

Modeling and Regulations

The intent of most stormwater regulations is to develop a universal approach to what actually requires a very localized solution. Stormwater regulations have been applied in Pennsylvania for more than 30-years, and the scientific understanding and the engineering methods used to control stormwater have greatly evolved during this time. For the last 10-years scientists and engineers have been discussing the unexpected results that have been obtained. These unexpected results include damage to the receiving water body during construction because of the limitations of current erosion and sediment control techniques, increased thermal pollution partially attributable to current pond design requirements, and increased flooding resulting from well meaning but misapplied concepts of stormwater volume reduction. The overwhelming conclusion among professionals is that regulations should not be applied without also modeling how the development relates to the watershed. Cutting edge stormwater management takes modeling of the capability of an individual best management practice (BMP) and fits solutions to the watershed in which it is being proposed. Verification of the integrity of a model is also necessary, and must be accomplished by sampling and measuring so that the model may be calibrated to better reproduce local conditions.

In the current budget restricted environment, regulatory entities are limited in their ability to devote all of the resources necessary to fully understand the complexities of a 600-acre development being designed and constructed in a watershed as important as the East Branch of the Brandywine. Regulators are often limited in their ability to verify whether the assumptions used in a design are correct.

With typical techniques applied, there are always adverse impacts to the receiving waters and damage to downstream properties, especially during construction. Although Anti-Degradation regulations require analysis of the impacts of all phases of a development on the receiving water body, regulators and design engineers frequently lack the training on how this can be accomplished. This creates a situation that is unfair to regulators, and the community; and detrimental to the environment. To assure adequate protection of Wallace Township's streams, stormwater modeling, monitoring, and sampling by a stormwater specialist will be needed to bridge the void between the available science and current practices.

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