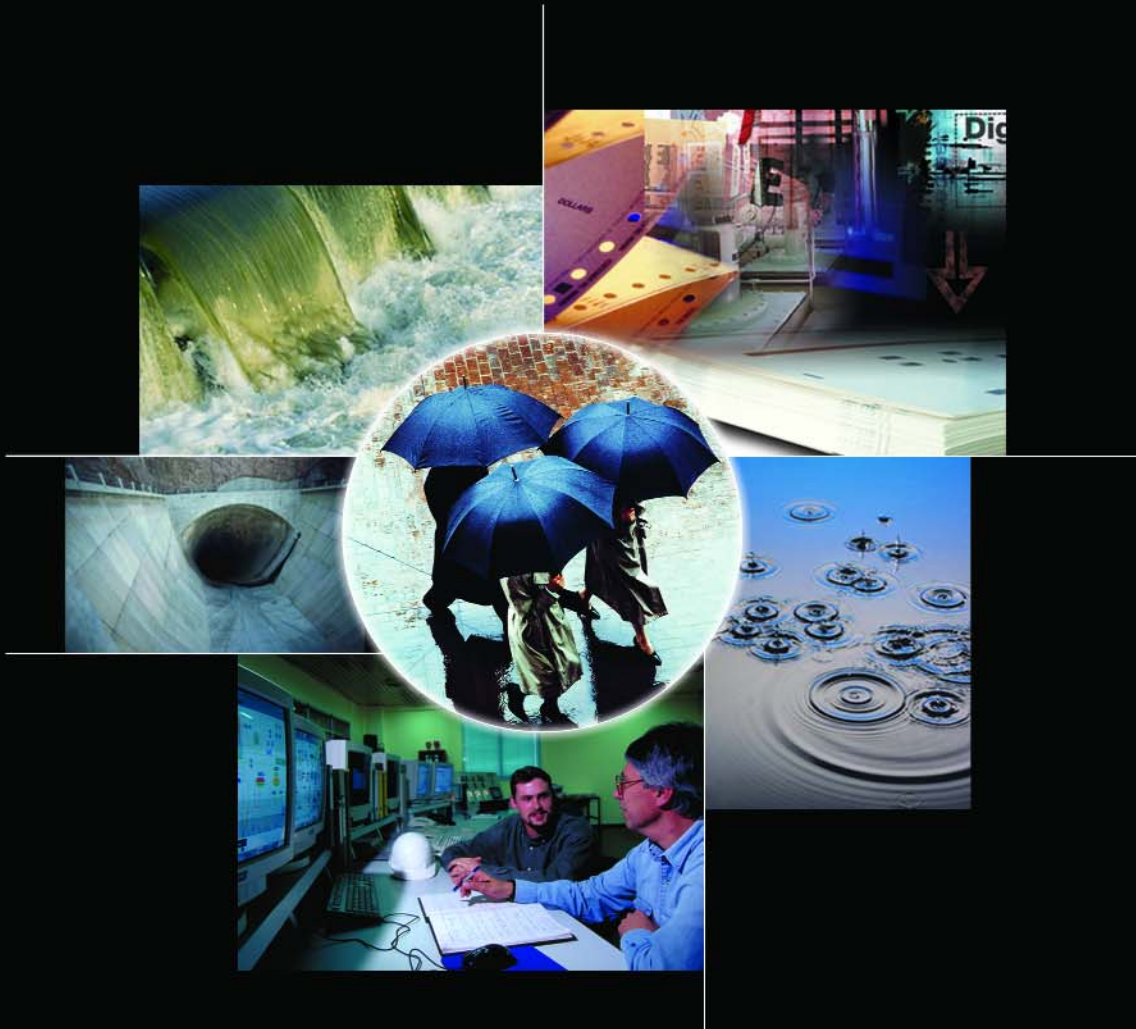


# 2005 STORMWATER UTILITY SURVEY



**BLACK & VEATCH**  
building a **world** of difference™

ENERGY    WATER    INFORMATION    GOVERNMENT

Black & Veatch is pleased to provide the results of its sixth national Stormwater Utility Survey, to help those involved in the stormwater industry stay well-informed across a range of issues. The survey results offer insight into the following topics:

- Organization/Administration
- Planning
- Operations
- Finance/Accounting
- Stormwater User Fees and Billing
- Quality Issues – Best Management Practices
- Public Information/Education
- Major Challenges Recently Faced
- Significant Events Affecting Utilities

These results can be used for numerous purposes, from performance management to financial planning to organization strengthening. At Black & Veatch, we understand the value of knowing what others are doing in the industry. For 90 years, meeting the needs of the utility industry has been at the core of our business. We are happy to discuss any questions you might have regarding this survey.

## Profile of Respondents

- Responses were received from 99 utilities in 21 states and one Canadian province. All of these utilities are funded in whole or in part through user fees.
- Approximately 86 percent of the respondents serve a city, rather than a county or region.
- The population served by the respondents ranges from 1,400 (Atlantic Beach, FL) to 3.9 million people (Los Angeles, CA) and the area served varies from 3 to 1,500 square miles. Eighty-one percent indicate they are responsible for stormwater facilities only, while the balance report they are responsible for combined sanitary/stormwater facilities. Approximately 88 percent indicate that they use their own staff to provide a majority of operation and maintenance services.
- For those utilities that base charges on gross property area, equivalent residential units ranged from 1,600 square feet total area to 11,000 square feet, with a mean of 6,964 square feet. For those utilities that base charges on impervious area, impervious areas per equivalent residential unit ranged from 1,500 square feet to 10,000 square feet, with a mean of 2,647 square feet.

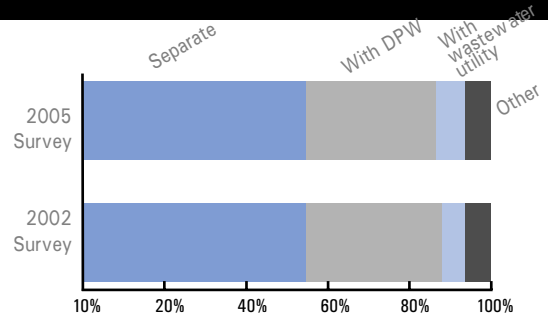
## What's New

Feedback from participants prompted us to add a new question to the 2004-2005 version of the Stormwater Utility Survey. In recent years, a number of stormwater treatment systems have become commercially available. Fifty-six percent of respondents have installed at least one of these devices with the most popular being Stormceptor, StormFilter, and CDS Separator. Thirty-six percent have had a favorable experience with these devices in terms of treatment efficiency and ease of maintenance, while 41 percent are still in the evaluation process.

## Organization / Administration

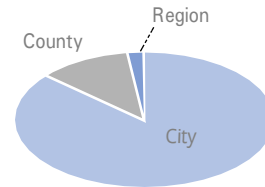
### Q How is your operation organized?

- 55% Separate utility
- 32% Combined with Department of Public Works
- 7% Combined with wastewater utility
- 6% Other



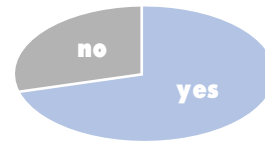
### Q What area does your utility serve?

- 86% Within city limits
- 12% County
- 2% Region



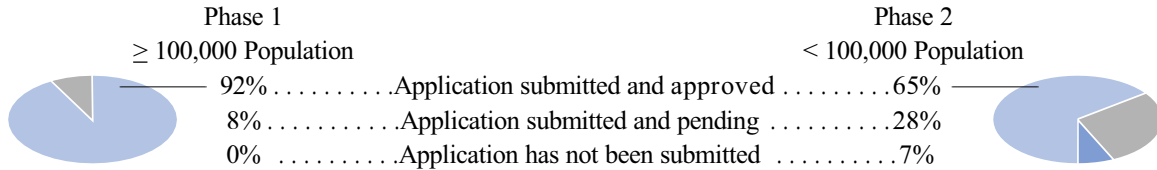
### Q Does your state have specific statutes that govern the formation of stormwater utility and user fee financing?

- 71% Yes
- 29% No



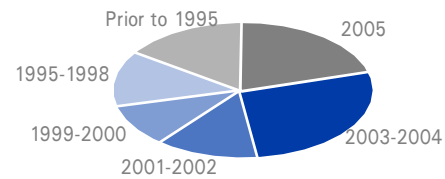
## Planning

### Q What is the status of your NPDES permit?



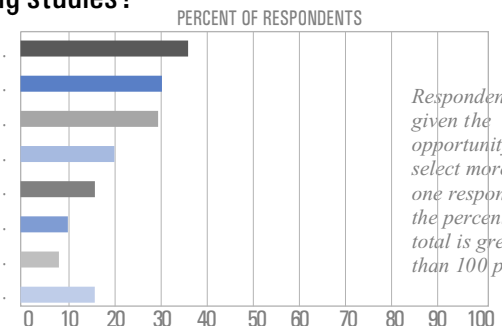
### Q When was your most recent stormwater plan or stormwater facilities plan?

- 21% 2005
- 27% 2003–2004
- 13% 2001–2002
- 10% 1999–2000
- 13% 1995–1998
- 16% Prior to 1995



### Q What stormwater computer models do you use for planning studies?

- 36% HEC-2
- 30% XP-SWMM
- 29% HEC-1
- 20% TR-55
- 16% EPA SWMM
- 10% HEC-RAS
- 7% HEC-HMS
- 15% Other

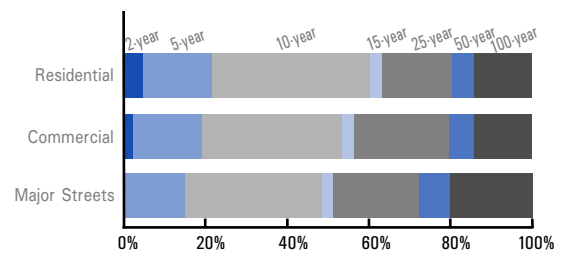


Respondents were given the opportunity to select more than one response, so the percentage total is greater than 100 percent.

## Planning (continued)

### Q What return periods do you use to design your major stormwater structures?

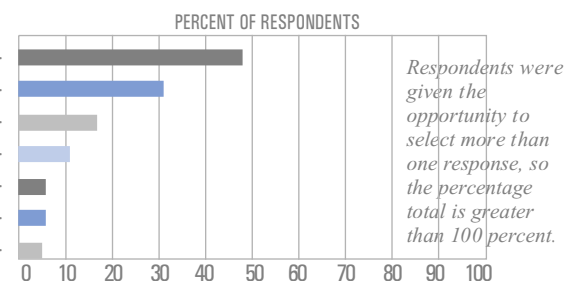
	Residential	Commercial	Major Streets
2-year	3%	1%	0%
5-year	18%	17%	14%
10-year	39%	35%	34%
15-year	3%	3%	3%
25-year	17%	23%	21%
50-year	6%	7%	8%
100-year	14%	14%	20%



Several respondents provided a range of return period.  
The percentages above represent the smallest return period provided.

### Q Which performance indicators do you consider most important in measuring improvement in stormwater management success?

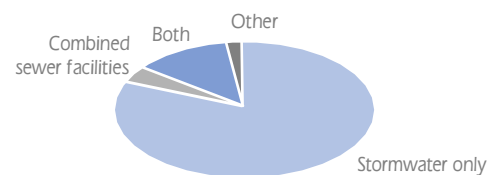
47%	Flood control
31%	Monitoring pollutants
17%	Customer complaints/satisfaction
11%	Cost control measures
6%	Erosion control
6%	Maintenance
5%	Habitat



## Operations

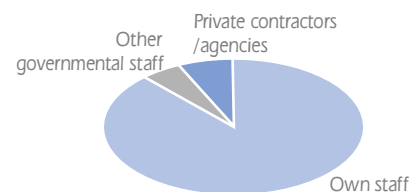
### Q What is your utility responsible for?

81%	Stormwater facilities only
4%	Combined sewer (sanitary/stormwater) facilities
13%	Both
2%	Other



### Q Who provides the majority of your O&M services?

88%	Own Staff
5%	Other Governmental Staff
7%	Private contractors/agencies

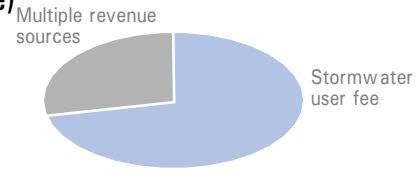


## Finance/Accounting

**Q What are your major (at least 90 percent of total income) revenue sources?**

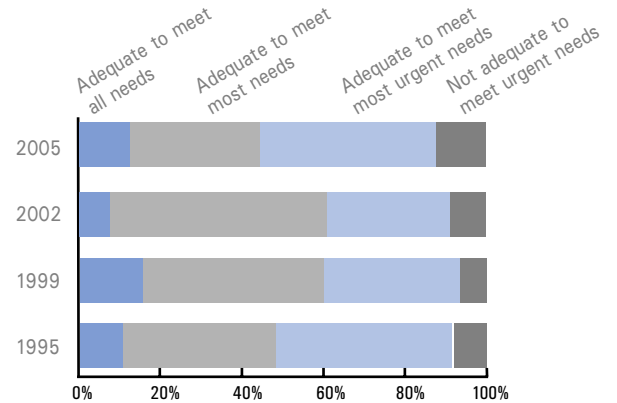
*(Excludes 7 utilities that reported no single major source)*

- 72% Stormwater user fee
- 28% Multiple revenue sources



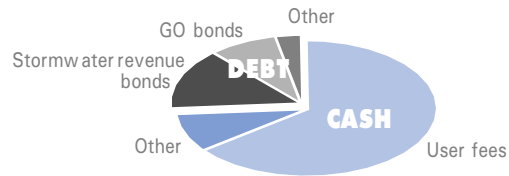
**Q How adequate is available funding?**

- 13% Adequate to meet all needs  
*2002 = 8% • 1999 = 16% • 1995 = 11%*
- 32% Adequate to meet all needs  
*2002 = 53% • 1999 = 44% • 1995 = 38%*
- 43% Adequate to meet most urgent needs  
*2002 = 30% • 1999 = 34% • 1995 = 44%*
- 12% Not adequate to meet urgent needs  
*2002 = 9% • 1999 = 6% • 1995 = 7%*



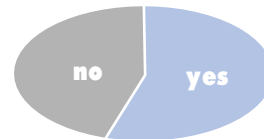
**Q How is the majority of capital improvement needs financed?**

- 74% Cash financed
  - 65% From user fees
  - 0% From ad valorem taxes
  - 9% Other
- 26% Debt financed
  - 14% Stormwater revenue bonds
  - 9% General obligation bonds
  - 0% Combined bonds
  - 3% Other



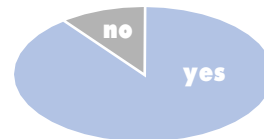
**Q Does your accounting system permit cost tracking by operating activity (e.g., inlet cleaning)?**

- 55% Yes
- 45% No



**Q Does your accounting system identify user fee revenues by customer class (e.g., residential)?**

- 89% Yes
- 11% No

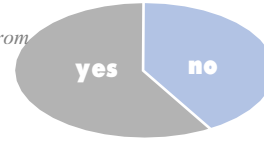


# Stormwater User Fees and Billing

## Q Were your rates revised in the last 12 months?

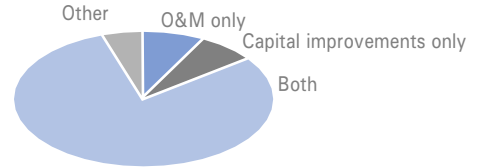
- 41% No
- 59% Yes

*Increases ranged from 1% minimum to 117% maximum*



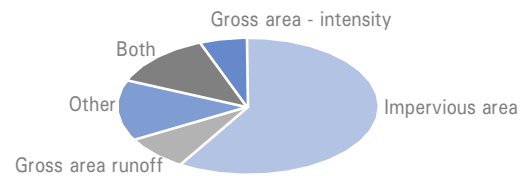
## Q What are your user fees designed to pay for?

- 8% Operation and maintenance (O&M) expenses only
- 7% Capital improvements only
- 80% Both O&M expenses and capital improvements
- 5% Other



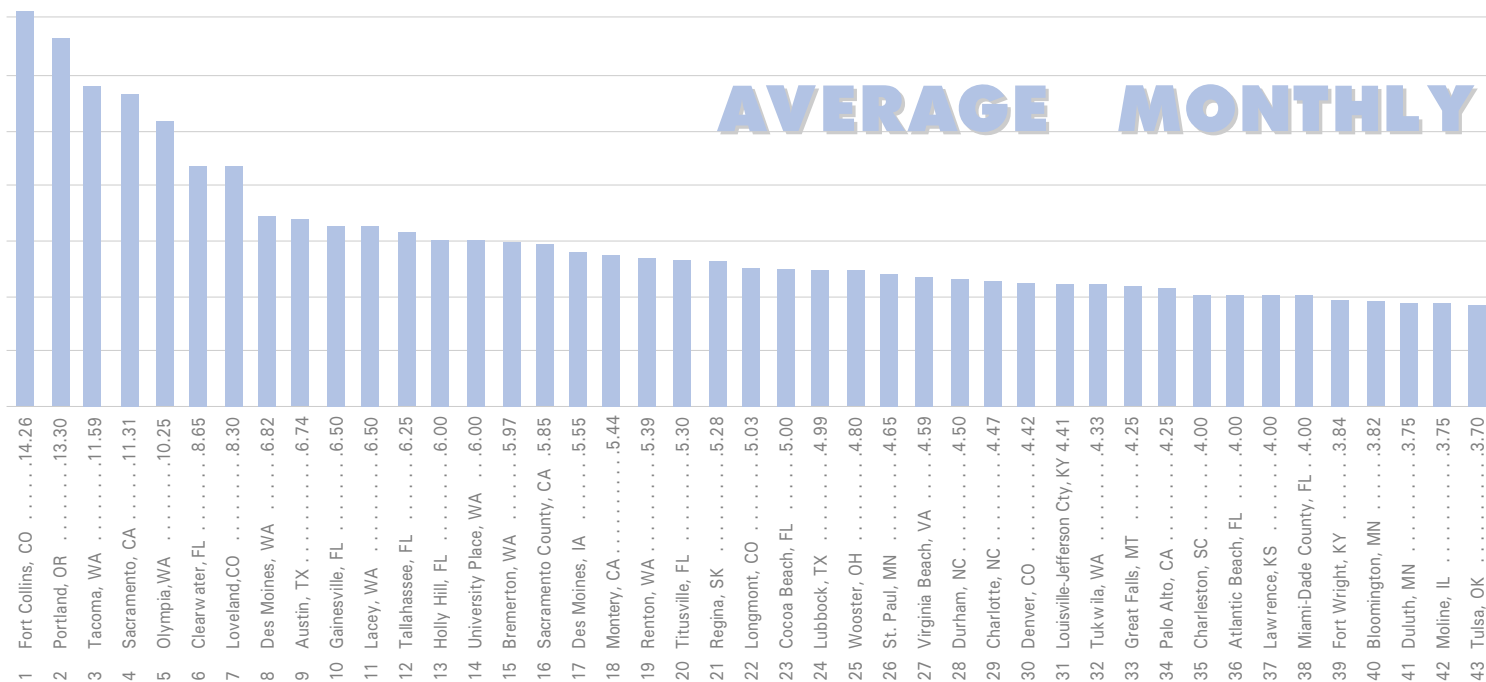
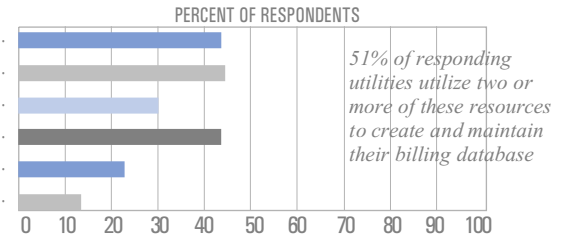
## Q What is the basis for your user fees?

- 59% Impervious area
- 8% Gross area with intensity of development factor
- 14% Both impervious and gross areas
- 13% Other (e.g., number of rooms, water use, flat fee)
- 6% Gross area with runoff factor



## Q If user fees are area-based, what principal resources were employed to create and maintain the customer database used to compute charges?

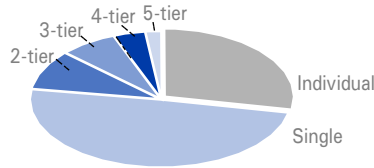
- 42% Property tax assessor records
- 43% Aerial photographs
- 29% On-site property measurement
- 42% Geographic Information System (GIS)
- 22% Planimetric map take-offs
- 13% Other (e.g., building permits, site plans)



**Q Are your stormwater charges based on individual or class average characteristics?**

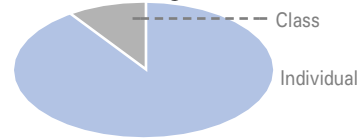
**Residential**

- 27% Individual parcel
- 73% Class average as:
  - 48% Single tier
  - 9% 2-Tier rate
  - 7% 3-Tier rate
  - 4% 4-Tier rate
  - 2% 5-Tier rate



**Non-Residential**

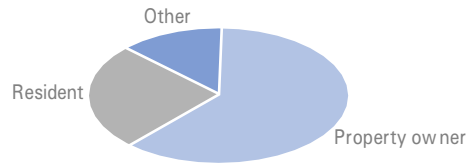
- 90% Individual parcel
- 10% Class average



3% of respondents who answered class average did not provide the number of rate tiers.

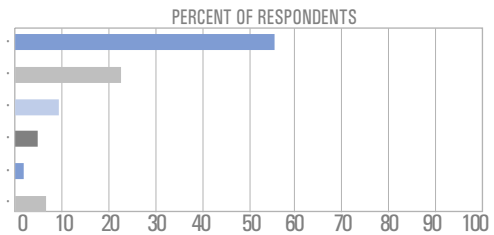
**Q Who is responsible for the payment of user fees?**

- 62% Property owner
- 25% Resident
- 13% Other (e.g., water or other utility bill recipient)

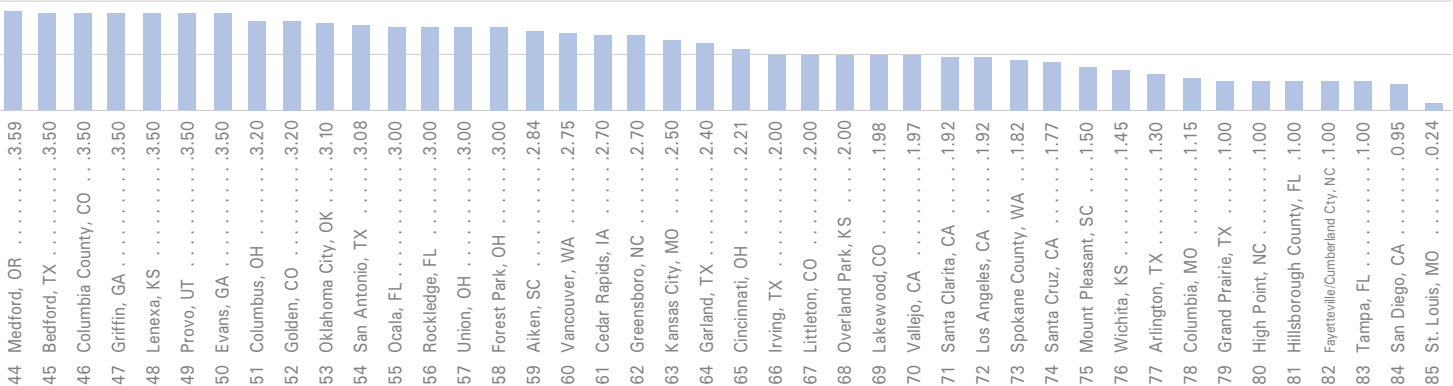


**Q How frequently do you bill?**

- 56% Monthly
- 22% Annually
- 9% Bi-monthly
- 5% Quarterly
- 2% Semi-annually
- 6% Other



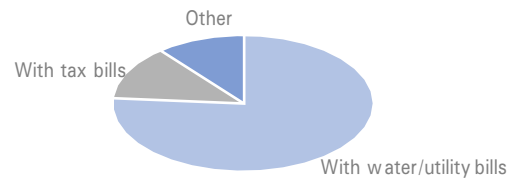
# RESIDENTIAL CHARGE



## Stormwater User Fees and Billing (continued)

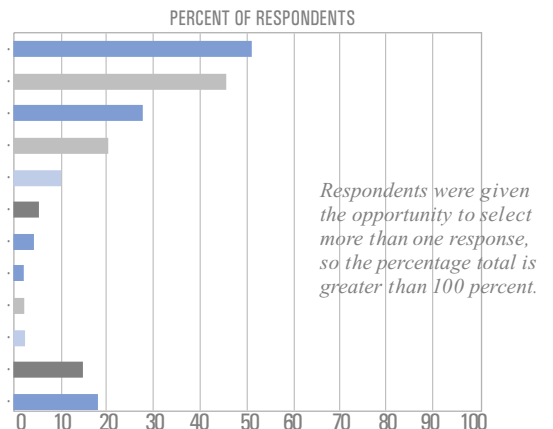
### Q How are your user fees billed?

- 76% With water or other utility bills
- 13% With tax bills
- 11% Other



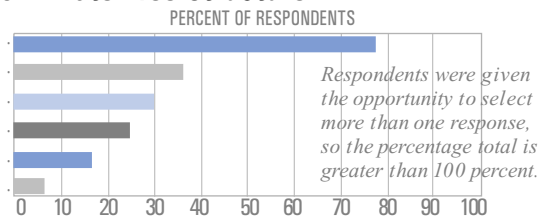
### Q What types of properties are exempt from user fees?

- 51% Streets/highways
- 46% Undeveloped land
- 27% Rail rights-of-way
- 20% Public parks
- 10% Government
- 5% School districts
- 4% Churches
- 2% Airports
- 2% Colleges/universities
- 2% Water front
- 14% None
- 17% Other



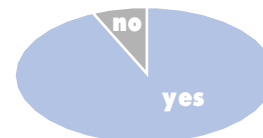
### Q What customer classifications are recognized in your stormwater fee structure?

- 77% Residential
- 36% Commercial
- 30% Combined commercial/industrial
- 25% Other
- 17% Industrial
- 7% No designation



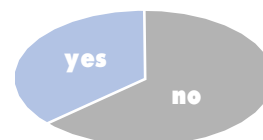
### Q Are rates the same for all service areas or watersheds?

- 93% Yes
- 7% No



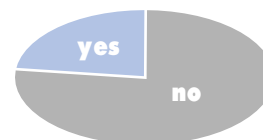
### Q Are your user fees for single family dwellings the same as for individual multiple residential units, such as apartments and condominiums?

- 64% No
- 36% Yes



### Q Are one-time impact/capital recovery fees applied to new stormwater utility customers or new development?

- 77% No
- 23% Yes

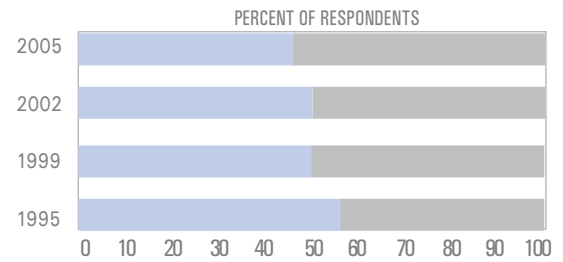




## 2004–2005 Stormwater Utility Survey

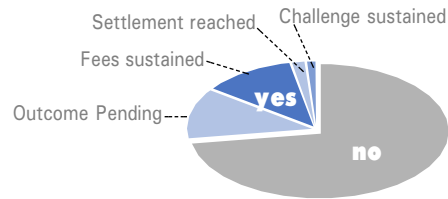
### Q Are credits provided for private detention/retention facilities?

46% Yes  
 2002 = 53% • 1999 = 50% • 1995 = 57%  
 54% No



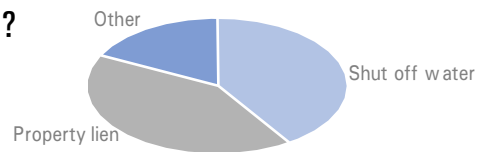
### Q Have your user fees faced a legal challenge?

72% No  
 28% Yes  
 12% Outcome pending  
 12% Fees sustained  
 2% Settlement reached  
 1% Challenge sustained (2 later remedied by legislation)



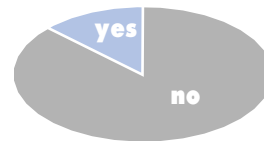
### Q On what basis is payment of your user fees enforced?

41% Lien on property  
 42% Shut off water  
 18% Other



### Q Is a significant share of your utility costs attributable to stormwater from outside your service area?

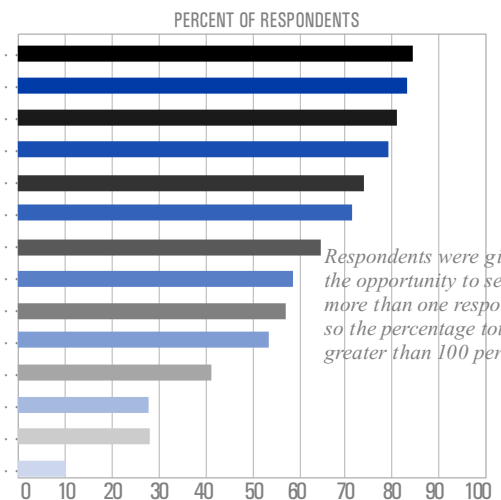
87% No  
 13% Yes



## Quality Issues – Best Management Practices

### Q Which programs and practices are being used to protect or improve water quality?

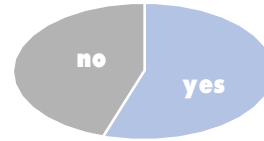
84% Public education  
 83% Erosion/sediment controls  
 81% Street sweeping  
 79% Detention/retention basins  
 73% Inlet stenciling  
 71% Illegal discharge detection  
 64% Stormwater quality monitoring  
 59% Public volunteer involvement  
 58% Residential toxins collection  
 53% Commercial/industrial regulation  
 41% Constructed wetlands  
 28% Lawn herbicide/pesticide control  
 28% Treatment  
 10% Other



## Quality Issues Best Management Practice (continued)

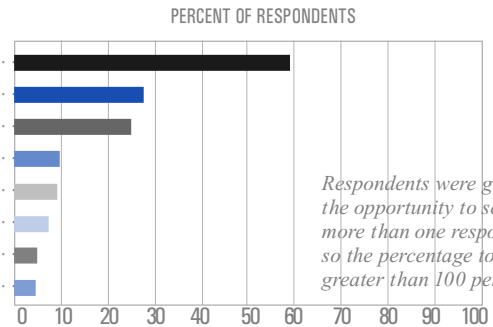
**Q** Have you installed any stormwater treatment systems in your stormwater conveyance system?

55% Yes  
45% No



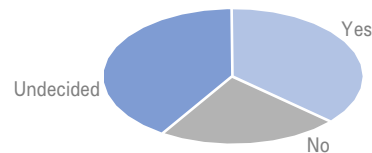
**Devices installed:**

59% Stormceptor .....  
28% CDS Separator .....  
24% StormFilter .....  
9% Downstream Defend .....  
9% Vortechincs .....  
7% Bay Saver .....  
4% Abtech .....  
4% SunTree Technologies .....



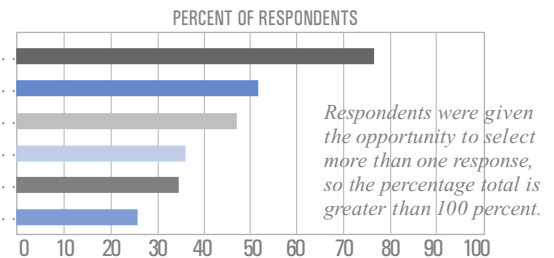
**Have these devices met your expectations?**

36% Yes  
23% No  
41% Undecided



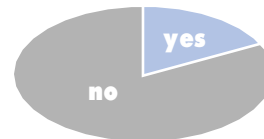
**Q** What contaminants are your greatest concern?

76% Sediments .....  
51% Nutrients .....  
47% Oil and grease .....  
35% Heavy metals .....  
34% Pesticides .....  
25% Other .....



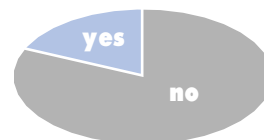
**Q** Are quality-based user fee credits or other incentives provided to encourage customers to control or reduce stormwater pollution?

18% Yes  
82% No



**Q** Are your user fees specifically designed to provide for the separate recognition and equitable recovery of costs associated with stormwater quality management and quantity (runoff) management, respectively?

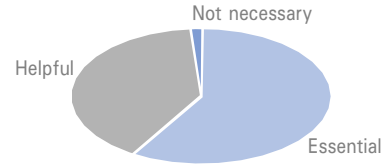
81% No  
19% Yes



## Public Information/Education

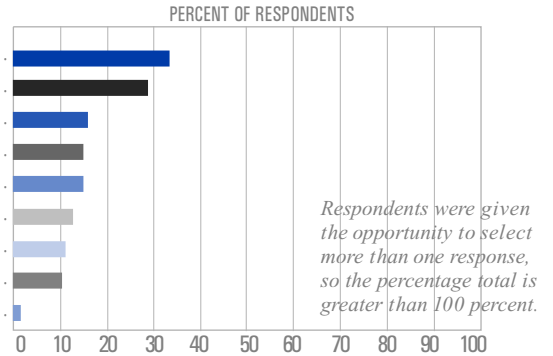
**Q** How important is an organized public information/education effort to the continuing success of a user fee funded stormwater utility?

- 59% Essential
- 40% Helpful
- 1% Not necessary



**Q** What means have you found to be the most effective in educating the public about utility services, program needs and financing, and citizen responsibilities?

- 33% Bill inserts
- 29% Public hearings/presentations
- 16% Internet
- 15% Brochures/flyers/newsletters
- 15% Newspaper
- 12% Television
- 11% Public schools
- 10% Speakers bureau
- 1% Direct mail



## Major Challenges Recently Faced

Financial, rate, and billing related issues (e.g., financing growth, capital replacements, NPDES and other environmental mandates; rate increases, rate equitability, rate challenges; and billing database updating or conversion to GIS)	19 utilities
Weather and flooding issues (e.g., high amounts of rainfall, standing water, West Nile concerns, localized flooding)	10 utilities
Erosion control (e.g., run-off, erosion problems)	8 utilities
Regulatory and quality control compliance (e.g., illicit discharges, quality monitoring, and difficulties of complying with more stringent state and federal quality mandates related to Endangered Species Act, TMDLs, et al.)	8 utilities
Infrastructure planning issues (e.g., need for integrated flood, quality and environmental planning; remedy of specific infiltration/inflow or local flooding problems; and system-wide flood control master planning)	7 utilities
Jurisdictional issues (e.g., incorporation of added cities into service area and co-permittee coordination)	3 utilities
Public education (e.g., need for increased education regarding new programs or rate increases)	2 utilities

## Significant Events Affecting Utilities in Past Two Years

NPDES compliance	21 utilities
CIP related (funding, projects started/completed)	14 utilities
User fee related (increases, lack of increases)	14 utilities
Weather related (heavy rains, storms, drought)	8 utilities
Organization/administration/staffing changes	7 utilities
Public education/awareness	4 utilities
Urban growth/decline in service area	4 utilities
Legal challenges	2 utilities

*Some respondents listed the same events as positive, negative, or both (e.g., heavy rains or flooding brought both damage and increased public awareness of needs).*



# Stormwater Management

From run-off to potential revenue stream, stormwater management is uniquely challenging. It is often not source-specific, not metered or monitored closely within the community, and not tied to customers' daily decisions.

Black & Veatch's Enterprise Management Solutions team assists utilities nationwide in stormwater management issues to help provide stable funding for operations as well as capital projects.

## ABOUT ENTERPRISE MANAGEMENT SOLUTIONS

Black & Veatch is pleased to provide this survey as an industry service. For 90 years, meeting the needs of utilities nationwide has been at the core of our business. We understand the value of knowing how others are addressing the industry's complex issues. From organization effectiveness to financial structuring to risk management, it helps to know the industry's trusted business partner. Black & Veatch brings it all together.



**BLACK & VEATCH**  
building a **world** of difference™

ENERGY WATER INFORMATION GOVERNMENT

For custom strategies, proven processes and high-value results, contact:  
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Tel: 913-458-4322  
Stormwater@bv.com

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