Depth-Duration-Frequency Relationships (continued)

Statistical Analysis (Cont.)

Table 4-1. Depth-Duration-Frequency Relationships (inches)

Duration	Frequency, years							
	2	**5**	**10**	**25**	**50**	**100**	**200**	**500**
5 min	0.13	0.20	0.25	0.32	0.38	0.44	0.49	0.58
10 min	0.19	0.29	0.36	0.46	0.54	0.62	0.70	0.82
15 min	0.23	0.35	0.43	0.55	0.64	0.73	0.82	0.96
30 min	0.32	0.47	0.57	0.72	0.83	0.94	1.04	1.22
1 hour	0.45	0.64	0.77	0.94	1.07	1.21	1.33	1.53
2 hours	0.64	0.88	1.04	1.26	1.42	1.59	1.76	2.00
3 hours	0.77	1.04	1.23	1.47	1.66	1.85	2.03	2.31
6 hours	1.06	1.40	1.65	1.95	2.22	2.50	2.75	3.10
12 hours	1.43	1.91	2.25	2.67	3.00	3.30	3.60	4.00
24 hours	1.90	2.50	2.98	3.46	3.85	4.25	4.60	5.20
36 hours	2.25	3.02	3.54	4.15	4.60	5.09	5.53	6.24
2 days	2.51	3.40	3.95	4.65	5.15	5.70	6.20	7.00
3 days	3.00	4.07	4.65	5.50	6.20	6.80	7.50	8.40
5 days	3.61	4.91	5.76	6.85	7.63	8.42	9.20	10.29
10 days	4.73	6.44	7.54	8.96	9.97	11.01	11.95	13.45

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Depth-Duration-Frequency Relationships (continued)

Statistical Analysis (Cont.)

Table 4-1 SI. Depth-Duration-Frequency Relationships (millimeters)

Duration	Frequency, years							
	2	**5**	**10**	**25**	**50**	**100**	**200**	**500**
5 min	3.3	5.1	6.4	8.1	9.7	11.2	12.4	14.7
10 min	4.8	7.4	9.1	1.7	13.7	15.7	17.8	20.8
15 min	5.8	8.9	10.9	14.0	16.3	18.5	20.8	24.4
30 min	8.1	11.9	14.5	18.3	21.1	23.9	26.4	31.0
1 hour	11.4	16.3	19.6	23.9	27.2	30.7	33.8	38.9
2 hours	16.3	22.4	26.4	32.0	36.1	40.4	44.7	50.8
3 hours	19.6	26.4	31.2	37.3	42.2	47.0	51.6	58.7
6 hours	26.9	35.6	41.9	49.5	56.4	63.5	69.9	78.7
12 hours	36.3	48.5	57.2	67.8	76.2	83.8	91.4	101.6
24 hours	48.3	63.5	75.7	87.9	97.8	108.0	116.8	132.1
36 hours	57.2	76.7	89.9	105.4	116.8	129.3	140.5	158.5
2 days	63.8	86.4	100.3	118.1	130.8	144.8	157.5	177.8
3 days	76.2	103.4	118.1	139.7	157.5	172.7	190.5	213.4
5 days	91.7	124.7	146.3	174.0	193.8	213.9	233.7	261.4
10 days	120.1	163.6	191.5	227.6	253.2	279.7	303.5	341.6

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Depth-Duration-Frequency Relationships (continued)

Statistical Analysis (Cont.)

Table 4-2. Intensity-Duration-Frequency Relationships (inches/hour)

Duration	Frequency, years							
	2	**5**	**10**	**25**	**50**	**100**	**200**	**500**
5 min	1.56	2.40	3.00	3.84	4.56	5.28	5.88	6.96
10 min	1.14	1.74	2.16	2.76	3.24	3.72	4.20	4.92
15 min	0.92	1.40	1.72	2.20	2.56	2.92	3.28	3.84
30 min	0.64	0.94	1.14	1.44	1.66	1.88	2.08	2.44
1 hour	0.45	0.64	0.77	0.94	1.07	1.21	1.33	1.53
2 hours	0.32	0.44	0.52	0.63	0.71	0.80	0.88	1.00
3 hours	0.26	0.35	0.41	0.49	0.55	0.62	0.68	0.77
6 hours	0.18	0.23	0.28	0.33	0.37	0.42	0.46	0.52
12 hours	0.12	0.16	0.19	0.22	0.25	0.28	0.30	0.33
24 hours	0.08	0.10	0.12	0.14	0.16	0.18	0.19	0.22
36 hours	0.06	0.08	0.10	0.12	0.13	0.14	0.15	0.17
2 days	0.05	0.07	0.08	0.10	0.11	0.12	0.13	0.15
3 days	0.04	0.06	0.06	0.08	0.09	0.09	0.10	0.12
5 days	0.03	0.04	0.05	0.06	0.06	0.07	0.08	0.09
10 days	0.02	0.03	0.03	0.04	0.04	0.05	0.05	0.06

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Depth-Duration-Frequency Relationships (continued)

Statistical Analysis (Cont.)

Table 4-2 SI. Intensity-Duration-Frequency Relationships (millimeters/hour)

Duration	Frequency, years							
	2	**5**	**10**	**25**	**50**	**100**	**200**	**500**
5 min	39.6	61.0	76.2	97.5	115.8	134.1	149.4	176.8
10 min	29.0	44.2	54.9	70.1	82.3	94.5	106.7	125.0
15 min	23.4	35.6	43.7	55.9	65.0	74.2	83.3	97.5
30 min	16.3	23.8	29.0	36.5	42.2	47.8	52.8	62.0
1 hour	11.4	16.3	19.6	23.9	27.2	30.7	33.8	38.9
2 hours	8.1	11.2	13.2	16.0	18.0	20.2	22.4	25.4
3 hours	6.5	8.8	10.4	12.4	14.1	15.7	17.2	19.6
6 hours	4.5	5.9	7.0	8.3	9.4	10.6	11.6	13.1
12 hours	3.0	4.0	4.8	5.7	6.4	7.0	7.6	8.5
24 hours	2.0	2.6	3.2	3.7	4.1	4.5	4.9	5.5
36 hours	1.6	2.1	2.5	2.9	3.2	3.6	3.9	4.4
2 days	1.3	1.8	2.1	2.5	2.7	3.0	3.3	3.7
3 days	1.1	1.4	1.6	1.9	2.2	2.4	2.6	3.0
5 days	0.8	1.0	1.2	1.4	1.6	1.8	1.9	2.2
10 days	0.5	0.7	0.8	0.9	1.1	1.2	1.3	1.4

Elevation Adjustments (Cont.)

Table 4-3. Elevation Adjustment Factors
Depth Increase (inches) = Elevation (ft) *Factor/1000
Depth Increase (millimeters) = Elevation (m) * Factor/12

Duration	Frequency, years							
	2	**5**	**10**	**25**	**50**	**100**	**200**	**500**
5 min	0.007	0.000	-0.003	-0.007	-0.017	-0.023	-0.027	-0.037
10 min	0.007	0.003	0.000	-0.010	-0.020	-0.027	-0.037	-0.050
15 min	0.017	0.013	0.013	0.003	0.000	-0.007	-0.013	-0.027
30 min	0.030	0.037	0.043	0.043	0.040	0.043	0.040	0.037
1 hour	0.063	0.087	0.100	0.120	0.133	0.137	0.157	0.173
2 hours	0.107	0.157	0.193	0.230	0.260	0.287	0.313	0.350
3 hours	0.143	0.220	0.263	0.327	0.373	0.413	0.457	0.513
6 hours	0.230	0.357	0.433	0.540	0.593	0.733	0.757	0.850
12 hours	0.453	0.663	0.820	0.977	1.127	1.250	1.400	1.600
24 hours	0.700	1.037	1.240	1.547	1.783	1.983	2.200	2.500
36 hours	0.970	1.400	1.690	2.090	2.404	2.670	2.970	3.370
5 days	2.287	3.230	3.913	4.717	5.390	5.960	6.600	7.570
10 days	3.490	4.920	5.987	7.180	8.177	8.997	10.350	11.683

Precipitation Depth Adjustment (continued)

Area Adjustments (Cont.)

Table 4-4. Area Multipliers for Durations Less Than 1 Hour

Area	Frequency, years							
sq mi	2	5	10	25	50	100	200	500
1	0.92	1.00	1.00	1.00	1.00	1.00	1.00	1.00
2	0.85	0.96	1.00	1.00	1.00	1.00	1.00	1.00
3	0.82	0.92	0.98	1.00	1.00	1.00	1.00	1.00
4	0.79	0.89	0.95	1.00	1.00	1.00	1.00	1.00
5	0.77	0.87	0.93	1.00	1.00	1.00	1.00	1.00
6	0.76	0.85	0.91	0.98	1.00	1.00	1.00	1.00
7	0.74	0.84	0.90	0.96	1.00	1.00	1.00	1.00
8	0.73	0.83	0.88	0.95	0.99	1.00	1.00	1.00
9	0.72	0.82	0.87	0.93	0.97	1.00	1.00	1.00
10	0.71	0.81	0.86	0.92	0.96	0.99	1.00	1.00
15	0.68	0.77	0.82	0.88	0.92	0.95	0.99	1.00
20	0.66	0.75	0.80	0.86	0.89	0.92	0.96	1.00
25	0.65	0.73	0.78	0.84	0.87	0.90	0.93	0.98
30	0.63	0.72	0.76	0.82	0.85	0.88	0.91	0.96
35	0.62	0.70	0.75	0.80	0.84	0.87	0.90	0.94
40	0.61	0.69	0.74	0.79	0.83	0.85	0.89	0.93
45	0.61	0.68	0.73	0.78	0.82	0.84	0.87	0.91
50	0.60	0.68	0.72	0.77	0.81	0.83	0.86	0.90
60	0.59	0.66	0.71	0.76	0.79	0.82	0.85	0.89
70	0.58	0.65	0.70	0.75	0.78	0.80	0.83	0.87
80	0.57	0.64	0.69	0.73	0.77	0.79	0.82	0.86
90	0.56	0.63	0.68	0.73	0.76	0.78	0.81	0.85
100	0.55	0.63	0.67	0.72	0.75	0.77	0.80	0.84
150	0.53	0.60	0.64	0.69	0.71	0.74	0.77	0.80
200	0.51	0.58	0.62	0.66	0.69	0.71	0.74	0.78

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Precipitation Depth Adjustments (continued)

Area Adjustments (Cont.)

Table 4-5. Area Multipliers for Precipitation Durations Greater Than 1 Hour

Area	Duration								
sq mi	1 hr	2 hrs	3 hrs	6 hrs	12 hrs	24 hrs	36 hrs	5 days	10 days
1	1.00	1.00	1.00	1.00	1.00	1.00	0.99	0.99	0.99
2	0.98	0.99	0.99	0.99	1.00	1.00	0.99	0.99	0.99
3	0.98	0.98	0.99	0.99	0.99	1.00	0.99	0.99	0.99
4	0.97	0.98	0.98	0.99	0.99	0.99	0.99	0.99	0.99
5	0.97	0.97	0.98	0.99	0.99	0.99	0.99	0.99	0.99
6	0.96	0.97	0.98	0.98	0.99	0.99	0.99	0.99	0.99
7	0.96	0.97	0.98	0.98	0.99	0.99	0.99	0.99	0.99
8	0.96	0.96	0.97	0.98	0.99	0.99	0.99	0.99	0.99
9	0.95	0.96	0.97	0.98	0.98	0.99	0.99	0.99	0.99
10	0.95	0.96	0.97	0.98	0.98	0.99	0.99	0.99	0.99
15	0.92	0.94	0.96	0.97	0.98	0.98	0.98	0.99	0.99
20	0.90	0.93	0.95	0.96	0.97	0.97	0.97	0.98	0.99
25	0.87	0.91	0.93	0.95	0.96	0.96	0.97	0.98	0.98
30	0.85	0.90	0.92	0.94	0.96	0.96	0.97	0.98	0.98
35	0.84	0.88	0.91	0.93	0.95	0.96	0.96	0.98	0.98
40	0.82	0.87	0.90	0.93	0.94	0.95	0.96	0.97	0.98
45	0.81	0.86	0.89	0.92	0.94	0.95	0.96	0.97	0.98
50	0.80	0.85	0.89	0.91	0.93	0.95	0.96	0.97	0.98
60	0.78	0.84	0.87	0.91	0.93	0.95	0.95	0.97	0.97
70	0.77	0.83	0.86	0.90	0.92	0.94	0.95	0.97	0.97
80	0.75	0.82	0.86	0.89	0.91	0.94	0.95	0.96	0.97
90	0.74	0.81	0.85	0.89	0.91	0.94	0.95	0.96	0.97
100	0.73	0.80	0.84	0.88	0.91	0.93	0.94	0.96	0.97
150	0.70	0.77	0.82	0.86	0.89	0.93	0.94	0.95	0.96
200	0.67	0.75	0.80	0.85	0.88	0.92	0.93	0.95	0.96

Long-Duration Storms (Cont.)

Table 4-6. 36-Hour Long-Duration Storm Precipitation as a Percent of Total Storm Depth

Hou	%	Hour	%	Hou	%	Hou	%	Hou	%	Hou	%
1	1.30	7	1.40	13	2.00	19	3.50	25	2.80	31	1.60
2	1.40	8	1.40	14	2.30	20	3.70	26	1.70	32	1.40
3	1.40	9	1.40	15	2.50	21	3.90	27	6.10	33	1.40
4	1.40	10	1.40	16	2.70	22	4.20	28	7.80	34	1.40
5	1.40	11	1.70	17	3.00	23	4.60	29	9.70	35	1.40
6	1.40	12	1.80	18	3.10	24	3.80	30	6.60	36	1.40

Table 4-7. 5-Day Long-Duration Storm Precipitation as a Percent of Total Storm Depth

Hou	%	Hou	%	Hou	%	Hou	%	Hou	%	Hou	%
1	0.20	21	0.00	41	1.60	61	0.40	81	2.40	101	0.00
2	2.00	22	0.00	42	0.80	62	0.50	82	2.20	102	0.00
3	4.20	23	0.00	43	0.60	63	0.60	83	1.70	103	0.00
4	2.90	24	0.00	44	0.40	64	0.70	84	1.00	104	0.00
5	1.10	25	0.00	45	0.30	65	0.80	85	3.60	105	0.00
6	0.20	26	0.00	46	0.20	66	0.80	86	4.60	106	0.00
7	0.10	27	0.00	47	0.10	67	0.90	87	7.80	107	0.10
8	0.00	28	0.00	48	0.00	68	1.00	88	3.20	108	0.20
9	0.00	29	0.00	49	0.00	69	1.10	89	0.90	109	0.40
10	0.00	30	0.00	50	0.00	70	1.20	90	0.80	110	0.50
11	0.00	31	0.10	51	0.00	71	1.30	91	0.70	111	0.70
12	0.00	32	0.20	52	0.00	72	1.40	92	0.50	112	0.90
13	0.00	33	0.30	53	0.00	73	1.50	93	0.40	113	2.10
14	0.00	34	0.40	54	0.00	74	1.60	94	0.30	114	5.00
15	0.00	35	0.50	55	0.00	75	1.70	95	0.20	115	1.40
16	0.00	36	0.70	56	0.00	76	1.80	96	0.10	116	0.80
17	0.00	37	0.90	57	0.00	77	1.90	97	0.00	117	0.50
18	0.00	38	2.50	58	0.10	78	2.00	98	0.00	118	0.40
19	0.00	39	6.20	59	0.20	79	2.10	99	0.00	119	0.20
20	0.00	40	3.50	60	0.30	80	2.30	100	0.00	120	0.10

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Temporal Distribution of Design Storms (continued)

Long-Duration Storms (Cont.)

Table 4-8. 10-Day Long-Duration Storm Precipitation as a Percent of Total Storm Depth

Hou	%	Hour	%	Hour	%	Hour	%	Hour	%	Hour	%
1	0.30	41	0.50	81	0.00	121	0.00	161	0.00	201	0.00
2	1.10	42	0.70	82	0.00	122	0.00	162	0.00	202	0.00
3	2.70	43	0.90	83	0.00	123	0.00	163	0.00	203	0.00
4	1.50	44	1.30	84	0.00	124	0.00	164	0.00	204	0.00
5	0.50	45	3.00	85	0.00	125	0.00	165	0.00	205	0.00
6	0.30	46	1.90	86	0.00	126	0.00	166	0.00	206	0.00
7	0.10	47	1.00	87	0.00	127	0.00	167	0.00	207	0.00
8	0.00	48	0.80	88	0.00	128	0.00	168	0.00	208	0.00
9	0.00	49	0.60	89	0.00	129	0.10	169	0.00	209	0.00
10	0.00	50	0.50	90	0.00	130	0.10	170	0.00	210	0.00
11	0.00	51	0.40	91	0.00	131	0.20	171	0.00	211	0.00
12	0.00	52	0.30	92	0.00	132	0.20	172	0.00	212	0.00
13	0.00	53	0.20	93	0.00	133	0.20	173	0.00	213	0.00
14	0.00	54	0.10	94	0.10	134	0.30	174	0.00	214	0.00
15	0.00	55	0.00	95	0.20	135	0.50	175	0.00	215	0.00
16	0.00	56	0.00	96	0.30	136	0.60	176	0.00	216	0.00
17	0.00	57	0.00	97	0.40	137	0.70	177	0.00	217	0.00
18	0.00	58	0.00	98	0.50	138	0.90	178	0.00	218	0.00
19	0.00	59	0.00	99	0.60	139	1.00	179	0.00	219	0.00
20	0.00	60	0.00	100	0.70	140	1.10	180	0.00	220	0.00
21	0.00	61	0.00	101	0.90	141	1.30	181	0.10	221	0.00
22	0.00	62	0.00	102	1.50	142	1.40	182	0.20	222	0.00
23	0.00	63	0.00	103	5.30	143	1.60	183	0.30	223	0.00
24	0.00	64	0.00	104	2.20	144	1.70	184	0.40	224	0.00
25	0.00	65	0.00	105	1.00	145	1.80	185	0.50	225	0.00
26	0.00	66	0.00	106	0.80	146	1.90	186	0.70	226	0.00
27	0.00	67	0.00	107	0.60	147	2.10	187	0.90	227	0.00
28	0.00	68	0.00	108	0.50	148	1.50	188	1.30	228	0.00
29	0.00	69	0.00	109	0.40	149	1.20	189	3.90	229	0.00
30	0.00	70	0.00	110	0.30	150	0.90	190	2.00	230	0.10
31	0.00	71	0.00	111	0.30	151	3.10	191	1.00	231	0.20
32	0.00	72	0.00	112	0.20	152	3.90	192	0.80	232	0.50
33	0.00	73	0.00	113	0.20	153	6.70	193	0.70	233	0.70
34	0.00	74	0.00	114	0.10	154	3.30	194	0.60	234	1.00
35	0.00	75	0.00	115	0.10	155	0.50	195	0.50	235	2.90
36	0.00	76	0.00	116	0.00	156	0.30	196	0.40	236	1.60
37	0.00	77	0.00	117	0.00	157	0.20	197	0.30	237	0.80
38	0.10	78	0.00	118	0.00	158	0.10	198	0.20	238	0.60
39	0.20	79	0.00	119	0.00	159	0.10	199	0.10	239	0.40
40	0.30	80	0.00	120	0.00	160	0.10	200	0.00	240	0.20

Table 4-4 SI. Area Multipliers for Durations Less than 1 Hour

Area	Frequency, years							
km^2	2	5	10	25	50	100	200	500
2	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
4	0.88	0.99	1.00	1.00	1.00	1.00	1.00	1.00
6	0.84	0.95	1.00	1.00	1.00	1.00	1.00	1.00
8	0.81	0.92	0.98	1.00	1.00	1.00	1.00	1.00
10	0.79	0.90	0.96	1.00	1.00	1.00	1.00	1.00
12	0.78	0.88	0.94	1.00	1.00	1.00	1.00	1.00
14	0.76	0.86	0.92	0.99	1.00	1.00	1.00	1.00
16	0.75	0.85	0.91	0.97	1.00	1.00	1.00	1.00
18	0.74	0.84	0.90	0.96	1.00	1.00	1.00	1.00
20	0.73	0.83	0.89	0.95	0.99	1.00	1.00	1.00
30	0.70	0.79	0.85	0.91	0.95	0.98	1.00	1.00
40	0.68	0.77	0.82	0.88	0.92	0.95	0.98	1.00
50	0.66	0.75	0.80	0.86	0.90	0.92	0.96	1.00
75	0.64	0.72	0.77	0.82	0.86	0.88	0.92	0.96
100	0.62	0.70	0.74	0.80	0.83	0.86	0.89	0.93
125	0.60	0.68	0.72	0.78	0.81	0.84	0.87	0.91
150	0.59	0.67	0.71	0.76	0.79	0.82	0.85	0.89
175	0.58	0.65	0.70	0.75	0.78	0.81	0.84	0.87
200	0.57	0.64	0.69	0.74	0.77	0.79	0.82	0.86
250	0.56	0.63	0.67	0.72	0.75	0.77	0.80	0.84
300	0.55	0.62	0.66	0.71	0.74	0.76	0.79	0.82
350	0.54	0.61	0.65	0.69	0.72	0.75	0.78	0.81
400	0.53	0.60	0.64	0.68	0.71	0.74	0.76	0.80
450	0.52	0.59	0.63	0.67	0.70	0.73	0.75	0.79
500	0.52	0.58	0.62	0.67	0.70	0.72	0.75	0.78

Table 4-5 SI. Area Multipliers for Precipitation Durations Greater than 1 Hour

Area	Duration								
km^2	1 hr	2 hrs	3 hrs	6 hrs	12 hrs	24 hrs	36 hrs	5 days	10 days
2	1.00	1.00	1.00	1.00	1.00	1.00	0.99	0.99	0.99
4	0.99	0.99	0.99	1.00	1.00	1.00	0.99	0.99	0.99
6	0.98	0.98	0.99	0.99	0.99	1.00	0.99	0.99	0.99
8	0.98	0.98	0.99	0.99	0.99	1.00	0.99	0.99	0.99
10	0.97	0.98	0.98	0.99	0.99	0.99	0.99	0.99	0.99
12	0.97	0.97	0.98	0.99	0.99	0.99	0.99	0.99	0.99
14	0.96	0.97	0.98	0.98	0.99	0.99	0.99	0.99	0.99
16	0.96	0.97	0.98	0.98	0.99	0.99	0.99	0.99	0.99
18	0.96	0.97	0.98	0.98	0.99	0.99	0.99	0.99	0.99
20	0.96	0.96	0.97	0.98	0.99	0.99	0.99	0.99	0.99
30	0.94	0.95	0.97	0.97	0.98	0.99	0.98	0.99	0.99
40	0.92	0.94	0.96	0.97	0.98	0.98	0.97	0.98	0.99
50	0.90	0.93	0.95	0.96	0.98	0.97	0.97	0.98	0.98
75	0.86	0.90	0.92	0.94	0.96	0.96	0.97	0.98	0.98
100	0.83	0.88	0.90	0.93	0.95	0.96	0.96	0.98	0.98
125	0.80	0.86	0.89	0.92	0.94	0.95	0.96	0.97	0.98
150	0.79	0.84	0.88	0.91	0.93	0.95	0.96	0.97	0.98
175	0.77	0.83	0.87	0.90	0.92	0.94	0.96	0.97	0.98
200	0.76	0.82	0.86	0.89	0.92	0.94	0.95	0.97	0.97
250	0.74	0.80	0.84	0.88	0.91	0.94	0.95	0.97	0.97
300	0.72	0.79	0.83	0.87	0.90	0.93	0.95	0.96	0.97
350	0.70	0.78	0.82	0.87	0.89	0.93	0.95	0.96	0.97
400	0.69	0.77	0.81	0.86	0.89	0.93	0.94	0.96	0.97
450	0.68	0.76	0.81	0.86	0.88	0.92	0.94	0.95	0.96
500	0.67	0.75	0.80	0.85	0.88	0.92	0.93	0.95	0.96

Table 5-2 SI. Infiltration Rates by Hydrologic Soil-Cover Groups (millimeters/hour)

Cover	% Imp	Soil Group		
		B	C	D
Highways, Parking	95	3.56	1.78	1.02
Commercial, Offices	90	4.06	2.03	1.27
Intensive Industrial	85	4.11	2.08	1.32
Apartments, HDR	80	4.19	2.16	1.40
Mobil Home Park	75	4.24	2.21	1.45
Condominiums, MDR	70	4.32	2.29	1.52
Residential: 20-25 du/ha, Ext Indust	60	4.57	2.54	1.78
Residential: 15-20 du/ha, LDR, School	50	4.57	2.54	1.78
Residential: 10-15 du/ha	40	4.57	2.54	1.78
Residential: 7.5-10 du/ha	30	4.57	2.54	1.78
Residential: 5-7.5 du/ha	25	4.57	2.54	1.78
Residential: 2.5-5 du/ha	20	4.57	2.54	1.78
Residential: 1-2.5 du/ha	15	4.57	2.54	1.78
Residential: 0.5-1 du/ha, Ag Res	10	4.57	2.54	1.78
Residential: <0.5 du/acre, Recreation	5	4.57	2.54	1.78
Open Space, Grassland, Ag	2	4.57	2.54	1.78
Open Space, Woodland, Natural	1	4.83	2.79	2.03
Dense Oak, Shrubs, Vines	1	6.35	4.06	3.05
*Sacramento County does not contain significant areas of Type "A" soils.				

Table 6-1. Dimensionless Unit Hydrograph Data for Urban Basins

Time[1]	q[2]	Time	q	Time	q	Time	q
5	0.64	155	6.75	305	1.64	455	0.56
10	1.56	160	6.27	310	1.60	460	0.54
15	2.52	165	5.94	315	1.53	465	0.52
20	3.57	170	5.55	320	1.49	470	0.50
25	4.36	175	5.24	325	1.42	475	0.49
30	5.80	180	4.92	330	1.39	480	0.48
35	6.95	185	4.63	335	1.32	485	0.46
40	8.38	190	4.39	340	1.28	490	0.45
45	9.87	195	4.18	345	1.23	495	0.43
50	11.52	200	3.93	350	1.21	500	0.41
55	13.19	205	3.73	355	1.15	505	0.40
60	15.18	210	3.55	360	1.11	510	0.39
65	17.32	215	3.37	365	1.07	515	0.37
70	19.27	220	3.24	370	1.03	520	0.36
75	19.74	225	3.04	375	1.00	525	0.34
80	20.00	230	2.93	380	0.97	530	0.33
85	19.74	235	2.75	385	0.93	535	0.32
90	19.27	240	2.67	390	0.90	540	0.31
95	17.72	245	2.53	395	0.87	545	0.30
100	16.12	250	2.47	400	0.84	550	0.29
105	14.50	255	2.37	405	0.81	555	0.28
110	13.08	260	2.30	410	0.78	560	0.27
115	12.19	265	2.21	415	0.75	565	0.26
120	11.31	270	2.12	420	0.73	570	0.25
125	10.27	275	2.04	425	0.69	575	0.24
130	9.63	280	1.98	430	0.67	580	0.24
135	8.96	285	1.90	435	0.64	585	0.23
140	8.27	290	1.83	440	0.62	590	0.22
145	7.75	295	1.78	445	0.60	595	0.21
150	7.22	300	1.71	450	0.58	600	0.21

[1] Time in percent of lag + 0.5 unit duration.
[2] q is in cfs/sq mi.

Table 6-2. Base Flow Parameters

Recurrence Interval years	Initial Flow cfs/sq mi ($m^2/s/km^2$)	Ratio of Recession Flow to Peak Flow	Exponential Decay Rate
2	2 (0.02)	0.1	1.05
5	4 (0.04)	0.1	1.05
10	5 (0.05)	0.1	1.05
25	6 (0.07)	0.1	1.05
50	8 (0.09)	0.1	1.05
100	10 (0.11)	0.1	1.05
200	12 (0.13)	0.1	1.05
500	14 (0.15)	0.1	1.05

Travel Time Component Method (continued)

Overland Flow (Cont.)

Table 7-2. Parameters for Overland Flow with Flow Depths Less Than 2 Inches (50 mm)

Surface	Overland "n"	Distance ft (m)
Pavement - smooth	0.02	50 (15)
Pavement - rough/cracked	0.05	50 (15)
Bare Soil - Newly Graded Areas	0.10	100 (30)
Range - heavily grazed	0.15	100 (30)
Turf - 1-2"/lawns/golf courses	0.20	100 (30)
Turf - 2-4"/parks/medians/pasture	0.30	200 (60)
Turf - 4-6"/natural grassland	0.40	200 (60)
Few trees - grass undergrowth	0.50	300 (90)
Scattered trees - weed/shrub undergrowth	0.60	300 (90)
Numerous trees - dense undergrowth	0.80	300 (90)

Table 7-3. Overland Flow Precipitation Intensity

Design Frequency	Precipitation Intensity in/hr (mm/hr)	C	Initial Estimates	
			T_o=5 min in/hr (mm/hr)	T_o=10 min in/hr (mm/hr)
2-yr	$i=CT_o^{-0.519}$	3.8 (96.5)	1.65 (41.9)	1.15 (29.2)
5-yr	$i=CT_o^{-0.558}$	6.3 (160)	2.57 (65.3)	1.74 (44.2)
10-yr	$i=CT_o^{-0.576}$	8.13 (206.5)	3.22 (81.8)	2.16 (54.9)
25-yr	$i=CT_o^{-0.601}$	16 (279.4)	4.18 (106.2)	2.76 (70.1)
50-yr	$i=CT_o^{-0.620}$	13.6 (345)	4.84 (122.9)	3.12 (79.2)
100-yr	$i=CT_o^{-0.627}$	15.8 (401)	5.76 (146.3)	3.73 (94.7)
200-yr	$i=CT_o^{-0.642}$	18.4 (467)	6.55 (166.4)	4.20 (106.7)
500-yr	$i=CT_o^{-0.652}$	22.1 (561)	7.74 (196.5)	4.92 (125.0)