Stormwater Management Through User Fees

By Nilo Priede

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Through the 1987 Clean Water Act Amendments, municipalities with populations of 100,000 or more are required to obtain National Pollutant Discharge Elimination System (NPDES) permits for their storm sewer systems while still managing stormwater runoff to control water quality impacts to receiving water bodies. The final rule is expected by the end of this month, with permit submission deadlines as early as two years from now.

During the 1990s, municipalities of all sizes will be developing and implementing stormwater management programs to control urban runoff and its effect on water quality. Historically, stormwater management has been limited to planning, designing and implementing storm drainage improvements. Water quality controls were not required. The new comprehensive stormwater management approach, however, seeks to control both the quantity and quality of stormwater runoff by protecting the total stream system from flooding and water quality degradation.

Generating sufficient financial resources to cope with water quality issues and drainage infrastructure needs is critical in a stormwater management program. Funding to meet the typical backlog of drainage corrections and the new water quality considerations can be substantial. Although the State Revolving Fund Loan Program makes loans available below market rate and extends eligibility to nonpoint source control projects, local governments still must bear full financial responsibility for ongoing stormwater programs.

One financing option is the stormwater utility, which relies on user fees rather than traditional tax revenues to fund stormwater management.

A stormwater utility is user-oriented, with, costs allocated according to the services received. Charges are related to a given land parcel's stormwater runoff. Therefore, each parcel of land within a local government's jurisdiction is assessed a fee based on its runoff characteristics. The user fee system must be tailored to local goals and conditions such as soil types, depth to groundwater, land use and financial needs.

Fairness and equity for all ratepayers must be the primary focus for establishing the rate base. To achieve this objective, each element of the rate structure must be carefully determined. The typical stormwater utility rate structure is based on the total impervious area (roof area, patios, driveways, etc.) of each land parcel. The fee structure is based on the average impervious area of a typical residential unit.

Two options exist for determining the impervious area of the rate structure. In the first, all detached single family dwellings are charged a flat rate of one single family unit (SFU), while other parcels are charged on the basis of the total impervious area on the individual parcel divided by the single family unit square footage.

The other option bases the fee on an equivalent residential unit (ERU), which is derived by totaling the impervious area of all dwelling types and dividing by the number of dwelling units.

Four factors supporting the fairness of an ERU-based fee structure are directly connected impervious area for each land use, increased revenue, construction cost vs. density of development and billing system savings.

The best estimate of a parcel's runoff contribution is the directly connected impervious area (DCIA) on the parcel. DCIA is the impervious area that drains directly to a gutter or drainage channel. Driveways, for example, generally are included in DCIA because they drain directly to the street via the gutter. Rooftops and patios are not included because they drain to a surface (the lawn) where the runoff has an opportunity to filter into the ground before reaching the drainage channel.

Using an ERU-based structure usually results in a significant increase in the revenue generated by the stormwater utility. Increases from an ERU base rather than an SFU base generally range from 25 to 35 percent. However, in communities with large numbers of multifamily units, increases can range from 60 to 100 percent. The higher the development density, the greater the ERU total.

Some communities have incorporated user fees for platted-vacant land in their stormwater utilities. Computing an equitable fee for this category involves considering soil characteristics, depth to groundwater and the design storms selected by the community to provide drainage and water quality protection. Including the platted-vacant parcel in the customer base is common in communities with limited large tracts of undeveloped property and numbers of platted-vacant parcels.

Implementing the NPDES permit program for storm sewer systems costs an average of $500,000 for communities of 250,000 or more.

The cost of these site-specific investigations should be borne by the contributing commercial/industrial entities. Using permit fees to recover the cost of establishing and maintaining the NPDES permit process also is essential.

In communities with significant growth, the long-term success of a stormwater management program depends on the requirements for new developments. A stormwater management ordinance that sets levels of service for flood protection and water quality goals should be established to guide stormvater master planning and ensure that new development meets stormwater management requirements.

Developers can be required to construct stormwater management facilities that meet runoff quality and quantity control requirements or pay an up-front fee to participate in regional or basin-wide stormwater facilities. This "front-end" capital contribution can be negotiated based on the services rendered.

Significant capital is required to retrofit existing facilities to meet water quality requirements. Two options for this cost recovery process are including an annual capital improvement program in the rate base and levying a special assessment.

Using the first option, costs for improving the system are recovered through the user rate base with all users paying equally. This places the responsibility of bringing the existing system up to an acceptable standard on all of the utility's customers.

The second option for recovering capital costs is based on contributing areas. For example, if a customer's property represents 10 percent of the service area, he would pay 10 percent of the project's capital cost.

The stormwater management utility is a user fee system that integrates all user classes into a fair and equitable rate structure. As such, it can generate ongoing revenue from monthly user fees and permit fees to cover planning, design and construction of facility improvements; operation and maintenance; and the organizational and administrative requirements of a comprehensive stormwater management program.

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