DEVELOPING AND IMPLEMENTING A STORMWATER MANAGEMENT UTILITY
KEY FEASIBILITY ISSUES

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International Public Works Congress and Equipment Show

New Orleans, Louisiana

September 23, 1986

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Abstract

This paper briefly summarizes key issues relating to the development and implementation of a municipal stormwater management utility. It is a complex subject and a concise summary of the issues must omit many details, but this overview provides the framework around which information pertinent to a community's unique local situation may be assembled. These issues reflect the questions typically posed to public works staff by local elected officials when they are asked to make the initial decision whether to examine the utility concept of stormwater. funding in detail.

These issues are essentially matters of feasibility. What does it cost? How long does it take to set up? What are its impacts? Seven key issues which impact feasibility are addressed.

1. What are the costs of development and implementation?

2. What process is involved?

3. What is a realistic timeframe?

4. What is the revenue capacity of a stormwater utility?

5. What is the financial impact on rate payers?

6. What scope of program is realistic in a stormwater utility?

7. What other cities have stormwater utilities?

INTRODUCTION

Throughout this discussion it should be borne in mind that a utility approach to stormwater management and financing may create controversy in your community. It will alter "who pays" for stormwater services and facilities, with financial impacts sufficient to provoke political and legal challenges. The process and the products involved in establishing a stormwater management utility must be geared to such potential challenges.

Most legal challenges to the stormwater utility concept key in on three questions.

1. What makes stormwater management a utility?

2. Does the stormwater utility rate structure meet the standard tests applied to utility rates, i.e. are the charges fair and reasonable, and do they bear a substantial relationship to the cost of providing services and facilities?

3. Did the process employed in examining the concept and implementing it meet legal procedural requirements?

Many legal issues can be effectively preempted through a thoughtful, rigorous, and well-documented program analysis and development process. The process should include: a careful examination of local problems, needs, resources and constraints; identification of goals; and definition of a program financing strategy. The strategy should be based on the specific functional requirements of the stormwater management program proposed for the community. Such an approach has been used successfully in several cities.

Recent state supreme court decisions in both Washington state and Colorado indicate that the courts consider the analytical study and program development process to be critically important, especially in determining if the local jurisdiction acted in reasoned or arbitrary manner. Both decisions support the prerogative of local governments to determine their own methods of managing and financing stormwater management as long as those methods are not unconstitutional, biased, arbitrary, or discriminatory, and the decisions are thoughtfully derived.

The potential political challenges to a stormwater utility are more diverse, subjective, and difficult to accurately predict in any given jurisdiction. In many states, establishment of a stormwater utility and setting of rates is done through the authority of the elected council or commission without a ballot issue. This is a common point of irritation among ratepayers, who have on occasion mounted petitions, initiative campaigns, recalls, and other political actions in opposition to stormwater service charges.

KEY FEASIBILITY ISSUES

1. What are the costs of development and implementation?

Probably the first question any elected official will ask when the idea of setting up a stormwater utility is suggested is "how much will it cost?" The cost of developing and implementing a stormwater management utility is dependent on many decisions and may vary significantly. Costs incurred by other cities are a useful reference but reflect their unique circumstances and decisions. A range of costs' is noted below, but each city's or county's local situation and in-house capability to do some or all of the program development work and implementation may impact its cost.

Setting up a new utility is fairly specialized work. Local jurisdictions often retain a consultant familiar with the process of developing a stormwater utility, although some cities have done the work internally. Regardless of whether a consultant is hired, direct staff involvement in the process is highly desirable, since they will inherit the program and funding methods that are developed.

The program development phase is primarily analytical and provides a basis for decisions by elected and appointed officials. Implementation steps involve creating or assembling information, support, and operating systems required to activate utility funding and the stormwater program. Most of the short-term implementation work is associated

with development of a master account file and billing mechanism for service charges. Full program implementation typically requires several years.

There are two types of costs in this process, lump sum and unit based. Most costs related to program development are lump sum expenses. It costs approximately the same to conduct a proper analysis and define an appropriate program whether a city has a population of 750,000 or 75,000. Implementation costs are a combination of lump sum expense and unit costs, with the pertinent units being the number of properties in the jurisdiction that are subject to service charges.

A majority of the program development expense is for professional services. A realistic range of costs for program development is $75,000 to $300,000. Professional services costs in Cincinnati, Tulsa, and Bellevue (Washington) have been in this range. Other communities have invested as much as $500,000 in outside services for program development.

Implementation of stormwater utility financing includes preparation of a master account file and billing subfile. Data must either be generated or obtained from other sources. Computer systems**,** bill delivery**,** payment handling capability, and accounting must all be readied through modification of existing systems or development of new ones.

Some professional services may be needed for implementation, but most of the expenses are unit costs. Typical ranges of costs are $50,000 to $150,000 for professional services and $3.00 to $10.00 per unit (account) for preparation of the master account file, billing subfile, and support systems. Generally speaking, the unit cost should not exceed $ 6.00 if a rate structure is properly designed.

When considering cost it is extremely important to bear in mind the additional revenue that a stormwater utility will create each year. As a rough “rule of thumb”, the cost of development and implementation will typically represent between six and twelve weeks of the revenue stream to be generated by the utility. Viewed in this way, the development and implementation costs are a rather small price to pay to achieve the long-term benefit of stable utility funding for a stormwater program.

This rule of thumb estimate allows us to project the cost of developing and implementing a stormwater utility based on the anticipated revenue capacity, which is addressed later in this paper. As an example, let's use the revenue projection for Tulsa, Oklahoma and work backward from that information to estimate front-end development and implementation costs. Tulsa began billing for stormwater management in May, 1986 and expects to generate $7,000,000 per year, or about $134,000 per week for stormwater management through its service charges. Tulsa is about 185 square miles, with a population of about 400,000. A comparable city should anticipate that the cost of developing and implementing a similar funding method would be between $800,000 (about six weeks revenue) and $1,600,000 (about 12 weeks revenue). Because of the economies of scale in larger jurisdictions, the cost in smaller cities tends to be toward the high end of the range (l2 weeks revenue) while it is nearer the low end in large cities and counties (6 weeks revenue).

2. What process is involved?

There is no single stormwater utility concept or rate structure which works in every community. Several different approaches to program development have been used, ranging from relatively superficial to excessively detailed. Rather than summarize the different processes that have been used, this paper focuses on one used successfully by several cities. It is a process which I first applied in Bellevue, Washington and have used consistently in other communities with good results. It emphasizes local conditions and results in a funding concept tailored to each individual community's situation. I want to stress that the outcome of this process has been different in each case. Typical tasks in the process include:

1. Identify problems and needs.
2. Define goals.
3. Determine resources and constraints.
4. Analyze functional requirements.

5. Define program and financing strategy.
6. Conduct rate structure analysis to determine preferred rate concept.
7. Conduct detailed rate study and cost of service analysis of the preferred rate concept.
8. Determine system and support needs.
9. Design master account file and billing sub-file.
10. Implement support systems.

3. What is a realistic timeframe?

Cities and counties often set up stormwater utilities in response to intense public pressure following especially severe storms or floods. In such situations, the political pressure is typically for construction of capital improvement projects to correct visible, often localized problems. Such pressure is sometimes contrary to the lengthy process needed to set up a long-range program and financing strategy through a stormwater utility. Somehow, a "program orientation" must be introduced in place of a project by project approach to stormwater management.

The program development work itself is not the principal determinant of the time required to set up a stormwater utility. Rather, appropriate involvement of elected officials and the general public dictates the pace. The work itself can be done much more quickly than the community can be informed and a consensus developed. A schedule which expedites the work as much as possible but also allows proper public involvement typically requires 16 to 24 months for program development and an additional 6 to 10 months for implementation of a master account file and billing system.

I should note that in Tulsa, Oklahoma (where a Mav 27, 1984 flood killed 14 people and did $180,000,000 damage) the first billing was sent out in just under 24 months, so the schedule can be expedited somewhat in extreme situations.

The transition to utility status is an important timing issue. The cost of development and implementation, discussed above, usually must be funded from a city's or county's general fund until a stormwater utility is formally established. At that time, the utility can become the funding source, at least on paper. About two thirds of the program development professional services costs usually must be spent before the decision to establish a stormwater utility is appropriate. However, nearly all of the implementation costs, notably the development of master account files, billing systems, and assembly of data, can be funded as utility expenses through this approach.

Thus, it is advisable to make the formal decision to establish a utility as early in the process as practical and appropriate. When is that time? A utility can be formally established following completion of a program and financing strategy, at which point the basic feasibility of utility funding has been determined, or following a rate structure analysis in which a preferred rate concept is selected. Early establishment of a utility then allows the expense of preparing detailed rate information and conducting a cost of service analysis to be treated as utility expenses rather than general fund expenses.

Conceivably, a community could even establish a stormwater utility before the analytical work is begun and use interfund loans (to be repaid from future utility revenues) as interim financing for both program development and implementation work. However, this approach tests the reasonable limits of a proper process for making the key decisions in selecting a stormwater utility concept.

In a city the size of Tulsa, if program development professional services costs total $200,000, and implementation costs are $150,000 for professional services and $650,000 for systems and data, the general fund could pay as little as $150,000 to $200,000, while the utility might bear 80% or more of the total development and implementation expense. Interim financing through an interfund loan to the stormwater utility would of course have to come from the general fund or another source, perhaps water or sewer utility reserves.

4. What is the revenue capacity of a stormwater utility?

The revenue capacity of a stormwater utility depends on the level of charge that is acceptable for residential properties and the rate structure design. Residential ratepayers tend to judge stormwater service charges in comparative terms, often in relation to the charges for water and sanitary sewer services. Residents in most communities are willing to pay between one-third and one-half as much for stormwater control as they pay for water or sewer, whichever is less. However, there seems to be an initial psychological ceiling on stormwater charges of $3.00 per month for residences. For example, if residential water charges average $5.40 per month and sanitary sewer charges are $9.00 per month, residents will probably accept a stormwater charge between $1.80 to $2.70 per month (.33 x $5.40 $1.80, and .50 x $5.40 = $2.70), but they are not likely to accept a charge of $ 4.50 per month (50% of the sanitary sewer charge of $ 9.00).

An analysis of more than a dozen rate structures used by cities throughout the country provides a basis for projecting utility revenue capacity. Assuming that a city uses a typical stormwater rate structure based on gross area and intensity of development, impervious area (rooftops, paving, etc.), or percentage of impervious coverage, the total (gross) land area of the city may be used to estimate potential revenue. -

The revenue generated by existing stormwater utilities ranges from about $ 25 to $ 205 per gross acre. This broad range can be normalized to adjust for the fact that a city generating $ 25 per acre might charge residential customers only $ 1.25 per month, while another city generating $ 205 per acre may charge residents $ 4.50 per month. Considering normalized data, a city can expect to annually generate $ 20 to $ 45 dollars per acre for each $ 1.00 per month charged to residences. Thus, if a city of 100,000 gross acres (about 156 square miles) charges residences $2.00 per month, and uses a typical rate structure which charges larger and more heavily developed properties commensurately higher rates, its stormwater utility would have an estimated revenue capacity of $4,000,000 to $9,000,000 per year. If the rate structure was based on parameters other than those used by most cities, the revenue capacity might be higher or lower.

This estimated range can be further refined by applying basic knowledge of a local area and estimating the impact of policy decisions. The rough estimates assume that a city is more or less typically developed and the rate structure is generally consistent with those used in other areas. If a city of 100,000 acres is 50% undeveloped, the revenue capacity of a stormwater rate structure is much less than in a completely urbanized community of the same size if the same type of rate structure is used. Exemptions from charges can also change the revenue capacity dramatically. Bellevue, Washington charges the city for its street area and the State Department of Transportation for freeway corridors, so it generates much more revenue per gross acre than Tacoma, Washington does with a similar rate structure but exemptions applying to street and freeway areas.

5. What is the financial impact on rate payers?

As noted above, there appears to be a $ 3.00 per month psychological ceiling on the level of residential service charge that is acceptable. Most stormwater utilities initially set their residential service charges at $2.00 per month or less. Many stormwater rate structures use a residential flat rate and equate charges to non-residential properties to the charge on residential properties, often by calculating the number of “equivalent service units" or “equivalent residential units” on non-residential properties. The ESU or ERU is a surrogate for the average residential charge.

On an equal area basis, more intensively developed properties typically pay more than residential parcels under a stormwater rate structure. The ratios vary with the specific rate concept that is used, but generally a commercial or industrial propertv that is 85% to 95% covered with rooftop and paving will Day somewhere between 3 and 6 times what an equally sized residential property pays. Manv cities have used flat rates for residential properties because their impact on the cost of stormwater services and facilities is relatively consistent regardless of lot size. In a typical city, residential lots are 60% to 75% of all parcels, but generate between 25 % and 40 % of the total revenue because the non-residential parcels are typically larger and more heavily developed.

6. What scope of program is realistic in a stormwater utility?

In most cities a stormwater utility has the long-term revenue capacity to support a comprehensive stormwater management program that includes administration, planning, engineering design, routine and remedial maintenance and operations, regulation and enforcement, and capital improvements. Implementation of these program elements is normally phased over several years**,** and some are dependent on others. For example, drainage master plans must be prepared and individual improvements designed before construction can begin.

Rarely can a comprehensive program be set up when a utility is first established. The dependent nature of some program elements, the management burden of implementation, and financial limitations all necessitate incremental program development.

Basic stormwater administration, engineering, and reactive maintenance cost about $15 to $25 per gross acre in most cities. In a city of 100,000 gross acres, this suggests that between $1,500,000 and $2,500,000 is needed for a basic program. Implementation of a comprehensive program which includes drainage master plans, preventive routine and remedial maintenance, and major capital improvements may require $100 per gross acre or more. If a city has a $2.00 -per month residential stormwater service charge and equitably higher charges for non-residential properties, it will likely generate between $50 and $70 per gross acre per year. It is conceivable that a comprehensive program could be implemented at that level of funding, but it is equally likely that capital improvement needs might require higher service charges ($ 3.00 per month or more per residence and per ERU or ESU) or a separate source of funding for capital projects. It generally takes several years to develop the public support necessary to increase stormwater service charges to a level sufficient to fund major capital projects.

Most cities implement a stormwater utility gradually over several years, and begin building major capital improvements only after having established good maintenance and remedial repair programs, gaining public acceptance, and adopting a rate increase to fund the capital projects.

The City of Bellevue, Washington initiated service charges at less than $2.00 for residences in 1974 and began developing its stormwater management program. By 1981 average residential service charges were increased to about $4.50 per month to enable the city to build nearly $13,000,000 in capital improvements, including major regional detention ponds and larger pipe systems. Bellevue is a city of approximately 25 square miles and 85,000 population, and presently generates more than $ 3,200,000 annually through the stormwater utility service charges. The city recently proposed to increase service charges an additional 40% to enable the utility to construct about $4,500,000 in further capital improvements to the drainage systems.

7. What other cities have stormwater utilities?

A partial list of cities (and urban counties) which have stormwater utilities includes the following. Approximate populations are in parentheses.

Washington State:
- Bellevue (85,000)
- Tacoma (165,000)
- Everett (40,000)
- Clark County (120,000; includes the City of Vancouver, Wa.)
- Kent (25,000)

Oregon
- Portland (365,000)
- Corvallis (30,000)
- Medford (15,000)

Colorado
- Denver (500,000)

Boulder (85,000)
Fort Collins (50,000)
Aurora (220,000)

Montana
Great Falls (65,000)
Billings (40,000)

Ohio
Cincinnati (365,000)

Texas
Austin (400,000)

Oklahoma
Tulsa (400,000)