GUIDANCE FOR MUNICIPAL STORMWATER FUNDING

Prepared by National Association of Flood and Stormwater Management Agencies

Under Grant Provided by Environmental Protection Agency

January 2006

ACKNOWLEDGEMENTS

This project was funded by a grant from the United States Environmental Protection Agency (USEPA) to the National Association of Flood and Stormwater Management Agencies (NAFSMA). The project was funded under the USEPA Federal Water Quality Cooperative Agreements Program in the Office of Water.

Susan Gilson, Executive Director of NAFSMA was the project manager. Consultants for the project were:

David Burchmore of Squire, Sanders and Dempsey L.L.P.
Hector Cyre of Water Resource Associates, Inc.
Doug Harrison
Andrew Reese of AMEC Earth & Environmental, Inc.
Scott Tucker.

Scott Tucker and Doug Harrison were authors of Chapter 1 on Background and Introduction, Hector Cyre of Chapter 2 on Sources of Funding, David Burchmore of Chapter 3 on Legal Considerations, and Andrew Reese of Chapter 4 on Implementing User-Fee Based Funding. Hector Cyre contributed the case studies found in the Appendix. Doug Harrison and Scott Tucker provided overall coordination and editing for the project.

TABLE OF CONTENTS

Summary of Tables:

Summary of Figures:

EXECUTIVE SUMMARY

Municipal stormwater management for local governments has evolved over time from an urban flood control function, to a water and resource management function, to an environmental protection and regulatory function. All three functions now co-exist as responsibilities of local government. This evolution has forced changes in how stormwater systems are planned, designed, constructed, operated, and financed. More specifically, the stormwater function has evolved from a basic capital construction and maintenance program supported primarily by local taxes, to a program of integrated water resource management, environmental enhancement, and recreational services requiring a multi-faceted benefit based finance system.

The focus of this guidance is to provide a resource to local governments as they address contemporary stormwater program financing challenges. The guidance includes procedural, legal, and financial considerations in developing viable funding approaches. The guidance examines a range of possible approaches to paying for stormwater management, but the focus is on guidelines for developing service/user/utility fees to support these programs. The terms service fee, user fee, and utility fee may be used interchangeably in this guidance. Chapter 2 addresses various sources of funding. Chapter 3 covers legal considerations, and implementation of stormwater funding programs is discussed in Chapter 4.

SOURCES OF FUNDING

"Needs" are the key driver of stormwater programs and funding development. Without a well defined stormwater service need, there will not be basic support and success will be less likely. When considering how to develop and finance a stormwater program it is important to prepare a business plan that identifies strategic decisions and guides the program evolution and funding decisions. Emerging trends in funding practices include increasing complexity, blended funding, multi-jurisdictional funding, cost-sharing with other public programs, broader private sector participation, and increasing influence of technology and data.

Stormwater management has historically been supported by a range of funding methods and mechanisms that reflect a mix of federal, state and local programs. While the focus of this guidance is on service fees, other stormwater program funding mechanisms include general revenue appropriations; plan review, development inspection, and special user fees; special assessments; bonding for capital improvements; in-lieu of construction fees; capitalization recovery fees; impact fees; developer extension/latecomer fees; and federal and state funding opportunities such as grants, loans and cooperative programs.

There are several criteria that are commonly used to evaluate and select methods for design of service fee rate structures. They include legality, equity, revenue sufficiency, flexibility, balance of rates with level of service, data requirements, compatibility with data processing systems, consistency with other local funding and rate policies, and revenue stability and sensitivity. The fundamental objective of a service fee/utility is attainment of equity. Service fee rate methodologies are designed to attain a fair and reasonable apportionment of cost of providing services and facilities.

Design of stormwater service fees must meet general and technical standards. A rate structure analysis is performed to determine how costs might be apportioned among those who are served in various ways by expenditures for maintenance and operations, capital improvements, and support activities. Impervious area, gross area, percentage imperviousness, and land use are the parameters most frequently used to determine rate structures. Services fees are generally cost-based and are designed to reflect the impacts that each property has on stormwater service demands. Such costs are primarily a function of the peak stormwater runoff rate, the total volume of discharge, and pollutant contributions.

There are four rate structure concepts or methodologies used as examples in this guidance that are typical of those adopted in the more than five hundred communities that have established stormwater utilities. These examples base their fees on impervious area, a combination of impervious area and gross area, impervious area and the percentage of imperviousness, and gross property area and the intensity of development.

LEGAL CONSIDERATIONS

The type of funding mechanism selected for a stormwater utility or stormwater management program has a variety of legal consequences. Taxes, service fees, special assessments, impact fees and other revenue sources can be used, but each approach will have different implications in terms of who will pay, what procedures must be followed to implement and collect the charge, and how the money can be used. If the funding approach is deemed to be a tax, then tax-exempt entities such as churches, schools, state agencies and federal government facilities will contest their obligation to pay. If a service fee approach

is used, the reasonableness of the rate structure and its relationship to the service being provided may be challenged. In many states special taxpayer approval must be sought.

The distinctions between the various funding approaches are often blurred. In general, a tax is an enforced burden imposed by sovereign right for the support of the government, the administration of law, and the exercise of various functions the sovereign is called upon to perform. Many states have constitutional or statutory restrictions on the ability of local governments to levy taxes, which do not apply to fees or charges.

User/service fees are charges based upon the proprietary right of the governing body permitting the use of the instrumentality involved. Fees have traits that distinguish them from taxes. First, they are charged in exchange for a particular governmental service which benefits the party paying the fee. Second, they are voluntary, in that the party paying the fee has the option of not utilizing the governmental service and thereby avoiding the charge. Third, the amount of the fee is designed to recover the actual cost of the service being provided. In some cases there may be little practical difference between a tax and a fee, but the legal distinctions between the two are important.

Stormwater service fees have been the subject of litigation resulting in reported opinions from at least 17 states, including many cases involving final decisions by the state's highest court. In addition, there have been unreported decisions from lower courts in states that have involved similar challenges to local stormwater fees. Based on these cases, certain common themes have emerged.

The question of whether a service charge is actually a "tax" has been the issue most frequently litigated. Other reoccurring issues involve whether or not the charge is voluntary, is it a fee or special assessment, is the fee "reasonable" and directly related to the cost of providing the service, are the properties charged fees receiving proportionate benefit from the services provided, and must fees be confined to cost of providing stormwater services alone or may any surplus be applied to capital improvements.

Determining the legality of a specific financing mechanism chosen will depend upon a close analysis of state law. Nevertheless, certain general principals emerge from the cases examined. First, for a stormwater service charge to be regarded as a fee, rather than a tax, the overall cost of the program must be reasonably related to the service being provided, and the funds raised must be segregated for use by the stormwater program. Second, the fee should be proportional to the property's contribution to stormwater runoff. Third, participation in the program should be characterized as "voluntary". And forth, in states with constitutional provisions governing the imposition of any new tax, it may be necessary to seek voter approval for a fee even if it is designed to be service-based.

The imposition of stormwater service fees on federal facilities involves a special consideration of the tax vs. fee issue. In principal, states cannot tax the United States (Chief Justice Marshall's opinion in *McCulloch v. Maryland*, 1819). On the other hand, it is well-established law that the United States must pay reasonable user fees. Furthermore, the Clean Water Act contains an express waiver of sovereign immunity for certain pollution control related fees. Importantly, this waiver applies only to fees or service charges, and not to taxes.

The United States Supreme Court has established a three-pronged test for determining whether fees imposed on federal facilities are "reasonable service charges" or taxes. First, is the fee or service charge non-discriminatory? Second, is it a fair approximation of the cost of the benefits received? And third, is it structured to produce revenues that will not exceed the regulator's total cost of providing the benefits?

IMPLEMENTING USER-FEE BASED FUNDING

The evolution in stormwater program expectations, which is motivating the movement to utility based funding, requires that more than just the revenue mechanism be evaluated. The function, service and performance of the stormwater program itself become a focal point in the effort to develop a stormwater funding mechanism.

A stormwater utility should be seen as an umbrella under which individual communities address their own local problems, priorities and practices. A stormwater utility provides a vehicle for:

- consolidating or coordinating responsibilities previously dispersed among several departments;
- generating funding that is adequate, stable, equitable and dedicated solely to the stormwater function; and
- developing programs that are comprehensive, cohesive and consistent year-to-year.

Implementing user fee based funding involves a related set of actions and activities occurring within a flexible process framework. That framework promotes "due diligence" in five key areas of focus; political, financial, legal, informational, and technical. Bringing about change in the current stormwater program and implementing user based funding requires an understanding of current needs and problems, a vision for the future and a process framework. The use of a citizens/stakeholder participation group and a business plan approach can help build a compelling case for action.

The process framework should include a “quick concept study” which assesses the advisability of proceeding; a “feasibility study” which conducts the detailed assessment of the stormwater program and funding and develops recommendations; and, the “utility implementation process”.

The utility implementation process directs the planning and implementation effort along four tracks of activity. The “Public Track” insures stakeholder involvement and education. The “Program Track” matches program structure to stakeholder expectations. The “Finance Track” insures the legality, equity and adequacy of the funding mechanism; and, the “Database Track” determines the means to compute, deliver, collect and record the charge to be imposed on each property.

The analysis of stormwater utility funding has many policy implications. Policy making usually involves the mayor and council. Day-to-day policy decisions are often made at several levels under guidance set by the mayor and council. A recommended hierarchy for review of important issues is: key staff and consultants, other involved staff, advisory committee, manager’s office, and mayor and council.

CASE STUDIES

Five case studies are examined for City of Bellevue, Washington; City of Charlotte/Mecklenburg County, North Carolina; City of Tulsa, Oklahoma; Louisville/Jefferson County Metropolitan Service District, Kentucky; and Sarasota County Stormwater Environmental Utility, Florida. For each example the following is generally provided: keynotes, community profile, formation process, service area, role and program, local government structure, organization and staffing, funding, inter-governmental cooperation, and public participation.

The City of Bellevue stormwater management program was established in 1974 and was one of the first to give equal consideration to water quantity and quality. Bellevue’s Storm and Surface Water Utility provides a full range of capital infrastructure and operational services, primarily through in-house staff. Funding is primarily derived from a user fee that is based on gross property area and a factor reflecting the intensity of development of each property. Residential fees range from $3/month to over $20 per month with an average of about $10/month. The annual operating budget is approximately $6 million. The population of Bellevue was about 117,000 in 2005.

The Charlotte/Mecklenburg County approach relies on centralized funding and regional programs for major systems combined with local management of minor stormwater systems. The County, City of Charlotte, and towns have a high degree of self-determination in deciding service levels to be provided by local systems, programs and funding. Funding of the program is primarily supported by a composite stormwater service fee that includes both regional and local

components with the County controlling the regional component and local governance controlling the local component. The City of Charlotte and small towns typically employ a blend of funding from several sources while the County relies almost entirely on the service fee.

In 2005 the population of Mecklenburg County was about three quarter million and the population of Charlotte was about 650,000. The County utility was instituted in 1994. The total stormwater budget for all entities in 2005 was over $85 million with a large part allocated to capital betterments. The fee for a single-family house is $1.06/month throughout the County. Local stormwater programs of the County, cities and towns are funded by a separate additional rate component which ranges from $0.30/month to $6.72/month in Charlotte.

The Tulsa Stormwater Management Utility was founded in response to a devastating flood that killed 14 people and caused nearly $220 million in property damage in 1984. A Department of Stormwater Management was established in 1985 centralizing responsibility for all City stormwater activities, and a stormwater utility fee was established by ordinance in 1986 to fund the program. The stormwater program budget has recently ranged from $12 million to $14 million per year. All residential properties are charged a single rate of $3.49/month, and fees for other properties are based on the amount of imperviousness on each property. The population of Tulsa was about 400,000 in 2005. The program includes comprehensive watershed management, dedicated funds for maintenance and operation, and a $200 million capital improvements program.

The Louisville approach involves a consolidation of flood control and stormwater management with a regional wastewater collection and treatment program provided by the Metropolitan Sewer District (MSD). Most of the smaller cities and towns in Jefferson County do not perform stormwater management functions. Funding of MSD is primarily from wastewater and stormwater service fees, which are independently structured and billed. The accounting is kept separately for each function.

The methodology of determining the stormwater fees in Louisville/Jefferson County is based on impervious area. There is flat rate for single-family residential properties, and differential rates for other properties based on a impervious area equivalency unit. The single-family residential stormwater service fee in was $4.41/month. Stormwater service fee revenues in fiscal year 2005 were expected to be nearly $24 million. There are more than 90 cities and towns in Jefferson County. Most, but not all, cities are included in the stormwater program. Louisville had a population of about 700,000 in 2005.

Sarasota County, Florida established a Stormwater Environmental Utility in 1989. Primary objectives of the Utility are to reduce flooding, improve surface water quality, and attain responsible development practices. A Florida Supreme Court decision in 1996 determined that the Sarasota County charge is a special

assessment rather than a service fee. As such, it is subject to the standards applicable to assessments, which emphasize apportionment of special benefit, rather than reflecting the cost of service burden imposed on properties. The benefit assessments have three components that are consistent across the service area, and one component, system capitalization, that is variable by watershed.

The Utility budget in 2005 was approximately $23 million with about $10 million for capital projects. The benefit assessment takes both pervious and impervious areas on each property into account. On average, a medium size single-family residence is assessed $6.70/month. Sarasota County had a resident population of about 340,000 in 2005. There are four cities in the County. The city of Sarasota through an inter-governmental agreement relies on the County to improve its drainage system and perform most stormwater operations. The other three cities retain responsibility for local stormwater systems.

CHAPTER 1

BACKGROUND AND INTRODUCTION

Municipal stormwater management for local governments has evolved over time from an urban flood control function, to a water and resource management function, to an environmental protection and regulatory function. All three functions now co-exist as responsibilities of local government. This evolution has forced changes in how stormwater systems are planned, designed, constructed, operated, and financed. More specifically, the stormwater function has evolved from a basic capital construction and maintenance program supported primarily by local taxes, to a program of integrated water resource management, environmental enhancement, and recreational services requiring a multi-faceted benefit based finance system.

The focus of this guidance is to provide a resource to local governments as they address contemporary stormwater program financing challenges. The guidance includes procedural, legal, and financial considerations in developing viable funding approaches. The guidance will examine a range of possible approaches to paying for stormwater management, but the focus will be on guidelines for developing service/utility/user fees to support these programs. Chapter 2 will address various sources of funding. Chapter 3 will cover legal considerations, and implementation of stormwater funding programs is discussed in Chapter 4.

WHAT IS MUNICIPAL STORMWATER

Municipal stormwater is surface water runoff from public and private lands in urban areas. Typically municipal stormwater is collected in municipal separate storm sewer systems consisting of drains, pipes, and ditches, and conveyed to nearby streams, rivers, lakes, estuaries, basins, wetlands, and oceans carrying with it a variety of urban pollutants.

The United States Environmental Protection Administration (EPA) in their Phase I Municipal Stormwater regulations defined stormwater to mean "…storm water

runoff, snow melt runoff, and surface runoff and drainage." In their Phase II stormwater regulations EPA defined a "municipal separate storm sewer" to mean in part, a conveyance or system of conveyances, including roads with drainage systems and municipal streets, that is owned or operated by a State, city, town, borough, county, parish, district, association, or other public body designed or used for collecting of conveying storm water which is not a combined sewer and which is not part of a Publicly Owned Treatment Works.

The nature of stormwater runoff from a given rainfall or snow event changes as an area urbanizes and more impervious surfaces are created and the landscape and drainage patterns are modified. The volume of runoff, rate of flow, and quality of runoff all change as a result of this urbanization.

HISTORICAL DEVELOPMENT OF STORMWATER SYSTEMS

In the late 1800's and early 1900's combined sewers were built to convey and dispose of both sanitary sewage and stormwater. Eventually, local governments began to separate storm flows from wastewater flows and separate sanitary sewer and storm sewer systems replaced combined sewer systems in many areas. Early municipal storm sewer systems were designed to discharge stormwater rapidly, and included such physical elements as curbs, gutters, inlets, storm sewers, roadside ditches, and concrete and grassed lined open channels.

Thinking began to change in the 1960's and 1970's with the recognition that efficient stormwater systems also transferred problems downstream. With a need to reduce the rate and volume of these stormwater discharges, many local governments started requiring new developments to construct stormwater detention facilities.

In the 1980's and 1990's stormwater quality became a focus of federal regulatory requirements and local governments have had to develop stormwater quality programs in response. Under an evolving regulatory mandate a few local governments are beginning to recombine dry weather flows in storm sewers with sanitary sewage and directing both to treatment plants.

NEW PARADIGM

The character of the stormwater management function has, and continues to change significantly. Originally stormwater systems were built just for conveyance, but stormwater is now a component of a comprehensive integrated urban water resource, environmental enhancement, and recreational services system. Contemporary stormwater management is a multi-dimensional function which includes quantity and quality considerations, multiple-use facilities, riparian

corridors, recreation, wetland preservation and creation, and groundwater recharge.

Stormwater has become a part of the "total" water resources picture and is the third leg of the local government water service stool consisting of water development, treatment, and distribution; sewage collection, treatment, and disposal; and stormwater quantity and quality management. Other more specific changes include recognition of stormwater as a resource; restoration of streams and rivers; preservation of riparian areas and corridors; use of detention areas as parks, playfields, and wetlands; creation and/or restoration of wetlands to provide water quantity, quality, and environmental benefits; capturing stormwater to meet water supply needs; recognition that homes near greenbelts sell for a premium; and evaluation of stormwater from a comprehensive watershed perspective.

Most of these changes recognize stormwater as a resource, but liabilities have also evolved. For example, the disposal of "polluted" stormwater and of sediments accumulated in detention/retention facilities is now a performance issue for local governments. As a result of the evolving regulatory framework stormwater quality issues are now a required part of the urban water resources service sector. The reality is that stormwater quality and quantity are joined at the hip in today's stormwater management programs.

The new paradigm has introduced a whole new array of issues that has resulted in basic changes in stormwater planning, design, operation and maintenance, construction, and financing. These changes have also resulted in greater public expectations. In addition to the effective control of drainage and flooding, the public also expects riparian corridors, wetlands, recreation amenities, trails, visually pleasing facilities, and a continued maintenance effort. Stormwater managers now must find the resources to effectively satisfy these expectations as well as the regulatory requirements.

To meet the challenges of the new paradigm some urban stormwater programs are evolving into multi-functional operations. Table 1-1 provides a listing of major stormwater management components for a utility/service fee type program. Not all programs will be this comprehensive, but many local governments in order to meet public expectations will likely move in this direction over a period of time.

Table 1-1: Major Stormwater Management Functional Centers[1]

Administration
- General Administration
- Prog Planning and Development
- Interagency Coordination

Public Involvement & Education
- Public Awareness & Education
- Public Involvement
- Standing Citizen's Group

Billing and Finance
- Billing Operations
- Database Management
- Customer Service
- Financial Management
- Capital Outlay
- Overhead Costs
- Cost Control
- Support Services

Stormwater Quality Mgmt
- Quality Master Planning
- Retrofitting Program
- Monitoring Program
- Struc and Non-Struc BMP Progs
- Pest, Herb and Fertilizer
- Used Oil & Toxic Materials
- Street Maint Prog
- Spill Response and Clean Up
- Prog for Pub Ed and Reporting
- Leakage and Cross Connections
- Industrial Program
- Gen Com and Residential Program
- Illicit Con and Illegal Dumping
- Landfills and Other Waste Facilities
- Combined Sewer Overflow Program
- Groundwater & Wellhead Protection
- Drinking Water Protection
- Watershed Assessment & TMDL
- Septic and I&I Program

Engineering & Planning
- Des Criteria, Stds and Guidance
- Field Data Collection
- Master Planning
- Design, Field and Ops Engineering
- Hazard Mitigation
- Zoning support
- Multi-objective Planning Support
- GIS and Database Management
- Mapping
- Land Use Planning & Controls

Operations
- General Maintenance Management
- General Routine Maintenance
- General Remedial Maintenance
- Emergency Response Maintenance
- Infrastructure Management
- Public Assistance

Regulation and Enforcement
- Code Dev and Enforcement
- General Permit Administration
- Drainage Sys Insp & Reg
- Zoning and Land Use Reg
- Special Inspection Programs
- Flood Insurance Program
- Multi-Obj Floodplain Management
- Erosion Control Program

Capital Improvements
- Major Capital Improvements
- Minor Capital Improvements
- Land, Easement, and Right-of-Way

[1] Table 1-1 provided by Hector Cyre, Water Resource Associates, Inc., Friday Harbor, Washington, 2005

LEGISLATIVE PERSPECTIVE

Legislative action has dramatically changed the face of contemporary stormwater management. This includes passage of laws, adoption of regulations, and interpretation of laws and enforcement of regulations by the courts at local, state and federal levels. These legislative activities impact all aspects of stormwater management by local governments, as well as the private sector, such as developers who provide basic infrastructure as a part of their developments, industrial facilities that discharge stormwater from their properties, and those conducting ground disturbing construction activities.

Initially stormwater was considered a common enemy and was solely a local issue. Local governments constructed stormwater systems to address local drainage service needs and flooding problems. Property owners had the right to protect their property from stormwater as long as unreasonable harm was not inflicted on other properties. Today as a result of the Clean Water Act (CWA), stormwater is also a state and federal issue, and landowners are required to detain stormwater on their property and provide a level of treatment.

Passage of the 1972 CWA signaled the beginning of a serious national effort to improve the quality of the nation's streams, rivers, lakes, wetlands, estuaries, bays, and oceans. The CWA required dischargers of "point sources" of pollution such as sewage treatment plants to obtain National Pollutant Discharge Elimination System (NPDES) permits in order to discharge pollutants into the nation's waters. Initially municipal stormwater was considered a non-point source of pollution and NPDES permits were not required of municipal stormwater dischargers.

However, stormwater was defined as a point source of pollution in the early 1980's pursuant to a federal court decision brought by the Natural Resources Defense Council against the EPA. This marked the beginning of the municipal stormwater quality mandate through the NPDES permit program. In addition to NPDES permit requirements, municipal stormwater systems are also now subject to Total Maximum Daily Load (TMDL) requirements of the CWA.

NPDES permits typically require pollutant dischargers to meet numerical effluent limits at the end of the discharge pipe. Because it is difficult to apply this standard to stormwater systems, the CWA was amended in 1987. Section 402(p) was added to the CWA defining basic permit compliance requirements for municipal stormwater runoff that are different than those for typical point source discharges such as from sewage treatment plants. Section 402(p) required municipal storm sewer systems to reduce pollutants discharged from municipal stormwater systems to the maximum extent practicable (MEP). MEP is thus the standard of treatment for municipal stormwater and its definition is very important.

The following, from the Federal Register, December 8, 1999, p. 68754 publishing NPDES Phase II stormwater regulations, is EPA's interpretation of the meaning and intent of the MEP standard.

> "Maximum extent practicable (MEP) is the statutory standard that establishes the level of pollutant reductions that operators of regulated MS4s must achieve. The CWA requires that NPDES permits for discharges from MS4s 'shall require controls to reduce the discharge of pollutants to the maximum extent practicable, including management practices, control techniques and system, design and engineering methods.' CWA Section 402(p)(3)(B)(iii). This section also calls for 'such other provisions as the (EPA) Administrator or the State determines appropriate for the control of such pollutants.' EPA interprets this standard to apply to all MS4s, including both existing regulated (large and medium) MS4s, as well as the small MS4s regulated under today's rule.
>
> For regulated small MS4s under today's rule, authorization to discharge may be under either a general permit or individual permit, but EPA anticipates and expects that general permits will be the most common permit mechanism. The general permit will explain the steps necessary to obtain permit authorization. Compliance with the conditions of the general permit and the series of steps associated with identification and implementation of the minimum control measures will satisfy the MEP standard.
>
> Implementation of the MEP standard under today's rule will typically require the permittee to develop and implement appropriate BMPs to satisfy each of the required six minimum control measures."

The federal/state/local relationship regarding stormwater management was fundamentally changed by the 1987 CWA amendments and subsequent regulations. There is now a federal mandate that local governments address stormwater quality through the NPDES permit mechanism, and there is federal and state oversight on how, and how well it is done. Drainage and flood control is still a discretionary activity, but stormwater quality management is now required of most all local governments

STORMWATER AS A SERVICE

Uncontrolled stormwater flows can be a danger to both the constructed and natural environments, and the control of stormwater and the pollutants it carries is a difficult and expensive task. Implementation of stormwater management programs and measures by local government, therefore, creates a service benefit for the lands and improvements so served.

Public and private properties are benefited in several ways through the new stormwater management paradigm. Benefits include recreation opportunities, community aesthetics, environmental enhancement, flood damage reduction, protection of transportation systems, development of urban trail corridors, handling of excess drainage from public and private properties, maintaining property access, protecting and providing water supply, providing regulatory compliance, protecting property values, and providing long term system maintenance. Also, where there is a community stormwater program with oversight and management, the service benefit can include system planning and engineering, development of design criteria, flood warning systems, NPDES compliance plans and BMP's; and publication of resource information.

It is important to realize that a long-term obligation is created when stormwater infrastructure is added and stormwater programs are developed. For example, all the stormwater facilities that have been constructed, and will be constructed as a result of new development or redevelopment, must be maintained in perpetuity. NPDES regulations require municipal permit holders to assure the maintenance and continuation of these new facilities and programs. Further, implementation of NPDES permit requirements will most likely intensify in the future.

The significant and continuing capital construction, operation and maintenance requirements for storm sewer systems, stormwater quality facilities, pollutant source control programs, flood control facilities, vector control, drainage corridors, detention facilities, wetlands, etc., is beyond the capacity of individual property owners, and are services provided by the local government stormwater service program.

ISSUES AND CHALLENGES FOR LOCAL GOVERNMENTS

The new stormwater paradigm presents many issues and challenges. What is to be the design and content of the stormwater program, what will it cost, who pays, who decides, and how will it be funded? Among these, cost and how to fund it is of significant importance to local government.

Local governments are expected by their citizens to provide and fund basic services such as police and fire protection, local transportation systems, sewage treatment, water supply, libraries, social services, and recreation. Stormwater quantity and quality must now be added to that list. The new paradigm requires the development of institutional and funding frameworks to support this long-term responsibility.

There are legal and equity issues imbedded in the funding considerations. Funding of stormwater systems must be relevant and proportional to services or

benefits provided, or in other words, it must be fair and legal. It will be critical for funding options, particularly those that include utility/user fees, to be based on sound legal principals to avoid challenges.

Local governments will likely be facing changing rules. Municipal stormwater management systems will need to have flexibility to adjust to changes in regulations, regulators, legislation, public demands, and court decisions. For example TMDLs are developing as a new performance issue for local governments. If stormwater discharges contain pollutants contributing to the impairment of a water of the nation, additional control requirements may be imposed and additional costs incurred.

Cost and effectiveness are major considerations for local government when developing stormwater management programs. MEP is the current CWA regulatory standard to which stormwater programs are held. Cost and effectiveness should be factors (others include regulatory compliance, public acceptance, and technical feasibility) in the selection of BMPs and in the approval by regulators of stormwater management programs.

Partnership opportunities are available to local government in implementing stormwater quality programs. Local governments can develop individual stormwater programs to meet regulatory requirements; or they can join together in partnership with other local governments, including cities, counties, and special districts in the conduct and financing of the stormwater program. There is good potential for cost savings when local governments work with others in implementing control measures required in their permit.

There are governance decisions to be made. Local governments can implement a stormwater program through an existing organization, they can set up a new department or organization, or they can develop some combination of the two. The decision could influence the funding structure that is used.

Ultimately, all issues and challenges focus attention on cost and how it is funded. The focus of this document is on service/user/utility fees which addresses an important element of the funding challenge.

CHAPTER 2

SOURCES OF FUNDING

FUNDING STRATEGIES

Money, Revenue, and Resources

In formulating a funding strategy for any local government program it is often helpful to think of a framework of money, revenue, and resources that can be selectively applied to specific needs. Cumulatively they provide the financial support required for the mix of capital, operating, and non-operating expenditures. It is important to recognize the distinctions that influence their capability and suitability for various tasks, and how they can best be orchestrated.

"Money" encompasses a range of sources and types of funds that can be tapped to support stormwater services and facilities. Appropriations of general revenues, proceeds of bond sales and special-purpose sales taxes, and transfers from other accounts represent "money" that have all been used to support stormwater programs, either on a one-time basis, temporarily, or as a part of a long-term funding strategy.

"Revenue" is a term usually used in specific reference to the cash flow generated by user fees of various sorts and other relatively consistent income streams such as charges, assessments, rentals, fines, etc. Most stormwater utilities have a periodic charge generally applied to all customers. They may also have other revenues generated through special fees applied to individual customers or classes of customers (e.g., plan review and inspection fees), special assessments, and capital recovery fees of various sorts. In some cases, revenue supports other funding mechanisms, as in the allocation of user fee revenue to service bond debt.

"Resources" that support stormwater programs take many forms, ranging from developer-contributed capital facilities, to federal and state grants and loans, to

maintenance of public drainage systems performed by homeowners' associations and private property managers, to land and easement dedications and other exactions. They also include a variety of funding mechanisms that are commonly used to structure how money and resources are applied to specific objectives, for example bond issues that are used to fund capital infrastructure and inter-fund loans to meet temporary cash flow needs.

Expensed Versus Debt Funding

Two principal categories of funding employed by stormwater management programs are expensed funding and debt funding. Most stormwater programs employ a mix of these.

Expensed funding is typified by "pay-as-you-go" strategies, in which expenditures are supported by a more or less concurrent revenue stream. For example, a city's stormwater utility may have a user fee that generates $5 million in annual revenues, an appropriation in its road budget for maintenance of roadway drainage systems of $1 million, and a total annual stormwater management budget of $6 million that essentially matches the combined income. Costs are "expensed" as they are incurred.

Debt funding is typified by bond sales, which are most commonly used to fund major capital expenditures, but debt funding may also include intergovernmental loans, warrants, and other mechanisms. Debt is sometimes also used to fund utility start-up costs, undertake system-wide remediation, or to make funds available to cooperating entities in the form of grants or loans. In all these examples, borrowing is utilized to enable a stormwater program to expedite improvements or activities so as to accomplish its goals more quickly, thereby reducing the time of exposure to certain risks. For example, bonding to build extensive flood protection works in two years rather than twenty years may be a prudent action if valuable property is protected more quickly.

CHARACTERISTICS OF SUCCESSFUL FUNDING STRATEGIES

A Business Plan Approach Is Based on Strategic Objectives

Some common characteristics are evident among successful stormwater utility programs. The most successful programs have relied heavily on a business plan model which guides both the program evolution and funding decisions. The strategy for accomplishing the program is defined, the type and magnitude of costs are projected, resource requirements are determined, and timing issues are resolved before the analysis of specific funding mechanisms takes place.

"Needs" are the key driver of program and funding strategies. Authority, capability, and a clear vision of the mission are essential, but in the absence of

compelling needs local government leaders apply their attention and resources elsewhere.

The demands of the diverse stormwater management activities identified in Table 1.1 challenge local governments' funding capabilities, and encourage them to use a variety of funding sources. State constitutions and legislation, governance structures and service responsibilities, drainage problems, needs and priorities, local politics and economics, and simply the different ways that communities conduct their business all differ and influence their decisions on stormwater program and funding strategies. These influences should cause local agencies to carefully examine their needs, and the most successful have crafted a detailed business plan as a guiding document.

Effective Stormwater Business Plans Identify Linkages and Dependencies

Stormwater business plans or program strategies contain many linkages and dependencies among program components and processes. Addressing some needs may require several years as preparatory steps are accomplished. For example, even if infrastructure improvements are the highest priority, they may have to be preceded by master planning studies, prioritization processes, engineering of specific projects, land acquisition, and contracting before a system improvement is actually realized. Formal approvals by elected officials may be needed at various points in this process, potentially creating additional delays.

Such linkages and dependencies make timing very influential in structuring the business plan. An extended schedule for addressing one program priority may present an opportunity to expedite others that do not require so much preparatory work or approvals. Routine maintenance is a function most easily expedited and can have the most immediate benefit in terms of service assurance. Regulatory measures that can be adopted at the discretion of managers and that do not require extensive analyses can also be easily activated. Other regulatory activities can involve several years, as in the case of developing and gaining adoption of design manuals. Education, public participation, and other efforts to improve water quality likewise can be initiated relatively quickly, but it may take years to demonstrate results. Some remedial repairs to deteriorated infrastructure can be accomplished quickly, although the process of identifying specific projects, prioritizing them, assembling necessary resources, acquiring land or easements, and contracting with vendors can delay others.

The negative experiences of communities that didn't recognize the relationship between program and funding strategies suggest that adopting funding strategies or mechanisms, without the benefit of a clear vision of the program strategy, creates a high potential for problems. This has proven especially true in the case of instituting stormwater utility user fees. One need only review the case law decisions in Chapter 3 of this guidance manual to find strong support for the

proposition that a clear program strategy buttresses funding decisions by local elected officials.

Community Expectations Are Represented in Business Plans

The most effective stormwater business plans recognize community expectations. In some cases, expectations must be elevated by convincing demonstrations that stormwater problems exist and can be solved. Stormwater management rarely captures public support unless problems impact the daily lives of citizens. Many drainage systems are underground and essentially invisible to the public. If they are designed, constructed, and maintained properly, most people are unaware of them. More visible problems such as potholes in roadways consistently rate higher than drainage problems. The most effective programs identify and publicize the problems they must address, seek public participation and support, and orchestrate the use of various tools and resources over time.

Effective Programs Respond to Change

Flexibility is an important attribute of utility user fee funding and the ability to change as circumstances dictate should be always be a consideration in formulating a business plan. User fees provide a stable revenue source, and offer equity advantages over traditional tax funding, but perhaps their most valuable attribute is their flexibility for funding a variety of operational and capital investment needs. A long-range program can be defined with a realistic expectation that funding will be available when needed and also suitable for changing priorities. However, as a primary funding source, a user fee may lend itself to a focus on short-term, rather than a long-term program strategy, which can be counterproductive.

Service Fee Rates Are Cost-Based

The funding philosophy represented by utility service fees of all types is that customers should pay in relation to the demands they impose on the services and facilities – characterized as a “user-pays” approach. This is a primary consideration in selecting parameters from which service fees will be calculated, and formulating a rate methodology that results in an apportionment of those cost deemed fair and reasonable by the responsible local officials. The most successful stormwater utilities are those that have clearly established and documented the rationale for linking their service fees to the cost of providing services and facilities.

Resources Are Dedicated and Stable

Whether in city, county, or special district entities, most successful stormwater utilities are accounted for as enterprise or special revenue funds that are separate and apart from the funding of general public services. As segregated accounts, enterprise and special revenue funds limit the use of revenues and other resources to a specific purpose, such as stormwater management. Also,

since reserves can be accumulated from one year to the next, there is no pressure to expedite funding at fiscal year-end if that is not prudent. This adds to program stability and efficient management of financial resources.

TRENDS IN FUNDING PRACTICES

Increasing Complexity

The emerging trends in the 21st Century suggest that funding issues will encourage tailoring of funding to specific program objectives, and funding practices will branch out in several directions. As stormwater programs become more sophisticated, unique local concerns and priorities gain greater visibility and support. Also, as more linkages are established with other governmental and even private-sector programs, the general trend in funding is toward greater complexity, and "standard practice" is increasingly likely to be supplanted by local innovations.

Stormwater utilities established in the 1970's and 1980's tended to be funded almost entirely from their service fees. Service fee rate methodologies were relatively consistent though rarely identical. They were cost-based, and rate structures were linked to peak and/or total volume of runoff by fee calculations employing parameters such as impervious area. Use of other funding methods and mechanisms in coordination with service fees was very limited.

Beginning in the 1990's a refinement trend emerged. The basic structure of funding and service fee rates remained relatively stable, but local entities began to push for more sophisticated and detailed cost, rate, and funding analysis. In part, this was due to the rapidly increasing technical capability offered by computerization and data gathering and processing. It also reflected the fact that more large cities instituted stormwater utilities as Phase I NPDES requirements were imposed. Their expectations were generally geared to more sophisticated cost and rate analyses and they often retained management and rate consultants with experience in other disciplines.

In the first decade of the 21st Century the trends in funding have been primarily in response to Phase II of the NPDES program, which impacts many more cities and towns than Phase I. This has had two somewhat conflicting effects. The introduction of a water quality objective caused many local governments to view stormwater management more broadly. However, as an increasing number of smaller cities and towns explored stormwater fee options to meet NPDES permit obligations, they tended to demand simpler and less expensive approaches than those preferred by large communities. These factors have been further compounded by federal and state initiatives to manage watersheds holistically, which is filtering down through regulatory programs and grant and loan opportunities. As a result, the key stormwater funding trends for the next decade include the following.

Blended Funding

Blending several sources of funding to support stormwater management program strategies has been a slowly emerging trend. The most successful stormwater programs are supported by several sources of funding, enabling them to spend more money to elevate the visibility of the program and improve cost accountability of specific functions or improvements.

Other sources of funding used in combination with service fees include general budget appropriations, dedicated special taxes (property, income, sales), special assessments, fees charged in lieu of requiring compliance with standards or requirements such as on-site detention, system capitalization or development impact fees to recover past expenditures or better allocate the cost of infrastructure over a period of time, and matching funds such as federal and state grants and loans. There are few constraints on local governments' authority to combine and selectively target several types and/or sources of funds to accomplish various purposes, see Appendix for examples.

Multi-jurisdictional Funding

Cooperative funding with other entities is a hallmark of many successful stormwater programs. Several factors have induced stormwater managers to participate in multi-jurisdictional funding, especially in recent years as water quality considerations became more prominent.

Stormwater runoff doesn't conform to jurisdictional boundaries. Drainage waters flow from jurisdiction to jurisdiction based on topography. Solving an upstream community's problem may become the source of a problem in another jurisdiction located downstream. Thus, the most efficient infrastructure solution for a given drainage problem may lie outside the jurisdiction where the impacts are manifested. For example, to relieve flooding a regional detention facility built in an upstream portion of a watershed in a rural unincorporated area may be less expensive and provide better protection than extensive flood protection works installed downstream within a major urban area. This may encourage several cities and towns in the downstream portion of a watershed to fund a common solution higher in the upstream reaches rather than attempt to install independent drainage improvements in each of their communities.

The availability of federal and state grants and loans and cooperative programs has also encouraged local governments to join in conducting activities associated with stormwater management. This has been a significant inducement to local governments to establish stormwater service fee funding. For example, the City of Griffin, Georgia was able to obtain more grant, loan, and shared funding from federal, state, and county sources during the first two years of its stormwater utility operation than was generated in service fees. A key factor in gaining other agencies' financial support was the City's ability to match their grants and loans with reliable local funding.

The presence of stormwater quality program mandates of state and federal agencies has also encouraged local governments to participate in cooperative programs. The emerging emphasis on stormwater quality has created both opportunities and incentives for cities, counties, and special-purpose districts to participate in cooperative efforts. Examples include public education, water quality monitoring and sample analysis, the development of drainage, erosion control, and other technical manuals, and even consolidated development plan review.

Cost-sharing With Other Public Programs

Successful stormwater utility programs have financial strength that has enabled them to venture into cost-sharing programs with entities that have different responsibilities but shared interests. Greater funding has broadened the scope of stormwater management to include related issues such as land use and development regulation, environmental protection, and habitat preservation. This in turn has revealed more opportunities for linkages with other programs, and sharing of resources to address mutual interests and needs is increasingly common.

Wastewater treatment, especially, lends itself to cooperative funding with stormwater management, due in large part to the extensive historic use of combined sanitary/stormwater sewerage systems in many areas of the country. Stormwater separation and inflow/infiltration corrections were often funded as wastewater treatment expenses in the past. Now some communities have recognized that the expense of separating stormwater and wastewater or eliminating stormwater inflows into wastewater sewer systems may be assigned to a stormwater cost center rather than wastewater. When a stormwater utility is present, the costs shift to properties that generate substantial runoff versus those that generate substantial amounts of sewage.

Watershed management practices and water quality protection also introduce opportunities to share costs with other programs. The City of Bellevue, Washington Storm and Surface Water Utility has a primary objective of preserving small streams. Protection of wetlands and construction of regional detention ponds were key elements of the City's stream preservation strategy. The Utility purchased extensive areas of wetlands and other areas along streams, and worked closely with the City's Park Department to manage them as passive-use parks and open space. Other properties used for detention and groundwater recharge have been developed into active recreation facilities such as neighborhood playgrounds, soccer pitches, and even tennis courts.

Countless other communities have built parks, greenways, and trails along streams, including examples such as the Mingo Creek linear park in Tulsa, Oklahoma and along Cherry Creek, South Platte River, and many other drainageways in the Denver, Colorado metro area. Salt Lake City, Utah modified

and improved a high school baseball field to serve as a major detention facility during severe storms and major snowmelt events.

Some communities have also used their stormwater utility funding resources to support program enhancements such as geographical information systems (GIS), upgrades to financial management and utility billing/collection systems, and transportation improvements such as construction of roadside curbs and gutters to replace open ditches. The linkage of stormwater management to other programs has justified funding in whole or in part activities such as leaf collection to reduce local flooding due to plugged inlets (e.g., Greensboro, North Carolina) and street sanding and snow removal/dumping to reduce stormwater quality pollution.

Broader Private Sector Participation

The importance of contributed capital infrastructure built by developers should not be underestimated. Though often unplanned and uncoordinated, many early components of local drainage systems that emerged in the 19th Century were built by the private sector coincidental to commercial, industrial, and residential projects. The economic boom of the 1920's spawned a major surge in private investment in public facilities, including stormwater drainage systems. In most suburban communities developed since World War II, a majority of the stormwater infrastructure has been built by developers and turned over to a public entity for long-term operation and maintenance.

More recently this approach has expanded to include cooperative efforts involving public entities and the private sector, with stormwater management requirements being integrated with other objectives. For example, a stormwater detention facility built by a developer might now be integrated with recreational facilities such as greenway corridors, golf courses, baseball fields, or soccer pitches. The financial participation in such improvements may be broadened to include several public agencies having primary responsibility for the long-term operation and maintenance of the facilities.

This trend has several important implications for stormwater managers. They will need to reach out to private-sector entities and programs to identify opportunities that serve their mutual benefit. They will need to broaden their community's vision of what stormwater management entails to ensure support for cooperative programs with private interests. Because many more developments are being built by larger, more competent and better financed development companies, local stormwater management programs will need to increase their skills and sophistication to keep pace and ensure that participation is optimized.

Increasing Influence of Technology and Data

Perhaps the most pervasive factor guiding changes in stormwater management in the past thirty years is rapid acceleration of new technology. This directly influences trends in stormwater funding practices as well as engineering and

other technical endeavors involving the availability and management of data. For example, the cost of creating or gathering data required to prepare a master account file for stormwater service fee billings has plummeted in the past decade, from as much as $6/account to less than $0.25/account depending on the parameters and rate structure involved. Satellite imagery of extensive land areas now renders digital information that is at least as precise as visual interpretation of aerial photography, with far greater consistency and reliability at much less cost.

Such increased efficiency encourages local governments to seek more sophisticated stormwater service fee rate methodologies, and to combine several funding mechanisms in much more complex approaches. However, is it practical and beneficial to refine a community's stormwater service fee rate structure when other parameters are not yet as precisely quantifiable? The trend is clearly toward more sophisticated rates, but optimizing the value of the rapidly increasing technological capability has not yet been adequately addressed.

FUNDING METHODS AND MECHANISMS

Local Governments' Funding Authority

Stormwater management has historically been supported by a range of funding methods and mechanisms that reflect the mix of federal, state, and local programs. Since this guidance is directed toward the funding of local stormwater management programs, especially stormwater utilities, we focus on the approaches used primarily by cities, counties, and special-purpose districts.

Cities and counties in most states are generally authorized by state legislation to conduct stormwater management. This general authority is supplemented in some states by home rule provisions. Cities and counties adopting such powers may gain greater latitude to undertake stormwater management functions, regardless of whether specific statutory authorization is available, subject to certain limitations and ballot approval requirements.

The changing nature of stormwater management is also providing greater flexibility in stormwater funding. Undeniably, stormwater management has now become fundamentally regulatory. Federal and state laws confer a water quality regulatory role upon local governments through the NPDES permit program. Similarly, adoption of local system design criteria and on-site control requirements for runoff quantity is rooted in a regulatory purpose of preventing problems. This regulatory foundation may expand and strengthen the local authority, especially as it relates to funding decisions. Generally speaking, locally-elected officials have greater latitude in adopting fees that are associated with regulatory purposes than for other objectives.

Funding Methods and Mechanisms

Funding methods and mechanisms commonly used for stormwater programs include:

- General revenue appropriations
- Stormwater user (service) fees
- Plan review, development inspection, and special user fees
- Special assessments
- Bonding for capital improvements
- In-lieu of construction fees
- Capitalization recovery fees
- Impact fees
- Developer extension/latecomer fees
- Federal and state funding opportunities such as grants, loans, and cooperative programs

General Revenue Appropriations

Despite the proliferation of stormwater utilities, general tax revenues remain the most common source of stormwater management funding. Substantial technical analysis is normally not needed to fund stormwater management from general revenues, which local governments may use for any legal purpose. The majority of most cities' and counties' general revenues are from taxes (e.g., property, sales, and income), exactions (e.g., franchise fees on utilities), and federal/state revenue sharing, and are simply appropriated for specific purposes, including stormwater management, through the normal budget process. Because they have limited purposes and, in most states, often do not have broad general taxing powers comparable to cities and counties, special-purpose districts are more likely to be funded through limited property taxes, special assessments and service fees.

The practice of funding stormwater management from general revenues has contributed to a dispersal of stormwater management responsibilities. Stormwater management is not typically an independent municipal function, either operationally or financially. Many city and county functions are peripherally involved in or impacted by stormwater runoff. Components of what might be collectively considered a consolidated stormwater program are often embedded in operational units such as public works, engineering, transportation, street maintenance, wastewater treatment, and even recreation. The funding of stormwater management in such cases is also typically embedded in whatever resources are assigned to the primary function. They may budget for costs that are essentially stormwater management, but not readily identifiable as such in their budgets. Such dispersion of functions and costs may obscure any discernible relationship between demands for stormwater services and facilities and how the cost burden is apportioned.

General revenues have several attractive attributes for stormwater management. Most cities' and counties' general revenues are, in the absence of other demands, sufficient to support effective stormwater management. The sources of general revenues are usually well-established, fully understood, and well-accepted by citizens and business interests. They are relatively stable from year to year, though economic downturns tend to excessively impact jurisdictions whose general revenues are highly reliant on sales and other business taxes rather than property value, which is more stable.

However, general revenues also have significant disadvantages as a source of stormwater management funding. Many worthy public purposes, including public safety and social services, are commonly funded from general revenues. Stormwater management has historically struggled to compete effectively against other needs, and major long-term reallocations of general revenues simply to enhance stormwater management capabilities are rare. In the absence of a major budget reallocation, increasing general revenues to support stormwater management implies approval of a tax increase of some sort. Neither option is politically attractive for most local officials.

Because they are not earmarked or dedicated to any specific purpose, annual appropriations of general revenues shift with elected officials' and administrators' perceived priorities. Stormwater management needs are more likely to receive better treatment in a year following severe storms and drainage problems than in a year following a drought. A lack of stable funding makes it difficult to plan and carry out a consistent, long-term program.

The sources of general revenues have little if any inherent association with the origin of stormwater management demands and costs. For example, property taxes are a major source of general revenues for many cities and counties. Such taxes are usually calculated based on the economic value of land and improvements, which have little direct relationship with stormwater runoff quantity or quality. Sales taxes are typically based on retail sales, which likewise have no identifiable link to stormwater management costs. Franchise fees are normally a percentage of the gross income of the activity utilizing the franchise rights.

Because general revenues are derived primarily from taxes and exactions imposed upon businesses and individuals, other parties that impose significant demands on stormwater systems and programs may be excluded from participating financially in solutions. For example, in cities which have state-owned properties, public universities or federal military installations, a substantial demand for stormwater services may be traced to such tax-exempt properties.

The disparity between the need for stormwater services and facilities and the source of general revenues does not end with tax-exempt properties. Some private properties, for example discount retail stores, parking lots and warehouses that have large expanses of relatively low value impervious

coverage, do not pay taxes commensurate with the demands they impose on the stormwater systems. Conversely, more valuable properties such as high-rise office and residential condominium towers that may have less impact on stormwater runoff pay substantial property taxes.

Stormwater User (Service) Fees

Stormwater utilities funded primarily through service fees are the focus of this guidance. Service fees are discussed only briefly in this section, but are covered in greater detail in other sections of this chapter. Specifically the sections on "Service Fee and Assessment Design Considerations" and "Service Fee Rate and Assessment Methodologies" further address this area.

Although user fee funding of stormwater programs is generally associated with the stormwater utility concept inaugurated in the 1970's, Billings, Montana adopted a "storm water charge" in June, 1964. Relying in part on that revenue stream, the voters of Billings also approved the issuance and sale of negotiable revenue bonds for the purpose of reconstructing and extending the City's stormwater and sanitary sewer systems. This action was challenged in court and was eventually upheld by the Montana Supreme Court in 1966[2]**.** Billings has since funded a majority of its stormwater management programs through the charge.

Billings' "storm water charge" represented a major departure from conventional stormwater funding but did not elicit widespread imitation. The transition to user fee funding did not become widespread until the early 1990's, although several cities and counties in Washington, Oregon, and Colorado established utilities during the 1970's and 1980's. The utility user fee concept has now been adopted by over five hundred cities and/or counties. It is generally referred to as the "stormwater utility" approach because it not only provides user fee funding but also incorporates accounting and management practices similar to those of other municipal utilities like water supply, wastewater treatment, and solid waste management. Similar approaches have been used in Canada and Germany.

Substantial latitude is available to local elected officials in structuring rates and fees, especially if they are associated with regulatory functions. Specific methods of calculating stormwater user fees are not mandated by law in most states, though some limitations do exist. For example, in Texas the state legislature has exempted public universities from local stormwater user fees. Most stormwater user fee rates account for conditions on properties that affect the peak rate of runoff, total volume discharged, and pollutant loadings on receiving waters. A majority are based on the amount of impervious area (roofs, paved areas, etc.),[3] which determines both the proportion of rainfall that runs off and the peak rate of discharge during and following storms.

---

[2] City of Billings v. Ralph Nore, 148 Mont. 96; 417 P.2d 458 (1966)

[3] Stormwater Utility Survey 2004 – 2005, Black & Veach, Kansas City, MO, 2005

Stormwater rates have also been based on the gross area of properties and numerical factors that reflect the intensity of development. A few cities and counties have incorporated both gross area and impervious area or the percentage of imperviousness into their rate calculation. Other stormwater service fee rate parameters include land use classes, zoning classes, and water meter size, though these are generally not considered to offer comparable equity of cost allocation relative to impervious and gross area methodologies.

A stormwater user fee is highly flexible and can easily be tailored to individual situations and coordinated with other funding methods. Revenue from user fees and other funding sources can be blended together or a fee might be applied only in a limited service area rather than the entire jurisdiction, excluding other areas which do not require service or are impractical to serve. No fixed practice prevails; though most cities apply their user fees city-wide and many counties define more limited service areas where urban/suburban conditions exist.

User fees are also authorized for some types of special-purpose districts, which may apply them district-wide or designate them only for specific service zones. Such approaches can be combined, as in the case of a stormwater utility that has both a general service fee and also administers special-purpose improvement districts to fund localized improvements or services.

The stability of a dedicated user fee revenue stream ensures that long-range scheduling of capital improvements and operations can be done with reasonable assurance. User fees may also free up general revenues and other resources allocated to stormwater management for other purposes.

The greatest potential disadvantages of stormwater user fees are high visibility of the charge and the cost of its development and implementation. Regardless of technical distinctions between "taxes", "exactions", "assessments", and "service charges", any form of government funding may be viewed by some citizens as a "tax" and thus be unpopular. However, the high visibility of a defined stormwater user fee might also be beneficial if it convinces a community that long-standing flooding or pollution problems will be addressed.

The cost of developing and implementing utilities reflects the size of a community or the complexity of processes employed. Some of the formative costs such as program and cost analyses are essentially common to all situations. Others are “unit” costs. For example, data must be assembled to populate a master account file for billing. The cost of implementing a utility user fee is a function of the number of accounts, and the total cost typically amounts to eight to twelve weeks of the revenue stream that is created. This includes all costs associated with the necessary program and financial analyses, data assembly, modification of billing and other information systems (or activation of a new system), and public education and involvement.

Plan Review, Development Inspection, and Other Special Fees

A variety of special user fees could reasonably be included under the scope of a stormwater utility or adopted separately to support regulatory measures. Most often they are related to special services provided to a limited group, as opposed to user fees that are generally applicable to utility customers. Such fees apportion the costs only among those who require the service or cause the need for the regulatory measure.

Fees for the performance of regulatory activities are usually associated with protecting the public health, safety, and welfare in some manner. Some regulatory activities may be mandated by federal and/or state requirements or as conditions of NPDES or other permits. Regardless, to the extent special fees are associated with a regulatory function (e.g., development regulation); authority to institute them is typically a product of the police powers of the governance entity.

Special fees may also have other applications, such as a cost recovery mechanism that assigns certain expenses to a specific group. For example, experience has demonstrated that maintenance of on-site detention systems is frequently ignored or deferred by property owners, or alterations may be intentionally or unintentionally made to such facilities. Inspections may be necessary to ensure that on-site systems are properly maintained and not altered from their approved design. Placing the cost of such inspections on the specific property owners through special fees relieves the general taxpayers or utility ratepayers of the expense.

Special fees typically provide only a small additional amount of revenue for a stormwater utility, but enhance the equity of cost apportionment. Adoption of such fees may require that other fees associated with regulatory reviews, inspections, or special services be evaluated to ensure that individuals are not being charged twice for the same service.

Special Assessments

Special assessments have been used to fund capital improvement and operation of stormwater systems since colonial times. The assessment concept is predicated on apportioning costs in proportion to the direct and special benefits individually derived by specific properties. It has been applied to funding of various public facilities, ranging from sidewalks and roads to flood control channels and dikes. In application to stormwater management, the special assessment mechanism has evolved as the management paradigm changed.

The chief drawback of the traditional special assessment methodology is that the distribution of costs must be proportionate with the direct and special benefit accruing to each property being assessed. Although standards differ from state to state, generally the benefits must be definable, measurable in some economic manner, and available to the property being assessed within a practical timeframe. In most cases, general benefits accruing to all properties as a

consequence of a stormwater improvement or activity cannot be used to justify a special assessment.

The courts have established substantially different standards for special assessments versus service fees. Broader latitude is given to local elected officials in setting service fee rates, and especially those associated with regulatory purposes. Special assessments must conform to more restrictive technical standards based on apportioning costs to reflect the value of benefits accruing to individual properties. Fully complying with the standards the courts have set for special assessments may therefore require more precise and costly data than is needed to support a service fee, which must simply be fair and reasonable.

Special assessments for drainage are most workable in relatively localized or specific applications. For example, improving a ditch or channel that directly serves a few properties or a relatively small service area is an appropriate project for special assessment funding. A special assessment is less suitable for capital projects that serve a wide area, and may be wholly unsuited to facilities providing a general benefit to the community at large.

Much of what must be done to effectively manage stormwater quality may not be directly and specially beneficial to individual properties. Thus, special assessments are not widely used as a primary funding mechanism for that purpose, though in recent years several benefit assessment areas have been instituted in Southern California to support local water quality programs, and Florida counties fund stormwater management through assessments (as so defined in a Florida Supreme Court decision) that are similar to many stormwater service fees.

Bonding for Capital Improvements

The expense of major capital infrastructure, land, and equipment has posed a significant challenge for stormwater programs whose annual revenues and resources are limited. As a result, local governments have used bonding to fund major capital improvements for many years.

Bonds are sometimes used to fund operations as well as capital improvements, though that practice is not generally viewed as prudent and some states prohibit or limit such uses of bonding. However, some stormwater management costs can be viewed either as a capital or operating expense. For example, remedial repairs to aging infrastructure might legitimately be viewed as either a capital expenditure or an operating expense.

Bonds are not a revenue source, but rather a method of borrowing money to fund expenditures. Debt service of bonds is commonly derived from general revenues, service fees, or special assessments. In some cases, specific funding mechanisms or sources are identified in bond covenants. For example, a bond

might be issued with debt service to be paid from a special local option sales tax or a special assessment upon properties served by the improvement.

The chief advantage of bonding is that it allows expenditures that far exceed current revenues and resources. Construction of major improvements can be expedited in advance of what could be funded from annual budget appropriations by spreading the costs over time, much like a home mortgage or automobile loan enables a buyer to acquire assets they could not afford to buy for cash.

In the case of stormwater management, expediting a capital project by several years through bonding may result in significant public and private savings if flooding, other damaging impacts, and inflation of land acquisition and construction costs are avoided. The major disadvantage of bonding is that it is essentially a loan that incurs an interest expense, increasing the total cost of capital projects.

Two types of bonding are available, revenue bonding and general obligation bonding. General obligation bonding incurs a debt that has first standing with regard to public assets and is backed by the "full faith and credit" of the issuing agency. All revenues and resources of the entity, including various taxes, may be used to service a general obligation debt. Revenue bonding is supported and ensured only by specified revenues, such as service fees or assessments. As a result, the bond market sometimes imposes higher interest rates on revenue bonds and/or dictates that excess revenue be generated (termed coverage) to reduce the risk of non-payment. Recent experience suggests that the bond market has recognized the stability typical of stormwater utility service fee income, and has priced stormwater revenue bonds favorably.

Cities and counties in some states are also authorized to issue bond debt that is backed by the full faith and credit of the issuer but has debt service funded from a designated revenue source. This is commonly referred to as “double-barreling” of bonds. The full faith and credit provision is simply a fall-back if the revenue stream should fall short. Such bond issues typically attain the bond rating and interest rate of the issuing agency’s general obligation debt, but the entity’s general tax revenues and statutory debt limits are not burdened.

In-lieu of Construction Fees

In-lieu of construction fees are not specifically authorized under most state laws, but might be adopted in some circumstances as one element of a comprehensive stormwater utility user fee rate methodology or as a regulatory fee. Such fees have been charged in lieu of requiring construction of on-site stormwater systems for many years.[4]

[4] For example, Tulsa, Oklahoma instituted fees in lieu of requiring on-site stormwater detention improvements on each and every development project in more than a dozen watersheds during the 1970’s, and used the revenue to defray a portion of the expense of regional detention facilities in those areas.

In-lieu of construction fees are sometimes confused with impact fees. However, an in-lieu of construction fee is usually a substitute for requiring on-site solutions such as detention storage. They may be used even in instances when an on-site system would work but an offsite regional facility is preferable.

In contrast, impact fees are generally used to pay for off-site measures to compensate for the service-demand effects of development that are not solvable on-site. For example, the impact of a shopping center on stormwater runoff might be resolved either by requiring an on-site detention system or by building a regional facility off-sight that is paid for (in part) through the in-lieu of construction fee. Shopping center traffic that clogs nearby roads cannot be solved on-site, but an impact fee might be used to pay for additional traffic lanes and/or signalization to mitigate the impact.

The need for in-lieu of construction fees associated with stormwater management stems from problems that have emerged with on-site measures to mitigate development impacts. Experience has shown that requiring developers to install individual on-site detention and water quality facilities can lead to a regulatory and/or maintenance problem for a local government. Alternative regional solutions may be more efficient and reliable in controlling runoff volumes and pollutant discharges into public stormwater systems and streams. However, on-site systems are typically funded by the developers whereas the general public usually pays for regional systems. An issue of equity arises if general taxpayers or ratepayers have to fund regional solutions to mitigate the impacts of private development projects rather than requiring on-site control.

The flexibility to address issues either by on-site mitigation or by alternative actions elsewhere is advantageous if the financial conundrum can be resolved. An in-lieu of construction fee offers a practical option that may be preferable to both developers and local governments. Developers simply pay a fee in-lieu of designing and building an on-site system or facility, and the local government obtains financial support for more efficient and reliable regional systems.

The most significant disadvantage of in-lieu of construction fees is that they rarely generate sufficient revenue to fund construction of regional detention facilities, enlarge conveyance systems, or install water quality facilities in a timely manner. Also, they do not fund maintenance. This dictates that other revenues must be available to initially build and maintain regional facilities, and taxpayers or ratepayers are the parties burdened with those costs. However, over time, in-lieu of construction fees can contribute a meaningful component of the total long-term funding of regional facilities and equitably compensate those who have initially borne the costs.

In-lieu of construction fees are not necessarily easy to implement. They demand well-refined capital improvement plans and analyses of on-site versus regional alternatives, from which the alternative cost of the regional options can be

reliably determined as the basis for setting the fees. This may necessitate detailed and costly analysis of potential regional facilities when a simple regulatory approach would suffice. At least a portion of the cost of preparing suitable analyses and documentation should be incorporated into the structure of in-lieu fees.

Capitalization Recovery Fees

Capitalization recovery fees are also known as system development charges, capital facilities fees, utility expansion charges, and by other titles. They are not specifically provided for by authorizing legislation in most states, but have been incorporated into various utility user fee rate structures for many years.

Capitalization recovery fees are sometimes confused with impact fees and even with in-lieu of construction fees. Capitalization recovery fees are most often intended to recover a fair share of the prior public investment in infrastructure capacity installed to accommodate future development. The fees are applied to developers who make use of that provisional capacity when they develop projects. In some instances, capitalization fees may also be used to attain suitable apportionment of future capital costs. This is particularly applicable in cases where funds have been accumulated in preparation for major capital projects.

There are several ways of structuring and calculating capitalization charges, including the growth-related cost allocation method, the system buy-in approach, the marginal incremental cost approach, and the value of service methodology. They differ from in-lieu of construction fees and impact fees primarily in terms of: 1) the fundamental purpose of the charges; 2) the timing of improvements versus when the charges are collected; and 3) their relationship to the specific facilities that are funded through user fees. In most cases, capitalization recovery fees are related solely to capital costs, though some justification may exist in certain circumstances for incorporating long-term operating expenses.

Capitalization charges provide a mechanism whereby developers participate in paying for capacity that was previously built into public systems in anticipation of their needs or which is planned for the future and for which funding is being accumulated in anticipation of building the improvements. In effect, they allow a deferral of participation in the capital cost of facilities until a property is developed and either makes use of the provisional capacity already in place or buys into the previously accumulated fund reserves intended to build future improvements. The use of such fees for stormwater management capital costs is clearly appropriate since most drainage systems are consciously designed to provide capacity to accommodate future development in an economical manner.

Whether a stormwater capitalization charge is appropriate in specific cases may be related to the user fee rate methodology that is employed. For example, many stormwater user fees are based solely on impervious area where only

developed properties are charged. Undeveloped properties do not have impervious area and therefore are not charged. However, the capital facilities being funded by the fee are normally designed with future conditions in mind. This initially results in excess capacity being built into the system, which is paid for solely by currently developed properties. A capitalization charge may therefore be an appropriate recapture mechanism to ensure a fair and reasonable allocation of the capital costs among all properties using the facilities over time.

If the rate methodology allows user fees to be charged to undeveloped properties, a recovery mechanism may not be needed at the time properties are developed. The rate structure might have a system capitalization component that assigns an appropriate proportion of the capital costs to undeveloped properties based on expectations of the future developments and their stormwater system demands.

Impact Fees

Impact fees have been adopted by local government entities for a variety of public infrastructure components. They are based on the cost of mitigating development impacts of individual developments by building public off-site improvements where impacts can't be solved on-site. For example, traffic impact fees support the cost of additional lanes and/or signalization to accommodate the added traffic generated by projects such as shopping malls and high-rise condominiums. Such impacts cannot be effectively addressed by on-site facilities. Impact fees have also been employed to meet communities' park and recreation standards and other objectives.

Standards and requirements have evolved for adopting and applying such fees and have been institutionalized in legislation in several states. Some of these statutes impose so many administrative burdens and limitations on use of the impact fee revenues that they are essentially impractical. At least one state, Georgia, has adopted legislation that specifies limited uses of developer impact fees that do not include stormwater management. Specific applications of impact fees have also been the subject of a great deal of litigation nationally. An unusual aspect of impact fees is that state courts around the country have been notably inconsistent. Recent cases that have reached the United States Supreme Court have added some clarity. The following is a summary of pertinent cases provided by David Burchmore, author of Legal Considerations, Chapter 3.

> City of College Station v. Turtle Rock Corporation, 680 S.W.2d 802 (Texas 1982)
> College Station adopted an ordinance requiring developers to dedicate land or pay an in-lieu fee for new parks. Turtle Rock paid the fee and sued. The Texas Supreme Court ruled that the ordinance was

"reasonable" and "accomplished a legitimate goal substantially related to public health, safety, welfare."

Nollan v. California Coastal Commission, 483 U.S. 825 (1987)
Nollan wanted to replace his beachfront bungalow with a larger house. The Coastal Commission required public access across his property to the beach and an adjacent park. Nollan sued. The US Supreme Court supported Nollan, stating there was no "essential nexus" between imposed conditions and impact of use.

Northern Illinois Builders Association v. County of Du Page, 165 Ill. 2d 25 (Ill. 1995)
NIBA challenged the legality of two State enabling acts and three County ordinances imposing road impact fees. The court declared the first act and the first ordinance unconstitutional, and the second act and second ordinance constitutional. Monies collected under the first ordinance were ordered returned.

In Hillis Homes v. Snohomish County, 97 Wash. 2d 804 (Wash. 1982), the state Supreme Court invalidated an impact fee imposed on residential development to help pay for schools on the ground that the exaction was in effect a tax intended to raise revenue, rather than a fee intended to regulate land use, and that only the state legislature could levy such a tax.

Florence Dolan v. City of Tigard, 512 U.S. 374 (1994)
Ms. Dolan wanted to expand her hardware store and pave her parking lot. Tigard requested dedication of an adjacent floodplain and bikeway. Dolan refused and sued. The US Supreme Court ruled there was no "essential nexus" and that the City failed to demonstrate that the benefits justified the requirements.

Erlich v. City of Culver City, 114 S. Ct. 2731 (1994)
The Supreme Court extended the Dolan analysis from property dedications to development fee exactions. Erlich was the owner of a defunct private health and tennis club, and sought a building permit to construct condominium townhouses on the project site. The city approved the permit but conditioned it on payment of numerous fees, including $280,000 to enable the city to build tennis courts that would replace the facilities lost with the demolition of the tennis club. Erlich refused, and sued claiming that the fee exactions bore no relationship to the impact caused by the project. The Supreme Court granted certiorari, vacated the judgment of the lower court dismissing the case for failing to state a takings claim under the Fifth Amendment, and remanded the case "for further consideration in light of Dolan."

Impact fees are typically limited to situations in which the impact of new development on existing infrastructure systems is: 1) measurable and certain; 2) of definable geographic or systemic extent; and 3) quantifiable in terms of the incremental capital investment that will be required to maintain (not attain) an adequate service level in the face of the added growth attributable to the subject development. The final point is critically important in terms of stormwater management systems. Impact fees cannot be used to bring inadequate existing systems up to an adequate service level. Nor can they be used to address the impacts of other past, present, or future developments. Thus, they are not useful in correcting many deficiencies that already exist in stormwater systems. Impact fee revenues must also be earmarked for specific projects or uses, must be expended relatively quickly, and, if not, must be returned to the developer, often with interest.

Developer Extension/Latecomer Fees

Developer extension/latecomer fees are a good example of resources available to stormwater management entities that do not directly generate income but support attainment of important objectives. They are not a revenue mechanism, but rather a means of apportioning capital costs among several properties as they are developed. The most common use of this type of fee around the country is for water and sanitary sewer system extensions.

Extensions to utility systems and other infrastructure improvements are often built by developers. Under the developer extension/latecomer fee concept, the initial developer is later compensated for providing the facilities by fees applied to subsequent developers that tap onto or otherwise make use of the improvements. Although such fees are not specifically authorized in legislation in most states, they can be adopted as part of a comprehensive stormwater user fee rate structure or negotiated on a case by case basis.

A developer extension/latecomer fee works in the following way. Developer "A" proposes a project that requires a stormwater (or water, or sewer) system with "x" capacity for its own purposes. However, practical design considerations indicate that a larger system should be installed to properly serve other nearby properties that are currently undeveloped. Developer "A" therefore is required to build a larger system than necessary simply to serve his or her own property, and incurs an additional cost. Property owners subsequently tapping into the improved system when their development occurs are charged a one-time fee, and the fee is then transferred to Developer "A". This type of fee is structured so that Developer "A" and all other users of the facilities ultimately bear a fair proportion of the capital cost. The management entity typically receives no revenue from the fee, although some charge administrative expenses on top of the capital cost.

Federal and State Funding

Federal and state funding for local stormwater management takes many forms, including technical support, facility construction, cooperative programs, and grants and loans for various purposes. Local governments are generally authorized to make use of federal and state government funding, such as the State Revolving Fund Loans financed by EPA to achieve CWA objectives, for various purposes including stormwater management, flood control, and water quality protection.

SERVICE FEE AND ASSESSMENT DESIGN CONSIDERATIONS

The remainder of this chapter will focus on service fees and to a lesser extent assessments.

There are many reasons for local governments to adopt service fees to fund their stormwater programs. These include: 1) generation of sufficient revenue to meet capitalization and operational expenses; 2) customizing the apportionment of costs among various segments of the community; 3) support a growth management strategy, facilitate life-cycle asset management, or help segregate costs related to unfunded federal and/or state mandates; and 4) diminish a general revenue budget problem by moving stormwater off that source of funding and substituting service fees. Regardless of the specific motivation, the process of designing a stormwater utility funding strategy introduces the need for a higher level of analysis than that required for general fund revenue allocations.

Design of both service fees and assessments must meet general and technical standards. Standards differ between fees and assessments, and vary from state to state as a result of constitutional, legislative, and case law differences as addressed in Chapter 3. Selection of a preferred approach is not a purely technical issue. It is not required that the very best technical approach be selected. A user fee rate structure that fits local practices and meets basic industry standards may serve a community better than a highly detailed, very expensive approach that is confusing to the public. In many cases, decisions are influenced by practical considerations like public perceptions of equity, implementation and upkeep costs, timing, and ease of understanding. The following considerations are among those commonly used to evaluate and select preferred methods for design of user fee rate structures.

Legality

Nearly thirty (30) percent of the respondents to a recent national survey of stormwater utilities indicated that their stormwater utility funding decisions had

been subjected to a legal challenge of some sort.[5] That such a high percentage would be contested on legal grounds is probably not surprising given that the funding decisions and user fee rate structures involve money. The legal issues are addressed more thoroughly in Chapter 3, Legal Considerations, however the following is provided to help provide context for service fee and assessment design considerations.

Stormwater management is clearly a function that falls within the general authority of cities and counties in most states. Managing and funding that function as a utility is now an accepted practice, and both cities and counties have the latitude to adopt stormwater user fees in many states. The courts in several states have determined that there are certain characteristics that determine whether a charge is a tax, service fee, special assessment, or exaction. Although the detailed findings in the various states differ, they are influenced by both intent of the legislative body and the structure and application of the funding methods and charging mechanisms. Procedural issues that may have an impact on the legality of service fees and assessments include the following:

- What was the intent of the jurisdiction in establishing the charge, and how are funds being used?
- Was the service fee adopted simply to counter a budget deficit, or was it predicated on meeting stormwater program costs?
- Does the rate structure satisfy general standards of how service fees should be applied to individual properties?
- Are similar fees charged to similarly-situated properties or customers?
- Are charges to disparate properties or parties consistent and balanced?
- Did the local board or council act with adequate knowledge and consideration of the issues?
- Were all procedural steps scrupulously followed?
- Was adequate publication of notice of intent given for all of formal actions taken by elected officials?

Equity

Attainment of equity is a fundamental objective in the design of both fees and assessments, and one of the primary justifications commonly cited for establishing a utility. Equity has both technical and perceptual aspects. Service

[5] Survey of Stormwater Phase II Communities, National Association of Flood and Stormwater Management Agencies, Washington, DC, July 1999

fee rate methodologies are designed to attain “equity” as a fair and reasonable apportionment of cost of providing the needed services and facilities. Fees are expected to have a substantial relationship to the cost of providing the services and facilities to each customer. In contrast, assessments seek to equitably apportion benefits derived from facilities or services as the means of applying the cost of them. Exactions, such as stormwater impact fees, are not necessarily required to meet standards applicable to fees or assessments, but must exhibit a rational nexus or linkage between the exaction and the purpose of the fee. Taxes generally have to meet only the standards contained in authorizing legislation.

Equity must be weighed against simplicity and clarity. The best utility rate structures generate charges that clearly and simply relate to the services and facilities being provided. A utility service fee rate structure might be highly equitable in terms of assigning costs according to service demands, yet still be deficient politically if it is too complex for the public to grasp the linkage between service, costs, and charges. In the case of stormwater management, most people can understand that replacing natural earth with impervious pavement or structures will diminish infiltration of water and increase runoff. Thus, rate structures based in some manner on impervious area and gross area are common. A realistic objective is to be consistent within generally accepted technical standards that most people will view as fair.

Courts in most states have usually deferred to the judgment of local elected officials in determining what constitutes equity in local applications and have demonstrated a reluctance to intervene in the details of rate or assessment design. Applications accepted by various courts suggest that the relationship must only be sufficient to satisfy reasonable common sense. This leaves the structure and level of service fees, assessments, and some exactions largely at the discretion of locally elected officials. As a result, details of service fee rate methodologies, assessment formulae, and some exaction charges can vary significantly. However, a governance body may not act arbitrarily and capriciously in setting rates and the resulting service fees may be illegally discriminatory or confiscatory.

Technical Foundations

Stormwater service fee rate design practices are derived from an understanding of hydrology and stormwater runoff from individual properties. A rate structure analysis is performed to determine how costs might be apportioned among those who are served in various ways by expenditures for operations, capital improvements, and support activities. Since stormwater facilities and services cannot be metered or directly measured, they must be represented by one or more parameters believed to reflect the service demands and therefore the costs.

Timing is a consideration in formulating rate methodologies and setting the amount of fees. The structure of a rate methodology is intended to recover pertinent costs over a given period of time, most commonly a budget period or, in the case of bonded capital projects, a debt service period. For example, infrastructure is provided to collect, convey, and discharge stormwater runoff in a manner consistent with prudent design and applicable water quality standards. The resulting system capitalization is generally applicable to all properties served by the improvements, ranging from those at the top of the hill to those at the bottom of the hill who are protected from upland drainage. By using different rate parameters and finance mechanisms, a rate designer can alter the apportionment of costs among such customers over time.

Expensing capitalization costs through annual budgets focuses the financial impact on rates that customers pay during the budget period in which projects are constructed. Bonding to finance projects spreads capitalization cost over the debt service period. Accepted rate design standards do not dictate that costs be allocated on an annual, debt-service period, or service life basis. That is left to the discretion of locally elected officials. What is expected is that apportionment of costs is generally consistent with the service demands of the properties served by the facilities.

Life-cycle costing of stormwater infrastructure is an emerging issue. Because a large proportion of the cost of stormwater capital infrastructure is initially borne by private developers, their costs have not been allocated directly to stormwater ratepayers in most cost and rate analyses. However, much of the stormwater infrastructure built by developers is transferred to public stormwater service providers, and the long-term expense of recapitalizing the improvements as they wear out becomes a public cost. Cost of sustaining such infrastructure has not, however, been incorporated into financial planning and analyses of most local governments or stormwater utilities.

With the advent of the stormwater utility concept, the perspective on long-term life cycle accounting of stormwater infrastructure has begun to change. Most water, wastewater, electrical and other utilities have incorporated the life-cycle cost of capital assets in their rate projections and financial reporting for many years. In 1999 the Governmental Accounting Standards Board (GASB) introduced Statement 34 on infrastructure reporting which introduces comparable accounting for capital assets into general governmental practice. This reinforces the standard of full accounting for life-cycle costs of stormwater systems and facilities, and mandates incorporating them into cost and rate analyses.

Origin of Costs

Conditions on individual properties, which collectively dictate what types of systems, programs, and activities must be provided, are primary factors influencing stormwater costs. The objective of service fee rate design is to craft a schedule of fees for various users that reflect the cost of efficiently meeting

their cumulative service demands. Modern stormwater assessment design objectives are more often reflective of the cost of providing benefits to the subject properties rather than value of the benefit, which was the traditional approach employed when assessment were based on property value.

“Service” can be defined in much broader terms than just operational activities and physical facilities directly attributable to a given property’s stormwater runoff. For example, it is clearly a service to upland properties that their stormwater runoff is collected and safely conveyed to a discharge point. Such service relieves them of the responsibility of disposing of their runoff, and reduces their potential liability for downstream impacts. At the same time, a service is also clearly being provided to downhill properties in the form of protection from the upstream runoff. Flood protection and regulatory programs that protect floodprone areas reduce public emergency and recovery costs. Drainage of roads and sidewalks facilitates mobility essential for public safety services, commerce, education, and other aspects of modern life. Stormwater quality management protects and enhances environmental health.

Precision is not a defined standard in formulation of costs or service fee rates. Cost analyses produce estimates, some of which can be more exact than others. The cost of operating a particular piece of equipment can be rather accurately projected, but watershed capital infrastructure plans may provide only an engineer’s estimate of the future cost of acquiring land and constructing a stormwater facility. An estimate may be a valid reference point for incorporating projected capital costs into rate structure and fee analyses, but the actual costs may vary from the estimate. And the rate structure and/or fees may have to be adjusted from time to time.

A variety of approaches are used in assigning costs among customers. Some communities have opted to localize capital costs by watershed to attain a high degree of association of their infrastructure costs with the property owners served. Localizing capital costs by watershed is also common practice when stormwater utilities employ special assessments. Most, however, have determined that their system capitalization costs are relatively consistent, that the service provided by such improvements is not limited to individual properties in specific areas, and allocation of the costs can reasonably be applied to the entire jurisdiction or utility service area. They reason, for example, that adequate drainage system capitalization along roadways is a service to the entire community.

A community’s historic approach to capitalizing stormwater infrastructure may influence rate design. Many communities have historically funded stormwater system capitalization from general revenues, spreading the cost throughout the community, though facilities may not have been equally capitalized throughout the jurisdiction. After spreading the cost community-wide for years but not attaining uniform service capability, it would be inappropriate to localize future

capital costs by watershed even if that approach more closely reflects the origin of cost for specific facilities to be built by the stormwater utility.

Revenue Sufficiency

If a service charge is adopted, it is essential that the enhanced stormwater program provide visible results. A new fee that doesn't achieve a higher level of service is more likely to face opposition than one that provides demonstrable improvements. In order to ensure that is attained, a service fee, along with any other funding sources, must generate sufficient revenue.

Flexibility

A service fee offers extraordinary flexibility compared to other funding methods. Within reason, a rate structure can be designed to apportion costs as a board, council, or commission wishes. There is no absolute prescription that must be followed. For example, some communities charge properties located in floodplain areas less than upland areas, but the City of Boulder, Colorado imposes a surcharge for floodplain properties. Some communities only charge developed properties, while others also charge service fees to undeveloped lands.

The latitude given to local elected officials to make various decisions regarding the design of a rate structure is a distinct contrast to taxation concepts based on property value and assessments based on benefit. Taxation methods generally allow little flexibility, and cannot be selectively applied or tailored to specific needs. Although assessment methodologies are generally more flexible than taxes, they must reflect direct and special benefit.

A service fee rate structure can also be augmented by secondary funding mechanisms and altered by modifications to tailor the cost allocation to the local situation. For example, many stormwater utilities use credits to recognize on-site control systems or activities that reduce the public expense of stormwater management. Such credits can be creative. The City of Griffin, Georgia negotiated a service fee credit with the local school district. The district agreed to teach an environmental education program that satisfied most of the City's NPDES permit public education mandate. Mecklenburg County (Charlotte), North Carolina offers a partial service fee credit to industrial properties that have their own NPDES permits.

Balance of Rates with Level of Service

A general legal standard for a utility service fee rate structure is that it must be fair and reasonable. The resultant charges must bear a significant relationship to the cost of providing services and facilities. The balance between rates and service levels does not have to be precise or perfectly consistent. If significant differences in service levels prevail over time, however, a rate structure should reflect the variance to a reasonable degree. This can be accomplished in several ways. The rate structure itself might be altered in some way. The rate charged

per equivalent unit of the service might be reduced or increased. A modifying factor or surcharge might be applied to the basic rate to reflect a lower or higher service level provided to a specific geographical area or customer group.

Data Requirements

The data requirements of various rate structures differ, sometimes significantly. Two general rules usually prevail: 1) new data costs more than existing data; and 2) each additional increment of precision costs more than the previous one. As a result, many communities prefer to use existing data and apply a rate structure that is relative simple and gross. The number of parameters necessary to calculate a service fee for each customer is an important cost consideration, but it is not necessarily less costly to use a single parameter rather than two or more. If complete and accurate data is readily available from an existing source, it does not necessarily cost more to assemble a master account file based on a more precise parameter or several parameters, though that is usually the case.

Industry standards for stormwater service fee rate structures have coalesced around a few data parameters that have a demonstrated relationship to the cost of stormwater services and facilities. Impervious area is a common parameter, not only because it is closely related to runoff rates and pollutant loadings but also because many communities already have that data in the form of planimetric polygons defining building footprints, paving, etc contained in their geographical information systems. If, however, the data is available only as line definitions and not in closed polygons, the polygons have to be created to measure the area. This may involve interpreting satellite imagery, aerial photographs and property line maps, and may make impervious area a more expensive parameter to implement. In some cases, an algorithm can be applied to the line segment data to join segments into polygons that can be measured, but that approach requires a significant amount of quality assurance review.

The data requirements associated with implementing and maintaining a stormwater service fee depend more on the subtleties of the rate methodology and the use of modifying factors than on the basic parameters selected. If an impervious area method were to be applied to all properties individually, impervious area information would have to be generated for residential as well as non-residential parcels. However, if a simplified residential service fee is utilized, data requirements and costs might be reduced by as much as 70 percent regardless of the type of rate methodology employed.

Implementation costs of a tiered residential rate structure are usually higher than for a single flat-rate residential service fee. A two-tier or three-tier simplified rate structure for residences requires some additional analysis of the residential housing stock subject to the charge. If information available from other databases could be used to determine the proper assignment of residential properties to different tiers, the impervious area of individual properties would not have to be carefully measured. However, experience has shown that grouping

residential properties is only slightly less demanding than precisely measuring the impervious area on each property.

The cost of implementing an impervious area rate structure is a function of the number of properties that must be measured, the accuracy standards adopted for data, and the measurement technique employed. Techniques available for determining the impervious area and gross area of individual properties range from very time-consuming and expensive on-site measurements to photo-interpretive methods using scaled aerial photographs or satellite imagery. Cost of developing impervious area data has ranged from less than $1 to over $6 per unit, depending primarily on whether or not a simplified residential rate is used.

Accuracy standards also influence the cost of both initial implementation and subsequent data maintenance. Use of an equivalency unit for grouping properties into ranges subject to a rate schedule allows less exacting data standards to be used without diminishing the percentage of properties that are correctly charged according to the rate schedule. Automating the maintenance of the data file can significantly reduce the on-going administrative expense. If building permit applicants are required to provide impervious area coverage figures, the information can be transferred directly to a service fee master account file.

Some counties and cities use both gross and impervious area or gross area and a second data parameter reflecting the intensity of development (percentage of imperviousness) instead of the actual impervious area. These approaches involve two parameters, but do not necessarily increase the cost of implementation and upkeep if the required data is readily available from existing sources. Intensity of development can be interpreted relatively quickly and cheaply for each property, and properties can be assigned to general categories instead of assigning unique development intensities to each one.

A mistake sometimes made by cities and counties when they first adopt a rate structure is to use a parameter simply because they have an existing database, not because it correlates with the cost of stormwater services and facilities. For example, at least a few cities and towns have used water meter size or even water use as a stormwater service fee parameter, simply because the data was readily available. This can lead to serious problems if the stormwater rate structure is challenged in court because there is little if any correlation between such factors and the cost of providing stormwater management.

Compatibility with Data Processing Systems

The cost of implementing and applying a stormwater utility service fee includes the work required to assemble a master account file comprised of customer names and the data required to calculate a billing. A master account file must also be linked to or integrated in some manner with a billing system that enables

the service fee to be delivered to the proper party, payments received and processed, and proper accounting to be performed. All of these typically involve extensive use of a computer data processing system and one or more databases.

Degree of compatibility of a preferred service fee rate methodology with existing databases and data processing systems directly influences the cost of long-term maintenance and operation of utility funding. Service fee billing, collection, and accounting costs are often less if a stormwater charge can be added to an existing system rather than creating a new means of delivering the billing and processing payments.

A majority of city stormwater utilities bill their service charges on water, wastewater, solid waste, electric, gas, and other municipal utility service bills. Many counties are primarily rural service governments that do not operate such utilities, so another approach is needed. Most counties have local property tax assessment, billing, and collection responsibilities. Therefore, county stormwater utility service fees in some states are added to their property tax billings. Some counties have opted to prepare separate service fee billing systems so as to avoid any confusion between property taxes and stormwater service fees. Special service districts either integrate the master account file and billing with existing water, wastewater, or other billing systems or, in some states, they are able to attach stormwater billing to a county or city property tax billing.

Consistency with Other Local Funding and Rate Policies

Most urban communities have a variety of funding mechanisms in place and adopted policies that portray local practices. If, for example, a community has water and sewer service fee rate structures that use residential flat rates, a simple residential stormwater fee would probably be very acceptable. If, however, local water and sewer rates are very complex, the general public's expectations are likely to be geared to that level of refinement. A flat-rate stormwater service fee for all residential properties might not be perceived as sufficiently accurate.

Revenue Stability and Sensitivity

Fortunately, stormwater service fee rate structures are not prone to some of the revenue stability and sensitivity problems of water and wastewater (sewer) methodologies. Stormwater costs and rates are generally associated with providing and maintaining a provisional system capacity that is fully utilized only infrequently, rather than with delivering a certain amount of water or collecting and treating a relatively consistent quantity of wastewater each day. As a result, the revenue stream of a stormwater service fee is not susceptible to conservation measures like water and wastewater utilities. Stormwater utilities do not have to increase rates as a result of customers reducing their consumption of a commodity like potable water.

SERVICE FEE RATE AND ASSESSMENT METHODOLOGIES

Rate Design

Conventions are emerging as stormwater utility service fees and assessments become increasingly common. Impervious area, gross area, percentage imperviousness, and land use are the most frequently used parameters.

Service Fees

In most instances, service fees are cost-based, i.e., they are designed to reflect the impacts that each property has on stormwater service demands and thus the cost of providing facilities and operational and support activities. Such costs are primarily a function of peak stormwater runoff rate, total volume of discharge, and pollutant contributions, but design practices for stormwater service fees and assessments have yet to settle upon a single common standard or even a generally-accepted best model for calculating charges.

Empirical studies have demonstrated that impervious surface area on a property is the single most significant factor influencing all of these impacts. Impervious area is also relatively easy to identify and quantify numerically and is the most common parameter used in stormwater service fee calculations. However, the impact of a given area of impervious surface may also be influenced by its shape, slope, surface condition, vegetation, and nature of its discharge to a conveyance conduit or channel.

Location of impervious and pervious areas on a given site is also important in determining the degree of runoff mitigation that results due to the presence of pervious areas. Runoff from an impervious parking area draining across a broad grass slope of permeable soil to a roadside ditch may be significantly less compared to that of a similar impervious area collected and drained by storm sewers. This has led some to focus on “directly-connected impervious area” in their stormwater rate structures.

Percentage of imperviousness is also significant because pervious surfaces may mitigate runoff impacts from a given property. Relatively few stormwater service fee methodologies employ impervious percentage directly in the calculation of service fees, but it is indirectly accounted for in methodologies that use a combination of gross area and impervious area or gross area and intensity of development.

Permeability of soil and vegetative conditions may also influence the mitigation effects attained from pervious areas. However, soil and vegetative conditions are rarely considered because they can vary dramatically, even across a single site. There are very few reliable and accurate soil inventories, soil conditions may be altered in the course of development, and vegetative effects vary significantly from season to season.

Assessments

Modern urban stormwater benefit assessment parameters are different than those employed in earlier times. Stormwater assessments were historically derived from ditch law practices applied to drainage and protection of agricultural areas. Since agricultural income was closely tied to the area protected or improved by the drainage practices, property area was the most common parameter for apportioning the benefit and impervious area was not a common consideration. Because the systems subject to drainage and ditch law assessments were geographically and functionally limited, built to protect acres owned by relatively few farmers, assessments would typically be based on acreage each owned. In later periods, property value was often used as the parameter for assessment calculations.

In contrast, the service area of modern urban stormwater districts or utilities is typically much larger with thousands of properties and owners. In addition, urban stormwater management may not always have a distinct benefit that is direct and special to individual properties. Therefore, use of the special assessment process for urban drainage projects must carefully evaluate area to be served, benefit to be provided, and relationship of benefit to individual parcels which might be assessed. Present-day assessment calculations are frequently based on parameters similar to those employed for stormwater service fees, i.e., impervious area, gross area, and development intensity. Additional discussion of this topic is included in the section covering Special Assessments in this chapter.

Uniform and Tiered Charges

A majority of rate structures currently in force employ uniform (flat-rate) or tiered fees for some or all customers rather than a calculated charge based on conditions on each property. The most common form is a flat-rate for detached single-family residential properties, coupled with discrete rates applied to non-residential properties. Two or three tiers of residential rates are common in communities that have a diverse housing stock. Some rate methodologies also apply uniform or tiered rates of various sorts to other classes of customers. For example, individual mobile home parks, condominiums and townhouses are sometimes billed flat rates per unit.

Rate structures that classify and group properties by development intensity or land use and apply a fixed rate to the classes are a form of tiering. For example, gross area/intensity of development rate structures commonly group properties into five to ten descriptive classes ranging from undeveloped or very lightly developed to very heavily developed. Such rate methodologies also typically group customers into gross area increments, so dual tiers of area and development intensity are used in the fee calculation formulae. A few communities have adopted very simple rate structures that charge residential properties one flat rate and all other properties another. Given the diversity of non-residential development conditions, this approach does not attain a high degree of equity in apportionment of costs of service.

Service and Equivalency Units

Many communities have opted to use various service units or equivalent unit values in their utility rate methodologies. For example, water rates are often based on metered use of gallons or cubic feet of water, which are units of service. Solid waste charges are frequently based on service units such as the size and number of bins or the tonnage of waste dumped at a transfer station. Stormwater service units or equivalency unit values are usually based on impervious area or gross area, and are most commonly derived from the typical or average condition on a single-family residential property. Terms like "equivalent residential unit" or "equivalent service unit" are commonly used to describe these values.

Service units or equivalency units are typically applied as "block charges", where customers are billed for increments of use. Water customers may be billed in increments of 1000 gallons or 100 cubic feet, rather than for a precise number. Such practices have been adapted to stormwater service fees. For example, Columbia County, Georgia uses an impervious area stormwater rate structure and charges each customer a fixed rate for each 100 square feet of impervious coverage.

Some communities have opted to use a combination of flat rates for single-family residential customers with an equivalency unit applied to other types of properties. For example, an average residential property in a given community might be determined to have 3,000 square feet of impervious area (including roofs, drives, walks, patios, etc), and this value might be used as a service or equivalency unit for other customers. All single-family residential properties might be charged for one equivalent unit, or two or more tiers of that increment might be applied to residential properties. The impervious area on other types of properties would be measured and that figure divided by 3,000 to determine the number of equivalent units that each should be charged. It is common practice to bill for each equivalent unit or fraction thereof, effectively rounding up to the next full unit.

Water and sewage rate structures often include increasing or declining fee schedules to encourage or discourage consumption, in which incremental "blocks" are defined. For example, in water and sewer rates the first 10,000 gallons used or discharged in a month would be charged at one rate, the next 10,000 gallons at another, and so on. This practice is not common in stormwater rates, though a few jurisdictions that bill undeveloped as well as developed properties employ declining rates to moderate the charges on large undeveloped tracts of land.

One of the benefits of a service or equivalency unit value is that it allows easy comparisons of charges among dissimilar customers. For example, under the assumptions used in describing an impervious area rate methodology previously, a commercial or other non-residential property with ten times as much

impervious area as a typical residence (assumed to be 3,000 square feet) would be charged for ten units of use. A “big-box” retail store (or small shopping center or industrial site) with 600,000 square feet of impervious coverage (about fourteen acres) would be billed for 200 units.

Classification and Grouping of Like Customers

Classification and grouping of like customers having similar characteristics and/or service demands is a common practice in utility service fee rates. For example, wastewater treatment demands and costs are related not only to the volume of the waste to be treated, but also to the type of constituents found in the wastewater and their strength or concentration. Some users discharge wastes to public sewers that are radically different than a typical residence. Therefore, wastewater rates for some commercial and industrial customers may include both a volume component and a strength component.

This particular wastewater rate practice has not been directly adapted to stormwater rates, but a comparable classification or grouping of like customers based on their impacts on stormwater services and facilities has been incorporated into some rate structures. For example, all single-family detached residential properties are often grouped in a single user class or into tiers and each class is then billed a common rate. In a gross area/intensity of development rate methodology, properties having like land use may be grouped in a single intensity of development classification, e.g., all commercial office properties might be deemed heavily developed for rate calculation purposes. Industrial properties or those undergoing land disturbance activities might be grouped for NPDES impacts and erosion/sediment control service demands.

Service Fee Credits

Many communities have modified basic stormwater rate design practices to accommodate local circumstances. Perhaps the most widely-used modification to basic rate structures is application of a credit adjustment to service fees. Credits are typically conditional, i.e., they are premised on continuing specified performance by the customer. If the specified performance is not maintained, credits may be rescinded. The concept is similar to industrial pre-treatment credits commonly provided wastewater customers to reduce strength of sewage discharged into public systems.

Stormwater service fee credits are most commonly provided for properties that have on-site detention or retention facilities. In most cases detention or retention systems are designed to approximate pre-development conditions or to meet capacity limitations of downstream facilities. Such controls reduce capacity requirements (and cost) of downstream systems and may, if properly designed and maintained, enhance water quality. Credits have also been given for facilities or activities that assist in provision of services or reduce the public cost of providing services.

Credits have also been adopted in some jurisdictions for properties subject to and in compliance with National Pollutant Discharge Elimination System (NPDES) permits and for public and private schools providing approved water quality education programs. The rationale for the latter credit is that education is a minimum control measure in NPDES Phase 2 stormwater discharge permits. If not provided by local schools educational programs the service would have to be performed by the stormwater management entity at additional cost to the ratepayers.

Various means are employed to provide service fee credits to properties having on-site detention. For example:

- Boulder, Colorado, for properties providing on-site detention, has administratively adopted the practice of reducing the normal service fee twenty (20) percent for an on-site detention system that meets standards for a 5-year storm. Systems that meet 100-year storm requirements are eligible for an eighty (80) percent reduction.

- Bellevue, Washington changes the intensity of development classification of properties with detention systems to that of very lightly developed land, resulting in a variety of percentage reductions, depending on the intensity of development classification that would normally be applied to the subject property.

- Charlotte, North Carolina allows up to fifty (50) percent credit for peak runoff attenuation and up to twenty-five (25) percent credit for flow volume reductions.

Practices elsewhere reduce service fees between thirty-three (33) percent and seventy-five (75) percent in recognition of on-site control that reduces runoff rates. In most situations the long-term impact on revenue resulting from this type of adjustment is minor, typically no more than one or two percent. Ratepayers who do not have on-site systems have to pay slightly more to cover the minor deficit resulting from the credits.

The primary intent of credits is to recognize reductions in the cost of public stormwater services and facilities that can be attributed to private systems or activities. Credits only partially compensate developers who install and properly maintain facilities. Rarely do they offset loss of space such facilities occupy or the degree to which on-site systems disrupt the layout of commercial properties and subdivisions. Nor do most credits consider water quality impacts of on-site systems, or their influence on the cost of stormwater quality management. However, they do marginally improve equity of service fee cost allocations.

The balance of fees with level of service required and provided is, at least in theory, improved by use of credits. On-site control of peak flow of stormwater

runoff means that a property requires less service from the public stormwater system. Downstream reductions in peak runoff allow a higher level of service from a given size of facility or enable a community to build smaller systems in the future. A reduction in pollutant discharges into the public system could translate into lower NPDES permit compliance costs.

Developers' engineers can provide the information required to incorporate a credit for on-site measures. An allowable runoff release rate based on pre-development conditions and required on-site storage capacity can be used to determine the effectiveness of each on-site facility for crediting purposes.

Example Stormwater Rate Methodologies

The rate structure concepts used as examples in this guidance are typical of those adopted in the more than five hundred communities that have established stormwater utilities or special districts. Direct comparison with rate methodologies used in specific communities is not productive, however, since the general approaches examined in this guidance should be viewed in the specific context of the local needs, priorities, and circumstances of each community.

Generally speaking, any rate methodology that incorporates gross area tends to reduce the proportion of the service costs allocated to commercial and other intensely developed properties and increase the proportion of costs assigned to residential and less intensively developed properties.

Example stormwater rate methodologies examined in this guidance base stormwater fees on:

- impervious area;
- a combination of impervious area and gross area;
- impervious area and the percentage of imperviousness; and
- gross property area and the intensity of development.

Impervious Area

Stormwater rate structures based solely on impervious area have been widely used. They are simple, the concept is easily understood by the general public, and is generally perceived as equitable. Impervious area rate methodology reflects a philosophy of allocating costs based on each property's contribution of runoff to the system. Large expanses of roofs and paving in shopping centers and other commercial and industrial business areas are highly visible to the general public, and most people understand the hydrologic impact of covering natural ground with paving and rooftops. The approach is generally consistent with local service fee rate practices for wastewater services, wherein fees are

based on the amount of water used and strength of effluent discharged to the public treatment works.

Numerous technical studies, references, and citations in engineering literature technically validate the equity of an impervious area rate methodology. The coefficient of runoff value in hydrologic engineering tables closely approximates the percentage of impervious coverage. Empirical evidence gathered in the field by monitoring changes in runoff before and after development verifies that impervious coverage is the key factor influencing peak stormwater runoff. Data gathered during the National Urban Runoff Program (NURP) in the 1970's and 1980's and subsequent research showed that impervious area is the most dominant factor in pollutant loadings conveyed by stormwater runoff.

The impervious area approach may introduce a "timing" problem in the acquisition of capital assets. Impervious area service fees typically are applicable only to developed properties, but stormwater capital improvements are designed to accommodate future growth. Present ratepayers may be paying for capacity provisions far beyond their own use, and undeveloped properties (not subject to an impervious area fee) would not be charged for their future needs. Other funding mechanisms, such as development impact fees or system development charges, can be used in concert with an impervious area rate methodology to ensure that undeveloped properties ultimately participate in the cost of capital improvements designed with capacity to serve them.

An impervious area rate methodology is highly stable and insensitive to property alterations by ratepayers. The rate of revenue growth using an impervious area methodology would more or less correspond to the pace of development. Economic downturns would tend to diminish the addition of new impervious area and the stormwater revenue growth, while rapid growth would add to it. Reductions in impervious coverage on individual properties are rarely justified merely to reduce stormwater fees. Alterations that would reduce stormwater fees are essentially infeasible under all the rate structure scenarios examined in this guidance.

Most impervious area rate structures include simplified single-family residential service fees, often applied as flat-rate charges. Charges to non-residential properties may be structured in a variety of ways under an impervious area methodology. In some cases the single-family residential property, "equivalent unit" value, or ranges of impervious area (100, 500, or 1,000 square feet) are used as a billing unit.

Impervious area service fees are usually calculated by dividing the amount of impervious area on each parcel by an equivalent unit or a range value to determine the number of billing units and multiplying a charge per unit. Very few use the exact amount of impervious area on each property because the accuracy

of the impervious area data typically available does not support such a precise calculation.

The following example illustrates how service fees based on impervious area might be calculated. Assume that a typical single-family residential property is determined to have 3,000 square feet of impervious area including driveway and patio area as well as roof coverage. An annual rate of $.02 per square foot of impervious coverage would result in a typical residence being charged $60.00 per year, or $5 per month.

If a flat-rate fee were applied to all single-family residences, an equivalency value equal to the impervious area of the typical single-family residence might be used to determine charges to other properties, including multi-family apartments. The 3,000 square foot increment might also be used as a range value in the rate structure, with all non single-family residential properties grouped into impervious area ranges of 3,000 square feet which serve as a billing unit.

All properties in a given range are typically charged the same fee even though they might have slightly different impervious area. For example, using an equivalency unit of 3,000 square feet of impervious coverage, two commercial properties with 21,000 square feet of impervious area would be charged for seven equivalent units (7 X $60 = $420/year) even if their gross property areas differed. A large shopping center or discount store with 600,000 square feet of impervious coverage would be charged $12,000.

An impervious area rate methodology is not highly flexible or subject to judgment in its application to specific properties. It is based on a single parameter that can be accurately measured, although modifying factors might be applied to the basic rate calculation. Approaches based on parameters like intensity of development allow substantially more judgment to be applied, both in the design of the rate methodology and in its application to specific properties.

Other funding mechanisms can be blended with an impervious area service fee. For example, a system development charge could be adopted to recapture a system capitalization component from properties as they are developed. Other revenue sources can be used to supplement service fees, such as general revenue support for an NPDES stormwater quality program.

Impervious Area and Gross Area

Both total property area (gross area) and impervious coverage of properties influence amount, peak rate, and make up of stormwater discharged to public drainage systems. A combined impervious area and gross area rate methodology can account for both factors. Most stormwater rate methodologies utilize one or the other parameter in calculation of fees. A few (including Denver, Colorado) use both parameters to derive percentages or ratios used in rate calculations.

The concept underlying an impervious/gross area rate methodology is relatively easy to explain and grasp. It is consistent with the public's general understanding of hydrology and the impact that both gross area and impervious coverage have on stormwater runoff. This type of rate methodology tends to allocate more of the cost burden to lightly developed and undeveloped properties than methodologies that are based strictly on impervious area. Depending on the weighting factors and/or cost allocations, however, smaller properties that are almost entirely covered with impervious surfaces could conceivably be charged more than larger properties that are undeveloped or very lightly developed with little impervious coverage.

An impervious/gross area rate methodology requires that the mix of impervious and gross area in the service fee calculation be “tuned” to properly reflect the significance accorded to each parameter. This can be achieved in at least two ways: 1) by applying weighting factors to gross and impervious area; or, 2) by allocating certain costs of service to each parameter. Weighting assigned to gross and impervious area should be consistent with the local hydrologic conditions, patterns of development, program requirements (e.g., operating versus capital needs), balance of stormwater quantity and quality program costs, and the community's perceptions.

Rates could be structured in a variety of ways under this approach to reflect the importance assigned to each parameter. Units of gross area might be charged a basic rate, with a surcharge applied to units of impervious coverage. Alternatively, cost of service might be apportioned between impervious area and gross area instead of assigning specific costs to each parameter. For example, eighty (80) percent of total stormwater cost of service might be allocated to impervious area and twenty (20) percent to gross area.

Coefficients of runoff used in hydrologic engineering suggest that gross area to impervious area ratios in a service fee calculation might be as low as 1:4 or as high as 1:40. If costs are allocated to the two parameters, the significant influence of impervious coverage on peak runoff and pollutant loading suggests that seventy-five (75) percent or more of the costs should be assigned to the impervious area component of the rate.

Solely for the purpose of illustrating how fees might be calculated using an impervious/gross area methodology, assume that each 100 square feet of gross area might be charged $.10 (ten cents) per year. A surcharge of $1.60 per year might be applied to each 100 square feet that is covered by impervious area. This would yield an effective ratio of 1:17 between areas that are pervious and those that are impervious (i.e., areas covered by impervious surfaces would be charged seventeen times as much as areas that are not). That ratio is generally consistent with the difference in peak runoff between undeveloped and developed properties.

Applying the example values cited above to a twelve thousand (12,000) square foot residential property with 3,000 square feet of impervious coverage would result in a total service fee of $60 per year or $5 per month. The charge for the gross area of the property (12,000/100 @ $.10 = $12/year) would be added to the charge for the impervious coverage (3,000/100 @ $1.60 = $48/year). An undeveloped 12,000 square foot property would be charged $12/year in this scenario.

Applying the same values to a small commercial property of 30,000 square feet having 21,000 square feet impervious (70 %), the annual service fee would be $366 per year (30,000 sq ft / 100 x $0.10 = $30/year for the gross area and 21,000 sq ft / 100 x $1.60 = $336/year for the impervious coverage). Thus, the stormwater service fee would be more than six times as much as that for the example 12,000 square foot residential property even though the example commercial property is only two and one-half times larger in gross area. The proportionately greater increase reflects more intense development of the larger parcel in this example (70 % impervious coverage versus 25 % for the residential example).

Using the same formula, if it is assumed that a 600,000 square foot shopping center is completely covered with impervious rooftops and paving, the annual service fee would be $10,200 (600,000 sq ft / 100 x $0.10 = $600 for the gross area plus 600,000 sq ft / 100 x $1.60 = $9,600 for the impervious coverage). In both commercial examples cited, the gross area/impervious area rate methodology results in slightly lower fees for the non-residential properties than does the impervious area methodology examined previously, but that is purely a function of assigned values and is subject to modification.

A gross area/impervious area rate methodology facilitates charging undeveloped properties a service fee. Charging undeveloped properties would broaden the rate base, especially if extensive rural areas were included in the utility service area. It would also enable some operating and capital expenses to be distributed among all properties, although system development charges or other funding methods to recapture financial participation in infrastructure capitalization may still be needed. Using the above example values, an undeveloped 12,000 square foot property might be charged $ 12 per year (12,000 sq ft / 100 x $0.10), an undeveloped 30,000 square foot property would be charged $ 30 per year (30,000 sq ft / 100 x $0.10), and an undeveloped 600,000 square foot would be charged $600 per year (600,000 sq ft / 100 x $0.10). Because charges to very large undeveloped acreages quickly escalate, such rate methodologies might need to have a schedule of incrementally declining charges as the size of properties increases.

A residential flat-rate charge could also be used with this methodology, using a sample of residences to determine how much gross and impervious area is

typical in a given community. The residential rate could constitute equivalent unit values for both parameters. Obviously, different rates for gross area and impervious area might be applied in all of the above examples to meet the cost of services and facilities or apportion costs differently.

Both gross area and impervious area data are needed for this methodology, adding to the cost of developing a master account file, although fee calculations could be relatively simple. The gross area on each property might be divided by a billing unit increment (100 square feet in example above) and multiplied times a charge per unit. The same could be done for impervious area, with the two sub-totals added together to generate service fee amounts. Adjustments and credits might be applied to either or both of the parameters.

Cost of implementation and upkeep of this type of rate methodology is influenced by the cost of assembling data for a master account file and the computer programming associated with billing/collection and billing inquiry processes. Using a flat-rate charge for one or more classes of properties would substantially reduce costs. Maintenance of information might also be simplified by requiring data from developers' engineers and/or architects when plans are submitted.

Potential revenue capacity of this type of rate structure is somewhat greater than the impervious area approach because it could conceivably charge both undeveloped and developed properties. For the residential component, the revenue stream would probably be equal to or greater than other methods described in this guidance, depending on weighting factors and rates assigned and/or allocation of costs.

This approach is comparable to the other rate structure options in its stability and insensitivity to external influences. Being based on gross area and impervious area, there is little that can be done by a property owner to reduce parameters that drive the amount of the service fee.

Applying weighting factors or allocating costs to gross area and impervious area makes this approach especially flexible. A broad range of weights could be assigned to gross area and impervious area to account for unusual conditions, presence of modifying considerations like on-site detention or water quality impacts, or runoff mitigation normally realized on large undeveloped tracts. System development charges and other secondary funding methods could also be coordinated with parameters used in this type of rate structure.

Impervious Area and Percentage of Impervious Coverage

This type of rate methodology is currently used by the City/County of Denver, Colorado. Under this rate structure amount of impervious area and impervious percentage are both used to calculate service fees, dictating that data on both impervious and gross area be used. Gross area is not relevant to the service fee calculation, except that it is needed to determine the percentage of

imperviousness. Under this approach impervious area of each property is charged at varying rates depending on the percentage of imperviousness of the subject property. Each square foot of impervious area is typically charged more as the percentage of imperviousness increases. Because this rate methodology is based on impervious area, undeveloped lands are often not charged.

Some anomalies may occur in service fees that result from this type of rate methodology. Consider two properties of different sizes with the same amount of impervious coverage. Because its percentage of imperviousness could be a lot higher, the smaller property could be charged more than the larger property.

The key determinant of charges to individual properties (and of overall revenue capacity) under this rate concept is the schedule of charges per unit of impervious coverage. Properties may be divided into several classes based on their percentage of imperviousness (referred to as “ratio groups” or “imperviousness classes”), and a varying rate per impervious area unit might be applied to each class. For example, properties having ten (10) percent imperviousness or less might be charged $.06 per year for each 100 square feet of impervious coverage, while properties with eleven to twenty percent imperviousness might be charged $.15 per year for each 100 square feet. Proportionately higher values are usually applied as the percentage of impervious coverage increases.

Being based on two parameters which are accurately measurable, impervious area and gross area, from which the percentage of imperviousness is calculated, this approach gives an impression of greater accuracy than some other options. Judgment is introduced to the service fee calculation in the form of different charges for various imperviousness classes.

A community’s perception of equity resulting from this rate methodology may be mixed, and may depend on the number of classes or ranges used for percentage imperviousness and schedule of rates assigned to them. To the extent that a shift in the distribution of costs toward heavily developed properties benefits single-family residences, homeowners would likely see a lower bill than under other rate structures. They might view the balance of services and charges favorably. However, charges for intensely developed commercial properties would not be as favorable as they would bear a much higher proportion of cost of service.

Table 2-1, below, presents a schedule that is typical of what might be applied under this approach.

Table 2-1: Example Schedule of Rates

(per 100 square feet of Impervious Coverage)

Impervious Percentage	***Annual Rate/100 Sq. Ft. of Impervious Area***
1 to 10 %	$.50
11 to 20 %	$1.35
21 to 30 %	$2.00
31 to 40 %	$2.70
41 to 50 %	$3.35
51 to 60 %	$4.00
61 to 70 %	$4.70
71 to 80 %	$5.40
81 to 90 %	$6.00
91 to 100 %	$7.70

A typical residential property has between twenty and forty percent impervious coverage. Some houses are much larger but have a much lower percentage of imperviousness because they are on very large lots or acreage. Recent trends toward very large residential subdivisions with smaller lots and larger structures are resulting in much more intense residential development and increased stormwater runoff. This is being mitigated to some extent by the use of green design practices, such as retention of stormwater in rain gardens and detention ponds.

Both the size and density of residential development are common reference points in the design of impervious area/percentage of impervious area stormwater rates. An average residence in an urban community might have a 12,000 square foot lot and 3,000 total square feet of impervious area (25 %) including driveways and patios. When an impervious area/percentage of impervious area methodology is used, an annual service fee for such a residence under the example schedules of charges might be $60/year (3,000 sq ft/100 x $2), or $5.00/month. The previously-cited example of a commercial property of 30,000 square feet with 21,000 square feet of impervious coverage, 70 % imperviousness, would be billed $987/yr under this methodology with the schedule of rates shown in the table (21,000 sq ft/100 x $4.70 = $987). The 600,000 square foot commercial shopping center example property (100 % impervious) would be charged $46,200/yr. (600,000 sq ft / 100 x $7.70 = $46,200).

This example illustrates just one approach to a schedule of rates for different percentages of impervious coverage. With the same residential service fee as in the impervious and gross area/impervious area rate methodology examples

($60/year), the service fee both for the small commercial and the large retail shopping center would be much greater. It is entirely a function of the rate assigned to each range of imperviousness.

Obviously, care must be taken in designing the schedule of rates to ensure that appropriate allocations of cost of service result. It must also be recognized that this methodology can create anomalies relative to service fees as compared to other rate methods. These calculations are a function of specific schedule of rates used in this example and could be changed by adjusting the schedule.

This rate concept would require that both gross area and impervious area data be gathered. Incorporating a simplified charge for single-family residences could significantly reduce the number of properties requiring specific data. Future maintenance of data for developing properties could be accomplished by requiring that gross area and impervious area data is supplied by each developer's engineer or architect as part of project plans.

This approach would require that the file record be larger than for some other options in order to accommodate use of two parameters. A rate methodology could be written to calculate percentage of imperviousness and assign a property to a classification, or ratio group, based on the data. Some specialized programming might be required for this, but programming expenses would not be significantly greater than for other options.

Revenue capacity of this type of rate structure is greater than most of the other options examined in this guidance, especially if a highly progressive schedule is used. In Denver, Colorado this methodology generates perhaps twice as much revenue per square mile as some of the other rate methodologies because the very heavy weighting applied to the percentage of imperviousness results in much higher charges for intensely developed properties.

The stability and sensitivity of this rate methodology is consistent with the other options considered. Even using a highly progressive schedule of rates, the level of service fees would probably not induce property owners to remove impervious area from their properties. It simply is not cost-effective for most property owners to reduce the impervious area just to reduce a stormwater service charge.

Despite being based on two parameters, this rate concept retains a fair degree of flexibility. Flexibility is directly related to how classes of imperviousness are defined and the schedule of rates assigned. By tailoring number and size of the classes and schedule of rates, flexibility comparable to the other rate structures is achievable. Modifying factors and secondary funding methods such as system development charges can also be used.

Gross Area and Intensity of Development

Rate structures based on the gross area of each property and its intensity of development are currently used by the cities of Bellevue and Tacoma, Washington and Cincinnati, Ohio. An intensity of development factor is usually very similar to the coefficient of runoff. The term "intensity of development factors" is commonly used rather than a "coefficient of runoff", because the relationship of intensity of development to stormwater runoff is easily grasped.

If applied to every parcel, this type of rate methodology requires that gross area be determined for all residential as well as non-residential properties and an intensity of development rating be assigned to each. Most communities using this method have opted to apply a simplified service fee or schedule of fees to one or more categories of single-family residential parcels, but there is no uniform practice. Non-residential properties are usually categorized into five to ten descriptive groups ranging from “undeveloped” to “very heavily developed”. If a flat-rate residential charge is not used, all residential properties are typically assigned to one or two of the intensity of development categories.

Local development patterns may influence how residential properties are treated under this rate methodology. Only one residential intensity of development category might be needed in a community that has highly uniform residential development. More categories might be appropriate in another community that has residential lots ranging from 3,000 square feet to several acres.

Typically, the intensity of development values range from a low figure ranging between .02 and .20 for undeveloped or lightly developed properties up to .85 or even .95 for industrial and commercial uses. This approach groups similar properties and applies average values to all assigned to a given classification. For example, all apartments might be classified as multi-family residential with an intensity of development factor equal to .65 instead of assigning individual ratings ranging from .50 to .85 to individual apartment developments. The gross area parameter is the controlling element of rate calculation for all parcels in a given classification. An apartment building on 40,000 square feet of gross lot area would usually be billed one-half the amount charged to an equivalent apartment building on an 80,000 square foot property.

Calculation of service fees can be structured in several ways under a gross area/intensity of development rate structure. When a simplified residential charge is used, the service fee usually compares conditions on non-residential properties to a defined average specified for residential properties. For example, a typical residence is assumed to have a gross lot area of 12,000 square feet and an intensity of development of 0.25, and a commercial property of 30,000 square feet has an intensity of development of 0.70. The commercial property has an area 2.5 (30,000 sq ft/12,000 sq ft) times larger than the residential lot, and has an intensity of development 2.8 (0.70 / 0.25) times greater. The

example commercial property's stormwater charge would, therefore, be seven times that of the charge to a typical single family residence (2.5 x 2.8 = 7.0).

Using the example properties previously cited, the 12,000 square foot residential property assigned an intensity factor of .25 would be charged $5/month or $60/year (12,000 sq ft x 0.25 / 100 x $2.00/sq ft = $60/year). The 30,000 square foot commercial property with 21,000 square feet of impervious coverage assigned an intensity factor of 0.70 would be charged $35/month or $420/year (30,000 sq ft x.70 / 100 x $2.00/sq ft = $420/year). A 600,000 square foot shopping center property fifty times as large as the single-family residential property assigned an intensity of development factor of .90 would be charged $900/month or $10,800/year (600,000 sq ft x .90 / 100 x $2.00/sq ft = $10,800/year).

This approach allows service charges to undeveloped as well developed properties. For example, Bellevue, Washington assigns a very low intensity of development factor to undeveloped lands. It results in service fees that are about one-ninth (11 percent) of charges for comparably sized residential properties and even a lower percentage when compared with more intensely developed commercial or industrial parcels. Even at relatively low rates, this could generate a substantial amount of additional revenue compared to the impervious area rate methodology applicable only to developed properties when used in jurisdictions with extensive undeveloped areas.

The perceived equity of this type of rate structure is normally equal to or greater than that of other approaches, but the methodology requires a careful explanation to the community. Simplifying terminology associated with the rate methodology is desirable. That is why many jurisdictions use a phrase like "intensity of development factor".

Adjustments to individual bills or even entire classes of properties can be achieved by reducing or increasing the intensity of development factor for an individual parcel or for a class or other grouping. It is common for jurisdictions using this approach to assign an "effective" intensity of development to individual properties in response to service fee appeals, leaving the door open for adjustments that achieve a fair and reasonable rate when anomalous conditions exist.

Data requirements associated with this type of rate methodology would be less than for other options. Gross area information can often be extracted from existing databases and/or maps. Assignment of an intensity of development factor would require that judgment be used in reviewing conditions on each parcel, possibly using aerial photographs. Some additional work would be needed in the event that undeveloped properties were to be charged.

This type of rate structure tends to push a greater proportion of the cost of service onto residential and other lightly developed properties than methodologies based on impervious area, although the differential has diminished as average housing size has increased. Overall revenue capacity could be increased by also charging undeveloped properties. Like other stormwater rate structures examined in this guidance, revenue capacity of the gross area/intensity of development approach is relatively stable and insensitive to external influences

Flexibility of an intensity of development rate structure is equal to or somewhat better than other methods because of latitude available in defining categories and assigning intensity of development factors. A great deal of engineering judgment is involved in determining the intensity of development (coefficient of runoff) of a parcel in a given situation, and the engineering literature offers rather broad ranges of development intensity values. For example, values from .25 to .45 are not unusual for single-family residential parcels.

CHAPTER 3

LEGAL CONSIDERATIONS

OVERVIEW

The type of funding mechanism selected for a stormwater utility or stormwater management program has a variety of legal consequences. Taxes, user fees, special assessments, impact fees and other revenue sources can be used, but each approach will have different implications in terms of who will pay, what procedures must be followed to implement and collect the charge, and how the money can be used. If the funding approach is deemed to be a tax, then tax-exempt entities such as churches, schools, state agencies and federal government facilities will contest their obligation to pay. In many states special taxpayer approval must be sought. If a user fee approach is used, the reasonableness of the rate structure and its relationship to the service being provided may be challenged. If impact fees or special assessments are used, there will be limitations on how and where the funds can be applied.

The distinctions between the various funding approaches are often blurred. In general terms, a tax is an enforced burden imposed by sovereign right for the support of the government, the administration of law, and the exercise of various functions the sovereign is called upon to perform. In some cases there may be little practical difference between a tax and a fee, but the legal distinctions between the two are important. Many states have constitutional or statutory restrictions on the ability of local governments to levy taxes, such as requirements for special voter approval or super-majority votes in the state legislature, which do not apply in the case of fees or charges that are levied by the exercise of local regulatory authority.

State-imposed limits on property taxes have been part of the fiscal landscape for decades, but the nature of those limits changed dramatically in 1978, when California voters adopted Proposition 13, which rolled back property taxes to 1 percent of market value and limited annual increases in property values for tax purposes. Arizona, Massachusetts, New Mexico and Washington adopted very

strict limits soon after passage of Prop 13, and Colorado, Missouri, Montana and Oregon followed suit. Many states that do not fall under the strict limitation category require voter approval for local tax increases, and others require super-majority approval for tax hikes in the state legislature.

User fees are charges based upon the proprietary right of the governing body permitting the use of the instrumentality involved. Such fees have certain common traits that distinguish them from taxes. First, they are charged in exchange for a particular governmental service which benefits the party paying the fee in a manner not shared by other members of society. Second, they are voluntary or paid by choice, in that the party paying the fee has the option of not utilizing the governmental service and thereby avoiding the charge. Third, the amount of the fee is designed to recover the actual cost of the service being provided, rather than to raise general revenues for other government purposes.

The boundary between special assessments and user fees is not always clear. Generally, a fee is exchanged for a service rendered or a benefit conferred, and some reasonable relationship exists between the amount of the fee and the value of the service or benefit, while a special assessment is a specific levy designed to recover the costs of improvements that confer local and peculiar benefits upon property within a defined area.

Impact fees are one-time payments from property developers to municipal, county or school district governments for off-site improvements necessitated by new development. Such fees may be authorized by state enabling statutes or, in some states, may be imposed without legislative approval under the general home rule or regulatory authority granted by state constitutions and statutes. Impact fees differ from user charges in that they typically fund capital expenditures, not current services.

The legality of various funding mechanisms for stormwater management programs is primarily a question of state law. This guidance cannot survey or analyze the legal implications of different approaches in all 50 states, but it can highlight certain common issues that have arisen to date. Careful research will be needed to determine an appropriate fee structure in your jurisdiction, which will depend on the constitutional and statutory provisions governing the authority of local governments and special purpose districts in your state, as well as the case law interpreting those provisions.

For example, *City of Wichita, Kansas v. Kansas Taxpayers Network,* 874 P.2d 667 (Kan. 1994) involved the interpretation of certain substantive and procedural aspects of the city's home rule authority under Kansas law. Similarly, in *Densmore v. Jefferson County,* 813 So. 2d 844 (Ala. 2001), the Plaintiffs challenged a 1995 state statute as a "local" act (under Alabama state law) that had not been properly advertised under the state constitution. The Alabama Supreme Court held that the statute had been properly enacted in accordance

with the applicable state procedures. In *Billings v. Nore,* 148 Mont. 96; 417 P.2d 458 (1966), the Montana Supreme Court was called upon to determine, among other things, whether a stormwater ordinance enacted by the City of Billings was an administrative function or a legislative action that could be subject to repeal by special voter initiative under Montana law.

Stormwater management program fees have been the subject of litigation resulting in reported opinions from at least 17 states, including many cases involving final decisions by the state's highest court:

- Montana – 1966
- Colorado – 1986 and 1993
- Kentucky – 1989 and 1996
- Ohio – 1990
- Oregon – 1992 and 1993
- Kansas – 1994
- Florida – 1995, 1998 and 2003
- Washington – 1997
- Virginia – 1998
- Tennessee – 1998
- Michigan – 1998 and 2001
- North Carolina – 1998 and 1999
- South Carolina – 1999
- Alabama – 2001
- California – 2002
- Georgia – 2004
- Illinois – 2005

In addition, there have been unreported decisions from the lower courts in these and other states that have involved similar challenges to local stormwater fees, for example cases involving the cities of Tacoma and Bellevue, Washington (ca. 1984); and Atlanta, Georgia (1999).

In several instances, the results of such litigation have required a legislative "fix" to provide the proper authorization for the financing mechanism employed by the local stormwater utilities. In the state of Washington, for example, Washington RCW 90.03.525 was enacted to impose a stormwater charge on the Washington Department of Transportation at a level equal to 30% of the rates charged to other landowners. In North Carolina, GS Ch. 153A-277 was enacted in the wake of the 1999 state supreme court decision, in order to authorize the collection of fees for compliance with federal and state environmental regulations as well as for more traditional drainage services. In other cases, the courts have been called upon to determine the applicability or legality of existing statutory provisions authorizing the creation and funding of local stormwater utilities, such as Fla. Stat. § 403.031 and S.C. Code Ann. § 48-14-10.

COMMON THEMES

Based upon these cases, certain common themes or central issues have emerged. The question whether a stormwater service charge is actually a "tax" has been the issue most frequently litigated, along with related inquiries into whether the charge is actually a special assessment that cannot be levied against the parties challenging the fee. Subsidiary issues such as whether the charge is reasonably related to the cost of the services provided, and whether it is fairly imposed on the properties that are benefited by those services, have also been explored.

Tax vs. Fee

The most commonly litigated issue is whether a municipal stormwater service charge is a valid user "fee" or an impermissible "tax." This issue has frequently arisen in cases brought by tax exempt organizations such as churches, schools, and state agencies such as departments of transportation. As discussed in further detail below, it is also the central issue when local stormwater fees are levied against federal government facilities, which are exempt from local taxation but not from the requirement to pay normal utility charges.

The great majority of recent cases favor the position that stormwater service charges are a fee. Such cases continue to be filed because public perception has been shaped by the historical fact that stormwater drainage costs have traditionally been financed through general revenues, and, as noted above in Chapter 2, any new form of government funding is likely to be viewed as a "tax" regardless of technical distinctions in the manner in which it is structured. This phenomenon can be observed in cases such as those from California and Michigan where taxpayer groups are the plaintiffs and stormwater utility fees are derided as a "rain tax." In Oregon, where a state constitutional amendment (section 11b) defined a "tax" as "any charge imposed by a governmental unit upon property or upon a property owner as a direct consequence of ownership of that property except incurred charges and assessments for local improvements," the state tax court characterized a city storm drainage fee as follows:

> Respondent's storm drainage charge is exactly the kind of "johnny-come-lately" charge on property the public anticipated and intended to limit. Storm drainage systems are traditional municipal facilities. Like city streets, parks, street lights and street signs, storm drains are viewed as part of the infrastructure benefiting the public generally. Local governments may not avoid the limits of section 11b simply by calling something a "service" and requiring payment of a "fee." If that were the case, a city could impose a fire or police protection fee on all persons using improved property. These kinds of serpentine maneuvers, if accepted, would eviscerate the constitutional limitation. . . . [S]ection 11b was adopted as an

> initiative measure by angry, frustrated voters. Local governments which use sophistry, rationalization and self-justification in an attempt to evade the impact of [that section] do their citizens a disservice. *Roseburg School District v. City of Roseburg*, 12 OTR 329; 1992 Ore. Tax LEXIS 33 (Ore. Tax. Ct. 1992).

Although this decision was subsequently reversed by the Oregon Supreme Court, as described below, it is illustrative of the sentiment that continues to inspire protracted litigation on this issue in states across the country.

Found Not to Be a Tax

Stormwater funding mechanisms have been upheld as valid user fees in the cases arising in Kentucky (1989), Colorado, Florida, Washington, Tennessee, South Carolina, Georgia and Illinois.

In *Long Run Baptist Ass'n v. Louisville MSD*, 775 S.W.2d 520 (Ky. App. 1989), the Plaintiffs challenged the constitutionality of a stormwater service charge that was based on an "Equivalent Surface Unit" approach (1 ESU for all residential parcels; 1 ESU per 2500 sq. ft. for commercial and industrial parcels). The court of appeals found that the service charge was not a "tax" and was reasonable and uniform in its application.

In *City of Littleton v. State,* 855 P.2d 448 (Colo. 1993), the City sought to collect unpaid stormwater management fees from state-owned school properties. The Colorado Supreme Court found the charge was not a tax or special assessment, but a service fee reasonably designed to meet the overall costs of the service provided. The court also found that the portion of fee used to construct and maintain the drainage system was essential to provision of the services.

In an earlier case, *Zelinger v. City and County of Denver,* 724 P.2d 1356 (Colo. 1986), the Colorado Supreme Court denied a class action challenge to the City and County of Denver's Ordinance No. 160, which dealt with fees and service charges assessed for the city's storm drainage facilities. The plaintiffs claimed that the ordinance unconstitutionally denied equal protection and due process guarantees to property owners and also contended the ordinance was an unconstitutional property tax. The supreme court disagreed and affirmed the trial court's decision that the ordinance was rationally related to a legitimate state purpose of financing the maintenance and construction of new storm sewers, and that it established a valid service charge rather than an unconstitutional tax because the funds raised by the fee were not used for general revenue purposes but were segregated and used solely to pay for the costs of the "operation, repair, maintenance, improvement, renewal, replacement and reconstruction of storm drainage facilities."

In *Smith v. Spokane County,* 948 P.2d 1301 (Wash. App. 1997), the state court of appeals found that a fee charged for funding certain "Aquifer Protection Areas" was not an unconstitutional tax and would be upheld if it was reasonable and designed to cover only the costs of the program. In reaching this decision, the court relied upon an earlier Washington Supreme Court decision, in *Teter v. Clark County,* 704 P.2d 1171 (Wash. 1985), which held that charge for a county storm and surface water utility was not a tax but a valid regulatory fee.

In *Vandergriff v. City of Chattanooga,* 44 F. Supp. 2d 927 (E.D. Tenn. 1998), city taxpayers challenged validity of a local stormwater ordinance on various state and federal constitutional grounds. The federal District Court found the ordinance imposed a fee, not at tax, because the charges were based on use of the stormwater system, and applying a portion of fees to construct or expand facilities as well as to defray cost of operating the system was explicitly authorized by state statute.

In *South Carolina v. City of Charleston,* 513 S.E.2d 97 (S.C. 1999), the State of South Carolina brought a declaratory judgment action to determine whether city was authorized to impose stormwater fees on state facilities pursuant to a state statute, S.C. Code Ann. § 48-14-10, which authorized local governments to establish a “stormwater utility” and to fund it either through a fee or a tax assessment. The City of Charleston created its utility by local ordinance, and opted to fund it through a fee. The state argued that although denominated a fee, the charge involved was really a tax. The state supreme court found that the plain, ordinary and unambiguous language of the statute allowed local governments to fund the utility through either a fee or an assessment, and that the city had chosen to use a fee, which could properly be imposed on State property.

In *McCleod v. Columbia County,* 599 S.E. 2d 152 (Ga. 2004), the County imposed a stormwater fee based on impervious area of developed property. Property owners challenged the fee as an invalid tax. Noting that a charge is generally not a tax if it provides compensation for services rendered, the Georgia Supreme Court held in a unanimous decision that the fee was "not arbitrary and bears a reasonable relationship to the benefits received by the individual developed properties in the treatment and control of stormwater runoff."

An earlier, unpublished decision from the Georgia Superior court, *Fulton County Taxpayers Association v. City of Atlanta*, No. 1999CV05897, 1999 WL 1102795 (Ga. Super. Ct. Sept. 22, 1999), came to a different conclusion. However, the City of Atlanta stormwater utility charge, unlike the charge involved in the *McLeod* case, contained no provision for a landowner who has no street frontage or a landowner who has his or her own manner of disposing of stormwater runoff, such as ponds or other systems, to “opt out” or obtain a credit against the stormwater fee. The fee was also struck down because it was similar to a tax

used to raise money for general purposes. The city did not satisfy the court that the funds were dedicated to stormwater and water quality improvements.

In *Church of Peace v. City of Rock Island*, 2005 Ill. App. LEXIS 448 (2005), an Illinois appeals court found that the stormwater fee levied by the City of Rock Island is not a tax and that churches are not exempt from payment of the fee. The court found that, under Illinois law, a tax may be distinguished from a fee by observing that a tax is a charge having no relation to the service rendered and is assessed to provide general revenue rather than compensation. A fee, on the other hand, is proportional to a service or benefit rendered. Using this analysis, the court found the stormwater service charge was clearly a fee, because there was a direct and proportional relationship between imperviousness and stormwater runoff, thus creating a rational relationship between the amount of the fee and the contribution of a parcel to the use of the stormwater system. The court also found that the fee at issue was "voluntary," because the "opt-out" provisions in the ordinance meant that persons choosing not to avail themselves of the stormwater drainage system provided by the city could do so and avoid paying the fee.

Found to Be a Tax

Stormwater fees have been struck down as invalid taxes requiring explicit voter approval under specific state laws or constitutional amendments ("taxpayer rebellion" provisions) in California and Michigan, and were also rejected in two lower court decisions interpreting a similar provision in Oregon before the later of those decisions was reversed by the Oregon Supreme Court.

In *Howard Jarvis Taxpayers Ass'n v. City of Salinas*, 98 Cal. App. 4th 1351 (2002), the City established a storm drainage fee on all developed property, based on impervious area. Taxpayers challenged the fee as a "property related" fee requiring voter approval under the Article XIII.D of the state constitution, which was added in the 1996 elections as a result of Proposition 218, the "Right to vote on Taxes Act." The trial court found that the fee met an exception in the constitutional provision for "water and sewer services," but the appellate court reversed because the fee was not directly based on or measured by use.

In *Bolt v. City of Lansing,* 587 N.W.2d 264 (Mich. 1998), the City established a stormwater fund to pay for sewer separation costs, based on an "equivalent hydraulic area" formula. The Appeals Court (1997) found it was a "user fee" and not a "tax." The Michigan Supreme Court, in a divided 4-3 decision, found that City was charging landowners a "rain tax," requiring voter approval under the so-called "Headlee Amendment" to the state constitution, because the charge was being used to pay for the capital investment on the utilities and services. On remand to the lower court, the decision was found to be prospective only, and no refunds of previously collected fees were required. That decision was upheld by the Supreme Court in 2001.

However, in *Roseburg School District v. City of Roseburg,* 851 P.2d 595 (Or. 1993), the Oregon Supreme Court found that city's storm drainage utility fee was not a tax on property that would have been subject to the limitations of Article XI.11b of the Oregon Constitution (adopted in 1990 by a initiative petition known as "Ballot Measure 5"). The city had structured the utility fee in an effort to avoid the constitutional restriction, by making it "a fee for service and not a charge against property." The court found it significant that unpaid charges did not become a lien against the property, and that the person responsible for payment could seek a reduction or elimination of the storm drainage service charge by demonstrating that the service was not being used.

An earlier case decided by the Oregon Tax Court went the other way. *Denney v. City of Gresham*, 12 OTR 194, 1992 Ore. Tax LEXIS 7 (1992). In that case the user charge was related to the amount of impervious surface area on a property: $2.75 per month for all "residential property," and $2.75 per month for each 2,500 square feet of impervious surface on all other property, such as multifamily, commercial and industrial. The tax court found that the only way an owner of an improved property could avoid the charge was to destroy the improvements, removing impervious surfaces. The court also found that the charge could not be "controlled" or "avoided" by any practical means.

The City of Roseburg explicitly designed its ordinance to avoid the outcome in *City of Gresham*. The Oregon Tax Court was not persuaded, finding the charge to be a tax as it had in the *Gresham* case. *Roseburg School District v. City of Roseburg*, 12 OTR 329; 1992 Ore. Tax LEXIS 33 (1992). However, the Oregon Supreme Court found the refinements made in Roseburg's ordinance sufficient to distinguish it from the *City of Gresham* case and reversed the tax court's decision.

Voluntary Service and "Opt-Out" Provisions

One element that has been found to influence the question whether a stormwater service charge is a tax or a fee is whether the user has a choice to accept or decline the service (sometimes phrased in terms of whether there is a "voluntary contractual relationship" between the user and the service provider). In the *City of Roseburg* case, for example, the tax court found that it was "unrealistic to speak as if the property had a choice as to whether it allows runoff. Where the charge is being imposed on existing property, the 'choice' which can be obtained only through modification of the property is not a real choice." The tax court was not persuaded by the city's argument that the owner could control the fee by reducing or eliminating the discharge or water from the subject property. (The Oregon Supreme Court avoided the issue, and reversed the tax court on the ground that the Roseburg fee was not imposed upon the owner of real property as a direct consequence of ownership; rather, the fee was imposed on the occupant to whom the city water service was billed.)

In the recent *City of Rock Island* case, on the other hand, the Illinois appeals court found that the opt-out provisions of a similar ordinance were sufficient to make the charge voluntary. The Illinois court held that, "[w]hile it might be cost prohibitive for each plaintiff to construct its own storm water run-off containment system, each would certainly be able to calculate the cost of doing so versus the cost of paying for the use of the City's system. Voluntary participation involves nothing more than weighing the competing costs of participation."

The federal courts have addressed the same issue on several occasions. In *United States v. Columbia, Missouri*, 914 F.2d 151, 155-56 (8th Cir. 1990), the Eighth Circuit found that even the profit component of the city's water and electric utility rates was not an impermissible tax on the federal government, because [t]he United States' obligation to pay the [fee] arises only from its consensual purchase of the City's property; it does not arise automatically, as does tax liability, from the United States' status as a property owner, resident, or income earner. When the United States purchases water, electricity, and related services, and then pays the utility bill, it does so as a vendee pursuant to its voluntary, contractual relationship with the City."

On the other hand, in *United States v. City of Huntington, West Virginia*, 999 F.2d 71, 72-73 (4th Cir. 1993), the Fourth Circuit concluded that a city ordinance imposing a "fire service fee" and a "flood protection fee" on the United States, premised "on the basis of square footage of the buildings" was a tax, and not a user fee, based in part upon the fact that the charge was an "enforced contribution to provide for the support of government." The court found that "liability for the 'user fee' charged by the City arises from the General Services Administration's and United States Postal Service's status as property owners and not from their use of a city service." *Id*. at 74.

In the ongoing litigation involving the stormwater fees imposed by the City of Cincinnati (discussed further below), the courts have sent conflicting signals as to the importance of the "voluntary" nature of the fee. In the original Court of Claims decision, *City of Cincinnati v. United States,* 39 Fed. Cl. 271 (1997), the court held that the storm drainage charge, which was imposed on all property owners within the city and was not the product of a voluntary purchase decision by the federal government, constitutes a tax, not a fee for services, and therefore could not be exacted from a federal entity such as NIOSH.

On appeal, the Court of Appeals for the Federal Circuit agreed that the storm drainage service charge was not imposed as a result of a consensual arrangement between the city and the United States, as would be true in the case of a voluntary purchase of utilities or other services, and found that the stormwater drainage service charge was an assessment imposed on the United States involuntarily, by virtue of its status as a property owner. However, the Court of Appeals did not agree that this fact was dispositive of the question whether the service charge was a permissible fee for services or an

impermissible tax. The Court of Appeals stated that "[t]here may be some instances in which a municipal assessment is involuntarily imposed but would nonetheless be considered a permissible fee for services rather than an impermissible tax." *Cincinnati v. United States*, 153 F.3d 1375, 1378 (6th Cir. 1998).

Whether or not a service charge is mandatory or voluntary is thus a factor to be considered, but is not necessarily determinative of the question whether the charge is a tax or a fee. The Georgia Supreme Court has suggested that whether a charge is voluntary is a factor because, if it is not mandatory, it cannot be a tax. *McCleod v. Columbia County,* 599 S.E. 2d 152 (Ga. 2004) (finding that the county stormwater ordinance was not a tax in part because property owners could reduce the amount of the charge by creating and maintaining private stormwater management facilities).

The reverse, however, is not necessarily true – a charge which is mandatory may or may not be deemed a tax, depending on the circumstances of the particular case. Thus, mandatory fees for various types of municipal services have been upheld by a number of courts in recent years. *See, e.g., Bloom v. City of Fort Collins*, 784 P.2d 304, 304-05 (Colo. 1989) (approving mandatory transportation utility fee); *State of Hawaii v. Medeiros*, 973 P.2d 736, 741-42 (summarizing the declining importance of voluntariness in fees in many state courts); *Hochstedler v. St. Joseph County Solid Waste Mgmt. Dist.*, 770 N.E.2d 910, 916 (Ind. Ct. App. 2002) (approving mandatory recycling charge as a permissible fee); *Rogers v. Oktibbeha County Bd. of Supervisors*, 749 So. 2d 966, 967 (Miss. 1999) (upholding mandatory garbage disposal fee on residents who did not use county's disposal system). *See generally* Reynolds, "Taxes, Fees, Assessments, Dues, and the "Get What You Pay For" Model of Local Government," 56 Fla. L. Rev. 373, (April, 2004).

Fee vs. Special Assessment

The issue whether a stormwater service charge is a "user fee" or a "special assessment," giving rise to different procedural requirements, has arisen in Florida (2003) and Colorado.

In *Gainesville v. State of Florida,* 863 So. 2d 138 (Fla. 2003), the state DOT refused to pay the city's stormwater fee, and the city sued. A settlement was reached in 2001, but when the city sought to validate a bond issue for its stormwater utility in 2003 the state DOT objected, arguing that the fee (based on impervious area using an "Equivalent Residential Unit" formula) was not a "user fee" but a "special assessment" that did not apply to state agencies. The bonds that were issued by the city could not be approved if fees were invalid, since the stormwater fees were pledged as collateral for those bonds. The Florida Supreme Court found that the fees were valid user fees, and the bonds were validated. The city was supported in the Supreme Court by an *amicus* brief

jointly filed by the Florida Stormwater Association and several environmental groups, including Earthjustice and the Audubon Society.

In the earlier case of *City of Cocoa v. School Board of Brevard County*, 711 So. 2d 1322 (Fla. App. 1998), a Florida appeals court found that a stormwater utility fee was neither a "special assessment" nor an "impact or service availability fee," from which school districts were exempted by statute. The trial court had apparently determined that no portion of the fees sought by the city were "user" fees, but the appeals court determined that the record was not sufficient to establish that the school districts were "involuntary" users of the stormwater utility and remanded the case for further proceedings to determine whether the program established by the city was a valid utility established pursuant to the statutory authority granted by the Florida legislature in Fla. Stat. § 403.031(17). That statute authorized the funding of local stormwater management programs "by assessing the cost of the program to the beneficiaries based on their relative contribution to its need," with regular service bills "similar to water and wastewater services."

In *City of Littleton v. State, supra*, both the trial court and the state appeals court had found that the city's stormwater management fee constituted a special assessment under Colorado state law, which could not be charged against the state agencies involved in the case. The Colorado Supreme Court reversed, after reviewing the factors to be considered in determining the nature of a charge imposed by a municipality against property owners within its jurisdiction. Distinguishing between ad valorem property taxes, excise taxes, special assessments, and special fees, the court recognized that the essential characteristic of a special assessment is that it confers some special benefit to the subject property.

In this case, the services for which the fees were charged did not specially benefit the property owned by the agencies. The court stated that "[c]reating the capacity to remove excess water from property and prevent flooding are general services benefiting all property owners. While the performance of these services prevents diminution of the value of land, such services and the facilities necessary to the performance thereof do not directly enhance the value of the property . . . ." Consequently, the court concluded that the city's stormwater charge was not a special assessment, but a service fee reasonably designed to meet overall costs of the service for which the fee was imposed. Although a portion of the fee billed by the city was used to defray costs of constructing and maintaining a drainage system, such costs were found to be reasonably related and essential to the provision of the contemplated services.

Related to Cost of Services

Inquiry into whether the amount of the fee is "reasonable" and directly related to the cost of providing the services rendered has been conducted in cases from Kentucky, Colorado, Virginia, North Carolina and Georgia. One aspect of this

question that is often examined is whether the fees are reasonably related to the actual contribution of the property to the volume of stormwater runoff, or whether all properties are assessed a fixed amount regardless of size.

In *Twietmeyer v. City of Hampton*, 497 S.E. 2d 858 (Va. 1998), the City sued owners of seven residential properties for failure to pay fee based on flat rate. The property owners argued a flat rate fee was not based on contribution to stormwater runoff. The Court found that the city ordinance was not unreasonable because non-residential properties were charged a fee 5 times higher than residential properties ($12.50 per month rather than $2.50 per month).

In one case in North Carolina, the costs of complying with certain elements of U.S. EPA's "Phase II" municipal stormwater permit program were found to go beyond the costs to construct and operate the stormwater drainage system, and the city was ordered to refund that portion of the fee. *Smith Chapel Baptist Church v. City of Durham*, 517 S.E. 2d 874 (N.C. 1999). The City assessed fees on all developed property, based on impervious area. The state Supreme court found in a 1998 opinion that such fees were not covered by a particular state statute, but were nevertheless authorized under the state constitution. However, in its subsequent 1999 opinion after rehearing, the Supreme Court held that the applicable state statute limited fees to the actual cost of providing the stormwater drainage system, and did not cover the entire stormwater management program – in particular, costs incurred solely for compliance with federal environmental regulations (the Phase II stormwater permit requirements). A subsequent amendment to the statute was required to address this issue.

Properties Benefited

The question whether the properties burdened by the fees are receiving a proportionate benefit from the services provided has been examined in Florida (1995), Kentucky (1996) and Alabama.

In the often-cited case of *Sarasota County v. Sarasota Church of Christ*, 667 S. 2d 180 (Fla. 1995), the City imposed a stormwater utility fee on all developed property. The Church argued that the ordinance imposed a tax because it benefited the community at large and church received no specific benefit. The Florida Supreme Court held that the fee was valid because all properties with impervious surfaces benefited from the stormwater services.

In *Kentucky River Authority v. City of Danville, Kentucky,* 932 S.W.2d 374 (Ky. App. 1996), the city argued that it received no benefit from the activities of the Authority. The court disagreed, holding that the preservation of the watershed was a benefit that accrued to all within its boundaries. The court likened the fee to emission fees collected from entities that emit air pollutants and are used to fund the state air program, noting that although there may be no direct or immediate benefit to the payer of the fees, the use of the air and the contamination of it are sufficient to justify the imposition of the fee.

In *Densmore v. Jefferson County, supra*, the Plaintiffs alleged that a county stormwater fee was an unconstitutional tax with no relationship to benefit received by property owners. The Alabama Supreme Court held that the fees were valid because the benefit conferred on property owners need not relate directly to the exact amount paid.

Application to Capital Improvements

Whether or not the fees must be confined to the actual cost of providing stormwater services alone, or whether any surplus can be collected and applied to the cost of system expansion and capital improvements has been litigated in Ohio, Tennessee, Colorado and North Carolina.

In *Wooster v. Graines,* 556 N.E. 2d 1163 (Ohio 1990), the City of Wooster adopted an ordinance to establish a storm drainage utility for maintaining, repairing and improving the sewer system (fees were based on impervious area). The owner of a shopping center refused to pay, claiming the fee was invalid because city accumulated a surplus to fund capital improvements in new areas. The Ohio Supreme Court held that the ordinance was valid because sewer funds were segregated and reserved for future sewer projects in Wooster.

Application of stormwater fees to capital construction costs was also upheld in the *City of Littleton, Vandergriff,* and *Smith Chapel Baptist Church* cases, discussed above.

FEDERAL FACILITIES

The imposition of stormwater fees on federal facilities involves a special consideration of the tax vs. fee issue. The general principle that states cannot tax the United States derives from Chief Justice Marshall's opinion in *McCulloch v. Maryland*, 17 U.S. (4 Wheat.) 316, 4 L. Ed. 579 (1819). Although the immunity of the federal government and its instrumentalities has been the source of often conflicting decisions, "the one constant . . . is simple enough to express: a State may not, consistent with the Supremacy Clause, U.S. Const., Art. VI, cl. 2, lay a tax 'directly upon the United States'. . . . The Court has never questioned the propriety of absolute immunity from state taxation." *United States v. New Mexico*, 455 U.S. 720, 733, 71 L. Ed. 2d 580 , 102 S. Ct. 1373 (1982).

On the other hand, it is well-established law that the United States must pay reasonable user fees. For instance, charges for services from city-owned utilities are clearly fees for which the federal government would be liable to the same extent as any other customer. *See United States v. Harford County, Maryland*, 572 F. Supp. 239, 241 (D. Md. 1983) ("The federal government has . . . recognized its obligation to pay state or county charges based on the quantum of water or sewer services rendered.")

Furthermore, the Clean Water Act contains an express waiver of sovereign immunity for certain pollution-control related fees. Clean Water Act § 313(a) ("Federal facilities pollution control") expressly provides that:

> Each department, agency or instrumentality of the executive, legislative, and judicial branches of the Federal Government . . . shall be subject to, and comply with, all Federal, State, interstate, and local requirements . . . respecting the control and abatement of water pollution in the same manner, and to the same extent as any nongovernmental entity <u>including the payment of reasonable service charges</u>. . . . This subsection shall apply notwithstanding any immunity of such agencies, officers, agents, or employees under any law or rule of law.

Importantly, this waiver applies only to fees or service charges, and not to taxes. As seen in the numerous state cases discussed above, this distinction is often difficult to make in practice. The United States Supreme Court has established a three-pronged test for determining whether fees imposed by local governments on federal facilities are "reasonable service charges" or taxes (*Massachusetts v. United States*, 435 U.S. 444 (1978)):

- Is the fee or service charge non-discriminatory?
- Is it a fair approximation of the cost of the benefits received?
- Is it structured to produce revenues that will not exceed the regulator's total cost of providing the benefits?

Under the *Massachusetts* case, 1) the federal government must not be treated any differently in the enforcement of the fee requirement than other regulated entities; 2) the fee charged must be a fair approximation of the benefits received to be considered "reasonable;" and 3) the fee must be structured to produce revenues that will not exceed the total cost to the state of the benefits supplied. This test has been applied to environmental fees in several cases, most notably the long-running litigation involving the New York State Department of Environmental Conservation (NYSDEC) and the U.S. Department of Energy (USDOE).

That series of cases involved the question of whether certain hazardous waste regulatory charges imposed by New York on federal installations were "reasonable service charges" within the meaning of the sovereign immunity waiver provision in the Resource Conservation and Recovery Act, 42 U.S.C. 6961. In January 1989, NYSDEC brought four consolidated actions in New York State Supreme Court against USDOE to recover unpaid environmental program regulatory charges, including hazardous waste program and waste transporter program charges, assessed by the NYSDEC against ten federal facilities from 1983 to 1989. USDOE counterclaimed for a refund of approximately $ 400,000

and related relief for regulatory charges already paid. Those actions were subsequently removed to the District Court for the Northern District of New York.

Arguing that the waste regulatory charges were unreasonably high, USDOE asserted that in every year between 1983 and 1989, "total waste regulatory charges exceeded [NYSDEC]'s actual services [to the ten federal facilities] by a ratio of approximately nine to one ($1,163,591.58 vs. $ 126,792.13)." The District Court denied both parties' motions for summary judgment because neither party had submitted evidence "as to the value of the overall benefits the facilities receive in light of the programs and services made available to them by [NYSDEC] should the need for such assistance ever arise." *New York State Department of Environmental Conservation v. United States Department of Energy*, 772 F. Supp. 91, 99-100 (N.D.N.Y. 1991).

In later proceedings, the District Court granted NYSDEC's motion for partial summary judgment and denied USDOE's motion for summary judgment. *New York State Department of Environmental Conservation v. United States Department of Energy*, 850 F. Supp. 132 (N.D.N.Y. 1994) ("NYSDEC II"). The District Court explained that the *Massachusetts* test "requires only a rational relationship between the method used to calculate the fees and the benefits available to those who pay them." *Id*. at 143. The Court found such a relationship in this case because (1) larger facilities are more expensive to regulate and require more services than smaller facilities; (2) all services which NYSDEC provides pursuant to these regulatory programs, whether used or not, are available to the United States should they be needed in the future; and (3) the total receipts from these regulatory fees have been substantially less than the actual costs of these programs – all of which demonstrates that NYSDEC's method of calculating its charges results in a fair approximation of the cost of the use of the system.

Following two additional decisions by the district court in 1997 and 1999, the case reached the Second Circuit Court of Appeals. *Jorling v. United States Department of Energy*, 218 F.3d 96 (2d Cir. 2000). At that point, only the reasonableness of the hazardous waste fee was at issue. USDOE did not dispute the first or third parts of the *Massachusetts* test. It acknowledged that NYSDEC's waste regulatory charges were non-discriminatory and were not structured to produce revenues that would exceed the total cost to NYSDEC of the benefits to be supplied. However, it disputed the second part of the *Massachusetts* test, challenging the District Court's finding that no reasonable jury could find that the waste regulatory charges did not meet the "fair approximation" component of the *Massachusetts test*. USDOE argued that the charges cannot meet that component of the test because the charges from 1983 to 1989 exceeded the cost of supplying the services actually received by a nine to one ratio.

The Court of Appeals found that, under *Massachusetts*, a fair approximation of the use of the service adequately serves as a surrogate for an otherwise complicated and expensive attempt to allocate costs. The court cited *Brock v. Washington Metropolitan Area Transit Authority*, 254 U.S. App. D.C. 190, 796 F.2d 481, 485 (D.C. Cir. 1986) for the proposition that "*Massachusetts* did not hold that a user fee must represent retrospectively a close approximation of the actual, historical benefit to the user. Rather, *Massachusetts* held only that the method used to calculate the fee must rationally be designed to approximate prospectively the benefit to the user." The court also found that the *Massachusetts* test applies not only to services used but also to services available for use. Based on these principles, that court found that NYSDEC's waste regulatory charges meet the "fair approximation" component of the *Massachusetts* test, because the method of calculating the hazardous waste program charges was reasonably designed to fairly approximate use of the hazardous waste system's available services, and thereby to approximate the cost of supplying such services to particular generators of waste or operators of waste facilities.

The principles established in the *Massachusetts* case and explored in the *NYSDEC* litigation are currently the subject of ongoing litigation between the City of Cincinnati and the U.S. Department of Health & Human Services (HHS). The National Institute of Occupational Safety and Health (NIOSH), a part of HHS, refused to pay stormwater fees due under a 1985 city ordinance using formula based on size of property and "intensity of development" factor to determine "equivalent runoff units." The city initially attempted to bring suit in Federal Court of Claims based on "implied contract" for services. In *City of Cincinnati v. United States,* 39 Fed. Cl. 271 (1997), the Court of Claims dismissed the claim as an unconstitutional "tax" based on property size rather than services actually used. In *City of Cincinnati v. United States,* 153 F.3d 1375 (Fed. Cir. 1998), the Court of Appeals for the Federal Circuit upheld the lower court's dismissal of the case, but only because there was no "implied in fact" contract between the city and the federal government, and the Court of Claims therefore lacked jurisdiction to hear the case. The Court of Appeals expressly declined to rule whether or not the city's storm drainage service charge was a tax or a fee.

In October 2003, the City re-filed its claim in U.S. District Court, asserting jurisdiction under the Tucker Act and the Declaratory Judgment Act. *City of Cincinnati v. United States,* Case No. 03-731 (S.D. Ohio, filed 10/23/03). The United States filed a Motion for Judgment on the Pleadings in February 2004, arguing *res judicata* and lack of subject matter jurisdiction. In May 2004, the City moved for leave to file an Amended Complaint based on its local ordinance and the waiver of sovereign immunity in CWA § 313. The case was still pending before the District Court for the Southern District of Ohio as of October 2005.

SUMMARY AND CONCLUSIONS

Although stormwater management fees have been upheld in the majority of states where they have been challenged, the passions inspired by the general public perception that any new governmental fee is a disguised and unlawful tax ensures that challenges to such fees will continue to arise. Determining the legality of the financing mechanism chosen for any municipal or county stormwater program will depend upon a close analysis of local state law. Nevertheless, certain general principles emerge from the cases discussed above.

(1) In order for a stormwater service charge to be regarded as a fee, rather than a tax, the local government should be prepared to demonstrate that the overall cost of the program is reasonably related to the value of the service being provided, and that the funds raised are segregated for use by the stormwater program and not for general revenue purposes.

(2) The fee should be structured so that the amount charged to particular properties is proportional to those properties' contribution to stormwater runoff. The distinction may be as simple as a different fee for residential and commercial properties, or as elaborate as a sliding scale based upon "impervious area" or degree of development.

(3) Some provision should be made so that participation in the program can be characterized as "voluntary," whether it is accomplished through an "opt-out" provision for properties with their own stormwater management facilities or a more complex system of credits or offsets based upon the amount of volume actually contributed to the public stormwater system.

(4) In states such as California, Michigan and others with special constitutional provisions governing the imposition of any new tax, it may be wise to seek the requisite voter approval for implementation of local stormwater funding programs even if they are designed and intended to be fee-based rather than tax supported.

CASES CITED (in chronological order)

STATE:

City of Billings v. Nore, 148 Mont. 96; 417 P.2d 458 (Mont. 1966)
Teter v. Clark County, 704 P.2d 1171 (Colo. 1985)
Zelinger v. City and County of Denver, 724 P.2d 1356 (Colo. 1986)
Long Run Baptist Ass'n v. Louisville MSD, 775 S.W.2d 520 (Ky. App. 1989)
Wooster v. Graines, 556 N.E. 2d 1163 (Ohio 1990)
Dennehy v. City of Gresham, 12 OTR 194; 1992 Ore. Tax LEXIS 7 (Ore. Tax Ct. 1992)
City of Littleton v. State, 855 P.2d 448 (Colo. 1993)
Roseburg School District v. City of Roseburg, 851 P.2d 595 (Ore. 1993)
City of Wichita, Kansas v. Kansas Taxpayers Network, 874 P.2d 667 (Kan. 1994)
Sarasota County v. Sarasota Church of Christ, 667 S. 2d 180 (Fla. 1995)
Kentucky River Authority v. City of Danville, Kentucky, 932 S.W.2d 374 (Ky. App. 1996)
Smith v. Spokane County, 948 P.2d 1301 (Wash. App. 1997)
City of Cocoa v. School Board of Brevard County, 711 So. 2d 1322 (Fla. App. 1998)
Twietmeyer v. City of Hampton, 497 S.E. 2d 858 (Va. 1998)
Vandergriff v. City of Chattanooga, 44 F. Supp. 2d 927 (E.D. Tenn. 1998)
Bolt v. City of Lansing, 587 N.W.2d 264 (Mich. 1998)
Fulton County Taxpayers Association v. City of Atlanta, No. 1999CV05897, 1999 WL 1102795 (Ga. Super. Ct. Sept. 22, 1999).
Smith Chapel Baptist Church v. City of Durham, 517 S.E. 2d 874 (N.C. 1999)
South Carolina v. City of Charleston, 513 S.E.2d 97 (S.C. 1999)
Densmore v. Jefferson County, 813 So. 2d 844 (Ala. 2001)
Howard Jarvis Taxpayers Ass'n v. City of Salinas, 98 Cal. App. 4th 1351 (2002)
City of Gainesville v. State of Florida, 863 So. 2d 138 (Fla. 2003)
McCleod v. Columbia County, 599 S.E. 2d 152 (Ga. 2004)
Church of Peace v. City of Rock Island, 2005 Ill. App. LEXIS 448 (2005)

FEDERAL:

Massachusetts v. United States, 435 U.S. 444 (1978)
New York State Department of Environmental Conservation v. United States Department of Energy, 772 F. Supp. 91 (N.D.N.Y. 1991)
Jorling v. United States Department of Energy, 218 F.3d 96 (2d Cir. 2000)
City of Cincinnati v. United States, 39 Fed. Cl. 271 (1997)
City of Cincinnati v. United States, 153 F.3d 1375 (Fed. Cir. 1998)
City of Cincinnati v. United States, Case No. 03-731 (S.D. Ohio, filed 10/23/03)

CHAPTER 4

IMPLEMENTING USER-FEE BASED FUNDING

OVERVIEW

The dynamic change which has occurred in the expectations placed on the municipal stormwater program has overwhelmed traditional stormwater program funding. This has driven the exploration of new funding strategies and given rise to the increasing popularity of user fee/utility based approaches.

The breadth of the changes motivating this exploration has required that not just funding mechanisms be explored. The services delivered by the municipal stormwater program, the quality of those services, the degree to which they satisfy local expectations, and the degree to which they satisfy stakeholders needs, become critical elements in structuring user fee based funding. In the eyes of stakeholders, implementing a new stormwater funding mechanism is secondary to receiving good stormwater system service. The performance of the stormwater program, as perceived by the program's stakeholders, therefore, becomes a focal point of the effort to develop a functional stormwater funding program.

Implementation of user fee based funding involves a related set of actions and activities. These occur within a flexible framework that promotes due diligence in five key areas of focus: political, financial, legal, informational and technical. In some communities a simple vote of the governing body is all that is needed to implement a funding mechanism. In these cases, little program education, stakeholder involvement, and background information may be needed to secure the necessary authorization. In most cases, however, a much more involved process is necessary to bring about program and funding actions. This chapter discusses this framework and process.

FORCES DRIVING ACTION

As described in Chapter 1, over the last thirty years stormwater programs have gone through significant shifts in basic philosophy, approach and service expectation. Originally stormwater programs were intent on efficient drainage, taking runoff quickly to nearby streams. Resulting flooding then caused local communities to change their basic philosophy from "efficient drainage" to one of "flood control" through the imposition of detention requirements and stricter floodplain controls.

Later still the concept of "stormwater master planning" began to replace ineffective detention programs. Then, in the late 1980's stormwater program managers were faced with the need to also address stormwater quality through NPDES and other regulatory programs.

Today there is a convergent set of stormwater program forces that has moved stormwater to a full-fledged urban utility service stature similar to water and wastewater. These forces can vary from community to community, but generally can include:

- ✓ aesthetic and regulatory demands for "greener" environmentally friendly stormwater systems, sometimes without clear definition of what that means, or a track record in concept performance or sustainability;
- ✓ multi-objective disaggregated stormwater system components that integrate conservation and preservation practices, sometimes called, Low(er) Impact Development;
- ✓ integration of stormwater infrastructure planning and design with site layout and function, sometimes called Better Site Design;
- ✓ redevelopment that incorporates "micro-systems" of pollution removal
- ✓ a plethora of commercial and industrial site controls;
- ✓ the need, often mandated through endangered or threatened species considerations, to integrate ecological assessments and designs;
- ✓ mandated public education and involvement in stormwater program conception and implementation, and the emergence of non-profit interest groups;
- ✓ demanding regulatory requirements evolving in a fast changing legal arena, and on again/off again numeric pollutant criteria;
- ✓ ongoing program needs for maintenance and capitalization of the system, often with extended levels of service; and
- ✓ significant reductions in general fund dollars for stormwater programs concurrent with the doubling of stormwater program costs.

THE STORMWATER UTILITY, PROGRAM CONCEPT AND DUE DILIGENCE

Utility Program Concept

The stormwater utility is an umbrella under which individual communities can address their own specific needs in a manner consistent with local problems, priorities, and practices. A stormwater utility provides a vehicle for:

- ✓ consolidating or coordinating responsibilities that were previously dispersed among several departments and divisions;
- ✓ generating funding that is adequate, stable, equitable and dedicated solely to the stormwater function; and
- ✓ developing a program that is comprehensive, cohesive and consistent year-to-year.

A stormwater utility is equitable because the cost is borne by the user on the basis of demand placed on the drainage system. It is stable because it is not as dependent on the vagaries of the annual budgetary process as are taxes. And it is adequate because a typical stormwater program can be financed with charges within the limits of the customer's willingness to pay.

No two successful utilities are identical just as no two cities are just alike. Therefore, it is not prudent to follow a pre-fabricated "one size fits all" approach, but to carefully seek to understand the make-up of the community, its problems, its goals, and its resources. There must be a clear understanding of the community's stormwater related systems, capabilities, and issues.

Some communities have simply attempted to clone a stormwater program or utility rate methodology of another city or county. Some consulting firms have attempted to sell a uniform approach. A local community should carefully guard against such a temptation. A stormwater program, rate structure, or billing methodology cloned from somewhere else rarely can sustain intense scrutiny by a staff, advisory committee, elected officials, or interest groups or the community at-large if the program utility doesn't meet local needs. Such programs often fail.

The real danger of the cloning approach is that it inevitably falls short of meeting the local stormwater program expectations because it is not founded on addressing them. As was mentioned in Chapter 2, the local problems, needs, and circumstances must drive the form, priorities, and pace of the program. The success of leading stormwater utility programs is based on tailoring the program and financing strategies to the local needs and solving real short-term and long-term stormwater problems.

Due Diligence

"Due diligence" is the process of insuring that the community's program and funding expectations will be met. It includes the formulation and execution of a plan with appropriate levels of investigation, establishment of facts, estimation of future prospects, framing of assumptions and risks, and establishment of a plan of action and funding. It can also result in a decision not to act.

Attempted stormwater utility implementations have failed for a number of reasons, most of which have to do with inadequate due diligence. For example, some key reasons given in failure post mortems include:

- ✓ Not understanding the process and cutting key corners
- ✓ Failure to establish stakeholder support
- ✓ Failure to identify and account for hurdles
- ✓ Inadequate legal assessment of the authority for a particular rate structure
- ✓ Failing to work with media
- ✓ Inability to focus the stormwater program on citizen felt needs
- ✓ Inaccurate databases without ability to appeal
- ✓ Poor citizen or customer service
- ✓ Rate structures without rational nexus
- ✓ Rate structures too complex to explain and seemingly inequitable
- ✓ Failure to understand political timing

Due diligence must be pursued along four major areas of concern, or tracks. These tracks, which are foundational to the utility implementation process and which are discussed in the implementation section of this chapter, are as follows:

- ✓ **Public** – are there appropriate levels of involvement of key stakeholders, is the general public handled correctly, is the media appropriately involved, is customer service accounted for, are staff and political leadership elements accounted for and handled appropriately?
- ✓ **Program** – does the program make sense, is it compelling, is it within the community's ability and willingness to pay, does it meet citizen perceptions, is it action oriented?
- ✓ **Finance** – are legal tests satisfied, is it simple yet fitted to the local situation, does it have the perception of equity, are proper steps followed, does it support the stormwater program?
- ✓ **Database** – is the database accurate within legal requirements, is there an appeals process, is it maintainable within reasonable cost constraints, are anomalies accounted for, is customer service appropriate and responsive?

The cost of appropriate due diligence is not insignificant but should be kept in perspective. Experience has shown that, should a stormwater utility fail it takes

five to seven years for there to be a staff and political willingness to make another attempt. The opportunity cost of failure is then five to seven years of lost revenue. For example, for a stormwater utility that raises $2,000,000 per year the opportunity cost of failure is $10 to $14 million. The cost to do a thorough job of due diligence in this example, however, is rarely more than $350,000, one to three months' revenue.

Additional benefits of appropriate up front due diligence include:

- ✓ Better initial and long-term public knowledge and cooperation leading to greater support and participation.
- ✓ A funding rate structure that matches and meets short and long term program needs leading to stable, adequate funding.
- ✓ A stormwater program that can meet both the capital and operations needs of the local community, leading to better services and ability to meet regulatory demands.
- ✓ More efficient long-term database maintenance, leading to lower operating costs and better customer service.

Those communities that have cut corners in due diligence normally find themselves hampered in their ability to manage the database, meet customer expectations, solve flooding problems, meet regulatory needs, and modify the program or utility to meet changing demands. A process can be developed that facilitates such change while maintaining the effectiveness of the stormwater program and the utility.

CREATING MOMENTUM AND A PROCESS FOR PROGRAM ACTION

The ability to bring about action that moves a stormwater program forward and produces the necessary funding, depends on the ability to bring key leaders to an understanding of the problems, and a vision of the solutions. To achieve this understanding and to create such a vision requires a logical and acceptable process which leads a community to action.

Understanding Problems

Understanding of the problems involves building a "compelling case for action". In every community there are good, even compelling, reasons to improve the way stormwater programs are executed. It might be a popular stream that is becoming increasingly impacted, a lack of riparian park space, decaying drainage infrastructure and mounting complaints, unfunded regulatory mandates, local flooding, financial pressures, loss of fish, beach closings, a roadway or bridge collapse, or law suits. Such issues draw the attention and energy of stakeholders and leaders to opportunities for action.

Assembling a “compelling case” is step one in developing this understanding and bringing about action. People in general are motivated along two complimentary courses of persuasion – information (data) and stories. Some people want facts and statistics (data), while others are moved to action by horror stories and pictures. When we begin to quantify the community’s perception of program need or make the case for change and new funding, we seek to address both types of people. Table 4-1 gives some examples taken from successful stormwater utilities.

Information	Stories
• Statistics on repair costs • Cost information • Infrastructure information • Lost revenue or tourist dollars • Regulatory Facts • Backlog information on flooding • Unfunded mandate information	• Flooding pictures • Horror stories • Movies • Testimonials • Environmental or aesthetic appeals • Drawings of a future greenway, trail, etc.

Table 4-1: Building Blocks for a Compelling Case

Building a compelling case and knowing when, how, and to whom to present it is more of a political and technical art form than it is a science. But taking time to build informed consent to move forward and to support program change and new funding methods is vitally necessary.

Vision for the Future

People rarely rally around simply solving problems. It is in creating a vision for what could or should be that causes people to begin to support the concept of a stormwater utility as a vehicle for action.

Building vision is a process of moving from recognizing problems, needs, issues and opportunities to seeing the way things could be. It involves seeing what others have done and showing how practical solutions can create significant improvement in the quality of life.

An artist’s rendering of what an ugly polluted stream could become can help rally people. A seminar or workshop with representatives from other places telling about wonderful changes in their community gets people leaning into change. Sometimes simply showing how problems would be solved brings about a determination to move forward.

Bringing About Action

Leaders often agree that there must be action to bring about recommended improvements but are not sure how to begin. The use of a citizen's stakeholder group is an effective technique which facilitates development of problem understanding and of the vision for the future, and is a useful part of the process for action. Ten to fifteen people who adequately represent key positions or ideas can move together through the process.

Sometimes these meetings are over-controlled by well-meaning facilitators, or a citizen's group is asked to merely react to a fully developed solution. In both cases creativity can be stifled, citizen's can lose interest, and input can deteriorate. But if allowed true input, the group will have ownership of the plan and will often help sell it.

An effective tool in bringing about action is the business plan approach as discussed in Chapter 2. Facts are fine, but process, such as that produced by a stormwater business plan, moves things forward, formulating a road map and structure for action.

Business planning has not been a normal approach for local government. Local government has not typically thought of itself in terms of what it is selling, how it measures success, and who the customer is. A generic business plan asks and answers the following questions:

- Who we are?
- What business are we in?
- What's going on now?
- Where do we want to go?
- How do we want to get there?
- What are the steps to make it happen?
- How will we know when we have arrived and, how can we demonstrate it to someone else?
- How we will pay for it?

The business plan model, which measures goals in "program efficiency" and "program effectiveness", must be somewhat modified for local government use. Resistance to getting lost in too many technical details will help move the business plan to a useful conclusion.

Process Framework

The development of problem understanding and a future vision, and the exercise of such tools and techniques as a stormwater business plan and citizens impact groups require a structured format to insure a successful outcome. In this case, that outcome would be a utility structure for a comprehensive stormwater program. Figure 4-1 illustrates an overall process framework for development of

a utility funding mechanism. Only the first and third steps might be considered absolutely necessary. The steps are:

- ✓ Quick Concept Study – answers the question: "does the proposal make sense", and if the answer is "yes" the work goes forward.
- ✓ Feasibility Study – creates both information and momentum for implementation, and is used as an intermediate step if success is not fairly certain.
- ✓ Utility Implementation – is the process of working in a coordinated and logical way through the details of planning implementation and due diligence.

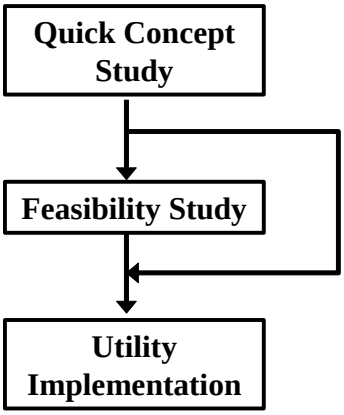


Figure 4-1: Overall Process Framework

PROCESS FRAMEWORK, QUICK CONCEPT STUDY

The purpose of this step is to assess the basic advisability of pursuing a stormwater program and funding assessment with the potential of implementing a stormwater user fee. Designed to be low cost, fast paced, and focused, it:

- ✓ Tests the water with very little political, financial, or emotional investment,
- ✓ Can normally be authorized without an RFP,
- ✓ Operates "under the radar" as an internal quick study,
- ✓ Builds internal vision for going forward,
- ✓ Can happen very quickly, taking only days to complete.

A consultant team or in-house facilitator typically takes the staff through a consideration of the following questions, and the answers leading to both a program and funding direction:

- ✓ What is the local government currently doing in terms of stormwater management?
- ✓ Why should the local government pursue a study and potential funding method like this, what is the compelling case?
- ✓ What stormwater program priorities should guide the local government in the next three to five years?
- ✓ What larger program improvements should be made and what would be the costs? What is the revenue potential of a utility fee or other major revenue source?
- ✓ What are the major hurdles or potential "show stoppers" to going forward?
- ✓ What are the immediate next steps should a "GO" decision come out of this study?

Integrated into this study is the potential for staff presentation of the findings and an educational/informational overview of a stormwater utility funding mechanism.

PROCESS FRAMEWORK, FEASIBILITY STUDY

The purpose of the feasibility study is to assess the local government's existing stormwater management program, to make recommendations for future directions and changes, and to assess the feasibility of funding the program with a stormwater utility (user fee) and other methods.

Figure 4-2 illustrates a typical "roadmap" for the feasibility study.

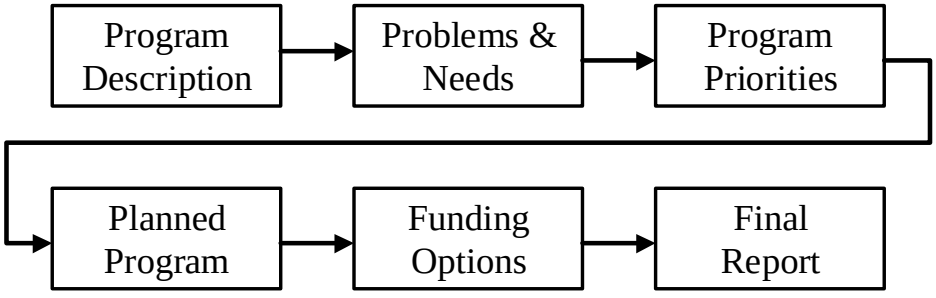


Figure 4-2: Feasibility Study Roadmap

Typically a group of citizens and staff are taken through a consideration of the following questions, the answers leading to both a program and funding direction:

- ✓ What is the local government currently doing in terms of stormwater management?
- ✓ What are the stormwater related problems, issues, needs, resources, and opportunities currently faced by the local government?
- ✓ What stormwater program priorities should guide the local government in the next three to five years?
- ✓ What specific program improvements should be made and what will be the costs?
- ✓ What is (are) the best way(s) to pay for these program improvements?
- ✓ How should the funding method(s) be implemented?

The feasibility study is used when there is an inclination to go forward with a stormwater utility but sufficient support has not been developed to insure adoption of a utility ordinance. The feasibility study essentially accomplishes the first few steps in establishing a stormwater utility without the commitment from elected officials to make the final decision.

The feasibility study can be a worthwhile endeavor because it:

- ✓ is low risk; even if implementation of a utility is found infeasible, the study is a success because it accurately determined a “no go” decision was best;
- ✓ tests the water before committing to a user fee, giving political leaders a sense of safety because the approach is phased and involves others in the “go” decision;
- ✓ provides broader backing and wider support among the community and brings them into the process early;
- ✓ builds momentum and support toward a “go” decision through logical consideration of program needs and concerns;
- ✓ provides an early warning of hurdles and pitfalls;
- ✓ saves time and money because implementation costs can be defined and may be lowered by anticipation and planning; and
- ✓ develops sufficient legal due diligence to allow for borrowing of the implementation costs, with later payback from the user fee revenue stream.

The advantage of this kind of feasibility study over some other approaches is its initial focus on problem solving. The focus of the feasibility study is not just revenue generation but program improvement. This initial concentration on

identifying and solving problems is key, and follows the process for bringing about action discussed previously.

Often the use of a citizen's group serves as the vehicle for taking the local government through the business plan approach and the roadmap in Figure 4-2. This can be accomplished in four to seven meetings and can be very participation oriented.

Other forms of stakeholder participation in the feasibility study can involve:

- ✓ citizen review of a previously completed consultant study where it is presented in a series of meetings with comment sought;
- ✓ public forums where issues are openly discussed by a panel with questions and input sought from the audience; or
- ✓ study groups where a specific need, such as flooding, is investigated leading to solution concepts and identification of funding needs.

PROCESS FRAMEWORK, UTILITY IMPLEMENTATION

Regardless of the use of a feasibility study, the implementation of a successful user fee follows four "tracks" of activity. Figure 4-3 outlines these four tracks in an overall utility implementation flow chart. It is crucial that these four tracks are coordinated and timed to occur as shown. While there are almost infinite variations on this figure, the key activities within the figure are all important and should not be skipped.

For larger communities there can be a manager for each of the four tracks. For smaller projects a single manager can handle multiple tracks, though it often makes sense and increases project success for each track to have an experienced expert in the lead.

The Public Track

Though not resulting in an "operational" part of the utility, this track serves the whole process. It involves four basic phases: planning the public involvement and information process; conducting the involvement and public education process; carrying out the implementation campaign; and monitoring utility implementation and customer service.

Often a citizen's stakeholder group is involved. A citizens group can assist in the work of all four tracks and is particularly useful in establishing policy and priorities and to serve as eventual proponents of the recommended action.

Stormwater utilities are rarely infeasible technically, and legal constraints can usually be overcome. It is in development of public, stakeholder, and political

support that the difficulties often arise. Thus the Public Track is often the key to success of utility development efforts.

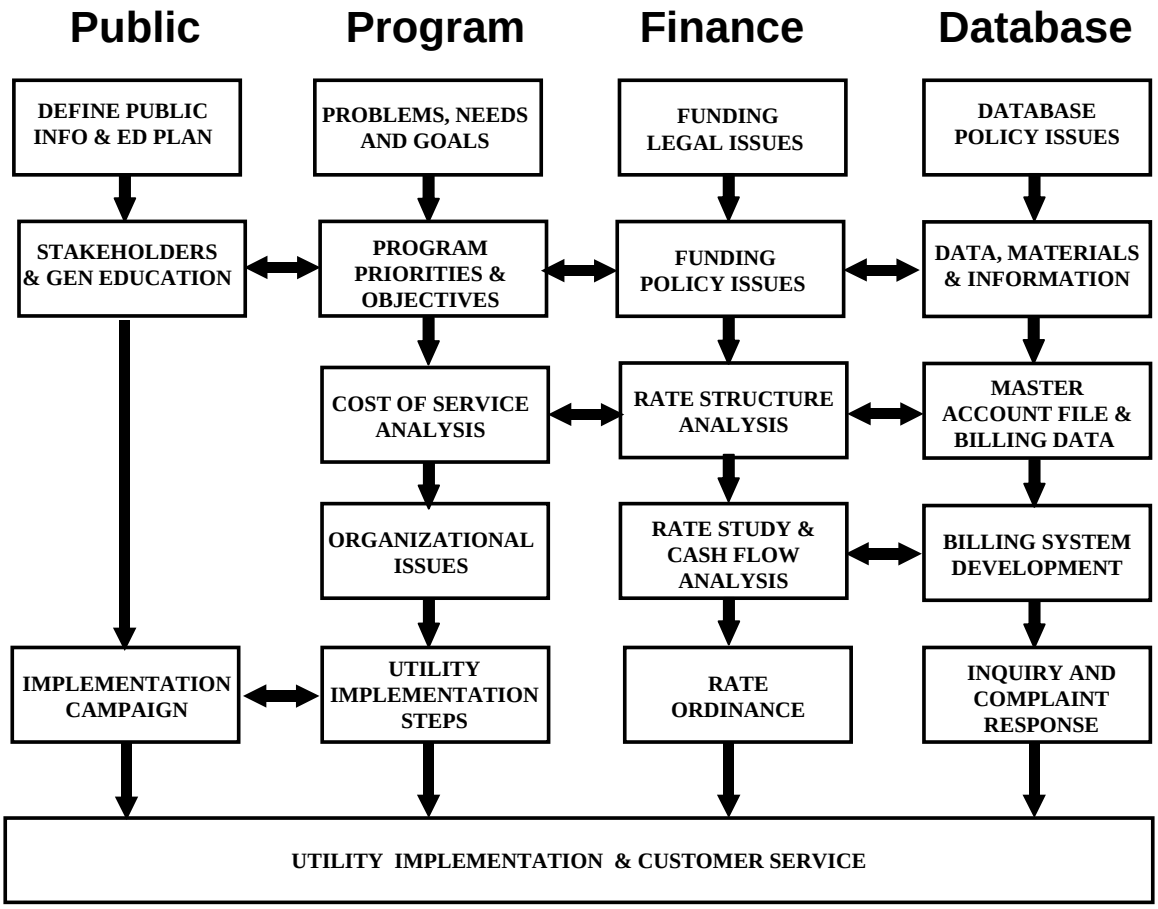


Figure 4-3: Utility Implementation Approach

It is important to remember that there are many "publics" in a local community, and that each has a stake or special interest in a stormwater utility with reasons to both support and oppose it. The following are examples:

"Public"	"Special Interest"
✓ Developers	Regulatory and Financial
✓ Environmentalists	Stormwater Quality, Habitat
✓ Neighborhoods	Flooding, Convenience, Property Values
✓ Clubs	Participation, Voice
✓ Social, Ethnic, Economic	Locations, Jobs, Costs
✓ Tax Exempt Entities	Utility vs. Tax
✓ Political Leaders	Timing, Message, Process
✓ Media	Is it "News"?
✓ Commercial/Industrial Entities	Costs, Credits, Service
✓ Technical Specialists	Standards, Criteria and Procedures

Early in the process, preferably during a feasibility study, a Public Information and Education Plan (PI&E Plan) which asks the following questions should be developed. This plan serves as the roadmap for the work of the Public Track.

- ✓ Who is the public?
- ✓ What is the message?
- ✓ When do we send the message?
- ✓ How is the message sent?
- ✓ What is the emergency response when trouble occurs?

Well crafted information, strong media involvement, a speakers' bureau, videos, citizen speakers, billboards, mailers, and public meetings, have all been used in effective public information programs. There is no one right approach as each community and sub-element within the community, may obtain its information and make decisions differently. In one, key decisions are made by leading business leaders. In another the council may make the decisions with little input. In one community environmental interests prevail; while in another, solving flooding is key. In some places environmental justice and the economically disadvantaged are primary, while for others it is not. Thus, it is important to understand the character and makeup of the community.

The Program Track

This track assesses the basic problems, needs and goals, establishes program priorities, lays out a three to five year program, develops a costing of that program, and finally, sets up implementation steps. The program is the final determinant of the revenue plan, utility rate and rate structure, although due regard must be given to the customer's willingness to pay for stormwater given other demands on citizens' resources.

The program is also what sells the utility concept, and it is the Program Track process which addresses the most fundamental of questions. How do we convince citizens and stakeholders of the need for an alternate funding source? Or, how do we craft a stormwater program that meets the needs of the local community without exceeding available funding?

The program track begins by identifying the compelling case discussed previously (problems/needs). This is translated into three to seven key program priorities and the new stormwater program is formulated with a cost of service analysis, into a detailed three to five-year program plan. Longer term planning in less detail is also useful.

Normally, for multiple jurisdiction utilities, the governance questions must be addressed in a preliminary way, early in the process. But it is normally prudent to address organizational and management issues at the end of the Program Track. It is better to first focus on the functions of the stormwater program rather on who

might perform them. This defers potential organizational issues to the end where they are more easily resolved by the completed program planning information.

The basic elements of a stormwater management program, which must be addressed by the Program Track, include both operational and financial functions. These might include:

- ✓ Operations and Maintenance
- ✓ Regulation and Enforcement
- ✓ Engineering and Planning
- ✓ Capital Construction
- ✓ Administration and Finance
- ✓ Regulatory Compliance
- ✓ Billing and Collections

The final assessment and planning step in the Program Track is the identification of the steps required to implement a utility. Those steps include a determination of the mix of revenue types to be used, the structure of the utility rate and the administrative functions which will implement and support the utility. These factors/elements are addressed in more detail in Chapter 2 of this guidance. The legal foundations of the revenue mix are addressed in Chapter 3 and are a principal focus of the Finance Track of the Utility Implementation Approach shown in Figure 4-3 of this chapter.

The Finance Track

The Finance Track sets up the legal and financial basis for the stormwater funding program. In this track the planning process examines legal parameters of the revenue options, explores and establishes policies which will govern the revenue program, analyzes factors which will determine the structure of the rates to be levied, determines the revenue needed, and develops ordinances needed to implement revenue policies, rates, enforcement and equities.

It is in this track that fundamental questions concerning financing of the stormwater program are addressed. Who should pay for the stormwater program? What is the appropriate cost share to be borne by each benefited segment of the community? When or how frequently should payment occur; and what mix of revenue types or methods should be used to accomplish this payment such as fees, assessments, taxes, and/or utility?

In addition to these policy questions, the Finance Track also addresses legal questions. What revenue authority already exists? What legal authority is needed to implement the desired revenue mix; and what legal foundation is needed to support the levy of each of the individual revenue types (nexus, benefits, service)? A more detailed discussion of these issues is found in Chapter 2 and 3 of this guidance.

It is very important to have established a logical and rational nexus for each revenue policy decision, for the rates to be charged, and for ancillary charges, credits, and offsets. The Finance Track establishes the myriad of basic financing policies needed. Then, based on appropriate legal authorities and foundations, and on program input, it moves from development of a revenue structure to meet the program needs, to a rate structure study and cash flow analysis and finally to an ordinance.

It must be stressed that the Finance Track must work in support of the Program Track. The development and implementation of a stormwater funding program in general, and a utility in particular, must be intricately linked to the functions, goals and beneficiaries of the stormwater program to assure both equity and adequacy of the revenue levies. Revenue levies not consistent with benefits or services received; or not adequate to address identified heeds, will quickly lose community support.

The Database Track

The Database Track has application to many stormwater revenue types, but is of foundational importance to the implementation of a stormwater utility. This tract has five main purposes:

- ✓ to determine the appropriate database and fields,
- ✓ to develop the master account file,
- ✓ to develop a mechanism to deliver the bill to the customer,
- ✓ to determine database maintenance processes, and
- ✓ to monitor customer service.

The Database Track is that portion of the planning process in which the decisions made in the preceding tracks are used to create the administrative infrastructure which will compute the revenue levy for each parcel, deliver the bill, record the payment, and monitor the results. The process involves policy assessment and development, evaluation of database options, design of the master account file and selection of a billing and record system. A database can also provide the means to track complaints and service deficiencies. During the Database Track, the revenue program policy decisions made in the Finance Track are given form and application, producing an actual revenue levy on real properties.

The master account file is a derivative of the rate methodology selected. For example, an impervious rate methodology requires the estimation of the impervious surfaces on each parcel. However, the availability of data could also influence the rate methodology decision. Should, for example, land use data be available then it might make sense to construct a rate methodology that uses development intensity factors to reflect the impervious fraction. In some cases the tax assessors file has sufficient number of relevant fields and accuracy to allow for a surrogate of development intensity without a lot of hand work. Addressing these decisions necessitates the connectedness of the Database

Track and the Finance Track as shown in Figure 3. An expanded discussion of rate methodologies is found in Chapter 2.

Some data sources may not be helpful. GIS coverage's, not made to generate stormwater billings and "impervious coverage's", may not contain all the impervious areas of properties. Often they simply approximate buildings and use lines to outline parking lots. Also, parcel information, scanned from paper files, is often warped in relation to the real world. The database developer must search for the best available information or develop information from scratch.

Newer methods involving satellite imagery are coming into popularity for larger areas, low tree cover, and limited budgets. There are, however, significant accuracy problems and the success of such a method depends on the image processing skills of the technician as much as technical specifications of the imagery.

There are generally four options for billing systems. The most common is to use an existing utility system, such as water or wastewater. This has advantages in that stormwater looks like water and wastewater and the charge is clearly a fee for service, not a tax. Another advantage is that delinquencies are low, and it may be possible to turn off water for partial payment of the combined bill even though the customer may have intended to pay the non-stormwater portion of the bill.

Billing the fee on a tax bill may have advantages and disadvantages as well. Using the tax parcel file has the advantage that stormwater is essentially a parcel-based function, creating a direct relationship to the vast majority of the parcels. A disadvantage is that the tax bill is mailed once per year for the majority of properties complicating program cash flow.

The stormwater bill can be placed on another type of utility bill (e.g. electric) but that typically lacks a clear nexus. The last option is to create a stand-alone billing system. This has all the advantages of control and focus, and all the disadvantages of high cost and lack of ability to enforce collections.

Recently local communities are looking at integrating the database support of many of their functions related to infrastructure and customer service. For example, some, or all of the following functions can use overlapping databases:

- ✓ Utility Billing systems
- ✓ Geographical Information Systems
- ✓ Dedicated Stand-alone Systems
- ✓ Maintenance Management Systems
- ✓ Customer Service Systems
- ✓ Complaint Tracking
- ✓ Accounting and Financial Management
- ✓ Property Tax Systems

Depending on the rate methodology the following fields may be required in the database:

Occupant	Impervious area*
Owner	Parcel ID number
Service address	Runoff coefficient*
Property address	Equivalent stormwater units*
Customer type	Customer account number
Land use code*	User fee
Gross area*	Optional fee or information fields

[* Factors which are required for various stormwater fee rate methodologies.]

POLICY ISSUES

The implementation of user fee or utility based funding for stormwater has numerous policy implications. The policies aggregate around the key issue of deciding how service charges should be implemented and applied to specific properties in a consistent and fair manner.

Timing of policy analysis is also important. Some issues must be decided early in the process, such as the extent to which a utility is to be the sole, primary, or secondary revenue source. Other issues will be addressed much later, such as the choice of the billing systems. Still other issues will not arise until the utility is functioning, such as the disposition of specific appeals and requested rate/levy adjustments.

Thought must also be given as to who will make specific policy decisions. The Council formally adopts through ordinance or policy edict many of the major policies which guide the municipality's stormwater revenue program. Although policy-making in the highest sense is reserved to the Mayor and Council, day-to-day policy decisions are, in fact, often made at several levels. .

The Mayor may make some policy decisions based on Council positions. Other policy decisions are made by municipal management and staff administrators pursuant to general directives spelled out by the Mayor and Council. It is important to recognize the need for and functioning of this dispersed policy-making environment, and create a defined hierarchy for the review of important issues. The following is a sample of possible decision levels. Issues which could be decided at each level must be determined by each community.

- ✓ key staff and consultants
- ✓ other involved staff
- ✓ advisory committee
- ✓ manager's office
- ✓ municipal council/mayor

An initial screening of issues for the purpose of weighing their significance and determining the appropriate decision level must consider the following:

- ✓ impacts of policy decision alternatives on costs and manpower;
- ✓ the potential impact on the equity of the utility rate;
- ✓ the relationship of each specific issue to other policy issues;
- ✓ the priority and timing associated with the issue given the municipality's objective of implementing alternative funding for stormwater management,
- ✓ the appropriate level(s) of municipal government at which the issue should be addressed and resolved.

Policy issues in the development of a stormwater utility can be divided into those dealing primarily with program, funding, and billing technical issues. Following is a list of typical policy issues in these three tracks:

Program Related Policy Issues (Program Track):

Program Mission	Major Program Priorities
Program Service Description	Service Area
Extent of Service	Levels of Service
Stormwater Quality Strategy	Organization and Staffing
Privatization	Interlocal Agreements and Responsibilities
Relationship with other Programs	Public Input or Advisory Groups
Public Relations	

Funding Related Policy Issues (Finance Track):

Types of Stormwater Services Funded	Basis for Cost Distribution
Prior Investment	Future Use of Stormwater Systems
Accounting Method	Rate Methodology
Basic Funding Methodology	Modification Factors
Secondary Funding Methods	Overall Funding Strategy
Credits	Equivalent Residential Unit (ERU) Base
Public Streets and Property	State and Federal Property

Billing Related Policy Issues (Database Track):

Billing and Collection Methods
Independent Database system Tie-in
Appeals and Adjustments
Collections and Delinquencies
Property Liens
Management Reporting
Use of other Databases
Number and Type of Data Fields
Rounding and Ranges
Impervious Measurement Accuracy
Customer Service Procedure
Information to Put on Bill
Billing Cost Allocations
Case Exceptions Including:
  Multiple Owners
  Multi-Story Condominiums
Consolidated Billing
New Stand-alone System
Modification of Existing Billing System
Billing Period
Water or Tax Bill Tie-in
Enforcement Procedural Issues
Master Account File Development Process
Accuracy Requirements
Resolution Procedures for Discrepancies
Impervious Area Methodology
Use of Street Centerline Data
Master Acct File Database Maintenance and Updating Process
Billing Owners or Tenants
Undivided Interest, Common Areas
Stormwater Only Accounts
Use of GIS, Mapping or CADD

SCHEDULE

Figure 4-4 illustrates a typical schedule using the four track process for utility establishment. The schedule shows that a comfortable time frame is 18 months from start to finish. The “M” letters indicate milestone meetings.

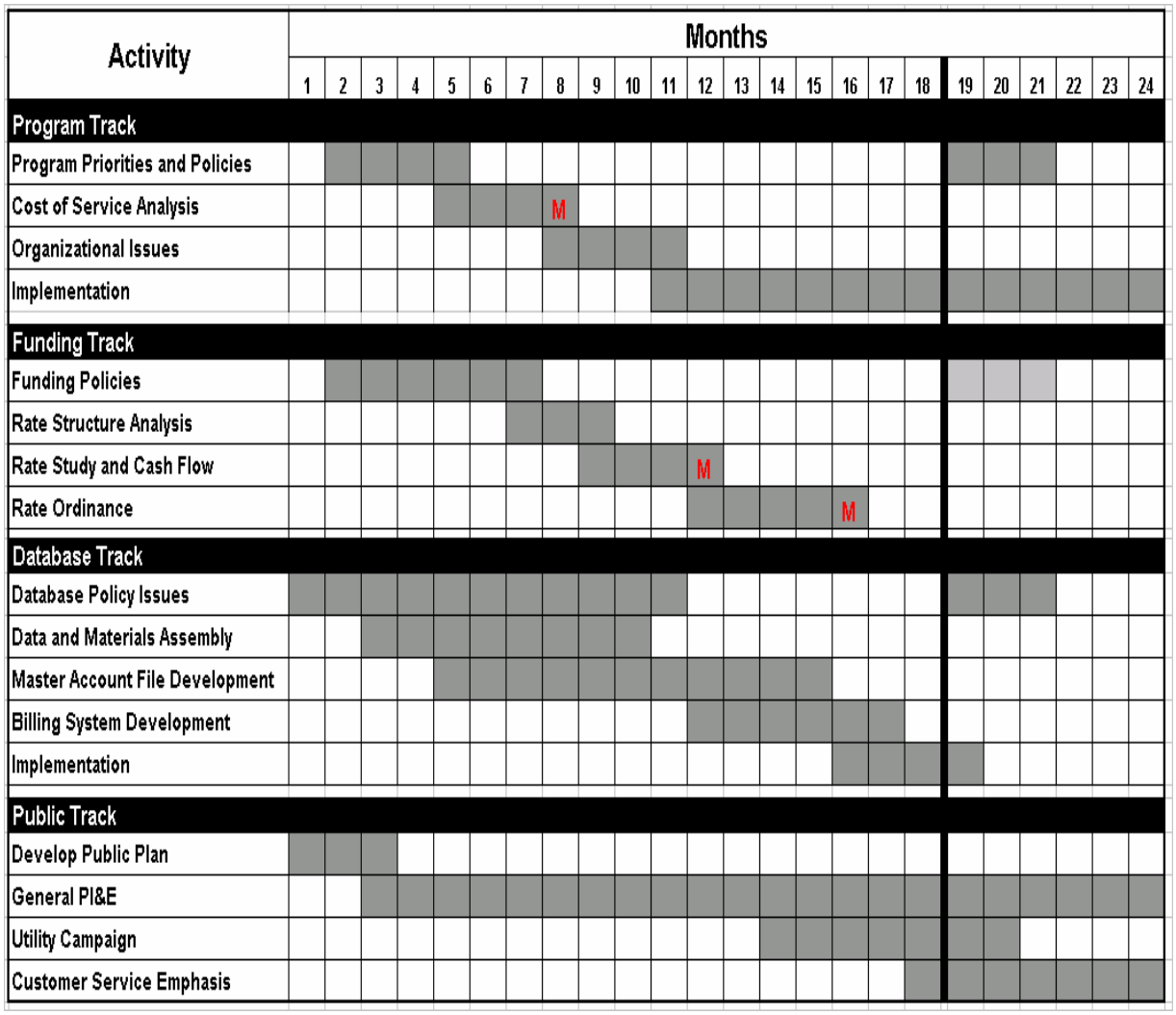


Figure 4-4: Utility Implementation Schedule

The critical path through the process can shift due to the requirements for citizen involvement, political timing, billing timing, and database development.

APPENDIX

EXAMPLE STORMWATER UTILITY PROGRAMS

CITY OF BELLEVUE, WASHINGTON

Keynotes

- The Bellevue stormwater management program was one of the first in the United States (established in 1974) and also the first to give equal consideration to water quality and quantity (flood) control.

- Bellevue's Storm and Surface Water Utility provides a full range of capital infrastructure and operational services, primarily through its in-house staff. In addition to roadway drainage systems, it is responsible for an extensive stream system outside road rights-of-way. It also provides an erosion and sediment control program.

- The Bellevue Utility is governed by the City Council and administered by professional staff as part of a consolidated Utilities Department (water, wastewater, stormwater management, and solid waste).

- Funding of the Bellevue stormwater program is primarily derived from a user fee.

- Key funding policies include:

    - a user fee rate methodology based on gross property area and a factor reflecting the intensity of development of each property, with residential fees being discrete to each property and ranging from less than $3/month to more than $20/month;
    - retiring debt from an earlier very aggressive bonding program that constructed capital infrastructure improvements to the urban stormwater systems in the city.
    - A forward looking R& R funding program to replace infrastructure as it nears the end of its usable life (now pay-as-you-go R & R fund)

  Key operational practices include:

- consistent, watershed-based, master planning of stormwater systems with emphasis on water quality and quantity control and aquatic wildlife habitat management; and
- stormwater management functions performed by a staff responsible only for stormwater management, including NPDES permit compliance.

Community Profile

Bellevue is a city of 117,000 citizens. It is the business and cultural center of an area of more than 250,000 referred to in local parlance as "The Eastside", in reference to its location on the east shore of Lake Washington across from Seattle. Two major highway bridges cross Lake Washington to connect The Eastside with Seattle and thousands of people commute across the bridges each morning and evening. Bellevue is just 10 miles by road from Seattle across either bridge, and has emerged in the past twenty years as a business center in its own right. It has a daytime population of 172,000, with approximately 131,000 jobs, and is home to five of the top twenty-five publicly-traded business corporations in Washington State. Other major corporations such as Microsoft and Costco are headquartered in nearby Eastside communities.

Bellevue is a relatively young community, both in terms of history and demographics, although its population is aging now that the suburbanization has spread even farther east toward the Cascade Mountains. The current median age is Bellevue is 37, up from 28 just 25 years ago. It is an affluent community with high quality of life expectations, and ranks second in Washington State in both retail sales and property values. The per capita income is approximately $42,000/year.

Founded as a community in 1869, Bellevue was incorporated as a city government in 1953, with a population of less than 3,000. As suburban sprawl emanated from Seattle and multi-lane highway bridges spanned Lake Washington, Bellevue quickly transformed from a market crop agricultural area (primarily fruits and vegetables) to the local business center for The Eastside area. It became a preferred address in the region and underwent rapid suburban development in the 1960's. By 1970 the population had reached 60,000.

The City expanded to its current 31 square miles through several annexations. As it grew, the City absorbed more than a dozen special-purpose agencies that provided local water and sewer services to the neighborhoods that now comprise Bellevue. These formed the basis of its Utilities Department. The City assumed governance responsibility for a full slate of urban community services, including stormwater management. However, other than storm sewer system construction improvements built by residential subdivision and commercial developers and in association with road construction projects, the community did very little stormwater management until about 1970.

Fortunately, the City had developed so rapidly that most of its open streams remained and served as the primary drainage conduits for stormwater runoff. Unfortunately, by 1970 the increased runoff from new pavement and roof tops was overtaxing the capacity of the natural channels that had evolved over thousands of years. Runoff was also causing extensive erosion, sedimentation in the streams, pollution of Lake Washington, and local flooding problems.

Formation Process

The Bellevue Storm and Surface Water Utility is generally regarded as the first stormwater utility in the United States. It was established in January, 1974. A master account file was developed and service fees were initiated as the primary funding mechanism later that year. The Utility was charged with developing and implementing a comprehensive program strategy that would address both water quantity control and water quality protection. Its first priorities were to enforce erosion and sediment control standards and prepare watershed master plans for system capitalization in nearly a dozen small drainage basins in the city.

Service Area

The Bellevue Storm and Surface Water Utility is responsible for stormwater management, flood control, and erosion and sediment control throughout the City's 31 square mile incorporated area.

Role and Program

Bellevue's Utility has broad authority for all aspects of stormwater quantity and quality management. Much of the success the Bellevue Utility experienced is attributed to the detailed program strategy that was assembled by the staff following its formation in 1974 and continuously refined since. It has provided a clear, cohesive vision of the City's objectives and priorities, and drove the transition in organization and funding. The program strategy proved to be critically important in retaining the support of the City Council when the initial service fee (1974) was challenged by citizens and businesses who perceived it to be "just another tax".

During the 1970s the Utility prepared a Drainage Master Plan (capital projects only) and initiated a program to acquire properties and easements and build the facilities identified in the Plan. The Plan consciously sought to preserve the open drainage system by limiting the peak flow of runoff into and through the streams. Engineering estimates suggested that significant savings would result if the open system could be retained by installing regional detention storage facilities at various points along the watercourses. That analysis proved correct, despite rapidly inflating land prices that drove costs up quickly.

The regional detention control strategy was augmented by regulatory standards requiring on-site detention on new development and aggressive soil erosion control measures. The design standards reduced post-development peak runoff to approximately the same as pre-development conditions. Implementation of the

Utility, plus the Master Plan project, justified the initial assembly of the City's geographical information system (GIS), which was then incrementally expanded to serve other City programs.

Other priorities were also addressed while the Master Plan was being developed. The Utility staff immediately became directly involved in land use and development reviews. Routine maintenance of drainage systems was significantly increased. In the late 1970s the City became the largest grantee of the National Urban Runoff Program (NURP), the Environmental Protection Agency's first major investigative study of water quality/stormwater runoff relationships. This placed Bellevue on the leading edge of stormwater quality management in the United States. It also attracted cooperative projects and funding from other state and federal agencies, most notably for stream monitoring and system construction. The Bellevue stormwater program continues to be one of the most highly regarded in the United States. The Utility service fees have evolved through several iterations, and are now relatively more sophisticated and precise than most.

Following the initial formation and implementation period, the Utility continued to expand its programs and build capital projects during the 1980s and 1990s. The infrastructure improvements identified in the initial Master Plan and subsequent updates were completed. A remedial maintenance program was initiated to repair and replace aging drainage systems before they failed. Aggressive development review and inspection efforts were instituted. Bellevue now has eleven major regional detention sites with 650 commercial and 335 neighborhood detention facilities in residential subdivisions. There are also several hundred on-site detention systems located on commercial properties. Several of the regional and neighborhood systems are wetlands that contribute environmental benefits as well as flood control during storms.

The maintenance program attained a fully preventive level of service within ten years. It was rigorously programmed, and remedial repairs became increasingly important as the systems aged and deteriorated. A permanent citizens' advisory commission was established to provide the City Council with community perspectives on stormwater issues. Public information and education morphed into public participation, with "stream teams" composed of interested citizens conducting various projects and activities to protect and improve the City's many small stream corridors. Volunteers are trained to collect scientific data at low cost for monitoring and adaptive management purposes.

One incident dramatically demonstrates the success that Bellevue achieved through its utility. In 1990 the Puget Sound region in western Washington State was struck by an intense and extended rain event over the four-day Thanksgiving holiday weekend. More than $20 million of flood damage occurred in other parts of King County, which is the 1,200 square mile governance jurisdiction that includes Seattle, Bellevue, and other cities. Snohomish County (immediately

north of King County) had more than twenty bridges damaged. One of the multi-lane Lake Washington floating bridges was under repair at the time. Stormwater invaded the floating structure and caused it to sink in rather dramatic fashion. Replacement of the bridge cost over $200 million.

In spite of such widespread problems during this extended storm event, Bellevue's stormwater system worked so effectively during and following the storm that the City did not even have to call out its maintenance crews in response to any problems. Several of the Utility's regional detention systems filled to their capacity, but they worked as designed together with the privately owned commercial systems and overflow was minimal. The drainage and stream systems absorbed the impact without major damage.

Governance Structure

The Bellevue Storm and Surface Water Utility program is guided by policies set by the seven-member City Council. Overall city administration is directed by a professional city manager who supervises a number of major departments including Utilities.

Organization and Staffing

The stormwater management program in Bellevue is administered by the Utilities Department, which also provides water and wastewater management services. The staffing level for stormwater management has been relatively constant for the last decade, fluctuating between 45 and 50 full-time equivalent (FTE) positions.

Funding

The Bellevue Utility is supported primarily by periodic user fees charged to virtually all properties in the city, including the roads and highways. The Utility's annual operating budget now is approximately $6 million. Capital expenditures for the latest fiscal year (FY 2003/2004) were budgeted to be $2 million on projects having a total estimated cost of $21 million. Several of the capital projects are long-term, incremental efforts to stabilize lengthy sections of stream channels and replace aging infrastructure. Total annual expenditures from the Storm and Surface Water Utility fund are nearly $10 million, including debt service payments on capital improvement bonds.

The initial service fee was based on impervious area, and billed only developed properties. In response to the citizen's committee formed to examine the fee concept in 1975, the City shifted to a rate methodology based on gross area and development conditions of every property. As a result, both developed and undeveloped properties are charged for stormwater management in Bellevue. The City Council has also enacted several rate increases over the years as the program revenue requirements grew.

Regardless of whether a property is in residential or commercial use, the rate methodology employs increments of one hundred (100) square feet to calculate the fees for each property, resulting in highly discrete charges. Service fees for single-family residential properties now range from less than $3 to more than $15/month, with a typical charge of approximately $10/month. The Utility is fully self-supporting and has never received allocations of general City revenues. A majority of its revenues are generated by the service fees, but the Utility also continues to receive federal and state grants and loans in support of specific activities and facilities. It also sponsors cooperative projects with private developers, other public agencies such as the local school district and neighboring general governments, and homeowners' associations in residential neighborhoods.

Inter-governmental Cooperation

The Bellevue Utility works closely with other jurisdictions in the region, but its physical location on a ridge between two major lakes reduces the degree to which it shares watersheds with neighboring cities and King County. The development of one major regional detention area illustrates the type of cooperation that the Utility has been able to obtain from other agencies. The Municipality of Metropolitan Seattle (Metro) (now King County) wished to locate its Eastside Transit Maintenance Facility in Bellevue in the mid-1970s because of the site's favorable central location. The City required that Metro (which coincidentally was also the wastewater treatment provider for the Greater Seattle area) preserve a small stream that traverses the property. Utility staff worked with Metro to optimize the use of the site for bus maintenance while also enhancing the stream corridor and installing containment controls to provide peak flow attenuation in the stream. Much of the collaborative effort was directed toward water quality management. Today, the utility works with other jurisdictions to develop capital facilities, protect water quality, manage lakes, and enhance aquatic habitat.

Public Participation

Public participation has been a hallmark of the Bellevue Utility since its inception in the late 1960s. A group of citizen activists approached the Bellevue City Council in 1969, requesting that the City government initiate studies and other actions to solve emerging drainage problems. They were especially concerned with the environmental impacts on the streams, their habitat, and riparian resources. The City Council appointed several of the citizens to an advisory committee to recommend a strategy for meeting with the challenge. Over the next three years the committee reported back to the City Council with a series of recommendations, the most significant of which (in hindsight) was that the City should establish a dedicated source of funding for its stormwater management program. The recommendations emerged as Bellevue's Storm and Surface Water Utility early in 1974.

In response to complaints about the initial user fees, a second citizen advisory committee was established that included several critics of the service fees, one of whom was challenging the Utility in court. That committee reviewed the initial decision to form the Utility. They concluded that the objectives, program strategy and policies were appropriate and recommended that the City continue with the service fee approach, but that citizens vote on the funding. This reassessment of the concept was pivotal in the ultimate success of the Utility concept in Bellevue. In their report to the City Council the committee cited the strategic plan developed for the Utility as a principal reason for supporting the concept. A series of advisory elections followed, which guided the evolution of the service fee funding methodology.

The public's participation in the work of the Bellevue Utility continues to be a hallmark of the community's approach and a key factor in its success. A permanent Storm and Surface Water Utility Commission formed in the late 1970's. It now guides Utility policy and advises the City Council on program and funding decisions not only for stormwater management issues, but for other utility programs as well. Volunteer groups are sponsored by the Utility and provide support for stream protection, collection and disposal of household waste and hazardous materials (paint, etc), and multiple use of riparian corridors along the City's streams.

CITY OF CHARLOTTE/MECKLENBURG COUNTY, NC

Keynotes

- The Charlotte/Mecklenburg County approach to stormwater management relies on centralized funding and regional programs for large systems combined with local management of minor stormwater systems and associated program elements. The County and individual towns have a high degree of self-determination in deciding the service level to be provided by local systems and programs, funding, and assignment of functional activities.

- Mecklenburg County provides the smaller towns with the option of a menu of available services, but the decision to use the County, City of Charlotte, in-house, or privately contracted vendors resides with the individual local entities. The City of Charlotte has a Phase 1 NPDES permit and the County and smaller communities have a Phase 2 permit.

- North Carolina statutes allow both counties and cities to establish stormwater utilities and adopt service fees to fund stormwater quantity and quality control efforts. However, a specific limitation in the statute prohibits creation of overlapping county and city utilities. Initially, the City of Charlotte established a utility. A year after, the utility was restructured to provide a countywide utility, with complementary programs run by the City and County to avoid any conflict with the statute.

- The Mecklenburg County Stormwater Utility is governed by the Board of County Commissioners and administered by professional staff. The City of Charlotte also has a substantial stormwater management program governed by the City Council and administered by the City Engineering and Property Management Department. Other City departments such as the Department of Transportation are also important players since they often provide maintenance of the stormwater systems in the roadways. City and town councils in the smaller communities in Mecklenburg County govern their local stormwater programs.

- Funding of the Charlotte/Mecklenburg County stormwater program is primarily supported by a composite stormwater service fee that includes both major (draining larger than one square mile) and minor (draining less than one square mile) components. The individual towns more often employ a blend of funding from several sources.

- Policies are adopted by the Board of County Commissioners and the city and town councils in the respective communities that are involved in stormwater management. Key funding policies include:

    - a composite regional major and minor service fee based on a consistent impervious area rate methodology;
    - County control of the major component of the composite service fee; and
    - local governance (county/city/town) control of the local component of the minor service fee.
    - the City of Charlotte has initiated a very aggressive bonding program to construct $198 million in improvements to the local urban stormwater systems in the city over five years.

  Key operational practices include:

    - consistent, watershed-based, planning of stormwater systems;
    - centralized stormwater quality management, including NPDES permits; and
    - a stormwater services menu provided to smaller entities by the County
    - Billing and collections and customer service are provided throughout all jurisdictions countywide by the City of Charlotte.

- Stormwater management staffing in the County and towns varies widely. Mecklenburg County and the City of Charlotte have relatively large and skilled staffs capable of managing both stormwater quantity and quality programs, while the smaller towns typically have few staff and rely on the County, City of Charlotte, or private vendors to provide contracted

services. The combined Charlotte/Mecklenburg County staffing exceeds 150 full-time equivalent positions.

Community Profile

Charlotte/Mecklenburg County is the largest urban center between Washington D. C. and Atlanta. Major businesses include banking, transportation, distribution, communications, and manufacturing. The City of Charlotte, Mecklenburg County, and smaller neighboring towns have collaborated in the development of one of the most highly regarded stormwater management programs in the United States.

Mecklenburg County is the core of a six-county metropolitan area that has a total population of 1.5 million. Approximately one half reside within Mecklenburg County, with 650,000 people residing in the City of Charlotte. Only 70,000 Mecklenburg County residents live in areas that are not within incorporated cities or towns.

The County encompasses about 526 square miles, nearly 280 of which are in Charlotte. Charlotte and the smaller towns in the County have adopted policies for on-going annexation. It is anticipated that there will be no remaining unincorporated areas of the County within a decade or so, but County government will continue to provide designated services such as floodplain management county-wide.

Mecklenburg County established a storm drainage district early in 20th century which built and maintained large, open-channel drainage systems to serve those portions of local watersheds with a tributary area of more than one square mile. Improved channels were provided throughout the County, regardless of whether the channel was located in an incorporated city or town government or in the unincorporated area. Of course many of the channels crossed the jurisdictional boundaries of the cities, towns, and county.

Improvement and operation of drainage systems to serve areas smaller than one square mile in the incorporated jurisdictions were left up the local government. The City of Charlotte and the smaller towns were nominally responsible for the small watershed systems. The County improved and maintained the smaller systems in the unincorporated area. Many of the smaller systems were installed by developers as residential subdivisions and commercial projects were constructed. This approach was employed for over seventy years, with mixed success. The larger channels tended to be funded adequately and were improved from time to time, while the smaller systems were largely ignored unless specific problems developed.

Today Mecklenburg County and the City of Charlotte manage different but complementary stormwater programs. The City and County work together in order that services to the community will not be duplicated. The County remains

responsible for managing FEMA regulated floodplains and their channels county-wide. This is comprised of a network of "named" large creeks (like McMullen Creek, Little Sugar Creek, and Briar Creek) that drain watersheds larger than one square mile. The City of Charlotte and the smaller towns are responsible for maintaining the smaller creeks and tributaries that feed into the large creeks. Both the county and town stormwater programs provide services for drainage pipes, ditches and drains on public property and within easements on private property in their respective jurisdictions.

Formation Process

Formation of the Mecklenburg County stormwater utility involved a relatively complex, and occasionally contentious, process that spanned over three years. This was in large part a function of local politics, but the North Carolina legislative authorization for stormwater utilities heavily influenced the process.

Initially, the County and City of Charlotte attempted to cooperatively identify a mutually agreeable approach to instituting a utility. An advisory committee comprised of County, City, and diverse interest group representatives met for more than a year to assess how local needs might best be addressed. Unfortunately, they reached a stalemate regarding which entity should be the lead management entity. This reflected the past history and differing needs of the County and City.

Since the early 1900's, Mecklenburg County had provided and maintained drainage improvements along creeks throughout the County below the point where the tributary area totaled 640 acres (one square mile). Such regional systems were locally termed the "regulated floodways". Drainage systems serving smaller watersheds in the unincorporated areas were also the responsibility of the County, but the cities and towns were responsible for the local drainage systems within their jurisdictions. The City of Charlotte Department of Transportation had maintained its urban stormwater systems associated with roads for many years, but drainage systems located outside road corridors had not been aggressively managed or maintained. When discussion of the utility option began in 1989, the County's principal priority was to enhance its regional systems, while the City's priority was to improve the local drainage systems. Both entities were concerned about their upcoming NPDES permits at that point.

North Carolina legislation was adopted in the late 1980's which allowed counties and cities to establish stormwater utilities. However, it specified that only one entity could establish a utility where two or more local entities provided drainage systems and services. Because Mecklenburg County managed the regulated floodways throughout the County, including areas in incorporated cities and towns, the County staff wished to have a utility that was county-wide. However, there was some reluctance among the County Commissioners to lead that approach. Once it was clear that a cooperative approach was not moving

forward, the City of Charlotte determined that it could not defer its solutions and would institute a stormwater utility to support its local drainage system programs including funding for compliance with Phase I stormwater requirements. The City utility was instituted by the City Council and service fees were initiated in January, 1993.

Once it became clear that the City was proceeding independently, the County Board of Commissioners determined that it would proceed with formation of its utility. This caused both entities to revisit the issue of a single county-wide utility. It was determined that the County utility would supplant the City utility as a legal entity when it was formally instituted in 1994. The structure and control of budgets, rates, and fees was a key to this agreement. This process was facilitated by the fact that the County and City had retained the same consultant team to assist both parties from the beginning of the process. That enabled the entities to arrive at consistent governance, rate, and program decisions, and implementation of the master account files and billing systems was eased.

Another aspect of the County and City of Charlotte negotiations involved the provision of services in the smaller towns that surround Charlotte. In order to obtain their agreement to participate in regional solutions and application of County utility service fees within their jurisdictions, the County agreed to extend control over many key policy issues such as rates to their elected Councils.

A permanent, nine-member Storm Water Advisory Committee (SWAC) is appointed by the Charlotte City Council, Mecklenburg County's Board of Commissioners, and Town Councils of Cornelius, Davidson, Huntersville, Matthews, Mint Hill, and Pineville. SWAC members represent diverse neighborhood, business, institutional, and environmental interests.

Service Area

The total area of Mecklenburg County is approximately 526 square miles. The City of Charlotte is approximately 280 square miles of the County, while the smaller six towns collectively contain (or maintain through Extra Territorial Jurisdiction) the remaining area of the County. North Carolina annexation laws allow aggressive annexation policies to be pursued by cities and towns. At the time the stormwater utility was being formed Charlotte and the satellite cities and towns had reached separate agreements on their respective spheres of influence which will control future annexations as urban/suburban development occurs. The County remains essentially a rural services provider, and the city and towns are urban services providers. Annexations tend to occur each year to two as urban/suburban development spreads into the unincorporated areas. This has directly influenced the initial division and gradual shift of stormwater management responsibilities.

Pursuant to state legislative limitations, the Mecklenburg County stormwater utility is the single, county-wide stormwater utility and encompasses the

incorporated areas by inter-governmental agreement. The individual cities and towns are stormwater service agencies within their respective jurisdictions, but utility service fees to support their programs are levied by the Board of County Commissioners.

It was decided that the County and, to a lesser degree, the City of Charlotte would support the smaller cities and towns stormwater management efforts by offering a "menu" of services to them. Since Mecklenburg County remained responsible for the regional drainage facilities throughout the County and also for the rural drainage systems in the unincorporated areas, it was judged to be best suited to provide those services to the smaller towns. Since the City of Charlotte performs street drainage maintenance, it was determined that it would offer similar services to the smaller cities and towns, though most currently maintain those systems in-house. (It should be noted that county governments in North Carolina do not operate road systems. There are state highways and city streets and highways only – no county roads. Thus, the State of North Carolina Department of Transportation is an important player in road-associated stormwater management in unincorporated areas of the state and is also responsible for some roads within incorporated cities and towns.)

One of the most notable differences in stormwater services in Charlotte/Mecklenburg is that systems located outside road rights-of-way and easements are also maintained by the City if "public water" is present. That includes runoff from any public street or property. This policy enables the City to actively manage nearly all of the drainage systems rather than just those components located in roadways. As a result, the County and municipal stormwater programs apply much more effort to stream protection and enhancement than in most communities.

Role and Program

Mecklenburg County and the City of Charlotte both continue to have substantial stormwater management roles and programs. The County has an engineering and operational staff geared to management of major drainage systems serving watersheds of more than one square mile and rural drainage systems serving smaller watersheds in the unincorporated areas. The City of Charlotte has a stormwater engineering staff in the City Engineering and Property Management Department and an operational staff in its Department of Transportation. Charlotte has a Phase 1 NPDES permit, which is supported by contracted County forces that provide water quality monitoring and data management. The County and towns have a Phase 2 permit.

Although the County focuses its program on the larger creeks, the role of both agencies is primarily urban stormwater management simply because the area is now extensively urbanized. Flood protection is an important objective, but the area is subject only to small drainage system flooding rather than major river flooding along the Catawba River, which traverses the County. The Catawba is

controlled by a series of dams and impoundments such as Lakes Norman and Wylie. The County's efforts focus on the regulated floodways of the major creeks throughout the County. Drainage systems in the unincorporated areas that are not within road corridors are also managed, but these are a lower priority. The State of North Carolina Department of Transportation is responsible for roadway drainage systems throughout the unincorporated area, and for some systems in the incorporated cities and towns.

Mecklenburg County recently consolidated several previously dispersed functions into a Land Use and Environmental Services Agency (LUESA). Its scope of responsibility includes floodplain management, stormwater services, water quality, land development, zoning, groundwater protection, on-site wastewater management, private water well permits, and others that were integrated in a Water and Land Resources organization. The County's objective in consolidating these programs in one operating unit is to ensure a clean and livable environment through the protection and enhancement of water and land resources.

The County's program also provides floodplain management county-wide. Federal flood insurance provisions mandate that floodplains be delineated where tributary watershed areas exceed 640 acres, which corresponds to the drainage area definition employed by Mecklenburg County for the major streams management program throughout the cities, towns, and unincorporated areas. The program relies on regulations that limit intrusions into the floodplain. The County's Water and Land Resources group maintains the flood insurance mapping for the entire County. Improvements to and maintenance of the major drainage channels carried out by the County provide effective flood control during most storms. The County also performs floodplain and stormwater service inspections for the cities and towns and is responsible for the small drainage systems in unincorporated areas.

The City of Charlotte program focuses on local drainage systems both within and outside road corridors. Its program heavily oriented toward infrastructure management, and the City recently initiated a capital improvement program that will invest $198 million in construction of system betterments to the local urban stormwater systems over the next five years, utilizing bonds and service fees.

Governance Structure

Mecklenburg County has a single, county-wide stormwater utility governed by the nine-member Stormwater Advisory Committee created for the purpose of levying varying service charges across the County and seven municipal jurisdictions. The utility service fees within incorporated areas are levied pursuant to inter-governmental agreements with the respective city and town councils. Decisions on program content, level of service fees, and how to provide service (in-house, inter-agency, outside contract, etc) in the incorporated areas are the province of the cities and towns. The seven city and town councils set the stormwater service

fees applicable to improvement and maintenance of the smaller systems within their limits, and the County Council adopts them as part of their rate methodology.

This stormwater management governance structure has now been in place for over a decade, and has enabled all of the local jurisdictions to perform stormwater management at the level desired by their local elected officials. Most of the smaller towns simply use the same rates that the County applies in the unincorporated area, although the Town of Davidson has opted to charge a lower service fee.

Organization and Staffing

The organization and staffing of the stormwater management units in Mecklenburg County, the City of Charlotte, and the smaller satellite cities and towns varies greatly. The County and City of Charlotte have in-house staffs of approximately thirty and seventy-five people (respectively) with the full range of engineering and operational skills required to administer their respective programs. Both also make substantial use of outside consultants and contractors. In addition, the City stormwater program pays the City's annually to maintain drainage systems located in roads. The smaller towns' stormwater staffs range from a portion of one full time equivalent position to several people dedicated to the stormwater management function. They rely heavily on the County, City of Charlotte, and outside contractors for engineering and operational support. Day to day activities associated with NPDES compliance, including extensive monitoring, is provided primarily by the County.

The differences in and dispersion of responsibilities among the County and the towns has resulted in the creation of some innovative concepts. For example, the City of Charlotte developed a program to expedite construction of small capital projects and remedial repairs. A list of pre-qualified local construction firms is maintained, and unit price bids are obtained annually for certain common activities and materials. When a complaint about a drainage problem is received, a City stormwater inspector determines the priority ranking of the problem. If it is in a high priority category (such as home flooding, street flooding, or other safety issue), a qualified vendor on the list is called in, any required engineering is done immediately (often in the field), and a work order is issued. This program enables the City to respond to many complaints within 30 to 60 days, which has gained high community and City Council approval. The County has a similar program.

Funding

The County stormwater utility service fee is the primary source of funding for stormwater management in Mecklenburg County. The total stormwater budget for all entities in Mecklenburg is over $85,000,000. A large part of this is for capital betterments to the systems primarily within the City of Charlotte. The

City's budget for capital projects in the current fiscal year is over $40 million, and the City's annual stormwater operating budget is an additional $32 million.

A consistent impervious area rate methodology is used throughout the County, with a flat rate for single-family detached residential properties and an equivalency unit of 2,613 square feet of impervious coverage applied to all other properties. Single-family residential customers are billed for one equivalent unit. The equivalent unit flat rate applied to single-family residential customers for the regional component of the program is $1.06/month throughout the County. The local stormwater program elements provided by the County and City and towns are funded by a separate rate component.

Because Mecklenburg County has a composite fee comprised of the regional system component and local fees determined by the City and towns, the rates vary by jurisdiction. Charlotte and Mecklenburg County have a dual flat-rate user fee for single-family residential properties, with the break being at 2,000 square feet of impervious coverage. The City's current single-family charges are $5.18/month and $6.72/month. The County's are $3.33/month and $4.03/month for the local component of the rates in the unincorporated areas. The local component of the rates applied in the other towns range from $.30/month to over $2.00/month.

Additional funds have also been appropriated for stormwater management by many of the entities, resulting in some novel blending and dedication of resources. For example, even after its utility service fee was adopted, the Charlotte City Council decided to continue to appropriate approximately the same amount from general revenues for stormwater management as was previously budgeted (about $5 million annually). Those funds were specifically assigned to water quality programs to avoid a potential problem within the state authorizing legislation (which was later rectified by statute). This allowed the City's initial service fee rate to be approximately sixteen (16) percent lower than would otherwise have been required to meet the cost of services and facilities. After the stormwater utility had been in place for three years, one-half of the general revenue support for stormwater management was incrementally reduced over a four year period, which transformed the City's general government capital program. The City continues to make a general fund contribution to the stormwater program..

Inter-governmental Cooperation

The strong emphasis on local control of the small-watershed programs combined with the regional responsibilities of Mecklenburg County has resulted in a great deal of collaboration and mutual support by the participating entities. Financial management offers a good example. Administration of the service fee master account file billing and collection is provided by the City of Charlotte's Finance Department. Accounting for the individual programs is performed separately by each entity.

This approach extends to engineering and operational functions as well. The County and City of Charlotte perform master planning and engineering for watersheds and drainage systems, often by employing outside consultants. Because the local watersheds cross many jurisdictional boundaries, this function commonly involves and benefits the smaller towns as well. The City of Charlotte is undertaking a $198 million capital projects program that will construct new drainage systems, improve existing facilities, and repair known deficiencies over five years. Some improvements will be done outside the City to attain the most efficient solutions to problems within Charlotte, resulting in incidental service benefits to other entities. The County and City of Charlotte operational forces also provide various services to the smaller towns per operating agreements or on an ad hoc basis at their request. The County performs over $1 million of monitoring, analysis, and data processing services for the City's Phase 1 NPDES compliance program. The water quality programs, including NPDES compliance efforts, also involve the County, City of Charlotte, and satellite communities in many cooperative efforts such as public education.

The City and County have also consolidated stormwater customer service. Service requests are coordinated through a single telephone contact number, [704] 336-RAIN (which translates to [704] 336-7246). Regardless of which local governance jurisdiction a person resides in, he or she can file complaints or inquiries and receive service assistance from the customer service center.

The Charlotte/Mecklenburg stormwater program receives support from several federal and state agencies for various program components. For example, the United States Geological Survey (USGS) operates a dense hydrologic data-collection network of seventy two (72) rain gauges and forty five (45) stream flow gauges within the city and County. The network of gauges provides valuable data for the documentation and interpretation of water-resources information, including rainfall and flooding events. During a rain event, data is transmitted from these gauges to base stations located at USGS and the Charlotte Mecklenburg Government Center (CMGC) where developing flood conditions are monitored by emergency services staff. In addition to rainfall and stream level data, four stations in the system are also set up to continuously collect water quality indicators such as temperature, conductivity, PH and dissolved oxygen levels in a stream. The cooperative program with the USGS has been in place without interruption since 1961.

Public Participation

Perhaps one of the most outstanding features of the Charlotte/Mecklenburg experience has been the high level of on-going public participation in the stormwater utility program from its formative stage. The County and City of Charlotte assembled a community advisory group and a technical guidance committee to assist with the feasibility investigation when they first considered a combined program. The City continued that effort with a committee of more than

twenty persons representing diverse interests as it formulated its initial utility concept. The County then initiated its own utility implementation effort, again with support and guidance from a committee.

Prior to its initial stormwater utility billing, the City conducted an extensive (and costly) public education program to explain the purpose of the stormwater utility and service fee concept. They also introduced the program to the media in the city with factual materials, and obtained strong support from the editorial board of influential local newspaper. Prior to the initial billing, notifications were sent to the largest ratepayers and explanations of the fee and its associated credit system were provided in several general and personal meetings with businesses and the local Chamber of Commerce. As a result, the Chamber of Commerce supported the utility program with its membership. A series of public information brochures were prepared and placed in public buildings, and articles highlighting drainage problems in the city were placed in the print media. A guest commentary article authored by the City was printed in a weekend edition of the major Charlotte newspaper.

After a detailed study of billing alternatives, the City decided to append the stormwater service fee to the Charlotte/Mecklenburg Utilities Department water and sewer billing as a separate line item. On the day the first stormwater service fee billings were mailed, a ground-breaking ceremony was held for a construction project to resolve a highly-visible, long-standing drainage problem. It received heavy coverage by local television news programs. The message of the day was that the City had begun to address its substantial backlog of known drainage problems, “And, by the way, you (i.e., the public) will be receiving a new line item on your utility bill to support this effort”. It might have easily been “There’s a new fee in town. What are they doing with your money?”

The City also prepared very well for public response to the initial service fee billing by assembling and training a cadre of special customer service agents, retained through a temporary employment agency. A contact telephone number was printed on the billings to direct calls to this group of specialists, relieving the potential burden on the utility billing customer service staff that normally responded to water and sewer billing inquiries. The twelve special customer service agents were retained for sixty days, or two full billing cycles. As the inquiries tapered off, the number of special agents was reduced accordingly, with all inquiries eventually being shifted to the in-house customer service staff, who had also received training on the proper responses to various questions.

In total, the City of Charlotte spent approximately $250,000 (in the early 1990s) to educate the community about the local stormwater needs and utility program, and prepare for the initial service fee billing. This represented approximately two weeks of the utility service fee revenue stream at that time, but resulted in a high level of public acceptance. There was (of course) some opposition by tax-limitation advocacy groups, but the high level of accountability provided by the

dedication of funding dispelled most of their objections. Within two years, a City Council member who represented that interest tax-limitation group stated publicly that, if every City program was as well run as efficiently and responsively as the stormwater utility, there would be no need for tax-limitation advocacy.

The high level of community education and involvement continues, with many educational materials, activities, and actively-involved support groups. The City commonly provides hyetographs from its rain gauging network on its website following severe rainfall events that cause flooding. This has educated the general public regarding the high variability of intense thunderstorm rainfall that occurs across Mecklenburg County, and reassures the public that the staff is aware of what is happening. The City's stormwater capital improvements program, funded in large part by sale of bonds, also features extensive public education and participation programs, such as Adopt-A-Stream and Storm Drain Marking.

CITY OF TULSA, OKLAHOMA

Keynotes

- The Tulsa Stormwater Management Utility was founded in response to a devastating one-day urban drainage system flood that killed 14 residents and did nearly US$200 million damage to public and private properties in 1984.

- Tulsa's Stormwater Management Program provides a full range of capital infrastructure and operational services. In addition to roadway drainage systems, it is responsible for an extensive stream system outside road rights-of-way. The City has a Phase 1 NPDES permit.

- Since forming its Utility, Tulsa has received over $100 million in federal support for capital infrastructure improvements, removal of structures from flood-prone areas, and hydrological data gathering.

- Funding of the Tulsa day-to-day stormwater program is primarily derived from a user fee.

- Key funding policies include:

    - a user fee rate methodology based on the impervious area of each property, with residential fees being a single rate;
    - use of general obligation bond sales and sales tax revenues to fund construction of capital infrastructure improvements; and
    - aggressive pursuit of federal grants and loans to supplement local resources.

Key operational practices include:

- watershed-based master planning of stormwater systems throughout the City, with emphasis on flood control; and
- stormwater management functions performed by in-house staff, including NPDES permit compliance.

Community Profile

The City of Tulsa was incorporated as a municipality in 1898. With the discovery of oil in nearby Red Fork in 1901, Tulsa grew quickly and reached a population of more than 7,000 by 1907. After Oklahoma became the 46th state in the United States in 1907, the City voters adopted its first city charter on July 3, 1908. The City was governed by three elected commissioners from 1909 through 1989, when the voters amended the charter to adopt a mayor/council form of government. The Mayor is now elected every four years (at large) and nine City Council members are elected to two-year terms from geographic districts.

Tulsa lies in the heart of a fertile forested region of rolling hills in northeastern Oklahoma. It is the second largest city in Oklahoma, located 90 miles northeast of the state capital, Oklahoma City. The average annual rainfall is thirty-nine (39) inches. The region is sometimes referred to as “Tornado Alley” in recognition of the severe storms that often occur in the Spring. Violent windstorms are often accompanied by extraordinarily intense rainfall, which has been a key factor in Tulsa’s stormwater management problems and search for solutions.

The land area of the City today is approximately 198 square miles. It has a population of 392,000. The economy of the community is highlighted by higher education (seven universities), energy, telecommunications, and transportation/warehousing. Tulsa has an in-land deep water port located on the McClellan-Kerr Arkansas River Navigation System, offering a Foreign Trade Zone, two industrial parks and liquid and dry cargo storage.

Tulsa has grown up with flooding. Some consider it a “poster child” example of the stormwater management struggles that local governments experience. Many of the causes of Tulsa’s problems are a function of its location: the city is on a major river (the Arkansas), in a region of violent storms, and was initially developed on the American frontier, where one had a right to do as he (or she) wished with the land - including building structures in inappropriate, flood-prone locations.

Local flood records are sparse before 1900. In 1908, only a year after statehood, Arkansas River flooding at Tulsa caused $250,000 in damages (over $25 million in 2004 dollars). By 1920, the town had outgrown its raw, boomtown youth. As riches mounted from the oil industry and investors and speculators poured in, Tulsa grew into a wealthy city of 72,000. But development edged ever closer and closer toward the river banks. On June 13, 1923, the Arkansas River

flooded Tulsa's waterworks, caused $500,000 in damages ($20 million in 1994 dollars), and damaging homes leaving 4,000 citizens homeless. City fathers responded with Tulsa's first land-use plan, which envisioned upland boulevards and housing. In the lowlands, such as the Mingo Creek riparian stream corridor east of town, the plan indicated there would be generous parks and recreational trails.

Significant flooding occurred again in 1943. In response to the flooding, the U. S. Army Corps of Engineers (COE) built levees around Tulsa's oil refineries along the Arkansas River as a World War II national defense measure. By 1950, in the post-war building boom, housing fanned out onto the floodplains to the south and east of the downtown area. Land that had periodically flooded with little harm now was awash in wave after wave of development and, periodically, urban flooding. By the late 1950's, flooding of newly developed subdivisions along the Arkansas River spurred calls for flood control. In 1964, the COE completed Keystone Dam on the Arkansas River, fifteen miles upstream from Tulsa. For years to come, Tulsans would believe that the Arkansas River was forever tamed.

Tulsa enjoyed another economic boom based on energy resources in the 1960s, when the city's population grew 25 percent. Tulsa's rapid growth resulted in the paving and piping of vast areas of pastures and meadows, and new buildings continued to spill into the lowlands along the creeks and streams that etch the area. The rapidly urbanizing Mingo Creek watershed was annexed to the city in 1966. Localized floods struck every two to four years during the 1960s and early 1970s, but the response was classic “flood relief”: emergency response and recovery, reconstruction as quickly as possible, and denial of the possibility that damaging floods could reoccur. Victims petitioned for neighborhood flood control, with limited success.

A flood in the Spring of 1970 caused $163,000 in damages in the rapidly developing Mingo and Joe Creek watersheds. The City responded by joining the federal government’s National Flood Insurance Program's (NFIP) "emergency program" and promising to adopt federal floodplain regulations. In August 1971, the NFIP issued its block rate maps. A month later, floods hit Flat Rock, Bird and Haikey Creeks inundating many suburban neighborhoods once again. In December that year, Bird Creek flooded again. Tulsa joined the NFIP's "regular" program, adopted a new 100-year flood standard, and promised to regulate floodplain land use.

In April and May, 1974 floods left $744,000 in damages (over $6 million in 2004 dollars) on Bird Creek. Violent storms June 8 of that year caused widespread flooding on Joe, Fry, Haikey and Mingo Creeks, with more than $18 million in damages ($80 million in 2004 dollars). On September 19, 1974 Mingo Creek flooded yet again. For some citizens, it was the third flood in less than a year. Angry, drenched victims waded out of the floods to demand help from City

officials. They contended the City wasn't enforcing its NFIP regulations. They tried to halt development, to avoid deeper flooding until existing problems could be solved. Developers objected strenuously. Thus began a community debate over floodplain management, locally called "Tulsa's great drainage war," that was destined to last more than a decade. The city responded with a plan to widen part of Mingo Creek, including clearance of 33 houses in the most flood-prone area. The houses were removed just before the next flood in May, 1976.

The May, 1976, flood marked a milestone in Tulsa's search for solutions. A three-hour, 10-inch deluge was centered over the headwaters of Mingo, Joe and Haikey Creeks. The resulting flood killed three citizens and caused $40 million in damages ($140 million in 2004 dollars) to more than 3,000 buildings. By this time, the victims were becoming skilled lobbyists and gathering sympathizers citywide. They virtually stormed City Hall to demand solutions. Newly elected city commissioners responded with a wave of actions. They enacted a floodplain building moratorium; hired the city's first full-time hydrologist; developed comprehensive floodplain management policies, regulations and drainage criteria; enacted stormwater detention regulations for new developments; instituted a fledgling flood alert and warning system; and began master drainage planning for major creeks. In 1978, an earth change (erosion and sediment control) ordinance was also adopted, giving the city control over alterations to Tulsa's landscape, including floodplains and stream channels.

In the early 1980s the federal United States government developed the federal Inter-agency Hazard Mitigation process to curb repetitive flood losses. After flood disasters, federal teams were dispatched to identify hazard mitigation opportunities, i.e., ways to make the response to each disaster reduce the scope of the next one. The mitigation concept focused on correcting the causes of losses, including removing, raising, or flood proofing the most vulnerable of the damaged buildings. Tulsans worked with the Federal Emergency Management Agency (FEMA) to develop the process. Tulsa's early exposure to the new FEMA mitigation program was to have a significant impact on the city's response to future floods.

On the three-day weekend marking the Memorial Day holiday in May, 1984, the worst flood in Tulsa’s history struck. After a muggy Sunday a stalled cool weather front produced thunderstorms that dumped some fifteen (15) inches of rain overnight in just twelve hours. The rainfall was centered over the Mingo Creek watershed, but also extended across most of the city. The results were disastrous. The flooding killed 14, injured 288, damaged or destroyed nearly 7,000 buildings, and left $180 million in damages ($425 million in 2004 dollars). The Mingo Creek corridor alone accounted for $125 million of the damages. It was truly a localized, urban stormwater system flood. Local streams flooded while the nearby Arkansas River remained well below flood levels.

Problems continued in the years following despite formation of Tulsa's stormwater utility in 1985. In 1986, a major flood of the Arkansas River tested the new stormwater management program. It also served as a reminder of the finite protection provided by the Keystone Dam upstream from the city. Between September and October 1986, unrelenting upstream rains filled the Keystone Reservoir to capacity, forcing the COE to release water at the rate of 310,000 cubic feet per second. Downstream flooding was inevitable. At Tulsa, a privately maintained levee failed, causing $1.3 million ($5million in 2004 dollars) in damages to 64 buildings. The City fielded its hazard-mitigation team and cleared 13 substantially damaged structures, and more widespread damage was avoided.

Formation Process

A newly elected mayor and street commissioner had been in office for only 19 days when the Memorial Day flood struck in May, 1984, but both knew the issues well. In the darkest hours of their community's worst flood, they pledged to make their response reduce the likelihood that such a disaster would ever be repeated. Before daylight, they had assembled the city's first Flood Hazard Mitigation Team to develop the City's strategy. Within days, a new approach to Tulsa flood response and recovery was born.

The flood response effort was only the beginning. A unified stormwater program was created, with City leaders committing to make Tulsa flood-safe. As ultimately completed, the program included relocation of 300 flooded homes and a 228-pad mobile home park, $10.5 million in flood control works, and $2.1 million for master drainage plans. The total capital program topped $30 million, mostly from local capital sources, flood insurance claim checks, and federal funds.

The devastation of the 1984 flood persuaded Tulsans that a coordinated, comprehensive stormwater management program was needed from the rooftop to the river. A Department of Stormwater Management was established in 1985, centralizing responsibility for all city flood, drainage, and stormwater programs. A stormwater utility fee was established by ordinance in 1986 to fund the program. The utility fee ensured stable funding for maintenance and management, independent of fickle political winds. The service fee ordinance allots all fee revenues exclusively for floodplain and stormwater management activities. Over several years an extensive system of recreational greenways was created along the Mingo Creek and other streams, providing bicycle and walking paths as well as green space areas. When the Memorial Day flood devastated Tulsa in 1984, the City had 57 detention ponds. By 2000, there were 85 detention ponds plus many other stormwater facilities including improved conveyance channels.

Service Area

The Tulsa Stormwater Utility is responsible for stormwater management throughout the City's 198 square miles.

Role and Program

Simply establishing a stormwater utility could not instantly correct Tulsa's stormwater and flooding problems. A comprehensive, long-range stormwater program strategy was formulated by the utility staff, coupled with extensive capital infrastructure master planning during the 1980s. The City's objective was to manage stormwater both within public rights-of-way and easements and along the many creeks that drain the hilly terrain of the community.

The Public Works Department, in conjunction with a Stormwater Drainage Advisory Board and numerous citizen groups, developed a phased implementation program for projects identified in the City's basin drainage plans. The projects were funded in part by a combination of stormwater fees, sales tax revenues or bond issues. Construction of the improvements identified in the master planning project proceeded quickly based on the assured funding capability provided by the stormwater service fee. The City was also able to obtain more than $100 million of COE funding for various capital improvements to the stormwater systems.

By the early 1990s, FEMA ranked Tulsa first in the nation for its floodplain management program, allowing Tulsans to enjoy the nation's lowest flood insurance rates. The program was also honored with FEMA's 1992 Outstanding Public Service Award; and the Association of State Floodplain Managers has twice given Tulsa its Local Award for Excellence. This represented a significant turn around in just eight years following the devastating flood of 1984. Since adoption of the FEMA community rating system, Tulsa has had one of the best ratings including a 2.0 rating in 2005.

Today, Tulsa's floodplain and stormwater management program is based on respect for the natural systems. It is nationally regarded as a pacesetting program, and includes comprehensive watershed management, dedicated funds for maintenance and operation, a prototype flood alert system, and a $200 million capital improvements program.

Tulsa's drainage systems have not been tested by a catastrophic rainfall since 1986, but the system has handled less intense rainfall events well. City leaders believe improved maintenance, continuing capital projects, stringent regulations, and aggressive citizen awareness programs will reduce but cannot entirely eliminate future flood losses.

A powerful testimony to the program is that, since comprehensive regulations were adopted in 1977, the city has no record of flood damages to any building that complies with those regulations. Implementation of the user-pays service fee funding is also given enormous credit by staff and elected officials because it enabled the City to elevate its capital investment and operational expenditures to a level that complements regulatory measures by resolving inadequacies in the systems that had existed for decades.

Tulsa has instituted an aggressive floodplain program. The City's long experience with flooding showed that the National Flood Insurance Program's minimum standard is insufficient for Tulsa. Therefore, the city's regulations exceed NFIP's standard in several important ways. The NFIP floodplain maps are based on existing development. However, unless plans and regulations are based on future watershed urbanization, new development may well flood as uphill urbanization increases runoff. Tulsa enforces the NFIP minimum regulations and maps to retain eligibility for federal flood insurance but, in addition, the City enforces its own more extensive maps and regulations. Those regulations are based on ultimate watershed urbanization as forecast in the City's comprehensive plan.

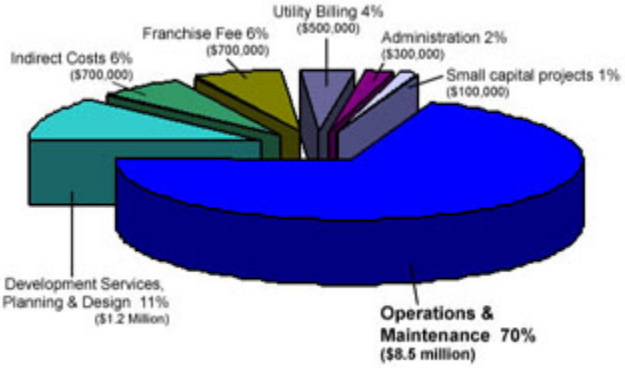
The Tulsa stormwater program is much more than flood control. The City is also building parks in the floodplains, sports fields in stormwater detention basins, and greenway trails on creek banks. It has forged strong partnerships with federal and state agencies. Tulsans now enjoy the lowest flood insurance rates in the country, and the community is reaping benefits from national awards and favorable publicity. Tulsa's progress has been called an example of what can happen when a community fully commits to solving urban stormwater problems.

Organization and Staffing

The City staff was reorganized following a City Charter change in 1989 that substituted the mayor/council for a government for the commission approach. A new Department of Public Works consolidated all public works services, including stormwater management, but the dedicated stormwater service fee funding was retained. Today, stormwater management is an accepted and integrated part of the city's services.

Funding

The City's stormwater management program budget has ranged from $12 million to $14 million during the past three years. Current service fees are based on impervious area and are set at $3.49/month per "equivalent service unit" (ESU). The ESU is defined as 2,650 square feet of impervious coverage, representative of the average condition on single-family residential properties. Service fee revenues total over $12 million. Where does the stormwater fee money go?



Total Annual Stormwater Budget: $12 Million

Expenditures for the City's FY 2002 are shown in the pie chart to the left. As it shows, stormwater fees are used primarily for maintenance of stormwater detention facilities, stream channels, pumping stations, culverts, ditches and other drainage facilities. After storms and when needed at other times, crews remove material blocking stormwater flow in channels and detention sites. On average, the City crews clean more than 22 miles of ditches and clear about 5 miles of drainage pipe each year. They remove tons of silt from channels and reconstruct eroded earthen channels.

Inter-governmental Cooperation

Tulsa assists the suburban satellite communities that surround it in their stormwater management efforts, but most of its attention to inter-governmental cooperation has involved federal agencies that offer funding for specific priorities such as flood protection and hydrologic monitoring and analysis.

Public Participation

The City of Tulsa involved the community in many of the major decisions as it formulated and implemented its stormwater utility program and associated funding mechanisms. A citizen advisory committee guided the initial response to the devastating flood in May, 1984, which included assembling a consulting team to assist with utility feasibility analysis and implementation.

Once the utility was formed and user fees were in place, the citizen advisory group shifted its attention to the content of the program and, especially, the capital improvement planning to address flooding problems. They have continued to be a major political force in support of the utility. The City also instituted a variety of community education and involvement initiatives aimed at improving flood emergency awareness, water quality management, and utilization of water resources in the riparian corridors.

LOUISVILLE/JEFFERSON COUNTY (KY) METROPOLITAN SERVICE DISTRICT (MSD)

Keynotes

- The Louisville approach involves a consolidation of flood control and stormwater management with a regional wastewater collection and

treatment program provided by the Metropolitan Sewer District, or MSD. Most of the smaller cities and towns in Jefferson County do not perform stormwater management functions.

- The MSD was authorized by special state legislation in 1946, and established by Jefferson County and the City of Louisville. The MSD service area is virtually county-wide. Its Board is appointed by the now consolidated Metro government council which directs the amalgamated County and City.

- MSD is funded principally by wastewater and stormwater service fees, which are independently structured, billed, and accounted for.

- Stormwater service fee attributes include:

    - an impervious area rate methodology;
    - a flat rate charge for single-family residential properties; and,
    - differential rates for other properties based on an impervious area equivalency unit.

- Key operational practices include:

    - watershed-based master planning throughout the County;
    - a consolidated NPDES permit administered by MSD; and
    - a broad range of functions that include a major flood control program responsible for approximately 29 miles of levees and protection works and fifteen large pump stations along the Ohio River.

- The MSD has a staff of more than 600 that performs both wastewater and stormwater administrative, engineering, operational, regulatory, and infrastructure improvement/management functions. The staff is extensively cross-trained to obtain efficient operations.

Community Profile

Louisville, 365 square miles and population 700,000, is the largest city in Kentucky. It is located on the south shore of the Ohio River, and was founded in 1778 by frontier explorer and military hero George Rogers Clark. It is located in Jefferson County, which is named for Thomas Jefferson, who was the Governor of Virginia when the city was founded and later served as the third President of the United States. It soon became a major shipping center along the Ohio River, which reaches almost 1,000 miles into the Midwest of the United States. Among other noteworthy claims to fame, it is the home of the Louisville Slugger baseball bat and hosts the Kentucky Derby, one of the premier annual horse races in the world. The county and city governments were recently consolidated into a “metro” government as provided for by state law.

As a community located on a major river, Louisville has always been concerned about flood control and stormwater management. Repetitive major flooding incidents of low areas along the river led eventually to the construction of more than 20 miles of flood protection levees and large pump stations beginning in the early 1900s. In the 1980's local officials determined that effective management of both the major flood control works and the smaller urban drainage systems required a consolidated program. The Louisville/Jefferson County Metropolitan Sewer District (MSD), then the regional wastewater service provider, was tapped to take over all stormwater management responsibilities.

Following detailed studies, MSD adopted a dedicated stormwater service fee to fund a full range of stormwater management and flood control services and facilities. The MSD stormwater service fee is separate from the agency's wastewater fee, though the staff is extensively cross-trained to efficiently perform both functions. The user fee has been tested in court and sustained at the Kentucky Court of Appeals level. MSD's responsibilities have been expanded to include stormwater quality in recent years in response to federal NPDES requirements.

Formation Process

The MSD was formed by the City of Louisville and Jefferson County pursuant to a state authorizing statute. Shifting the County's and City's flood control and stormwater management responsibilities to the MSD was accomplished by actions of the Board of County Commissioners and City's Board of Aldermen. The political decision to shift flood control and stormwater management to MSD was essentially made before the program and funding development and implementation work began, which enabled the process to be completed in just eight months. There was very little public participation in the formation process, though a concentrated effort to inform and educate the public about the new service fees was initiated immediately prior to the first MSD stormwater service fee billing.

Jefferson County had more than ninety cities and towns when the stormwater management function was appended to the MSD wastewater program. Towns of the fourth, fifth, and sixth class (per population as specified by state statutes) had no option whether or not to be included in the MSD stormwater program. Cities of the third and second class had statutory authority to decline to be included, but there were no second class cities in the County at that time (1986). A few of the third class cities declined to be included, and still are not. This created gaps and inconsistencies in stormwater services across the County as MSD's program grew. Those gaps still create some problems for both MSD and those cities.

Service Area

MSD's stormwater service area is now approximately 280 square miles and encompasses nearly all of Jefferson County. It is similar to but not precisely the

same as the wastewater collection and treatment service area. Substantial portions of the former City of Louisville have combined wastewater/stormwater sewers. Outlying areas have separated sewers and many open drainage components (creeks, ditches, roadside drainage).

Role and Program

MSD has two major program responsibilities, wastewater collection/treatment and stormwater management/flood control. Flood control is particularly important because Jefferson County is located on the Ohio River. Large areas of Louisville were historically flooded by the Ohio River, and an extensive system of flood protection levees and pump stations was constructed following the flood of record in1937. Maintenance of the flood protection works was originally a county responsibility under U.S. Army Corps of Engineers oversight. That function was transferred to MSD along with stormwater management responsibilities. MSD also assumed responsibility for development-associated erosion and sediment control programs, though it does not have land use authority.

Governance Structure

MSD has a seven member Board of Directors, included a chairperson, appointed by the Louisville/Jefferson County Mayor and Metro Council. The MSD Board guides policy and sets service fee rates.

Organization and Staffing

MSD has an appointed administration and a substantial staff of over 600 management, engineering, operational, and support personnel. It has reduced staff count from more than 860 in 1995 in part by outsourcing some operations. MSD continues to perform many stormwater management functions in-house. Outside contracting is used to attain greater efficiency or when special expertise or equipment is required. The engineering and operational staffs are highly cross-trained to perform both wastewater and stormwater services.

Funding

The wastewater and stormwater components of the MSD program are funded by separate service fees that are independent and dedicated to each purpose in terms of rates, revenues, expenditures, and accounting. The current single-family residential stormwater service fee is $4.70/month. Rates are based on impervious area, and an equivalency unit of 2,500 square feet is used to normalize non-residential charges to the single-family residential flat rate. Each equivalent unit on developed non-residential properties is charged $4.70/month. Consistent with MSD's wastewater rate practices, the stormwater service fee rate is adjusted annually to meet budget projections. Total stormwater service fee revenues in Fiscal Year 2006 (July 2005) are expected to be nearly $26,700,000.

Inter-governmental Cooperation

Because MSD provides a centralized flood control/stormwater management program for nearly all of Louisville/Jefferson County, the need for inter-government collaboration is low in comparison to the other communities cited in this guidance document. Coordination with the cities that opted out of the MSD stormwater service area is sought, and MSD performs many planning, public education, and other development review functions that are beneficial to those cities.

Public Participation

MSD's stormwater program was initiated with little public participation, but the agency has sought out public involvement in many aspects of its stormwater services over the years since then. Infrastructure management, most notably construction and remedial repair programs, is administered by teams that work closely with local elected officials and community groups to prioritize and undertake projects. Community relations are facilitated by a telephone hot line for service inquiries and complaints, and a designated staff is assigned to assuring effective response to customers. The staff maintains close contact with elected officials as capital improvement and remedial repairs projects are developed and undertaken. MSD also conducts numerous community involvement efforts associated with stormwater quality programs, and has developed brochures and other materials that are available throughout the community.

SARASOTA COUNTY (FL) STORMWATER ENVIRONMENTAL UTILITY

Keynotes

- The Sarasota County approach provides a strong, centralized stormwater management planning, improvement and operations program conducted by a large staff of more than 120 persons, with additional support for related activities performed by about 50 employees of other County work groups. The primary objectives of the Stormwater Environmental Utility are to reduce flooding, improve surface water quality, and attain responsible development practices.

- A Florida Supreme Court decision in 1996 determined that the Sarasota County stormwater charge is a special assessment rather than a service fee. As such, it is subject to the standards applicable to assessments, which emphasize the apportionment of special benefit (that not available generally to all) and rational nexus rather than the reflecting the demand burden (cost of service) imposed by each person or property on the public stormwater systems and programs.

- Sarasota County is a charter county governed by a five-member Board of Commissioners and directed by a professional County Administrator. The Public Works Business Center includes the Stormwater Environmental Utility. There are four cities in Sarasota County. The city of Sarasota relies on the County to improve its drainage system and perform most stormwater operations. The other three cities retain responsibility for local stormwater systems.

- The Sarasota County stormwater utility is funded by benefit assessments on properties in the County and by inter-governmental agreement in the City of Sarasota. The assessments have three components that are consistent across the service area, and one component (system capitalization) that is variable by watershed. The benefit assessments are billed on the County's property tax bills.

- Under constitutional changes adopted in 1968, Florida counties may adopt charters that give local elected officials great latitude in determining the functions of their county and the preferred method of funding. Sarasota County has adopted such a charter. The Florida Statutes Chapters 125 (County Government), 163 (Intergovernmental Programs), 197 (Tax Collections, Liens, and Sales), and 403 (Environment Control) also specifically enable both cities and counties to establish utilities and adopt service fees and special assessments, or otherwise influence how they organize for and fund stormwater management. The Florida Statutes also enable counties to use such other revenues as they determine to be appropriate, or guide their manner of doing so.

- Key policies adopted by the Board of Commissioners and practices instituted by the staff are applicable throughout Sarasota County and in the City of Sarasota. Core funding policies include:

    - Capital investments will be funded by benefit assessments peculiar to each watershed; and
    - funding of customer service and administration, master planning, and maintenance will be funded by benefit assessments that are the same for all watersheds.

  Key operational practices include:

    - watershed-based master planning has been conducted throughout the County (26 watersheds), and capital improvements are being made;
    - centralized stormwater quality management is performed by the County stormwater utility to ensure compliance with the local NPDES permit; and
    - a flood protection and response program is provided county-wide.

- Sarasota County has a large staff (120 +/-) within the Stormwater Environmental Utility and also allocates substantial portions of other employees' time to stormwater management activities (50 +/-). Master planning is contracted to private vendors.

Community Profile

Sarasota County is located on the Gulf of Mexico on Florida's West Coast approximately sixty miles south of Tampa. It was formed when Sarasota County separated from Manatee County in 1921. The area was first homesteaded in the 1840's, but true development did not occur until the railroads arrived at the beginning of 20th century. Citrus fruit growing, other agriculture, and tourism were the basis of the economy for many years, and the County was the winter home of the famed Ringling Brothers circus for decades. The County has become a regional healthcare and commercial business center since the end of World War II.

Sarasota County encompasses 620 square miles and has a resident population of 340,000. The population swells significantly during the winter months when many "snow birds" flee the harsh winters of the Northeast and Midwest United States for the balmy climate of Florida. There are three incorporated cities and one town in the County.

Stormwater management in Sarasota County was not a high priority before the 1980's, when the County increased regulatory activities in response to the pressures of urban/suburban development and the problems associated with drainage in a low-lying coastal community. A Stormwater Environmental Utility was formed in 1989, and studies led to the adoption of a user fee. Sarasota County's stormwater utility is perhaps best known for a Florida Supreme Court decision in 1996, which found that the County was authorized by state statutes to establish the utility and enact a special assessment to support capital improvements and operational programs.

Formation Process

Sarasota County's initial stormwater management program was an outgrowth of its Aquatic Plant Control Department, which was consolidated into the Transportation Department in 1981. In 1989 the Board of County Commissioners established the Stormwater Environmental Utility. An inter-governmental agreement was signed with the City of Sarasota in 1991 and revised in 1997.

Service Area

The Sarasota County stormwater service area encompasses the unincorporated portion of the County plus the city of Sarasota. The County is not responsible for areas lying within other incorporated municipalities in the County.

Role and Program

The Stormwater Environmental Utility is responsible for the County's NPDES permit, and performs master planning for those portions of watersheds that lie wholly or partially in the County. However, it does not perform monitoring associated with the NPDES permit. The Utility is also responsible for capital improvements to and maintenance of the stormwater systems in the unincorporated areas and within the city of Sarasota. County programs are limited to those facilities located in publicly-owned properties and rights-of-way and those within dedicated easements. Systems located on private property and not subject to easements are the responsibility of the property owners. The Utility is also responsible for regulation of the use, storage, and disposal of sediments, herbicides, and other materials, and performs public relations, customer service, development review, and administration of the master account files for benefit assessments. Street sweeping is done by the Road and Bridge Division (Public Works) using sweepers purchased by the Stormwater Environmental Utility. Water Quality monitoring and enforcement is performed by the County's Environmental Services/Pollution Control Department.

Governance Structure

The Stormwater Environmental Utility is a separate account unit operating as a division of the Public Works Business Center. It is governed by the five-member Board of County Commissioners and is within the County Administrator's organizational control.

Organization and Staffing

As a division of the Public Works Business Center, the Stormwater Environmental Utility interacts extensively with other County units. The Utility staff numbers 120 (+/-), and it also financial supports a portion of the personnel expense associated with nearly 50 other County employees whose roles involve them in various aspects of stormwater management.

Funding

The Stormwater Environmental Utility budget in 2005 is approximately $20,000,000, with about $6,000,000 being for capital projects. Funding for the Stormwater Environmental Utility is derived primarily from a composite special benefit unit assessment that has four components. The benefit assessment is based on a calculation methodology that takes both pervious and impervious areas on each property into account. An equivalency unit approach is employed that has several rate classifications for residential properties and individual charges for non-residential that reflects the hydrology of each property. The equivalency unit is referred to as the "Equivalent Stormwater Unit", or ESU, and represents an "effective impervious area" of 3,153 square feet.

The ESU was determined by statistical analysis to be the average condition on single-family residences in the County, i.e. the total area and condition of an

average single-family residence burdens the stormwater systems and programs in the manner attributable to 3,153 square feet of impervious coverage. The effective impervious area for non-residential properties is determined by applying a formula that considers both impervious and pervious areas on each property and the conditions present in each case. For example, the pervious areas of citrus groves and orchards are treated differently than pervious areas in pasture or meadow because of the land management practices in the citrus groves and orchards which alter the hydrology. "Urban pervious" surfaces, such as contoured mown lawns, have a much higher effective impervious value than other pervious conditions.

Three benefit unit assessment components are uniform throughout the service area, customer service (administration), master planning, and maintenance. The customer service benefit assessment is a fixed value for each account rather than a charge per ESU, and is presently $3.20/year. The master planning and maintenance benefit unit assessments are uniform throughout the County, and are based on the number of ESU on each property. The master planning assessment is currently $17.92/ESU/year, and the maintenance assessment is $59.33/ESU/year. On average, a medium size single-family residence is assessed $80.45 annually for these three components of the benefit assessment, or approximately $6.70 per month.

The capital infrastructure investment component of the benefit unit assessment is reflective of the costs in each designated watershed, and currently varies from $12 to $141 per ESU per year across the County. The result is that the total assessment applicable to comparable properties in different watersheds may be significantly different.

Credits are provided for in the County's assessment methodology, primarily in relation to the capital improvement benefit assessments. Calculation of the credits is based on three factors, runoff quantity, runoff quality, and peak discharge rate. The stormwater assessments are billed annually along with the County's property taxes. Collection of delinquent billings is accomplished by a lien process similar to that applicable to property taxes.

Inter-governmental Cooperation

The Sarasota County stormwater program is closely coordinated with the cities' programs in the area, especially in terms of NPDES permit compliance, master planning and construction of major systems, and flood control/emergency response. The city of Sarasota has contracted with the County to provide stormwater management services, but three other municipalities retain responsibility for management of the local drainage systems in their communities.

Public Participation

Public participation is focused primarily on NPDES education/involvement mandates, master planning, flood and emergency awareness, and capital project construction. The Utility conducts two public meetings during the master planning process (26 watersheds), and local meetings in areas where capital projects are to be built. The staff also makes presentations at the request of neighborhood association, professional organizations, and special interest groups. The County also responds to inquiries from the city council in the City of Sarasota.