

Appendix D

Diffusion Coefficients

Diffusion Constant Summary (mm ² /yr)										
Age (years)	37	37	36	35	37	38	36	35	36	37
Route #	67	803	181	56	46	185	301	3	420	638
Core #	1-1804	1-6101	2-2007	3-1021	4-1062	4-2049	5-1800	6-1032	9-2801	9-6042
C1	27.12	9.90	8.97	39.96		7.12	1.30	1.57	8.92	6.04
C2	31.32	2.36	13.55	23.57	1.93	7.95	11.99	5.35	2.02	14.79
C3	48.95	8.42	8.69	21.49	5.32	17.25	23.73	2.55	3.34	13.45
C4	40.85	1.89	2.30	25.65	7.55	6.05		3.30	1.07	3.54
C5	48.48	4.12	4.54	5.42	4.59	5.09		5.64	4.05	
C6	53.21	3.57	7.80	43.52	2.70	0.59	4.24	6.77	17.48	
C7	20.25	4.73	1.07	8.22	1.18	7.74		7.73	1.01	21.09
C8	29.04	3.01	4.99	9.10	4.73	1.64	5.06	6.01	2.79	18.20
C9	22.46	2.98	4.79	9.18	1.02	1.89	1.52	0.61	1.79	14.26
CR1	55.54		21.55	21.14		14.08	65.20	44.89	183.24	
CR2	70.43		29.58	25.94		3.64	96.46	35.32	64.89	
CR3	19.36	87.95	30.27	32.39	15.96	6.87	53687092.20	297.54	1309.79	
Avg. C1-C9	35.74	4.55	6.30	20.68	3.63	6.15	7.97	4.39	4.72	13.05
Sigma	12.36	2.77	3.84	14.06	2.30	5.01	8.64	2.47	5.35	6.26
C.V.	34.59	60.87	61.01	68.00	63.32	81.44	108.32	56.20	113.46	47.98

Apparent Diffusion Coefficients – 0.47 % Bridge Decks

Diffusion Constant Summary (mm ² /yr)										
Age (years)	37	37	36	35	37	38	36	35	36	37
Route #	67	803	181	56	46	185	301	3	420	638
% Change	0.0171	0.0172	0.0088	0.0000	0.0172	0.0252	0.0087	0.0000	0.0087	0.0172
Core #	1-1804	1-6101	2-2007	3-1021	4-1062	4-2049	5-1800	6-1032	9-2801	9-6042
C1	27.59	10.07	9.04	39.96		7.29	1.31	1.57	9.00	6.15
C2	31.85	2.40	13.67	23.57	1.97	8.15	12.10	5.35	2.04	15.04
C3	49.79	8.57	8.76	21.49	5.41	17.69	23.94	2.55	3.37	13.68
C4	41.55	1.92	2.32	25.65	7.68	6.21		3.30	1.08	3.60
C5	49.31	4.20	4.58	5.42	4.67	5.22		5.64	4.09	
C6	54.12	3.63	7.86	43.52	2.75	0.60	4.28	6.77	17.63	
C7	20.60	4.81	1.08	8.22	1.20	7.94		7.73	1.02	21.45
C8	29.54	3.06	5.03	9.10	4.81	1.68	5.10	6.01	2.82	18.52
C9	22.84	3.03	4.83	9.18	1.03	1.94	1.53	0.61	1.81	14.51
CR1	56.49		21.73	21.14		14.43	65.76	44.89	184.83	
CR2	71.64		29.84	25.94		3.73	97.30	35.32	65.45	
CR3	19.70	89.46	30.54	32.39	16.24	7.04	54152300.99	297.54	1321.14	
Avg. C1-C9	36.35	4.63	6.35	20.68	3.69	6.30	8.04	4.39	4.76	13.28
Sigma	12.58	2.82	3.88	14.06	2.34	5.13	8.71	2.47	5.40	6.37
C.V.	34.59	60.87	61.01	68.00	63.32	81.44	108.32	56.20	113.46	47.98

Apparent Diffusion Coefficients Normalized to 35 Years of Age - 0.47 % Bridge Decks

Diffusion Constant Summary (mm ² /yr)																
Age (years)	15	15	17	13	17	15	13	12	19	12	19	16	15	13	15	16
Core #	1-1132	1-1133	1-2820	1-6051	2-1020	3-1003	4-1007	4-2901	5-2547	7-1920	8-1019	8-1133	9-1014	9-1031	9-1098	9-1139
C1	36.81	151.8	16.88	16.3	16.49		41.4	58.29	12.07		21.11	22.03	11.1	27.09	16.9	17.79
C2		32.9		40.8	29.96	69.84	61.3	29.44	7.25	59.71	30.15	51.37	10.3	38.78	7.8	20.33
C3	25.84	75.1	13.78	106.0	1.55	26.63	10.9	14.05	7.16	59.04	57.74	65.75	26.0	43.57	11.2	60.07
C4	38.40	89.0	9.33	54.1	19.18	58.79	19.6	10.57	6.30	11.68	22.37	10.46	15.9	52.38	6.7	33.52
C5	37.55	68.2	13.29	94.3	19.22	37.56	6.5	23.87	4.98	36.93	28.52	22.14	27.9	24.57		56.98
C6	42.66	194.7	19.93	56.0	31.39	24.24	15.7	33.38	4.90	21.48	39.04	9.86	26.2	42.88		16.48
C7	42.69	36.9	36.59	15.2	6.56	15.48	34.7	25.50	1.30	50.83	21.35	15.39	6.9	54.47	6.8	22.91
C8	26.50	32.0	4.48	18.7	17.46	102.14	29.8	32.51	3.80	161.09	18.88	7.39	45.1	35.08	6.2	48.81
C9	55.62	63.1	4.48	64.0	15.58	33.44	18.4	8.04	2.04	50.71	37.05	12.18	8.3	12.53		91.97
CR1	207.45	266.3	109.18	120.3	99.49	56.02	330.7	260.36	58.45	32.85	56.75	19.03	53687092	56.26	167.2	32.51
CR2	281.44	23.0	100.28	526.0	142.29	55.91	125.1	6027.15	54.78	165.70	21.75	31.23	56.8	410.84	8561.7	442.50
CR3	182.28	25.5	147.07	33.6	53.77	23.0	30.9	70.80		156.74	51.50	42.41	43.8	348.07		151.44
Avg. C1-C9	38.26	82.64	14.85	51.72	17.49	46.02	26.47	26.18	5.53	56.44	30.69	24.06	19.74	36.82	9.28	40.98

Apparent Diffusion Coefficients – 0.45 ^w/_c Bridge Decks

Diffusion Constant Summary (mm ² /yr)																
Age (years)	15	15	17	13	17	15	13	12	19	12	19	16	15	13	15	16
Core #	1-1132	1-1133	1-2820	1-6051	2-1020	3-1003	4-1007	4-2901	5-2547	7-1920	8-1019	8-1133	9-1014	9-1031	9-1098	9-1139
C1	28.95	119.37	13.73	12.38	13.42		31.41	43.25	10.13		17.71	17.63	8.69	20.53	13.31	14.24
C2		25.83		30.95	24.38	54.92	46.45	21.84	6.08	44.31	25.30	41.11	8.09	29.38	6.15	16.27
C3	20.32	59.07	11.21	80.30	1.26	20.94	8.28	10.42	6.01	43.81	48.46	52.63	20.44	33.02	8.80	48.08
C4	30.20	69.96	7.59	41.01	15.61	46.23	14.84	7.85	5.29	8.67	18.78	8.37	12.49	39.69	5.24	26.83
C5	29.53	53.66	10.82	71.47	15.64	29.54	4.91	17.71	4.18	27.40	23.93	17.72	21.97	18.62		45.60
C6	33.55	153.12	16.22	42.40	25.54	19.06	11.91	24.77	4.11	15.94	32.77	7.90	20.64	32.50		13.19
C7	33.57	29.05	29.78	11.53	5.34	12.17	26.26	18.92	1.09	37.72	17.92	12.32	5.43	41.28	5.36	18.33
C8	20.84	25.14	3.65	14.19	14.21	80.32	22.55	24.13	3.19	119.54	15.84	5.92	35.44	26.58	4.91	39.07
C9	43.74	49.65	3.65	48.50	12.68	26.30	13.91	5.96	1.71	37.63	31.09	9.75	6.54	9.49		73.61
CR1	163.14	209.38	88.85	91.14	80.96	44.05	250.58	193.20	49.05	24.38	47.62	15.23	42217837.21	42.63	131.45	26.02
CR2	221.32	18.05	81.60	398.60	115.79	43.97	94.80	4472.35	45.97	122.95	18.25	25.00	44.67	311.34	6732.69	354.18
CR3	143.34	20.05	119.68	25.47	43.75	18.09	23.40	52.54		116.31	43.22	33.94	34.46	263.77		121.22
Avg. C1-C9	30.09	64.98	12.08	39.19	14.23	36.19	20.06	19.43	4.64	41.88	25.76	19.26	15.52	27.90	7.29	32.80

Apparent Diffusion Coefficients Normalized to 35 Years of Age - 0.45 ^w/_c Bridge Decks

Diffusion Constant Summary (mm ² /yr)										
Age	16	17	17	15	12	12	15	13	16	12
Core #	1-1152	1-2815	1-2819	2-1021	3-1000	5-2812	8-1002	8-1042	9-1002	9-6058
C1	2.37	1.74	3.14	4.18	1.19		4.83	4.35	6.25	10.84
C2	1.74	1.66	3.72	6.22	3.35	4.89	1.39	6.64	16.54	4.69
C3	2.78	3.97	3.82	1.16	0.78	3.61	1.61	7.62	31.02	7.29
C4	2.62	1.57	1.09	1.87	0.86	5.92	2.06	2.27	7.27	3.91
C5			28.55			5.96	21.72		7.64	7.91
C6		1.47	0.45			13.27	5.11		4.68	7.58
C7		13.88	2.65	7.02	4.95	4.86	1.78	11.23	6.27	8.65
C8	1.99	2.49	4.28	0.50	0.66	3.31	4.51	2.52	15.27	7.33
C9		3.11	0.40			9.32	2.82		11.46	5.57
CR1	15.51	7.09		18.28	88.27	12217.82	19.66	42.75	53687092.20	35.79
CR2	26.84	10.94		33.44	45.57	53687092.20	131.39	37.13	162.23	53687092.20
CR3	12.78	4.70				501.02	55.61		271.97	8.68
Avg. C1-C9	2.30	3.73	5.35	3.49	1.96	6.39	5.09	5.77	11.82	7.09

Apparent Diffusion Coefficients – 0.45^w/_{c+p} Bridge Decks

Diffusion Constant Summary (mm ² /yr)										
Age	16	17	17	15	12	12	15	13	16	12
Core #	1-1152	1-2815	1-2819	2-1021	3-1000	5-2812	8-1002	8-1042	9-1002	9-6058
C1	1.56	1.18	2.13	2.66	0.68		3.08	2.59	4.12	6.19
C2	1.15	1.13	2.53	3.97	1.92	2.80	0.88	3.95	10.90	2.68
C3	1.83	2.70	2.59	0.74	0.44	2.06	1.03	4.53	20.44	4.17
C4	1.73	1.07	0.74	1.19	0.49	3.38	1.31	1.35	4.79	2.23
C5			19.40			3.40	13.85		5.04	4.52
C6		1.00	0.31			7.58	3.26		3.09	4.33
C7		9.43	1.80	4.47	2.83	2.78	1.14	6.68	4.14	4.94
C8	1.31	1.69	2.91	0.32	0.38	1.89	2.87	1.50	10.07	4.19
C9		2.11	0.27			5.33	1.80		7.55	3.18
CR1	10.22	4.82		11.65	50.43	6980.04	12.53	25.42	35381583.33	20.45
CR2	17.69	7.43		21.32	26.03	30671435.77	83.76	22.07	106.92	30671435.77
CR3	8.42	3.20				286.23	35.45		179.24	4.96
Avg. C1-C9	1.52	2.54	3.63	2.22	1.12	3.65	3.25	3.43	7.79	4.05

Apparent Diffusion Coefficients Normalized to 35 Years of Age - 0.45^w/_{c+p} Bridge Decks