

Appendix H Example of Road Traffic Pollution Dispersion Model Outputs

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*****
**
** CAL3QHCR Combined Output File Produced by:
** CALRoads View Ver. 5.2.0
** Lakes Environmental Software Inc.
** Date: 7/09/2012 8:11:40 a.m.
** File: C:\URS-Data\Projects\PP20AEE\Otaki 2021 DS NO2\Otaki 2021 DS
NO2.ou3
**
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CAL3QHCR (Dated: 04244)

DATE : 9/ 7/12
PAGE: 1
TIME : 8:11:24

JOB: C:\URS-Data\Projects\PP20 AEE\Otaki 2021
RUN: CAL3QHCR RUN

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General Information
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Run start date: 1/ 1/10 Julian: 1
 end date: 12/31/10 Julian: 365

A Tier 2 approach was used for input data preparation.

The MODE flag has been set to C for calculating CO averages.

Ambient background concentrations are excluded from the averages below.

Site & Meteorological Constants

VS = 0.0 CM/S VD = 0.0 CM/S Z0 = 100. CM ATIM = 60.

Met. Sfc. Sta. Id & Yr = 99999 10
Upper Air Sta. Id & Yr = 99999 10

Urban mixing heights were processed.

In 2010, Julian day 1 is a Friday.

The patterns from the input file have been assigned as follows:

- Pattern # 1 is assigned to Monday.
- Pattern # 1 is assigned to Tuesday.
- Pattern # 1 is assigned to Wednesday.
- Pattern # 1 is assigned to Thursday.
- Pattern # 1 is assigned to Friday.
- Pattern # 1 is assigned to Saturday.
- Pattern # 1 is assigned to Sunday.

Link Data Constants - (Variable data in *.LNK file)

COORDINATES (M)	LINK DESCRIPTION			* TYPE	H	LINK W NLANS		
X2	Y2	* (M)	(DEG)	(M)	(M)	Y1		
345225.59	5486957.50	*	107.	197.	AG	0.0	345257.06	5487060.00
							20.0	

2. Link_2					*	345225.59	5486957.50
345060.22	5486746.50 *	268.	218.	AG	0.0	20.0	
3. Link_3					*	345060.22	5486746.50
345187.34	5486714.50 *	131.	104.	AG	0.0	20.0	
4. Link_4					*	345187.34	5486714.50
345112.88	5486535.50 *	194.	203.	AG	0.0	20.0	
5. Link_5					*	344679.34	5486064.50
344741.12	5486112.50 *	78.	52.	AG	0.0	20.0	
6. Link_6					*	344741.12	5486112.50
344778.81	5486174.50 *	73.	31.	AG	0.0	20.0	
7. Link_7					*	344778.81	5486174.50
344802.16	5486276.00 *	104.	13.	AG	0.0	20.0	
8. Link_8					*	344802.16	5486276.00
344803.69	5486394.00 *	118.	1.	AG	0.0	20.0	
9. Link_9					*	344803.69	5486394.00
344852.34	5486475.00 *	94.	31.	AG	0.0	20.0	
10. Link_10					*	345112.88	5486535.50
344945.16	5486597.50 *	179.	290.	AG	0.0	20.0	
11. Link_11					*	345060.22	5486746.50
344945.16	5486597.50 *	188.	218.	AG	0.0	20.0	
12. Link_12					*	344944.81	5486597.00
344851.34	5486479.50 *	150.	219.	AG	0.0	20.0	
13. Link_13					*	344851.34	5486479.50
344809.44	5486449.50 *	52.	234.	AG	0.0	20.0	
14. Link_14					*	344809.44	5486449.50
344778.81	5486436.50 *	33.	247.	AG	0.0	20.0	
15. Link_15					*	344778.81	5486436.50
344712.38	5486417.00 *	69.	254.	AG	0.0	20.0	
16. Link_16					*	344712.38	5486417.00
344672.47	5486403.50 *	42.	251.	AG	0.0	20.0	
17. Link_17					*	344672.47	5486403.50
344629.28	5486375.50 *	51.	237.	AG	0.0	20.0	
18. Link_18					*	344629.28	5486375.50
344603.50	5486348.00 *	38.	223.	AG	0.0	20.0	
19. Link_19					*	344603.50	5486348.00
344540.28	5486279.50 *	93.	223.	AG	0.0	20.0	
20. Link_20					*	344540.28	5486279.50
344508.06	5486240.50 *	51.	220.	AG	0.0	20.0	
21. Link_21					*	344507.78	5486240.50
344491.84	5486216.00 *	29.	213.	AG	0.0	20.0	
22. Link_22					*	344477.59	5486192.50
344472.16	5486200.50 *	10.	326.	AG	0.0	6.0	
23. Link_23					*	344472.16	5486200.50
344474.59	5486212.50 *	12.	11.	AG	0.0	6.0	
24. Link_24					*	344474.59	5486212.50
344482.84	5486217.00 *	9.	61.	AG	0.0	6.0	
25. Link_25					*	344482.84	5486217.00
344491.78	5486215.50 *	9.	100.	AG	0.0	6.0	
26. Link_26					*	344491.78	5486215.50
344497.22	5486207.00 *	10.	147.	AG	0.0	6.0	
27. Link_27					*	344497.22	5486207.00
344494.72	5486195.00 *	12.	192.	AG	0.0	6.0	
28. Link_28					*	344494.72	5486195.00
344488.66	5486192.00 *	7.	244.	AG	0.0	6.0	
29. Link_29					*	344488.66	5486192.00
344478.38	5486192.50 *	10.	273.	AG	0.0	10.0	
30. Link_30					*	344477.44	5486192.00
344463.84	5486171.50 *	25.	214.	AG	0.0	20.0	
31. Link_33					*	344807.66	5485994.00
344657.38	5486072.00 *	169.	297.	AG	0.0	20.0	
32. Link_34					*	344494.59	5486195.00
344512.22	5486178.50 *	24.	133.	AG	0.0	20.0	
33. Link_35					*	344460.28	5486224.50
344424.59	5486258.50 *	49.	314.	AG	0.0	20.0	
34. Link_36					*	344424.59	5486258.50
344305.88	5486366.00 *	160.	312.	AG	0.0	20.0	
35. Link_37					*	344474.44	5486212.50
344459.75	5486225.00 *	19.	310.	AG	0.0	10.0	
36. Link_38					*	344424.59	5486258.50
344253.97	5486073.00 *	252.	223.	AG	0.0	20.0	

37. Link_39					*	344253.97	5486073.00
344037.28	5485863.50 *	301.	226.	AG	0.0	20.0	
38. Link_40					*	344253.97	5486073.00
344329.34	5486003.00 *	103.	133.	AG	0.0	20.0	
39. Link_41					*	344106.47	5485775.50
344037.66	5485864.00 *	112.	322.	AG	0.0	20.0	
40. Link_42					*	344463.94	5486171.00
344406.12	5486087.00 *	102.	215.	AG	0.0	20.0	
41. Link_43					*	344406.12	5486087.00
344328.00	5485997.50 *	119.	221.	AG	0.0	20.0	
42. Link_44					*	344328.00	5485997.50
344106.06	5485775.00 *	314.	225.	AG	0.0	20.0	
43. Link_45					*	344106.06	5485775.00
343846.59	5485618.00 *	303.	239.	AG	0.0	20.0	
44. Link_46					*	343846.59	5485618.00
343741.06	5485539.00 *	132.	233.	AG	0.0	20.0	
45. Link_47					*	343741.06	5485539.00
343664.06	5485462.50 *	109.	225.	AG	0.0	20.0	
46. Link_48					*	343834.66	5485580.00
344284.56	5485833.00 *	516.	61.	AG	0.0	10.0	
47. Link_49					*	344284.56	5485833.00
344379.91	5485892.00 *	112.	58.	AG	0.0	10.0	
48. Link_50					*	344379.91	5485892.00
344477.72	5485972.50 *	127.	51.	AG	0.0	10.0	

04244)

DATE : 9/ 7/12
 PAGE: 3
 TIME : 8:11:24

JOB: C:\URS-Data\Projects\PP20 AEE\Otaki 2021
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Link Data Constants - (Variable data in *.LNK file)

COORDINATES (M)		LINK DESCRIPTION				* TYPE	H X1	LINK W NLANES Y1
X2	Y2	* (M)	(DEG)	BRG (M)	(M)	(M)		
*-----								
*-----								
49. Link_51						*	344477.72 5485972.50	
344565.03	5486072.50	*	133.	41.	AG	0.0	10.0	
50. Link_52						*	344565.03 5486072.50	
344631.25	5486180.50	*	127.	32.	AG	0.0	10.0	
51. Link_53						*	344631.25 5486180.50	
344673.00	5486277.50	*	106.	23.	AG	0.0	10.0	
52. Link_54						*	344673.00 5486277.50	
344700.59	5486372.00	*	98.	16.	AG	0.0	10.0	
53. Link_55						*	344700.59 5486372.00	
344715.84	5486462.50	*	92.	10.	AG	0.0	10.0	
54. Link_56						*	344715.84 5486462.50	
344727.66	5486571.50	*	110.	6.	AG	0.0	10.0	
55. Link_57						*	344727.66 5486571.50	
344738.41	5486665.50	*	95.	7.	AG	0.0	10.0	
56. Link_58						*	344738.41 5486665.50	
344748.75	5486758.00	*	93.	6.	AG	0.0	10.0	
57. Link_59						*	344748.75 5486758.00	
344763.50	5486891.00	*	134.	6.	AG	0.0	10.0	
58. Link_60						*	343989.50 5485523.00	
344074.66	5485619.50	*	129.	41.	AG	0.0	20.0	
59. Link_61						*	344074.66 5485619.50	
344174.53	5485705.00	*	131.	49.	AG	0.0	20.0	
60. Link_62						*	344174.53 5485705.00	
344333.47	5485818.50	*	195.	54.	AG	0.0	20.0	
61. Link_63						*	344333.47 5485818.50	
344485.91	5485932.50	*	190.	53.	AG	0.0	20.0	
62. Link_64						*	344485.91 5485932.50	
344554.44	5486002.50	*	98.	44.	AG	0.0	20.0	
63. Link_65						*	344554.44 5486002.50	
344635.06	5486100.00	*	127.	40.	AG	0.0	20.0	
64. Link_66						*	344635.06 5486100.00	
344694.75	5486203.00	*	119.	30.	AG	0.0	20.0	
65. Link_67						*	344694.75 5486203.00	
344729.38	5486286.50	*	90.	23.	AG	0.0	20.0	
66. Link_68						*	344729.38 5486286.50	
344771.72	5486447.00	*	166.	15.	AG	0.0	20.0	
67. Link_69						*	344771.72 5486447.00	
344795.03	5486643.00	*	197.	7.	AG	0.0	20.0	
68. Link_70						*	344795.03 5486643.00	
344817.78	5486744.00	*	104.	13.	AG	0.0	20.0	
69. Link_71						*	344817.78 5486744.00	
344859.47	5486856.50	*	120.	20.	AG	0.0	20.0	
70. Link_72						*	344859.47 5486856.50	
344910.75	5486965.50	*	120.	25.	AG	0.0	20.0	
71. Link_73						*	344739.44 5486425.50	
344745.28	5486522.00	*	97.	3.	AG	0.0	20.0	
72. Link_74						*	344745.28 5486522.00	
344752.72	5486581.00	*	59.	7.	AG	0.0	20.0	
73. Link_75						*	344752.72 5486581.00	
344766.31	5486630.50	*	51.	15.	AG	0.0	20.0	

74. Link_76					*	344766.31	5486630.50
344803.81	5486751.00	*	126.	17.	AG	0.0	20.0
75. Link_77					*	344803.81	5486751.00
344830.25	5486823.00	*	77.	20.	AG	0.0	20.0
76. Link_78					*	344830.25	5486823.00
344861.06	5486890.50	*	74.	25.	AG	0.0	20.0
77. Link_79					*	344861.06	5486890.50
345002.72	5487151.50	*	297.	28.	AG	0.0	20.0
78. Link_80					*	344305.53	5486366.00
343916.53	5486555.00	*	432.	296.	AG	0.0	20.0
79. Link_82					*	344806.88	5485994.00
345118.88	5485785.00	*	376.	124.	AG	0.0	20.0
80. Link_83					*	344037.62	5485864.00
343921.47	5485905.00	*	123.	289.	AG	0.0	20.0
81. Link_31					*	344511.97	5486177.50
344656.56	5486073.00	*	178.	126.	AG	0.0	20.0

Model Results

Remarks : In search of the wind direction corresponding to the maximum concentration, only the first direction, of the directions with the same maximum concentrations, is indicated as the maximum.

* MAXIMUM HOURLY CONCENTRATIONS WITH ANY AMBIENT BACKGROUND

CONCENTRATIONS (BKG) ADDED

			(PPM)						
			REC1	REC2	REC3	REC4	REC5	REC6	REC7
REC8	REC9	REC10							
*-----									

	MAX+BKG	*	3.2	4.0	5.8	15.9	6.0	9.1	9.6
4.8	3.6	2.9							
	- BKG	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0							
*-----									

	MAX	*	3.2	4.0	5.8	15.9	6.0	9.1	9.6
4.8	3.6	2.9							
	WIND DIR*		38	38	38	59	64	59	64
81	81	89							
	JULIAN	*	227	227	227	226	94	226	94
232	232	32							
	HOUR	*	17	17	17	16	8	16	8
17	17	7							
*-----									

	MAX+BKG	*	2.5	2.3	2.2	1.9	1.9	1.6	1.6
1.6	1.6	1.5							
	- BKG	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0							
*-----									

	MAX	*	2.5	2.3	2.2	1.9	1.9	1.6	1.6
1.6	1.6	1.5							
	WIND DIR*		89	89	89	89	89	131	89
89	89	89							
	JULIAN	*	32	32	32	32	32	284	32
32	32	32							
	HOUR	*	7	7	7	7	7	17	7
7	7	7							

REC28	REC29	* REC30	REC21	REC22	REC23	REC24	REC25	REC26	REC27
*-----									
1.5	MAX+BKG	*	1.7	2.1	3.9	4.4	2.5	1.9	1.7
0.0	1.3	1.1							
	- BKG	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0							
*-----									
1.5	MAX	*	1.7	2.1	3.9	4.4	2.5	1.9	1.7
131	1.3	1.1							
	WIND DIR*		81	89	106	121	124	131	131
284	131	137							
	JULIAN	*	232	32	225	87	242	284	284
17	72	79							
	HOUR	*	17	7	17	17	17	17	17
	17	17							
*-----									
REC38	REC39	* REC40	REC31	REC32	REC33	REC34	REC35	REC36	REC37
*-----									
1.0	MAX+BKG	*	1.1	1.1	1.1	1.0	1.0	1.0	1.0
0.0	1.0	0.9							
	- BKG	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0							
*-----									
1.0	MAX	*	1.1	1.1	1.1	1.0	1.0	1.0	1.0
163	1.0	0.9							
	WIND DIR*		158	158	137	149	158	158	163
216	158	158							
	JULIAN	*	143	143	79	90	143	143	216
17	143	143							
	HOUR	*	16	16	17	17	16	16	17
	16	16							
*-----									
REC48	REC49	* REC50	REC41	REC42	REC43	REC44	REC45	REC46	REC47
*-----									
0.8	MAX+BKG	*	0.9	0.9	0.9	0.9	0.9	0.8	0.8
0.0	0.8	0.7							
	- BKG	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0							
*-----									
0.8	MAX	*	0.9	0.9	0.9	0.9	0.9	0.8	0.8
163	0.8	0.7							
	WIND DIR*		163	163	163	163	163	163	163
216	163	141							
	JULIAN	*	216	216	216	216	216	216	216
17	216	5							
	HOUR	*	17	17	17	17	17	17	17
	17	20							

CAL3QHCR (Dated:

04244)

THE HIGHEST CONCENTRATION OF 20.90 ppm OCCURRED AT RECEPTOR REC3526 .

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Output Section
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NOTES PERTAINING TO THE REPORT

1. THE HIGHEST AVERAGE IN EACH OF THE FIRST TWO COLUMNS OF EACH TABLE BELOW ARE SUFFIXED BY AN ASTERISK (*).

FOR PM OUTPUT, THERE IS ONLY ONE COLUMN AND ASTERISK FOR THE ANNUAL AVERAGE/PERIOD OF CONCERN TABLE.

2. THE NUMBERS IN PARENTHESES ARE THE JULIAN DAY AND ENDING HOUR FOR THE PRECEDING AVERAGE.

3. THE NUMBER OF CALM HOURS USED IN PRODUCING EACH AVERAGE ARE PREFIXED BY A C.

PRIMARY AVERAGES.

MAXIMUM 8-HOUR RUNNING NONOVERLAPPING AVERAGE CONCENTRATIONS IN PARTS PER MILLION (PPM), EXCLUDING AMBIENT BACKGROUND CONCENTRATIONS.

Receptor Number	Conc	Highest Ending		Calm	Second highest Ending		Calm
		Day	Hr		Day	Hr	
1	1.98	(232,	5)	C 2	1.90	(181,23)	C 1
2	2.58	(232,	5)	C 2	2.43	(95,18)	C 2
3	3.93	(232,	5)	C 2	3.75	(157, 9)	C 2
4	10.18	(272,	8)	C 2	9.73	(141,14)	C 2
5	3.69	(39,	6)	C 0	3.40	(101,11)	C 2
6	3.73	(101,	9)	C 2	3.72	(226,16)	C 2
7	3.87	(268,	22)	C 2	3.81	(94, 9)	C 1
8	2.55	(273,	21)	C 2	2.55	(335,22)	C 2
9	1.93	(335,	22)	C 2	1.90	(273,21)	C 2
10	1.62	(335,	22)	C 2	1.60	(273,21)	C 2
11	1.40	(335,	22)	C 2	1.38	(273,21)	C 2
12	1.25	(335,	22)	C 2	1.22	(273,21)	C 2
13	1.08	(273,	21)	C 2	1.07	(335,22)	C 2
14	1.02	(101,	9)	C 2	1.00	(273,21)	C 2
15	1.00	(32,	7)	C 3	0.93	(335,22)	C 2
16	0.90	(335,	22)	C 2	0.85	(101, 9)	C 2
17	0.82	(335,	22)	C 2	0.82	(101, 9)	C 2
18	0.78	(335,	22)	C 2	0.78	(32, 7)	C 3
19	0.77	(32,	7)	C 3	0.77	(225,18)	C 3
20	0.77	(335,	22)	C 2	0.77	(273,21)	C 2
21	0.78	(273,	21)	C 2	0.77	(335,22)	C 2
22	0.93	(273,	21)	C 2	0.88	(335,22)	C 2
23	1.85	(273,	21)	C 2	1.75	(225,18)	C 3
24	1.81	(310,	10)	C 0	1.77	(87,19)	C 3
25	0.99	(310,	12)	C 0	0.99	(163,22)	C 0

FIVE HIGHEST 1-HOUR END-TO-END AVERAGE CONCENTRATIONS IN PARTS PER MILLION EXCLUDING AMBIENT BACKGROUND CONCENTRATIONS.

Fourth Highest			Highest Fifth Highest			Second Highest			Third Highest		
Ending			Ending			Ending			Ending		
Conc	Day Hr	Calm	Conc	Day Hr	Calm	Conc	Day Hr	Calm	Conc	Day Hr	Calm
2.70	(81,16)	C 0	3.20	(227,17)	C 0	3.10	(231, 7)	C 0	3.00	(54,19)	C 0
3.50	(226,16)	C 0	2.70	(103,17)	C 0	3.80	(231, 7)	C 0	3.50	(81,16)	C 0
5.20	(229, 5)	C 0	4.00	(227,17)	C 0	5.40	(231, 7)	C 0	5.30	(171,14)	C 0
			3.40	(54,19)	C 0						
			5.80	(227,17)	C 0						
			5.00	(169,17)	C 0						

	4	15.90 (226,16) C 0	15.30 (94, 8) C 0	15.10 (96,18) C 0
15.00 (223,15) C 0		15.00 (268,22) C 0		
	5	6.00 (94, 8) C 0	5.80 (226,16) C 0	5.40 (278,20) C 0
5.40 (322,20) C 0		5.40 (227,15) C 0		
	6	9.10 (226,16) C 0	7.90 (112,16) C 0	7.90 (94, 8) C 0
7.80 (361,17) C 0		7.40 (47, 7) C 0		
	7	9.60 (94, 8) C 0	8.40 (232,17) C 0	8.30 (226,16) C 0
8.20 (261, 8) C 0		8.00 (197,17) C 0		
	8	4.80 (232,17) C 0	4.60 (32, 7) C 0	4.20 (208,17) C 0
4.20 (363,17) C 0		4.20 (94, 8) C 0		
	9	3.60 (232,17) C 0	3.50 (32, 7) C 0	3.20 (225,17) C 0
3.10 (284,17) C 0		3.10 (242,17) C 0		
	10	2.90 (32, 7) C 0	2.90 (232,17) C 0	2.70 (242,17) C 0
2.60 (225,17) C 0		2.60 (284,17) C 0		

CAL3QHCR (Dated:

04244)