Appendix 4.4e **Detailed Calculations of In-Tunnel Air Quality along Tuen Mun Road Town Centre Section near Tuen King Building**

Two-way Enclosure 14, 15, 17 & 18 - Normal Condition

Tunnel Parameter

Tunnel length (m), L	=	200
Tunnel height (m), H	=	8
Tunnel width (m), W	=	22
Tunnel size (m2), At	=	H * W
		176
Equivalent diameter (m), dt	=	(4*At/π)^0.5
		14.96965
Effective length of the tunnel (m), Le	=	L + 2*3*dt
		289.8179

Emission Data

		Traffic Breakdown (%)															
Tunnel traffic (Link no.)	Traffic flow (veh/hr)	Motor Cycles	Petrol PC &LGV	Taxi	Non-franchised Buses <6.4t	Non-franchised Buses 6.4-15t	Non-franchised Buses >15t	Private Light Buses <3.5t	Private Light Buses >3.5t	Diesel PC&LGV <2.5t	Diesel LGV 2.5-3.5t	Diesel LGV >3.5t	HGV<15t	HGV>15t	Single Deck Franchised Buses	Double Deck Franchised Buses	Public Light Buses
110	3485	0.01	0.42	0.03	0.00	0.01	0.00	0.00	0.00	0.01	0.07	0.05	0.36	0.02	0.00	0.01	0.01
120	619	0.01	0.31	0.23	0.00	0.03	0.00	0.00	0.01	0.01	0.07	0.05	0.04	0.00	0.01	0.09	0.14
133	4017	0.01	0.38	0.09	0.00	0.02	0.00	0.00	0.01	0.01	0.06	0.04	0.33	0.02	0.00	0.01	0.02
Total	8121	0.01	0.39	0.07	0.00	0.02	0.00	0.00	0.01	0.01	0.07	0.05	0.32	0.02	0.001	0.02	0.02
NOx Emission Factor (g/mile)		1.14	0.28	0.28	0.00	7.07	0.00	0.00	0.82	1.07	0.59	3.76	7.89	10.01	5.44	5.81	0.77

Weighted NOX E.F. (g/km/veh)	=	2.0594
NO2 emission factor per unit length (g/m/s), w	=	12.5% * Weight NOX E.F. * Traffic flow
	=	5.81E-04

Vehicle Data

Nominal dimensions of vehicles are given in Transport Planning and Design Manual, Vol. 2 as:

	W	H	L
Motor Cycles	1.7	1.5	4.6
Petrol PC &LGV	1.7	1.5	4.6
Taxi	1.7	1.5	4.6
Non-franchised Buses <6.4t	2.5	3.5	12
Non-franchised Buses 6.4-15t	2.5	3.5	12
Non-franchised Buses >15t	2.5	3.5	12
Private Light Buses <3.5t	2	3	6.5
Private Light Buses >3.5t	2	3	6.5
Diesel PC&LGV <2.5t	2.1	1.6	5.2
Diesel LGV 2.5-3.5t	2.1	1.6	5.2
Diesel LGV >3.5t	2.1	1.6	5.2
HGV<15t	2.5	4.6	16
HGV>15t	2.5	4.6	16
Single Deck Franchised Buses	2.5	3.5	12
Double Deck Franchised Buses	2.5	4.6	12
Public Light Buses	2	3	6.5

* No dimensions for motor cycles and non-franchised buses are provided.
* For the purpose of this study, the dimensions of motor cycles and taxi are assumed to be the same as private car and the dimension of non-franchised buses are assumed to be the same as single deck franchised buses.

Appendix 4.4e **Detailed Calculations of In-Tunnel Air Quality along Tuen Mun Road Town Centre Section near Tuen King Building**

Two-way Enclosure 14, 15, 17 & 18 - Normal Condition

Nominal cross-sectional area (m2)	=	(1.7*1.5*0.01)+(1.7*1.5*0.39)+(1.7*1.5*0.07)+(2.5*3.5*0.02)+(2*3*0.01)+(2.1*1.6*0.01)+(2.1*1.6*0.07)+(2.1*1.6*0.05)+(2.5*4.6*0.32)+(2.5*4.6*0.02)+(2.5*3.5*0.001)+(2.5*4.6*0.02)+(2*3*0.02)	
	=	6.039897	
Number of lanes per direction, nl	=	3	
Equivalent cross-sectional area for each direction (m2), Av		=	18.11969
Equivalent diameter of vehicle (m), dv	=	(4*Av/π)^0.5	
	=	4.8032	
Traffic density (traffic flow /s), N	=	2.255833	
Average vehicle speed (m/s), v	=	50 km/hr	
	=	13.88889	
Head to head distance on a lane (m), l	=	2*nl*v/N	
	=	36.94126	

Diffusion Parameters

Reynolds number, Re	=	(v*dv)/σ	where σ = 15.6*10^-6
	=	4276353	
According to Figure 16 (Ohashi and Koso)			
Since l / dt	=	2.467744	
D / (N * dt^2 * Re^0.13)	=	0.3	
Longitudinal			
diffusion coefficient (m2/s) , D	=	0.3 * (N * dt^2 * Re^0.13)	
	=	1103.801	

Maximum Concentration of NO2

Cmax (µg/m3)	=	w * Le^2 / (8 * D * At)
(without background)	=	31

Appendix 4.4e **Detailed Calculations of In-Tunnel Air Quality along Tuen Mun Road Town Centre Section near Tuen King Building**

Two-way Enclosure 14, 15, 17 & 18 - Worse Condition

Tunnel Parameter

Tunnel length (m), L	=	200
Tunnel height (m), H	=	8
Tunnel width (m), W	=	22
Tunnel size (m2), At	=	H * W
		176
Equivalent diameter (m), dt	=	(4*At/π)^0.5
		14.96965
Effective length of the tunnel (m), Le	=	L + 2*3*dt
		289.8179

Emission Data

Traffic Breakdown (%)

Tunnel traffic (Link no.)	Traffic flow (veh/hr)	Motor Cycles	Petrol PC &LGV	Taxi	Non-franchised Buses <6.4t	Non-franchised Buses 6.4-15t	Non-franchised Buses >15t	Private Light Buses <3.5t	Private Light Buses >3.5t	Diesel PC&LGV <2.5t	Diesel LGV 2.5-3.5t	Diesel LGV >3.5t	HGV<15t	HGV>15t	Single Deck Franchised Buses	Double Deck Franchised Buses	Public Light Buses
110	3485	0.01	0.42	0.03	0.00	0.01	0.00	0.00	0.00	0.01	0.07	0.05	0.36	0.02	0.00	0.01	0.01
120	619	0.01	0.31	0.23	0.00	0.03	0.00	0.00	0.01	0.01	0.07	0.05	0.04	0.00	0.01	0.09	0.14
133	4017	0.01	0.38	0.09	0.00	0.02	0.00	0.00	0.01	0.01	0.06	0.04	0.33	0.02	0.00	0.01	0.02
Total	8121	0.01	0.39	0.07	0.00	0.02	0.00	0.00	0.01	0.01	0.07	0.05	0.32	0.02	0.001	0.02	0.02
NOx Emission Factor (g/km)		1.02	0.38	0.38	0.00	10.41	0.00	0.00	1.21	1.55	0.86	5.57	11.82	15.06	9.45	10.26	1.14

Weighted NOX E.F. (g/km/veh)	=	3.0815
NO2 emission factor per unit length (g/m/s), w	=	12.5% * Weight NOX E.F. * Traffic flow
	=	8.69E-04

Vehicle Data

Nominal dimensions of vehicles are given in Transport Planning and Design Manual, Vol. 2 as:

	W	H	L
Motor Cycles	1.7	1.5	4.6
Petrol PC &LGV	1.7	1.5	4.6
Taxi	1.7	1.5	4.6
Non-franchised Buses <6.4t	2.5	3.5	12
Non-franchised Buses 6.4-15t	2.5	3.5	12
Non-franchised Buses >15t	2.5	3.5	12
Private Light Buses <3.5t	2	3	6.5
Private Light Buses >3.5t	2	3	6.5
Diesel PC&LGV <2.5t	2.1	1.6	5.2
Diesel LGV 2.5-3.5t	2.1	1.6	5.2
Diesel LGV >3.5t	2.1	1.6	5.2
HGV<15t	2.5	4.6	16
HGV>15t	2.5	4.6	16
Single Deck Franchised Buses	2.5	3.5	12
Double Deck Franchised Buses	2.5	4.6	12
Public Light Buses	2	3	6.5

* No dimensions for motor cycles and non-franchised buses are provided.
* For the purpose of this study, the dimensions of motor cycles and taxi are assumed to be the same as private car and the dimension of non-franchised buses are assumed to be the same as single deck franchised buses.

Appendix 4.4e **Detailed Calculations of In-Tunnel Air Quality along Tuen Mun Road Town Centre Section near Tuen King Building**

Two-way Enclosure 14, 15, 17 & 18 - Worse Condition

Nominal cross-sectional area (m2)	=	(1.7*1.5*0.01)+(1.7*1.5*0.39)+(1.7*1.5*0.07)+(2.5*3.5*0.02)+(2*3*0.01)+(2.1*1.6*0.01)+(2.1*1.6*0.07)+(2.1*1.6*0.05)+(2.5*4.6*0.32)+(2.5*4.6*0.02)+(2.5*3.5*0.001)+(2.5*4.6*0.02)+(2*3*0.02)
	=	6.039897
Number of lanes per direction, nl	=	3
Equivalent cross-sectional area for each direction (m2), Av	=	18.11969
Equivalent diameter of vehicle (m), dv	=	(4*Av/π)^0.5
	=	4.8032
Equivalent length of each vehicle (m)	=	(4.6*0.01)+(4.6*0.39)+(4.6*0.07)+(12*0.02)+(6.5*0.01)+(5.2*0.01)+(5.2*0.07)+(5.2*0.05)+(16*0.32)+(16*0.02)+(12*0.001)+(12*0.02)+(6.5*0.02)
	=	8.844179
Distance between vehicle (m)	=	1 (worst case)
Head to head distance on a lane (m), l	=	9.844179
Traffic density (traffic flow /s), N	=	2.255833
Average vehicle speed (m/s), v	=	l*N/(2*nl)
	=	3.701138

Diffusion Parameters

Reynolds number, Re	=	(v*dv)/σ where σ = 15.6*10^-6
	=	1139571
According to Figure 16 (Ohashi and Koso)		
Since l / dt	=	0.657609
D / (N * dt^2 * Re^0.13)	=	0.15
Longitudinal		
diffusion coefficient (m2/s) , D	=	0.15 * (N * dt^2 * Re^0.13)
	=	464.7269

Maximum Concentration of NO2

Cmax (µg/m3)	=	w * Le^2 / (8 * D * At)
(without background)	=	112

Appendix 4.4e **Detailed Calculations of In-Tunnel Air Quality along Tuen Mun Road Town Centre Section near Tuen King Building**

One-way Enclosure 16 - Normal Condition

Tunnel Parameter

Length L	=	136	m	
Height H	=	8	m	
Width W	=	7	m	
Cross-sectional area A_T = H x W =				56 m^2
Perimeter P	=	30	m	

Emission Data

Traffic Breakdown (%)

Tunnel Traffic (Link no.)	Traffic flow (veh/hr)	Motor Cycles	Petrol PC &LGV	Taxi	Non-franchised Buses <6.4t	Non-franchised Buses 6.4-15t	Non-franchised Buses >15t	Private Light Buses <3.5t	Private Light Buses >3.5t	Diesel PC&LGV <2.5t	Diesel LGV 2.5-3.5t	Diesel LGV >3.5t	HGV<15t	HGV>15t	Single Deck Franchised Buses	Double Deck Franchised Buses	Public Light Buses
119	1272	0.02	0.40	0.13	0.00	0.07	0.00	0.00	0.02	0.02	0.15	0.11	0.03	0.00	0.00	0.02	0.03
NOx Emission Factor (g/mile)		1.14	0.28	0.28	0.00	7.07	0.00	0.00	0.82	1.07	0.59	3.76	7.89	10.01	5.44	5.81	0.77

Total NO_2 emission rate = total NO_X emission factor x traffic flow x tunnel length x NO_2 conversion factor
where conversion factor = 12.5% (including tailpipe NO_2 emission taken as 7.5% of NO_X and 5% of NO_2/NO_X for tunnel air)

Weighted NOX E.F. (g/km/veh)	=	0.984	g/km/veh
Total NO_2 emission factor (g/s)	=	5.91E-03	g/sec

Vehicle Data

Nominal dimensions of vehicles are given in Transport Planning and Design Manual, Vol. 2 as:

	W /m	H /m	L /m
Motor Cycles	1.7	1.5	4.6
Petrol PC &LGV	1.7	1.5	4.6
Taxi	1.7	1.5	4.6
Non-franchised Buses <6.4t	2.5	3.5	12
Non-franchised Buses 6.4-15t	2.5	3.5	12
Non-franchised Buses >15t	2.5	3.5	12
Private Light Buses <3.5t	2	3	6.5
Private Light Buses >3.5t	2	3	6.5
Diesel PC&LGV <2.5t	2.1	1.6	5.2
Diesel LGV 2.5-3.5t	2.1	1.6	5.2
Diesel LGV >3.5t	2.1	1.6	5.2
HGV<15t	2.5	4.6	16
HGV>15t	2.5	4.6	16
Single Deck Franchised Buses	2.5	3.5	12
Double Deck Franchised Buses	2.5	4.6	12
Public Light Buses	2	3	6.5

* No dimensions for motor cycles and non-franchised buses are provided.
* For the purpose of this study, the dimensions of motor cycles and taxi are assumed to be the same as private car and the dimension of non-franchised buses are assumed to be the same as single deck franchised buses.

Nominal cross-sectional area A_C = (1.7*1.5*0.02)+(1.7*1.5*0.4)+(1.7*1.5*0.13)+(2.5*3.5*0.07)+(2*3*0.02)+(2.1*1.6*0.02)+(2.1*1.6*0.15)+(2.1*1.6*0.11)+(2.5*4.6*0.03)+(2.5*4.6*0.02)+(2*3*0.03)

= 3.8308 m^2

Appendix 4.4e **Detailed Calculations of In-Tunnel Air Quality along Tuen Mun Road Town Centre Section near Tuen King Building**

Tunnel Airflow

For Uni-directional Traffic,

Push Force by vehicles: $$F_C = \frac{1}{2}\rho\,(V_C - V_T)^2\,C_d\,A_C\,N$$

Resisting Force by tunnel: $$F_T = \frac{1}{2}\rho\,V_T^2\,(K_{in} + K_{out} + \frac{fL}{D})\,A_T$$

External Wind at the Entrance and Exit Portals: $$F_W = \frac{1}{2}\rho\,C_W(V_W\cos\theta)^2\,A_T$$

where ρ	=	Air density	=	1.2	kg/m^3
V_C	=	Velocity of vehicle, m/s			
V_T	=	Velocity of air flow in tunnel, m/s			
C_d	=	Vehicle drag coefficient	=	0.645	
A_C	=	Vehicle frontal area	=	3.8308	m^2
N	=	No. of vehicles in tunnel			
K_{in}	=	Inlet loss coefficient	=	0.5	
K_{out}	=	Outlet loss coefficient	=	1.0	
f	=	Tunnel friction factor	=	0.0155	
L	=	Length of tunnel	=	136	m
D	=	Hydraulic diameter of tunnel =	$4A_T/P$ =	7.46666667	m, P is the Perimeter of tunnel
A_T	=	Cross-sectional area of tunnel	=	56	m^2
C_W	=	External wind coefficient	=	0.3	
$V_{W(ref)}$	=	Velocity of wind at Tuen Mun Station	=	2.36	m/s (Weighted average of 2006 Tuen Mun Station data)
θ	=	Angle of the wind velocity component parallel to the roadway			

For the worst scenario, only external wind at the exit portal is considered and the wind is parallel to the roadway.

Force balance : $$F_C - F_T - F_W = 0 \qquad (1)$$

Solving the equation, $$a\,V_T^2 + b\,V_T + c = 0$$

where

$$a = C_d A_C N - (K_{in} + K_{out} + \frac{fL}{D})A_T$$

$$b = -2\,C_d\,A_c\,N\,V_c$$

$$c = C_d A_C N V_c^2 - C_w V_w^2 A_T$$

For normal traffic condition

traffic flow Q	=	0.353333333	veh/s	
Vehicle speed V_C	=	50	km/h	
	=	13.88888889	m/s	
Number of vehicles in tunnel N	=	QL/V_C		
	=	3.45984		

Solving for V_T by equation (1)

a = -91.26
b = -237.47
c = 1555.86

tunnel air flow velocity V_T = 3.028077281 m/sec or -5.6301327 m/sec (rejected)

Inside tunnel concentration = emission rate / (tunnel air flow x tunnel cross-sectional area)

NO_2 = 35 ug/m^3

Appendix 4.4e **Detailed Calculations of In-Tunnel Air Quality along Tuen Mun Road Town Centre Section near Tuen King Building**

One-way Enclosure 16 - Worse Condition

Tunnel Parameter

Length L	=	136	m
Height H	=	8	m
Width W	=	7	m
Cross-sectional area A_T = H x W =		56	m^2
Perimeter P	=	30	m

Emission Data

Tunnel Traffic (Link no.)	Traffic flow (veh/hr)	Motor Cycles	Petrol PC &LGV	Taxi	Non-franchised Buses <6.4t	Non-franchised Buses 6.4-15t	Non-franchised Buses >15t	Private Light Buses <3.5t	Private Light Buses >3.5t	Diesel PC&LGV <2.5t	Diesel LGV 2.5-3.5t	Diesel LGV >3.5t	HGV<15t	HGV>15t	Single Deck Franchised Buses	Double Deck Franchised Buses	Public Light Buses
119	1272	0.02	0.40	0.13	0.00	0.07	0.00	0.00	0.02	0.02	0.15	0.11	0.03	0.00	0.00	0.02	0.03
NOx Emission Factor (g/mile)		1.02	0.38	0.38	0.00	10.41	0.00	0.00	1.21	1.55	0.86	5.57	11.82	15.06	9.45	10.26	1.14

Total NO_2 emission rate = total NO_X emission factor x traffic flow x tunnel length x NO_2 conversion factor
where conversion factor = 12.5% (including tailpipe NO_2 emission taken as 7.5% of NO_X and 5% of NO_2/NO_X for tunnel air)

Weighted NOX E.F. (g/km/veh)	=	1.455	g/km/veh
Total NO_2 emission factor (g/s)	=	8.74E-03	g/sec

Vehicle Data

Nominal dimensions of vehicles are given in Transport Planning and Design Manual, Vol. 2 as:

	W /m	H /m	L /m
Motor Cycles	1.7	1.5	4.6
Petrol PC &LGV	1.7	1.5	4.6
Taxi	1.7	1.5	4.6
Non-franchised Buses <6.4t	2.5	3.5	12
Non-franchised Buses 6.4-15t	2.5	3.5	12
Non-franchised Buses >15t	2.5	3.5	12
Private Light Buses <3.5t	2	3	6.5
Private Light Buses >3.5t	2	3	6.5
Diesel PC&LGV <2.5t	2.1	1.6	5.2
Diesel LGV 2.5-3.5t	2.1	1.6	5.2
Diesel LGV >3.5t	2.1	1.6	5.2
HGV<15t	2.5	4.6	16
HGV>15t	2.5	4.6	16
Single Deck Franchised Buses	2.5	3.5	12
Double Deck Franchised Buses	2.5	4.6	12
Public Light Buses	2	3	6.5

* No dimensions for motor cycles and non-franchised buses are provided.
* For the purpose of this study, the dimensions of motor cycles and taxi are assumed to be the same as private car and the dimension of non-franchised buses are assumed to be the same as single deck franchised buses.

Nominal cross-sectional area A_C = (1.7*1.5*0.02)+(1.7*1.5*0.4)+(1.7*1.5*0.13)+(2.5*3.5*0.07)+(2*3*0.02)+(2.1*1.6*0.02)+(2.1*1.6*0.15)+(2.1*1.6*0.11)+(2.5*4.6*0.03)+(2.5*4.6*0.02)+(2*3*0.03)

= 3.8308 m^2

Appendix 4.4e **Detailed Calculations of In-Tunnel Air Quality along Tuen Mun Road Town Centre Section near Tuen King Building**

Tunnel Airflow

For Uni-directional Traffic,

Push Force by vehicles: $$F_C = \frac{1}{2}\rho\ (V_C - V_T)^2\ C_d\ A_C\ N$$

Resisting Force by tunnel: $$F_T = \frac{1}{2}\rho\ V_T^2\ (K_{in} + K_{out} + \frac{f\,L}{D})\ A_T$$

External Wind at the Entrance and Exit Portals: $$F_W = \frac{1}{2}\rho\ C_W (V_W \cos\theta)^2\ A_T$$

where ρ	=	Air density	=	1.2	kg/m^3
V_C	=	Velocity of vehicle, m/s			
V_T	=	Velocity of air flow in tunnel, m/s			
C_d	=	Vehicle drag coefficient	=	0.645	
A_C	=	Vehicle frontal area	=	3.8308	m^2
N	=	No. of vehicles in tunnel			
K_{in}	=	Inlet loss coefficient	=	0.5	
K_{out}	=	Outlet loss coefficient	=	1.0	
f	=	Tunnel friction factor	=	0.0155	
L	=	Length of tunnel	=	136	m
D	=	Hydraulic diameter of tunnel =	$4A_T/P$ =	7.46666667	m, P is the Perimeter of tunnel
A_T	=	Cross-sectional area of tunnel	=	56	m^2
C_W	=	External wind coefficient	=	0.3	
$V_{W(ref)}$	=	Velocity of wind at Tuen Mun Station	=	2.36	m/s (Weighted average of 2006 Tuen Mun Station data)
θ	=	Angle of the wind velocity component parallel to the roadway			

For the worst scenario, only external wind at the exit portal is considered and the wind is parallel to the roadway.

Force balance : $$F_C - F_T - F_W = 0 \qquad (1)$$

Solving the equation, $$a\ V_T^2 + b\ V_T + c = 0$$

where

$$a = C_d A_c N - (K_{in} + K_{out} + \frac{fL}{D})A_T$$

$$b = -2\ C_d\ A_c\ N\ V_c$$

$$c = C_d A_c N V_c^2 - C_w V_w^2 A_T$$

For congested traffic condition

Vehicle speed Vc	=	10	km/h
	=	2.777777778	m/s
average length of vehicle	=	(4.6*0.02)+(4.6*0.4)+(4.6*0.13)+(12*0.07)+(6.5*0.02)+(5.2*0.02)+(5.2*0.15)+(5.2*0.11)+(16*0.03)+(12*0.02)+(6.5*0.03)	
	=	5.871	m
distance between vehicle	=	1	m
head to head length	=	6.871	m
Number of vehicles per lane	=	19.7933343	
Number of lanes	=	2	
Number of vehicles in tunnel N	=	39.58666861	

Solving for V_T by equation (1)

a	=	-2.00
b	=	-543.41
c	=	661.52

tunnel air flow velocity V_T = 1.211963442 m/sec or -273.37207 m/sec (rejected)

Inside tunnel concentration = emission rate / (tunnel air flow x tunnel cross-sectional area)

NO_2 = 129 ug/m^3

Appendix 4.4e Detailed Calculations of In-Tunnel Air Quality along Tuen Mun Road Town Centre Section near Tuen King Building

Overall Concentrations

Ten assessment points (ASRs G1-G10) at the boundary of the enclosure are chosen.
Using CALINE4 and ISCST3 model, the air pollutants concentrations at the 10 assessment points at different levels are calculated.
The highest concentration among the ten assessment points is assumed to be the background concentration inside the proposed enclosure section.

Elevation	NO2 Concentrations (ug/m3) at Various Levels	
	(mAG)	NO_2
G1	0.0	263
	4.0	306
	8.0	329
G2	0.0	280
	4.0	309
	8.0	337
G3	0.0	297
	4.0	312
	8.0	323
G4	0.0	306
	4.0	292
	8.0	270
G5	0.0	271
	4.0	272
	8.0	271
G6	0.0	249
	4.0	246
	8.0	233
G7	0.0	240
	4.0	246
	8.0	234
G8	0.0	594
	4.0	480
	8.0	362
G9	0.0	358
	4.0	329
	8.0	276
G10	0.0	269
	4.0	258
	8.0	229

Therefore, the NO2 background concentration inside the two-way enclosure (G1-G5 & G8-G10) is 594 ug/m^3
and, the NO2 background concentration inside the one-way enclosure (G6-G7) is 249 ug/m^3

Appendix 4.4e **Detailed Calculations of In-Tunnel Air Quality along Tuen Mun Road Town Centre Section near Tuen King Building**

For the Two-way Enclosure,			
Maximum NO2 concentration inside the Enclosure	**=**	**31 + 594**	
(Normal Speed)	**=**	**625**	**ug/m3**
Maximum NO2 concentration inside the Enclosure	**=**	**112 + 594**	
(Worse Case)	**=**	**706**	**ug/m3**
For the One-way Enclosure,			
Maximum NO2 concentration inside the Enclosure	**=**	**35 + 249**	
(Normal Speed)	**=**	**284**	**ug/m3**
Maximum NO2 concentration inside the Enclosure	**=**	**129 + 249**	
(Worse Case)	**=**	**378**	**ug/m3**
Overall,			
Total Maximum NO2 concentration inside enclosure of			
Tuen Mun Road near Tuen King Building (Normal Speed)	**=**	**625 + 284**	
	=	**909**	**ug/m3**
Total Maximum NO2 concentration inside			
Tuen Mun Road near Tuen King Building (Worse Case)	**=**	**706 + 378**	
	=	**1084**	**ug/m3**