



Article 29

Feature article from *Watershed Protection Techniques*. 2(2): 329-337

Crafting Better Urban Watershed Protection Plans

A dynamic local watershed management plan is arguably the best and most comprehensive tool to protect urban streams, lakes, and estuaries from the cumulative impact of land development. In practice, however, few such plans have actually realized this goal. Rather, most watershed plans are little more than a onetime report that is quickly consigned to the bookshelf to languish in obscurity, never to be read or implemented. This article examines why local watershed plans often fail to live up to their promise, and is organized into two parts. The first part outlines 11 frequently cited reasons cited for poor outcomes in local watershed plans, drawn from a critical analysis of several dozen past watershed monitoring, modeling, and management efforts, as well as the experience of a number of watershed planning practitioners.

The second part of the article proposes a 12-point protocol to prepare more effective watershed management plans that avoid these common problems. The core of the protocol is a simple method to classify and manage urbanizing watersheds, based on measurements of current or projected impervious cover. The method emphasizes the importance of impervious cover management at both the site and watershed scale through limits on the amount of new impervious cover that can be created. The protocol explicitly links the cumulative impact of future growth to zoning and application of urban best management practices at the subwatershed level. Other elements of the local watershed plan protocol emphasize subwatershed scales, regular management cycles, resource-based monitoring, integrated resource mapping, local program audits and subwatershed-specific development criteria. Together, these elements should improve the effectiveness of local watershed protection plans as a management tool to prevent cumulative impacts.

A Critique of Local Watershed Plans: 11 Reasons Why Watershed Plans End Up on the Shelf

Everyone seems to agree that the watershed is the most appropriate geographic unit to protect urban water resources. Indeed, the 1990s will undoubtedly be remembered as the decade in which the watershed approach became a dominant paradigm for local environmental management. Despite this welcome trend, it is reasonable to ask whether local watershed plans have actually worked to protect streams from degradation from the cumulative impact of land development.

At the outset, it is important to distinguish between the watershed *study* and the watershed *management plan*. The former is a *technical analysis* to identify water quality problems in a watershed and define their sources, and may also explore possible options to remedy them. The watershed management plan, on the other hand, is a much more comprehensive *management process* that should ultimately lead to the implementation of measures that collectively protect the watershed from the impacts of future development (i.e., land use, site planning, riparian management, and stormwater practices) and establish a baseline to gauge the effectiveness of that implementation.

Over the last year, staff at the Center have interviewed a wide cross-section of environmental planners, municipal officials, consultants, watershed scientists and others about the effectiveness of local watershed management plans. The consensus was that most had failed to adequately protect their watersheds. Failure, as defined here, is the inability of a plan to meaningfully prevent or reduce cumulative impacts at the watershed scale in the long run. In this sense, an effective watershed protection plan is one that produces the desired long-term outcome of protecting streams (or other water resources) from degradation.

When asked about the wide gulf between watershed planning and implementation, our admittedly unscientific sample cited one or more of the following reasons for poor watershed plan outcomes:

Reason No. 1: Plan was conducted at too great a scale.

Scale was considered the *critical* factor in preparing effective local watershed plans. Quite simply, when watershed plans were conducted on too large a scale (50 or more square miles), the focus of the plan became too fuzzy. Too many different subwatersheds had to be considered, and important differences in stream quality and development patterns could not be isolated. Land use changes were too complex to forecast. The critical link between individual land use decisions or restoration projects and the watershed plan was broken. While the number of stakeholders involved in the plan proliferated, actual responsibility for implementing the plan diminished. Costs for both monitoring and watershed analysis skyrocketed. A bewildering number of non-urban water quality sources, issues and problems complicated the picture. In short, the watershed planning process was too