	FBDD	MC	Total	PM	NOx	PM	NOx					
																											0.095238	1.230477	0.0004165	0.0053642	
A	72	Lin Cheung Rd (underpass)	Northbound	72	215	53%	0%	23%	0%	2%	2%	2%	0%	2%	2%	0%	2%	0%	100%	0.095238	1.230477	0.0004165	0.0053642								
B ¹	72	Lin Cheung Rd (underpass)	Northbound	272	215	53%	0%	23%	0%	2%	2%	0%	2%	2%	0%	2%	0%	100%	0.095238	1.230477	0.0015517	0.0198973									
C ¹	72	Lin Cheung Rd (underpass)	Northbound	110	215	53%	0%	23%	0%	2%	2%	0%	2%	2%	0%	2%	0%	100%	0.095238	1.230477	0.0008275	0.0098311									
D ¹	72	Lin Cheung Rd (underpass)	Northbound	176	215	53%	0%	23%	0%	2%	2%	0%	2%	2%	0%	2%	0%	100%	0.095238	1.230477	0.0010041	0.0129330									
E ¹	72	Lin Cheung Rd (underpass)	Southbound	165	265	55%	0%	23%	0%	2%	2%	0%	2%	2%	0%	2%	0%	100%	0.095651	1.183523	0.0010627	0.0135596									
F ¹	72	Lin Cheung Rd (depressed)	Southbound	172	265	55%	0%	23%	0%	2%	2%	0%	2%	2%	0%	2%	0%	100%	0.095651	1.183523	0.0011859	0.0149692									
G ¹	118	Lin Cheung Rd (depressed)	Southbound	121	275	53%	2%	22%	0%	4%	2%	5%	4%	2%	2%	0%	2%	100%	0.0924975	1.2001108	0.0008550	0.0119227									
H ¹	119	Austin Rd W (depressed)	Eastbound	73	435	32%	1%	51%	0%	1%	1%	4%	2%	1%	1%	0%	0%	100%	0.1342269	1.4577866	0.0038039	0.0384734									
I ¹	117	Austin Rd W (depressed)	Eastbound	194	125	36%	0%	56%	0%	0%	4%	2%	0%	0%	0%	0%	0%	100%	0.1379285	1.2475530	0.0009291	0.0084039									
J ¹	116	Austin Rd W (depressed)	Westbound	194	165	33%	0%	45%	0%	3%	3%	0%	0%	0%	0%	0%	0%	100%	0.1363135	1.5185645	0.0012121	0.0135268									
K ¹	114	Lin Cheung Rd (depressed)	Southbound	95	50	70%	0%	30%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0.0548138	0.5373284	0.0003955	0.0007050									
L ¹	112	Lin Cheung Rd (depressed)	Northbound	95	260	54%	2%	23%	0%	2%	2%	0%	2%	2%	0%	2%	0%	100%	0.0910577	1.2100687	0.0006325	0.0083753									
M ¹	84	Lin Cheung Rd	Southbound	56	230	54%	0%	24%	0%	2%	2%	4%	2%	2%	0%	2%	0%	100%	0.0939613	1.1887411	0.0003382	0.0042531									
N ¹	77	Lin Cheung Rd	Northbound	56	410	52%	1%	22%	0%	2%	2%	5%	2%	1%	1%	0%	1%	100%	0.0963301	1.2034973	0.0006144	0.0076756									
O ¹	111	Austin Rd W (depressed)	Eastbound	52	355	34%	1%	49%	0%	1%	1%	4%	2%	1%	0%	0%	0%	100%	0.1372810	1.4655994	0.0006752	0.0075296									
P ¹	110	Austin Rd W (depressed)	Westbound	52	205	32%	0%	49%	0%	2%	2%	0%	2%	0%	2%	2%	0%	100%	0.1372822	1.7179891	0.0004069	0.0059311									
W	98	West Kowloon Highway (WKH)	Northbound	1970	1145	55%	0%	14%	0%	3%	2%	0%	3%	2%	0%	4%	2%	100%	0.0546631	1.4126668	0.0342503	0.851339									
X	A	Internal Rd A	Bothbound	404	40	50%	0%	25%	0%	0%	0%	4%	0%	0%	0%	0%	0%	100%	0.1480281	1.3796668	0.0006645	0.0061932									
Y	B	Internal Rd B	Bothbound	521	65	36%	0%	31%	0%	0%	0%	2%	0%	0%	0%	0%	0%	100%	0.1676717	1.5239167	0.0010928	0.0092445									
Z	C	Internal Rd C	Bothbound	521	30	33%	0%	17%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0.2147230	2.1257746	0.0009323	0.0092294									
AA	144	Repromission of Gascoigne Rd Flyover	Westbound	180	965	35%	1%	11%	1%	7%	4%	11%	11%	2%	1%	1%	0%	100%	0.1170200	2.5587013	0.0056462	0.1234573									

Note: (B) 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 multiplied by traffic flow of each roads.

Scenario 2

Portal opening ID.	Emission Rate - Portal/Opening (g/s)	NOx	Volume source - calculated by number of portal/opening received				Area source - calculated by emission rate divided by area				Formula for Scenario
			Emission Rate - Portal/Opening (g/s) - Volume		Emission Rate - Portal/Opening (g/s) - Area source		Emission Rate - Portal/Opening (g/s) - Volume		Emission Rate - Portal/Opening (g/s) - Area source		
			PM	NOx	PM	NOx	PM	NOx	PM	NOx	
A	0.000124937	0.0016093	-	-	3E-07	3E-06	491.2	1	0.3 x Tunnel Section A		
B	0.001605973	0.0207246	-	-	3E-06	3E-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)		
C	0.000279153	0.0073828	-	-	3E-07	1E-06	633.9	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	0.002	-	-	-	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		
D8-D14	0.000580197	0.0073338	7.65396E-05	0.001	-	-	-	1	1 x (0.7 x Tunnel Section E + 0.3 x Tunnel Section F)		
E	0.006267632	0.070936	0.001044605	0.0118	3E-06	3E-05	277.5	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 (1/3 x (Tunnel Section		
F	0.000580197	0.0073338	0.000522303	0.0059	-	-	-	1	Internal Road A + Tunnel Section Internal Road B + Tunnel Section Internal Road C) x (traffic flow of Tunnel Section I / (traffic flow of Tunnel Section I + traffic		
G	0.000856597	0.0090279	-	-	3E-07	3E-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 + 0.3 x (1/3 x (Tunnel Section Internal Road A + Tunnel Section Internal		
H	0.001424808	0.0164637	0.000189974	0.0022	-	-	-	1	1 x Tunnel Section L + 0.7 x 0.24 x Tunnel Section J + 0.7 x 0.62 x Tunnel Section O + 0.7 x (1/3 x (Tunnel Section Internal Road A + Tunnel Section Internal		
I	0.000475272	0.0059643	7.92121E-05	0.001	-	-	-	1	Road B + Tunnel Section Internal Road C) x (traffic flow of Tunnel Section L / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of		
J	0.000475272	0.0059643	3.9606E-05	0.0005	-	-	-	1	0.5 x (Tunnel Section M + Tunnel Section N)		
K	0.000475272	0.0059643	7.92121E-05	0.001	-	-	-	1	0.5 x (Tunnel Section M + Tunnel Section N)		
L	0.001320932	0.01424	3.9606E-05	0.0005	-	-	-	1	1 x Tunnel Section P + 0.7 x 0.76 x Tunnel Section J + 0.7 x 0.86 x Tunnel Section K + 0.7 x (1/3 x (Tunnel Section Internal Road A + Tunnel Section Internal		
M	0.001320932	0.01424	0.000110079	0.0012	-	-	-	1	Road B + Tunnel Section Internal Road C) x (traffic flow of Tunnel Section P / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of		
N	0.034250253	0.8851339	0.002854188	0.0738	-	-	-	1	1 x Tunnel W		
O	0.005646217	0.1234573	0.000379414	0.0062	-	-	-	1	1 x Tunnel X		
P	0.005646217	0.1234573	0.000379414	0.0062	-	-	-	1	1 x Tunnel X		
Q	0.005646217	0.1234573	0.000182007	0.0041	-	-	-	1	1 x Tunnel Y		
R	0.008965544	0.008449	0.000896544	0.0084	-	-	-	1/3 x Basement roads A,B,C			
S	0.008965544	0.008449	0.000896544	0.0084	-	-	-	1/3 x Basement roads A,B,C			
T	0.008965544	0.008449	0.000896544	0.0084	-	-	-	1 x Tunnel Z			
U	0.008965544	0.008449	-	-	-	-	-	1 x Tunnel Y			
V	0.008965544	0.008449	-	-	-	-	-	1 x Tunnel Z			
W	0.008965544	0.008449	-	-	-	-	-	1 x Tunnel Y			

Appendix 3.18c - Emission Rates of Portal, Top Openings and Ventilation Exhaust (H01-02)

Remarks (Tunnel name - Portal & top opening of underpass in EIA of Rd Works in WK)	WKCD section no.	Road name	Bound	Road Type	Length (m)	Total (veh/hr)	Hr 01-02 (2015 EIA, 19-12-2011.xls)																	Rate (g/km-PM)	NOx	Emission Rate (g/s)	
							PC	taxi	LGV3	LGV4	LGV6	HGV7	HGV8	PLB	PV4	PV5	NFB6	NFB7	NFB8	FBSB	FBDO	MC	Total			PM	NOx
							A ^W	73	Lin Cheung Rd (underpass)	Northbound	3	73	210	55%	0%	21%	0%	2%	2%	2%	2%	0%	0%			2%	0%
K ^W	114	Repositioning of Gascoigne Rd Flyover	Westbound	3	180	650	35%	1%	12%	1%	7%	4%	12%	11%	2%	1%	1%	0%	1%	10%	0%	100%	0.1184204	2.5744043	0.0038487	0.0036681	

Note: (W) 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 multiplied by traffic flow of each roads.

Scenario 2

30%

Length of opening	Portal opening ID	Source Type	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		Formula from Scenario	Emission calculation formula (Extracted from the approved EIA of Road Works at West Kowloon)	
			PM	NOx	PM	NOx	PM	NOx			
			(g/s)	(g/s)	(g/m2-s) - Volume	(g/m2-s) - Area source	(g/m2-s) - Volume	(g/m2-s) - Area source			
80.935	0.873	Area	0.00012049	0.0015673	--	--	3E-07	3E-06	491.2	1	0.3 x Tunnel Section A
		Area	0.00155166	0.0201837	--	--	5E-06	6E-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)
		Area	0.00037652	0.0045853	--	--	6E-07	7E-06	835.3	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
		Volume	0.00155007	0.0201631	0.000167268	0.0016	--	--	--	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
		Area	0.00023016	0.0024286	--	--	6E-07	9E-06	277.5	1	0.3 x 0.7 x Tunnel Section E + 0.3 x Tunnel Section F
		Volume	0.00490552	0.0517049	0.00017597	0.0086	--	--	--	1	1 x Tunnel Section F + 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 (1/3 x (Tunnel Section Internal Road A + Tunnel Section Internal Road C) x (traffic flow of Tunnel Section I / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section P))
		Area	0.00064128	0.0069509	--	--	4E-07	5E-06	1642.7	1	0.3 x Tunnel Section J + 0.3 x (1 - 0.14) x Tunnel Section K + 0.3 x Tunnel Section O + 0.3 x 1/3 x (Tunnel Section Internal Road A + Tunnel Section Internal Road B + 1 x Tunnel Section L + 0.7 x 0.24 x tunnel Section J + 0.7 x 0.62 x tunnel Section O + 0.7 x (1/3 x (Tunnel Section Internal Road A + Tunnel Section Internal Road B + 1 x Tunnel Section Internal Road C) x (traffic flow of Tunnel Section L / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section P)))
		Volume	0.00039971	0.004837	6.68187E-05	0.0001	--	--	--	1	0.5 x (Tunnel Section M + Tunnel Section N)
		Volume	0.00039971	0.004837	6.68187E-05	0.0001	--	--	--	1	0.5 x (Tunnel Section M + Tunnel Section N)
		Volume	0.00112356	0.0126156	0.000167268	0.0021	--	--	--	1	1 x Tunnel Section P + 0.7 x 0.76 x Tunnel Section J + 0.7 x 0.86 x Tunnel Section K + 0.7 x (1/3 x (Tunnel Section Internal Road A + Tunnel Section Internal Road B + Tunnel Section Internal Road C) x (traffic flow of Tunnel Section P / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section O)))
		Volume	0.01152574	0.3178549	0.000969479	0.0365	--	--	--	1	1 x Tunnel W
		Volume	0.00384866	0.0836681	0.00025678	0.0096	--	--	--	1	1 x Tunnel X
		Volume	0.00012005	0.0022	0.00012005	0.0022	--	--	--	1	1/3 x Basement roads A,B,C
		Volume	0.00012005	0.0022	0.00012005	0.0022	--	--	--	1	1/3 x Basement roads A,B,C
		Volume	--	--	--	--	--	--	--	1	1 x Tunnel Y
		Volume	--	--	--	--	--	--	--	1	1 x Tunnel Z
		Paint	--	--	--	--	--	--	--	from 1-4	--

Appendix 3.18c - Emission Rates of Portal, Top Openings and Ventilation Exhaust (H02-03)

Remarks (Tunnel name - Portal & top opening of underpass in EIA of Rd Works in WK)	WKCD section no.	Road name	Bound	Road Type	Length (m)	Total (veh/hr)	Hr 02-03 (2015 EIA, 19-12-2011.x1g)														Rate (g/km-PM)	Rate (g/km-NOx)	Emission Rate (g/s)			
							PC	taxi	LGV3	LGV4	LGV6	HGV7	HGV8	PLB	PV4	PV5	NFB6	NFB7	NFB8	FBSD			FBDO	MC	Total	PM
A ^A	73	Lin Cheung Rd (underpass)	Northbound	3	73	135	56%	0%	22%	0%	4%	4%	7%	4%	0%	0%	0%	4%	0%	0%	100%	0.1111624	1.3667947	0.0032043	0.0237418	
B ^B	73	Lin Cheung Rd (underpass)	Northbound	3	272	135	56%	0%	22%	0%	4%	4%	7%	4%	0%	0%	0%	4%	0%	0%	100%	0.1111624	1.3667947	0.0011339	0.0139413	
C ^C	73	Lin Cheung Rd (underpass)	Northbound	3	110	135	56%	0%	22%	0%	4%	4%	7%	4%	0%	0%	0%	4%	0%	0%	100%	0.1111624	1.3667947	0.0004585	0.0056380	
D ^D	73	Lin Cheung Rd (underpass)	Northbound	3	176	135	56%	0%	22%	0%	4%	4%	7%	4%	0%	0%	0%	4%	0%	0%	100%	0.1111624	1.3667947	0.0007287	0.0094209	
E ^E	72	Lin Cheung Rd (underpass)	Southbound	3	155	110	59%	0%	27%	0%	5%	0%	3%	3%	0%	0%	0%	0%	0%	0%	100%	0.0882718	0.9397428	0.0034181	0.0044507	
F ^F	72	Lin Cheung Rd (depressed)	Southbound	3	172	110	59%	0%	27%	0%	5%	0%	3%	3%	0%	0%	0%	0%	0%	0%	100%	0.0882718	0.9397428	0.0004639	0.0049389	
G ^G	118	Lin Cheung Rd (depressed)	Southbound	3	121	135	56%	0%	22%	0%	4%	0%	7%	4%	0%	0%	0%	4%	0%	0%	100%	0.1024286	1.2617028	0.0004648	0.0057250	
H ^H	119	Austin Rd W (depressed)	Eastbound	3	173	440	30%	0%	11%	52%	0%	11%	0%	2%	1%	1%	0%	0%	1%	1%	1%	100%	0.1425222	1.5975962	0.0020153	0.0331463
I ^I	117	Austin Rd W (depressed)	Eastbound	3	194	120	33%	0%	54%	0%	0%	0%	4%	4%	0%	0%	0%	0%	0%	0%	4%	100%	0.1364513	1.2514258	0.0008824	0.0080928
J ^J	116	Austin Rd W (depressed)	Westbound	3	194	145	34%	0%	52%	0%	0%	0%	3%	3%	0%	0%	0%	0%	0%	0%	100%	0.1300228	1.5319528	0.0010160	0.0119705	
K ^K	114	Lin Cheung Rd (depressed)	Southbound	3	95	20	75%	0%	25%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0.0551325	0.4595977	0.0002281	0.0002420	
L ^L	112	Lin Cheung Rd (depressed)	Northbound	3	95	165	54%	0%	24%	0%	3%	0%	3%	3%	0%	0%	0%	0%	0%	0%	100%	0.1010261	1.1767331	0.0034932	0.0037447	
M ^M	84	Lin Cheung Rd	Southbound	3	55	100	60%	0%	25%	0%	5%	0%	5%	5%	0%	0%	0%	0%	0%	0%	100%	0.0864728	0.9467793	0.0001345	0.0014723	
N ^N	77	Lin Cheung Rd	Northbound	3	55	275	55%	0%	24%	0%	4%	2%	2%	2%	0%	0%	2%	2%	2%	0%	100%	0.0862872	1.2157264	0.0004119	0.0052000	
O ^O	111	Austin Rd W (depressed)	Eastbound	3	52	350	30%	0%	11%	51%	0%	11%	0%	2%	1%	0%	0%	1%	1%	1%	100%	0.1425222	1.6214943	0.0007192	0.0091978	
P ^P	110	Austin Rd W (depressed)	Westbound	3	52	190	28%	0%	35%	0%	3%	0%	3%	3%	0%	0%	0%	0%	0%	0%	100%	0.1473824	1.7038931	0.0004243	0.0046927	
W ^W	98	West Kowloon Highway (WKH)	Northbound	2	1970	545	55%	0%	18%	0%	3%	2%	8%	4%	3%	2%	2%	5%	2%	3%	0%	100%	0.0372391	1.0434813	0.0111061	0.312038
A	Internal Rd A	Bothbound	4	404	5	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0.0027955	0.0567287	0.0000033	0.0000318	
B	Internal Rd B	Bothbound	4	361	15	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0.1004898	1.1361867	0.0015178	0.0017090	
C	Internal Rd C	Bothbound	4	521	5	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	100%	0.3089822	3.3517835	0.0002235	0.0024254	
X ^X	114	Repositioning of Gascoigne Rd Flyover	Westbound	3	180	645	34%	1%	12%	11%	7%	4%	12%	11%	2%	2%	1%	0%	0%	0%	100%	0.1178284	2.5455230	0.0003800	0.0620261	

Note: (B) 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 multiplied by traffic flow of each roads.

Portal/ opening ID	Source Type	Calculated by the formula shown (extracted from the approved EIA of Road Works at West Kowloon)		Volume source - calculated by number of portal/opening (veh/hr)		Area source - calculated by emission rate divided by area		Formula from Scenario	Emission calculation formula (Extracted from the approved EIA of Road Works at West Kowloon)	
		PM	NOx	PM	NOx	PM	NOx			
80.955	0.873									
A	Area	9.1282E-05	0.0011225	-	-	3E-07	2E-06	491.2	1	0.3 x Tunnel Section A
B	Area	0.00117568	0.0144556	-	-	3E-06	4E-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	Area	0.00031434	0.0039561	-	-	3E-07	8E-06	835.3	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	Volume	0.00117448	0.0144408	0.00011856	0.0014	-	-	-	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
D8-D14	Volume	5.59279E-05	0.0007	-	-	-	-	-	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	Area	0.00022697	0.0024163	-	-	6E-07	9E-06	277.5	1	0.3 x 0.7 x Tunnel Section E + 0.3 x Tunnel Section F
H	Volume	0.00510713	0.0551004	0.00095189	0.0092	-	-	-	1	1 x Tunnel Section F + 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 (1/3 x (Tunnel Section Internal Road A + Tunnel Section Internal Road B + Tunnel Section Internal Road C) x (traffic flow of Tunnel Section I / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L)) + 0.3 x Tunnel Section E
I	Volume	0.00025992	0.0046	-	-	-	-	-	1	0.3 x 0.7 x Tunnel Section J + 0.3 x (1 - 0.14) x Tunnel Section K + 0.3 x Tunnel Section O + 0.3 x 1/3 x (Tunnel Section Internal Road A + Tunnel Section Internal Road B + Tunnel Section Internal Road C) x (traffic flow of Tunnel Section L / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section P))
J	Area	0.00056651	0.0065296	-	-	4E-07	4E-06	1642.7	1	0.3 x Tunnel Section J + 0.3 x (1 - 0.14) x Tunnel Section K + 0.3 x Tunnel Section O + 0.3 x 1/3 x (Tunnel Section Internal Road A + Tunnel Section Internal Road B + Tunnel Section Internal Road C) x (traffic flow of Tunnel Section L / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section P))
L1-L5	Volume	0.00100954	0.0117757	0.000134605	0.0016	-	-	-	1	1 x Tunnel Section L + 0.7 x 0.24 x Tunnel Section J + 0.7 x 0.62 x tunnel Section O + 0.7 x (1/3 x (Tunnel Section Internal Road A + Tunnel Section Internal Road B + Tunnel Section Internal Road C) x (traffic flow of Tunnel Section L / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section P)))
LE-L10	Volume	0.0002732	0.0033367	4.5334E-05	0.0009	-	-	-	1	Tunnel Section Internal Road C) x (traffic flow of Tunnel Section L / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section P))
M1-M4	Volume	0.0002732	0.0033367	4.5334E-05	0.0009	-	-	-	1	0.5 x (Tunnel Section M + Tunnel Section N)
M5-M8	Volume	2.2767E-05	0.0003	-	-	-	-	-	1	0.5 x (Tunnel Section M + Tunnel Section N)
N1-N4	Volume	0.0002732	0.0033367	4.5334E-05	0.0009	-	-	-	1	0.5 x (Tunnel Section M + Tunnel Section N)
NE-N8	Volume	2.2767E-05	0.0003	-	-	-	-	-	1	0.5 x (Tunnel Section M + Tunnel Section N)
P1-P4	Volume	0.00099684	0.011432	0.000196157	0.0019	-	-	-	1	1 x Tunnel Section P + 0.7 x 0.76 x Tunnel Section J + 0.7 x 0.86 x tunnel Section K + 0.7 x (1/3 x (Tunnel Section Internal Road A + Tunnel Section Internal Road B + Tunnel Section Internal Road C) x (traffic flow of Tunnel Section P / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section P)))
P5-P8	Volume	8.30787E-05	0.001	-	-	-	-	-	1	1 x Tunnel Section P + 0.7 x 0.76 x Tunnel Section J + 0.7 x 0.86 x tunnel Section K + 0.7 x (1/3 x (Tunnel Section Internal Road A + Tunnel Section Internal Road B + Tunnel Section Internal Road C) x (traffic flow of Tunnel Section P / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section P)))
W1-W8	Volume	0.0110605	0.3112038	0.000925504	0.0259	-	-	-	1	1 x Tunnel Section W
WB-W16	Volume	0.00379997	0.0820931	0.000462782	0.013	-	-	-	1	1 x Tunnel W
T01-T10	Volume	0.00026333	0.0025	-	-	-	-	-	1	1 x Tunnel X
T11-T20	Volume	0.00012868	0.0027	-	-	-	-	-	1	1 x Tunnel X
BaseA	Volume	0.00012818	0.0013887	0.000128184	0.0014	-	-	-	1	1/3 x Basement roads A,B,C
BaseC	Volume	0.00012818	0.0013887	0.000128184	0.0014	-	-	-	1	1/3 x Basement roads A,B,C
901-920	Volume	-	-	-	-	-	-	-	1	1 x Tunnel Y
901-903	Volume	-	-	-	-	-	-	-	1	1 x Tunnel Z
904-906	Volume	-	-	-	-	-	-	-	1	1 x Tunnel Z
V1	Paint	-	-	-	-	-	-	-	1	from 1-4

Appendix 3.18c - Emission Rates of Portal, Top Openings and Ventilation Exhaust (H07-06)

Remarks (Tunnel name - Portal & top opening of underpass in EIA of Rd Works in WK)	WKCD section no.	Road name	Bound	Road Type	Length (m)	Total (veh/hr)	Hr 07-06 (2015 EIA, 10-12-2011.xlt)																				Rate (g/km-PM)	Rate (g/km-NOx)	Emission Rate (g/s)	
							PC	taxi	LGV3	LGV4	LGV6	HGV7	HGV8	PLB	PV4	PV5	NFB6	NFB7	NFB8	FBSD	FBDD	MC	Total	PM	NOx					
A'	73	Lin Cheung Rd (underpass)	Northbound	3	73	190	53%	0%	24%	0%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0.998381	1.2022533	0.003791	0.020443			
B'	73	Lin Cheung Rd (underpass)	Northbound	3	272	190	53%	0%	24%	0%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0.998381	1.2022533	0.0014124	0.019751				
C'	73	Lin Cheung Rd (underpass)	Northbound	3	110	190	53%	0%	24%	0%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0.998381	1.2022533	0.0005712	0.007609				
D'	73	Lin Cheung Rd (underpass)	Northbound	3	176	190	53%	0%	24%	0%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0.998381	1.2022533	0.0009439	0.0121615				
E'	72	Lin Cheung Rd (underpass)	Southbound	3	155	815	52%	1%	24%	0%	2%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	100%	0.998291	1.2558395	0.002957	0.033236				
F'	72	Lin Cheung Rd (depressed)	Southbound	3	172	815	52%	1%	24%	0%	2%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	100%	0.998291	1.2558395	0.0028804	0.038907				
G'	118	Lin Cheung Rd (depressed)	Southbound	3	121	750	51%	1%	24%	1%	2%	0%	0%	0%	2%	1%	0%	0%	0%	1%	1%	100%	0.998168	1.2331750	0.0024935	0.0310863				
H'	119	Austin Rd W (depressed)	Eastbound	3	173	950	24%	2%	57%	0%	2%	2%	4%	2%	1%	1%	1%	0%	1%	2%	2%	100%	0.1529552	1.7623236	0.0069442	0.0838569				
I'	117	Austin Rd W (depressed)	Eastbound	3	194	280	25%	2%	55%	0%	2%	2%	4%	2%	0%	0%	0%	0%	2%	2%	2%	100%	0.1488270	1.7441715	0.0022426	0.0283176				
J'	116	Austin Rd W (depressed)	Westbound	3	194	280	25%	2%	54%	0%	2%	2%	4%	2%	0%	0%	0%	2%	2%	2%	2%	100%	0.1483998	1.7408600	0.0022392	0.0285694				
K'	114	Lin Cheung Rd (depressed)	Southbound	3	95	165	45%	3%	24%	0%	3%	0%	3%	3%	3%	0%	0%	3%	0%	0%	0%	100%	0.1063910	1.4684655	0.0004632	0.0053939				
L'	112	Lin Cheung Rd (depressed)	Northbound	3	95	150	53%	1%	20%	0%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0.0984727	1.1909753	0.0031147	0.0102563				
M'	84	Lin Cheung Rd	Southbound	3	55	645	51%	1%	24%	0%	2%	0%	0%	0%	2%	1%	0%	0%	0%	0%	0%	100%	0.1018044	1.2520360	0.0010214	0.0129700				
N'	77	Lin Cheung Rd	Northbound	3	55	465	52%	1%	24%	0%	2%	0%	0%	0%	2%	1%	0%	0%	1%	0%	1%	100%	0.1019555	1.2520216	0.0007313	0.0091082				
O'	111	Austin Rd W (depressed)	Eastbound	3	52	785	25%	1%	57%	0%	1%	1%	4%	2%	1%	1%	1%	0%	1%	2%	2%	100%	0.1486055	1.6942114	0.0016823	0.0190971				
P'	110	Austin Rd W (depressed)	Westbound	3	52	430	28%	1%	55%	0%	1%	1%	5%	1%	1%	1%	1%	0%	1%	2%	2%	100%	0.1483656	1.7954596	0.0009352	0.0109552				
Q'	98	West Kowloon Highway (WKH)	Northbound	2	1970	1575	81%	0%	17%	0%	2%	2%	6%	3%	3%	3%	2%	0%	5%	2%	3%	100%	0.0613598	1.5130225	0.0288843	1.3040362				
A	Internal Rd A	Bothbound	4	404	30	90%	0%	33%	0%	0%	0%	0%	0%	0%	0%	17%	0%	0%	0%	0%	0%	100%	0.1360794	1.2327271	0.0004649	0.0041502				
B	Internal Rd B	Bothbound	4	361	60	95%	0%	25%	0%	0%	0%	0%	0%	0%	0%	23%	0%	0%	0%	0%	0%	100%	0.1733658	1.7473176	0.0010461	0.0151119				
C	Internal Rd C	Bothbound	4	521	25	20%	0%	20%	0%	0%	0%	0%	0%	0%	0%	60%	0%	0%	0%	0%	0%	100%	0.2563377	2.5515727	0.0009274	0.006231				
N'	114	Reposition of Gascoigne Rd Flyover	Westbound	3	180	1925	33%	0%	11%	1%	7%	5%	13%	10%	2%	2%	1%	0%	1%	0%	1%	100%	0.1212756	2.6406536	0.0080345	0.1749433				

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 multiplied by traffic flow of each roads.

Scenario 2 30%

Portal/ opening ID	Source Type	Calculated by the formula shown (extracted from the approved EIA of Road Works at West Kowloon)		Volume source - calculated by number of portal/opening (veh/hr)		Area source - calculated by emission rate divided by area		Formula from Scenario	Emission calculation formula (Extracted from the approved EIA of Road Works at West Kowloon)	
		PM	NOx	PM	NOx	PM	NOx (Area)			
A	Area	0.00011372	0.0015133	-	-	2E-07	3E-06	491.2	1	0.3 x Tunnel Section A
B	Area	0.00146452	0.0194884	-	-	4E-06	6E-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)
C	Area	0.00101404	0.0131076	-	-	2E-06	2E-05	835.3	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
D-D14	Volume	0.00146303	0.0194695	6.96678E-05	0.0009	-	-	-	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	Area	0.00140921	0.0180535	-	-	5E-06	7E-05	277.5	1	0.3 x 0.7 x Tunnel Section E + 0.3 x Tunnel Section F
H-H4	Volume	0.01567655	0.1872127	0.002612758	0.0312	-	-	-	1	1 x Tunnel Section H + 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 (1/3 x (Tunnel Section Internal Road A + Tunnel Section Internal Road B + Tunnel Section Internal Road C) x (traffic flow of Tunnel Section I / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section J + traffic flow of Tunnel Section O + 0.3 x 1/3 x (Tunnel Section Internal Road A + Tunnel Section Internal Road B + Tunnel Section Internal Road C) x (traffic flow of Tunnel Section L / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section P)))
J	Area	0.00154083	0.0177739	-	-	1E-06	1E-05	1642.7	1	0.3 x Tunnel Section J + 0.3 x (1 - 0.14) x Tunnel Section K + 0.3 x Tunnel Section O + 0.3 x 1/3 x (Tunnel Section Internal Road A + Tunnel Section Internal Road B + Tunnel Section Internal Road C) x (traffic flow of Tunnel Section L / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section P))
L1-L5	Volume	0.00209957	0.02556641	0.000279943	0.0034	-	-	-	1	1 x Tunnel Section L + 0.7 x 0.24 x Tunnel Section J + 0.7 x 0.62 x Tunnel Section O + 0.7 x (1/3 x (Tunnel Section Internal Road A + Tunnel Section Internal Road B + Tunnel Section Internal Road C) x (traffic flow of Tunnel Section L / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section P))
L6-L10	Volume	0.00087635	0.0110391	0.000139972	0.0017	-	-	-	1	0.5 x (Tunnel Section M + Tunnel Section N)
M1-M4	Volume	0.00087635	0.0110391	0.000146058	0.0018	-	-	-	1	0.5 x (Tunnel Section M + Tunnel Section N)
M5-M8	Volume	0.00283243	0.0303248	7.3029E-05	0.0009	-	-	-	1	1 x Tunnel Section P + 0.7 x 0.76 x Tunnel Section J + 0.7 x 0.86 x Tunnel Section K + 0.7 x (1/3 x (Tunnel Section Internal Road A + Tunnel Section Internal Road B + Tunnel Section Internal Road C) x (traffic flow of Tunnel Section P / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section P))
N1-N4	Volume	0.00087635	0.0110391	0.000146058	0.0018	-	-	-	1	0.5 x (Tunnel Section M + Tunnel Section N)
N5-N8	Volume	0.00283243	0.0303248	7.3029E-05	0.0009	-	-	-	1	1 x Tunnel Section P + 0.7 x 0.76 x Tunnel Section J + 0.7 x 0.86 x Tunnel Section K + 0.7 x (1/3 x (Tunnel Section Internal Road A + Tunnel Section Internal Road B + Tunnel Section Internal Road C) x (traffic flow of Tunnel Section P / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section P))
P1-P4	Volume	0.00283243	0.0303248	0.000438789	0.0051	-	-	-	1	1 x Tunnel Section P + 0.7 x 0.76 x Tunnel Section J + 0.7 x 0.86 x Tunnel Section K + 0.7 x (1/3 x (Tunnel Section Internal Road A + Tunnel Section Internal Road B + Tunnel Section Internal Road C) x (traffic flow of Tunnel Section P / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section P))
P5-P8	Volume	0.00283243	0.0303248	0.000219369	0.0025	-	-	-	1	1 x Tunnel Section P + 0.7 x 0.76 x Tunnel Section J + 0.7 x 0.86 x Tunnel Section K + 0.7 x (1/3 x (Tunnel Section Internal Road A + Tunnel Section Internal Road B + Tunnel Section Internal Road C) x (traffic flow of Tunnel Section P / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section P))
W1-W8	Volume	0.05288432	1.3040362	0.004407027	0.1087	-	-	-	1	1 x Tunnel W
W9-W16	Volume	0.00803451	0.1749433	0.00220513	0.0543	-	-	-	1	1 x Tunnel W
T01-T10	Volume	0.000803451	0.01749433	0.000220513	0.0117	-	-	-	1	1 x Tunnel Y
T11-T20	Volume	0.000803451	0.01749433	0.000220513	0.0117	-	-	-	1	1 x Tunnel Z
BaseA	Volume	0.00081124	0.0079546	0.000811237	0.008	-	-	-	-	1/3 x Basement roads A,B,C
BaseC	Volume	0.00081124	0.0079546	0.000811237	0.008	-	-	-	-	1/3 x Basement roads A,B,C
G01-G30	Volume	-	-	-	-	-	-	-	1	1 x Tunnel Y
G01-G03	Volume	-	-	-	-	-	-	-	1	1 x Tunnel Z
G04-G06	Volume	-	-	-	-	-	-	-	1	1 x Tunnel Z
V1	Paint	-	-	-	-	-	-	-	-	from 1-4

Appendix 3.18c - Emission Rates of Portal, Top Openings and Ventilation Exhaust (H06-09)

Remarks (Tunnel name - Portal & top opening of underpass in EIA of Rd works in WK)	WKCD section no.	Road name	Bound	Road Type	Length (m)	Total (veh/hr)	Hr 06-09 (2015 EIA, 19-12-2011.xlt)																			Rate (g/km-PM)	Emission Rate (g/s) NOx
							PC	taxi	LGV3	LGV4	LGV6	HGV7	HGV8	PLB	PV4	PV5	NFB6	NFB7	NFB8	FBSD	FBDO	MC	Total				
							PM	NOx	PM	NOx	PM	NOx	PM	NOx	PM	NOx	PM	NOx	PM	NOx	PM	NOx	PM	NOx			
A ¹	73	Lin Cheung Rd (underpass)	Northbound	3	73	385	51%	1%	23%	0%	3%	3%	0%	3%	0%	3%	1%	0%	3%	1%	0%	0%	100%	0.1201489	1.4407844	0.0039280	0.0112480
B ¹	73	Lin Cheung Rd (underpass)	Northbound	3	272	385	51%	1%	23%	0%	3%	3%	0%	3%	0%	3%	1%	0%	3%	1%	0%	0%	100%	0.1201489	1.4407844	0.0039280	0.0419102
C ¹	73	Lin Cheung Rd (underpass)	Northbound	3	110	385	51%	1%	23%	0%	3%	3%	0%	3%	0%	3%	1%	0%	3%	1%	0%	0%	100%	0.1201489	1.4407844	0.0039280	0.0169480
D ¹	73	Lin Cheung Rd (underpass)	Northbound	3	176	385	51%	1%	23%	0%	3%	3%	0%	3%	0%	3%	1%	0%	3%	1%	0%	0%	100%	0.1201489	1.4407844	0.0039280	0.0271184
E ¹	72	Lin Cheung Rd (underpass)	Southbound	3	155	1215	51%	1%	24%	0%	2%	2%	0%	2%	0%	2%	1%	0%	2%	1%	0%	0%	100%	0.1167078	1.4028321	0.0081053	0.0737952
F ¹	72	Lin Cheung Rd (depressed)	Southbound	3	172	1215	51%	1%	24%	0%	2%	2%	0%	2%	0%	2%	1%	0%	2%	1%	0%	0%	100%	0.1167078	1.4028321	0.0081053	0.0814223
G ¹	118	Lin Cheung Rd (depressed)	Southbound	3	121	1505	51%	1%	24%	0%	2%	2%	0%	2%	0%	2%	1%	0%	2%	1%	0%	0%	100%	0.1148200	1.3773229	0.0058081	0.0696730
H ¹	119	Austin Rd W (depressed)	Eastbound	3	173	1435	23%	2%	59%	0%	1%	1%	4%	2%	1%	1%	0%	0%	1%	1%	2%	2%	100%	0.1719884	1.8790336	0.0118889	0.1295783
I ¹	117	Austin Rd W (depressed)	Eastbound	3	194	400	24%	1%	59%	0%	1%	1%	4%	2%	1%	0%	0%	0%	1%	1%	3%	3%	100%	0.1687920	1.8971828	0.0036384	0.0409843
J ¹	116	Austin Rd W (depressed)	Westbound	3	194	400	24%	1%	59%	0%	1%	1%	4%	2%	1%	0%	0%	0%	1%	1%	3%	3%	100%	0.1706781	1.9239541	0.0036791	0.0416659
K ¹	114	Lin Cheung Rd (depressed)	Southbound	3	95	295	53%	2%	25%	0%	2%	2%	7%	3%	2%	2%	0%	2%	2%	2%	0%	0%	100%	0.1148854	1.3530218	0.0036928	0.0165329
L ¹	112	Lin Cheung Rd (depressed)	Northbound	3	95	685	53%	2%	24%	0%	2%	2%	7%	3%	2%	2%	1%	0%	2%	1%	0%	0%	100%	0.1172184	1.3564440	0.0021189	0.0254340
M ¹	84	Lin Cheung Rd	Southbound	3	56	1305	51%	1%	24%	0%	2%	2%	6%	3%	3%	2%	1%	0%	2%	2%	0%	0%	100%	0.1167217	1.3845859	0.0023684	0.0281123
N ¹	77	Lin Cheung Rd	Northbound	3	56	960	51%	1%	24%	0%	2%	2%	6%	3%	3%	3%	1%	0%	3%	2%	0%	1%	100%	0.1184708	1.4240655	0.0017693	0.0212660
O ¹	111	Austin Rd W (depressed)	Eastbound	3	52	1205	23%	2%	59%	0%	1%	1%	4%	2%	1%	0%	0%	0%	1%	1%	2%	2%	100%	0.1699619	1.8582016	0.0025983	0.0320430
P ¹	110	Austin Rd W (depressed)	Westbound	3	52	645	23%	2%	57%	0%	2%	2%	5%	2%	1%	1%	1%	0%	1%	1%	2%	2%	100%	0.1716682	1.8928928	0.0016821	0.0179352
Q ¹	98	West Kowloon Highway (WKH)	Northbound	2	1970	4145	81%	0%	17%	0%	2%	2%	6%	3%	3%	2%	2%	0%	5%	2%	3%	0%	100%	0.0631287	1.5196290	0.1431840	3.4468774
A	Internal Rd A	Bothbound	4	404	50	40%	0%	30%	0%	0%	0%	0%	0%	10%	0%	0%	2%	0%	0%	0%	0%	0%	100%	0.1729303	1.4952900	0.0039704	0.0083902
B	Internal Rd B	Bothbound	4	361	85	35%	0%	24%	0%	0%	0%	0%	0%	0%	0%	0%	24%	0%	0%	0%	0%	0%	100%	0.2881043	2.9551666	0.0017738	0.0115174
C	Internal Rd C	Bothbound	4	521	35	29%	0%	14%	0%	0%	0%	0%	0%	0%	0%	0%	57%	0%	0%	0%	0%	0%	100%	0.2364948	2.3544828	0.0011979	0.0119280
X	1144	Reposition of Gascoigne Rd Flyover	Westbound	3	180	1680	33%	1%	11%	1%	7%	5%	13%	10%	2%	1%	1%	0%	1%	0%	0%	1%	100%	0.1407990	2.8390978	0.0118898	0.2384842

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 multiplied by traffic flow of each roads.

Scenario 2 30%

Portal/ opening ID	Source Type	Calculated by the formula shown (extracted from the approved EIA of Road Works at West Kowloon)		Volume source - calculated by number of portal/opening (veh/hr)		Area source - calculated by emission rate divided by area		Formula from Scenario	Emission calculation formula (Extracted from the approved EIA of Road Works at West Kowloon)	
		PM	NOx	PM	NOx	PM	NOx (Area)			
A	Area	0.0002814	0.0033744	-	-	3E-07	7E-06	491.2	1	0.3 x Tunnel Section A
B	Area	0.00362393	0.0434563	-	-	1E-05	0.0001	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	Area	0.00241391	0.0289955	-	-	4E-06	9E-05	835.3	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	Volume	0.00362023	0.0434119	0.00344784	0.0041	-	-	-	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
D8-D14	Volume	0.00172392	0.0021	-	-	-	-	-	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	Area	0.00331457	0.0398356	-	-	1E-05	0.0001	277.5	1	0.3 x 0.7 x Tunnel Section E + 0.3 x Tunnel Section F
H-4	Volume	0.00316401	0.345325	0.00527335	0.0578	-	-	-	1	1 x Tunnel Section H + 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 (1/3 x (Tunnel Section Internal Road A + Tunnel Section Internal Road B + Tunnel Section Internal Road C) x (traffic flow of Tunnel Section I / (traffic flow of Tunnel Section I + traffic flow of Tunnel Road A + Tunnel Section Internal Road B + Tunnel Section Internal Road C) x (traffic flow of Tunnel Section I / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section P)))
I1	Volume	0.00251368	0.0086	-	-	-	-	-	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
JK01	Area	0.00261575	0.0287035	-	-	2E-06	2E-05	1642.7	1	0.3 x Tunnel Section J + 0.3 x (1 - 0.14) x Tunnel Section K + 0.3 x Tunnel Section O + 0.3 x 1/3 x (Tunnel Section Internal Road A + Tunnel Section Internal Road B + 1 x Tunnel Section L + 0.7 x 0.24 x Tunnel Section J + 0.7 x 0.62 x Tunnel Section O + 0.7 x (1/3 x (Tunnel Section Internal Road A + Tunnel Section Internal Road B + Tunnel Section Internal Road C) x (traffic flow of Tunnel Section L / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section P)))
L1-L5	Volume	0.00438507	0.050846	0.00584678	0.0068	-	-	-	1	1 x Tunnel Section L + 0.7 x 0.24 x Tunnel Section J + 0.7 x 0.62 x Tunnel Section O + 0.7 x (1/3 x (Tunnel Section Internal Road A + Tunnel Section Internal Road B + Tunnel Section Internal Road C) x (traffic flow of Tunnel Section L / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section P)))
LE-L10	Volume	0.00206935	0.0246894	0.00292338	0.0034	-	-	-	1	Tunnel Section Internal Road C) x (traffic flow of Tunnel Section L / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section P)))
M1-M4	Volume	0.00206935	0.0246894	0.00344892	0.0041	-	-	-	1	0.5 x (Tunnel Section M + Tunnel Section N)
M5-M8	Volume	0.00206935	0.0246894	0.00344892	0.0041	-	-	-	1	0.5 x (Tunnel Section M + Tunnel Section N)
N1-N4	Volume	0.00206935	0.0246894	0.00344892	0.0041	-	-	-	1	0.5 x (Tunnel Section M + Tunnel Section N)
NS-N8	Volume	0.00172446	0.0021	-	-	-	-	-	1	0.5 x (Tunnel Section M + Tunnel Section N)
P1-P4	Volume	0.00443974	0.0482509	0.00376927	0.008	-	-	-	1	1 x Tunnel Section P + 0.7 x 0.76 x Tunnel Section J + 0.7 x 0.86 x Tunnel Section K + 0.7 x (1/3 x (Tunnel Section Internal Road A + Tunnel Section Internal Road B + Tunnel Section Internal Road C) x (traffic flow of Tunnel Section P / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section O)))
P5-P8	Volume	0.00399978	0.004	-	-	-	-	-	1	1 x Tunnel Section P + 0.7 x 0.76 x Tunnel Section J + 0.7 x 0.86 x Tunnel Section K + 0.7 x (1/3 x (Tunnel Section Internal Road A + Tunnel Section Internal Road B + Tunnel Section Internal Road C) x (traffic flow of Tunnel Section P / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section O)))
W1-W8	Volume	0.14318403	3.4468774	0.011932002	0.2872	-	-	-	1	1 x Tunnel W
WB-W18	Volume	0.01182678	0.2384842	0.00596001	0.1438	-	-	-	1	1 x Tunnel W
T01-T10	Volume	0.00078495	0.0159	-	-	-	-	-	1	1 x Tunnel X
T11-T20	Volume	0.000594228	0.0078	-	-	-	-	-	1	1 x Tunnel X
BaseA	Volume	0.00131403	0.0126112	0.001314025	0.0128	-	-	-	1	1/3 x Basement roads A,B,C
BaseC	Volume	0.00131403	0.0126112	0.001314025	0.0128	-	-	-	1	1/3 x Basement roads A,B,C
901-930	Volume	-	-	-	-	-	-	-	1	1 x Tunnel Y
904-906	Volume	-	-	-	-	-	-	-	1	1 x Tunnel Z
V1	Paint	-	-	-	-	-	-	-	1	from 1-4

Appendix 3.18c - Emission Rates of Portal, Top Openings and Ventilation Exhaust (H09-10)

Remarks (Tunnel name - Portal & top opening of underpass in EIA of Rd Works in WK)	WKCD section no.	Road name	Bound	Road Type	Length (m)	Total (veh/hr)	Hr 09-10 (2015 EIA, 19-12-2011.xls)																		Rate (g/km-PM)	Rate (g/km-NOx)	Emission Rate (g/s)	
							PC	taxi	LGV3	LGV4	LGV6	HGV7	HGV8	PLB	PV4	PV5	NFB6	NFB7	NFB8	FBS8	FBDD	MC	Total	PM			NOx	
A ¹	73	Lin Chung Rd (underpass)	Northbound	3	73	380	50%	1%	24%	0%	3%	3%	7%	3%	3%	3%	1%	0%	3%	1%	0%	0%	100%	0.124987	1.478782	0.009631	0.011947	
B ¹	73	Lin Chung Rd (underpass)	Northbound	3	272	380	50%	1%	24%	0%	3%	3%	7%	3%	3%	3%	1%	0%	3%	1%	0%	0%	100%	0.124987	1.478782	0.009586	0.0424570	
C ¹	73	Lin Chung Rd (underpass)	Northbound	3	110	380	50%	1%	24%	0%	3%	3%	7%	3%	3%	3%	1%	0%	3%	1%	0%	0%	100%	0.124987	1.478782	0.0014513	0.0171701	
D ¹	73	Lin Chung Rd (underpass)	Northbound	3	176	380	50%	1%	24%	0%	3%	3%	7%	3%	3%	3%	1%	0%	3%	1%	0%	0%	100%	0.124987	1.478782	0.0023220	0.0274722	
E ¹	72	Lin Chung Rd (underpass)	Southbound	3	155	986	51%	1%	24%	0%	2%	2%	8%	3%	3%	3%	1%	0%	3%	2%	0%	0%	100%	0.1211567	1.4332808	0.0051448	0.0698930	
F ¹	72	Lin Chung Rd (depressed)	Southbound	3	172	986	51%	1%	24%	0%	2%	2%	8%	3%	3%	3%	1%	0%	3%	2%	0%	1%	100%	0.1211567	1.4332808	0.0057091	0.0675383	
G ¹	118	Lin Chung Rd (depressed)	Southbound	3	121	1230	50%	1%	24%	0%	2%	2%	8%	3%	3%	3%	1%	0%	3%	2%	0%	0%	100%	0.1199153	1.4192033	0.0049575	0.0586722	
H ¹	119	Austin Rd W (depressed)	Eastbound	3	173	1456	22%	2%	59%	0%	1%	1%	4%	2%	1%	1%	0%	0%	1%	1%	1%	2%	100%	0.1791594	1.9129040	0.0124670	0.1338584	
I ¹	117	Austin Rd W (depressed)	Eastbound	3	194	406	23%	1%	59%	0%	1%	1%	4%	2%	1%	0%	0%	0%	1%	1%	2%	2%	100%	0.1750981	1.9417582	0.0038325	0.0425002	
J ¹	116	Austin Rd W (depressed)	Westbound	3	194	401	22%	1%	57%	0%	1%	1%	4%	1%	1%	0%	4%	0%	1%	1%	2%	2%	100%	0.1794183	2.0092829	0.0038767	0.0434145	
K ¹	114	Lin Chung Rd (depressed)	Southbound	3	95	284	51%	2%	25%	0%	3%	2%	8%	3%	2%	2%	0%	2%	2%	2%	0%	0%	100%	0.1178027	1.4026291	0.0038842	0.0105270	
L ¹	112	Lin Chung Rd (depressed)	Northbound	3	95	705	51%	1%	24%	0%	2%	2%	8%	3%	3%	3%	1%	0%	2%	1%	0%	1%	100%	0.1188141	1.3578110	0.0022254	0.0260680	
M ¹	84	Lin Chung Rd	Southbound	3	56	1088	51%	1%	24%	0%	2%	2%	8%	3%	3%	3%	1%	0%	2%	1%	0%	0%	100%	0.1211000	1.4093701	0.0020499	0.0285653	
N ¹	77	Lin Chung Rd	Northbound	3	56	975	50%	1%	24%	0%	2%	2%	8%	3%	3%	3%	1%	0%	3%	2%	0%	1%	100%	0.1217139	1.4371498	0.0019462	0.0217991	
O ¹	111	Austin Rd W (depressed)	Eastbound	3	52	22%	2%	59%	0%	1%	1%	4%	2%	1%	1%	0%	0%	0%	1%	1%	1%	2%	100%	0.1762203	1.8941014	0.0031389	0.0373983	
P ¹	110	Austin Rd W (depressed)	Westbound	3	52	650	22%	2%	59%	0%	2%	2%	5%	2%	1%	1%	1%	0%	1%	1%	1%	2%	100%	0.1762659	1.9438966	0.0016842	0.0165953	
W	98	West Kowloon Highway (WKH)	Northbound	2	1970	3591	50%	0%	17%	0%	2%	2%	7%	3%	3%	3%	2%	0%	5%	2%	3%	0%	100%	0.0644040	1.5391149	0.1285607	3.0425239	
A	Internal Rd A	Bothbound	4	404	79	36%	0%	26%	1%	5%	1%	3%	8%	1%	1%	1%	2%	0%	0%	1%	0%	0%	100%	0.1905963	1.9044530	0.0016852	0.0168388	
B	Internal Rd B	Bothbound	4	361	134	34%	0%	24%	1%	5%	1%	3%	8%	1%	1%	2%	0%	0%	1%	0%	0%	0%	100%	0.1971938	1.9763877	0.0024651	0.0261003	
C	Internal Rd C	Bothbound	4	521	81	22%	0%	18%	0%	3%	1%	2%	4%	1%	1%	50%	0%	0%	1%	0%	0%	0%	100%	0.2498420	2.5507236	0.0021918	0.0223701	
X	I144	Reposition of Gascoigne Rd Flyover	Westbound	3	180	1685	33%	1%	11%	1%	7%	5%	13%	10%	2%	1%	1%	0%	1%	0%	1%	1%	100%	0.1463557	2.8843031	0.0123305	0.2430025	

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 multiplied by traffic flow of each roads.

Scenario 2 30%

Portal opening ID	Source Type	Calculated by the formula shown (extracted from the approved EIA of Road Works at West Kowloon)		Volume source - calculated by number of portal/opening multiplied		Area source - calculated by emission rate divided by area		Formula from Scenario	Emission calculation formula (Extracted from the approved EIA of Road Works at West Kowloon)	
		PM	NOx	PM	NOx	PM	NOx			(Area)
80.955	0.873	0.00028893	0.0034184	-	-	6E-07	7E-06	491.2	1	0.3 x Tunnel Section A
		0.00372096	0.0440232	-	-	1E-05	0.0001	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)
		0.00214136	0.0253329	-	-	2E-06	4E-05	835.3	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	Volume	0.00371718	0.0439783	0.00354017	0.042	-	-	-	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
D8-D14	Volume	0.00177009	0.02021	-	-	-	-	-	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	Area	0.00279313	0.0304427	-	-	1E-05	0.0001	277.5	1	0.3 x 0.7 x Tunnel Section E + 0.3 x Tunnel Section F
I1-44	Volume	0.02906387	0.3262355	0.004847312	0.0544	-	-	-	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 (1/3 x (Tunnel Section Internal Road A + Tunnel Section Internal Road B + Tunnel Section Internal Road C) x (traffic flow of Tunnel Section I / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section L + traffic flow of Tunnel Section P))
I5-8	Volume	0.00242056	0.0272	-	-	-	-	-	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 (1/3 x (Tunnel Section Internal Road A + Tunnel Section Internal Road B + Tunnel Section Internal Road C) x (traffic flow of Tunnel Section I / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section L + traffic flow of Tunnel Section P))
JK01	Area	0.00298501	0.0324347	-	-	2E-06	2E-05	1642.7	1	0.3 x Tunnel Section J + 0.3 x (1 - 0.14) x Tunnel Section K + 0.3 x Tunnel Section O + 0.3 x 1/3 x (Tunnel Section Internal Road A + Tunnel Section Internal Road B + Tunnel Section Internal Road C) x (traffic flow of Tunnel Section I / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section L + traffic flow of Tunnel Section P))
L1-L5	Volume	0.00484835	0.056111	0.000646446	0.0075	-	-	-	1	1 x Tunnel Section L + 0.7 x 0.24 x Tunnel Section J + 0.7 x 0.62 x Tunnel Section O + 0.7 x (1/3 x (Tunnel Section Internal Road A + Tunnel Section Internal Road B + Tunnel Section Internal Road C) x (traffic flow of Tunnel Section I / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section L + traffic flow of Tunnel Section P))
LE-L10	Volume	0.00194803	0.0228278	0.00023223	0.0037	-	-	-	1	Tunnel Section Internal Road C) x (traffic flow of Tunnel Section L / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section P))
M1-M4	Volume	0.00194803	0.0228278	0.00023223	0.0038	-	-	-	1	0.5 x (Tunnel Section M + Tunnel Section N)
M5-M8	Volume	0.00194803	0.0228278	0.00023238	0.0019	-	-	-	1	0.5 x (Tunnel Section M + Tunnel Section N)
N1-N4	Volume	0.00194803	0.0228278	0.00023238	0.0019	-	-	-	1	0.5 x (Tunnel Section M + Tunnel Section N)
NE-N8	Volume	0.00484068	0.0512072	0.000162336	0.0019	-	-	-	1	1 x Tunnel Section P + 0.7 x 0.76 x Tunnel Section J + 0.7 x 0.86 x Tunnel Section K + 0.7 x (1/3 x (Tunnel Section Internal Road A + Tunnel Section Internal Road B + Tunnel Section Internal Road C) x (traffic flow of Tunnel Section P / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section L + traffic flow of Tunnel Section P))
P1-P4	Volume	0.00484068	0.0512072	0.000162336	0.0085	-	-	-	1	1 x Tunnel Section P + 0.7 x 0.76 x Tunnel Section J + 0.7 x 0.86 x Tunnel Section K + 0.7 x (1/3 x (Tunnel Section Internal Road A + Tunnel Section Internal Road B + Tunnel Section Internal Road C) x (traffic flow of Tunnel Section P / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section L + traffic flow of Tunnel Section P))
P5-P8	Volume	0.00484068	0.0512072	0.000162336	0.0043	-	-	-	1	1 x Tunnel Section P + 0.7 x 0.76 x Tunnel Section J + 0.7 x 0.86 x Tunnel Section K + 0.7 x (1/3 x (Tunnel Section Internal Road A + Tunnel Section Internal Road B + Tunnel Section Internal Road C) x (traffic flow of Tunnel Section P / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section L + traffic flow of Tunnel Section P))
W1-W8	Volume	0.12656074	3.0245239	0.010548728	0.252	-	-	-	1	1 x Tunnel W
WB-W16	Volume	0.01233047	0.2430025	0.00273394	0.128	-	-	-	1	1 x Tunnel W
Y01-Y10	Volume	0.00082201	0.0162	-	-	-	-	-	1	1 x Tunnel X
Y11-Y20	Volume	0.00041018	0.0081	-	-	-	-	-	1	1 x Tunnel X
Base-A	Volume	0.00217401	0.0219086	0.002174009	0.0219	-	-	-	1	1/3 x Basement roads A,B,C
Base-C	Volume	0.00217401	0.0219086	0.002174009	0.0219	-	-	-	1	1/3 x Basement roads A,B,C
901-930	Volume	-	-	-	-	-	-	-	1	1 x Tunnel Y
904-906	Volume	-	-	-	-	-	-	-	1	1 x Tunnel Z
V1	Paint	-	-	-	-	-	-	-	1	from 1-4

Appendix 3.18c - Emission Rates of Portal, Top Openings and Ventilation Exhaust (#10-11)

Remarks (Tunnel name - Portal & top opening of underpass in EIA of Rd Works in WK)	WKCD section no.	Road name	Bound	Road Type	Length (m)	Total (veh/hr)	Hr 10-11 (2015 EIA, 10-12-2011.sla)															Rate (g/km-PM)	Emission Rate (g/s) NOx				
							PC	taxi	LGV3	LGV4	LGV6	HGV7	HGV8	PLB	PV4	PV5	NFB6	NFB7	NFB8	FBSD	FBDD			MC	Total		
A ¹	73	Lin Cheung Rd (underpass)	Northbound	3	73	335	49%	1%	22%	0%	3%	3%	3%	3%	3%	3%	1%	0%	3%	1%	0%	100%	0.1262512	1.5175550	0.0098576	0.1032088	
B ¹	73	Lin Cheung Rd (underpass)	Northbound	3	272	335	49%	1%	22%	0%	3%	3%	3%	3%	3%	3%	1%	0%	3%	1%	0%	100%	0.1262512	1.5175550	0.0031956	0.0384110	
C ¹	73	Lin Cheung Rd (underpass)	Northbound	3	110	335	49%	1%	22%	0%	3%	3%	3%	3%	3%	3%	1%	0%	3%	1%	0%	100%	0.1262512	1.5175550	0.0012923	0.0155338	
D ¹	73	Lin Cheung Rd (underpass)	Northbound	3	176	335	49%	1%	22%	0%	3%	3%	3%	3%	3%	3%	1%	0%	3%	1%	0%	100%	0.1262512	1.5175550	0.0026077	0.0248484	
E ¹	72	Lin Cheung Rd (underpass)	Southbound	3	155	735	52%	1%	24%	0%	2%	2%	2%	2%	2%	2%	1%	0%	2%	1%	0%	100%	0.1224588	1.4282669	0.0030753	0.0423203	
F ¹	72	Lin Cheung Rd (depressed)	Southbound	3	172	735	52%	1%	24%	0%	2%	2%	2%	2%	2%	2%	1%	0%	2%	1%	0%	100%	0.1224588	1.4282669	0.0043003	0.0501911	
G ¹	118	Lin Cheung Rd (depressed)	Southbound	3	121	965	51%	1%	24%	1%	2%	2%	2%	2%	2%	2%	1%	0%	2%	2%	0%	100%	0.1204179	1.4189757	0.0036929	0.0431018	
H ¹	119	Austin Rd W (depressed)	Eastbound	3	173	1425	24%	2%	59%	0%	1%	1%	4%	2%	1%	1%	0%	1%	1%	2%	2%	100%	0.1763573	1.8768693	0.0125768	0.1285135	
I ¹	117	Austin Rd W (depressed)	Eastbound	3	194	405	25%	1%	57%	0%	1%	1%	4%	2%	1%	0%	0%	1%	1%	2%	2%	100%	0.1724208	1.9217718	0.0037831	0.0419427	
J ¹	116	Austin Rd W (depressed)	Westbound	3	194	405	25%	1%	56%	0%	1%	1%	4%	1%	1%	0%	2%	0%	1%	1%	2%	100%	0.1743272	1.9588756	0.0038047	0.0427524	
K ¹	114	Lin Cheung Rd (depressed)	Southbound	3	95	205	49%	2%	24%	0%	2%	2%	2%	2%	2%	2%	0%	2%	2%	0%	0%	100%	0.1189213	1.4490713	0.0004433	0.0078391	
L ¹	112	Lin Cheung Rd (depressed)	Northbound	3	95	205	51%	2%	24%	0%	2%	2%	2%	2%	2%	2%	0%	2%	2%	0%	1%	100%	0.1181189	1.3881040	0.0017300	0.0203299	
M ¹	84	Lin Cheung Rd	Southbound	3	55	780	51%	1%	23%	0%	2%	2%	2%	2%	2%	1%	0%	2%	1%	0%	1%	100%	0.1235803	1.4164810	0.0014994	0.0171894	
N ¹	77	Lin Cheung Rd	Northbound	3	56	790	51%	1%	24%	0%	2%	2%	2%	2%	2%	1%	0%	2%	1%	0%	1%	100%	0.1237291	1.4379412	0.0015205	0.0176707	
O ¹	111	Austin Rd W (depressed)	Eastbound	3	52	1190	24%	2%	59%	0%	1%	1%	4%	2%	1%	0%	0%	1%	1%	2%	2%	100%	0.1750260	1.8564963	0.0030365	0.0327304	
P ¹	110	Austin Rd W (depressed)	Westbound	3	52	1460	23%	2%	57%	0%	2%	2%	4%	2%	1%	1%	0%	1%	1%	2%	2%	100%	0.1775428	1.9452947	0.0016413	0.0177653	
W	88	West Kowloon Highway (WKH)	Northbound	2	1970	3140	50%	0%	17%	0%	2%	2%	6%	3%	3%	2%	2%	0%	5%	2%	3%	0%	100%	0.0632495	1.5224591	0.1068801	2.6160077
A	404	Internal Rd A	Bothbound	4	404	35	36%	0%	27%	0%	3%	0%	3%	0%	0%	18%	0%	0%	0%	0%	0%	100%	0.1746298	1.6526518	0.0010779	0.0102005	
B	361	Internal Rd B	Bothbound	4	361	35	37%	0%	26%	0%	3%	0%	3%	0%	0%	21%	0%	0%	0%	0%	0%	100%	0.2030934	1.8335961	0.0010347	0.0106138	
C	521	Internal Rd C	Bothbound	4	521	35	29%	0%	14%	0%	0%	0%	0%	0%	0%	57%	0%	0%	0%	0%	0%	100%	0.2371532	2.3500970	0.0012012	0.0119039	
X	1144	Repositioning of Gascoigne Rd Flyover	Westbound	3	180	1670	33%	1%	11%	1%	7%	4%	13%	10%	2%	1%	1%	0%	1%	8%	5%	1%	100%	0.1467871	2.2949420	0.0124221	0.2482789

Note: (B) 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 multiplied by traffic flow of each roads.

Scenario 2 30%

Portal/ opening ID	Source Type	Calculated by the formula shown (extracted from the approved EIA of Road Works at West Kowloon)		Volume source - calculated by number of portal/opening (veh/s)		Area source - calculated by emission rate divided by area		Formula from Scenario	Emission calculation formula (Extracted from the approved EIA of Road Works at West Kowloon)	
		Emission Rate - Portal/ Opening (g/s)	PM	NOx	PM	NOx	PM/2.5 - Area source			
80.935	0.873	0.00025729	0.0030927	--	--	5E-07	6E-06	491.2	1	0.3 x Tunnel Section A
A	Area	0.00331344	0.039828	--	--	1E-05	0.0001	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)
B	Area	0.00169503	0.019909	--	--	2E-06	3E-05	835.3	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
CE	Area	0.00331006	0.0397673	0.00015244	0.0036	--	--	--	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
D1-D7	Volume	0.00157822	0.0019	--	--	--	--	--	1	0.3 x 0.7 x Tunnel Section E + 0.3 x Tunnel Section F
F	Area	0.00210392	0.0245557	--	--	6E-06	9E-05	277.5	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 1/3 x (Tunnel Section Internal Road A + Tunnel Section Internal Road B) x (traffic flow of Tunnel Section I / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section Internal Road C)) x (traffic flow of Tunnel Section I / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section Internal Road C)) x (traffic flow of Tunnel Section L / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section Internal Road B))
H	Area	0.0285511	0.2830225	0.00425817	0.0472	--	--	--	1	0.5 x (Tunnel Section M + Tunnel Section N)
I5-I9	Volume	0.001292938	0.0036	--	--	2E-06	2E-05	1642.7	1	0.5 x (Tunnel Section M + Tunnel Section N)
J	Area	0.00263131	0.028746	--	--	--	--	--	1	0.5 x (Tunnel Section M + Tunnel Section N)
K0-K1	Volume	0.00401589	0.0466316	0.000535452	0.0062	--	--	--	1	1 x Tunnel Section P + 0.7 x 0.16 x Tunnel Section J + 0.7 x 0.86 x Tunnel Section K - 0.7 x (1/3 x (Tunnel Section Internal Road A + Tunnel Section Internal Road B + Tunnel Section Internal Road C)) x (traffic flow of Tunnel Section P / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section Internal Road A + Tunnel Section Internal Road B))
L1-L5	Volume	0.00027726	0.0031	--	--	--	--	--	1	1 x Tunnel W
LE-L10	Volume	0.0015997	0.0174285	0.00025881	0.0015	--	--	--	1	1 x Tunnel W
M1-M4	Volume	0.000251661	0.0029	--	--	--	--	--	1	1 x Tunnel X
M5-M8	Volume	0.00125831	0.0015	--	--	--	--	--	1	1 x Tunnel X
N1-N4	Volume	0.00150997	0.0174285	0.000251661	0.0029	--	--	--	1	1 x Tunnel X
NE-N8	Volume	0.00125831	0.0015	--	--	--	--	--	1	1 x Tunnel X
PI-P4	Volume	0.00444595	0.0476572	0.000740981	0.0078	--	--	--	1	1/3 x Basement roads A,B,C
PS-P8	Volume	0.000370496	0.004	--	--	--	--	--	1	1/3 x Basement roads A,B,C
W1-W8	Volume	0.10688014	2.6160077	0.009056679	0.218	--	--	--	1	1/3 x Basement roads A,B,C
WB-W16	Volume	0.004529339	0.109	--	--	--	--	--	1	1 x Tunnel Y
T01-T10	Volume	0.01242206	0.2462766	0.000829197	0.0164	--	--	--	1	1 x Tunnel Z
T11-T20	Volume	0.000414058	0.0052	--	--	--	--	--	1	1 x Tunnel Z
BaseA	Volume	0.00140458	0.0135727	0.001404578	0.0138	--	--	--	1	1 x Tunnel Z
BaseC	Volume	0.00140458	0.0135727	0.001404578	0.0138	--	--	--	1	1 x Tunnel Z
901-930	Volume	--	--	--	--	--	--	--	1	1 x Tunnel Z
904-906	Volume	--	--	--	--	--	--	--	1	1 x Tunnel Z
V1	Paint	--	--	--	--	--	--	--	1	1 x Tunnel Z

Appendix 3.18c - Emission Rates of Portal, Top Openings and Ventilation Exhaust (H11-12)

Remarks (Tunnel name - Portal & top opening of underpass in EIA of Rd Works in WK)	WKCD section no.	Road name	Bound	Road Type	Length (m)	Total (veh/hr)	Hr 11-12 (2015 EIA, 19-12-2011.sta)															Rate (g/km-PM)	Emission Rate (g/s) NOx				
							PC	taxi	LGV3	LGV4	LGV6	HGV7	HGV8	PLB	PV4	PV5	NFB6	NFB7	NFB8	FBSD	FBDD			MC	Total		
A ¹	73	Lin Cheung Rd (underpass)	Northbound	3	73	265	51%	2%	23%	0%	4%	2%	0%	4%	2%	0%	2%	0%	2%	0%	0%	100%	0.1149823	1.3998324	0.0061179	0.0075232	
B ¹	73	Lin Cheung Rd (underpass)	Southbound	3	272	265	51%	2%	23%	0%	4%	2%	0%	4%	2%	0%	2%	0%	2%	0%	0%	100%	0.1149823	1.3998324	0.0023022	0.0280278	
C ¹	73	Lin Cheung Rd (underpass)	Northbound	3	110	265	51%	2%	23%	0%	4%	2%	0%	4%	2%	0%	2%	0%	2%	0%	0%	100%	0.1149823	1.3998324	0.0009310	0.0113348	
D ¹	73	Lin Cheung Rd (underpass)	Southbound	3	176	265	51%	2%	23%	0%	4%	2%	0%	4%	2%	0%	2%	0%	2%	0%	0%	100%	0.1149823	1.3998324	0.0014997	0.0181326	
E ¹	72	Lin Cheung Rd (underpass)	Southbound	3	155	735	53%	1%	24%	0%	2%	2%	0%	2%	0%	2%	1%	0%	1%	0%	1%	100%	0.1151255	1.3389639	0.0008422	0.0429539	
F ¹	72	Lin Cheung Rd (depressed)	Southbound	3	172	735	53%	1%	24%	0%	2%	2%	0%	2%	0%	2%	1%	0%	1%	0%	1%	100%	0.1151255	1.3389639	0.0040428	0.0469989	
G ¹	118	Lin Cheung Rd (depressed)	Southbound	3	121	865	51%	1%	24%	1%	2%	2%	0%	2%	0%	2%	1%	0%	1%	0%	1%	100%	0.1137843	1.3521385	0.0035849	0.0402205	
H ¹	119	Austin Rd W (depressed)	Eastbound	3	173	1365	25%	1%	50%	0%	1%	1%	4%	2%	1%	1%	0%	1%	1%	2%	2%	100%	0.1688537	1.8055073	0.0112984	0.1201691	
I ¹	117	Austin Rd W (depressed)	Eastbound	3	194	400	26%	1%	55%	0%	1%	1%	4%	2%	1%	0%	0%	1%	1%	3%	3%	100%	0.1649965	1.8596684	0.0035566	0.0400882	
J ¹	116	Austin Rd W (depressed)	Westbound	3	194	420	27%	1%	54%	0%	1%	1%	4%	1%	1%	0%	0%	1%	1%	2%	2%	100%	0.1644221	1.8491397	0.0037214	0.0418522	
K ¹	114	Lin Cheung Rd (depressed)	Southbound	3	95	200	48%	3%	25%	0%	3%	3%	5%	3%	3%	0%	0%	3%	3%	0%	0%	100%	0.1182355	1.4507847	0.0062340	0.0076598	
L ¹	112	Lin Cheung Rd (depressed)	Northbound	3	95	430	51%	1%	23%	0%	2%	2%	0%	2%	0%	2%	1%	0%	1%	0%	1%	100%	0.1166714	1.3612459	0.0013239	0.0154464	
M ¹	84	Lin Cheung Rd	Southbound	3	55	750	52%	1%	23%	0%	2%	2%	0%	2%	0%	2%	1%	0%	2%	1%	0%	100%	0.1160938	1.3369325	0.0013544	0.0155975	
N ¹	77	Lin Cheung Rd	Northbound	3	56	605	51%	1%	24%	0%	2%	2%	0%	2%	2%	1%	0%	2%	2%	0%	1%	100%	0.1163359	1.3867050	0.0010949	0.0130504	
O ¹	111	Austin Rd W (depressed)	Eastbound	3	52	1145	25%	0%	50%	0%	1%	1%	4%	2%	1%	0%	0%	1%	1%	2%	2%	100%	0.1693787	1.8201642	0.0028713	0.0301551	
P ¹	110	Austin Rd W (depressed)	Westbound	3	52	635	26%	0%	54%	0%	2%	2%	0%	2%	1%	1%	0%	1%	1%	2%	2%	100%	0.1677059	1.8604224	0.0015382	0.0170642	
Q ¹	98	West Kowloon Highway (WKH)	Northbound	2	1970	3195	81%	0%	16%	0%	2%	2%	6%	4%	3%	2%	2%	0%	5%	2%	3%	100%	0.0617470	1.4910877	0.1079569	2.6069805	
R ¹	A	Internal Rd A	Bothbound	4	404	50	40%	0%	30%	0%	0%	0%	0%	0%	10%	0%	0%	0%	0%	0%	0%	100%	0.1735904	1.4895423	0.0009740	0.0083590	
S	B	Internal Rd B	Bothbound	4	361	95	37%	0%	26%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0.2030967	1.8541470	0.0010345	0.0186160	
T	C	Internal Rd C	Bothbound	4	521	35	29%	0%	14%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0.2370515	2.3488783	0.0012007	0.0119807	
U ¹	I144	Reposition of Gascoigne Rd Flyover	Westbound	3	180	1655	34%	1%	11%	1%	7%	5%	13%	11%	2%	1%	1%	0%	1%	8%	5%	1%	100%	0.1416055	2.8319594	0.0117179	0.2343448

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 multiplied by traffic flow of each roads.

Scenario 2

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 (veh/hr)	Area source - calculated by emission rate divided by area
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80.935 0.873

Portal/ opening ID	Source Type	Emission Rate - Portal/ Opening		Emission Rate - Portal/ Opening (g/m2-s) - Area source		Formula from Scenario	Emission calculation formula (Extracted from the approved EIA of Road Works at West Kowloon)
		PM	NOx	PM	NOx		
A	Area	0.00018536	0.0022566	--	--	4E-07	SE-06 491.2
B	Area	0.00238713	0.0290617	--	--	7E-06	9E-05 341.9
CE	Area	0.00147656	0.017376	--	--	2E-06	3E-05 835.3
D1-D7	Volume	0.00238469	0.029032	0.00022714	0.0029	--	--
DE-D14	Volume	0.000113557	0.0014	--	--	--	--
F	Area	0.00197793	0.0229939	--	--	7E-06	6E-05 277.5
H-4	Volume	0.02388907	0.2655235	0.003981511	0.0443	--	--
I5-I9	Volume	--	--	0.001990796	0.0221	--	--
JK01	Area	0.00252875	0.0274641	--	--	2E-06	1E-05 1642.7
L1-L5	Volume	0.00344631	0.0400519	0.000459507	0.0053	--	--
LE-L10	Volume	0.00122464	0.014324	0.000229754	0.0027	--	--
M1-M4	Volume	--	--	0.000204106	0.0024	--	--
M5-M8	Volume	0.00122464	0.014324	0.000102053	0.0012	--	--
N1-N4	Volume	--	--	0.000204106	0.0024	--	--
NE-N8	Volume	0.00122464	0.014324	0.000102053	0.0012	--	--
PI-P4	Volume	0.00430929	0.0462183	0.000718216	0.0077	--	--
PS-P8	Volume	--	--	0.000359108	0.0039	--	--
WI-W8	Volume	0.10795692	2.6069805	0.00899641	0.2172	--	--
WB-W16	Volume	--	--	0.004498205	0.1086	--	--
T61-T10	Volume	0.01171785	0.2343446	0.00078119	0.0196	--	--
T11-T20	Volume	--	--	0.000359108	0.0039	--	--
Base-A	Volume	0.00136975	0.0129569	0.001369753	0.013	--	1/3 x Basement roads A,B,C
Base-C	Volume	0.00136975	0.0129569	0.001369753	0.013	--	1/3 x Basement roads A,B,C
901-930	Volume	--	--	--	--	--	1 x Tunnel Y
901-903	Volume	--	--	--	--	--	1 x Tunnel Z
904-906	Volume	--	--	--	--	--	--
V1	Paint	--	--	--	--	from 1-4	--

Appendix 3.18c - Emission Rates of Portal, Top Openings and Ventilation Exhaust (H12-13)

Remarks (Tunnel name - Portal & top opening of underpass in EIA of Rd Works in WK)	WKCD section no.	Road name	Bound	Road Type	Length (m)	Total (veh/hr)	Hr 12-13 (2015 EIA, 19-12-2011.sta)															Rate (g/km-PM)	NOx	Emission Rate (g/s)			
							PC	taxi	LGV3	LGV4	LGV6	HGV7	HGV8	PLB	PV4	PV5	NFB6	NFB7	NFB8	FBSD	FBDD			MC	Total	PM	NOx
A ¹	73	Lin Cheung Rd (underpass)	Northbound	3	275	275	53%	2%	22%	0%	4%	2%	5%	4%	2%	2%	0%	2%	0%	0%	0%	0%	100%	0.115212	1.3522164	0.0026219	0.0075405
B ¹	73	Lin Cheung Rd (underpass)	Northbound	3	272	275	53%	2%	22%	0%	4%	2%	5%	4%	2%	2%	0%	2%	0%	0%	0%	100%	0.115212	1.3522164	0.0023172	0.0289051	
C ¹	73	Lin Cheung Rd (underpass)	Northbound	3	110	275	53%	2%	22%	0%	4%	2%	5%	4%	2%	2%	0%	2%	0%	0%	0%	100%	0.115212	1.3522164	0.0029371	0.0113624	
D ¹	73	Lin Cheung Rd (underpass)	Northbound	3	176	275	53%	2%	22%	0%	4%	2%	5%	4%	2%	2%	0%	2%	0%	0%	0%	100%	0.115212	1.3522164	0.0014993	0.0161726	
E ¹	72	Lin Cheung Rd (underpass)	Southbound	3	155	620	52%	1%	23%	0%	2%	2%	6%	4%	2%	2%	1%	0%	2%	0%	1%	100%	0.1148323	1.3386054	0.0038554	0.0362972	
F ¹	72	Lin Cheung Rd (depressed)	Southbound	3	172	620	52%	1%	23%	0%	2%	2%	6%	4%	2%	2%	1%	0%	2%	0%	1%	100%	0.1148323	1.3386054	0.0034616	0.0402449	
G ¹	118	Lin Cheung Rd (depressed)	Southbound	3	121	720	52%	1%	23%	1%	2%	2%	6%	4%	2%	2%	1%	0%	2%	1%	0%	100%	0.1132033	1.3226377	0.0027394	0.0319570	
H ¹	119	Austin Rd W (depressed)	Eastbound	3	173	1145	27%	1%	54%	0%	1%	1%	4%	2%	1%	1%	0%	1%	1%	2%	2%	100%	0.1655421	1.7844494	0.0091087	0.0840469	
I ¹	117	Austin Rd W (depressed)	Eastbound	3	194	340	28%	1%	53%	0%	1%	1%	4%	3%	1%	0%	0%	1%	1%	1%	1%	100%	0.1661145	1.7972764	0.0030436	0.0329301	
J ¹	116	Austin Rd W (depressed)	Westbound	3	194	365	29%	1%	52%	0%	1%	1%	4%	1%	1%	0%	3%	0%	1%	1%	1%	100%	0.1664142	1.7891971	0.0032733	0.0361925	
K ¹	114	Lin Cheung Rd (depressed)	Southbound	3	95	110	64%	0%	32%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0.0981950	0.8909322	0.0023950	0.0023951	
L ¹	112	Lin Cheung Rd (depressed)	Northbound	3	95	415	51%	1%	23%	0%	2%	2%	6%	4%	2%	2%	1%	0%	2%	0%	1%	100%	0.1165754	1.3851732	0.0012966	0.0130304	
M ¹	84	Lin Cheung Rd	Southbound	3	55	620	52%	1%	23%	0%	2%	2%	6%	4%	2%	2%	1%	0%	2%	0%	1%	100%	0.1172912	1.3848662	0.001312	0.0135353	
N ¹	77	Lin Cheung Rd	Northbound	3	55	580	52%	1%	24%	0%	3%	2%	6%	3%	3%	2%	1%	0%	3%	2%	0%	100%	0.1173109	1.3960316	0.0010767	0.0128308	
O ¹	111	Austin Rd W (depressed)	Eastbound	3	52	635	27%	1%	54%	0%	2%	2%	4%	2%	1%	1%	0%	1%	2%	2%	2%	100%	0.1644126	1.7735455	0.0022305	0.0239627	
P ¹	110	Austin Rd W (depressed)	Westbound	3	52	550	28%	1%	52%	0%	2%	2%	4%	2%	1%	1%	0%	1%	1%	2%	2%	100%	0.1673537	1.6261133	0.0018689	0.0139633	
Q ¹	98	West Kowloon Highway (WKH)	Northbound	2	1970	2710	53%	0%	16%	0%	2%	2%	6%	4%	3%	2%	2%	0%	5%	2%	3%	0%	100%	0.0598529	1.4669904	0.087602	2.1755081
R	A	Internal Rd A	Bothbound	4	404	48	44%	0%	33%	0%	0%	0%	0%	0%	0%	0%	22%	0%	0%	0%	0%	100%	0.1699591	1.4821729	0.0008583	0.0074850	
S	B	Internal Rd B	Bothbound	4	361	80	38%	0%	25%	0%	0%	0%	0%	0%	0%	0%	25%	0%	0%	0%	0%	100%	0.1802252	1.7105029	0.001459	0.0137228	
T	C	Internal Rd C	Bothbound	4	521	35	29%	0%	14%	0%	0%	0%	0%	0%	0%	0%	57%	0%	0%	0%	0%	100%	0.2896078	2.3433221	0.0012000	0.0118698	
U	I144	Reposition of Gascoigne Rd Flyover	Westbound	3	180	1635	34%	1%	11%	1%	7%	4%	12%	11%	2%	1%	1%	0%	1%	9%	5%	1%	100%	0.1401480	2.8205301	0.0114569	0.2305783

Note: (1) 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 multiplied by traffic flow of each roads.

Scenario 2 30%

Portal/ opening ID	Source Type	Calculated by the formula shown (extracted from the approved EIA of Road Works at West Kowloon)		Volume source - calculated by number of portal/opening (veh/hr)		Area source - calculated by emission rate divided by area		Formula from Scenario	Emission calculation formula (Extracted from the approved EIA of Road Works at West Kowloon)	
		PM	NOx	PM	NOx	PM	NOx (Area)			
A	Area	0.00018657	0.0022621	-	-	4E-07	5E-06	491.2	1	0.3 x Tunnel Section A
B	Area	0.00240264	0.0291325	-	-	7E-06	8E-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)
SE	Area	0.00130569	0.0155614	-	-	2E-06	2E-05	835.3	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	Volume	0.00240019	0.0291028	0.00022859	0.0029	-	-	-	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
DE-D14	Area	0.00114295	0.014	-	-	-	-	-	1	0.3 x Tunnel Section E + 0.3 x Tunnel Section F
F	Area	0.00166421	0.0196896	-	-	6E-06	7E-05	277.5	1	0.3 x Tunnel Section G + 0.7 x Tunnel Section H + 0.14 x Tunnel Section K + 0.7 x 0.38 x Tunnel Section O + 0.7 x (1/3 x (Tunnel Section Internal Road A + Tunnel Section Internal Road B + Tunnel Section Internal Road C) x (traffic flow of Tunnel Section I / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section M + Tunnel Section N))
H-4	Volume	0.01962265	0.2180012	0.00327044	0.0393	-	-	-	1	0.3 x Tunnel Section J + 0.7 x 0.24 x Tunnel Section J + 0.7 x 0.62 x Tunnel Section O + 0.7 x (1/3 x (Tunnel Section Internal Road A + Tunnel Section Internal Road B + Tunnel Section Internal Road C) x (traffic flow of Tunnel Section L / (traffic flow of Tunnel Section L + traffic flow of Tunnel Section M + Tunnel Section N))
I-5	Volume	0.00163522	0.0182	-	-	-	-	-	1	0.3 x Tunnel Section J + 0.3 x (1 - 0.14) x Tunnel Section K + 0.3 x Tunnel Section O + 0.3 x 1/3 x (Tunnel Section Internal Road A + Tunnel Section Internal Road B + Tunnel Section Internal Road C) x (traffic flow of Tunnel Section L / (traffic flow of Tunnel Section L + traffic flow of Tunnel Section M + Tunnel Section N))
JK01	Area	0.00207208	0.0217185	-	-	1E-06	1E-05	1642.7	1	0.5 x (Tunnel Section M + Tunnel Section N)
L1-L5	Volume	0.00307725	0.035195	0.000410301	0.0047	-	-	-	1	0.5 x (Tunnel Section M + Tunnel Section N)
LE-L10	Volume	0.00110393	0.0130936	0.00020515	0.0023	-	-	-	1	0.5 x (Tunnel Section M + Tunnel Section N)
M1-M4	Volume	0.00110393	0.0130936	0.00130989	0.0023	-	-	-	1	0.5 x (Tunnel Section M + Tunnel Section N)
M5-M8	Volume	0.00110393	0.0130936	0.00183989	0.0022	-	-	-	1	0.5 x (Tunnel Section M + Tunnel Section N)
N1-N4	Volume	0.00110393	0.0130936	0.00183989	0.0022	-	-	-	1	0.5 x (Tunnel Section M + Tunnel Section N)
NE-N8	Volume	0.0035172	0.0361503	0.0050592	0.006	-	-	-	1	1 x Tunnel Section P + 0.7 x 0.16 x Tunnel Section J + 0.7 x 0.86 x Tunnel Section K - 0.7 x (1/3 x (Tunnel Section Internal Road A + Tunnel Section Internal Road B + Tunnel Section Internal Road C) x (traffic flow of Tunnel Section P / (traffic flow of Tunnel Section P + traffic flow of Tunnel Section L + traffic flow of Tunnel Section M + Tunnel Section N))
PI-P4	Volume	0.0035172	0.0361503	0.0050592	0.006	-	-	-	1	1 x Tunnel Section P + 0.7 x 0.16 x Tunnel Section J + 0.7 x 0.86 x Tunnel Section K - 0.7 x (1/3 x (Tunnel Section Internal Road A + Tunnel Section Internal Road B + Tunnel Section Internal Road C) x (traffic flow of Tunnel Section P / (traffic flow of Tunnel Section P + traffic flow of Tunnel Section L + traffic flow of Tunnel Section M + Tunnel Section N))
PS-P8	Volume	0.0035172	0.0361503	0.0050592	0.006	-	-	-	1	1 x Tunnel Section P + 0.7 x 0.16 x Tunnel Section J + 0.7 x 0.86 x Tunnel Section K - 0.7 x (1/3 x (Tunnel Section Internal Road A + Tunnel Section Internal Road B + Tunnel Section Internal Road C) x (traffic flow of Tunnel Section P / (traffic flow of Tunnel Section P + traffic flow of Tunnel Section L + traffic flow of Tunnel Section M + Tunnel Section N))
W1-W8	Volume	0.08876023	2.1755061	0.007396688	0.1813	-	-	-	1	1 x Tunnel W
WB-W16	Volume	0.003988343	0.0906	-	-	-	-	-	1	1 x Tunnel W
T01-T10	Volume	0.01145693	0.2305783	0.00070798	0.0154	-	-	-	1	1 x Tunnel X
T11-T20	Volume	0.000581688	0.0077	-	-	-	-	-	1	1 x Tunnel Y
BaseA	Volume	0.00116803	0.0110258	0.001168035	0.011	-	-	-	1	1/3 x Basement roads A,B,C
BaseC	Volume	0.00116803	0.0110258	0.001168035	0.011	-	-	-	1	1/3 x Basement roads A,B,C
801-830	Volume	-	-	-	-	-	-	-	1	1 x Tunnel Y
901-903	Volume	-	-	-	-	-	-	-	1	1 x Tunnel Z
904-906	Volume	-	-	-	-	-	-	-	1	1 x Tunnel Z
V1	Paint	-	-	-	-	-	-	-	1	from 1.4

Appendix 3.18c - Emission Rates of Portal, Top Openings and Ventilation Exhaust (H413-14)

Remarks (Tunnel name - Portal & top opening of underpass in EIA of Rd Works in WK)	WKCD section no.	Road name	Bound	Road Type	Length (m)	Total (veh/hr)	Hr 13-14 (2015 EIA, 19-12-2011.tst)																Rate (g/km-PM)	Emission Rate (g/s)			
							PC	taxi	LGV3	LGV4	LGV6	HGV7	HGV8	PLB	PV4	PV5	NFB6	NFB7	NFB8	FBSD	FBDD	MC			Total	PM	NOx
A ¹	73	Lin Cheung Rd (underpass)	Northbound	3	73	355	52%	1%	23%	0%	3%	3%	6%	4%	1%	1%	0%	0%	2%	1%	0%	0%	100%	0.1205109	1.4308445	0.0028675	0.1012001
B ¹	73	Lin Cheung Rd (underpass)	Northbound	3	272	355	52%	1%	23%	0%	3%	3%	6%	4%	1%	1%	0%	0%	2%	1%	0%	0%	100%	0.1205109	1.4308445	0.0032324	0.0387294
C ¹	73	Lin Cheung Rd (underpass)	Northbound	3	110	355	52%	1%	23%	0%	3%	3%	6%	4%	1%	1%	0%	0%	2%	1%	0%	0%	100%	0.1205109	1.4308445	0.0013072	0.0155207
D ¹	73	Lin Cheung Rd (underpass)	Northbound	3	176	355	52%	1%	23%	0%	3%	3%	6%	4%	1%	1%	0%	0%	2%	1%	0%	0%	100%	0.1205109	1.4308445	0.0026919	0.0348321
E ¹	72	Lin Cheung Rd (underpass)	Southbound	3	155	820	54%	1%	23%	0%	2%	2%	6%	4%	2%	2%	1%	0%	2%	2%	0%	1%	100%	0.1107060	1.2881744	0.0028552	0.0342871
F ¹	72	Lin Cheung Rd (depressed)	Southbound	3	172	820	54%	1%	23%	0%	2%	2%	6%	4%	2%	2%	1%	0%	2%	2%	0%	1%	100%	0.1107060	1.2881744	0.0032794	0.0381558
G ¹	118	Lin Cheung Rd (depressed)	Southbound	3	121	705	53%	1%	23%	1%	3%	1%	6%	4%	2%	1%	1%	0%	2%	1%	0%	1%	100%	0.1124899	1.3189998	0.0028655	0.0312548
H ¹	119	Austin Rd W (depressed)	Eastbound	3	173	1110	29%	1%	53%	0%	1%	1%	5%	2%	1%	1%	0%	0%	1%	1%	1%	2%	100%	0.1614658	1.6862797	0.0061129	0.3804824
I ¹	117	Austin Rd W (depressed)	Eastbound	3	194	335	30%	1%	52%	0%	1%	1%	4%	3%	1%	0%	0%	0%	0%	1%	1%	1%	100%	0.1581962	1.6705573	0.0025559	0.0301600
J ¹	116	Austin Rd W (depressed)	Westbound	3	194	375	31%	1%	51%	0%	1%	1%	4%	3%	1%	0%	0%	0%	0%	1%	1%	1%	100%	0.1579677	1.6500713	0.0031923	0.0333452
K ¹	114	Lin Cheung Rd (depressed)	Southbound	3	95	36	63%	0%	32%	0%	0%	0%	5%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0.1013909	0.9325919	0.002542	0.0023390
L ¹	112	Lin Cheung Rd (depressed)	Northbound	3	95	470	53%	1%	23%	0%	2%	2%	6%	4%	2%	2%	1%	0%	2%	1%	0%	1%	100%	0.1127224	1.2677637	0.0013681	0.0159718
M ¹	84	Lin Cheung Rd	Southbound	3	55	585	53%	1%	24%	0%	3%	2%	5%	4%	2%	2%	1%	0%	2%	2%	0%	1%	100%	0.1111367	1.2941094	0.0010113	0.0117724
N ¹	77	Lin Cheung Rd	Northbound	3	56	715	52%	1%	23%	0%	3%	2%	5%	4%	2%	2%	1%	0%	2%	1%	0%	1%	100%	0.1144628	1.3362032	0.0012731	0.0148615
O ¹	111	Austin Rd W (depressed)	Eastbound	3	52	690	27%	2%	53%	0%	2%	2%	4%	2%	1%	1%	0%	1%	2%	2%	2%	2%	100%	0.1442627	1.7925159	0.001121	0.0250494
P ¹	110	Austin Rd W (depressed)	Westbound	3	52	50%	28%	1%	51%	0%	2%	2%	4%	2%	1%	1%	0%	1%	1%	2%	2%	2%	100%	0.1677224	1.8466711	0.0012324	0.0134704
W	88	West Kowloon Highway (WKH)	Northbound	2	1970	2770	83%	0%	16%	0%	3%	2%	6%	4%	3%	2%	2%	0%	5%	2%	3%	0%	100%	0.0582886	1.4593940	0.0836984	2.1818415
A	Internal Rd A	Bothbound	4	404	35	45%	0%	29%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0.1785544	1.6120202	0.0007913	0.0063317
B	Internal Rd B	Bothbound	4	361	55	38%	0%	31%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0.1865212	1.5729374	0.0011768	0.0102626
C	Internal Rd C	Bothbound	4	521	30	33%	0%	17%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0.2189680	2.1353673	0.0005607	0.0062711
X	I144	Reposition of Gascoigne Rd Flyover	Westbound	3	180	1620	34%	0%	11%	1%	7%	4%	12%	11%	2%	1%	1%	0%	1%	10%	5%	1%	100%	0.1367600	2.7864835	0.0113206	0.2257025

Note: (1) 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 multiplied by traffic flow of each roads.

Scenario 2 30%

Portal/ opening ID	Source Type	Calculated by the formula shown (extracted from the approved EIA of Road Works at West Kowloon)		Volume source - calculated by number of portal/opening (veh/s)		Area source - calculated by emission rate divided by area		Formula from Scenario	Emission calculation formula (Extracted from the approved EIA of Road Works at West Kowloon)	
		Emission Rate - Portal/ Opening (g/s)		Emission Rate - Portal/ Opening (g/m ² -s) - Volume		Emission Rate - Portal/ Opening (g/m ² -s) - Area source				
		PM	NOx	PM	NOx	PM	NOx (Area)			
A	Area	0.00026025	0.00309	--	--	5E-07	6E-06	491.2	1	0.3 x Tunnel Section A
B	Area	0.00335161	0.0397942	--	--	1E-05	0.0001	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	Area	0.00142514	0.0167106	--	--	2E-06	3E-05	835.3	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	Volume	0.00334819	0.0397536	0.00015875	0.0036	--	--	--	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
D8-D14	Volume	0.000158438	0.0019	--	--	6E-06	7E-05	277.5	1	0.3 x 0.7 x Tunnel Section E + 0.3 x Tunnel Section F
I1	Area	0.00160441	0.0186689	--	--	0.00107347	0.0339	--	1	1 x Tunnel Section I + 1 x Tunnel Section G + 1 x Tunnel Section H + 0.7 x Tunnel Section K + 0.7 x 0.38 x Tunnel Section O + 0.7 x (1/3 x (Tunnel Section Internal Road A + Tunnel Section Internal Road B + Tunnel Section Internal Road C)) x (traffic flow of Tunnel Section I / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section M + Tunnel Section N))
I1-I4	Volume	0.01864408	0.2035398	0.001553672	0.017	--	--	--	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
I5-I8	Volume	--	--	--	--	--	--	--	1	0.3 x Tunnel Section J + 0.3 x (1 - 0.14) x Tunnel Section K + 0.3 x Tunnel Section O + 0.3 x 1/3 x (Tunnel Section Internal Road A + Tunnel Section Internal Road B + Tunnel Section Internal Road C) x (traffic flow of Tunnel Section L / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section M + Tunnel Section N))
J0-1	Area	0.00193975	0.0201044	--	--	1E-06	1E-05	1642.7	1	1 x Tunnel Section P + 0.7 x 0.76 x Tunnel Section J + 0.7 x 0.86 x Tunnel Section K - 0.7 x (1/3 x (Tunnel Section Internal Road A + Tunnel Section Internal Road B + Tunnel Section Internal Road C)) x (traffic flow of Tunnel Section P / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section M + Tunnel Section N))
L1-L5	Volume	0.00308781	0.0344705	0.000411708	0.0046	--	--	--	1	1 x Tunnel Section P + 0.7 x 0.76 x Tunnel Section J + 0.7 x 0.86 x Tunnel Section K - 0.7 x (1/3 x (Tunnel Section Internal Road A + Tunnel Section Internal Road B + Tunnel Section Internal Road C)) x (traffic flow of Tunnel Section P / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section M + Tunnel Section N))
LE-L10	Volume	0.00114221	0.013319	0.00020854	0.0023	--	--	--	1	1 x Tunnel Section P + 0.7 x 0.76 x Tunnel Section J + 0.7 x 0.86 x Tunnel Section K - 0.7 x (1/3 x (Tunnel Section Internal Road A + Tunnel Section Internal Road B + Tunnel Section Internal Road C)) x (traffic flow of Tunnel Section P / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section M + Tunnel Section N))
M1-M4	Volume	0.00114221	0.013319	0.000190369	0.0022	--	--	--	1	1 x Tunnel Section P + 0.7 x 0.76 x Tunnel Section J + 0.7 x 0.86 x Tunnel Section K - 0.7 x (1/3 x (Tunnel Section Internal Road A + Tunnel Section Internal Road B + Tunnel Section Internal Road C)) x (traffic flow of Tunnel Section P / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section M + Tunnel Section N))
M5-M8	Volume	0.00114221	0.013319	0.000190369	0.0022	--	--	--	1	1 x Tunnel Section P + 0.7 x 0.76 x Tunnel Section J + 0.7 x 0.86 x Tunnel Section K - 0.7 x (1/3 x (Tunnel Section Internal Road A + Tunnel Section Internal Road B + Tunnel Section Internal Road C)) x (traffic flow of Tunnel Section P / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section M + Tunnel Section N))
N1-N4	Volume	0.00114221	0.013319	0.000190369	0.0022	--	--	--	1	1 x Tunnel Section P + 0.7 x 0.76 x Tunnel Section J + 0.7 x 0.86 x Tunnel Section K - 0.7 x (1/3 x (Tunnel Section Internal Road A + Tunnel Section Internal Road B + Tunnel Section Internal Road C)) x (traffic flow of Tunnel Section P / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section M + Tunnel Section N))
NS-N8	Volume	0.00114221	0.013319	0.000190369	0.0022	--	--	--	1	1 x Tunnel Section P + 0.7 x 0.76 x Tunnel Section J + 0.7 x 0.86 x Tunnel Section K - 0.7 x (1/3 x (Tunnel Section Internal Road A + Tunnel Section Internal Road B + Tunnel Section Internal Road C)) x (traffic flow of Tunnel Section P / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section M + Tunnel Section N))
P1-P4	Volume	0.00332918	0.0341275	0.00054983	0.0057	--	--	--	1	1 x Tunnel Section P + 0.7 x 0.76 x Tunnel Section J + 0.7 x 0.86 x Tunnel Section K - 0.7 x (1/3 x (Tunnel Section Internal Road A + Tunnel Section Internal Road B + Tunnel Section Internal Road C)) x (traffic flow of Tunnel Section P / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section M + Tunnel Section N))
PS-P8	Volume	0.00332918	0.0341275	0.000277432	0.0028	--	--	--	1	1 x Tunnel Section P + 0.7 x 0.76 x Tunnel Section J + 0.7 x 0.86 x Tunnel Section K - 0.7 x (1/3 x (Tunnel Section Internal Road A + Tunnel Section Internal Road B + Tunnel Section Internal Road C)) x (traffic flow of Tunnel Section P / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section M + Tunnel Section N))
W1-W8	Volume	0.0836837	2.1818415	0.007384114	0.1818	--	--	--	1	1 x Tunnel W
WB-W16	Volume	0.00332918	0.0341275	0.003882057	0.0909	--	--	--	1	1 x Tunnel W
T01-T10	Volume	0.01132056	0.2257052	0.000794704	0.015	--	--	--	1	1 x Tunnel X
T11-T20	Volume	0.01132056	0.2257052	0.000777252	0.0075	--	--	--	1	1 x Tunnel X
BaseA	Volume	0.00094289	0.0086184	0.000942888	0.0086	--	--	--	1	1/3 x Basement roads A,B,C
BaseC	Volume	0.00094289	0.0086184	0.000942888	0.0086	--	--	--	1	1/3 x Basement roads A,B,C
901-930	Volume	--	--	--	--	--	--	--	1	1 x Tunnel Y
901-903	Volume	--	--	--	--	--	--	--	1	1 x Tunnel Z
904-906	Volume	--	--	--	--	--	--	--	1	1 x Tunnel Z
V1	Paint	--	--	--	--	--	--	--	1	from 1.4

Appendix 3.18c - Emission Rates of Portal, Top Openings and Ventilation Exhaust (H14-15)

Remarks (Tunnel name - Portal & top opening of underpass in EIA of Rd Works in WK)	WKCD section no.	Road name	Bound	Road Type	Length (m)	Total (veh/hr)	Hr 14-15 (2015 EIA, 19-12-2011.xls)															Rate (g/km-PM)	NOx	Emission Rate (g/s)			
							PC	taxi	LGV3	LGV4	LGV6	HGV7	HGV8	PLB	PV4	PV5	NFB6	NFB7	NFB8	FBSD	FBDD			MC	Total	PM	NOx
A ¹	73	Lin Cheung Rd (underpass)	Northbound	3	73	290	53%	2%	22%	0%	3%	2%	5%	2%	2%	2%	0%	2%	2%	0%	0%	100%	0.1108930	1.3257027	0.0006521	0.0077359	
B ¹	73	Lin Cheung Rd (underpass)	Northbound	3	272	290	53%	2%	22%	0%	3%	2%	5%	2%	2%	2%	0%	2%	2%	0%	0%	100%	0.1108930	1.3257027	0.0024298	0.0290476	
C ¹	73	Lin Cheung Rd (underpass)	Northbound	3	110	290	53%	2%	22%	0%	3%	2%	5%	2%	2%	2%	0%	2%	2%	0%	0%	100%	0.1108930	1.3257027	0.0009829	0.0117472	
D ¹	73	Lin Cheung Rd (underpass)	Northbound	3	176	290	53%	2%	22%	0%	3%	2%	5%	2%	2%	2%	0%	2%	2%	0%	0%	100%	0.1108930	1.3257027	0.0015722	0.0197959	
E ¹	72	Lin Cheung Rd (underpass)	Southbound	3	155	830	55%	1%	23%	0%	2%	2%	6%	4%	2%	2%	0%	2%	2%	0%	1%	100%	0.1097523	1.2790129	0.0020770	0.0349932	
F ¹	72	Lin Cheung Rd (depressed)	Southbound	3	172	830	55%	1%	23%	0%	2%	2%	6%	4%	2%	2%	1%	0%	2%	2%	0%	1%	100%	0.1097523	1.2790129	0.0033035	0.0384983
G ¹	118	Lin Cheung Rd (depressed)	Southbound	3	121	660	54%	1%	22%	1%	3%	1%	5%	4%	2%	1%	1%	0%	2%	1%	0%	1%	100%	0.1105239	1.2991527	0.0025634	0.0301235
H ¹	119	Austin Rd W (depressed)	Eastbound	3	173	1090	51%	1%	51%	0%	1%	1%	5%	2%	1%	1%	0%	0%	1%	1%	2%	100%	0.1362427	1.6916077	0.0026988	0.3866176	
I ¹	117	Austin Rd W (depressed)	Eastbound	3	194	335	33%	1%	49%	0%	1%	1%	4%	3%	1%	0%	0%	0%	1%	1%	1%	100%	0.1515504	1.6320511	0.0027359	0.0294631	
J ¹	116	Austin Rd W (depressed)	Westbound	3	194	390	30%	1%	49%	0%	1%	1%	4%	3%	1%	0%	0%	0%	1%	1%	1%	100%	0.1522437	1.6011564	0.0031997	0.0336510	
K ¹	114	Lin Cheung Rd (depressed)	Southbound	3	95	95	83%	0%	32%	0%	0%	0%	5%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0.1017280	0.9382244	0.0022550	0.0023521	
L ¹	112	Lin Cheung Rd (depressed)	Northbound	3	95	365	52%	1%	22%	0%	3%	2%	4%	2%	2%	1%	0%	1%	1%	0%	1%	100%	0.1116124	1.2940555	0.0017750	0.0134643	
M ¹	84	Lin Cheung Rd	Southbound	3	55	570	54%	1%	23%	0%	3%	2%	5%	4%	2%	2%	1%	0%	2%	2%	0%	1%	100%	0.1106405	1.3065727	0.0009810	0.0115840
N ¹	77	Lin Cheung Rd	Northbound	3	55	550	53%	1%	23%	0%	3%	2%	5%	2%	2%	2%	1%	0%	2%	2%	0%	1%	100%	0.1124187	1.3362699	0.0009618	0.0114325
O ¹	111	Austin Rd W (depressed)	Eastbound	3	52	660	51%	1%	51%	0%	2%	2%	4%	2%	1%	1%	0%	0%	1%	2%	1%	100%	0.1574999	1.6846581	0.0019555	0.0202930	
P ¹	110	Austin Rd W (depressed)	Westbound	3	52	500	29%	1%	50%	0%	2%	2%	2%	2%	1%	1%	0%	1%	1%	2%	2%	100%	0.1601335	1.6474765	0.0011926	0.0153423	
W	88	West Kowloon Highway (WKH)	Northbound	2	1970	5380	55%	0%	19%	0%	3%	2%	5%	4%	3%	2%	2%	0%	5%	2%	3%	0%	100%	0.0566192	1.4044621	0.1047235	2.5977088
A	Internal Rd A	Bothbound	4	404	40	95%	0%	25%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0.1545602	1.4016274	0.0006938	0.0062917	
B	Internal Rd B	Bothbound	4	361	70	45%	0%	29%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0.1658965	1.4511292	0.0011455	0.0101861	
C	Internal Rd C	Bothbound	4	521	30	33%	0%	17%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0.2139628	2.1022108	0.0005290	0.0091271	
X	I144	Reposition of Gascoigne Rd Flyover	Westbound	3	180	1930	35%	1%	11%	1%	7%	4%	12%	11%	2%	1%	1%	0%	1%	10%	4%	1%	100%	0.1388927	2.7873581	0.0134032	0.2689801

Note: (1) 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 multiplied by traffic flow of each roads.

Scenario 2

30%

80.935 0.873

Portal/ opening ID	Source Type	Calculated by the formula shown (extracted from the approved EIA of Road Works at West Kowloon)		Volume source - calculated by number of portal/opening (veh/s)		Area source - calculated by emission rate divided by area		Formula from Scenario	Emission calculation formula (Extracted from the approved EIA of Road Works at West Kowloon)	
		PM	NOx	PM	NOx	PM	NOx			
A	Area	0.00019563	0.0023388	-	-	4E-07	5E-06	491.2	1	0.3 x Tunnel Section A
B	Area	0.00251942	0.0301192	-	-	7E-06	8E-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	Area	0.00129795	0.0152478	-	-	2E-06	2E-05	835.3	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	Volume	0.00251965	0.0300894	0.0001297	0.00291	-	-	-	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
DE-D14	Area	0.00161624	0.0188351	-	-	6E-06	7E-05	277.5	1	0.3 x 0.7 x Tunnel Section E + 0.3 x Tunnel Section F
H	Volume	0.01809704	0.1987781	0.003016173	0.0333	-	-	-	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 (1/3 x (Tunnel Section Internal Road A + Tunnel Section Internal Road B + Tunnel Section Internal Road C) x (traffic flow of Tunnel Section I / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section M + Tunnel Section N))
I	Area	0.00189137	0.0195416	-	-	1E-06	1E-05	1642.7	1	0.3 x Tunnel Section J + 0.3 x (1 - 0.14) x Tunnel Section K + 0.3 x Tunnel Section O + 0.3 x 1/3 x (Tunnel Section Internal Road A + Tunnel Section Internal Road B + Tunnel Section Internal Road C) x (traffic flow of Tunnel Section L / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section M + Tunnel Section N))
L1-L5	Volume	0.00265953	0.029932	0.000354603	0.004	-	-	-	1	1 x Tunnel Section L + 0.7 x 0.24 x Tunnel Section J + 0.7 x 0.62 x Tunnel Section O + 0.7 x (1/3 x (Tunnel Section Internal Road A + Tunnel Section Internal Road B + Tunnel Section Internal Road C) x (traffic flow of Tunnel Section L / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section M + Tunnel Section N))
LE-L10	Volume	0.00097141	0.0115087	0.000177302	0.002	-	-	-	1	0.5 x (Tunnel Section M + Tunnel Section N)
M1-M4	Volume	0.00097141	0.0115087	0.000181901	0.0019	-	-	-	1	0.5 x (Tunnel Section M + Tunnel Section N)
MS-M8	Volume	0.00331936	0.0341825	0.00053228	0.0057	-	-	-	1	1 x Tunnel Section P + 0.7 x 0.16 x Tunnel Section J + 0.7 x 0.86 x Tunnel Section K - 0.7 x (1/3 x (Tunnel Section Internal Road A + Tunnel Section Internal Road B + Tunnel Section Internal Road C) x (traffic flow of Tunnel Section P / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section M + Tunnel Section N))
N1-N4	Volume	0.00097141	0.0115087	0.000181901	0.0019	-	-	-	1	0.5 x (Tunnel Section M + Tunnel Section N)
NS-N8	Volume	0.00097141	0.0115087	0.000181901	0.0019	-	-	-	1	0.5 x (Tunnel Section M + Tunnel Section N)
P1-P4	Volume	0.00331936	0.0341825	0.00053228	0.0057	-	-	-	1	1 x Tunnel Section P + 0.7 x 0.16 x Tunnel Section J + 0.7 x 0.86 x Tunnel Section K - 0.7 x (1/3 x (Tunnel Section Internal Road A + Tunnel Section Internal Road B + Tunnel Section Internal Road C) x (traffic flow of Tunnel Section P / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section M + Tunnel Section N))
PS-P8	Volume	0.00331936	0.0341825	0.00053228	0.0057	-	-	-	1	1 x Tunnel Section P + 0.7 x 0.16 x Tunnel Section J + 0.7 x 0.86 x Tunnel Section K - 0.7 x (1/3 x (Tunnel Section Internal Road A + Tunnel Section Internal Road B + Tunnel Section Internal Road C) x (traffic flow of Tunnel Section P / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section M + Tunnel Section N))
W1-W8	Volume	0.00331936	0.0341825	0.00053228	0.0057	-	-	-	1	1 x Tunnel Section P + 0.7 x 0.16 x Tunnel Section J + 0.7 x 0.86 x Tunnel Section K - 0.7 x (1/3 x (Tunnel Section Internal Road A + Tunnel Section Internal Road B + Tunnel Section Internal Road C) x (traffic flow of Tunnel Section P / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section M + Tunnel Section N))
WB-W16	Volume	0.01340324	0.2689801	0.004583478	0.1082	-	-	-	1	1 x Tunnel W
T01-T10	Volume	0.01340324	0.2689801	0.004583478	0.1079	-	-	-	1	1 x Tunnel X
T11-T20	Volume	0.01340324	0.2689801	0.004583478	0.1085	-	-	-	1	1 x Tunnel Y
BaseA	Volume	0.00092909	0.008535	0.00029091	0.0085	-	-	-	1	1/3 x Basement roads A,B,C
BaseC	Volume	0.00092909	0.008535	0.00029091	0.0085	-	-	-	1	1/3 x Basement roads A,B,C
901-930	Volume	-	-	-	-	-	-	-	1	1 x Tunnel Z
901-903	Volume	-	-	-	-	-	-	-	1	1 x Tunnel Z
904-906	Volume	-	-	-	-	-	-	-	1	1 x Tunnel Z
V1	Paint	-	-	-	-	-	-	-	from 1-4	-

Appendix 3.18c - Emission Rates of Portal, Top Openings and Ventilation Exhaust (H415-16)

Hr:15-16 (2015 EIA, 19-12-2011.x1g)																							Rate (g/km- PM	NOx	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	Road Type	Length (m)	Total (veh/hr)	PC	taxi	LGV3	LGV4	LGV6	HGV7	HGV8	PLB	PV4	PVS	NFB6	NFB7	NFB8	FBSD	FBDO	MC	Total			PM	NOx	PM	NOx
																										Rate	Rate	Rate	Rate
A'	73	Lin Cheung Rd (underpass)	Northbound	3	73	370	54%	1%	22%	0%	3%	3%	5%	4%	1%	1%	1%	0%	3%	1%	0%	0%	100%	0.1108224	1.3421993	0.0029216	0.0100703		
B'	73	Lin Cheung Rd (underpass)	Northbound	3	272	370	54%	1%	22%	0%	3%	3%	5%	4%	1%	1%	1%	0%	3%	1%	0%	0%	100%	0.1108224	1.3421993	0.0030981	0.0375219		
C'	73	Lin Cheung Rd (underpass)	Northbound	3	110	370	54%	1%	22%	0%	3%	3%	5%	4%	1%	1%	1%	0%	3%	1%	0%	0%	100%	0.1108224	1.3421993	0.0012529	0.0151743		
D'	73	Lin Cheung Rd (underpass)	Northbound	3	176	370	54%	1%	22%	0%	3%	3%	5%	4%	1%	1%	1%	0%	3%	1%	0%	0%	100%	0.1108224	1.3421993	0.0020047	0.0246789		
E'	72	Lin Cheung Rd (underpass)	Southbound	3	155	840	55%	1%	22%	1%	3%	2%	5%	2%	2%	1%	1%	0%	2%	2%	0%	1%	100%	0.1004353	1.1996396	0.0027076	0.0339567		
F'	72	Lin Cheung Rd (depressed)	Southbound	3	172	840	55%	1%	22%	1%	3%	2%	5%	2%	2%	1%	1%	0%	2%	2%	0%	1%	100%	0.1004353	1.1996396	0.0030711	0.0386823		
G'	118	Lin Cheung Rd (depressed)	Southbound	3	121	875	54%	1%	22%	1%	3%	2%	5%	4%	2%	1%	1%	0%	1%	1%	0%	1%	100%	0.1021868	1.2119609	0.0023184	0.0274893		
H'	119	Austin Rd W (depressed)	Eastbound	3	173	1280	53%	1%	49%	0%	2%	2%	4%	3%	1%	1%	0%	0%	0%	2%	1%	2%	100%	0.1458971	1.5789733	0.0089743	0.0971244		
I'	117	Austin Rd W (depressed)	Eastbound	3	194	400	35%	1%	48%	0%	1%	1%	5%	3%	1%	1%	0%	0%	0%	1%	1%	1%	100%	0.1419147	1.5273814	0.0030591	0.0329233		
J'	116	Austin Rd W (depressed)	Westbound	3	194	500	35%	1%	45%	0%	2%	2%	4%	2%	1%	1%	3%	0%	0%	2%	1%	1%	100%	0.1417759	1.5644763	0.0038201	0.0421539		
K'	114	Lin Cheung Rd (depressed)	Southbound	3	95	35	83%	0%	32%	0%	0%	0%	5%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0.0970331	0.9105332	0.0024233	0.0022827		
L'	112	Lin Cheung Rd (depressed)	Northbound	3	95	420	55%	1%	23%	0%	2%	2%	5%	4%	2%	1%	1%	0%	1%	1%	0%	1%	100%	0.1006226	1.1566494	0.0011152	0.0128217		
M'	84	Lin Cheung Rd	Southbound	3	55	550	54%	1%	23%	0%	3%	2%	4%	4%	2%	2%	1%	0%	2%	2%	0%	1%	100%	0.1030646	1.2325114	0.0009976	0.0107363		
N'	77	Lin Cheung Rd	Northbound	3	56	665	54%	1%	23%	0%	3%	2%	5%	5%	2%	2%	1%	0%	2%	2%	0%	1%	100%	0.1049602	1.2438549	0.0010856	0.0128670		
O'	111	Austin Rd W (depressed)	Eastbound	3	52	990	53%	1%	49%	0%	2%	2%	5%	5%	1%	1%	1%	0%	1%	2%	1%	2%	100%	0.1474459	1.5918576	0.0021985	0.0281772		
P'	110	Austin Rd W (depressed)	Westbound	3	52	990	53%	1%	47%	0%	2%	2%	4%	3%	1%	1%	1%	0%	1%	2%	2%	2%	100%	0.1468227	1.6763221	0.0012513	0.0142860		
W'	98	West Kowloon Highway (WKH)	Northbound	2	1970	3445	55%	0%	14%	0%	3%	2%	5%	4%	3%	2%	2%	0%	4%	2%	3%	0%	100%	0.0555149	1.3914694	0.0046557	2.631710		
A	Internal Rd A	Bothbound	4	404	50	50%	0%	30%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0.1547028	1.2396790	0.0009681	0.0075171		
B	Internal Rd B	Bothbound	4	361	50	50%	0%	28%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0.1760994	1.8307366	0.0015869	0.0141732		
C	Internal Rd C	Bothbound	4	521	45	33%	0%	22%	0%	0%	0%	0%	0%	0%	0%	0%	44%	0%	0%	0%	0%	0%	100%	0.2116819	2.0191565	0.0013766	0.0134948		
X'	114	Reposition of Gascoigne Rd Flyover	Westbound	3	180	1900	35%	0%	11%	1%	7%	4%	11%	11%	1%	1%	1%	0%	1%	10%	4%	1%	100%	0.1287938	2.6714914	0.0123295	0.2537917		

Note: (B) 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 multiplied by traffic flow of each roads.

Scenario 2

30%

Portal/ opening ID	Source Type	Calculated by the formula shown (extracted from the approved EIA of Road Works at West Kowloon)		Volume source - calculated by number of portal/opening (veh/s)		Area source - calculated by emission rate divided by area		Formula from Scenario	Emission calculation formula (Extracted from the approved EIA of Road Works at West Kowloon)	
		PM	NOx	PM	NOx	PM	NOx (Area)			
A	Area	0.00024944	0.0030211	-	-	5E-07	6E-06	491.2	1	0.3 x Tunnel Section A
B	Area	0.00321239	0.0389061	-	-	3E-06	0.0001	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	Area	0.00134546	0.0161688	-	-	2E-06	3E-05	835.3	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	Volume	0.00320911	0.0386654	0.00030563	0.0037	-	-	-	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
D8-D14	Volume	0.000152815	0.0019	-	-	-	-	-	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	Area	0.00150251	0.0179466	-	-	5E-06	6E-05	277.5	1	0.3 x 0.7 x Tunnel Section E + 0.3 x Tunnel Section F
H-4	Volume	0.01870639	0.2081018	0.003117731	0.0347	-	-	-	1	1 x Tunnel Section H + 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 (1/3 x (Tunnel Section Internal Road A + Tunnel Section Internal Road B + Tunnel Section Internal Road C) x (traffic flow of Tunnel Section I / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section J)))
I5-I9	Volume	0.001558962	0.0173	-	-	-	-	-	1	0.3 x Tunnel Section J + 0.3 x (1 - 0.14) x Tunnel Section K + 0.3 x Tunnel Section O + 0.3 x 1/3 x (Tunnel Section Internal Road A + Tunnel Section Internal Road B + Tunnel Section Internal Road C) x (traffic flow of Tunnel Section L / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section P))
J0-1	Area	0.0022249	0.0235588	-	-	1E-06	2E-05	1642.7	1	1 x Tunnel Section L + 0.7 x 0.24 x Tunnel Section J + 0.7 x 0.62 x tunnel Section O + 0.7 x (1/3 x (Tunnel Section Internal Road A + Tunnel Section Internal Road B + Tunnel Section Internal Road C) x (traffic flow of Tunnel Section L / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section P)))
L1-L5	Volume	0.00293869	0.0334012	0.000391825	0.0045	-	-	-	1	1 x Tunnel Section L + 0.7 x 0.24 x Tunnel Section J + 0.7 x 0.62 x tunnel Section O + 0.7 x (1/3 x (Tunnel Section Internal Road A + Tunnel Section Internal Road B + Tunnel Section Internal Road C) x (traffic flow of Tunnel Section L / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section P)))
LE-L10	Volume	0.000991776	0.0118018	0.000195913	0.0022	-	-	-	1	0.5 x (Tunnel Section M + Tunnel Section N)
M1-M4	Volume	0.000991776	0.0118018	0.000195913	0.0022	-	-	-	1	0.5 x (Tunnel Section M + Tunnel Section N)
M5-M8	Volume	0.000991776	0.0118018	0.000195913	0.0022	-	-	-	1	0.5 x (Tunnel Section M + Tunnel Section N)
N1-N4	Volume	0.000991776	0.0118018	0.000195913	0.0022	-	-	-	1	0.5 x (Tunnel Section M + Tunnel Section N)
NE-N8	Volume	0.00380448	0.040308	0.000394028	0.0067	-	-	-	1	1 x Tunnel Section P + 0.7 x 0.76 x Tunnel Section J + 0.7 x 0.86 x tunnel Section K + 0.7 x (1/3 x (Tunnel Section Internal Road A + Tunnel Section Internal Road B + Tunnel Section Internal Road C) x (traffic flow of Tunnel Section P / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section)))
P1-P4	Volume	0.00380448	0.040308	0.000394028	0.0067	-	-	-	1	1 x Tunnel Section P + 0.7 x 0.76 x Tunnel Section J + 0.7 x 0.86 x tunnel Section K + 0.7 x (1/3 x (Tunnel Section Internal Road A + Tunnel Section Internal Road B + Tunnel Section Internal Road C) x (traffic flow of Tunnel Section P / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section)))
P5-P8	Volume	0.00380448	0.040308	0.000394028	0.0067	-	-	-	1	1 x Tunnel Section P + 0.7 x 0.76 x Tunnel Section J + 0.7 x 0.86 x tunnel Section K + 0.7 x (1/3 x (Tunnel Section Internal Road A + Tunnel Section Internal Road B + Tunnel Section Internal Road C) x (traffic flow of Tunnel Section P / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section)))
W1-W8	Volume	0.10465568	2.623171	0.008721307	0.2186	-	-	-	1	1 x Tunnel W
WB-W16	Volume	0.01232946	0.2537917	0.004369654	0.1093	-	-	-	1	1 x Tunnel W
T01-T10	Volume	0.00029964	0.0169	-	-	-	-	-	1	1 x Tunnel X
T11-T20	Volume	0.000410282	0.0265	-	-	-	-	-	1	1 x Tunnel X
BaseA	Volume	0.0012786	0.0117947	0.001278604	0.0118	-	-	-	1	1/3 x Basement roads A,B,C
BaseC	Volume	0.0012786	0.0117947	0.001278604	0.0118	-	-	-	1	1/3 x Basement roads A,B,C
901-930	Volume	-	-	-	-	-	-	-	1	1 x Tunnel Y
904-906	Volume	-	-	-	-	-	-	-	1	1 x Tunnel Z
V1	Paint	-	-	-	-	-	-	-	1	from 1-4

% of Serving Rd

- Out of 500m
- Out of 500m
- Out of 500m
- Out of 500m
- Out of 500m

Appendix 3.18c - Emission Rates of Portal, Top Openings and Ventilation Exhaust (#16-17)

Remarks (Tunnel name - Portal & top opening of underpass in EIA of Rd Works in WK)	WKCD section no.	Road name	Bound	Road Type	Length (m)	Total (veh/hr)	Hr:16-17 (2015 EIA, 19-12-2011.x16)																	Rate (g/km-PM)		Emission Rate (g/s)	
							PC	taxi	LGV3	LGV4	LGV6	HGV7	HGV8	PLB	PV4	PV5	NFB6	NFB7	NFB8	FBS8	FBDO	MC	Total	PM	NOx		
A ¹	73	Lin Chung Rd (underpass)	Northbound	3	73	450	54%	1%	21%	0%	3%	2%	4%	4%	1%	1%	0%	2%	2%	0%	1%	100%	0.1021659	1.2906422	0.0029253	0.0117771	
B ¹	73	Lin Chung Rd (underpass)	Northbound	3	272	450	54%	1%	21%	0%	3%	2%	4%	4%	1%	1%	0%	2%	2%	0%	1%	100%	0.1021659	1.2906422	0.0029253	0.0048818	
C ¹	73	Lin Chung Rd (underpass)	Northbound	3	110	450	54%	1%	21%	0%	3%	2%	4%	4%	1%	1%	0%	2%	2%	0%	1%	100%	0.1021659	1.2906422	0.0029253	0.0177463	
D ¹	73	Lin Chung Rd (underpass)	Northbound	3	176	450	54%	1%	21%	0%	3%	2%	4%	4%	1%	1%	0%	2%	2%	0%	1%	100%	0.1021659	1.2906422	0.0029253	0.028941	
E ¹	72	Lin Chung Rd (underpass)	Southbound	3	155	840	55%	1%	22%	1%	3%	2%	5%	5%	1%	1%	0%	2%	2%	0%	1%	100%	0.0984553	1.1903776	0.0027468	0.0326180	
F ¹	72	Lin Chung Rd (depressed)	Southbound	3	172	840	55%	1%	22%	1%	3%	2%	5%	5%	1%	1%	0%	2%	2%	0%	1%	100%	0.0984553	1.1903776	0.0027468	0.0384174	
G ¹	118	Lin Chung Rd (depressed)	Southbound	3	121	855	55%	1%	22%	1%	3%	2%	5%	5%	1%	1%	0%	2%	2%	0%	1%	100%	0.1023337	1.2244596	0.0022529	0.0289556	
H ¹	119	Austin Rd W (depressed)	Eastbound	3	173	1255	55%	1%	47%	0%	2%	2%	4%	3%	1%	1%	0%	0%	2%	1%	2%	100%	0.1415138	1.5105351	0.0035345	0.0910861	
I ¹	117	Austin Rd W (depressed)	Eastbound	3	194	400	38%	1%	46%	0%	1%	1%	5%	3%	1%	1%	0%	0%	1%	0%	1%	100%	0.1378342	1.3635999	0.0029711	0.0293929	
J ¹	116	Austin Rd W (depressed)	Westbound	3	194	520	36%	1%	43%	0%	2%	2%	5%	3%	1%	1%	0%	0%	2%	1%	1%	100%	0.1418634	1.5803407	0.0036697	0.0442847	
K ¹	114	Lin Chung Rd (depressed)	Southbound	3	95	78	87%	0%	33%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0.0772351	0.6202375	0.0011529	0.012278	
L ¹	112	Lin Chung Rd (depressed)	Northbound	3	95	480	55%	1%	22%	0%	3%	2%	5%	4%	2%	1%	1%	0%	1%	1%	1%	100%	0.1000358	1.1622399	0.0012878	0.0147020	
M ¹	84	Lin Chung Rd	Southbound	3	56	540	55%	1%	23%	0%	3%	2%	5%	5%	1%	1%	0%	2%	2%	0%	1%	100%	0.1033641	1.2487185	0.0028683	0.0148992	
N ¹	77	Lin Chung Rd	Northbound	3	56	770	55%	1%	22%	1%	3%	2%	5%	5%	1%	1%	0%	1%	1%	0%	1%	100%	0.1017174	1.2006051	0.0012183	0.0143800	
O ¹	111	Austin Rd W (depressed)	Eastbound	3	52	955	38%	1%	46%	0%	2%	2%	4%	3%	1%	1%	0%	1%	2%	1%	2%	100%	0.1396371	1.5234272	0.0016282	0.0210148	
P ¹	110	Austin Rd W (depressed)	Westbound	3	52	575	38%	1%	46%	0%	2%	2%	4%	3%	1%	1%	0%	1%	1%	1%	1%	100%	0.1453683	1.5721365	0.0011824	0.0130574	
W	98	West Kowloon Highway (WKH)	Northbound	2	1970	3510	56%	0%	14%	0%	3%	2%	5%	4%	2%	2%	1%	0%	4%	2%	3%	0%	100%	0.0543383	1.3756115	0.0143703	2.6422058
A	Internal Rd A	Bothbound	4	404	50	50%	0%	30%	0%	0%	0%	0%	0%	0%	0%	20%	0%	0%	0%	0%	0%	100%	0.1521985	1.2253152	0.0008540	0.0074385	
B	Internal Rd B	Bothbound	4	361	85	41%	0%	29%	0%	0%	0%	0%	0%	0%	0%	24%	0%	0%	0%	0%	0%	100%	0.1728184	1.5172152	0.0014731	0.0129322	
C	Internal Rd C	Bothbound	4	521	45	33%	0%	22%	0%	0%	0%	0%	0%	0%	0%	44%	0%	0%	0%	0%	0%	100%	0.2061317	1.9849207	0.0013424	0.0129283	
X	I144	Reposition of Gascoigne Rd Flyover	Westbound	3	180	1885	38%	0%	11%	1%	7%	4%	4%	11%	11%	1%	1%	0%	1%	10%	1%	100%	0.1271305	2.6322257	0.0119821	0.2480873	

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 multiplied by traffic flow of each roads.

Scenario 2

30%

Portal/ opening ID	Source Type	Calculated by the formula shown (extracted from the approved EIA of Road Works at West Kowloon)		Volume source - calculated by number of portal/opening (veh/hr)		Area source - calculated by emission rate divided by area		Formula from Scenario	Emission calculation formula (Extracted from the approved EIA of Road Works at West Kowloon)	
		PM	NOx	PM	NOx	PM	NOx			
A	Area	0.00027968	0.0035331	-	-	5E-07	7E-06	491.2	1	0.3 x Tunnel Section A
B	Area	0.00360178	0.0455006	-	-	1E-05	0.0001	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	Area	0.00140393	0.0171569	-	-	2E-06	3E-05	835.3	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	Volume	0.00359611	0.0454542	0.00342677	0.0043	-	-	-	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
D8-D14	Volume	0.00171338	0.0022	-	-	-	-	-	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	Area	0.00148785	0.017817	-	-	5E-06	6E-05	277.5	1	0.3 x 0.7 x Tunnel Section E + 0.3 x Tunnel Section F
H	Volume	0.01796919	0.1970512	0.002994866	0.0029	-	-	-	1	1 x Tunnel Section H + 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 (1/3 x (Tunnel Section Internal Road A + Tunnel Section Internal Road B + Tunnel Section Internal Road C) x (traffic flow of Tunnel Section I / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section P))
I5-I8	Volume	-	-	0.001497433	0.0164	-	-	-	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
JK01	Area	0.002175	0.0232361	-	-	1E-06	2E-05	1642.7	1	0.3 x Tunnel Section J + 0.3 x (1 - 0.14) x Tunnel Section K + 0.3 x Tunnel Section O + 0.3 x 1/3 x (Tunnel Section Internal Road A + Tunnel Section Internal Road B + Tunnel Section Internal Road C) x (traffic flow of Tunnel Section L / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section P))
L1-L5	Volume	0.00305298	0.0346018	0.000407393	0.0046	-	-	-	1	1 x Tunnel Section L + 0.7 x 0.24 x Tunnel Section J + 0.7 x 0.62 x Tunnel Section O + 0.7 x (1/3 x (Tunnel Section Internal Road A + Tunnel Section Internal Road B + Tunnel Section Internal Road C) x (traffic flow of Tunnel Section L / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section P))
LE-L10	Volume	0.0010433	0.0124349	0.000203532	0.0023	-	-	-	1	Tunnel Section Internal Road C) x (traffic flow of Tunnel Section L / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section P))
M1-M4	Volume	0.0011433	0.0124349	0.000173884	0.0021	-	-	-	1	0.5 x (Tunnel Section M + Tunnel Section N)
M5-M8	Volume	0.0010433	0.0124349	0.000173884	0.0021	-	-	-	1	0.5 x (Tunnel Section M + Tunnel Section N)
N1-N4	Volume	0.0010433	0.0124349	0.000173884	0.0021	-	-	-	1	0.5 x (Tunnel Section M + Tunnel Section N)
NE-N8	Volume	0.00373455	0.0395137	0.000292424	0.0066	-	-	-	1	1 x Tunnel Section P + 0.7 x 0.76 x Tunnel Section J + 0.7 x 0.86 x Tunnel Section K + 0.7 x (1/3 x (Tunnel Section Internal Road A + Tunnel Section Internal Road B + Tunnel Section Internal Road C) x (traffic flow of Tunnel Section P / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section P))
PI-P4	Volume	0.00373455	0.0395137	0.000292424	0.0066	-	-	-	1	1 x Tunnel Section P + 0.7 x 0.76 x Tunnel Section J + 0.7 x 0.86 x Tunnel Section K + 0.7 x (1/3 x (Tunnel Section Internal Road A + Tunnel Section Internal Road B + Tunnel Section Internal Road C) x (traffic flow of Tunnel Section P / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section P))
P5-P8	Volume	0.00373455	0.0395137	0.000292424	0.0066	-	-	-	1	1 x Tunnel Section P + 0.7 x 0.76 x Tunnel Section J + 0.7 x 0.86 x Tunnel Section K + 0.7 x (1/3 x (Tunnel Section Internal Road A + Tunnel Section Internal Road B + Tunnel Section Internal Road C) x (traffic flow of Tunnel Section P / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section P))
W1-W8	Volume	0.10437029	2.6422058	0.008997524	0.2302	-	-	-	1	1 x Tunnel W
W9-W16	Volume	0.10437029	2.6422058	0.008997524	0.2302	-	-	-	1	1 x Tunnel W
T01-T10	Volume	0.01198205	0.2480873	0.000786984	0.0165	-	-	-	1	1 x Tunnel X
T11-T20	Volume	0.01198205	0.2480873	0.000786984	0.0165	-	-	-	1	1 x Tunnel X
BaseA	Volume	0.00122259	0.0110985	0.00122259	0.0111	-	-	-	1	1/3 x Basement roads A,B,C
BaseC	Volume	0.00122259	0.0110985	0.00122259	0.0111	-	-	-	1	1/3 x Basement roads A,B,C
901-930	Volume	-	-	-	-	-	-	-	1	1 x Tunnel Y
901-903	Volume	-	-	-	-	-	-	-	1	1 x Tunnel Z
904-906	Volume	-	-	-	-	-	-	-	1	1 x Tunnel Z
V1	Paint	-	-	-	-	-	-	-	1	from 1-4

Appendix 3.18c - Emission Rates of Portal, Top Openings and Ventilation Exhaust (H17-18)

Remarks (Tunnel name - Portal & top opening of underpass in EIA of Rd Works in WK)	WKCD section no.	Road name	Bound	Road Type	Length (m)	Total (veh/hr)	Hr 17-18 (2015 EIA, 19-12-2011.sta)															Rate (g/km-PM)	Emission Rate (g/s) NOx				
							PC	taxi	LGV3	LGV4	LGV6	HGV7	HGV8	PLB	PV4	PV5	NFB6	NFB7	NFB8	FBSD	FBDD			MC	Total		
A ¹	73	Lin Cheung Rd (underpass)	Northbound	3	73	540	55%	1%	21%	0%	4%	2%	5%	1%	0%	1%	0%	2%	2%	0%	1%	100%	0.104318	1.256305	0.001107	0.013730	
B ¹	73	Lin Cheung Rd (underpass)	Northbound	3	272	540	55%	1%	21%	0%	4%	2%	5%	8%	1%	1%	1%	0%	2%	2%	0%	1%	100%	0.104318	1.256305	0.004384	0.051291
C ¹	73	Lin Cheung Rd (underpass)	Northbound	3	110	540	55%	1%	21%	0%	4%	2%	5%	8%	1%	1%	1%	0%	2%	2%	0%	1%	100%	0.104318	1.256305	0.001673	0.020728
D ¹	73	Lin Cheung Rd (underpass)	Northbound	3	176	540	55%	1%	21%	0%	4%	2%	5%	8%	1%	1%	1%	0%	2%	2%	0%	1%	100%	0.104318	1.256305	0.002678	0.033167
E ¹	72	Lin Cheung Rd (underpass)	Southbound	3	155	860	55%	1%	22%	1%	3%	2%	5%	8%	2%	1%	1%	0%	2%	2%	0%	2%	100%	0.098007	1.172644	0.002851	0.033226
F ¹	72	Lin Cheung Rd (depressed)	Southbound	3	172	860	55%	1%	22%	1%	3%	2%	5%	8%	2%	1%	1%	0%	2%	2%	0%	2%	100%	0.098007	1.172644	0.003050	0.036974
G ¹	118	Lin Cheung Rd (depressed)	Southbound	3	121	850	55%	1%	22%	1%	3%	2%	5%	8%	2%	1%	1%	0%	2%	2%	0%	2%	100%	0.097730	1.176783	0.002381	0.025700
H ¹	119	Austin Rd W (depressed)	Eastbound	3	173	1215	38%	1%	45%	0%	2%	2%	5%	3%	1%	1%	0%	0%	0%	2%	1%	1%	100%	0.135652	1.455586	0.007678	0.085730
I ¹	117	Austin Rd W (depressed)	Eastbound	3	194	395	39%	1%	44%	0%	1%	1%	5%	3%	1%	1%	0%	0%	0%	1%	0%	1%	100%	0.135528	1.337419	0.002847	0.028465
J ¹	116	Austin Rd W (depressed)	Westbound	3	194	540	37%	1%	43%	0%	2%	2%	5%	3%	1%	1%	0%	0%	0%	2%	1%	1%	100%	0.138249	1.540764	0.004235	0.044832
K ¹	114	Lin Cheung Rd (depressed)	Southbound	3	95	85	65%	0%	35%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0.081322	0.638889	0.001824	0.001467
L ¹	112	Lin Cheung Rd (depressed)	Northbound	3	95	510	57%	1%	22%	0%	3%	2%	5%	8%	1%	1%	1%	0%	1%	1%	0%	1%	100%	0.097374	1.125301	0.001105	0.013447
M ¹	84	Lin Cheung Rd	Southbound	3	55	525	55%	1%	22%	0%	3%	2%	5%	8%	1%	1%	1%	0%	2%	2%	0%	1%	100%	0.101707	1.251292	0.000830	0.010210
N ¹	77	Lin Cheung Rd	Northbound	3	56	860	55%	1%	22%	1%	3%	2%	5%	8%	1%	1%	1%	0%	1%	1%	0%	1%	100%	0.099051	1.178577	0.001365	0.015766
O ¹	111	Austin Rd W (depressed)	Eastbound	3	52	925	39%	1%	44%	0%	2%	2%	4%	3%	1%	1%	0%	1%	2%	1%	1%	100%	0.134847	1.443168	0.001823	0.019280	
P ¹	110	Austin Rd W (depressed)	Westbound	3	52	575	39%	1%	43%	0%	2%	2%	4%	3%	1%	1%	0%	1%	2%	1%	1%	100%	0.135576	1.513549	0.001192	0.012570	
W	88	West Kowloon Highway (WKH)	Northbound	2	1970	4165	87%	0%	13%	0%	3%	2%	5%	4%	2%	2%	1%	0%	4%	2%	3%	0%	100%	0.051239	1.358188	0.012767	3.065598
A	Internal Rd A	Bothbound	4	404	85	46%	0%	31%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0.163819	1.445498	0.001190	0.010540	
B	Internal Rd B	Bothbound	4	361	105	45%	0%	29%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0.168803	1.455439	0.001759	0.013743	
C	Internal Rd C	Bothbound	4	521	95	36%	0%	18%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0.197948	1.940664	0.001576	0.015471	
X	I144	Repositioning of Gascoigne Rd Flyover	Westbound	3	180	1865	38%	0%	11%	1%	8%	4%	10%	12%	1%	1%	1%	0%	1%	10%	4%	0%	100%	0.124570	2.836205	0.011612	0.248841

Note: (1) 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 multiplied by traffic flow of each roads.

Scenario 2 30%

Portal/ opening ID	Source Type	Calculated by the formula shown (extracted from the approved EIA of Road Works at West Kowloon)		Volume source - calculated by number of portal/opening (veh/s)		Area source - calculated by emission rate divided by area		Formula from Scenario	Emission calculation formula (Extracted from the approved EIA of Road Works at West Kowloon)	
		PM	NOx	PM	NOx	PM	NOx (Area)			
A	Area	0.0003332	0.0041271	-	-	7E-07	8E-06	491.2	1	0.3 x Tunnel Section A
B	Area	0.00429108	0.05315	-	-	1E-05	0.0002	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)
C	Area	0.00152505	0.0185374	-	-	2E-06	3E-05	835.3	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	Volume	0.0042267	0.0530558	0.000408258	0.0051	-	-	-	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
D8-D14	Volume	0.000204129	0.0025	-	-	-	-	-	1	0.3 x 0.7 x Tunnel Section C + 0.3 x Tunnel Section F
F	Area	0.00151203	0.018091	-	-	5E-06	7E-05	277.5	1	0.3 x 0.7 x Tunnel Section C + 0.3 x Tunnel Section F
H	Area	0.01723371	0.1901221	0.002872286	0.0317	-	-	-	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 (1/3 x (Tunnel Section Internal Road A + Tunnel Section Internal Road B + Tunnel Section Internal Road C) x (traffic flow of Tunnel Section I / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section J + traffic flow of Tunnel Section L + traffic flow of Tunnel Section M + Tunnel Section N)))
I	Volume	0.001436143	0.0158	-	-	-	-	-	1	0.3 x Tunnel Section J + 0.3 x (1 - 0.14) x Tunnel Section K + 0.3 x Tunnel Section O + 0.3 x (1/3 x (Tunnel Section Internal Road A + Tunnel Section Internal Road B + Tunnel Section Internal Road C) x (traffic flow of Tunnel Section L / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section M + Tunnel Section N)))
J	Area	0.00224946	0.0237878	-	-	1E-06	2E-05	1642.7	1	0.3 x Tunnel Section J + 0.3 x (1 - 0.14) x Tunnel Section K + 0.3 x Tunnel Section O + 0.3 x (1/3 x (Tunnel Section Internal Road A + Tunnel Section Internal Road B + Tunnel Section Internal Road C) x (traffic flow of Tunnel Section L / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section M + Tunnel Section N)))
L1-L5	Volume	0.00313425	0.0351408	0.0004179	0.0047	-	-	-	1	1 x Tunnel Section L + 0.7 x 0.24 x Tunnel Section J + 0.7 x 0.62 x Tunnel Section O + 0.7 x (1/3 x (Tunnel Section Internal Road A + Tunnel Section Internal Road B + Tunnel Section Internal Road C) x (traffic flow of Tunnel Section I / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section M + Tunnel Section N)))
LE-L10	Volume	0.00108357	0.0129927	0.00020895	0.0023	-	-	-	1	0.5 x (Tunnel Section M + Tunnel Section N)
M1-M4	Volume	0.00108357	0.0129927	0.00180595	0.0022	-	-	-	1	0.5 x (Tunnel Section M + Tunnel Section N)
M5-M8	Volume	0.00108357	0.0129927	0.00180595	0.0022	-	-	-	1	0.5 x (Tunnel Section M + Tunnel Section N)
N1-N4	Volume	0.00108357	0.0129927	0.00180595	0.0022	-	-	-	1	0.5 x (Tunnel Section M + Tunnel Section N)
NE-N8	Volume	0.00108357	0.0129927	0.00180595	0.0022	-	-	-	1	0.5 x (Tunnel Section M + Tunnel Section N)
P1-P4	Volume	0.00378868	0.0401245	0.00074442	0.0087	-	-	-	1	1 x Tunnel Section P + 0.7 x 0.16 x Tunnel Section J + 0.7 x 0.86 x Tunnel Section K - 0.7 x (1/3 x (Tunnel Section Internal Road A + Tunnel Section Internal Road B + Tunnel Section Internal Road C) x (traffic flow of Tunnel Section P / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section M + Tunnel Section N)))
P5-P8	Volume	0.00378868	0.0401245	0.00074442	0.0087	-	-	-	1	1 x Tunnel Section P + 0.7 x 0.16 x Tunnel Section J + 0.7 x 0.86 x Tunnel Section K - 0.7 x (1/3 x (Tunnel Section Internal Road A + Tunnel Section Internal Road B + Tunnel Section Internal Road C) x (traffic flow of Tunnel Section P / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section M + Tunnel Section N)))
W1-W8	Volume	0.12107666	3.0955598	0.01089722	0.258	-	-	-	1	1 x Tunnel W
WB-W16	Volume	0.005044891	0.129	-	-	-	-	-	1	1 x Tunnel W
T01-T10	Volume	0.01161618	0.2458341	0.00074442	0.0164	-	-	-	1	1 x Tunnel X
T11-T20	Volume	0.01161618	0.2458341	0.00087208	0.0082	-	-	-	1	1 x Tunnel X
BaseA	Volume	0.00151548	0.013912	0.00151548	0.0139	-	-	-	1	1/3 x Basement roads A,B,C
BaseC	Volume	0.00151548	0.013912	0.00151548	0.0139	-	-	-	1	1/3 x Basement roads A,B,C
901-930	Volume	-	-	-	-	-	-	-	1	1 x Tunnel Y
901-903	Volume	-	-	-	-	-	-	-	1	1 x Tunnel Z
904-906	Volume	-	-	-	-	-	-	-	1	1 x Tunnel Z
V1	Paint	-	-	-	-	-	-	-	1	from 1.4

Appendix 3.18c - Emission Rates of Portal, Top Openings and Ventilation Exhaust (#18-19)

Remarks (Tunnel name - Portal & top opening of underpass in EIA of Rd Works in WK)	WKCD section no.	Road name	Bound	Road Type	Length (m)	Total (veh/hr)	Hr-18-19 (2015 EIA, 19-12-2011.xlt)																		Rate (g/km-PM)	NOx	Emission Rate (g/s)	
							PC	taxi	LGV3	LGV4	LGV6	HGV7	HGV8	PLB	PV4	PV5	NFB6	NFB7	NFB8	FBS0	FBDO	MC	Total	PM			NOx	
A ¹	73	Lin Chung Rd (underpass)	Northbound	3	73	550	55%	1%	21%	0%	4%	2%	5%	5%	1%	1%	1%	0%	2%	2%	0%	1%	100%	0.0963072	1.2124485	0.0010741	0.0136222	
B ¹	73	Lin Chung Rd (underpass)	Northbound	3	272	550	55%	1%	21%	0%	4%	2%	5%	5%	1%	1%	1%	0%	2%	2%	0%	1%	100%	0.0963072	1.2124485	0.0040021	0.0503840	
C ¹	73	Lin Chung Rd (underpass)	Northbound	3	110	550	55%	1%	21%	0%	4%	2%	5%	5%	1%	1%	1%	0%	2%	2%	0%	1%	100%	0.0963072	1.2124485	0.0016185	0.0203759	
D ¹	73	Lin Chung Rd (underpass)	Northbound	3	176	550	55%	1%	21%	0%	4%	2%	5%	5%	1%	1%	1%	0%	2%	2%	0%	1%	100%	0.0963072	1.2124485	0.0025986	0.0326014	
E ¹	72	Lin Chung Rd (underpass)	Southbound	3	155	828	56%	1%	22%	1%	3%	1%	4%	5%	1%	1%	1%	0%	1%	1%	0%	1%	100%	0.0924823	1.0975200	0.003267	0.0381072	
F ¹	72	Lin Chung Rd (depressed)	Southbound	3	172	828	56%	1%	22%	1%	3%	1%	4%	5%	1%	1%	1%	0%	1%	1%	0%	1%	100%	0.0924823	1.0975200	0.0036572	0.0433963	
G ¹	118	Lin Chung Rd (depressed)	Southbound	3	121	755	56%	1%	21%	1%	3%	1%	5%	5%	1%	1%	1%	0%	1%	1%	0%	1%	100%	0.0928644	1.1229330	0.0023566	0.0284894	
H ¹	119	Austin Rd W (depressed)	Eastbound	3	173	1226	41%	1%	42%	0%	2%	2%	5%	5%	1%	1%	0%	0%	0%	2%	0%	1%	100%	0.1262322	1.3211846	0.0074363	0.0786772	
I ¹	117	Austin Rd W (depressed)	Eastbound	3	194	436	42%	1%	42%	0%	1%	1%	5%	5%	1%	1%	0%	0%	0%	1%	0%	1%	100%	0.1226485	1.2485552	0.0028976	0.0293481	
J ¹	116	Austin Rd W (depressed)	Westbound	3	194	585	38%	1%	40%	0%	2%	2%	4%	5%	1%	1%	0%	0%	2%	1%	1%	1%	100%	0.1336018	1.5150395	0.0042065	0.0477243	
K ¹	114	Lin Chung Rd (depressed)	Southbound	3	95	177	58%	0%	34%	0%	2%	0%	0%	2%	1%	1%	0%	0%	1%	0%	0%	0%	100%	0.0851100	0.7951788	0.0033982	0.0037199	
L ¹	112	Lin Chung Rd (depressed)	Northbound	3	95	484	57%	1%	22%	0%	3%	2%	4%	5%	1%	1%	0%	1%	1%	1%	0%	1%	100%	0.0916668	1.0758703	0.0011943	0.0140143	
M ¹	84	Lin Chung Rd	Southbound	3	55	650	56%	1%	23%	0%	3%	2%	4%	5%	1%	1%	0%	2%	2%	0%	1%	1%	100%	0.0948205	1.1495555	0.0009583	0.0116177	
N ¹	77	Lin Chung Rd	Northbound	3	55	844	56%	1%	22%	1%	4%	2%	5%	5%	1%	1%	1%	0%	1%	1%	0%	1%	100%	0.0948007	1.1350154	0.0012441	0.0148940	
O ¹	111	Austin Rd W (depressed)	Eastbound	3	52	1103	42%	1%	40%	0%	2%	2%	4%	5%	1%	1%	1%	0%	2%	0%	1%	1%	100%	0.1252778	1.3427278	0.0077248	0.0184489	
P ¹	110	Austin Rd W (depressed)	Westbound	3	52	584	42%	1%	40%	0%	2%	2%	4%	5%	1%	1%	1%	0%	1%	1%	0%	1%	100%	0.1256363	1.4337436	0.0010807	0.0123203	
W	98	West Kowloon Highway (WKH)	Northbound	2	1970	4849	58%	0%	13%	0%	3%	2%	5%	4%	2%	2%	1%	0%	4%	2%	3%	0%	100%	0.0519319	1.3418356	0.1373860	3.5604241	
A	Internal Rd A	Bothbound	4	404	174	46%	0%	29%	0%	2%	0%	0%	2%	1%	1%	18%	0%	0%	1%	0%	0%	0%	100%	0.1468798	1.3134771	0.0028631	0.0256031	
B	Internal Rd B	Bothbound	4	361	262	45%	0%	27%	0%	1%	0%	0%	2%	1%	1%	23%	0%	0%	1%	0%	0%	0%	100%	0.1569175	1.4449276	0.0041243	0.0379771	
C	Internal Rd C	Bothbound	4	521	143	32%	0%	20%	0%	1%	0%	0%	1%	1%	1%	42%	0%	0%	0%	0%	0%	0%	100%	0.1912270	1.8942307	0.0009439	0.0306672	
X	I144	Reposition of Gascoigne Rd Flyover	Westbound	3	180	1845	37%	0%	11%	1%	8%	4%	10%	12%	1%	1%	1%	0%	1%	11%	4%	0%	100%	0.1172952	2.5348958	0.0108205	0.2338441	

Note: (1) 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 multiplied by traffic flow of each roads.

Scenario 2 30%

Portal / opening ID	Source Type	Calculated by the formula shown (extracted from the approved EIA of Road Works at West Kowloon)		Volume source - calculated by number of portal/opening (veh/hr)		Area source - calculated by emission rate divided by area		Formula from Scenario	Emission calculation formula (Extracted from the approved EIA of Road Works at West Kowloon)	
		PM	NOx	PM	NOx	PM	NOx (Area)			
A	Area	0.00032223	0.0040567	-	-	7E-07	8E-06	491.2	1	0.3 x Tunnel Section A
B	Area	0.00414974	0.0522426	-	-	1E-05	0.0002	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	Area	0.00165553	0.0201627	-	-	3E-06	3E-05	835.3	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	Volume	0.0041465	0.0521693	0.00039481	0.005	-	-	-	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
D8-D14	Volume	0.000197405	0.0025	-	-	-	-	-	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	Area	0.00178925	0.0212314	-	-	6E-06	6E-05	277.5	1	0.3 x 0.7 x Tunnel Section E + 0.3 x Tunnel Section F
H	Area	0.01811523	0.199924	0.00019206	0.0033	-	-	-	1	1 x Tunnel Section F + 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 (1/3 x (Tunnel Section Internal Road A + Tunnel Section Internal Road B + Tunnel Section Internal Road C) x (traffic flow of Tunnel Section I / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section P)))
I5-I9	Volume	0.001509602	0.0187	-	-	-	-	-	1	0.3 x Tunnel Section J + 0.3 x (1 - 0.14) x Tunnel Section K + 0.3 x Tunnel Section O + 0.3 x 1/3 x (Tunnel Section Internal Road A + Tunnel Section Internal Road B + Tunnel Section Internal Road C) x (traffic flow of Tunnel Section L / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section P))
JK01	Area	0.00299084	0.0313764	-	-	2E-06	2E-05	1642.7	1	0.3 x Tunnel Section J + 0.3 x (1 - 0.14) x Tunnel Section K + 0.3 x Tunnel Section O + 0.3 x 1/3 x (Tunnel Section Internal Road A + Tunnel Section Internal Road B + Tunnel Section Internal Road C) x (traffic flow of Tunnel Section L / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section P))
L1-L5	Volume	0.00349777	0.0401621	0.000460369	0.0054	-	-	-	1	1 x Tunnel Section L + 0.7 x 0.24 x Tunnel Section J + 0.7 x 0.62 x Tunnel Section O + 0.7 x (1/3 x (Tunnel Section Internal Road A + Tunnel Section Internal Road B + Tunnel Section Internal Road C) x (traffic flow of Tunnel Section L / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section P)))
LE-L10	Volume	0.00110117	0.0132562	0.00023194	0.0027	-	-	-	1	0.5 x (Tunnel Section M + Tunnel Section N)
M1-M4	Volume	0.00110117	0.0132562	0.000183528	0.0022	-	-	-	1	0.5 x (Tunnel Section M + Tunnel Section N)
M5-M8	Volume	0.00110117	0.0132562	0.000183528	0.0022	-	-	-	1	0.5 x (Tunnel Section M + Tunnel Section N)
N1-N4	Volume	0.00110117	0.0132562	0.000183528	0.0022	-	-	-	1	0.5 x (Tunnel Section M + Tunnel Section N)
NE-N8	Volume	0.00110117	0.0132562	0.000183528	0.0022	-	-	-	1	0.5 x (Tunnel Section M + Tunnel Section N)
PI-P4	Volume	0.00455369	0.0470348	0.000739499	0.0078	-	-	-	1	1 x Tunnel Section P + 0.7 x 0.76 x Tunnel Section J + 0.7 x 0.86 x Tunnel Section K + 0.7 x (1/3 x (Tunnel Section Internal Road A + Tunnel Section Internal Road B + Tunnel Section Internal Road C) x (traffic flow of Tunnel Section P / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section P)))
P5-P8	Volume	0.00455369	0.0470348	0.000739474	0.0059	-	-	-	1	1 x Tunnel Section P + 0.7 x 0.76 x Tunnel Section J + 0.7 x 0.86 x Tunnel Section K + 0.7 x (1/3 x (Tunnel Section Internal Road A + Tunnel Section Internal Road B + Tunnel Section Internal Road C) x (traffic flow of Tunnel Section P / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section P)))
W1-W8	Volume	0.13779605	3.5604241	0.011483004	0.2967	-	-	-	1	1 x Tunnel W
W9-W16	Volume	0.13779605	3.5604241	0.005741502	0.1484	-	-	-	1	1 x Tunnel W
T01-T10	Volume	0.01082048	0.2338441	0.00021396	0.0196	-	-	-	1	1 x Tunnel X
T11-T20	Volume	0.01082048	0.2338441	0.000209683	0.0078	-	-	-	1	1 x Tunnel X
BaseA	Volume	0.00364375	0.0342158	0.000643751	0.0342	-	-	-	1	1/3 x Basement roads A,B,C
BaseC	Volume	0.00364375	0.0342158	0.000643751	0.0342	-	-	-	1	1/3 x Basement roads A,B,C
901-930	Volume	-	-	-	-	-	-	-	1	1 x Tunnel Y
904-906	Volume	-	-	-	-	-	-	-	1	1 x Tunnel Z
V1	Paint	-	-	-	-	-	-	-	from 1-4	-

Appendix 3.18c - Emission Rates of Portal, Top Openings and Ventilation Exhaust (H19-20)

Remarks (Tunnel name - Portal & top opening of underpass in EIA of Rd Works in WK)	WKCD section no.	Road name	Bound	Road Type	Length (m)	Total (veh/hr)	Hr:19-20 (2015 EIA, 19-12-2011.xlt)																	Rate (g/km-PM)	Rate (g/km-NOx)	Emission Rate (g/s)		
							PC	taxi	LGV3	LGV4	LGV6	HGV7	HGV8	PLB	PV4	PV5	NFB6	NFB7	NFB8	FBS0	FBDO	MC	Total			PM	NOx	
A'	73	Lin Chung Rd (underpass)	Northbound	3	470	54%	1%	21%	0%	3%	2%	4%	2%	1%	1%	0%	2%	1%	0%	2%	2%	0%	1%	100%	0.9993968	1.2553367	0.0094473	0.0119641
B'	73	Lin Chung Rd (underpass)	Northbound	3	272	54%	1%	21%	0%	3%	2%	4%	2%	1%	1%	0%	2%	1%	0%	2%	2%	0%	1%	100%	0.9993968	1.2553367	0.0093527	0.0445794
C'	73	Lin Chung Rd (underpass)	Northbound	3	110	470	54%	1%	21%	0%	3%	2%	4%	2%	1%	1%	0%	2%	2%	2%	0%	1%	100%	0.9993968	1.2553367	0.0014274	0.0180280	
D'	73	Lin Chung Rd (underpass)	Northbound	3	176	470	54%	1%	21%	0%	3%	2%	4%	2%	1%	1%	0%	2%	2%	2%	0%	1%	100%	0.9993968	1.2553367	0.0022839	0.0288448	
E'	72	Lin Chung Rd (underpass)	Southbound	3	155	810	56%	1%	22%	1%	3%	1%	4%	2%	1%	1%	0%	1%	1%	1%	1%	0%	1%	100%	0.9946840	1.1070114	0.0033261	0.0380070
F'	72	Lin Chung Rd (depressed)	Southbound	3	172	810	56%	1%	22%	1%	3%	1%	4%	2%	1%	1%	0%	1%	1%	1%	1%	0%	1%	100%	0.9946840	1.1070114	0.0036847	0.0428413
G'	118	Lin Chung Rd (depressed)	Southbound	3	121	765	56%	1%	22%	1%	3%	1%	4%	2%	1%	1%	0%	1%	1%	1%	1%	0%	1%	100%	0.9943951	1.1249346	0.0024271	0.0289249
H'	119	Austin Rd W (depressed)	Eastbound	3	173	1230	59%	1%	44%	0%	2%	2%	4%	2%	1%	1%	0%	0%	0%	2%	0%	1%	100%	0.1307413	1.3744699	0.0077279	0.0813620	
I'	117	Austin Rd W (depressed)	Eastbound	3	194	425	41%	1%	44%	0%	1%	1%	5%	2%	1%	1%	0%	0%	0%	1%	0%	1%	100%	0.1272482	1.2705359	0.0029143	0.0291057	
J'	116	Austin Rd W (depressed)	Westbound	3	194	570	37%	1%	40%	0%	2%	2%	4%	2%	1%	1%	0%	0%	0%	2%	1%	1%	100%	0.1374107	1.5469620	0.0042208	0.0475181	
K'	114	Lin Chung Rd (depressed)	Southbound	3	95	165	81%	0%	33%	0%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0.0837406	0.7390958	0.0030946	0.0032181	
L'	112	Lin Chung Rd (depressed)	Northbound	3	95	165	56%	1%	21%	0%	3%	2%	4%	2%	1%	1%	0%	1%	1%	1%	1%	0%	1%	100%	0.9961683	1.1232171	0.011179	0.0132141
M'	84	Lin Chung Rd	Southbound	3	55	650	56%	1%	24%	0%	3%	2%	4%	2%	1%	1%	0%	0%	2%	2%	0%	0%	1%	100%	0.9965001	1.1424376	0.0097958	0.0115513
N'	77	Lin Chung Rd	Northbound	3	56	745	55%	1%	21%	1%	3%	2%	5%	2%	1%	1%	0%	1%	1%	1%	0%	1%	100%	0.9972510	1.1633760	0.0011270	0.0134822	
O'	111	Austin Rd W (depressed)	Eastbound	3	52	1100	41%	1%	43%	0%	2%	2%	4%	2%	1%	1%	0%	1%	2%	1%	1%	0%	1%	100%	0.1264244	1.3757389	0.0016850	0.0180718
P'	110	Austin Rd W (depressed)	Westbound	3	52	560	40%	1%	42%	0%	2%	2%	4%	2%	1%	1%	0%	1%	2%	1%	1%	0%	1%	100%	0.1316398	1.4708751	0.0011220	0.0125251
W'	98	West Kowloon Highway (WKH)	Northbound	2	1970	3605	87%	0%	13%	0%	3%	2%	5%	4%	2%	2%	1%	0%	4%	2%	3%	0%	100%	0.0528031	1.3506339	0.1037721	2.6644837	
A	Internal Rd A	Bothbound	4	404	160	47%	0%	28%	0%	3%	0%	0%	3%	0%	0%	0%	19%	0%	0%	0%	0%	0%	100%	0.1500308	1.3633030	0.0026948	0.0244799	
B	Internal Rd B	Bothbound	4	361	245	45%	0%	27%	0%	2%	0%	0%	2%	0%	0%	0%	24%	0%	0%	0%	0%	0%	100%	0.1581700	1.4628400	0.0038859	0.0353291	
C	Internal Rd C	Bothbound	4	521	130	35%	0%	19%	0%	0%	0%	0%	0%	0%	0%	0%	46%	0%	0%	0%	0%	0%	100%	0.1930660	1.9136558	0.0036323	0.0360033	
X'	I144	Reposition of Gascoigne Rd Flyover	Westbound	3	180	1850	38%	0%	11%	1%	8%	4%	10%	12%	1%	1%	1%	0%	1%	11%	4%	0%	1%	100%	0.1202781	2.5528715	0.0111257	0.2361221

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 multiplied by traffic flow of each roads.

Scenario 2

30%

Portal/ opening ID	Source Type	Calculated by the formula shown (extracted from the approved EIA of Road Works at West Kowloon)		Volume source - calculated by number of portal/opening (veh/hr)		Area source - calculated by emission rate divided by area		Formula from Scenario	Emission calculation formula (Extracted from the approved EIA of Road Works at West Kowloon)	
		PM	NOx	PM	NOx	PM	NOx			(Area)
A	Area	0.00028419	0.0035892	-	-	6E-07	7E-06	491.2	1	0.3 x Tunnel Section A
B	Area	0.00365989	0.0462229	-	-	1E-05	0.0001	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	Area	0.00157894	0.0190496	-	-	2E-06	3E-05	835.3	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	Volume	0.00365616	0.0461737	0.00348205	0.0044	-	-	-	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
D8-D14	Volume	0.000174103	0.0022	-	-	-	-	-	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	Area	0.00179291	0.0209599	-	-	6E-06	6E-05	277.5	1	0.3 x 0.7 x Tunnel Section E + 0.3 x Tunnel Section F
H	Area	0.01849101	0.2007883	0.003081835	0.0335	-	-	-	1	1 x Tunnel Section H + 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 (1/3 x (Tunnel Section Internal Road A + Tunnel Section Internal Road B + Tunnel Section Internal Road C) x (traffic flow of Tunnel Section I / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section P)))
I5-I9	Volume	-	-	0.001540918	0.0187	-	-	-	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
JK01	Area	0.00293813	0.0306895	-	-	2E-06	2E-05	1642.7	1	0.3 x Tunnel Section J + 0.3 x (1 - 0.14) x Tunnel Section K + 0.3 x Tunnel Section O + 0.3 x 1/3 x (Tunnel Section Internal Road A + Tunnel Section Internal Road B + Tunnel Section Internal Road C) x (traffic flow of Tunnel Section L / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section P))
L1-L5	Volume	0.00335832	0.039035	0.000447775	0.0052	-	-	-	1	1 x Tunnel Section L + 0.7 x 0.24 x Tunnel Section J + 0.7 x 0.62 x Tunnel Section O + 0.7 x (1/3 x (Tunnel Section Internal Road A + Tunnel Section Internal Road B + Tunnel Section Internal Road C) x (traffic flow of Tunnel Section L / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section P)))
LE-L10	Volume	0.00105141	0.0125168	0.000223888	0.0029	-	-	-	1	0.5 x (Tunnel Section M + Tunnel Section N)
M1-M4	Volume	0.00105141	0.0125168	0.000175236	0.0021	-	-	-	1	0.5 x (Tunnel Section M + Tunnel Section N)
M5-M8	Volume	0.00105141	0.0125168	0.000175236	0.0021	-	-	-	1	0.5 x (Tunnel Section M + Tunnel Section N)
N1-N4	Volume	0.00105141	0.0125168	0.000175236	0.0021	-	-	-	1	0.5 x (Tunnel Section M + Tunnel Section N)
NS-N8	Volume	0.00454996	0.0462843	0.000738227	0.0077	-	-	-	1	1 x Tunnel Section P + 0.7 x 0.76 x Tunnel Section J + 0.7 x 0.86 x Tunnel Section K + 0.7 x (1/3 x (Tunnel Section Internal Road A + Tunnel Section Internal Road B + Tunnel Section Internal Road C) x (traffic flow of Tunnel Section P / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section P)))
P1-P4	Volume	0.00454996	0.0462843	0.000738227	0.0077	-	-	-	1	1 x Tunnel Section P + 0.7 x 0.76 x Tunnel Section J + 0.7 x 0.86 x Tunnel Section K + 0.7 x (1/3 x (Tunnel Section Internal Road A + Tunnel Section Internal Road B + Tunnel Section Internal Road C) x (traffic flow of Tunnel Section P / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section P)))
P5-P8	Volume	0.00454996	0.0462843	0.000738227	0.0077	-	-	-	1	1 x Tunnel Section P + 0.7 x 0.76 x Tunnel Section J + 0.7 x 0.86 x Tunnel Section K + 0.7 x (1/3 x (Tunnel Section Internal Road A + Tunnel Section Internal Road B + Tunnel Section Internal Road C) x (traffic flow of Tunnel Section P / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section P)))
W1-W8	Volume	0.10377213	2.6644837	0.008847678	0.222	-	-	-	1	1 x Tunnel W
W9-W16	Volume	0.01112573	0.2361221	0.00423839	0.111	-	-	-	1	1 x Tunnel W
701-710	Volume	0.00074716	0.01057	0.000370858	0.0078	-	-	-	1	1 x Tunnel X
711-720	Volume	0.00074716	0.01057	0.000370858	0.0078	-	-	-	1	1 x Tunnel X
BaseA	Volume	0.00340436	0.0321408	0.003404363	0.0321	-	-	-	1	1/3 x Basement roads A,B,C
BaseC	Volume	0.00340436	0.0321408	0.003404363	0.0321	-	-	-	1	1/3 x Basement roads A,B,C
901-930	Volume	-	-	-	-	-	-	-	1	1 x Tunnel Y
904-906	Volume	-	-	-	-	-	-	-	1	1 x Tunnel Z
V1	Paint	-	-	-	-	-	-	-	from 1-4	-

Appendix 3.18c - Emission Rates of Portal, Top Openings and Ventilation Exhaust (H20-21)

Remarks (Tunnel name - Portal & top opening of underpass in EIA of Rd Works in WK)	WKCD section no.	Road name	Bound	Road Type	Length (m)	Total (veh/hr)	Hr 20-21 (2015 EIA, 19-12-2011.xls)														Rate (g/km-PM)	NOx	Emission Rate (g/s)				
							PC	taxi	LGV3	LGV4	LGV6	HGV7	HGV8	PLB	PV4	PV5	NFB6	NFB7	NFB8	FBSD			FBDD	MC	Total	PM	NOx
A ¹	73	Lin Cheung Rd (underpass)	Northbound	3	73	460	54%	1%	21%	0%	3%	2%	4%	1%	0%	1%	0%	2%	2%	0%	1%	100%	0.0944516	1.2245355	0.008810	0.0114222	
B ¹	73	Lin Cheung Rd (underpass)	Northbound	3	272	460	54%	1%	21%	0%	3%	2%	4%	1%	0%	1%	0%	2%	2%	0%	1%	100%	0.0944516	1.2245355	0.0032827	0.0425524	
C ¹	73	Lin Cheung Rd (underpass)	Northbound	3	110	460	54%	1%	21%	0%	3%	2%	4%	1%	0%	1%	0%	2%	2%	0%	1%	100%	0.0944516	1.2245355	0.0013276	0.0172113	
D ¹	73	Lin Cheung Rd (underpass)	Northbound	3	176	460	54%	1%	21%	0%	3%	2%	4%	1%	0%	1%	0%	2%	2%	0%	1%	100%	0.0944516	1.2245355	0.0021241	0.0273384	
E ¹	72	Lin Cheung Rd (underpass)	Southbound	3	155	540	56%	1%	23%	1%	3%	1%	5%	1%	0%	1%	0%	1%	1%	0%	1%	100%	0.0906412	1.0507031	0.0021074	0.0244286	
F ¹	72	Lin Cheung Rd (depressed)	Southbound	3	172	540	56%	1%	23%	1%	3%	1%	5%	1%	0%	1%	0%	1%	1%	0%	1%	100%	0.0906412	1.0507031	0.0023385	0.0271081	
G ¹	118	Lin Cheung Rd (depressed)	Southbound	3	121	515	55%	1%	21%	1%	3%	1%	5%	1%	0%	1%	0%	2%	1%	0%	1%	100%	0.0929131	1.1244962	0.0016083	0.0194647	
H ¹	119	Austin Rd W (depressed)	Eastbound	3	173	1035	38%	1%	45%	0%	1%	1%	4%	2%	1%	0%	0%	0%	1%	0%	1%	100%	0.1275933	1.3494628	0.0034460	0.0671189	
I ¹	117	Austin Rd W (depressed)	Eastbound	3	194	355	39%	1%	44%	0%	1%	1%	4%	3%	1%	1%	0%	0%	1%	0%	1%	100%	0.1231362	1.2569750	0.0023557	0.0240468	
J ¹	116	Austin Rd W (depressed)	Westbound	3	194	475	35%	1%	41%	0%	2%	2%	4%	2%	1%	1%	0%	0%	0%	2%	1%	1%	100%	0.1336604	1.5647378	0.0034218	0.0400529
K ¹	114	Lin Cheung Rd (depressed)	Southbound	3	95	130	38%	0%	35%	0%	4%	0%	2%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0.0852512	0.7787923	0.0029335	0.0028648	
L ¹	112	Lin Cheung Rd (depressed)	Northbound	3	95	455	56%	1%	22%	0%	3%	2%	4%	4%	1%	1%	0%	1%	1%	0%	1%	100%	0.0914833	1.0892131	0.0010865	0.0130735	
M ¹	84	Lin Cheung Rd	Southbound	3	55	455	56%	1%	22%	0%	3%	1%	4%	1%	1%	1%	0%	1%	1%	0%	1%	100%	0.0906042	1.0737254	0.0006427	0.0075900	
N ¹	77	Lin Cheung Rd	Northbound	3	56	750	55%	1%	22%	1%	3%	2%	5%	1%	1%	1%	0%	1%	1%	0%	1%	100%	0.0958090	1.1643613	0.0011179	0.0135842	
O ¹	111	Austin Rd W (depressed)	Eastbound	3	52	845	38%	1%	44%	0%	2%	2%	4%	2%	1%	1%	0%	1%	2%	1%	1%	100%	0.1283456	1.4139591	0.0015666	0.0172581	
P ¹	110	Austin Rd W (depressed)	Westbound	3	52	505	39%	1%	43%	0%	2%	2%	4%	2%	1%	1%	0%	1%	2%	1%	1%	100%	0.1276355	1.4789873	0.0005112	0.0107948	
W	98	West Kowloon Highway (WKH)	Northbound	2	1970	2370	87%	0%	14%	0%	3%	2%	5%	4%	2%	2%	1%	0%	4%	2%	3%	0%	100%	0.0541399	1.3754610	0.0702149	1.7835833
A	Internal Rd A	Bothbound	4	404	125	44%	0%	28%	0%	4%	0%	0%	4%	0%	0%	0%	20%	0%	0%	0%	0%	100%	0.1511070	1.4181344	0.0021201	0.0188933	
B	Internal Rd B	Bothbound	4	361	185	45%	0%	27%	0%	3%	0%	0%	3%	0%	0%	0%	24%	0%	0%	0%	0%	100%	0.1573047	1.4827329	0.0028161	0.0275723	
C	Internal Rd C	Bothbound	4	521	95	32%	0%	21%	0%	0%	0%	0%	0%	0%	0%	0%	47%	0%	0%	0%	0%	100%	0.2026860	2.0048960	0.0027867	0.0275545	
X	114	Reposition of Gascoigne Rd Flyover	Westbound	3	180	1245	38%	0%	11%	1%	8%	4%	10%	12%	1%	1%	1%	0%	0%	4%	0%	100%	0.1159785	2.4557565	0.0072197	0.1553608	

Note: (1) 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 multiplied by traffic flow of each roads.

Scenario 2

Portal/ opening ID	Source Type	Calculated by the formula shown (extracted from the approved EIA of Road Works at West Kowloon)		Volume source - calculated by number of portal/opening (veh/hr)		Area source - calculated by emission rate divided by area		Formula from Scenario	Emission calculation formula (Extracted from the approved EIA of Road Works at West Kowloon)	
		Emission Rate - Portal/ Opening (g/s)		Emission Rate - Portal/ Opening (g/s) - Volume		Emission Rate - Portal/ Opening (g/m ² -s) - Area source				
		PM	NOx	PM	NOx	PM	NOx			
A	Area	0.00026431	0.0034267	-	-	5E-07	7E-06	491.2	1	0.3 x Tunnel Section A
B	Area	0.00340382	0.0441294	-	-	1E-05	0.0001	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	Area	0.00117916	0.0144198	-	-	2E-06	2E-05	835.3	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	Volume	0.00340034	0.0440364	0.00023842	0.0042	-	-	-	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
D8-D14	Volume	0.000161921	0.0021	-	-	-	-	-	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	Area	0.00114412	0.0132625	-	-	4E-06	5E-05	277.5	1	0.3 x 0.7 x Tunnel Section E + 0.3 x Tunnel Section F
H-4	Volume	0.0139303	0.1576841	0.002321716	0.0293	-	-	-	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 (1/3 x (Tunnel Section Internal Road A + Tunnel Section Internal Road B + Tunnel Section Internal Road C) x (traffic flow of Tunnel Section I / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section Internal Road A + Tunnel Section Internal Road B + Tunnel Section Internal Road C) x (traffic flow of Tunnel Section L / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section J)))
I-4	Volume	0.001160852	0.0126	-	-	-	-	-	1	0.3 x Tunnel Section J + 0.3 x (1 - 0.14) x Tunnel Section K + 0.3 x Tunnel Section O + 0.3 x 1/3 x (Tunnel Section Internal Road A + Tunnel Section Internal Road B + Tunnel Section Internal Road C) x (traffic flow of Tunnel Section L / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section J))
J0-1	Area	0.00235475	0.0253774	-	-	2E-06	2E-05	1642.7	1	0.3 x Tunnel Section J + 0.3 x (1 - 0.14) x Tunnel Section K + 0.3 x Tunnel Section O + 0.3 x 1/3 x (Tunnel Section Internal Road A + Tunnel Section Internal Road B + Tunnel Section Internal Road C) x (traffic flow of Tunnel Section L / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section J))
L1-L5	Volume	0.00298501	0.0346054	0.00038002	0.0046	-	-	-	1	1 x Tunnel Section L + 0.7 x 0.24 x Tunnel Section J + 0.7 x 0.62 x Tunnel Section O + 0.7 x (1/3 x (Tunnel Section Internal Road A + Tunnel Section Internal Road B + Tunnel Section Internal Road C) x (traffic flow of Tunnel Section L / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section J))
LE-L10	Volume	0.00088023	0.0105919	0.000199001	0.0023	-	-	-	1	1 x Tunnel Section L + 0.7 x 0.24 x Tunnel Section J + 0.7 x 0.62 x Tunnel Section O + 0.7 x (1/3 x (Tunnel Section Internal Road A + Tunnel Section Internal Road B + Tunnel Section Internal Road C) x (traffic flow of Tunnel Section L / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section J))
M1-M4	Volume	0.00088023	0.0105919	0.000146705	0.0018	-	-	-	1	0.5 x (Tunnel Section M + Tunnel Section N)
M5-M8	Volume	0.00088023	0.0105919	0.000146705	0.0018	-	-	-	1	0.5 x (Tunnel Section M + Tunnel Section N)
N1-N4	Volume	0.00088023	0.0105919	0.000146705	0.0018	-	-	-	1	0.5 x (Tunnel Section M + Tunnel Section N)
NE-N8	Volume	0.00362947	0.0367442	0.00094912	0.0065	-	-	-	1	1 x Tunnel Section P + 0.7 x 0.16 x Tunnel Section J + 0.7 x 0.86 x Tunnel Section K - 0.7 x (1/3 x (Tunnel Section Internal Road A + Tunnel Section Internal Road B + Tunnel Section Internal Road C) x (traffic flow of Tunnel Section P / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section J))
PI-P4	Volume	0.00362947	0.0367442	0.00094912	0.0065	-	-	-	1	1 x Tunnel Section P + 0.7 x 0.16 x Tunnel Section J + 0.7 x 0.86 x Tunnel Section K - 0.7 x (1/3 x (Tunnel Section Internal Road A + Tunnel Section Internal Road B + Tunnel Section Internal Road C) x (traffic flow of Tunnel Section P / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section J))
PS-P8	Volume	0.00362947	0.0367442	0.00094912	0.0065	-	-	-	1	1 x Tunnel Section P + 0.7 x 0.16 x Tunnel Section J + 0.7 x 0.86 x Tunnel Section K - 0.7 x (1/3 x (Tunnel Section Internal Road A + Tunnel Section Internal Road B + Tunnel Section Internal Road C) x (traffic flow of Tunnel Section P / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section J))
W1-W8	Volume	0.07021488	1.7835833	0.00585124	0.1487	-	-	-	1	1 x Tunnel W
WB-W16	Volume	0.00721966	0.1553608	0.00292562	0.0743	-	-	-	1	1 x Tunnel W
T01-T10	Volume	0.00260833	0.0249886	0.00049194	0.0104	-	-	-	1	1 x Tunnel X
T11-T20	Volume	0.00260833	0.0249886	0.00049194	0.0104	-	-	-	1	1 x Tunnel X
BaseA	Volume	0.00260833	0.0249886	0.000268329	0.025	-	-	-	1	1/3 x Basement roads A,B,C
BaseC	Volume	0.00260833	0.0249886	0.000268329	0.025	-	-	-	1	1/3 x Basement roads A,B,C
901-930	Volume	-	-	-	-	-	-	-	1	1 x Tunnel Y
904-906	Volume	-	-	-	-	-	-	-	1	1 x Tunnel Z
V1	Paint	-	-	-	-	-	-	-	from 1-4	-

Appendix 3.18c - Emission Rates of Portal, Top Openings and Ventilation Exhaust (H21-22)

Remarks (Tunnel name - Portal & top opening of underpass in EIA of Rd Works in WK)	WKCD section no.	Road name	Bound	Road Type	Length (m)	Total (veh/hr)	Hr 21-22 (2015 EIA, 19-12-2011.xls)																Rate (g/km-PM)	NOx	Emission Rate (g/s)		
							PC	taxi	LGV3	LGV4	LGV6	HGV7	HGV8	PLB	PV4	PV5	NFB6	NFB7	NFB8	FBSD	FBDD	MC			Total	PM	NOx
A ¹	73	Lin Cheung Rd (underpass)	Northbound	3	73	380	54%	1%	21%	0%	4%	1%	5%	2%	1%	0%	1%	0%	1%	0%	1%	1%	100%	0.0840925	1.1669998	0.007250	0.038924
B ¹	73	Lin Cheung Rd (underpass)	Northbound	3	272	380	54%	1%	21%	0%	4%	1%	5%	2%	1%	0%	1%	0%	1%	0%	1%	100%	0.0840925	1.1669998	0.007250	0.035059	
C ¹	73	Lin Cheung Rd (underpass)	Northbound	3	110	380	54%	1%	21%	0%	4%	1%	5%	2%	1%	0%	1%	0%	1%	0%	1%	100%	0.0840925	1.1669998	0.001925	0.015502	
D ¹	73	Lin Cheung Rd (underpass)	Northbound	3	176	380	54%	1%	21%	0%	4%	1%	5%	2%	1%	0%	1%	0%	1%	0%	1%	100%	0.0840925	1.1669998	0.001748	0.021880	
E ¹	72	Lin Cheung Rd (underpass)	Southbound	3	155	540	55%	1%	22%	1%	3%	1%	5%	2%	1%	0%	2%	1%	0%	1%	1%	100%	0.0845630	1.1215795	0.002581	0.028070	
F ¹	72	Lin Cheung Rd (depressed)	Southbound	3	172	540	55%	1%	22%	1%	3%	1%	5%	2%	1%	0%	2%	1%	0%	1%	1%	100%	0.0845630	1.1215795	0.002402	0.028937	
G ¹	118	Lin Cheung Rd (depressed)	Southbound	3	121	530	55%	1%	22%	1%	3%	1%	5%	2%	1%	0%	2%	1%	0%	1%	1%	100%	0.0848913	1.1392194	0.0018904	0.029239	
H ¹	119	Austin Rd W (depressed)	Eastbound	3	173	1050	36%	1%	45%	0%	1%	1%	4%	3%	1%	0%	0%	0%	1%	1%	1%	100%	0.1321211	1.4530899	0.0068666	0.0731687	
I ¹	117	Austin Rd W (depressed)	Eastbound	3	194	355	38%	1%	45%	0%	1%	1%	4%	3%	1%	0%	0%	0%	1%	0%	1%	100%	0.1260448	1.2793054	0.0024113	0.0244738	
J ¹	116	Austin Rd W (depressed)	Westbound	3	194	465	34%	1%	42%	0%	2%	2%	4%	2%	1%	0%	0%	0%	1%	1%	1%	100%	0.1345154	1.5686270	0.0033707	0.0393322	
K ¹	114	Lin Cheung Rd (depressed)	Southbound	3	95	115	81%	0%	35%	0%	0%	0%	0%	4%	0%	0%	0%	0%	0%	0%	0%	100%	0.0818898	0.6878534	0.002485	0.0020875	
L ¹	112	Lin Cheung Rd (depressed)	Northbound	3	95	465	54%	1%	22%	0%	2%	2%	5%	1%	1%	0%	1%	0%	1%	0%	1%	100%	0.0850593	1.1443937	0.0015710	0.0132328	
M ¹	84	Lin Cheung Rd	Southbound	3	55	455	54%	1%	22%	0%	3%	2%	4%	4%	1%	1%	0%	2%	1%	0%	1%	100%	0.0825598	1.1899591	0.0006955	0.0084210	
N ¹	77	Lin Cheung Rd	Northbound	3	56	645	54%	1%	22%	1%	3%	2%	5%	2%	1%	1%	0%	2%	2%	0%	1%	100%	0.0899162	1.1919197	0.0009724	0.0119589	
O ¹	111	Austin Rd W (depressed)	Eastbound	3	52	840	36%	1%	45%	0%	2%	2%	4%	3%	1%	0%	1%	0%	1%	1%	1%	100%	0.1307701	1.5074457	0.0018025	0.0182820	
P ¹	110	Austin Rd W (depressed)	Westbound	3	52	500	36%	1%	45%	0%	2%	2%	4%	2%	1%	0%	1%	2%	1%	1%	1%	100%	0.1333913	1.5289962	0.0009826	0.0110390	
Q ¹	98	West Kowloon Highway (WKH)	Northbound	2	1970	1765	57%	0%	14%	0%	3%	2%	5%	4%	3%	2%	1%	0%	4%	2%	3%	0%	100%	0.0535333	1.3774921	0.0515311	1.3004470
R	A	Internal Rd A	Bothbound	4	404	100	45%	0%	30%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0.1529722	1.3576760	0.0017133	0.0152261	
S	B	Internal Rd B	Bothbound	4	361	150	41%	0%	28%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0.1632354	1.5557151	0.0026528	0.0249698	
T	C	Internal Rd C	Bothbound	4	521	80	31%	0%	19%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0.2096886	2.0813385	0.0024277	0.0249723	
U ¹	1144	Reposition of Gascoigne Rd Flyover	Westbound	3	180	1250	36%	0%	11%	1%	7%	4%	11%	12%	1%	1%	1%	0%	0%	4%	0%	100%	0.1159747	2.5378733	0.0072484	0.1586171	

Note: (1) 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 multiplied by traffic flow of each roads.

Scenario 2

Portal/ opening ID	Source Type	Emission Rate - Portal/ Opening (g/s)		Emission Rate - Portal/ Opening (g/m ² -s) - Volume		Emission Rate - Portal/ Opening (g/m ² -s) - Area source		Formula from Scenario	Emission calculation formula (Extracted from the approved EIA of Road Works at West Kowloon)	
		PM	NOx	PM	NOx	PM	NOx			
A	Area	0.00021751	0.0028977	-	-	4E-07	5E-06	491.2	1	0.3 x Tunnel Section A
B	Area	0.00280116	0.0347419	-	-	8E-06	0.0001	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	Area	0.00110983	0.0134057	-	-	2E-06	2E-05	835.3	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	Volume	0.00273693	0.0347704	0.00269505	0.0030	-	-	-	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
DE-D14	Volume	0.009133252	0.0017	-	-	-	-	-	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	Area	0.00119387	0.0141571	-	-	4E-06	5E-05	277.5	1	0.3 x 0.7 x Tunnel Section E + 0.3 x Tunnel Section F
H-J	Volume	0.01446168	0.1605721	0.00241029	0.0289	-	-	-	1	1 x Tunnel Section T + 1 x Tunnel Section G + 1 x Tunnel Section H + 0.7 x 0.38 x Tunnel Section O + 0.7 x (1/3 x (Tunnel Section Internal Road A + Tunnel Section Internal Road B + Tunnel Section Internal Road C) x (traffic flow of Tunnel Section I / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section J + 0.7 x 0.24 x Tunnel Section J + 0.7 x 0.62 x Tunnel Section O + 0.7 x (1/3 x (Tunnel Section Internal Road A + Tunnel Section Internal Road B + Tunnel Section Internal Road C) x (traffic flow of Tunnel Section L / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section M + Tunnel Section N)
JK-O1	Area	0.00223544	0.0242547	-	-	1E-06	2E-05	1642.7	1	0.3 x Tunnel Section J + 0.3 x (1 - 0.14) x Tunnel Section K + 0.3 x Tunnel Section O + 0.3 x (1/3 x (Tunnel Section Internal Road A + Tunnel Section Internal Road B + Tunnel Section Internal Road C) x (traffic flow of Tunnel Section L / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section M + Tunnel Section N)
L1-L5	Volume	0.00279227	0.0331279	0.00372303	0.0044	-	-	-	1	1 x Tunnel Section L + 0.7 x 0.24 x Tunnel Section J + 0.7 x 0.62 x Tunnel Section O + 0.7 x (1/3 x (Tunnel Section Internal Road A + Tunnel Section Internal Road B + Tunnel Section Internal Road C) x (traffic flow of Tunnel Section L / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section M + Tunnel Section N)
LE-L10	Volume	0.00083393	0.0101902	0.000186151	0.0022	-	-	-	1	0.5 x (Tunnel Section M + Tunnel Section N)
M1-M4	Volume	0.00083393	0.0101902	0.000186151	0.0022	-	-	-	1	0.5 x (Tunnel Section M + Tunnel Section N)
MS-M8	Volume	0.00083393	0.0101902	0.000186151	0.0022	-	-	-	1	0.5 x (Tunnel Section M + Tunnel Section N)
N1-N4	Volume	0.00083393	0.0101902	0.000186151	0.0022	-	-	-	1	0.5 x (Tunnel Section M + Tunnel Section N)
NS-N8	Volume	0.00083393	0.0101902	0.000186151	0.0022	-	-	-	1	0.5 x (Tunnel Section M + Tunnel Section N)
P1-P4	Volume	0.00353442	0.0374252	0.00505907	0.0062	-	-	-	1	1 x Tunnel Section P + 0.7 x 0.16 x Tunnel Section J + 0.7 x 0.86 x Tunnel Section K - 0.7 x (1/3 x (Tunnel Section Internal Road A + Tunnel Section Internal Road B + Tunnel Section Internal Road C) x (traffic flow of Tunnel Section P / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section M + Tunnel Section N)
PS-P8	Volume	0.00353442	0.0374252	0.00505907	0.0062	-	-	-	1	1 x Tunnel Section P + 0.7 x 0.16 x Tunnel Section J + 0.7 x 0.86 x Tunnel Section K - 0.7 x (1/3 x (Tunnel Section Internal Road A + Tunnel Section Internal Road B + Tunnel Section Internal Road C) x (traffic flow of Tunnel Section P / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section M + Tunnel Section N)
W1-W8	Volume	0.05153115	1.330447	0.00428432	0.1109	-	-	-	1	1 x Tunnel W
WB-W16	Volume	0.002147131	0.0054	-	-	-	-	-	1	1 x Tunnel W
T01-T10	Volume	0.00724842	0.1586171	0.00048228	0.0106	-	-	-	1	1 x Tunnel X
T11-T20	Volume	0.00724842	0.1586171	0.00048228	0.0106	-	-	-	1	1 x Tunnel X
BaseA	Volume	0.00226453	0.0214313	0.00226453	0.0214	-	-	-	1	1/3 x Basement roads A,B,C
BaseC	Volume	0.00226453	0.0214313	0.00226453	0.0214	-	-	-	1	1/3 x Basement roads A,B,C
901-930	Volume	-	-	-	-	-	-	-	1	1 x Tunnel Y
901-903	Volume	-	-	-	-	-	-	-	1	1 x Tunnel Z
904-906	Volume	-	-	-	-	-	-	-	1	1 x Tunnel Z
V1	Paint	-	-	-	-	-	-	-	1	from 1-4

Appendix 3.18c - Emission Rates of Portal, Top Openings and Ventilation Exhaust (H22-23)

Remarks (Tunnel name - Portal & top opening of underpass in EIA of Rd Works in WK)	WKCD section no.	Road name	Bound	Road Type	Length (m)	Total (veh/hr)	Hr 22-23 (2015 EIA, 19-12-2011.xlt)																	Rate (g/km-PM)	NOx	Emission Rate (g/s)	
							PC	taxi	LGV3	LGV4	LGV6	HGV7	HGV8	PLB	PV4	PV5	NFB6	NFB7	NFB8	FBSD	FBDO	MC	Total			PM	NOx
A ¹	73	Lin Cheung Rd (underpass)	Northbound	3	73	300	53%	2%	22%	0%	3%	2%	5%	5%	2%	2%	2%	0%	2%	100%	0.0953154	1.2002345	0.0057598	0.0073014			
B ¹	73	Lin Cheung Rd (underpass)	Northbound	3	272	900	53%	2%	22%	0%	3%	2%	5%	5%	2%	2%	2%	0%	2%	100%	0.0953154	1.2002345	0.0057598	0.0073014			
C ¹	73	Lin Cheung Rd (underpass)	Northbound	3	110	300	53%	2%	22%	0%	3%	2%	5%	5%	2%	2%	2%	0%	2%	100%	0.0953154	1.2002345	0.0057598	0.0073014			
D ¹	73	Lin Cheung Rd (underpass)	Northbound	3	176	300	53%	2%	22%	0%	3%	2%	5%	5%	2%	2%	2%	0%	2%	100%	0.0953154	1.2002345	0.0057598	0.0073014			
E ¹	72	Lin Cheung Rd (underpass)	Southbound	3	155	410	55%	1%	23%	0%	2%	1%	3%	3%	1%	1%	1%	1%	1%	100%	0.0952918	1.1936981	0.0056333	0.0154453			
F ¹	72	Lin Cheung Rd (depressed)	Southbound	3	172	410	55%	1%	23%	0%	2%	1%	3%	3%	1%	1%	1%	1%	1%	100%	0.0952918	1.1936981	0.0056333	0.0154453			
G ¹	118	Lin Cheung Rd (depressed)	Southbound	3	121	400	55%	1%	23%	0%	3%	1%	3%	3%	1%	1%	1%	1%	1%	100%	0.0951177	1.1994109	0.0052385	0.0148154			
H ¹	119	Austin Rd W (depressed)	Eastbound	3	173	960	35%	1%	47%	0%	2%	2%	5%	2%	1%	1%	1%	1%	1%	100%	0.1368599	1.5011441	0.0056148	0.0623386			
I ¹	117	Austin Rd W (depressed)	Eastbound	3	194	280	38%	2%	46%	0%	2%	2%	4%	2%	2%	0%	0%	2%	2%	100%	0.1256163	1.2765566	0.0018954	0.0192633			
J ¹	116	Austin Rd W (depressed)	Westbound	3	194	360	35%	1%	43%	0%	1%	1%	4%	3%	1%	0%	0%	1%	1%	100%	0.1328608	1.5171168	0.0025740	0.0284321			
K ¹	114	Lin Cheung Rd (depressed)	Southbound	3	95	110	39%	0%	32%	0%	5%	0%	0%	5%	0%	0%	0%	0%	0%	100%	0.0811531	0.7552585	0.0002256	0.0021927			
L ¹	112	Lin Cheung Rd (depressed)	Northbound	3	95	335	54%	1%	22%	0%	3%	1%	4%	4%	1%	1%	1%	1%	1%	100%	0.0951965	1.1342038	0.0050150	0.0102726			
M ¹	84	Lin Cheung Rd	Southbound	3	55	355	55%	1%	24%	0%	3%	1%	4%	4%	1%	1%	1%	1%	1%	100%	0.0929607	1.1149716	0.0050534	0.0061571			
N ¹	77	Lin Cheung Rd	Northbound	3	56	525	54%	1%	23%	0%	3%	2%	5%	5%	2%	1%	1%	0%	1%	100%	0.0956100	1.1435129	0.0057908	0.0093387			
O ¹	111	Austin Rd W (depressed)	Eastbound	3	52	735	36%	1%	46%	0%	1%	1%	4%	5%	1%	1%	1%	1%	1%	100%	0.1361463	1.4324972	0.0017467	0.0145867			
P ¹	110	Austin Rd W (depressed)	Westbound	3	52	470	35%	1%	45%	0%	1%	1%	5%	2%	1%	1%	1%	1%	1%	100%	0.1351062	1.5335944	0.0009011	0.0093623			
W	98	West Kowloon Highway (WKH)	Northbound	2	1970	1755	56%	0%	14%	0%	3%	2%	5%	4%	3%	2%	1%	0%	4%	100%	0.0535651	1.3757223	0.0014425	1.312093			
A	Internal Rd A	Bothbound	4	404	165	43%	0%	29%	0%	5%	0%	0%	5%	0%	0%	1%	0%	0%	0%	100%	0.1513914	1.4363008	0.0017839	0.0168244			
B	Internal Rd B	Bothbound	4	361	155	42%	0%	26%	0%	5%	0%	0%	5%	0%	0%	0%	0%	0%	0%	100%	0.1601985	1.5569607	0.0025266	0.0204265			
C	Internal Rd C	Bothbound	4	521	75	23%	0%	20%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0.2107940	2.0557598	0.0022880	0.0225130			
X	I144	Reposition of Gascoigne Rd Flyover	Westbound	3	180	1875	38%	0%	11%	1%	7%	4%	11%	11%	1%	1%	1%	1%	1%	100%	0.1165184	2.5438244	0.0091758	0.2003262			

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 multiplied by traffic flow of each roads.

Scenario 2 30%

Portal/ opening ID	Source Type	Calculated by the formula shown (extracted from the approved EIA of Road Works at West Kowloon)		Volume source - calculated by number of portal/opening (veh/hr)		Area source - calculated by emission rate divided by area		Formula from Scenario	Emission calculation formula (Extracted from the approved EIA of Road Works at West Kowloon)	
		PM	NOx	PM	NOx	PM	NOx			(Area)
A	Area	0.00017395	0.0021904	-	-	4E-07	4E-06	491.2	1	0.3 x Tunnel Section A
B	Area	0.00224018	0.0282087	-	-	7E-06	8E-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	Area	0.00064995	0.0103778	-	-	1E-06	2E-05	835.3	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	Volume	0.0022379	0.0261739	0.00021313	0.0027	-	-	-	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
DE-D14	Volume	0.00010556	0.0013	-	-	-	-	-	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	Area	0.00088671	0.0105776	-	-	3E-06	4E-05	277.5	1	0.3 x 0.7 x Tunnel Section E + 0.3 x Tunnel Section F
H-4	Volume	0.0116298	0.1294735	0.001938301	0.0216	-	-	-	1	1 x Tunnel Section H + 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 (1/3 x (Tunnel Section Internal Road A + Tunnel Section Internal Road B + Tunnel Section Internal Road C) x (traffic flow of Tunnel Section I / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section P))
I-5	Volume	-	-	0.0006919	0.0108	-	-	-	1	1 x Tunnel Section H + 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 (1/3 x (Tunnel Section Internal Road A + Tunnel Section Internal Road B + Tunnel Section Internal Road C) x (traffic flow of Tunnel Section I / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section P))
J-K01	Area	0.00189753	0.0201196	-	-	1E-06	1E-05	1642.7	1	0.3 x Tunnel Section J + 0.3 x (1 - 0.14) x Tunnel Section K + 0.3 x Tunnel Section O + 0.3 x 1/3 x (Tunnel Section Internal Road A + Tunnel Section Internal Road B + Tunnel Section Internal Road C) x (traffic flow of Tunnel Section L / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section P))
L1-L5	Volume	0.00233547	0.0275893	0.000311366	0.0037	-	-	-	1	1 x Tunnel Section L + 0.7 x 0.24 x Tunnel Section J + 0.7 x 0.62 x Tunnel Section O + 0.7 x (1/3 x (Tunnel Section Internal Road A + Tunnel Section Internal Road B + Tunnel Section Internal Road C) x (traffic flow of Tunnel Section L / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section P))
LE-L10	Volume	0.00015698	0.0018	-	-	-	-	-	1	Tunnel Section Internal Road C) x (traffic flow of Tunnel Section L / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section P))
M1-M4	Volume	0.00010785	0.0013	-	-	-	-	-	1	0.5 x (Tunnel Section M + Tunnel Section N)
M5-M8	Volume	0.0006471	0.0077479	0.00010785	0.0013	-	-	-	1	0.5 x (Tunnel Section M + Tunnel Section N)
N1-N4	Volume	0.0006471	0.0077479	0.00010785	0.0013	-	-	-	1	0.5 x (Tunnel Section M + Tunnel Section N)
NE-N8	Volume	0.00292807	0.0301981	0.000448011	0.005	-	-	-	1	1 x Tunnel Section P + 0.7 x 0.76 x Tunnel Section J + 0.7 x 0.86 x Tunnel Section K + 0.7 x (1/3 x (Tunnel Section Internal Road A + Tunnel Section Internal Road B + Tunnel Section Internal Road C) x (traffic flow of Tunnel Section P / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section P))
P1-P4	Volume	0.000448011	0.005	-	-	-	-	-	1	1 x Tunnel Section P + 0.7 x 0.76 x Tunnel Section J + 0.7 x 0.86 x Tunnel Section K + 0.7 x (1/3 x (Tunnel Section Internal Road A + Tunnel Section Internal Road B + Tunnel Section Internal Road C) x (traffic flow of Tunnel Section P / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section P))
P5-P8	Volume	0.000448011	0.005	-	-	-	-	-	1	1 x Tunnel Section P + 0.7 x 0.76 x Tunnel Section J + 0.7 x 0.86 x Tunnel Section K + 0.7 x (1/3 x (Tunnel Section Internal Road A + Tunnel Section Internal Road B + Tunnel Section Internal Road C) x (traffic flow of Tunnel Section P / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section P))
W1-W8	Volume	0.05144254	1.3212093	0.004288878	0.1101	-	-	-	1	1 x Tunnel W
WB-W16	Volume	0.002143429	0.0051	-	-	-	-	-	1	1 x Tunnel W
Y1-Y10	Volume	0.00917582	0.2003262	0.000811726	0.0194	-	-	-	1	1 x Tunnel X
Z1-Z10	Volume	0.00032681	0.0067	-	-	-	-	-	1	1 x Tunnel X
BaseA	Volume	0.00220282	0.021161	0.00220282	0.0212	-	-	-	1	1/3 x Basement roads A,B,C
BaseC	Volume	0.00220282	0.021161	0.00220282	0.0212	-	-	-	1	1/3 x Basement roads A,B,C
901-930	Volume	-	-	-	-	-	-	-	1	1 x Tunnel Y
904-906	Volume	-	-	-	-	-	-	-	1	1 x Tunnel Z
V1	Paint	-	-	-	-	-	-	-	from 1-4	-

Appendix 3.18c - Emission Rates of Portal, Top Openings and Ventilation Exhaust (H23-00)

Remarks (Tunnel name - Portal & top opening of underpass in EIA of Rd Works in WK)	WKCD section no.	Road name	Bound	Road Type	Length (m)	Total (veh/hr)	Hr 23-00 (2015 EIA, 19-12-2011.x1g)																			Rate (µg/km-PM)	NOx	Emission Rate (g/s)	
							PC	taxi	LGV3	LGV4	LGV6	HGV7	HGV8	PLB	PV4	PV5	NFB6	NFB7	NFB8	FBS8	FBDD	MC	Total	PM	NOx				
A ^a	73	Lin Cheung Rd (underpass)	Northbound	3	73	300	53%	2%	22%	0%	3%	2%	5%	5%	2%	2%	0%	2%	0%	2%	0%	0%	100%	0.0933621	1.1916912	0.0005660	0.0072466		
B ^a	73	Lin Cheung Rd (underpass)	Northbound	3	272	300	53%	2%	22%	0%	3%	2%	5%	5%	2%	2%	0%	2%	0%	2%	0%	100%	0.0933621	1.1916912	0.0021162	0.0270117			
D ^a	73	Lin Cheung Rd (underpass)	Northbound	3	110	300	53%	2%	22%	0%	3%	2%	5%	5%	2%	2%	0%	2%	0%	2%	0%	100%	0.0933621	1.1916912	0.0006558	0.0109238			
E ^a	73	Lin Cheung Rd (underpass)	Northbound	3	176	300	53%	2%	22%	0%	3%	2%	5%	5%	2%	2%	0%	2%	0%	2%	0%	100%	0.0933621	1.1916912	0.0013893	0.0174761			
F ^a	72	Lin Cheung Rd (underpass)	Southbound	3	155	425	56%	1%	24%	0%	2%	1%	3%	4%	1%	1%	1%	0%	1%	1%	0%	100%	0.0867883	1.0621036	0.0016247	0.0194350			
G ^a	72	Lin Cheung Rd (depressed)	Southbound	3	172	425	56%	1%	24%	0%	2%	1%	3%	4%	1%	1%	1%	0%	1%	1%	0%	100%	0.0867883	1.0621036	0.0018029	0.0215560			
H ^a	118	Lin Cheung Rd (depressed)	Southbound	3	121	465	54%	1%	22%	0%	2%	1%	3%	5%	2%	1%	1%	0%	1%	1%	0%	100%	0.0895458	1.0911759	0.0012189	0.0148530			
I ^a	119	Austin Rd W (depressed)	Eastbound	3	173	680	35%	1%	46%	0%	1%	1%	4%	2%	1%	1%	1%	1%	1%	1%	0%	100%	0.1335888	1.4637242	0.0043654	0.0476193			
J ^a	117	Austin Rd W (depressed)	Eastbound	3	194	245	37%	2%	45%	0%	2%	2%	4%	2%	2%	0%	0%	0%	0%	2%	0%	100%	0.1238049	1.3101097	0.0016346	0.0172971			
K ^a	116	Austin Rd W (depressed)	Westbound	3	194	295	32%	2%	41%	0%	2%	2%	3%	2%	2%	0%	10%	0%	2%	2%	0%	100%	0.1314081	1.5991364	0.0020690	0.0254218			
L ^a	114	Lin Cheung Rd (depressed)	Southbound	3	95	170	56%	0%	35%	0%	3%	0%	3%	3%	0%	0%	0%	0%	0%	0%	0%	100%	0.0948359	0.9132334	0.0004254	0.0040969			
M ^a	112	Lin Cheung Rd (depressed)	Northbound	3	95	355	54%	1%	23%	0%	3%	1%	3%	4%	1%	1%	1%	0%	1%	1%	0%	100%	0.0867883	1.1694037	0.0020799	0.0109550			
N ^a	84	Lin Cheung Rd	Southbound	3	55	400	54%	1%	23%	0%	4%	1%	4%	3%	1%	1%	1%	0%	1%	1%	0%	100%	0.0918391	1.0991335	0.0005714	0.0068392			
O ^a	77	Lin Cheung Rd	Northbound	3	55	545	54%	1%	23%	0%	3%	2%	3%	5%	2%	1%	1%	0%	2%	1%	0%	100%	0.096762	1.1629589	0.0008128	0.0098593			
P ^a	111	Austin Rd W (depressed)	Eastbound	3	52	610	35%	1%	46%	0%	2%	2%	3%	5%	1%	1%	1%	2%	1%	2%	0%	100%	0.1267058	1.4387418	0.0013460	0.0126789			
Q ^a	110	Austin Rd W (depressed)	Westbound	3	52	330	32%	2%	47%	0%	2%	2%	3%	2%	2%	2%	0%	2%	2%	2%	0%	100%	0.1374171	1.6234949	0.0006560	0.0077387			
R ^a	98	West Kowloon Highway (WKH)	Northbound	2	1970	1170	56%	0%	15%	0%	3%	2%	5%	4%	3%	2%	2%	0%	4%	2%	3%	0%	100%	0.0544161	1.3999034	0.0348399	0.8943674		
A	Internal Rd A	Bothbound	4	404	175	45%	0%	29%	0%	3%	0%	3%	3%	0%	0%	20%	0%	0%	0%	0%	0%	100%	0.1597945	1.5484976	0.0031362	0.0394100			
B	Internal Rd B	Bothbound	4	361	265	39%	0%	26%	0%	4%	0%	2%	4%	2%	0%	23%	0%	0%	0%	0%	0%	100%	0.1598200	1.5532535	0.0045362	0.0442967			
C	Internal Rd C	Bothbound	4	521	140	29%	0%	18%	0%	4%	0%	0%	0%	4%	0%	46%	0%	0%	0%	0%	0%	100%	0.2034719	2.0812462	0.0041226	0.0421684			
X	I144	Reposition of Gascoigne Rd Flyover	Westbound	3	180	1265	35%	0%	11%	1%	7%	4%	11%	11%	2%	1%	1%	0%	0%	10%	4%	0%	100%	0.1142516	2.4953276	0.0072284	0.1578314		

Note: (B) 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 multiplied by traffic flow of each roads.

Scenario 2 30%

Portal/ opening ID	Source Type	Calculated by the formula shown (extracted from the approved EIA of Road Works at West Kowloon)		Volume source - calculated by number of portal/opening (veh/hr)		Area source - calculated by emission rate divided by area		Formula from Scenario	Emission calculation formula (Extracted from the approved EIA of Road Works at West Kowloon)	
		PM	NOx	PM	NOx	PM	NOx			(Area)
A	Area	0.00017039	0.0021748	--	--	3E-07	4E-06	491.2	1	0.3 x Tunnel Section A
B	Area	0.00219427	0.0280081	--	--	8E-06	8E-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	Area	0.00064001	0.0103311	--	--	1E-06	2E-05	835.3	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	Volume	0.00219204	0.0278795	0.00010483	0.0013	--	--	--	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
D8-D14	Volume	0.00010483	0.0013	--	--	--	--	--	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	Area	0.00088206	0.0105513	--	--	3E-06	4E-05	277.5	1	0.3 x 0.7 x Tunnel Section E + 0.3 x Tunnel Section F
H-4	Volume	0.01036362	0.116761	0.00172727	0.0195	--	--	--	1	1 x Tunnel Section H + 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 (1/3 x (Tunnel Section Internal Road A + Tunnel Section Internal Road B + Tunnel Section Internal Road C) x (traffic flow of Tunnel Section I / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section P)))
I-9	Volume	0.00063632	0.0097	0.00063632	0.0097	--	--	--	1	1 x Tunnel Section H + 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 (1/3 x (Tunnel Section Internal Road A + Tunnel Section Internal Road B + Tunnel Section Internal Road C) x (traffic flow of Tunnel Section I / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section P)))
JK01	Area	0.00225568	0.0241844	--	--	1E-06	2E-05	1642.7	1	0.3 x Tunnel Section J + 0.3 x (1 - 0.14) x Tunnel Section K + 0.3 x Tunnel Section O + 0.3 x 1/3 x (Tunnel Section Internal Road A + Tunnel Section Internal Road B + Tunnel Section Internal Road C) x (traffic flow of Tunnel Section I / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section P)))
L1-L5	Volume	0.00277403	0.0326946	0.00069877	0.0044	--	--	--	1	1 x Tunnel Section L + 0.7 x 0.24 x Tunnel Section J + 0.7 x 0.62 x Tunnel Section O + 0.7 x (1/3 x (Tunnel Section Internal Road A + Tunnel Section Internal Road B + Tunnel Section Internal Road C) x (traffic flow of Tunnel Section I / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section P)))
LE-L10	Volume	0.00069213	0.0083492	0.000184935	0.0022	--	--	--	1	1 x Tunnel Section L + 0.7 x 0.24 x Tunnel Section J + 0.7 x 0.62 x Tunnel Section O + 0.7 x (1/3 x (Tunnel Section Internal Road A + Tunnel Section Internal Road B + Tunnel Section Internal Road C) x (traffic flow of Tunnel Section I / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section P)))
M1-M4	Volume	0.00069213	0.0083492	0.000115355	0.0014	--	--	--	1	0.5 x (Tunnel Section M + Tunnel Section N)
M5-M8	Volume	0.00069213	0.0083492	0.000115355	0.0014	--	--	--	1	0.5 x (Tunnel Section M + Tunnel Section N)
N1-N4	Volume	0.00069213	0.0083492	0.000115355	0.0014	--	--	--	1	0.5 x (Tunnel Section M + Tunnel Section N)
NE-N8	Volume	0.00299948	0.0308437	0.00049914	0.0061	--	--	--	1	1 x Tunnel Section P + 0.7 x 0.76 x Tunnel Section J + 0.7 x 0.86 x Tunnel Section K + 0.7 x (1/3 x (Tunnel Section Internal Road A + Tunnel Section Internal Road B + Tunnel Section Internal Road C) x (traffic flow of Tunnel Section P / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section P)))
P1-P4	Volume	0.00299948	0.0308437	0.00049914	0.0061	--	--	--	1	1 x Tunnel Section P + 0.7 x 0.76 x Tunnel Section J + 0.7 x 0.86 x Tunnel Section K + 0.7 x (1/3 x (Tunnel Section Internal Road A + Tunnel Section Internal Road B + Tunnel Section Internal Road C) x (traffic flow of Tunnel Section P / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section P)))
PS-P8	Volume	0.00299948	0.0308437	0.00049914	0.0061	--	--	--	1	1 x Tunnel Section P + 0.7 x 0.76 x Tunnel Section J + 0.7 x 0.86 x Tunnel Section K + 0.7 x (1/3 x (Tunnel Section Internal Road A + Tunnel Section Internal Road B + Tunnel Section Internal Road C) x (traffic flow of Tunnel Section P / (traffic flow of Tunnel Section I + traffic flow of Tunnel Section L + traffic flow of Tunnel Section P)))
W1-W8	Volume	0.0348399	0.8943674	0.00293325	0.0745	--	--	--	1	1 x Tunnel W
W9-W16	Volume	0.00722642	0.1578314	0.001451682	0.0373	--	--	--	1	1 x Tunnel W
T01-T10	Volume	0.00049876	0.0105	0.00049876	0.0105	--	--	--	1	1 x Tunnel X
T11-T20	Volume	0.00049876	0.0105	0.00049876	0.0105	--	--	--	1	1 x Tunnel X
BaseA	Volume	0.00393331	0.0389925	0.00393306	0.039	--	--	--	1	1/3 x Basement roads A,B,C
BaseC	Volume	0.00393331	0.0389925	0.00393306	0.039	--	--	--	1	1/3 x Basement roads A,B,C
901-930	Volume	--	--	--	--	--	--	--	1	1 x Tunnel Y
904-906	Volume	--	--	--	--	--	--	--	1	1 x Tunnel Z
V1	Paint	--	--	--	--	--	--	--	1	from 1-4