



Montgomery County Government

FINANCING STORMWATER AND WATER RESOURCE MANAGEMENT PROGRAMS

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EXECUTIVE SUMMARY

Many cities and counties across the country cite the lack of stable and adequate financing for stormwater management and urban runoff programs as a major problem. For many local governments, the shortcomings of using general revenues to pay for stormwater programs is exacerbated by the expense of meeting new federal requirements imposed by the Clean Water Act, legislated property tax limitations, and/or a stable or declining tax base.

In 1991, the Office of Legislative Oversight (OLO) examined the roles and responsibilities of County and State agencies relating to sediment control and stormwater management. OLO's 1991 report concluded that the County lacks a reliable and dedicated source of funding for accomplishing its erosion, sediment control, stormwater management, and water quality responsibilities.

This follow-up report by the Office of Legislative Oversight presents a menu of funding options to pay for stormwater management and water quality programs, and describes how Montgomery County and 31 other cities and counties are funding these programs in practice. With the exception of user charges, many of the funding options, especially those for stormwater management programs, are either already available or in use in the County.

The County spends about \$10.2 million annually for programs related to sediment control, stormwater management, floodplain management, the storm drain program, projects to comply with the requirements of the federal Clean Water Act, water quality programs in Special Protection areas and programs to implement best management practices in the County's agricultural areas. The County collects an ad valorem storm drain tax and permit fees to offset \$5.3 million in annual operating expenses paid for out of the General Fund. Capital program revenue sources include General Obligation bonds, current revenues, stormwater waiver contributions and federal and state aid.

The data on funding practices in other cities and counties suggest that, similar to Montgomery County, many other places administer stormwater and water resource management programs using a decentralized approach and using multiple revenue sources to pay for these programs. These places also rely on a general fund to pay for a significant share of program expenses.

Jurisdictions that have user fees as a primary funding source generally established fees to respond to an urgent problem, to centralize program administration, or to raise funds for a comprehensive stormwater program. User fees typically provide funding for flood control, pollution control and storm sewers. They may also pay for sanitary sewers. User fees are a significant source of funding, providing 75 percent to 100 percent of the total revenues for 14 of these jurisdictions.

The County Council will discuss many aspects of the County's stormwater and water quality programs in the coming months. If the Council wants to examine a new or modified funding approach for some or all stormwater activities, the next steps are to define the problems to be addressed; to state the benefits that will result, and to identify the specific needs or projects to be funded. This information is needed to guide further analysis of specific financing strategies.

I. AUTHORITY, SCOPE, METHODOLOGY AND ACKNOWLEDGMENTS

A. AUTHORITY

Council Resolution No. 13-223, Office of Legislative Oversight FY 1996 Work Program, adopted July 18, 1995.

B. SCOPE AND ORGANIZATION OF REPORT

This report focuses on financing options for the County's stormwater operations and water resource management programs. Specifically:

- Chapter II provides an overview of the sediment control, stormwater, storm drain, pollution control and water resource management programs managed by the County Government, the Maryland-National Capital Park and Planning Commission, and the Montgomery Soil Conservation District;
- Chapter III describes the funds and revenue sources that pay for the stormwater operations and water quality programs in the County;
- Chapters IV and V identify funding options for stormwater and water resource management programs and provide examples of funding approaches in other places; and,
- Chapter VI offers OLO's summary findings and observations.

The information presented in this report follows up on Office of Legislative Oversight Report 90-4, A Description and Evaluation of the Sediment Control and Stormwater Management Responsibilities of the Department of Environmental Protection. This report, released by the Council in 1991, examined the County's sediment control and stormwater management programs as administered by the Department of Environmental Protection (DEP), as well as the roles and responsibilities of other County and State agencies relating to sediment control and stormwater management. The report found that the County lacks a clear statement of its goals and objectives in water resources management, specifically in the area of erosion and sediment control, stormwater management and water quality. The report also concluded that the County lacks a reliable and dedicated source of funding for accomplishing its erosion and sediment control, stormwater management and water quality responsibilities.

C. DEFINITIONS AND SUMMARY DESCRIPTION OF RESPONSIBILITIES

1. Definitions of terms

Best Management Practices (BMPs) are activities that focus on the prevention of stormwater contamination, rather than on the full-scale treatment of runoff. BMPs may be artificially constructed systems (such as infiltration devices or detention basins) that attempt to reduce stormwater problems at or near their source or site specific activities

(such as street sweeping or land use controls) that limit the overall incidence of stormwater contamination.

Sediment control refers to measures taken to prevent or minimize erosion and sedimentation on any off-site property, in storm drains and in water courses or streams whenever there is a land disturbing activity.

Stormwater management encompasses the collection, conveyance, storage, treatment and disposal of stormwater runoff so as to prevent acceleration of stream channel erosion and the reduction of water quality in receiving streams.

A stormwater management facility is an infiltration device, vegetative filter, structure, channel, pipe, weir, orifice, or combination of same, designed and constructed to control runoff.

Water quality control is the reduction or elimination of pollution from storm runoff that otherwise would be carried by surface water runoff.

Water quantity control is the controlled release of runoff flow rate and volume to prevent increased stream channel erosion.

2. Department and agency management responsibilities

The Department of Environmental Protection's (DEP's) surface water related responsibilities include administration of the sediment control, stormwater management and water quality monitoring programs, enforcement of the floodplain district and illicit discharge regulations, and other requirements mandated by the federal Clean Water Act. These include watershed planning and restoration, facility maintenance, public education, and implementation of the National Pollutant Discharge Elimination System (NPDES).

The Department of Transportation (DOT) administers the County's storm drain maintenance and capital construction program.

The Maryland-National Capital Park and Planning Commission (M-NCPPC), as the property owner, issues permits for stormwater facilities and inspects and maintains stormwater facilities located in parks. M-NCPPC also undertakes technical studies and prepares watershed plans as part of the Commission's land use planning responsibilities.

The Montgomery Soil Conservation District (MSCD) administers federal and state programs to fund the implementation of best management practices in the County's agricultural areas. MSCD also reviews sediment control plans and stormwater management plans for the cities of Rockville and Gaithersburg.

D. METHODOLOGY

This project was conducted during October 1995-January 1996 by Sue Richards, Program Evaluator and Jennifer Kimball, Public Administration Intern. This study relied upon OLO Report 90-4 and recently enacted County legislation to identify the range of stormwater programs and water resource management activities in Montgomery County that could be considered for a dedicated funding source.

The descriptions of current programs and how they are financed are based on information in Report 90-4, a review of County laws, Executive Regulations, capital programs and operating budgets and current data provided by staff in the Department of Environmental Protection, the Department of Transportation, the Office of Management and Budget, the Maryland-National Capital Park and Planning Commission and the Montgomery Soil Conservation District. This project relied on approved budget documents and agency staff to provide expenditure and revenue information.

OLO obtained information about alternative financing approaches from articles published by the Maryland Department of Environment and the International City Managers Association. OLO assembled data about funding practices in other places from research reports prepared for the federal Environmental Protection Agency, from a survey published by the professional management and engineering firm of Black and Veatch, and from telephone interviews with staff in other public agencies. OLO met with members of the development community to review and discuss different financing approaches.

E. ACKNOWLEDGMENTS

The Office of Legislative Oversight received excellent cooperation from staff in the County's Department of Environmental Protection, Department of Transportation, and Office of Management and Budget; the Maryland-National Capital Park and Planning Commission; and the Montgomery Soil Conservation District.

OLO extends special thanks to Jim Caldwell, Stan Wong, Cameron Wiegand, Rick Brush, Bruce Payne and Meo Curtis in the Department of Environmental Protection; Edgar Gonzales and John Thompson in the Department of Transportation; Joe Cifelli in the Office of Management and Budget; Marshall Rea at the Montgomery Soil Conservation District; and Charlie Loehr at the Maryland-National Capital Park and Planning Commission.

II. AN OVERVIEW OF STORMWATER, STORM DRAIN, POLLUTION CONTROL AND WATER RESOURCE MANAGEMENT PROGRAMS

The legal authority for the County's sediment control and stormwater management responsibilities has evolved over the past 25 years. Originally, policies and programs were established in Maryland law, with responsibility for program implementation delegated primarily to the Montgomery Soil Conservation District (MSCD), a political subdivision of the State. Today, the County Government has primary responsibility for the programs in the urbanized or non-agricultural areas of the County. The Montgomery Soil Conservation District retains responsibility for programs to address water quality and water resource management issues on agricultural land and also reviews sediment control plans for the cities of Rockville and Gaithersburg.

A. PROGRAMS FOR THE NON-AGRICULTURAL AREAS OF THE COUNTY

Over the past 20 years, the Maryland General Assembly has enacted a series of laws to enable the County to assume full responsibility for control of erosion and sedimentation, stormwater management, and water quality control programs within the non-agricultural areas of the County.

County Code Chapter 19, Erosion, Sediment Control and Stormwater Management, provides the primary legal basis for the County's stormwater management and water quality programs. Article I identifies sediment control responsibilities. Article II sets forth the stormwater management programs. Article III defines Floodplain District Requirements. Article IV, Water Quality Control, adopted November 1, 1994, gives the County authority to enforce water quality control standards and regulate illicit discharges. Article V, adopted November 29, 1994, defines the requirements for water quality reviews in designated Special Protection Areas.

In sum, the County administers six major programs in the urbanized areas of the County to manage stormwater and flooding and maintain water quality. These are:

1. a sediment control program,
2. a stormwater management program,
3. administration and enforcement of the floodplain district regulations,
4. a storm drain program,
5. pollution control programs to comply with the federal Clean Water Act requirements including enforcement of the water quality discharge ordinance, and,
6. a stream monitoring program and approval of water quality plans in special protection areas.

OLO Report 90-4 described in detail the sediment control, stormwater management, floodplain district and storm drain programs. The next section of this report briefly summarizes these program operations and also describes how the County regulates the discharge of pollutants and implements the stream monitoring program authorized by recently adopted County legislation.

1. The Sediment Control Program

Chapter 19, Article I requires anyone engaging in activities that will disturb more than 5,000 square feet of land to prepare a sediment control plan, pay an application fee, and obtain a sediment control permit. The current sediment control permit fees are \$.017/square foot of disturbed area or \$740 per acre of disturbed land. The minimum fee is \$390. The fees cover part of the costs of the sediment control program plus part of the costs of construction plan review and inspection for the stormwater management program. Applicants proposing to develop large properties are required to prepare engineered plans and post performance bonds. Active development sites must be inspected once every two weeks to assure compliance.

The law is administered by the Water Resources Division in the County's Department of Environmental Protection (DEP). DEP's responsibilities include the review of sediment control and stormwater management plans, the collection of fees, the issuance of permits, site inspections, and related enforcement activities. The law applies to both private and public construction activity including the construction of schools, roads and stormwater management facilities. Permit fees are waived for public projects. Staff in the Parks Department at the Maryland-National Capital Park and Planning Commission (M-NCPPC) must approve the release of sediment control permits for any stormwater management facilities located on park land.

Table 1 shows the activity level for the sediment control program. As noted in the County Executive's Recommended FY 96 budget, current staffing levels provide for approximately 75 percent of mandated sediment control inspections to be made.

TABLE 1. PROGRAM INDICATORS FOR THE COUNTY'S SEDIMENT CONTROL PROGRAM

Indicators	FY 93 (Actual)	FY 94 (Actual)	FY 95 (Actual)	FY 96 (Estimated)
Installation and maintenance inspections required	19,500	19,500	19,500	19,500
Installation and maintenance inspections completed	11,700	13,987	13,087	14,000
Engineered sediment control plans approved	271	333	320	330
Sediment control permits issued	781	867	795	800
Acres controlled by sediment control permits	1,441	2,060	2,420	2,200
Sediment control permit fees collected	\$600,310	\$756,754	\$1,008,351	\$878,300

Source: Department of Environmental Protection, 1995

2. The Stormwater Management Program

Chapter 19, Article II states that the County shall prepare functional plans, plan and program stormwater management facilities and promulgate regulations to provide stormwater management controls for water quality and water quantity. This section summarizes the stormwater management regulatory requirements, the County's capital program and its watershed planning programs.

a. Regulations

The law requires anyone proposing to construct or redevelop property to prepare and submit to DEP a stormwater management concept plan showing the structures that will be put in place to control the rate of stormwater runoff (water quantity) and to maintain the biological, chemical, habitat and physical characteristics (water quality) of streams receiving the runoff. Plans must be reviewed at several points in the development review process including the preliminary plan of subdivision and site plan. The applicant is required to pay a \$685 stormwater management concept plan fee.

Under certain conditions, the law allows DEP to waive either or both the water quantity and water quality requirements and accept a stormwater waiver contribution instead. In practice, DEP typically waives water quantity but not water quality requirements and stormwater waiver contributions are collected only for water quantity. The water quantity and water quality contribution fees are based on the zoning for single family residential uses or on the percent of imperviousness for all other uses. Applicants who are granted a waiver must also typically pay a plan review fee of \$685.

The County's stormwater management regulations are administered by DEP's Water Resources Division. Table 2 shows the activity levels for the stormwater management program.

TABLE 2. PROGRAM INDICATORS FOR THE COUNTY'S STORMWATER MANAGEMENT PROGRAM

Indicators	FY 93 Actual	FY 94 Actual	FY 95 Actual	FY 96 Estimated
Installation inspections required	1,300	2,000	2,000	2,000
Installation inspections completed	1,300	1,104	1,184	1,300
Maintenance inspections required	3,000	3,000	3,000	3,000
Maintenance inspections completed	1,000	65	489	1,200
Subdivision plans reviewed for stormwater concepts	133	143	181	180
Nonsubdivision plans reviewed for stormwater concepts	91	79	105	90
Central stormwater facility designs approved	1	1	3	3
Stormwater Management Concept Fees	(a)	\$34,615	\$63,060	\$70,000
Acres controlled by approved stormwater management facilities	1,060	1,753	2,216	2,000
Waiver contributions	\$674,000	\$1,000,000	\$968,000	\$800,000

(a) Included with Sediment Control Permit Fee
Source: Department of Environmental Protection, 1995

b. Maintenance Inspections

Stormwater management facilities may be constructed on-site or off-site by private property owners or by the County. The law requires property owners or a homeowner's association (for residential development) to maintain on-site facilities. The Parks Department maintains facilities built by private developers on park land. DEP maintains regional facilities

constructed under the County's Participation Program* in the capital budget. Table 3 presents the inventory of stormwater management facilities in the County as of 1995.

The law requires the County to inspect public facilities (i.e., in parks or on public property) twice a year and to inspect private facilities annually. In 1991, OLO Report 90-4 observed a number of problems regarding the ongoing inspection and maintenance of stormwater management projects. In particular, at that time, DEP conducted maintenance inspections of private and public facilities only in response to complaints and performed minimal maintenance on existing facilities. The Parks Department at M-NCPPC also noted that its maintenance program for stormwater management facilities was inadequately funded.

TABLE 3. INVENTORY OF STORMWATER MANAGEMENT FACILITIES

	Residential	Commercial/ Industrial	Land Use Unspecified	Total	
Privately Maintained Facilities	294	593	569	1,456	
	On-Site	Regional	Parks	Schools/DOT	Total
Publicly Maintained Facilities	58	42	77	92	269

Source: Department of Environmental Protection, 1995

OLO Report 90-4 indicated that the approved FY 91 operating budget included funds for the first phase of an engineering and safety survey of a sampling of public and private facilities. It appears that this survey was never undertaken. Instead, DEP currently has dedicated one inspector to conduct maintenance inspections of private stormwater facility projects. In addition, in FY 94, the Council programmed two capital projects to make structural repairs to stormwater facilities maintained by the County or the Parks Department.

c. The Stormwater Management Capital Program

The County's capital program for stormwater management historically has emphasized projects to control the rate of stormwater runoff or to repair problems created by rapid runoff and flooding. The capital program includes projects to:

- assess watershed conditions and plan for new facilities;
- construct new projects to serve new development;
- implement retrofit projects for previously developed areas lacking stormwater management; and,
- construct stream valley improvements to restore streams or to abate and control stream erosion and flooding.

* The County's Participation Program enables the County to participate with a developer in the construction of a regional stormwater management facility. The County provides funds for additional storage capacity beyond the developer's legal requirements and also assumes maintenance responsibility for the facility.

Table 4 lists the capital projects for stormwater management from the Approved FY 96-01 Capital Budget, including the two capital projects programmed in FY 94 to address structural repairs needed for stormwater facilities on park land and other publicly maintained sites.

TABLE 4. STORMWATER MANAGEMENT PROJECTS IN THE APPROVED FY 96-01 CAPITAL IMPROVEMENTS PROGRAM

Project #	Page #	Project Name	Agency	FY 96 (\$ in 000's)
938119	15-20	Facility Planning:Stormwater Management	MCG	443
808440	15-22	Stormwater Management Participation Project	MCG	874
738759	15-26	Misc Stream Valley Improvements	MCG	200
818571	23-84	Stream Protection	M-NCPPC	362
938142	15-27	Stormwater Management Retrofit-Anacostia	MCG	360
878126	15-25	Stormwater Management Retrofit Countywide	MCG	162
948178	15-21	Stormwater Management Facility Structural Repairs	MCG	250
948718	23-83	Stormwater Management Structural Rehabilitation	M-NCPPC	150
		TOTAL		\$ 2,801

Source: Approved FY 96 Operating Budget and FY 96-FY 01 Capital Improvements Program

d. Watershed Planning

Both the County Government and the Maryland-National Capital Park and Planning Commission have watershed planning responsibilities. Under the Regional District Act, M-NCPPC is responsible for the preparation of land use and functional plans in the County. The Council has adopted functional watershed plans for four basins: Seneca Creek, Rock Creek, Muddy Branch, and the Patuxent River.

The County Government undertakes watershed plans and studies to identify needed restoration and retrofit opportunities to be funded through the capital program. The proposed National Pollutant Discharge Elimination System (NPDES) storm water permit requires that the County undertake assessments and develop action plans for urbanized watersheds, including tributaries to the Anacostia and other south County streams. These action plans will identify goals, strategies, capital projects and operating programs to guide County Government and community actions for restoring water quality and habitat in streams degraded by previous development.

Both M-NCPPC and DEP have also prepared technical watershed studies, which are highly detailed reports on the characteristics of the watershed. OLO Report 90-4 noted that the currently completed functional plans and technical studies cover as much as two-thirds of the County's land surface, including an estimated 60-70 percent of the developed area.

3. Floodplain District Regulations

County Code Chapter 19, Article III states that, in general, DEP cannot issue building permits for structures within the 100 year floodplain. The limits of a floodplain are defined by official maps maintained by DEP which are based on Federal Emergency Management Agency studies, M-NCPPC studies or other studies prepared as a part of subdivision applications. A

variety of development restrictions apply within the floodplain. In addition to required certificates and permits from the appropriate federal and state agencies, a developer must obtain a written floodplain verification and a floodplain district permit from DEP for development allowed under the law. Table 5 shows activity indicators for the Floodplain Management program.

TABLE 5. PROGRAM INDICATORS FOR FLOODPLAIN MANAGEMENT

	FY 93 Actual	FY 94 Actual	FY 95 Actual	FY 96 Estimate
Inspections Required	400	400	400	400
Floodplain Status requests	194	158	177	500
Floodplain/dam studies reviewed and approved	26	21	26	35
Flood Plain Permits	0	\$11,804	\$8,000	\$10,000
Floodplain Verification Fees	0	\$10,149	\$10,800	\$10,000

Source: Department of Environmental Protection, 1995.

4. Storm Drains

The Department of Transportation is responsible for the control, design, construction and maintenance of all storm drainage systems located in the public rights-of-way in the County. The Division of Transportation Engineering Services is responsible for the design and construction of storm drains and the Division of Public Works is responsible for storm drain maintenance. DOT's storm drainage responsibilities do not include State systems associated with state roads or highways, or systems within municipalities, or special taxing districts that have retained responsibilities for their own roads and storm drainage systems.

a. The Capital Program

OLO Report 90-4 stated that storm drains are designed and constructed in one of three ways: by a private developer; by the County; or by a developer under a County/developer participation project. If the project will be dedicated to the County, a developer must obtain a permit and post a bond. Storm drain systems that will stay in private ownership must obtain a permit to connect to the public system. DOT charges 7.5 percent of the total cost of the developer's project to cover the cost of its engineering review and inspections.

DOT must obtain sediment control permits from DEP before proceeding with construction of a storm drain project. As a condition of permit approval, DEP may require DOT to construct stormwater management or stream channel improvements or to repair existing stormwater management facilities. DOT must also submit its road and storm drain capital

projects to M-NCPPC for review and comment under the mandatory referral provisions in the Regional District Act.*.

DOT receives approximately 40 to 60 complaints each year to investigate flooding problems that appear to be caused by the highway system. While some are easily resolved, others require additional investigation. DOT has established a "Drainage Assistance Requests" program in the capital budget to investigate complaints of inadequate or malfunctioning storm drains. The capital program provides funds to research, evaluate, and conduct an engineering analysis of the problem. If action is warranted, then the problem is corrected under a Countywide umbrella project or as a stand-alone project. Table 6 lists the storm drain projects in the approved FY 96 capital program. The planning, design, and construction of storm drainage projects are funded with County General Obligation bonds and current revenues.

TABLE 6. STORM DRAINAGE PROJECTS IN THE APPROVED FY 96-01 CAPITAL IMPROVEMENTS PROGRAM

Project #	Page #	Name	Agency	FY 96 (\$ in 000's)
698324	15-18	Storm Drain Participation	MCG	80
688336	15-19	Storm Drains:Misc Gen	MCG	75
873107	15-13	Beech Ave Storm Drain	MCG	388
848114	15-14	Bradmoor	MCG	735
968137	15-15	GlenEcho	MCG	15
933140	15-16	Leibig Road	MCG	65
818580	15-17	Prelim. Storm Drain Eng.	MCG	85
		TOTAL		\$1,443

Source: Approved FY 96 Operating Budget and FY 96-FY 01 Capital Improvements Program

b. Maintenance of Storm Drains

The Division of Public Works in the Department of Transportation is responsible for storm drainage maintenance. Storm drainage maintenance includes erosion repairs; roadway ditch and channel repairs; cleaning enclosed storm drains; installation and repairs of drainage pipe, catch basins, maintenance hatches, spillways and walls; and paving of drainage ditches.

Maryland law, (Annotated Code of Maryland, Article 29, Section 6-106), requires the County Council to levy a direct ad valorem tax to pay for the maintenance of storm drainage systems in the County. The tax cannot exceed one cent per \$100 of assessed property value. The tax is levied countywide except for federal and state property and 11 special taxing areas which have responsibility for maintaining their own storm drains. In FY 96, Montgomery County will collect approximately \$2.4 million from this tax. The County accounts for the collection of the revenues in the Storm Drainage Maintenance Special Revenue Fund. These revenues are transferred to the General Fund and identified as a revenue source for DOT's operating budget.

* Article 28, Section 7-112 of Maryland law requires M-NCPPC to review the proposed location, character, grade and extent of any proposal to construct or modify a road, park, public building or structure. The Commission must submit comments or conditions in writing to the proposing body. The proposing body is not required to address the comments before proceeding with the project.

5. Federal Clean Water Act (NPDES) Requirements

Congress enacted the Clean Water Act in 1972 and amended the Act in 1977 and 1987. In the 1977 amendments, Congress directed the Environmental Protection Agency (EPA) to establish a permitting program for point source systems which discharge into the nation's streams and waterways. The National Pollutant Discharge Elimination System (NPDES) permit program developed by EPA requires states to control and monitor discharges from industries and wastewater treatment plants. In Maryland, EPA delegated responsibility for issuing and enforcing NPDES permits to the Maryland Department of the Environment.

a. Industrial sites and County owned industrial facilities

Currently, there are roughly 2,000 active industrial sites in Montgomery County for facilities such as public and private wastewater treatment plants, automobile service stations, stone quarries, medical facilities, concrete plants, and industrial/commercial complexes.

In 1987, Congress expanded the NPDES program to include urban storm water runoff and, in 1992, the State of Maryland issued a General Permit to regulate storm water runoff from certain categories of industries throughout the state. The General Permit emphasized pollution prevention rather than intensive monitoring as required through earlier NPDES permits. The Office of Environmental Policy and Compliance (OEPC) is implementing a Clean Water Partners program among business owners and operators to assist in developing pollution prevention and runoff management strategies for their sites.

In September 1992, the County filed a Notice of Intent to comply with the General Permit for industrial stormwater discharges for County-owned industrial facilities. The County hired a consultant to complete site evaluations and develop pollution prevention plans for these sites. OEPC is helping to implement the pollution prevention plans by conducting monthly maintenance inspections of County-owned industrial sites.

In FY 95, the Council approved capital projects for the County, the Parks Department and the Montgomery County Public Schools (MCPS) to install pollution control measures on public industrial sites used by each of these agencies. Montgomery College also has funds programmed to prepare a collegewide industrial stormwater management plan to comply with recent federal and state regulations as well as an overall stormwater management plan for the Germantown campus.

TABLE 7. POLLUTION CONTROL PROJECTS IN THE APPROVED FY 96-01 CAPITAL IMPROVEMENTS PROGRAM

Project #	Page #	Project Name	Agency	FY 96 (\$ in 000's)
876675	22-46	Stormwater Management Discharge Control-College	College	36
958758	23-82	Stormwater Management Discharge Control-M-NCPPC	M-NCPPC	110
958119	9-22	Stormwater Management Discharge Control	MCG	378
956560	21-213	Stormwater Management Discharge Control	MCPS	105
		TOTAL		\$629

Source: Approved FY 96 Operating Budget and FY 96-FY 01 Capital Improvements Program

b. Municipal separate storm sewers

As part of the 1987 amendments to the Clean Water Act, Congress required permits for controlling storm water and other discharges through publicly owned storm drain systems. In November 1990, EPA published proposed new permitting requirements to monitor discharges associated with storm drainage systems serving populations of 250,000 or more. The municipal stormwater program requires jurisdictions in Maryland operating large municipal storm sewer systems to submit a two part application to the Maryland Department of Environment outlining programs for monitoring and controlling stormwater discharges.

Part 1 of EPA's regulations requires applicants to: (1) submit information regarding existing programs and legal authority; (2) identify sources of pollutants; (3) field screen major outfalls to detect illicit connections; and (4) propose strategies to characterize discharges. Part 2 requires applicants to: (1) demonstrate adequate legal authority, (2) provide additional information on pollutant source identification; (3) characterize discharges; (4) propose a stormwater management program; (5) estimate the effectiveness of stormwater controls; and (6) provide a fiscal analysis.

The County filed incomplete permit applications in November 1991 and November 1992. In August 1993, the State issued a NPDES Consent Order requiring the County to complete its permit applications. Figure 1 lists some of the conditions of the Consent Order.

The County Council increased funding for stormwater management programs in the FY 94 and FY 95 budgets to enable the County to respond to the requirements of the State issued Consent Order. This funding was used to: (1) establish the baseline stream monitoring program; (2) complete the storm drain facility inventory and tracking system; (3) perform NPDES discharge monitoring; and (4) program repairs to stormwater facilities maintained by the County Government and the Parks Department.

FIGURE 1. MAJOR CONDITIONS OF THE CONSENT ORDER

1. Establish legal authority to regulate illicit discharges and an enforcement program;
2. Complete watershed based mapping and inventories, including storm drains and potential pollutant sources;
3. Complete screening of the remaining 200 (of 500) outfalls;
4. Complete storm event monitoring;
5. Develop and begin a long-term stream monitoring program;
6. Expand management, stormwater facility maintenance, pollution prevention and restoration efforts for residential, commercial and industrial land uses;
7. Estimate the effectiveness of stormwater management programs and best management practices; and
8. Document adequate funding for each year of the 5-year permit.

Source: OLO, 1996.

In 1994, the Council adopted Bill 25-94, Water Quality Discharges, to give the County the authority to regulate illicit discharges. A staff position was added to enforce the Water Quality Discharge law. The inventories and mapping of the storm drainage system, potential pollutant

sources and other stormwater management facilities are being completed as the Geographic Information System data layers are developed.

In April 1995, the State noted its intent to issue a five-year NPDES permit. This past fall, the County provided comments on the State's draft permit. Figure 2 lists the Standard Conditions of the proposed permit.

FIGURE 2. REQUIREMENTS OF THE PROPOSED NPDES PERMIT FOR MONTGOMERY COUNTY

1. Complete the development of the Geographic Information system and the storm drain inventory per the schedule in the permit.
2. Monitor storm drain discharges, stream conditions and the effectiveness of BMPs in mitigating development impacts;
3. Maintain its existing sediment control and stormwater management programs, including regular maintenance inspections of stormwater management facilities;
4. Establish a database for tracking and evaluating the effects of stormwater waivers issued by watershed;
5. Conduct watershed studies and submit action plans for protecting surface and groundwater resources, including the identification of restoration/mitigation measures and an implementation schedule;
6. Perform an assessment regarding the effects of road maintenance activities;
7. Establish proposed industrial, residential and commercial pollution public education and outreach programs;
8. Implement an illicit connection detection and enforcement program and eliminate any illegal storm drain discharge discovered through this program;
9. Establish source reduction programs for private industrial sites; and
10. Train construction site operators in sediment and erosion control techniques.
11. Maintain adequate program funding.

Source: OLO, 1996.

In addition to the Standard Conditions, there are Special Programmatic Permit Conditions that will require the County to coordinate with other jurisdictions on tributary strategies for the Chesapeake Bay, management program standards, and the assessment of controls. Finally, the County must submit annual progress reports to the State that include a summary of data collected, enforcement actions, inspections and public education efforts, a proposed budget for the coming year, and indicate the funding that will be used to support these requirements.

6. Water Quality Reviews in Special Protection Areas

On November 29, 1994, the County Council amended County Code Chapter 19 to add Article V, Water Quality Review in Special Protection Areas. Regulations establishing fees for the Special Protection Areas were adopted in August 1995 and program regulations were adopted in October 1995.

This law establishes additional procedures and requirements of the water quality review process in Special Protection Areas in the County. Special Protection Areas are geographic areas where existing water resources are of high quality or unusually sensitive or where proposed land uses would threaten the quality or preservation of these resources in the absence of special water quality measures. The Council may designate special protection areas through a land use plan, a

functional plan, the Comprehensive Water Supply and Sewer System plan or by resolution. To date, the Council has identified Special Protection Areas in the Upper Paint Branch watershed, the Piney Branch watershed and the Ten Mile Creek and Little Seneca Creek watersheds in Clarksburg.

The law requires the County to implement stream monitoring programs in Special Protection Areas and prepare annual reports to the Council. This program will inventory and evaluate water resources to measure baseline conditions, and monitor streams to assess the impairment of the biological, chemical and physical integrity of the stream over time. In these areas, property developers must submit water quality plans which include sediment control and stormwater management plans, a water quality inventory, a best management practices monitoring plan, and a stream monitoring plan. Developers must also pay a preliminary plan water quality review fee, a final plan water quality review fee and a stream monitoring fee. While the Special Protection Area program is not required by the NPDES permit, some of the monitoring information that is collected will be used to assess the effectiveness of best management practices as required by NPDES.

B. PROGRAMS FOR THE COUNTY'S AGRICULTURAL AREAS

Between 99,000 to 110,000 acres in Montgomery County are in agricultural land or farm use. The Montgomery Soil Conservation District (MSCD), a political subdivision of the State, is the County's lead public agency for promoting programs to reduce soil erosion and prevent farm runoff in the agricultural community. The MSCD uses public education and federal and State incentives to educate farmers on the importance of utilizing various best management practices (BMPs) to reduce agricultural pollution. Examples of agricultural BMPs include: reducing the use of chemical fertilizers through nutrient management planning; applying fewer pesticides through integrated pest management; controlling animal waste with storage facilities; protecting stream corridors from livestock with fencing, buffer enhancement and livestock crossings; and, minimizing cropland erosion through conservation, tillage and grassed waterways.

In November 1994, the County adopted Bill 25-94, Water Quality Discharges. This legislation requires Soil Conservation and Water Quality plans for all farms in the County and authorizes the County, in conjunction with MSCD, to order the correction or abatement of stream degradation caused by a failure to maintain agricultural best management practices in accordance with an approved plan. The law defines a Soil Conservation and Water Quality plan as:

a land use plan for a farm approved by the Soil Conservation District ... to make the best possible use of soil and water resources in carrying out agriculture, while minimizing the movement of sediment, animal wastes, nutrients, or agricultural chemicals into the waters of the state in the County

Currently 69 percent of the farmland in the County is operating using a soil conservation and water quality plan. Farmers have installed a majority of the BMPs contained in these plans. Federal/state cost share incentives are available to assist with the installation of BMPs. These incentives may cover up to 87.5 percent of the cost with a limit of \$35,000 per farm (\$50,000 for dairy farms).

The law requires the Department of Environmental Protection and MSCD to enter into a Memorandum of Understanding (MOU) regarding water quality monitoring and the specific notification and enforcement procedures to be followed in cases of water pollution caused by agriculture. Although the MOU has not been finalized, DEP and MSCD have agreed that MSCD should conduct water quality monitoring of streams in the County's rural areas. This would help provide data to determine the extent to which agricultural runoff contributes to degrading water quality in the County's streams. In the FY 96 budget, MSCD requested \$87,000 to fund one workyear plus the equipment needed to implement water quality monitoring in the agricultural areas. These fiscal needs were not funded in FY 96.

III. COSTS, FUNDS AND REVENUES FOR STORMWATER AND WATER RESOURCE MANAGEMENT PROGRAMS IN THE COUNTY

Figure 3 shows the stormwater operations and water resource programs in the County. This chapter identifies the costs and funding of the programs administered by the County Government and the Montgomery Soil Conservation District.

FIGURE 3. ORGANIZATION OF STORMWATER OPERATIONS AND WATER RESOURCE PROGRAMS

Area	Programs	Responsible Department, Agency or Municipalities in Montgomery County
Agricultural Areas	Programs to reduce soil erosion, prevent farm runoff through use of Best Management Practices and rural stream monitoring (future).	Montgomery Soil Conservation District (MSCD)
Urbanized Areas	1. Sediment Control	DEP (County); MSCD in Rockville and Gaithersburg
	2. Stormwater Management a. General Administration b. Maintenance Inspections c. Capital Program d. Watershed Planning	DEP (County); M-NCPPC (County Parks); MSCD (Rockville and Gaithersburg); Takoma Park DEP; MNCPPC DEP; M-NCPPC DEP, M-NCPPC
	3. Floodplain Regulations	DEP
	4. Storm Drains a. Inventory (per NPDES) b. Design and Construction c. Maintenance	DEP DOT plus other taxing districts DOT plus other taxing districts
	5. NPDES (Pollution Control) Activities a. Administration b. Monitoring and Education c. Enforcement d. Pollution Control Capital Projects	DEP DEP DEP DEP, DOT, MCPS, MNCPPC, College
	6. Stream Monitoring	DEP

Source: OLO, 1996

A. FY 96 PROGRAM COSTS

In FY 96, Montgomery County budgeted 90.3 workyears and \$10.2 million for sediment control, stormwater, floodplain, storm drain, pollution control and water quality management programs in the County.

Table 8 shows the workyears, operating and capital expenditures for the six major programs that serve the urbanized area of the County plus the programs administered by the Montgomery Soil Conservation District in the County's agricultural areas. Operating expenditures are slightly higher than the capital expenditures.

TABLE 8. OPERATING AND CAPITAL EXPENDITURES FOR STORMWATER OPERATIONS AND WATER RESOURCE PROGRAMS IN MONTGOMERY COUNTY (FY 96)

Programs	WYs	Operating Exp.		Capital Exp.		TOTAL	
		(\$ in 000's)	%	(\$ in 000's)	%	(\$ in 000's)	%
Sediment Control	17.8	891.3	17	0	0	891.3	9
Stormwater Management	14.1	777.1	14	2,801.0	57	3,578.1	35
Floodplain Management	3.4	195.3	4	0	0	195.3	2
Storm Drains	32.8	2,186.0	41	1,443.0	30	3,629.0	35
Pollution Control (NPDES)	8.5	427.6	8	629.0	13	1,056.6	10
Special Protection Areas	2.7	144.3	3	0	0	144.3	1
Soil Conservation (1)	6.0	368.4	7	0	0	368.4	4
Administration (DEP)	5.0	384.0	7	0	0	384.0	4
TOTALS	90.3	\$5,374.0	100%	\$4,873.0,	100%	\$10,247.0	100%

(1) The Soil Conservation program includes 3 workyears and \$166,949 in federal and state contributions.
Source: Approved FY 96 Budget and Public Services Program and OMB, 1995.

The Approved FY 96 Operating Budget funds approximately \$5.4 million in operating expenses. About 41 percent of the operating expenditures are for the storm drainage maintenance program; about 35 percent are for the administration of the sediment control, stormwater management and floodplain programs; and the remaining 25 percent pay for enforcement and monitoring programs required by the NPDES permit, soil conservation programs and general administration in the Department of Environmental Protection.

The table does not include some operating expenses that could not be separated out from other programs. DOT estimates the cost of the storm drain design and construction program at \$200,000 per year plus the cost of inspections. M-NCPPC estimates that the stormwater related regulatory and planning responsibilities of the Planning staff are between three and five workyears annually.

The Approved FY 96-01 Capital Program funds almost \$4.9 million for stormwater management, storm drains and pollution control capital projects. The FY 96 capital project funding includes:

- \$2.8 million for stormwater management including \$1.3 million for stormwater facility planning and participation projects; \$562,000 for stream valley improvements; \$522,000 in retrofit projects; and \$400,000 in structural repairs for stormwater facilities on publicly owned sites;
- \$1.4 million for storm drain participation, engineering and individual projects; and,
- \$629,000 in pollution control projects.

B. FUNDS AND REVENUE SOURCES FOR THE FY 96 OPERATING BUDGET

The County pays for the operating costs of the stormwater, storm drain and water quality programs from the General Fund. Revenues for the County's stormwater operations and water quality programs are collected in the General Fund and in a Special Revenue Fund for Storm Drainage Maintenance.

1. The Special Revenue Fund

In general, the County uses Special Revenue Funds to account for activities supported in part by special taxes on specific geographical areas, user charges or service fees from those benefiting from special services. Examples of Special Revenue Funds include the Recreation Fund, the Suburban District Fund, the Mass Transit Fund, the Cable TV Fund and the Urban District Funds. Typically, the County charges program expenditures directly out of Special Revenue Funds and uses the funds to track the relationship between revenues and program expenditures.

The County uses the Storm Drainage Maintenance Special Revenue Fund to account for the collection of a mandatory one cent ad valorem property tax. The tax is assessed on real property countywide except for federal property and municipalities or taxing districts that are responsible for their own storm drainage maintenance. Maryland law requires this tax to pay for the maintenance of the storm drainage system. Unlike most other Special Revenue Funds, the County transfers the storm drainage tax revenues to the General Fund where they are used to pay storm drainage maintenance expenses in DOT's operating budget.

2. The General Fund

The General Fund is the general operating fund of Montgomery County. The major revenue sources for the County's General Fund are property and income taxes. Other revenue sources include intergovernmental contributions, interest income, license and permit fees, charges for services, and fines.

3. Sources of Revenue

Table 9 shows the FY 96 operating expenditures and revenue sources for stormwater activities, storm drain operations and water quality programs in the County. Revenues for these programs come from a combination of property and income taxes, the ad valorem storm drain

tax, permit fees, and federal and state contributions to the Montgomery Soil Conservation District.

TABLE 9. FY 96 OPERATING EXPENDITURES AND REVENUE ESTIMATES FOR STORMWATER, STORM DRAINS, POLLUTION CONTROL AND WATER QUALITY PROGRAMS (\$ IN 000'S)

Programs	Operating Expenditures	General Fund Revenue Sources			
		Gen. Taxes(1)	Fees	Storm Drain Tax(2)	Fed/State (3)
Sediment Control	891.3	13	878.3		
Stormwater Management	777.1	707.1	70.0		
Floodplain Management	195.3	175.3	20.0		
Storm Drains	2,186.0			2,186.0	
Pollution Control (NPDES)	427.6	427.6			
Special Protection Areas	144.3	144.3			
Soil Conservation	368.4	201.5			166.9
Administration (DEP)	384.0	384.0			
TOTALS	\$5,374.9	\$2,053.0	\$968.3	\$2,186.0	\$166.9
Percent of Total Revenues		38	18	41	3

Sources: Approved FY 96 Budget and Public Services Program, 1995 and DEP.

(1) Revenues in this column reflect General Fund revenues minus stormwater fees and the storm drain tax shown in other columns. Property and income taxes provide 85 percent of General Fund revenues. (2) In FY 96, the County estimates the Storm Drain tax revenues will be \$2.4 million; however, only \$2.18 million is shown in revenues reflecting the approved operating expenditures for storm drainage maintenance program. (3) The federal and state governments contribute 3 workyears and \$166,949 to the Montgomery Soil Conservation District.

The fees that the County collects for sediment control permits, stormwater management concept plans, floodplain permits and verification studies are some of the General Fund permit fee revenues. These fees partially offset the cost of the County's stormwater programs. Staff in DEP estimate that approximately 15 to 20 percent of their time is spent reviewing and inspecting projects and issuing permits for other public agencies that do not pay fees. If collected fees were applied to the remainder of the program costs, an estimated 65 to 70 percent of the operating budget program costs for stormwater and sediment control programs would be covered.

C. REVENUE SOURCES FOR THE FY 96 CAPITAL PROGRAM

As shown in Table 8, the stormwater, storm drain and pollution control (NPDES) programs are the only three programs that have capital expenditures. See Chapter II for information on the capital projects included in each program. Table 10 shows the capital expenditures and revenue sources for the approved FY 96 Capital Program.

The County uses four revenue sources to pay for these capital projects: current revenues, general obligation bonds, waiver contributions, and federal and state aid.

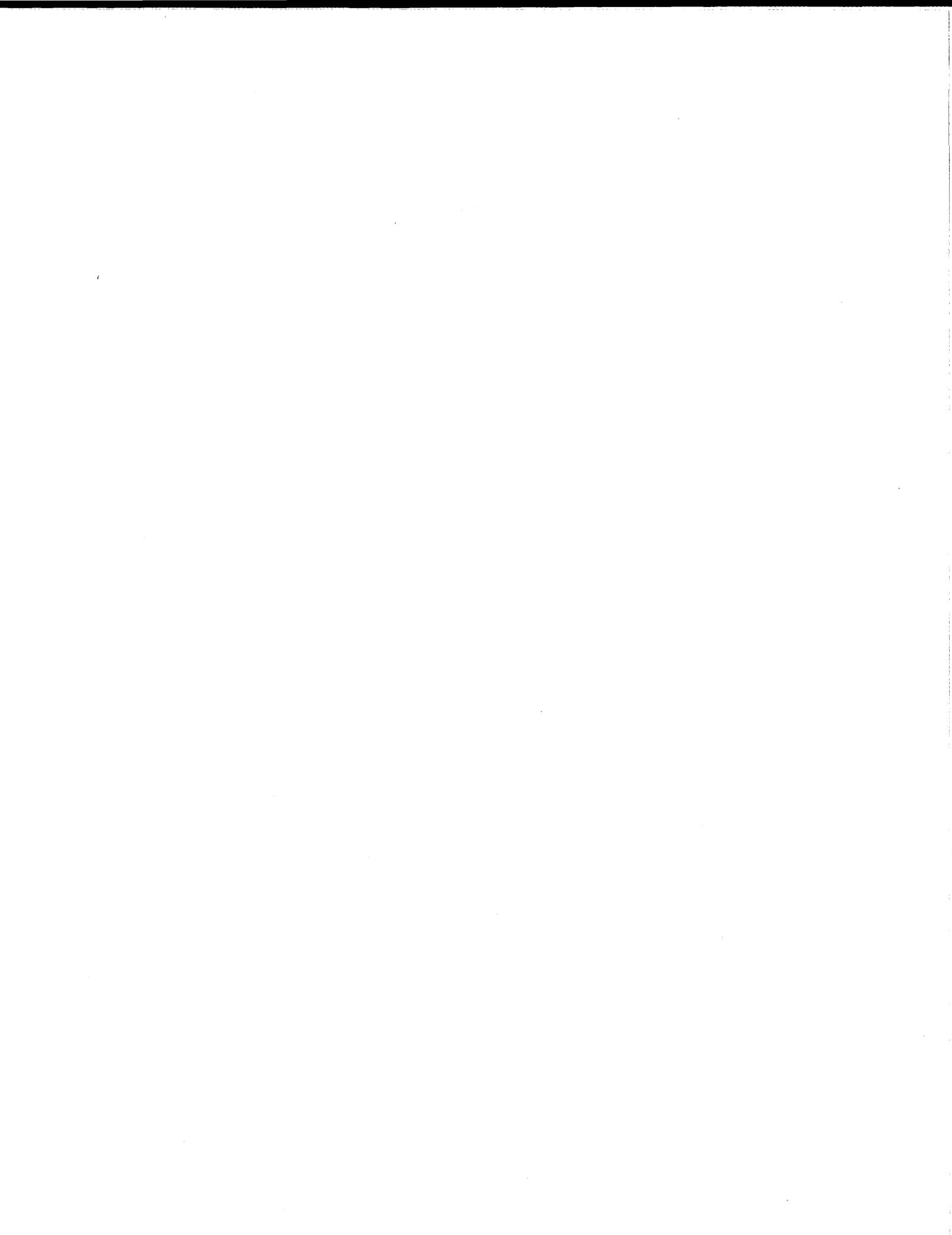
- **Current revenues** provide 11 percent of the total revenues for the capital program and support the stormwater management and storm drain program. Current revenues are transfers from the General Fund to the capital program.

- **General obligation bonds** represent 58 percent of the revenues for the capital program and are used to pay for a portion of the stormwater projects, most of the storm drain projects and all of the pollution control projects.
- **Stormwater Waiver Contributions** are contributions paid by developers in lieu of building stormwater management projects under the stormwater waiver contribution program. County regulations restrict the use of the money for certain stormwater projects. Waiver contributions account for 23 percent of the revenues for all capital expenditures but, more importantly, provide 40 percent of the revenues to pay for stormwater projects. The contributions are listed in the capital budget as a Stormwater Management Fund; however, this “fund” is for display purposes only and does not operate as an actual fund.
- **Federal and state aid** contribute \$341,000 to the FY 96-01 Capital Program, or seven percent of the capital budget. Additional federal funding, not included in the \$341,000, comes from the Corps of Engineers in the form of technical support for capital projects. For example, the FY 96 capital budget includes a stormwater retrofit project in the Anacostia River Watershed that will be managed by the Corps of Engineers, with overall project coordination provided by DEP. The Corps will pay 50 percent of the project design costs and 75 percent of construction costs.

TABLE 10. FUNDING SOURCES FOR THE FY 96-01 CAPITAL PROGRAM FOR STORMWATER, STORM DRAIN AND POLLUTION CONTROL (DISCHARGE) PROJECTS (\$ IN 000'S)

Programs with Capital Projects	Capital Exp.	Revenue Sources			
		Cur. Revs	GO Bonds	Contributions	Fed/St.
Stormwater Management	2,801	453	862	1,145	341
Storm Drains	1,443	85	1,358	0	0
Pollution Control (NPDES)	629	-	629	0	0
	-				
Total	\$4,873	\$538	\$2,849	\$1,145	\$341
Percent of Total Revenues	100	11	58	23	7

Source: Approved FY 96 Budget and Public Services Program, 1995.



IV. FUNDING OPTIONS FOR STORMWATER ACTIVITIES

This chapter focuses on funding options for stormwater and storm drain programs. The three sections of this chapter:

- define traditional and innovative funding methods and discusses their applicability to stormwater management;
- describe how 30 cities and counties required to obtain NPDES permits are funding their stormwater programs; and
- present brief descriptions of how selected jurisdictions apply these funding concepts.

The next chapter, Chapter V, focuses on funding for water quality programs and summarizes a 1994 report on innovative financing ideas for restoring the Chesapeake Bay.

A. A MENU OF FUNDING OPTIONS FOR STORMWATER PROGRAMS

The lack of a stable and adequate financing for stormwater management and urban runoff programs is cited as a major problem by many cities and counties across the country. For many local governments, the shortcomings of using general revenues to pay for stormwater programs have been exacerbated by the expense of meeting new federal requirements imposed by the Clean Water Act, legislated property tax limitations, and a stable or declining tax base.

Table 11 (page 22) adapted from material published by the Maryland Department of the Environment and the International City Managers Association (ICMA), lists 27 methods to fund stormwater and storm drain programs. For presentation purposes, the funding options are grouped by functional program requirements. In practice, a funding option, for example, general fund revenues, may be used to pay for more than one functional requirement. In fact, despite the number of options available, it appears that at the present time, cities and counties typically rely on general fund revenues (e.g. property and income taxes) or a street or road fund to pay for annual operating expenses, and use a mix of revenue sources for capital improvements. The discussion below examines how well the various revenue sources meet the operating and capital expenses for stormwater programs.

1. Operating Expenses

While many communities select financing methods for stormwater management and storm drain operations on the basis of anticipated capital expenses, the larger portion of program costs usually consists of annual operating expenses. Communities which have implemented comprehensive drainage programs that include a capital program typically spend between one-half to two-thirds of their budgets on annual operating expenses. Jurisdictions generally use a combination of funds and fees to pay operating expenses.

In most cities and counties around the country, four types of funds could generate sufficient revenue to meet annual operating expense requirements for a comprehensive stormwater or storm drain management program: a general fund supported by property and income taxes; a street fund supported by gas tax revenues or other contributions; a utility fund supported by user charges; or a special fund supported by an ad valorem tax. While special purpose districts or regional authorities could also provide operating funds, in practice, it is local governments who generally assume the responsibility of funding stormwater management programs.

TABLE 11. FUNDING OPTIONS FOR STORMWATER OPERATING AND CAPITAL EXPENSES

Functional Requirements	OPERATING EXPENSES		CAPITAL EXPENSES		
	Operations and Maintenance	Regulatory Services	Major Capital Improvements: Redevelopment	Major Capital Improvements: New Development	Special Services and Projects
Funding Options	<ul style="list-style-type: none"> • General Fund • Street Funds • User Fees or Service Charges • Ad Valorem Property tax 	<ul style="list-style-type: none"> • Plan review fees • On site inspection fees • Penalties and fines 	<ul style="list-style-type: none"> • General Obligation Bonds • Revenue Bonds • Taxes on other utilities • Grants or loans(state or federal) • Pay as you go sinking fund • Tax Increment Financing 	<ul style="list-style-type: none"> • Subdivision Exactions • Developer Incentives • Impact Fees • System Development Charges • General Facility Charges • In-lieu of Construction Charges • Latecomer Fees for Extensions 	<ul style="list-style-type: none"> • Local Improvement Districts • Local Utility Improvement Districts • Area of Special Benefit Financing • Special Purpose Taxing Districts • Homeowner's Associations • Voluntary Gifts

Sources: Maryland Department of the Environment and Water Resources Associates

General Fund General fund revenues may be derived from a number of sources including: property taxes; local sales, income and business taxes; franchise and other fees; excise taxes; and licenses. A general fund is used for many purposes including schools, police and fire services, general administration, property maintenance, and various social services. Compared to many of these services, stormwater management is usually treated as a more discretionary item in a budget financed from general fund revenues.

Changes in economic and political conditions affect the amount of general fund revenues available. Recessions and/or legislation implementing tax limitations and exemptions will reduce the total amount of general fund revenues available for priority programs, making the funding of discretionary programs even more difficult. Finally, there is generally little relationship between need or demand for stormwater management and amounts paid by individuals and business. The value of property, goods and services or income or business receipts has little bearing on how much an individual or property contributes to or benefits from a local drainage control program.

Programs such as water, sewer and drainage which focus on long-term, capital intensive construction and maintenance have historically found it difficult to compete effectively for general fund support. As a result, in many communities, water and sewer have moved from general revenue financing to utility financing and drainage is now following.

Street Funds Many communities have established dedicated or restricted funds for local street and road programs funded through a gas tax or other contribution. Drainage systems within road rights of way are frequently constructed as part of road projects and substantial use has also been made of these funds for drainage maintenance.

The use of street funds for drainage control has been limited by two factors. Some states restrict the use of funds to public rights-of-way. As a result, funds are not available for drainage projects outside of the rights-of-way. Second, street funds have struggled to pay for rapidly increasing road maintenance costs due to inflation and drainage projects have not competed well for these funds. The use of street funds for financing drainage problems typifies the "step child" status of stormwater management. Typically, visible and primary needs displace those that are less visible or perceived as secondary responsibilities. Deferred maintenance of drainage systems has become increasingly common since deteriorating systems are not evident until a failure occurs.

User Fee Funds According to much of the literature on funding for stormwater programs, a utility fund based on user or service charges is the most quickly growing component of municipal revenues. Unlike water and sewer charges, stormwater user charges typically reflect properties contribution to stormwater runoff. Some districts also bill user charges to public as well as private properties since public property such as roads and buildings comprise as much as 30 percent of the developed land in some cities. Some places also include undeveloped properties in the calculation of the base drainage service charge.

Some user charges can provide a viable substitute to a general fund, not just a supplemental source. Significant revenues can be raised for a relatively low cost per property owner because the expense of the drainage program is spread throughout the community. Revenues from service charges can be used to pay for some or all of a drainage program, including the costs of administration, planning, design, operations and maintenance, revenue bonds for new construction and replacement of old systems, support services, and regulatory functions.

Ad Valorem Tax Some jurisdictions, including Montgomery County, levy an ad valorem tax to raise revenues for stormwater management programs. In most cases the local government creates a stormwater management district to serve as a special taxing district. The

tax is imposed on all real and personal property assessed for tax purposes within the district, except publicly owned land. The charge is included as a line item on the property tax bill. All receipts and revenues collected from the tax are deposited in a fund and used exclusively for stormwater management activities within the district.

Jurisdictions that levy an ad valorem tax usually use the tax revenues as the primary funding source for their stormwater management programs. In Prince George's County, Maryland, the ad valorem tax earns approximately \$15-16 million a year and provides 95 percent of the revenues for the stormwater management program. In Riverside, California and Salt Lake County, Utah, 70 percent and 80 percent of the total stormwater management revenues are provided by an ad valorem tax. In Montgomery County, the storm drain tax supports 41 percent of the annual operating program.

Plan review and inspection fees are a standard financing mechanism in most local governments today. Many jurisdictions use these types of fees to fund drainage regulation and enforcement efforts, including drainage system plan review, field inspection and erosion and sediment control. Some jurisdictions attempt to make plan review and inspection financially self-sufficient through fees while others subsidize these functions out of general fund revenues to encourage economic development. Fees may be calculated as flat rates based on project categories or program cost assumptions, or on hourly rates.

2. Capital Expenses

As noted above, many governments use a mix of sources and approaches to pay for capital projects including bonds, fees and assessment districts.

a. Bonds

Typically, local governments use **general obligation bonds** to pay for retrofit or restoration projects in developed areas and **subdivision exactions** to require developers to build and dedicate projects to support new development. In cities and counties where drainage is organized and financed as a utility, capital projects have been funded through **revenue bonds** repaid primarily from service charges. Revenue bonds do not authorize an increase in taxes nor do they authorize a specific increase in utility service charges although rate increases may be enacted separately.

b. Fees and Charges

Fees that may be appropriate for stormwater management capital projects include:

- Impact fees;
- System development charges;
- General facility charges;
- In-lieu of construction charges; and,
- Latecomer fees for developer extensions.

Impact fees are assessed to pay for the "impacts" and cost that new development imposes on a neighborhood or community. Since new development affects both the capacity requirements of drainage systems and the need for routine maintenance, impact fees are

justifiable for both capital improvements related to stormwater management and the maintenance during and immediately after construction.

System Development Charges (SDCs) These charges are used by water and sewer utilities (including the Washington Suburban Sanitary Commission) to pay for system improvements. They differ from “general facility charges” (described below) in that they are associated with specific improvements. They may be levied on new development either after a project is built to balance financial participation or used to accumulate a reserve fund to finance future construction or improvements of specific segments in the system. The intent is to enable a community to achieve excess capacity improvements in advance of growth yet place an equitable portion of the cost on all properties including those which develop later. Usually SDCs are most appropriate for facilities which improve or expand utility service to a portion of the total service area.

General Facility Charges are similar to the SDC concept although they are usually used for overall improvement to a utility system or for maintenance or replacement rather than specific capital projects. This method is used when the improvement will benefit an entire service area or when an entire system has undergone a major upgrade. The underlying philosophy of this approach is that improvements serve everyone. The system is viewed as uniform and there is usually no need to break down a general facilities charge into component parts whereas a SDC is often associated specifically with individual improvements or a small area. Water and sanitary sewer hookup fees are similar to the general facility charge. Some jurisdictions include general facility charges in building permit fees or other approvals associated with the development process.

In-lieu of construction charges offer developers an alternative of paying a charge instead of building a stormwater facility on-site. Such fees may then be used to pay for regional detention facilities.

c. Special Assessments and Special Purpose Taxing Districts

In most cases special assessment projects must have a demonstrable benefit to the properties in the assessment area and charges for each parcel must be consistent with the benefit. Types of special assessment options include local improvement districts, utility local improvement districts, areas of special benefit, and special purpose taxing districts.

Montgomery County previously had a drainage district funded through an ad valorem tax (Montgomery County Code, Sections 45-19 through 45-24). This law gave the County the authority to establish a Storm Drainage district and to levy taxes or benefit assessments to provide for the construction and maintenance of storm drainage projects within the district. The Council repealed this section of the Code in 1980.

Local Improvement Districts are used to localize construction costs of small projects that serve a limited area. Some states allow local improvement districts to be formed either by petition from property owners or by authority of the local government. Petitioned districts usually require the signature of at least 50 percent of the property owners.

Utility Local Improvement Districts (ULIDs) differ from local improvement districts because they employ provisions to ensure long term maintenance of the system being

constructed. This concept has been used primarily to fund the extension of water systems. Proper maintenance is essential to guarantee that revenues will be generated. ULIDs include a monthly charge for maintenance as well as a lump sum assessment for the capital improvement. Finally, the cost distribution formula for improvement districts is not related to the value of the properties.

Areas of Special Benefit have been authorized in several states to finance a variety of projects that are typically at a single location with a broader benefit area. The cost distribution formulas for special benefit areas are based on a formula which weighs the benefits to specific properties and charges them accordingly.

Drainage Districts, Diking Districts and Irrigation Districts are all special purpose subdivisions of local government with specific authority to deal with stormwater management. In most cases, they are supported by extra property tax levies on an ad valorem basis although some can also charge fees for services. These special purpose agencies may lack many of the essential general purpose responsibilities of cities and counties which allow comprehensive urban runoff management. Special district concepts have been expanded in the past decade to offer a more appropriate mechanism for managing urban drainage problems. (For more on this, see the description of the Urban Drainage and Flood Control District in Denver Colorado below.)

d. Other taxes and grants

Cities and counties have also used **utility taxes and Community Development Block Grant funds** to construct drainage improvements. Utility taxes are levied on utilities operating within a municipality including one or more of the following in most jurisdictions: telephone, electricity, natural gas, water, sewer, solid waste, fuel oil, cable television and drainage.

B. A SURVEY OF STORMWATER MANAGEMENT FUNDING PRACTICES

OLO assembled data on funding practices for stormwater programs in 32 cities and counties using a combination of telephone interviews, a 1992 survey of stormwater utilities prepared by the consulting firm of Black and Veatch, and a report on utilities prepared for the federal Environmental Protection Agency. All of the jurisdictions included are large jurisdictions (i.e., those with a population of 250,000 or more) required to apply for National Pollutant Discharge Elimination System (NPDES) permits for stormwater discharges from municipal separate storm sewer systems.

The 32 jurisdictions consist of 15 counties, 13 cities, and three places that serve a city plus the surrounding county. The results provide an overview of how some governments organize, administer, and fund stormwater management activities.

The focus of this research was to collect summary information on several jurisdictions. The usefulness of the research is more in the variety of funding approaches found than in the specific data for a particular program. In general, the research suggests that while much of the literature focuses on establishment of utilities supported by service charges or user fees, many other places continue to rely on a combination of general revenues, property taxes and permitting fees. In sum, the information assembled indicates that:

- Stormwater management functions are most frequently located in a Department of Public Works or Transportation or alternatively shared among Public Works, Environmental Services, and Permitting Service departments.
- Places that have established user fees as a primary funding source frequently provide funding for flood control, pollution control, and storm sewers. Some places are also responsible for sanitary sewers and/or wastewater programs.
- User fees are a significant source of funding, providing 75 to 100 percent of the total revenues for 14 jurisdictions. User fees are typically used for both operating and capital expenses although St. Louis, Columbus, and Tulsa limit their use to operation and maintenance expenses only, and Tampa/Hillsborough limits their use to stormwater capital projects.
- There is no pattern for the financing of capital projects among jurisdictions with user fees. Six jurisdictions fund 100 percent of their capital budget with cash using user fees as the source of revenues. Five jurisdictions use 95 percent to 100 percent debt funding and three use a mix of debt and cash funding. In Miami, Boston and St. Louis, where user fees provide a portion of cash financing, other funds are provided by General Obligation bonds, grants, or revenue bonds.
- Places that do not have user fees typically use a combination of revenues from a general fund, an ad valorem tax, permit fees, special tax district, and other sources.
- General obligation bonds are the most common type of debt financing for places without user fees. Phoenix, Riverside, and Tulsa pay cash for capital projects for at least 70 percent of their capital budget but do not have user fees as a revenue source. Phoenix uses revenues from a special taxing district; Riverside uses an ad valorem tax; and Tulsa uses sales tax revenues.
- No Maryland county or Baltimore City has implemented a user charge or a stormwater utility fund. According to the NPDES permits for these jurisdictions, stormwater management and pollution control programs will be funded through general revenues, ad valorem taxes, permit fees, and other contributions.
- Anne Arundel County, Baltimore County and Montgomery County rely primarily on general fund revenues, and developer fees to fund the operating budget for stormwater management and on bonds to fund the capital budget for stormwater management. Montgomery County collects a storm drain ad valorem tax that accounts for 41 percent of its operating budget revenues. Montgomery County also supplements the capital budget with developer stormwater waiver contributions. Prince Georges County relies exclusively on an ad valorem tax. Baltimore City uses revenues from the Motor Vehicle and Waste Water Utility Funds in addition to the General Fund.

The tables in [Appendix A](#) summarize the data. It is important to keep in mind that without additional information, the summary data presented in the tables should not be used to compare one place to one another or to evaluate programs since there are significant differences in the scope of the programs and the funding data.

C. PROGRAM DESCRIPTIONS

This section presents more details on selected programs from OLO's research on alternative approaches to funding stormwater management. In particular, the descriptions of stormwater utilities provide insights into why and how some places have adopted user charges or established stormwater utilities.

1. User Charges and Comprehensive Stormwater Programs

FORT COLLINS, COLORADO

In 1976 Fort Collins adopted a storm drainage ordinance that established the framework for a stormwater management program. The ordinance declared that because all real property in a drainage basin would benefit from the installation of an adequate storm drain system, the cost of installation should be assessed against all real property in a basin.

The ordinance authorized the City Council to appoint a seven member Storm Drainage Board to represent local engineering, irrigation and development interests. The Board is responsible for: dividing the city into separate drainage basins; developing basin master plans that recommend the necessary improvements for each basin; and proposing a method of financing these improvements. Fort Collins' ten basin master plans identify over \$40 million in capital improvements as necessary to provide effective stormwater management. There are also substantial annual costs associated with the administration, operation, and maintenance of the drainage system.

The Fort Collins Stormwater Utility was established in 1980 by consolidating the city's drainage activities into a single program. The activities included both routine operations and maintenance (O&M), administration of the existing drainage system, and the engineering and development of a comprehensive capital improvements program.

A monthly utility fee became effective in 1981. This fee, which is assessed on all developed property in Fort Collins, finances the operations and maintenance (O&M) and administration portion of the overall drainage program. The utility fee for each property is calculated on the total area of the property and the land use characteristic of the property. An administrative appeals process is used to discover and correct errors in property areas and runoff coefficients.

Property owners in some areas are assessed an additional capital program fee in addition to the citywide O&M fee. The individual drainage basins are the building blocks of the capital improvements financing plan. The costs identified in each basin master plan are used to calculate a capital fee for each basin. The costs in the master plan are divided into two groups:

- improvements required to correct existing problems, and
- improvements required in conjunction with continuing development.

The cost of the first is assumed to be the responsibility of the basin-at-large or current property owners. The cost of the latter is the joint responsibility of current and future development with the cost shares based on the relative contribution of each type of development to the stormwater runoff that will result when the basin is fully developed.

**THE LOUISVILLE AND JEFFERSON COUNTY METROPOLITAN SEWER DISTRICT,
KENTUCKY**

The Louisville and Jefferson County Metropolitan Sewer District created a regional utility in 1987 in order to take a comprehensive regional approach to managing stormwater drainage and flood protection. The service area includes the City of Louisville, the incorporated areas of Jefferson County, plus several additional smaller cities.

Before the regional utility was established, fragmented authority limited the effectiveness of drainage improvement projects and maintenance services. The new utility assumed responsibility for: resolving and abating stormwater drainage problems; regulating new developments; and regulating the overall quality of surface waters through Jefferson County. It also provides for the operation and maintenance of a flood protection system that prevents flooding from the Ohio River.

Early studies showed that \$8 to \$10 million would be needed for an effective maintenance and operating program. The estimate did not include capital improvements since a capital plan had not yet been developed. The drainage program is financed entirely by monthly user charges, with single-family homes billed \$1.75 per month, and commercial and industrial properties billed \$1.75 per month for every 2,500 square feet of impervious surface. According to Jefferson County staff, the formation of the consolidated approach to stormwater management corrected the fragmented approach arising from multiple boundaries, shortfalls of funding, lack of a definitive Drainage Master Plan, and the backlog of drainage problems which existed before the program was implemented.

2. Special Districts

DENVER, COLORADO

The Urban Drainage and Flood Control District in Denver Colorado is a regional agency which combines the administrative focus of a special purpose agency with the financial clout of a larger government. Covering six counties and more than 25 cities, the District is supported by an excess property tax levy. It is the lead agency for flood control planning, operates several large facilities, and provides matching funds for local drainage projects.

The existence of the Urban Drainage and Flood Control District may be partially responsible for the development of local stormwater management financing in many of the cities in the Denver area. Several drainage utilities have been established and a common use of revenues has been to match funds from the District to construct capital projects that otherwise could not have been afforded.

3. Multiple funding sources

THE CITY OF INDIANAPOLIS

The city of Indianapolis operates a decentralized stormwater management program funded through multiple revenue sources. In Indianapolis, the Flood Control Division of the Department of Public Works, the Transportation Department, and the Marion County Health and Hospital Corporation all conduct stormwater related activities.

The activities of the Flood Control Division are financed primarily from capital development funds, property taxes, and other taxes representing an allocation from the city's general fund. Stormwater programs administered by the Transportation Department are funded with revenues from a gas tax, a wheel tax for auto registration, cigarette taxes, permit fees and inheritance taxes. The stormwater activities of the Health and Hospital Corporation are funded by an ad valorem property tax.

4. Financing for privately owned maintenance projects

MARYLAND ENVIRONMENTAL SERVICE

The Maryland Environmental Service (MES) is a state agency and non-profit corporation that provides services to private and local governments on a contractual basis. MES specializes in water and wastewater treatment, waste management, recycling, and sludge management.

One way that MES assists communities is by establishing service districts and action plans designed to solve environmental problems. As of July 1, 1995, State law authorizes MES to make improvements to privately owned infrastructure by making financial requirements of communities, contingent upon the approval of the government entity in which the community is located. MES personnel identify the geographic region that requires improvements, develop a five-year plan to solve the problem, secure financing through bonds or loans, and develop a billing system that charges users to pay for the improvements.

For example, the Shores of Calvert community, located in the City of Dunkirk in Calvert County, will repair a failing stormwater dam with the assistance of the Maryland Environmental Service. Three years ago, the Maryland Department of Natural Resources (DNR) inspected the community's sediment control pond and found that it was in danger of collapse. DNR ordered repairs to be made on the dam at an estimated cost of \$80,000. The Maryland Department of the Environment and Department of Natural Resources did not have any funds to distribute to the community for the repairs so the civic association president approached MES with the problem.

MES took out a loan with a local bank to finance the repairs, which included draining the pond, cutting out the piping, and replacing and restoring the pond to a safer condition. The community is responsible for repaying the MES loan plus \$2,200 in administrative charges. MES assessed the total cost of the improvements and divided it by the number of residents to determine that each resident owes \$600 for the dam improvements. The residents have the option of paying their \$600 all at once, or in installment payments with interest.

V. FUNDING FOR WATER QUALITY PROGRAMS

Approximately one-third of the land area in Montgomery County is farmland and much of it is located upstream from recently developed land where most of the County's stormwater management facilities have been built. To supplement the description of funding approaches for the more traditional stormwater and storm drain programs in the last chapter, this chapter reports on funding options for water quality programs for agricultural land based on a 1994 report prepared for the State of Maryland.

In 1994, Governor Schaefer appointed a Blue Ribbon Panel on Financing Alternatives for Maryland's Tributary Strategies. The Panel was asked to identify a menu of innovative and equitable financing ideas that would help fill the gap between current spending on Bay restoration activities and the funding level needed to realize the goal of reducing nutrients in the Chesapeake's tributaries by 40 percent. This section summarizes the highlights of the Panel's report, Financing Alternatives for Maryland's Tributary Strategies: Innovative Financing Ideas for Restoring the Chesapeake Bay.

A. REPORT OVERVIEW

The Panel estimated that the effort to protect and restore water quality in the Chesapeake Bay currently costs approximately \$200 million a year in Maryland, with funding from a combination of federal, state, and local government, and private sources. The Panel stated that the existing level of funding must be maintained and that an additional \$60 million a year is needed to implement the activities identified in the Tributary Strategies, in order to reduce nutrients in the Bay's tributaries by the 40 percent goal. The Panel developed the ideas listed in Figure 4 on the next page to address funding for four types of programs as defined below:

Point Source programs generally reduce biological nutrient levels at waste treatment plants with flows of at least 500,000 gallons per day.

Developed Land programs address runoff from streets, parking lots and other developed areas and focus on stormwater management, erosion and sediment control, and septic system management.

Agricultural Land programs emphasize soil conservation nutrient management plans and improved means for containing animal waste and other sources of nitrogen and phosphorous.

Resource Protection programs include a range of practices designed to protect natural areas such as forests and wetlands.

According to staff at the Maryland Department of the Environment, since the study was completed, most of the program enhancements have been to fund programs for Agricultural Lands. In other areas, watershed advisory groups have been established. These groups are working closely with local County governments to identify priorities and funds since the State

FIGURE 4. LIST OF FUNDING IDEAS FOR RESTORING THE CHESAPEAKE BAY

Funding Options for all Categories

1. Environmental Trust Fund
2. Extension of State Revolving Fund to the private sector

Funding Options for Point Source Programs

1. Small community bond bank
2. Extend maturity of state revenue bonds to reduce annual debt payments
3. Grant processing or handling fees
4. Public private partnership for financing wastewater treatment upgrades
5. Sale of municipal utility assets to the private sector (Could also apply to Developed Land programs)

Funding Options for Developed Land Programs

1. Special Assessment Districts
2. Stormwater Management Utility
3. Annual user fee for depletion/degradation of aquifer
4. Full cost pricing of service fees
5. One time septic system installation impact fee
6. Apply Community Reinvestment Act local investment requirements to environmental projects. (Could also apply to Resource Protection programs)
7. Use federal/ state housing grants to extend public sewer areas with failing septic systems
8. Tax Increment Financing
9. Lawn and Garden Fertilizer Surcharge

Funding Options for Agricultural Land Programs

1. Environmental "check off" for all agricultural products
2. Conservation services incentive programs by major agricultural companies
3. Develop local agricultural cooperatives on watershed basis to assist farmers in financing activities
4. Purchase of environmental easements by private sector
5. Expand tax deduction for conservation tillage and animal waste handling equipment to include other environmental equipment
6. Require nutrient management plans on all Maryland Agricultural Land Preservation Foundation easements
7. Surcharge on prepared food and beverages

Funding Options for Resource Protection Programs

1. Mini-bonds for stream restoration
2. Create habitat stamps patterned after duck stamp program
3. Allow individual property owners to receive loans for structural shore erosion control without joining a district
4. Issue credit card benefiting private environmental organization/fund.
5. Expand commemorative license program
6. Establish forest mitigation banking systems at state and county levels
7. Tree planting for carbon sequestration or other air quality credits
8. Restore Buffer Incentive program to \$500/acre payment to landowners
9. Create incentives for Transferable Development Rights
10. Adopt a crab/adopt a Bay creature
11. Create endowment fund for environmental protection and restoration

Source: Financing Alternatives for Maryland's Tributary Strategies: Innovative Financing Ideas for Restoring the Chesapeake Bay, 1994.

can only give money to the County governments. A few options that may be relevant for the County are briefly summarized below.

B. REPORT HIGHLIGHTS

1. Clean Water Districts

WASHINGTON STATE

In 1992, the Washington State Legislature passed a provision for the creation of shellfish protection districts or clean water districts to facilitate nonpoint source pollution control efforts. Clean Water Districts (CWD) may be created by a county's legislative authority or by voter referendum. There are currently four CWDs in Washington. Once a CWD has been established, a citizen's advisory committee determines priorities for controlling nonpoint source pollution. Counties finance CWD programs through taxes, fees, specified charges for protection programs, and grants or loans from other sources. The specific combination of revenue sources to be used is determined by each county's elected legislative body.

2. Environmental Trust Funds

WASHINGTON STATE

Dedicated funds have been established in several states for a wide variety of conservation practices. Revenues for the funds may come from a variety of mechanisms. In the state of Washington, an Environmental Trust Fund is financed with: \$21 million from the statewide real estate tax; \$19 million from solid waste fees; and \$4 million from water and sewer fees collected from utilities. The Washington Fund is used to provide low-interest loans to local governments to repair leaking sewer lines, or to build stormwater facilities and other projects which remove a "significant threat" to public health.

KANSAS STATE WATER PLAN FUND

The report also notes that Kansas has a State Water Plan Fund, which is a dedicated fund shared by seven state agencies involved in maintaining and restoring water quality. The Fund is fed by general fund appropriations, lottery proceeds, municipal, industrial and agricultural water use fees, pesticide and fertilizer use fees, and environmental fines.

3. State Revolving Loan Funds

Included in the 1987 amendments to the Clean Water Act, Congress established State Revolving Funds (SRFs) to replace the federal Construction Grants Program for wastewater treatment facilities. The objective of the program is to improve water quality. Funds are appropriated by Congress to states who make loans to communities.

THE OHIO LINKED DEPOSIT PROGRAM

The Ohio EPA, in cooperation with the Ohio Water Development Board, established a Linked Deposit Program to assist farmers and other landowners with low cost financing for

control of agricultural runoff. The State Revolving Loan Funds are invested in a commercial bank at below-market interest. The bank in turn lends money to a private landowner for a project at a reduced rate. The advantage of this approach is that it allows the SRF to provide low interest financing to private landowners while at the same time employing the normal lending criteria of the commercial banking industry.

THE MARYLAND WATER QUALITY REVOLVING LOAN FUND

The Maryland Water Quality Revolving Loan Fund is administered by the Maryland Department of the Environment. The purpose of the program is to provide loans at below-market interest rates for publicly owned wastewater facilities and nonpoint source pollution control projects. Typical projects are nonpoint source control best management practices, sewage treatment plant upgrades, sewage collection systems, and construction of storm sewers with water quality components.

Total federal allocation to Maryland for the State Revolving Fund as of 1994 was \$218 million. Through a 20 percent state match and the use of tax-exempt revenue bonds, the SRF has the potential to grant up to \$600 million in loans to local governments. The loans are typically provided at 70 percent of market rate based on the state's bond rating. In Montgomery County, WSSC and the Town of Poolesville have borrowed money from the Revolving Loan Fund.

VI. FINDINGS AND OBSERVATIONS

1. **The County spends approximately \$10.2 million annually for stormwater management, storm drain operations and water resource programs. Both the operating budget and the capital program are supported with multiple revenue sources.**

As outlined in the table below, the County spends approximately \$10.2 million each year for sediment control; stormwater management; floodplain management; storm drains; pollution control programs to comply with the federal Clean Water Act; water quality programs in special protection areas; and programs to implement best management practices in agricultural areas. At present, about 38 percent of the operating program costs are supported solely by general fund revenues and 62 percent of the costs are offset by a combination of an ad valorem storm drainage tax (41 percent), permit fees (18 percent), and federal and state contributions to the Soil Conservation District (3 percent). Revenues for the capital program come from General Obligation bonds (58 percent), stormwater waiver contributions (23 percent), current revenues from the General Fund (11 percent) and federal and state aid (7 percent).

TABLE 12. SUMMARY OF FY 96 FUNDING SOURCES FOR STORMWATER AND WATER RESOURCE ACTIVITIES IN MONTGOMERY COUNTY (\$ IN 000'S)

Programs	Total Costs	OPERATING REVENUES				CAPITAL REVENUES			
		General Taxes(1)	Fees	Storm Drain Tax(2)	Fed/St Aid	Current Revs	GO Bonds	Waiver Contr.	Fed/State Aid
Sediment Control	891.3	13.0	878.3						
Stormwater Management	3,578.1	707.1	70.0			453.0	862.0	1,145.0	341.0
Floodplain Regulations	195.3	175.3	20.0						
Storm Drains	3,629.0			2,186.0		85.0	1,358.0		-
Pollution Control	1,056.6	427.6					629.0		-
Special Protection Areas	144.3	144.3							
Soil Conservation	368.4	202.5			166.9				
Administration (DEP)	384.0	384							
TOTALS	\$10,245	\$2,052.8	\$968.3	\$2,186.0	\$166.9	\$538.0	\$2,849.0	\$1,145.0	\$341.0
Percent of Operating Revenues		38	18	41	3				
Percent of Capital Revenues						11	58	23	7
Percent of Total Revenues		26	9	17	2	5	28	11	3

(1) Revenues in this column reflect General Fund revenues minus stormwater fees and the storm drain tax shown in other columns. Property and income taxes provide 85 percent of General Fund revenues. (2) In FY 96, the County estimates the Storm Drain tax revenues will be \$2.4 million; however, only \$2.18 million is shown in revenues reflecting the approved operating expenditures for storm drainage maintenance program. Percentages may not total 100 due to rounding.

Source: OLO, 1996.

2. With the exception of a user fee or service charge, the County is already using many of the funding methods that are used in other places to fund stormwater management programs.

The table below outlines funding methods already in use in Montgomery County. Some of these methods are used for stormwater and storm drain operations, while others (e.g., impact taxes) are used for other infrastructure. Before 1980 the County had a storm drainage district and a storm drainage tax. The storm drainage district was repealed in 1980 but the County still collects the ad valorem tax and transfers it to the General Fund.

TABLE 13. FUNDING METHODS AVAILABLE IN MONTGOMERY COUNTY

OPERATING EXPENSES		CAPITAL EXPENSES		
Operations and Maintenance	Regulatory Services	Major Capital Improvements: Redevelopment	Major Capital Improvements: New Development	Special Services and Projects
General Fund	Plan Review Fees	General Obligation Bonds	Subdivision Exactions	Homeowner's Association
Ad Valorem Tax	Penalties and Fines	Grants or Loans (State or Federal)	In-Lieu of Construction Charges	Special Purpose Taxing Districts*
Utility Fee or Service Charge	On-Site Inspection Fees	Revenue Bonds	Impact Fees	Area of Special Benefit Financing
Interfund Loans		Taxes on other Utilities	System Development Charges	Local Improvement Districts
		Pay as you go Sinking Fund	General Facility Charges	Local Utility Improvement Districts
		Tax Increment Financing	Latecomer Fees for Extensions	Voluntary Gifts
			Developer Incentives	

* The Montgomery County Storm Drainage District was repealed in 1980.

	County funding methods used for stormwater management programs
	County funding methods used for other purposes but not for stormwater management programs
	Funding methods not authorized or used in the County

- 3. As required by Maryland law, the County assesses and collects an ad valorem storm drainage tax for the maintenance of storm drains; however, the County does not use the Special Revenue Fund to track storm drainage maintenance expenditures.**

The County collects the storm drainage tax in the Storm Drainage Special Revenue Fund, transfers the revenues to the General Fund and budgets for storm drainage operations out of the General Fund. Unlike other Special Revenue Funds, the County does not use the Special Revenue Fund to track the relationship between the amount of revenues the County collects from the tax and storm drainage maintenance expenditures. In FY 96, the County expects to collect \$2.4 million from the Storm Drainage tax and to spend \$2.18 million for DOT's storm drainage maintenance program.

- 4. OLO's research on funding practices identified communities with user charges as well as those with non-utility funding mechanisms. The descriptions of funding methods for stormwater activities in other places is notable in its diversity, and supports the conclusion that there is no single stormwater funding model, utility concept or rate structure, which works in every community.**

Some jurisdictions use user fees; while others continue to rely on more traditional funding sources including general fund revenues, and/or the property tax. Some places administer multi-purpose programs that centralize the administration of flood control, storm sewers, sanitary sewers and sometimes wastewater in one place while others address only storm sewers.

Most communities that established a utility funded through user charges did so in response to an urgent problem or need, such as flood control or the need for substantial repairs to aging infrastructure. Of these, some places have since added water quality programs and pollution control programs to their scope of responsibilities. In general, places that operate a utility administer a more centralized, comprehensive stormwater management program than those places that continue to rely on multiple revenue sources.

Many places share the County's practice of administering stormwater and water resource management programs using a decentralized approach and using multiple revenue sources to pay for these programs. Like Montgomery County, these places also rely heavily on a general fund or property taxes to pay for a significant share of program expenses. The majority of the jurisdictions studied also collected developer fees to fund stormwater programs. Local improvement districts, areas of special benefit financing, and special purpose taxing districts, were less common funding mechanisms.

- 5. Montgomery County lacks reliable data to determine how much it would cost to implement a comprehensive stormwater management program. More work is needed to identify the type and location of new stormwater facilities, the extent of maintenance and repairs required for existing stormwater facilities, and the extent of repairs needed for the existing storm drain system.**

Most of the recent planning for stormwater and water quality has been done as part of a land use master plan process. In most cases, identifying the specific projects needed to correct problems created by the lack of stormwater management are beyond the scope of these master

plans. The proposed NPDES permit requires the County to complete watershed assessment plans. These plans may result in a list of capital projects that need to be implemented.

The County's Department of Transportation prepares an annual report on the state of the County's infrastructure. According to DOT's report, the County has approximately \$50 to \$60 million in deferred infrastructure maintenance expenses, and 60 percent of this may be attributable to the storm drain system. DOT indicates that the County does not have a master storm drainage plan.

OLO Report 90-4 identified the lack of routine maintenance at both public and privately owned stormwater facilities as an issue. Since 1991, the County has inspected all of the publicly owned facilities and programmed projects to make repairs and dedicated one staff position to the maintenance and inspection of privately owned facilities. A study to inspect a sample of privately owned facilities mentioned in the 1991 OLO Report was never undertaken and as a result there is incomplete data on the magnitude and estimated costs of outstanding repairs.

- 6. If there is interest in exploring new or modified forms of funding for stormwater management in the County, then the first step is to identify the specific components of a comprehensive stormwater management program, including how much it would cost to implement such a program. If there is specific interest in establishing a utility, then work should be done to identify the problems or preconditions that would justify the establishment of a utility or a user charge.**

Places that rely on user charges to finance stormwater and pollution control programs typically set up a utility for a specific purpose. For example, a utility is established: to centralize program administration and/or funding; to implement a comprehensive stormwater management program; or to raise funds to construct a specific capital program.

In the next few months, the Council and the community will address several aspects of the stormwater and water resources programs at Council and Committee worksessions and at the second Countywide meeting on water quality issues. These discussions may provide a good opportunity to examine the goals of the current stormwater and water resource programs and to discuss whether there are problems or issues that justify modifying or replacing the County's existing funding of these programs.

If the Council wants to examine a new or modified funding approach for stormwater or water resource programs, the next steps are to define the specific problems to be addressed; to state the benefits that will result and to specify the needs or projects to be funded. This information is needed to guide further analysis of specific financing strategies.

APPENDIX A.: FUNDING APPROACHES IN OTHER JURISDICTIONS

Jurisdictions studied by OLO:

1. Phoenix, Arizona
2. Los Angeles, California
3. Los Angeles County, California
4. Riverside, California
5. Sacramento County, California
6. Sacramento City, California
7. Denver, Colorado
8. New Castle County, Delaware
9. Lee County, Florida
10. Miami, Florida
11. Sarasota County, Florida
12. Tampa/Hillsborough County, Florida
13. DeKalb County, Georgia
14. Wichita, Kansas
15. Louisville/Jefferson County, Kentucky
16. Anne Arundel County, Maryland
17. Baltimore City, Maryland
18. Baltimore County, Maryland
19. Montgomery County, Maryland
20. Prince George's County, Maryland
21. Boston, Massachusetts
22. St. Louis, Missouri
23. Cincinnati, Ohio
24. Columbus, Ohio
25. Tulsa, Oklahoma
26. Portland, Oregon
27. Washington County, Oregon
28. Memphis, Tennessee
29. Salt Lake County, Utah
30. Fairfax County, Virginia
31. Norfolk, Virginia
32. Seattle, Washington

Funding Approaches in Other Jurisdictions: Non User Fee Examples

	Jurisdiction	Administrative Agencies	Centralized Operations	Region Served	SqMi	Pop 1000s	O&M Budget \$1000s	
1	AZ	Phoenix	Flood Control District of Maricopa County	Yes	County	9,226	2,100	\$ 4,486
2	CA	Los Angeles Co	Dept. of Public Works	Yes	County only		8,863	
3	CA	Riverside	Riverside Co. Flood Control District	Yes	W. Riverside Co	2,700	900	\$ 4,000
4	DE	New Castle Co	Dept of Public Works, Water Resources Agency, Conservation Dist.	No	County + 10 cities		442	
5	GA	DeKalb County	Dept of Roads and Drainage	Yes	County		546	
6	KS	Wichita	Water and Sewer Dept. (a)	No	City only	50	300	\$ 525
7	MD	Anne Arundel Co	Planning and Code Enforcement, Public Works, Env. Programs	No	County only	417	427	(c)
8	MD	Balt City	Department of Public Works, Water Quality Planning	No	City	87	736	\$ 88060 (d)
9	MD	Balt Co	Dept of Env. Prot. and Resource Manag., Dept. of Pub. Works	No	County	610	698	\$ 14313 (e)
10	MD	Montgomery Co	Dept. of Environmental Prot., Dept. of Transportation	No	County		757	\$ 5374 (f)
11	MD	Prince Georges Co	Dept. of Env. Resources and Dept. of Public Works & Trans.	No	County + 27 cities	450	729	(g)
12	TN	Memphis	Division of Public Works	Yes	City only	295	650	\$ 2,000
13	UT	Salt Lake County	Dept. of Public Works	Yes	County		726	
14	VA	Fairfax County	Dept. of Public Works and Dept. of Environmental Mgmt	No	County		819	

Source: Black and Veatch survey and OLO

(a) Closed pipe storm sewers and sanitary lines are maintained by the Sewer Maintenance Division. The Dept. of Public Works, Flood Control, maintains open channels.

(b) Currently all stormwater operations are tax supported, however in the near future most revenues will come from user fees.

(c) Anne Arundel County has budgeted \$1.9 million for NPDES program implementation for FY94 through FY98 of total water quality budget of \$26 million.

(d) Baltimore City O&M includes funding for solid waste collection and disposal, stormwater management, sanitary sewer repairs and other environmental services.

(e) Baltimore County O&M is operating costs for all DEPRM and DPW programs participating in NPDES program in FY1995.

The \$34 million capital program in FY95 includes \$11 million for stormwater management retrofits and \$23 million for building and maintaining storm drains.

(f) Montgomery County's FY 96 capital budget totals \$4,873,000.

(g) The combined O&M and Capital budget for Prince George's County is \$23,435,000.

(h) Storm Drain Tax

Funding Approaches in Other Jurisdictions: Non User Fee Examples

		Jurisdiction	Scope of Programs					Other	
			Flood control	Storm drains	SWM Facilities	Poll control	O&M		Cap Projects
1	AZ	Phoenix							Flood control dams, channels, outlet pipes and other pipes
2	CA	Los Angeles Co	X	X	X	X	X	X	
3	CA	Riverside		X					Stormsewers only
4	DE	New Castle Co	X	X	X	X	X	X	
5	GA	DeKalb County		X	X	X	X	X	
6	KS	Wichita	X	X					Sanitary sewers
7	MD	Anne Arundel Co	X	X	X	X	X	X	
8	MD	Balt City	X	X	X	X	X	X	Solid waste collection and diposal and other environmental services
9	MD	Balt Co		X	X	X	X	X	Solid waste collection and diposal
10	MD	Montgomery Co	X	X	X	X	X	X	
11	MD	Prince Georges Co	X	X	X	X	X	X	
12	TN	Memphis		X			X	X	Stormsewers only
13	UT	Salt Lake County		X	X	X	X	X	
14	VA	Fairfax County		X	X	X	X	X	

Funding Approaches in Other Jurisdictions: Non User Fee Examples

	Jurisdiction	Types of revenue and share of total operating revenues					Explanation of "other"
		Genl Fund	Adval Tax	Permit fees	Spec Tax Dist	Other	
1	AZ Phoenix				95%	5%	Cost sharing
2	CA Los Angeles Co	25%		15%		60%	User fee
3	CA Riverside		70%	10%	10%	10%	Contributions from other govts
4	DE New Castle Co	X		X		X	State aid
5	GA DeKalb County	98%				2%	Impact fees
6	KS Wichita	90% (b)			10%		
7	MD Anne Arundel Co	20%		80%			
8	MD Balt City	X				X	Motor Vehicle and Waste Water Utility funds
9	MD Balt Co	100%					
10	MD Montgomery Co	38%	41% (h)	18%		3%	Fed/state aid
11	MD Prince Georges Co		95%	5%			Rate is 13.5 cents per \$100 of assessed value.
12	TN Memphis	100%					Property tax
13	UT Salt Lake County		80%	20%			
14	VA Fairfax County	X		X			

Funding Approaches in Other Jurisdictions: Non User Fee Examples

		Jurisdiction	% of CIP		Debt Financing						Cash Financing				
			Debt	Cash	GO	SWRev Bonds	SW/Other Bonds	Ben. Dist *	Other	Explanation	Adval Tax	User Fees	Spec Tax Dist	Permits	Other
1	AZ	Phoenix	0%	100%									90%	10%	Cost sharing
2	CA	Los Angeles Co	X	X	X									X	User fee
3	CA	Riverside	10%	90%				10%			70%		10%	10%	Contributions by other govts
4	DE	New Castle Co	100%		X										
5	GA	DeKalb County	100%		100%										
6	KS	Wichita	65%	35%	60%			5%						35%	General Fund
7	MD	Anne Arundel Co	100%		100%										
8	MD	Balt City													
9	MD	Balt Co	33%	66%	33%				X	State aid			66%		
10	MD	Montgomery Co	65%	35%	58%				7%	Fed/state aid				35%	24% SW waiver contributions/
11	MD	Prince Georges Co	X	X	X						X				11% current revenues
12	TN	Memphis	100%	0%	100%										
13	UT	Salt Lake County	50%	50%	50%									50%	Municipal Services Fund
14	VA	Fairfax County	10%	90%	10%									90%	Developer Contributions

* Benefit District Bonds

Funding Approaches in Other Jurisdictions: User Fee Examples

		Jurisdiction	Administrative Agency	Date Authorized	Region Served	SqMi of region	Pop (1000s)	Ave. resid. charge/mo	O&M Budget (\$1000s)
1	CA	Los Angeles	Public Works Dept	NA	City only	468	3,500	\$ 1.42	\$ 4,500
2	CA	Sacramento Co.	County Public Works Dept.	1994	County only	NA	1,041	NA	NA
3	CA	Sacramento City	City of Sacramento-Sewer and Storm Drainage	1982	City only	98	369	\$ 9.06	NA
4	CO	Denver	Public Works-Wastewater Management Division	1979	City and County	155	437	NA	\$ 4,700
5	FL	Lee County	Division of Water Resources	1990	Uninc area of County	660	335	NA	NA
6	FL	Miami	Miami Stormwater Utility - Dept of Public Works	1988	City only	34	358	\$ 2.50	\$ 1,700
7	FL	Sarasota County	Sarasota Co. Stormwater Utility-Transportation Dept	1989	Uninc area of County	470	243	\$ 3.00	\$ 2,902
8	FL	Tampa/Hills	Hillsborough County Stormwater Management Program	NA	Unincorporated County	970	515	\$ 1.00	NA
9	KY	Louisville/Jrff	Metro Sewer District	1987	Louis., Jeff. Co., 93 cities	390	670	\$ 1.75	\$ 6,500
10	MA	Boston	Water and Sewer Commission	NA	City only	45	574	NA	\$ 39,825
11	MO	St. Louis	Metropolitan Sewer District	NA	City and most of county	524	1,400	\$0.24 (a)	\$ 53,000
12	OH	Cincinnati	Public Works Dept. Division of Stormwater Management	1984	City only	79	364	\$1.28-\$1.79	\$ 1,100
13	OH	Columbus	City of Concord Div of Sewerage and Drainage	NA	City only	NA	650	\$ 1.34	\$ 1,600
14	OK	Tulsa	Public Works Dept	1986	City only	200	375	\$ 2.00	\$ 3,400
15	OR	Portland	Bureau of Environmental Services	1977 (b)	City only	130	435	\$ 4.02	\$ 10,488
16	OR	Washington County	Unified Sewerage Agency	1990 (c)	7 cities	123	330	\$3.00 (d)	NA
17	VA	Norfolk	City of Norfolk Public Works Dept.	1991	City only	54	260	\$ 4.00	\$ 2,780
18	WA	Seattle	City of Seattle Drainage and Wastewater Utility	1987	City only	82	500	\$31.68 (e)	\$ 71,750

Sources: Black and Veatch survey and EPA Report

(a) provides only partial stormwater funding

(b) year of first billing

(c) for surface water management utility

(d) single family residential charge

(e) \$31.68 per parcel (flat rate)

Funding Approaches in Other Jurisdictions: User Fee Examples

		Jurisdiction	Goals of Utility					Other
			Flood control	O&M	Cap Projects	Centralize ops	Poll control	
1	CA	Los Angeles		X	X		X	Stormsewers only
2	CA	Sacramento Co.		X	X			
3	CA	Sacramento City	X	X	X			Storm and sanitary sewers, Drainage
4	CO	Denver	X				X	Stormsewers only, drainage, pollution prevention
5	FL	Lee County						
6	FL	Miami		X	X			Stormsewers only
7	FL	Sarasota County		X	X			Stormsewers only
8	FL	Tampa/Hills			X			Stormwater capital projects
9	KY	Louisville/Jrff	X	X	X	X	X	Flood protection includes levee, floodwall, flood pumping
10	MA	Boston						Storm and sanitary sewers
11	MO	St. Louis		X				Storm and sanitary sewers
12	OH	Cincinnati	X	X	X		X	Stormsewers only
13	OH	Columbus		X				Wastewater/combined/stormsewers
14	OK	Tulsa	X	X				Stormsewers only, channels and detention facilities
15	OR	Portland	X				X	Combined sanitary/stormsewers
16	OR	Washington County	X	X			X	Drainage, Pollution prevention
17	VA	Norfolk	X	X	X		X	Stormsewers only
18	WA	Seattle	X	X	X		X	Drainage, Poll prevention, ditch and creek system

Funding Approaches in Other Jurisdictions: User Fee Examples

		Jurisdiction	Annual Rev \$1000s	Types of Revenues and Share of Total Revenues					Explanation
				User fees	Adval Tax	Permit fees	Spec Tax Dist	Other	
1	CA	Los Angeles		100%					
2	CA	Sacramento Co.	NA	90%		5%		5%	State revolving funds
3	CA	Sacramento City	\$ 18,316	85%		5%		10%	Interest income
4	CO	Denver	\$ 7,500	100%					
5	FL	Lee County	NA						
6	FL	Miami	\$ 4,700	100%					
7	FL	Sarasota County	\$ 5,400					100%	Non-ad valorem assess.
8	FL	Tampa/Hills	NA	100%					
9	KY	Lousville/Jrff	\$ 8,000	98%		2%			
10	MA	Boston	NA	98%		1%		1%	Inv, prior yr surplus
11	MO	St. Louis	NA	70%	5%	7.50%	7.50%	10%	Grants
12	OH	Cinncinnati	\$ 4,500	100%					
13	OH	Columbus	NA	100%					
14	OK	Tulsa	\$ 7,000	98%		0.50%		1.50%	Inv and misc.
15	OR	Portland	\$ 10,500	98%		2%			
16	OR	Washington County	NA						
17	VA	Norfolk	\$ 3,200	100%					
18	WA	Seattle	\$ 7,800	97%		1%		2%	Unspecified

Funding Approaches in Other Jurisdictions: User Fee Examples

		Jurisdiction	% of CIP		GO	Debt Financing			
			Debt	Cash		SW Rev Bonds	SW/Other Bonds	Ben Dist	Other
1	CA	Los Angeles	0	100%					
2	CA	Sacramento Co.	5%	95%					5% State revolving
3	CA	Sacramento City	0	100%					
4	CO	Denver	0	100%					
5	FL	Lee County							
6	FL	Miami	55%	45%	55%				
7	FL	Sarasota County	0	100%					
8	FL	Tampa/Hills	0	100%					
9	KY	Louisville/Jrff	95%	5%		95%			
10	MA	Boston	45%	55%					45% Rev. Bonds
11	MO	St. Louis	0	100%					
12	OH	Cincinnati	0	100%					
13	OH	Columbus	100%	0	100%				
14	OK	Tulsa	15%	85%	15%				
15	OR	Portland	100%	0					100% Sewage system rev bonds
16	OR	Washington County							
17	VA	Norfolk	100%	0	100%				
18	WA	Seattle	100%	0			75%		25% Grants

Funding Approaches in Other Jurisdictions: User Fee Examples

		Jurisdiction	Cash Financing				Other
			Adval Tax	User Fees	Spec Tax Dist	Permits	
1	CA	Los Angeles		100%			
2	CA	Sacramento Co.		90%		5%	
3	CA	Sacramento City		98%		2%	
4	CO	Denver		100%			
5	FL	Lee County					
6	FL	Miami		35%			10% SWIM grants
7	FL	Sarasota County					100% non-ad valorem assessment
8	FL	Tampa/Hills		100%			
9	KY	Lousville/Jrff				5%	
10	MA	Boston		28%			27% Grants and revolving loans
11	MO	St. Louis		65%	8%	10%	17% Grants
12	OH	Cinncinnati		100%			
13	OH	Columbus					
14	OK	Tulsa					85% Sales tax
15	OR	Portland					
16	OR	Washington County					
17	VA	Norfolk					
18	WA	Seattle					