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Green Infrastructure and Storm Depth Retention Criteria

"You must stick to your conviction, but be ready to abandon your assumptions."

– Dennis Waitley

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The Shift to Storm Depth Criteria

In the September 2009 issue of *Stormwater*, I (Andy Reese) published an article titled "[Volume-Based Hydrology](#)", that attempted, however poorly, to frame some thinking on the shift in modern stormwater practice from whatever our current state of the art was in urban hydrology to a more volume-focused approach. The drivers for this shift consist of a number of studies and anecdotal stories about how poorly current stormwater flow-through or percent capture requirements and criteria are doing in mitigating the suite of urban development impacts.

This dawning awareness of a need for change is currently being expressed through changes in regulatory criteria throughout the country. These new criteria must boil the myriad of information and opinions into some sort of simplified abstraction of reality. The hope is that the newly developed criteria capture the basic physics with suitable accuracy to do what they are intended to do. In so doing, rule-of-thumb assumptions are proffered, then adopted, and by reason of use become the law and practice of the land.

Those who have been observers of this very human phenomena have seen its application in stormwater many times: "Detain such that the post-development 10-year storm equals the predevelopment 10-year storm"; "Raise homes to the existing 100-year-storm elevation"; "Remove 80% of total suspended solids"; etc. Almost always, there is a set of unintended consequences of such simplifications. Years pass, evidence accumulates, and eventually someone suggests a fix, and the next cycle of criteria development and adoption begins: "Detain a range of storms and look downstream"; "Manage floodplains for multi-use"; "Effluent concentrations and amounts must be matched to stream assimilation capacities."

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