Have you seen a stormwater ordinance that requires a fixed, cfs per acre, release rate from a development site, such as 0.1 cfs per acre for a 10-year storm and 0.3 cfs per acre for a 100-year storm? How realistic are they, really, for development sites?

Runoff rates from a site in its existing condition depends on a variety of factors such as (to name a few):

(1) Existing use
(2) Existing ground cover
(3) Existing slope of the site
(4) Rainfall intensity (different intensities exist for different areas)
(5) Rainfall distribution (e.g. Huff, NRCS Type II, etc.)

Fixed per acre release rates ignore all of these items; therefore, they are destined to either underestimate or overestimate the actual runoff rates from sites in their existing condition. When they underestimate the actual runoff rate, it can place a significant burden on a developer or property owner who wishes to divide or make improvements to their property because it can require a much larger detention pond than is necessary for the developed site. These potential additional costs typically get passed on to homeowners. When they overestimate the actual runoff rate, LESS protection against potential downstream drainage and flooding impacts will be provided with a development.

See the table below for actual release rates and compare them to the stormwater ordinance in your area. See also, additional correspondence on stormwater ordinance issues at http://www.ispls.org/chapter_tecumseh.htm under the section entitled “Government Affairs Committee Correspondence” for further explanation.

Release rates based on TR-20

24-hour storm event:

LAF: Lafayette (NRCS) Rainfall Data with Lafayette (50% Third Quartile Huff--less than 10 sq. mi.) Distribution
IND: Indianapolis Rainfall Data with 50% Third Quartile Huff (less than 10 sq. mi.) Distribution
NRCS: Indianapolis Rainfall Data with NRCS Type 2 Distribution
NRCS-2: NRCS Rainfall Data with NRCS Type 2 Distribution

Assumes a time of concentration of 60 minutes

Actual Runoff Rates from TR-20

2-Year Runoff rates per acre:

CN	LAF	IND	NRCS	NRCS-2
60	0.052	0.035	0.047	0.073
62	0.063	0.042	0.059	0.094
64	0.075	0.052	0.074	0.120
66	0.088	0.063	0.097	0.150
68	0.101	0.074	0.124	0.183
70	0.115	0.086	0.153	0.219
72	0.129	0.099	0.186	0.257
74	0.144	0.112	0.221	0.297
76	0.159	0.126	0.259	0.341
78	0.175	0.140	0.301	0.388
80	0.190	0.155	0.344	0.438
82	0.206	0.170	0.391	0.489
84	0.223	0.185	0.442	0.544
86	0.239	0.201	0.494	0.600
88	0.256	0.217	0.550	0.660
90	0.272	0.233	0.608	0.720

10-Year Runoff Rates per acre:

CN	LAF	IND	NRCS	NRCS-2
60	0.142	0.110	0.186	0.255
62	0.159	0.126	0.224	0.300
64	0.177	0.142	0.265	0.347
66	0.195	0.158	0.309	0.398
68	0.213	0.175	0.355	0.450
70	0.232	0.192	0.404	0.503
72	0.250	0.209	0.455	0.560
74	0.269	0.227	0.508	0.619
76	0.288	0.245	0.564	0.679
78	0.306	0.263	0.622	0.740
80	0.325	0.280	0.681	0.804
82	0.344	0.298	0.741	0.868
84	0.362	0.316	0.805	0.934
86	0.379	0.333	0.868	1.001
88	0.396	0.350	0.932	1.067
90	0.411	0.366	0.998	1.133

Proposed Release Rates:

LAF Data

Curve Number	10-Year	100-Year
65 or less	0.08	0.18
66-69	0.11	0.22
70-73	0.13	0.26
74-77	0.16	0.29
78-81	0.20	0.33
82-85	0.23	0.36
86 or more	0.26	0.39

IND Data

Curve Number	10-Year	100-Year
65 or less	0.05	0.15
66-69	0.07	0.18
70-73	0.10	0.22
74-77	0.13	0.25
78-81	0.16	0.29
82-85	0.19	0.32
86 or more	0.22	0.35

NRCS Data

Curve Number	10-Year	100-Year
65 or less	0.07	0.27
66-69	0.13	0.37
70-73	0.20	0.47
74-77	0.28	0.58
78-81	0.36	0.69
82-85	0.44	0.80
86 or more	0.50	0.88

NRCS-2 Data

Curve Number	10-Year	100-Year
65 or less	0.14	0.35
66-69	0.20	0.46
70-73	0.27	0.57
74-77	0.35	0.69
78-81	0.44	0.81
82-85	0.54	0.93
86 or more	0.60	1.00