

**Rainfall Intensity Values  
Utilized by South Carolina Department of Transportation**

Rainfall intensity values utilized by the South Carolina Department of Transportation are computed by the following formula:

$$i = \frac{a}{(b + tc)^c}$$

where:  $i$  = rainfall intensity in inches per hour,  
 $tc$  = time of concentration in minutes,  
and  $a$ ,  $b$ , and  $c$  are coefficients.

The coefficients for the 2-, 5-, 10-, 25-, 50-, and 100-year rainfalls are given in the table below for specific counties and cities in South Carolina. The intensity values for time of concentration of 5, 10, and 15 minutes are also listed in the table for the same frequencies. To use these values compute the time of concentration for the drainage area using the velocity method in the NRCS TR-55 manual. Pick the appropriate county or city listed in the tables below to determine the appropriate coefficients. Then apply the equation to obtain the intensity value.

Frequency (Years)	$a$	$b$	$c$	$i(tc = 5)$	$i(tc = 10)$	$i(tc = 15)$
<b><u>Abbeville</u></b>						
2	240.17076	35.63021	1.03569	5.18	4.59	4.12
5	255.24329	33.25481	1.02089	6.18	5.45	4.88
10	265.24780	31.74200	1.01124	6.93	6.09	5.43
25	278.52156	29.77536	0.99855	8.05	7.04	6.26
50	287.81453	28.39605	0.98966	8.94	7.78	6.90
100	295.99399	27.15249	0.98176	9.81	8.51	7.52
<b><u>Aiken</u></b>						
2	244.33716	34.95933	1.03155	5.44	4.82	4.32
5	257.69541	32.88021	1.01851	6.36	5.61	5.01
10	266.94599	31.48867	1.00961	7.07	6.21	5.53
25	279.19853	29.67537	0.99790	8.11	7.09	6.30
50	287.71203	28.41133	0.98975	8.93	7.78	6.89
100	295.76550	27.18778	0.98198	9.78	8.49	7.50

Frequency (Years)	<i>a</i>	<i>b</i>	<i>c</i>	<i>i(tc = 5)</i>	<i>i(tc = 10)</i>	<i>i(tc = 15)</i>
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**Anderson**

2	239.15087	35.79620	1.03670	5.12	4.54	4.08
5	254.34352	33.39279	1.02176	6.12	5.40	4.83
10	264.49480	31.85452	1.01196	6.87	6.04	5.40
25	277.53223	29.92143	0.99949	7.96	6.97	6.19
50	286.92506	28.52897	0.99051	8.85	7.71	6.83
100	295.10935	27.28867	0.98262	9.71	8.43	7.45

**Berkeley**

2	249.29889	34.17490	1.02668	5.77	5.10	4.57
5	261.13655	32.35870	1.01519	6.62	5.82	5.20
10	269.52906	31.10462	1.00714	7.28	6.39	5.69
25	281.11393	29.39222	0.99607	8.29	7.24	6.43
50	289.29526	28.17335	0.98823	9.09	7.91	7.00
100	296.80042	27.02597	0.98097	9.90	8.59	7.58

**Camden**

2	243.45839	35.09988	1.03242	5.39	4.77	4.28
5	257.07786	32.97428	1.01911	6.32	5.57	4.98
10	266.55779	31.54650	1.00998	7.04	6.18	5.51
25	278.96244	29.71024	0.99813	8.09	7.07	6.28
50	287.88721	28.38512	0.98959	8.94	7.79	6.90
100	295.79778	27.18276	0.98195	9.79	8.49	7.50

**Charleston**

2	251.98388	33.75663	1.02405	5.95	5.26	4.71
5	262.87946	32.09639	1.01351	6.75	5.94	5.30
10	270.85088	30.90869	1.00587	7.39	6.48	5.77
25	282.02145	29.25788	0.99520	8.37	7.31	6.49
50	289.91899	28.07921	0.98763	9.15	7.96	7.05
100	297.13937	26.97219	0.98064	9.94	8.62	7.61

**Cheraw**

2	246.19054	34.66534	1.02973	5.56	4.92	4.41
5	261.15916	32.35573	1.01517	6.62	5.83	5.20
10	270.24815	30.99810	1.00645	7.34	6.44	5.73
25	281.57327	29.32430	0.99563	8.33	7.28	6.45
50	289.32178	28.16971	0.98821	9.09	7.91	7.01
100	296.25407	27.11153	0.98150	9.84	8.53	7.54

Frequency (Years)	<i>a</i>	<i>b</i>	<i>c</i>	<i>i(tc = 5)</i>	<i>i(tc = 10)</i>	<i>i(tc = 15)</i>
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**Chesterfield-Outside Hartsville**

2	248.79153	34.25539	1.02718	5.74	5.07	4.54
5	263.71406	31.97161	1.01271	6.81	5.99	5.35
10	272.73105	30.63053	1.00408	7.54	6.61	5.88
25	284.08979	28.95128	0.99323	8.57	7.48	6.63
50	291.79401	27.79608	0.98583	9.35	8.13	7.19
100	298.59854	26.74462	0.97921	10.11	8.76	7.73

**Columbia**

2	244.34492	34.95806	1.03155	5.44	4.82	4.32
5	258.50572	32.75684	1.01773	6.42	5.66	5.05
10	267.54247	31.39986	1.00904	7.12	6.25	5.57
25	279.77346	29.59043	0.99735	8.16	7.14	6.34
50	288.71309	28.26125	0.98879	9.03	7.86	6.96
100	296.66217	27.04859	0.98111	9.88	8.57	7.57

**Florence**

2	245.97253	34.69895	1.02994	5.55	4.91	4.40
5	259.11355	32.66463	1.01714	6.46	5.69	5.09
10	267.80933	31.36009	1.00878	7.14	6.27	5.59
25	280.16379	29.53274	0.99698	8.20	7.17	6.36
50	288.48609	28.29513	0.98901	9.00	7.84	6.94
100	296.13357	27.12991	0.98162	9.82	8.52	7.53

**Gaffney**

2	238.04743	35.97679	1.03780	5.05	4.48	4.02
5	253.07858	33.58796	1.02299	6.03	5.32	4.76
10	263.15904	32.05480	1.01324	6.77	5.96	5.31
25	276.21252	30.11625	1.00075	7.84	6.87	6.10
50	285.40822	28.75527	0.99196	8.70	7.58	6.72
100	293.62644	27.51709	0.98405	9.55	8.30	7.33

**Georgetown**

2	249.75955	34.10270	1.02623	5.80	5.13	4.59
5	261.38428	32.32131	1.01495	6.63	5.84	5.21
10	269.34521	31.13188	1.00731	7.26	6.37	5.68
25	288.87468	29.41090	0.99619	8.51	7.43	6.60
50	288.87468	28.23651	0.98864	9.04	7.87	6.97
100	296.40785	27.08650	0.98135	9.86	8.55	7.55

Frequency (Years)	<i>a</i>	<i>b</i>	<i>c</i>	<i>i(tc = 5)</i>	<i>i(tc = 10)</i>	<i>i(tc = 15)</i>
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**Greenville**

2	237.89064	36.00240	1.03796	5.04	4.47	4.02
5	253.76637	33.48168	1.02232	6.08	5.36	4.80
10	263.78131	31.96134	1.01265	6.82	5.99	5.35
25	277.32452	29.95209	0.99969	7.94	6.95	6.18
50	286.37654	28.61085	0.99104	8.79	7.66	6.79
100	294.97889	27.30887	0.98274	9.69	8.42	7.44

**Greenwood**

2	239.42790	35.75191	1.03643	5.13	4.55	4.09
5	254.57510	33.35758	1.02154	6.14	5.41	4.84
10	265.33812	31.72855	1.01115	6.94	6.10	5.44
25	278.27661	29.81153	0.99878	8.03	7.02	6.24
50	287.58051	28.43100	0.98988	8.91	7.76	6.88
100	296.11192	27.13388	0.98164	9.82	8.52	7.53

**Hilton Head**

2	252.63191	33.65648	1.02342	6.00	5.30	4.74
5	263.35488	32.02509	1.01306	6.79	5.97	5.33
10	271.20124	30.85681	1.00554	7.42	6.50	5.79
25	282.27167	29.22082	0.99494	8.40	7.33	6.51
50	290.40814	28.00538	0.98716	9.20	8.01	7.09
100	297.47765	26.91919	0.98031	9.98	8.65	7.64

**Laurens**

2	240.11065	35.64002	1.03575	5.18	4.59	4.12
5	255.19143	33.26278	1.02094	6.18	5.45	4.88
10	265.20096	31.74900	1.01128	6.93	6.09	5.43
25	278.49725	29.77895	0.99857	8.05	7.04	6.25
50	287.80007	28.39822	0.98967	8.94	7.78	6.89
100	295.94022	27.16082	0.98181	9.80	8.51	7.51

**Lexington**

2	243.38820	35.11116	1.03249	5.38	4.77	4.28
5	257.20585	32.95479	1.01898	6.32	5.58	4.98
10	266.59333	31.54121	1.00995	7.04	6.18	5.51
25	279.10068	29.68983	0.99799	8.10	7.08	6.29
50	287.98860	28.36995	0.98949	8.95	7.80	6.91
100	295.95202	27.15897	0.98180	9.80	8.51	7.51

Frequency (Years)	a	b	c	i(tc = 5)	i(tc = 10)	i(tc = 15)
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**McCormick**

2	241.66731	35.38773	1.03420	5.27	4.67	4.19
5	255.60579	33.19921	1.02053	6.21	5.48	4.90
10	265.91650	31.64212	1.01060	6.99	6.14	5.47
25	279.12967	29.68554	0.99797	8.11	7.09	6.29
50	287.73535	28.40781	0.98973	8.93	7.78	6.89
100	296.11192	27.13388	0.98164	9.82	8.52	7.53

**Myrtle Beach**

2	248.70837	34.26730	1.02725	5.73	5.07	4.54
5	260.21914	32.49707	1.01607	6.55	5.77	5.15
10	268.83896	31.20702	1.00780	7.22	6.34	5.65
25	280.74806	29.44634	0.99642	8.25	7.21	6.40
50	289.11744	28.20009	0.98840	9.07	7.90	6.99
100	296.42744	27.08362	0.98133	9.86	8.55	7.55

**Newberry**

2	241.75727	35.37351	1.03411	5.28	4.68	4.20
5	255.90622	33.15326	1.02024	6.23	5.50	4.91
10	265.82508	31.65579	1.01068	6.98	6.13	5.47
25	278.87729	29.72282	0.99821	8.08	7.07	6.28
50	287.70310	28.41270	0.98976	8.93	7.77	6.89
100	295.99838	27.15177	0.98175	9.81	8.51	7.52

**Orangeburg**

2	257.70309	32.87932	1.01850	6.36	5.61	5.01
5	270.87616	30.90504	1.00585	7.39	6.48	5.77
10	279.22150	29.67198	0.99788	8.11	7.09	6.30
25	289.92787	28.09350	0.98772	9.15	7.96	7.05
50	297.03445	26.99001	0.98074	9.93	8.61	7.60
100	303.39914	25.97255	0.97448	10.69	9.24	8.14

**Pickens**

2	237.54923	36.05807	1.03830	5.02	4.45	4.00
5	253.72865	33.48744	1.02236	6.08	5.36	4.80
10	263.58691	31.99044	1.01283	6.80	5.98	5.34
25	277.53220	29.92143	0.99949	7.96	6.96	6.19
50	286.46476	28.59767	0.99095	8.80	7.67	6.80
100	295.10935	27.28867	0.98262	9.71	8.43	7.45

Frequency (Years)	<i>a</i>	<i>b</i>	<i>c</i>	<i>i(tc = 5)</i>	<i>i(tc = 10)</i>	<i>i(tc = 15)</i>
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**Rock Hill**

2	240.26568	35.61513	1.03559	5.19	4.60	4.13
5	254.71848	33.33552	1.02140	6.15	5.42	4.85
10	264.71357	31.82192	1.01175	6.89	6.06	5.40
25	276.98802	30.00177	1.00001	7.91	6.92	6.15
50	286.34575	28.61559	0.99107	8.80	7.66	6.79
100	294.57238	27.37215	0.98314	9.65	8.38	7.41

**Spartanburg**

2	237.85214	36.00878	1.03800	5.04	4.47	4.02
5	253.32925	33.54922	1.02275	6.05	5.34	4.78
10	262.87425	32.09747	1.01352	6.75	5.94	5.34
25	276.43449	30.08348	1.00054	7.86	6.88	6.12
50	285.47241	28.74568	0.99190	8.70	7.59	6.73
100	293.96606	27.46491	0.98373	9.58	8.32	7.36

**St. George**

2	256.38701	33.08003	1.01978	6.27	5.52	4.94
5	269.50522	31.10828	1.00716	7.27	6.38	5.69
10	277.79628	28.88245	0.99924	7.99	6.98	6.21
25	288.37077	28.31259	0.98912	8.99	7.83	6.94
50	295.59257	27.21407	0.98215	9.76	8.47	7.48
100	302.00520	26.20006	0.97586	10.52	9.10	8.02

**Sumter**

2	245.63889	34.75204	1.03027	5.53	4.89	4.39
5	258.82005	32.70920	1.01742	6.44	5.68	5.07
10	268.10936	31.31552	1.00850	7.16	6.29	5.60
25	280.32646	29.50870	0.99682	8.22	7.18	6.37
50	288.72571	28.25924	0.98878	9.03	7.86	6.96
100	296.68748	27.04427	0.98108	9.87	8.58	7.57

**Union**

2	239.63176	35.71782	1.03622	5.15	4.56	4.10
5	254.10798	33.42912	1.02199	6.10	5.39	4.82
10	264.19040	31.90013	1.01225	6.85	6.02	5.37
25	277.46460	29.93141	0.99956	7.96	6.96	6.19
50	286.11427	28.65004	0.99129	8.77	7.64	6.77
100	294.58068	27.37054	0.98313	9.65	8.38	7.41

<b>Frequency (Years)</b>	<i>a</i>	<b>b</b>	<b>c</b>	<b>i(tc = 5)</b>	<b>i(tc = 10)</b>	<b>i(tc = 15)</b>
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**Walhalla**

2	237.34363	36.09198	1.03851	5.01	4.44	3.99
5	253.41210	33.53616	1.02266	6.05	5.34	4.78
10	263.81267	31.95661	1.01262	6.82	6.00	5.35
25	277.26485	29.96090	0.99975	7.94	6.95	6.17
50	286.66128	28.56835	0.99076	8.82	7.69	6.81
100	295.16735	27.27972	0.98256	9.72	8.43	7.45