

Clean Watersheds Needs Survey

2008

Report to Congress





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Acknowledgments

The success of the CWNS 2008 Report to Congress is the result of the hard work and dedication of many persons. Particular recognition goes to the EPA Regional and State Coordinators for their active support, perseverance, and continuing interest in the survey. Members of the CWNS 2008 National Workgroup are denoted by an asterisk.

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EXECUTIVE SUMMARY

The total reported water quality needs for the nation as of January 1, 2008, are \$298.1 billion¹ (Figure ES-1). This figure represents capital needs for up to a 20-year period for publicly owned wastewater pipes and treatment facilities; combined sewer overflow (CSO) correction; and stormwater management. In addition to presenting needs, this *Clean Watersheds Needs Survey (CWNS) 2008 Report to Congress* (hereinafter referred to as “this Report”) also summarizes technical information such as flows, populations served, and treatment levels provided by facilities. The data in this Report were summarized from a comprehensive census survey of more than 34,000 wastewater facilities and water quality projects.

Scope and Methods

This Report is a collaborative effort between the States, the District of Columbia, U.S. Territories (collectively referred to as *States* for the remainder of this Report) and U.S. Environmental Protection Agency (EPA). From September 2005 through December 2007, the CWNS 2008 National Workgroup (whose members are denoted by an asterisk in the acknowledgements) provided input on the survey methods.

Needs in this Report include the unfunded capital costs of projects as of January 1, 2008 that

- Address a water quality or a water quality-related public health problem existing as of January 1, 2008, or expected to occur within the next 20 years
- Meet the seven CWNS documentation criteria

Documentation criteria and needs categories are described in Chapter 1 of this Report. Documentation criteria ensured the legitimacy of needs and the accuracy of cost and technical information in this Report. To meet the criteria, a description and location of a water quality or water related public health problem, as well as site-specific pollution abatement measures with detailed cost information was required. Needs that did not meet these documentation criteria are classified as Unofficial Cost Estimates.

¹ All needs amounts in this Report are shown in January 2008 dollars.

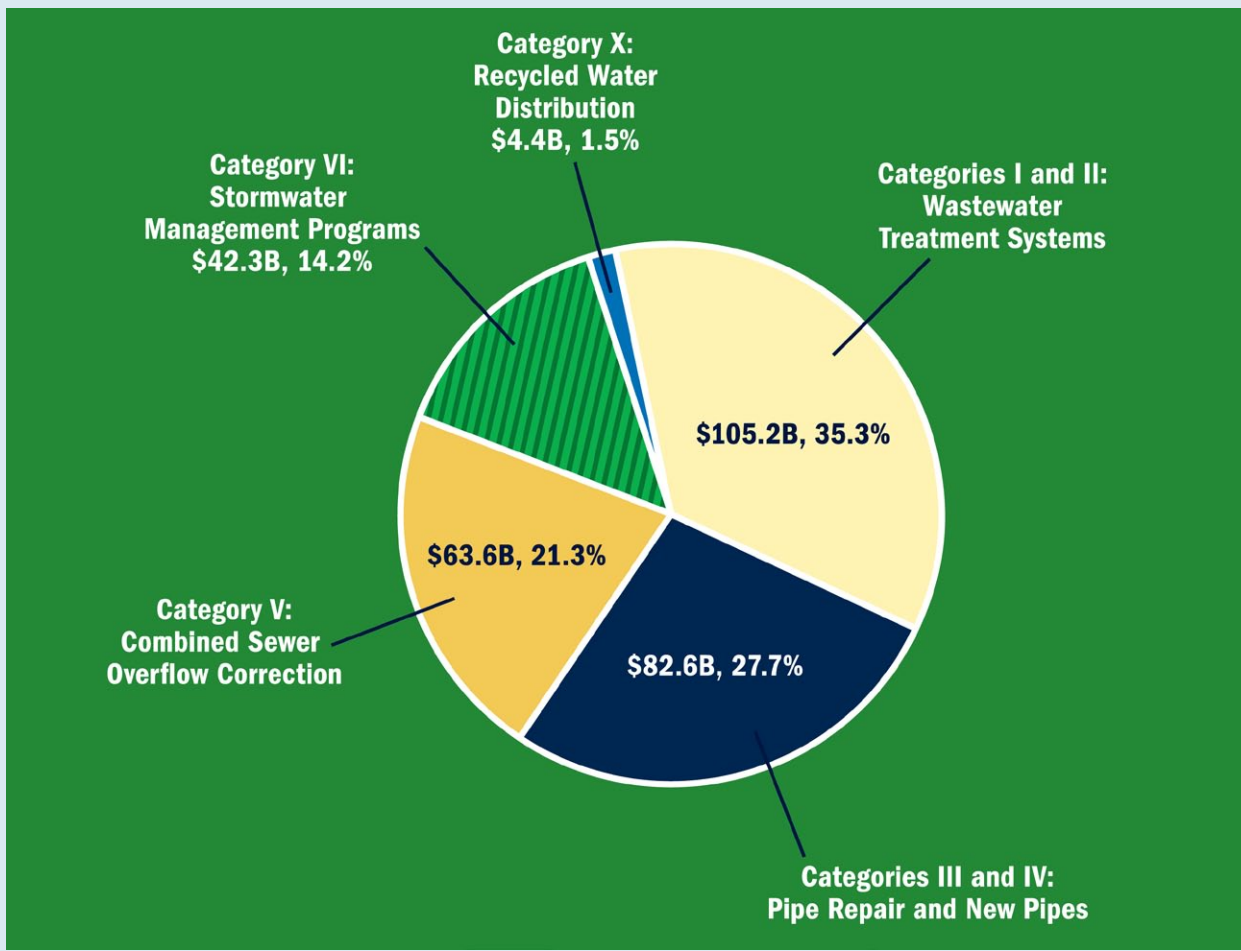


Figure ES-1. CWNS 2008 total documented needs (January 2008 dollars in billions).

National Results by CWNS 2008 Category

Wastewater Treatment, Pipe Repairs, and New Pipes (Categories I through IV)

The needs for Wastewater Treatment, Pipe Repairs, and New Pipes are \$187.9 billion, an increase of \$28.6 billion (18 percent) since 2004. Of this increase, \$16.3 billion is for Advanced Wastewater Treatment (Category II) needs, \$7.0 billion is for Secondary Wastewater Treatment (Category I) needs, and \$4.8 billion is for Pipe Repair (Category III) needs.

These needs increases are mainly for improvements to rehabilitate aging infrastructure, to meet more protective water quality standards, and to respond to and prepare for population growth. New York (\$17.0 billion), California (\$16.3 billion), Florida (\$9.4 billion), and New Jersey (\$6.3 billion) reported almost half (47 percent) of the Secondary Treatment (Category I) and Advanced Treatment (Category II) needs. Similarly, nearly half (47 percent) of the Pipe Repair (Category III) and New Pipe (Category IV) needs were reported by California (\$7.9 billion), Florida (\$6.5 billion), New York (\$5.0 billion), Ohio (\$4.4 billion), Texas (\$4.2 billion), Puerto Rico (\$3.7 billion), North Carolina (\$3.7 billion), and Massachusetts (\$3.6 billion).

Recycled Water Distribution (Category X)

The needs for Recycled Water Distribution are \$4.4 billion, a decrease of \$0.7 billion (14 percent) since 2004. California (\$1.7 billion) and Florida (\$1.2 billion) account for 66 percent of needs. Decreases in States' reported needs were mainly related to limited resources to enter needs, limited document availability, and difficulty with cross-program coordination. State increases in needs are a result of an increased recognition that recycled wastewater can be beneficial in meeting water quality standards, accommodating population growth, and saving money.

Combined Sewer Overflow (CSO) Correction (Category V)

The needs for Combined Sewer Overflow Correction are \$63.6 billion, a decrease of \$1.4 billion (2 percent) since 2004. Illinois (\$10.9 billion), New Jersey (\$9.3 billion), Pennsylvania (\$8.7 billion), Ohio (\$7.5 billion), New York (\$6.6 billion), and Indiana (\$5.0 billion) reported 74 percent of the needs. They also account for 565 of the 767 facilities with CSO Correction (Category V) needs. The States that reported increases indicate that the greater needs are from an increase in the availability of appropriate documents, primarily completed Long-Term Control Plans (LTCPs). Decreases in needs are from a variety of factors, including insufficient and outdated documentation; newly developed LTCPs showing less costs than were previously estimated with cost curves; and the allocation of significant funding for CSO projects since 2004.

Stormwater Management (Category VI)

The needs for Stormwater Management are \$42.3 billion, including \$7.6 billion for Conveyance Infrastructure (Category VI-A), \$7.4 billion for Treatment Systems (Category VI-B), and \$17.4 billion for Green Infrastructure (Category VI-C). New Jersey (\$15.6 billion), Pennsylvania (\$6.0 billion), California (\$3.8 billion), Maryland (\$3.8 billion), Texas (\$3.1 billion), Florida (\$2.5 billion), and New York (\$1.1 billion) reported 85 percent of the needs. The \$42.3 billion in stormwater management needs represents an increase of \$16.9 billion (67 percent) since 2004. Of the \$42.3 billion in stormwater management needs, \$33.0 billion is in regulated communities, and \$9.3 billion is in unregulated communities. The main reasons for increases in these needs are improved EPA and State communication across programs; States' increased abilities to document stormwater management needs; and emerging efforts to use green infrastructure as a supplement to traditional stormwater conveyance and treatment systems. States that reported decreases in Stormwater needs cited lack of time and money to document the needs, as well as low availability of appropriate documentation.

Small Community Needs

The needs for small communities are approximately \$22.7 billion, representing about 8 percent of the \$298.1 billion total documented needs. Pipe Repair and New Pipe (Categories III and IV) needs, Wastewater Treatment (Categories I & II) needs, and CSO Correction (Category V) needs for small communities are \$11.4 billion, \$8.5 billion, and \$2.7 billion, respectively. Pennsylvania (\$2.9 billion), New York (\$1.5 billion), Iowa (\$1.5 billion), Utah (\$1.4 billion), Illinois (\$1.2 billion), West Virginia (\$1.0 billion), and Ohio (\$1.0 billion) account for 50 percent of the small community needs. Eight additional States reported between \$0.5 billion and \$1.0 billion in small community needs.

State Highlights

New Jersey, California, and New York, all with close to \$30 billion in needs, reported the largest total needs. Florida, Illinois, Ohio, Pennsylvania, and Texas each have needs in excess of \$10 billion. New Jersey, California, Massachusetts, New York, Pennsylvania, Nevada, Iowa, and Utah are the States with the largest increases in needs since 2004, each with an increase of more than \$2 billion.² More than half (58 percent) of the total needs reported are concentrated in the eight States reporting needs in excess of \$10 billion. Twenty-three States each reported less than 1 percent of the total needs. Appendix B (Table B-1) presents the total needs for all categories by State. The District of Columbia (\$4,315), New Jersey (\$3,750), Guam (\$2,089), Nebraska (\$1,813), West Virginia (\$1,663), New York (\$1,527), and Maryland (\$1,505) reported the largest needs per capita.

Other Documented Needs

Needs that met CWNS documentation requirements but are not defined in CWA section 516(b)(1)(B) are summarized in Appendix A and Appendix B, Table B-3. These appendices includes Nonpoint Source (NPS) Pollution Control (Category VII) needs and Decentralized Wastewater Treatment (Category XII) needs that are associated with implementing NPS management programs under section 319 of the CWA and Comprehensive Conservation and Management Plans (CCMPs) for estuaries under section 320 of the CWA.

Unofficial Cost Estimates

Forty-seven States reported Unofficial Cost Estimates of \$36.8 billion. Unofficial Cost Estimates did not meet this Report's Chapter 1 definition of needs. States entered those cost estimates for purposes other than this Report, such as State-level planning and communication with State legislatures and other groups involved with addressing and preventing water quality problems.

Tribal Needs

EPA does not track Tribal needs because the Indian Health Service (IHS) conducts a Sanitation Deficiency Survey of tribal needs for wastewater, drinking water, and solid waste and provides a report to Congress annually under Public Law (P.L.) 86-121. As of November 2007, tribal wastewater needs totaled \$719.2 million. The largest needs were reported in Alaska (\$282 million), Arizona (\$110 million), New Mexico (\$78 million), and California (\$59 million).

² In comparing 2004 needs to 2008 needs, the 2004 needs total include Category VII-D NPS Urban Pollution Control needs that were reported as unofficial need in Appendix F of the CWNS 2004 Report to Congress.

Trends in the Nation's Ability to Provide Wastewater Treatment

While this and prior CWNS reports show significant increases in needs, the nation is still making significant progress in providing wastewater treatment. Figure ES-2 shows that the number of people provided with advanced wastewater treatment increased dramatically (from 7.8 million people in 1972 to 113.0 million people in 2008). Moreover, the population served by less-than-secondary treatment decreased from more than 50 million in 1972 to 3.8 million in 2008.

In comparison to 2004, an additional 3.6 million people now receive centralized collection and wastewater treatment, for a current total of 226.4 million people or 74 percent of the U.S. population. There are now 2,251 non-discharging³ facilities, an increase of 3 percent since 2004. Such non-discharging facilities now serve 16.9 million people, or 5.5 percent of the U.S. population.

If the Wastewater Treatment (Categories I and II) needs specified in this Report are met, the number of non-discharging facilities and facilities that provide secondary or more advanced treatment is projected to increase by 6 percent from 14,625 to 15,451. The population being served by those facilities is projected to increase by 26 percent. The number of facilities that provide less-than-secondary treatment is projected to decline from 30 to 19 facilities, but the populations served by those facilities are projected to increase from 3.75 million to 3.88 million people. Overall, it is projected that a total of 15,618 facilities will serve a future population of 284.2 million people, or 79 percent of the U.S. population.

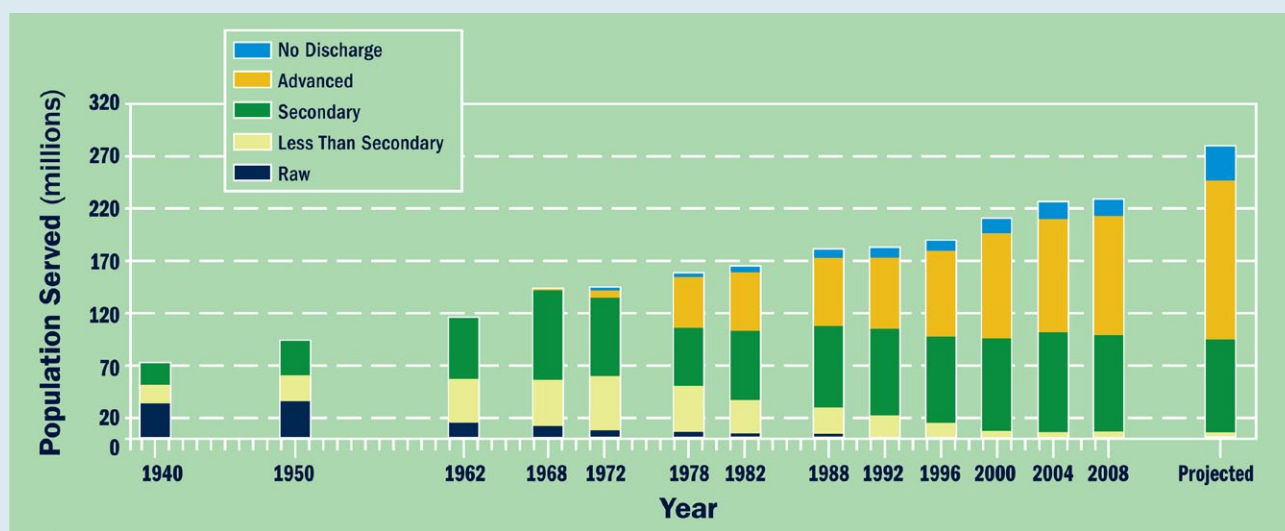


Figure ES-2. Population served by POTWs nationwide for select years between 1940 and 2008 and projected (if all needs are met), organized by wastewater treatment type.

Source: U.S. Public Health Service and EPA Clean Watersheds Needs Surveys

³ *Non-discharging* refers to facilities that do not discharge effluent to surface waters but instead reuse effluent for beneficial purposes (e.g., spray irrigation, ground water recharge).

Funding of Needs

Although local ratepayers ultimately fund most wastewater treatment needs, other funding assistance is available. The Clean Water State Revolving Fund (CWSRF) is one of many supplementary federal, State and local funding sources. From July 1, 2004, through June 30, 2008, EPA provided an annual average of \$1.1 billion in grants to State CWSRF programs.⁴ States combined the CWSRF funds with State-matching funds, bond proceeds, and loan repayments to provide assistance to local communities, mostly in the form of loans. In the same period, this assistance amounted to approximately \$5.5 billion per year. According to U.S. Census Bureau estimates⁵ for the most recent 4-year period available (2002–2006), local governments expended approximately \$15 billion per year to address capital wastewater needs and approximately \$2 billion per year to address capital stormwater needs. Over the past 20 years, the Operation and Maintenance (O&M) portion of total local wastewater expenditures grew from 50 percent to 60 percent. This is an indication of the increasing O&M needs related to aging wastewater infrastructure and to increasing material and energy costs. While local capital expenditures have remained flat over the past 20 years, they have increased over the past 10 years. In general, capital renewal projects have not kept pace with the increasing need to rehabilitate or replace aging infrastructure.

Sustainable Infrastructure Program

EPA's Sustainable Infrastructure Program emphasizes the need for individual utilities to close their infrastructure gap by finding efficiencies that reduce their overall infrastructure costs, while adopting pricing structures that will produce the revenues to meet their needs. Many utilities are adopting Asset Management and other management strategies that reduce costs by optimizing the timing and approach to infrastructure renewal and replacement. Significant cost reductions can also be realized through programs targeting water and energy efficiency. Additionally, collaboration between utilities in an area or watershed can produce efficiencies that reduce costs. Finally, utilities are increasingly implementing sustainable pricing structures. Such structures take into account the long-term infrastructure needs of a system and are designed to generate sufficient revenues to meet utility customers' needs.

Potential Influences on Future Surveys

Over the next two years, the EPA and State CWNS 2012 Workgroup will plan how to evolve CWNS to meet emerging needs and to enhance public data access. Potential changes to the CWNS 2012 include tracking wastewater treatment plant energy efficiency projects and climate change-related needs. In addition, the EPA and State CWNS 2012 Workgroup will continue efforts to address underreporting of needs.

⁴ During a comparable 4-year period (October 1, 2004, through September 30, 2008), Congress provided an additional annual average of \$0.1 billion in Special Appropriation Act Project earmark grants for wastewater treatment, stormwater management, and NPS pollution control projects.

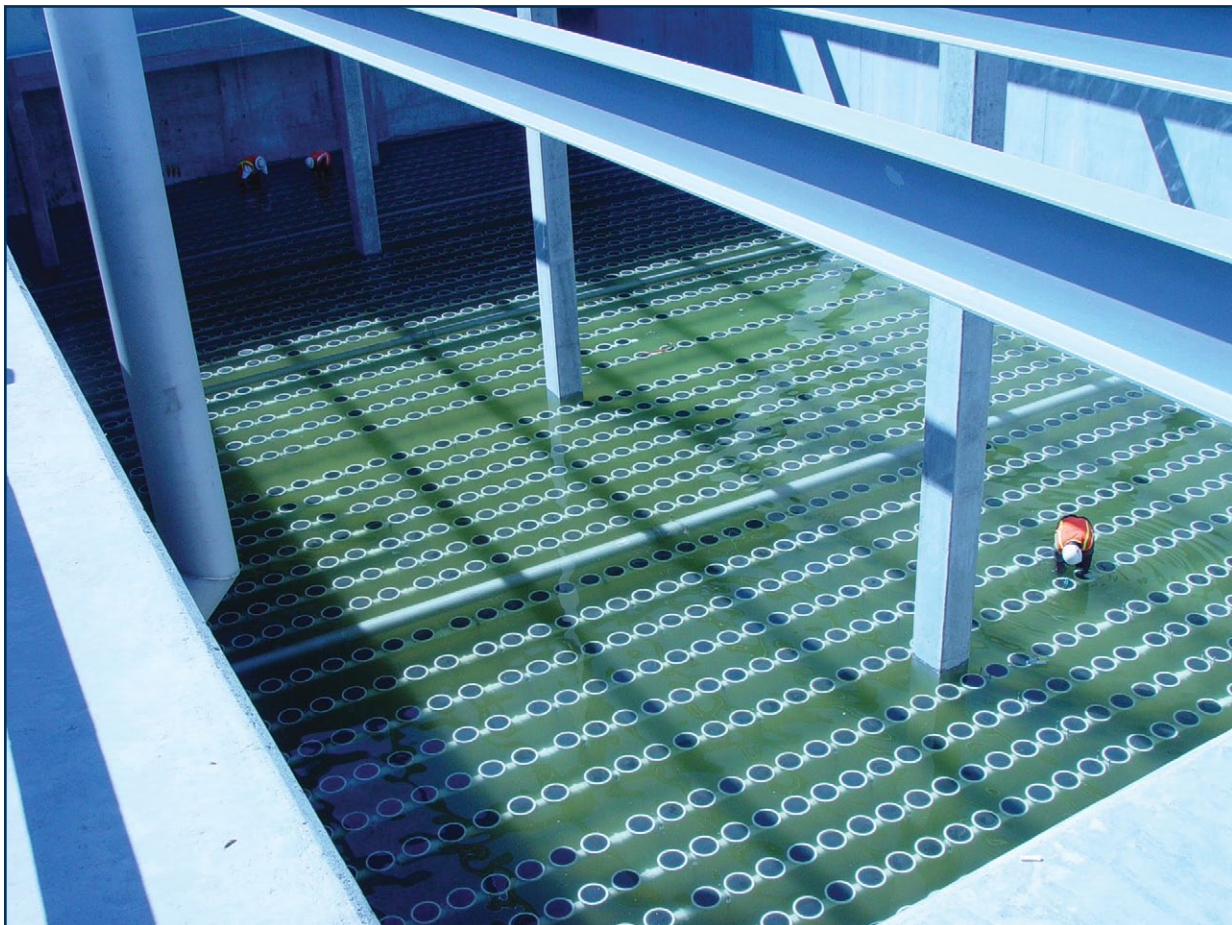
⁵ Based on data from U.S. Census Bureau, Governments Division's State and Local Government Finances Survey (<http://www.census.gov/govs/www/estimate.html>).

Chapter 1

SCOPE AND METHODS

The United States Environmental Protection Agency (EPA) prepared this *Clean Watersheds Needs Survey (CWNS) 2008 Report to Congress*, hereinafter referred to as “this Report,” in compliance with Clean Water Act (CWA) section 516(b)(1)(B). This Report assesses the capital investment necessary for the nation’s wastewater pipes and treatment facilities and municipal stormwater management projects to meet CWA water quality objectives.

This Report is a collaborative effort among the States, the District of Columbia, U.S. Territories (collectively referred to as “States” for the remainder of this Report), and EPA. From September 2005 through December 2007, the CWNS 2008 national Workgroup (whose members are denoted by an asterisk in the acknowledgements) provided input on the survey methods. This is the 15th survey since the 1972 CWA. The 14th survey addressed needs as of January 1, 2004.



Jon Bernreuter

Peoria Butler Drive Water Reclamation Facility, Arizona. Courtesy of Water Infrastructure Finance Authority (WIFA) of Arizona.

Types of Needs in This Report

Needs in this report include the unfunded capital costs of projects as of January 1, 2008⁶, that

- Address a water quality or a water quality related public health problem existing as of January 1, 2008, or expected to occur within the next 20 years
- Meet the seven documentation criteria described on page 1-5

Needs in this Report are summarized using the needs categories in Table 1-1 and Appendix J. This Report does not include all needs related to water quality and water quality-related public health problems. As in past surveys, this Report does not include information about wastewater facilities that are privately owned or that serve privately owned industrial facilities, military installations, national parks, or other federal facilities. Operation and maintenance (O&M) costs are also not included. Needs that met CWNS documentation requirements but are not defined in CWA section 516(b)(1)(B), including Nonpoint Source (NPS) Pollution Control (Category VII) needs and Decentralized Wastewater Treatment (Category XII) needs, are summarized in Appendix A and Appendix B, Table B-3. For State planning purposes, States could submit Unofficial Cost Estimates for projects that did not meet this Report's definition of needs. Unofficial Cost Estimates are reported separately in Chapter 2 (page 2-24) and Appendix E. Technical data (e.g., populations served, flows, effluent treatment levels) associated with facilities with Unofficial Cost Estimates are included throughout this Report in various tables and charts.

Table 1-1. CWNS 2008 needs categories

<p>Section 212^a Wastewater Treatment and Collection</p>	<p>Wastewater Treatment Secondary wastewater treatment (I) Advanced wastewater treatment (II)</p> <p>Pipe Repairs Infiltration/inflow correction (III-A) Sewer replacement/rehabilitation (III-B)</p> <p>New Pipes Collector sewers (IV-A) Interceptor sewers (IV-B)</p> <p>Recycled Water Distribution (X)</p>
<p>Section 212^a Wet-Weather Water Management</p>	<p>Combined Sewer Overflow Correction (V)</p> <p>Stormwater Management^b Conveyance Infrastructure (VI-A) Treatment Systems (VI-B) Green Infrastructure (VI-C) General Stormwater Management (VI-D)</p>

^a Consistent with CWA section 212 funding assistance eligibilities, official needs in Categories I through VI (except VI-C) and Category X are limited to publicly owned treatment works.

^b Stormwater management subcategories are new for CWNS 2008.

⁶ All needs in this Report are shown in January 2008 dollars.

The CWNS 2008 did not request needs data for American Indian and native villages, hereinafter referred to as Tribal needs. EPA does not track Tribal needs because the Indian Health Service (IHS) conducts a separate survey and provides a report to Congress annually under Public Law 86-121. The IHS Tribal needs are summarized on page 2-24 and in Appendix F. A special set-aside of the Clean Water State Revolving Fund (CWSRF) appropriation provides funding for Tribal needs on the basis of a priority list of projects, updated annually by the IHS.

Time Frame for Needs in This Report

For inclusion in this Report, a need had to address a water quality or water quality related public health problem that existed as of January 1, 2008, or was expected to occur within the next 20 years.

This Report compiles short-term and long-term needs that could be documented in accordance with documentation criteria on page 1-5. During the 1970s and 1980s, wastewater infrastructure planning primarily used a 20-year planning horizon (as influenced by a Title II Construction Grants Program requirement). More recently, wastewater infrastructure planning horizons vary considerably across the United States. States and local communities have greater flexibility for managing construction activities, and this planning horizon now ranges from 5 years or less to 20 years or more. Because CWNS Reports to Congress rely on State and local documents of varying time horizons, the reports over the past 20 years have not estimated the complete 20-year needs for the nation. For this Report, documentation methods were adjusted (pages 1-4 and 1-5) to more fully estimate the complete 20-year needs. Costs beyond 20 years have been excluded from this Report.

Data Entry Procedures

EPA and the CWNS 2008 National Workgroup set the CWNS 2008 data entry objectives of:

- Updating and entering new documented costs using the most current planning documents available
- Addressing historically underreported needs for small communities, decentralized wastewater treatment (septic) systems, stormwater management projects, and NPS pollution control projects
- Emphasizing the use of Long-Term Control Plans (LTCPs) or other acceptable documentation for Combined Sewer Overflow (CSO) needs
- Indicating which documented needs are related to Sanitary Sewer Overflows (SSOs)
- Identifying which portions of needs are eligible for assistance under national CWSRF rules⁷

⁷ The CWSRF-eligible portions of needs are shown in Appendix G.

To help achieve these objectives, EPA and the CWNS 2008 National Workgroup developed a new Data Entry Portal (DEP), a detailed CWNS 2008 User Manual, and outreach materials focused on improving the reporting of historically underreported needs. EPA provided training to local communities and States via a webcast series (August 2007–April 2008) and to States at a national kickoff meeting (January 2008). EPA also provided data from the CWNS 2004 as a baseline for the CWNS 2008 data entry effort. States entered data into the CWNS 2008 DEP from February 5, 2008, through March 20, 2009.

To clarify issues raised by States throughout the data entry period, EPA held monthly conference calls, provided additional training opportunities, and delivered information to the States through the Internet and e-mail.

CWNS 2008 Data Entry Portal (DEP)

The CWNS 2008 DEP allowed States to enter detailed information about each facility, such as facility descriptions, funding needs, locations, and wastewater systems' levels of treatment and populations served. The DEP provided several data entry and review advantages over previous CWNS data entry systems, including the ability to do the following:

- Have multiple users, across multiple organizations, within each State
- Designate which State users have which access rights to which data records
- Copy data, such as National Pollutant Discharge Elimination System (NPDES) data, from other systems to minimize required data entry
- Click on an interactive Internet map to capture location data in the DEP
- Upload and annotate documents

Detailed descriptions of data types in the CWNS 2008 DEP are available at www.epa.gov/cwns.

Examples of DEP Entries

- Wastewater Treatment Plant
- Wastewater Collection System
- CSO Control Facility
- Stormwater Management Facility
- Septic Systems for a community
- NPS Control Projects for a watershed

The CWNS 2008 DEP contains information on 34,520 entries. Seventy percent (24,076) of these entries have wastewater treatment and collection system information, 29 percent (10,155) have decentralized wastewater treatment system information, 11 percent (3,661) have NPS control information, and 8 percent (2,798) have stormwater management information.

Documentation of Needs

CWNS reports before 2000 included needs based on both documents and data models. Beginning with the CWNS 2000 report, rigorous documentation was required to validate needs and to ensure the quality of cost and technical information. The modeled needs resulted in only State- and national-level estimates. The advantage of documenting needs is that it provides a rich source of site-specific, high-quality data for EPA, States, and the public. This information is useful in a variety of watershed-based analytical tools that support efforts to meet water quality and public health objectives.

Documentation Criteria

EPA, in consultation with the CWNS 2008 National Workgroup, established seven criteria for States to document each need:

1. **A description of the current or potential water quality impairment and information on its potential source.** The problem description needed to include specific pollutant source information and/or specific threats to the waterbody.
2. **The location of the problem.** A single latitude/longitude point or an area (e.g., polygon, county, watershed) needed to be identified.
3. **The solution to the problem.** One or more specific pollution control measures or best management practices (BMPs) needed to be identified.
4. **The cost for each solution.** The cost to implement each pollution control measure or specified BMP needed to be provided.
5. **The source of the cost.** Documentation (e.g., engineer's estimates, costs from comparable practices, estimates from equipment suppliers) for each solution needed to be identified.
6. **The total cost.** The total cost of all pollution control measures and BMPs documented for the facility or project needed to be provided.
7. **Current documentation.** For records with total needs greater than \$20 million (January 2008 dollar base), the documentation date of all documents needed to be January 1, 2002, or more current. For all other needs, the documentation date needed to be January 1, 1998, or more current.

Acceptable Document Types

To maintain quality and consistency in documentation of needs from State to State, EPA and the CWNS 2008 National Workgroup developed a list of 43 approved types of documentation. To more completely estimate the full 20-year needs (page 1-3), EPA implemented an innovative methods process. States could develop documentation outside the 43 approved types and submit that documentation for EPA evaluation. If EPA determined that the documentation met the documentation criteria, the documentation could be used to estimate needs and costs. Examples of innovative documentation methods are shown in various side bars in Chapter 2.

A variety of cost curves were available in the DEP to estimate costs in cases where the documents contained only a description of the needs. Many of the Decentralized Wastewater Treatment System cost curves were newly added for CWNS 2008. The list of cost curves available for CWNS 2008 is presented in Table 1-2 and the approved types of documentation in Table 1-3 and Appendix K.

Table 1-2. Cost curves in the CWNS 2008 DEP

Wastewater Treatment Plants (Categories I & II)
Disinfection Only
Increase Level of Treatment
Increase Flow Capacity
Replacement of Treatment Plant
New Treatment Plant
Pipe Repairs and New Pipes (Categories III & IV)
Pipe Rehabilitation
Pipe Expansion
New Pipes
Combined Sewer Overflow (Category V)
Decentralized Wastewater Treatment Systems (Category XII)
Rehabilitate Onsite Wastewater Treatment System
Rehabilitate Clustered Systems
New Onsite Wastewater Treatment System
New Clustered Systems

Table 1-3. Approved types of documentation and associated needs in CWNS 2008

Document type code	Document type	January 2008 dollars (billions)	Percentage of total need (%)
01	Intended Use Plan	19.1	6.4
02	State and Federal Loan and Grant Applications	5.6	1.9
03	CWSRF Loan Applications	5.1	1.7
05	Cost of Previous Comparable Construction	0.4	0.1
06	State-Approved Area-wide or Regional Basin Plan	7.9	2.6
07	State-Approved Local Comprehensive Water and Sewer Plan	2.6	0.9
08	Total Maximum Daily Load (TMDL)	1.3	0.4
10	Nutrient Criteria Studies	0.1	<0.1
12	State Needs Surveys and other State forms	1.1	0.4
20	Capital Improvement Plan (CIP)	107.6	36.1
21	Facility Plan	42.5	14.3
22	Preliminary Engineer's Estimate	14.2	4.8
23	Final Engineer's Estimate	6.4	2.1
24	Sewer System Evaluation Documents	3.1	1.0
25	Diagnostic Evaluation	<0.1	<0.1
26	Sanitary Survey	0.4	0.1
27	State-Approved Municipal Wasteload Allocation Plan	<0.1	<0.1
28	New State or Federal Regulation	<0.1	<0.1
30	Administrative Orders, Court Orders, or Consent Decrees	0.2	0.1
31	NPDES or State Permit Requirement (with Schedule)	0.4	0.1
32	CSO Long-Term Control Plan (LTCP)	20.1	6.7
33	Approved CSO Long-Term Control Plan (LTCP)	4.8	1.6
40	Watershed-Based Plans	1.4	0.5
41	Section 319 Funded or EPA Reviewed Watershed-Based Plans	0.3	0.1
42	Approved State Annual 319 Workplans	<0.1	<0.1
43	Approved State 319 Project Implementation Plans	0.1	<0.1
44	NPS Management Program/Assessment Report	<0.1	<0.1
60	Municipal Stormwater Management Plan	0.8	0.3
71	Small Community Needs Form	3.4	1.1
72	Information from an Assistance Provider	<0.1	<0.1
98	CSO Cost Curve Needs	26.6	8.9
99	EPA-HQ Approved	22.4	7.5
Total		298.1	100.0

Additional Documentation Options for Small Communities

In past CWNS reports, national small community needs were often underestimated, because small communities have fewer resources available for facility evaluations and other formal documents that explain needs and costs. To more fully capture the needs of small communities, EPA and the CWNS 2008 National Workgroup established guidelines to allow communities of fewer than 10,000 people to use more streamlined forms of documentation. The streamlined documentation required a description of the proposed project, an explanation of why the project was necessary (i.e., the water quality-related public health or water quality problem), and an estimate of the needs (if available). The information was submitted on a standardized survey form and signed by suitable community and State officials. If cost estimates were not provided, the State could use cost curves to estimate many costs.

Data Quality Assurance

EPA conducted a quality control and quality assurance review to ensure the precision and accuracy of the data and to minimize the level of uncertainty of data submitted for this Report. To meet this objective, EPA developed a Quality Assurance Project Plan (QAPP) in accordance with EPA's guidelines for review of secondary technical and cost data (*EPA Requirements for Quality Assurance Project Plans* (EPA QA/R-5, EPA/240/B-01/003)). As part of the QAPP, EPA developed specific and well-defined standard operating procedures for the review of technical and cost data. The QAPP defined processes for EPA to monitor adherence to quality control procedures and quality assurance requirements.

A team of reviewers used the QAPP standard operating procedures to review the data entered into the CWNS 2008 DEP by individual States. The procedures included comparing hard-copy and electronic documentation with data entered in the CWNS 2008 DEP, as well as ensuring consistency of technical and cost data. Where necessary, the review team consulted with EPA CWSRF experts to clarify national CWSRF eligibility requirements.

Chapter 2

RESULTS: NATIONAL NEEDS

The total reported water quality needs for the nation as of January 1, 2008, are \$298.1 billion (Figure 2-1 and Table 2-1). More than 60 percent of the nation's needs are for wastewater treatment, pipe repairs, and new pipes. As with the CWNS 2000 and 2004 Reports, all the needs presented in this chapter are documented.⁸

Figure 2-2 displays the geographic distribution of the total documented needs by State. New Jersey, California, and New York, all with close to \$30 billion in needs, reported the largest total needs. Florida, Illinois, Ohio, Pennsylvania, and Texas each have needs in excess of \$10 billion.

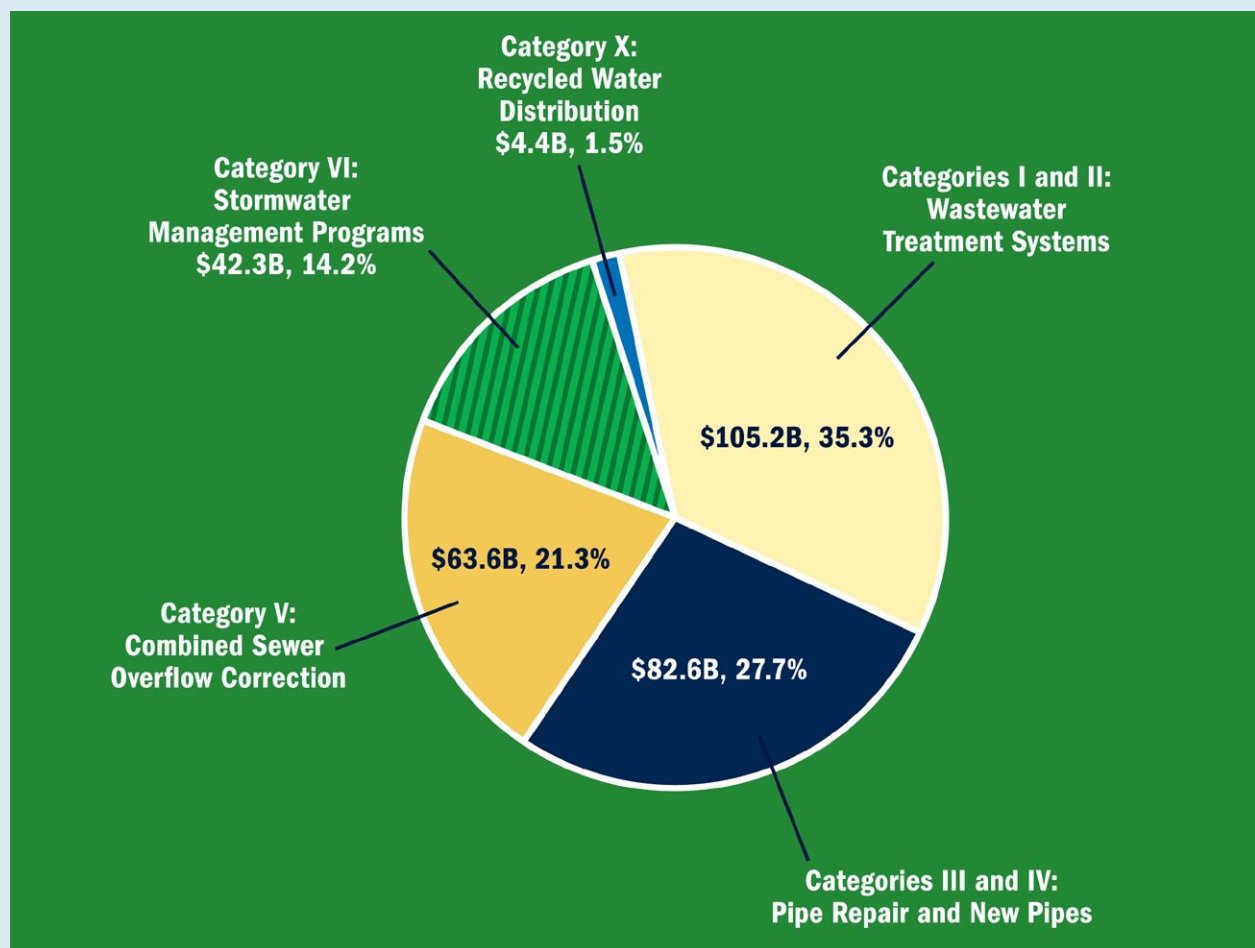
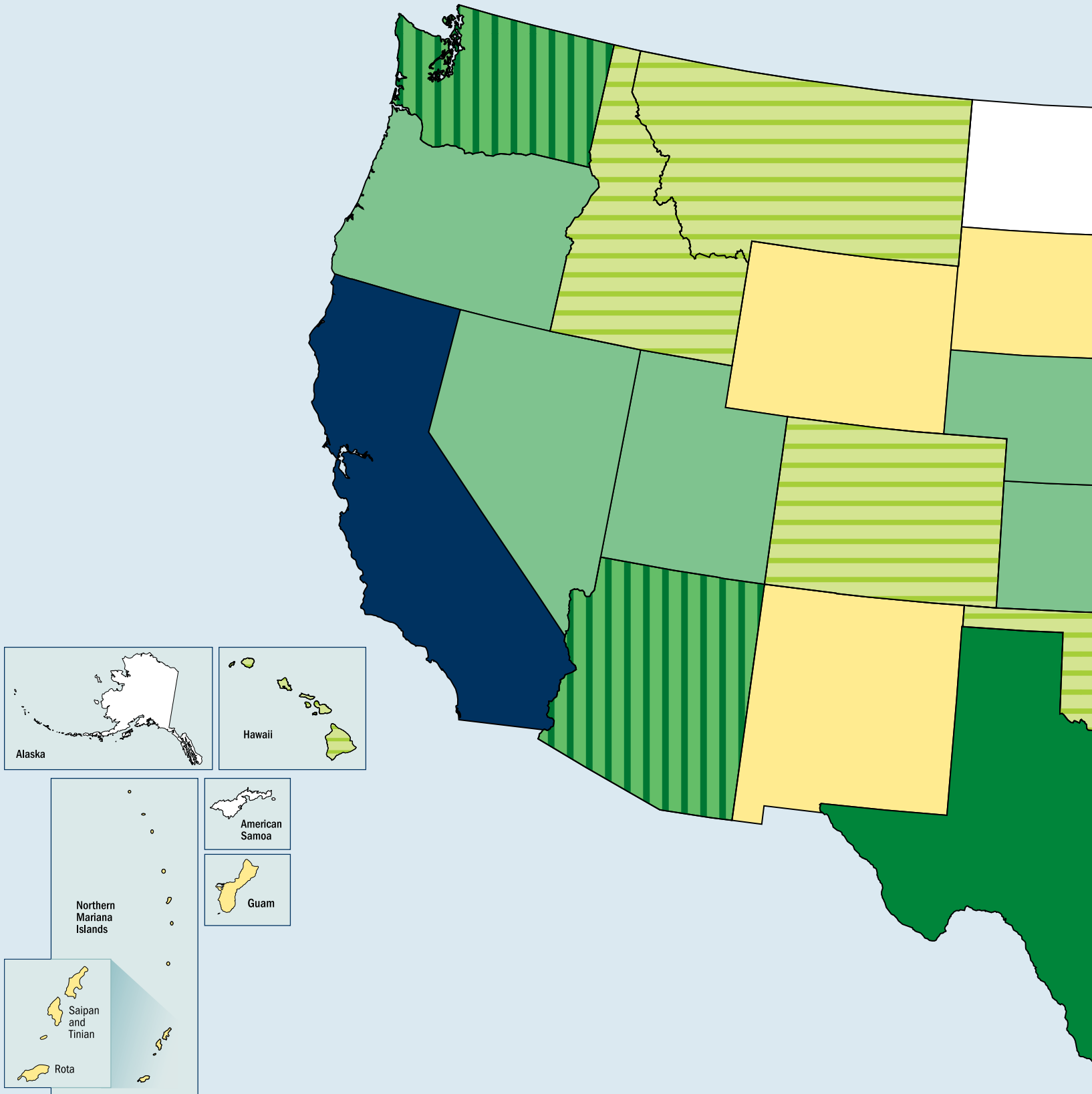


Figure 2-1. CWNS 2008 total documented needs (January 2008 dollars in billions).

⁸ The surveys performed in 1992 and 1996 presented a combination of documented and modeled needs.



Total Documented Needs = \$298.1 Billion

Figure 2-2. Distribution of total documented needs by State (January 2008 dollars in billions).

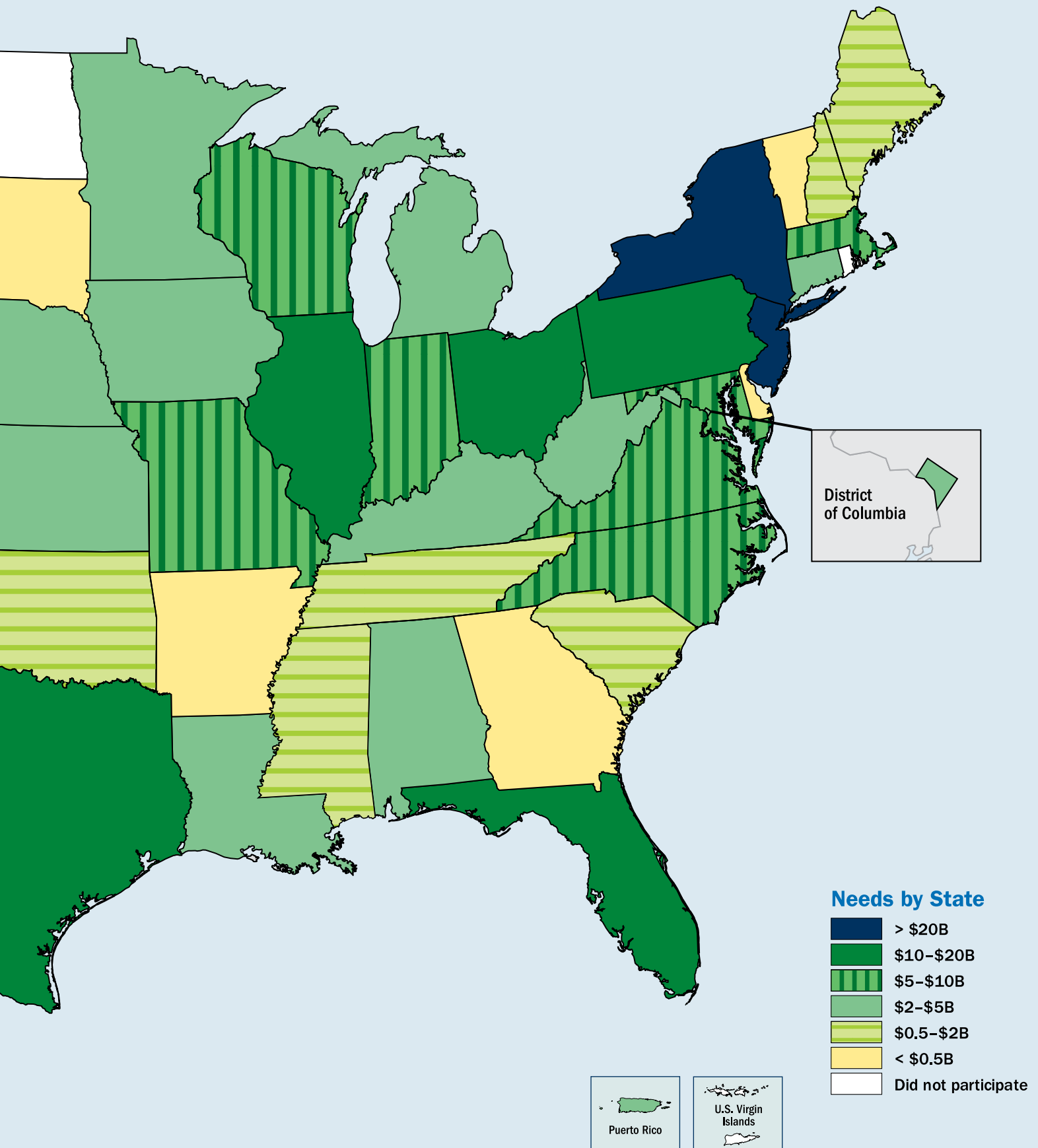


Table 2-1. CWNS 2008 total needs by category (January 2008 dollars in billions)

Category number	Category name	Total needs	
		\$B	Percent
I	Secondary Wastewater Treatment	59.9	20.1
II	Advanced Wastewater Treatment	45.3	15.2
III-A	Infiltration/Inflow (I/I) Correction	8.2	2.7
III-B	Replacement/Rehabilitation of Sewers	33.7	11.3
IV-A	New Collector Sewers	21.4	7.2
IV-B	New Interceptor Sewers	19.4	6.5
V	Combined Sewer Overflow (CSO) correction	63.6	21.3
VI	Stormwater Management	42.3	14.2
X	Recycled Water Distribution	4.4	1.5
Total		298.1	100.0

Note: Total may not equal sum of the parts due to individual rounding

New Jersey, California, Massachusetts, New York, Pennsylvania, Nevada, Iowa, and Utah, each with an increase of more than \$2 billion, are the States with the largest increases in needs since 2004.⁹ Idaho, Iowa, Massachusetts, Nebraska, Nevada, New Jersey, and Utah each reported needs increases of greater than 100 percent.

More than half (58 percent) of the total needs reported are concentrated in the eight States reporting needs in excess of \$10 billion. Twenty-three States each reported less than 1 percent of the total needs. Appendix B presents the total needs for all categories by State.

Figure 2-3 displays per capita needs by State. The District of Columbia (\$4,315), New Jersey (\$3,750), Guam (\$2,089), Nebraska (\$1,813), West Virginia (\$1,663), New York (\$1,527) and Maryland (\$1,505) reported the largest needs per capita. The District of Columbia, Maryland, Nebraska, and Guam, each have per capita needs exceeding \$1,500 and do not rank among the 20 States with the highest total needs shown in Figure 2-2.

CWNS 2008 Public Data Access

CWNS 2008 data and an electronic copy of this Report are available to the public on the EPA Web site at www.epa.gov/CWNS. The Web site also has a CWNS Fact Sheet for each State and summaries of CWNS data related to EPA programs (e.g., National Estuary Program) and large watershed areas (e.g., Great Lakes drainage basin).

⁹ In comparing 2004 needs to 2008 needs, the 2004 needs total include Category VII-D, NPS Urban Pollution Control needs, which were reported as unofficial need in Appendix F of the *CWNS 2004 Report to Congress*.

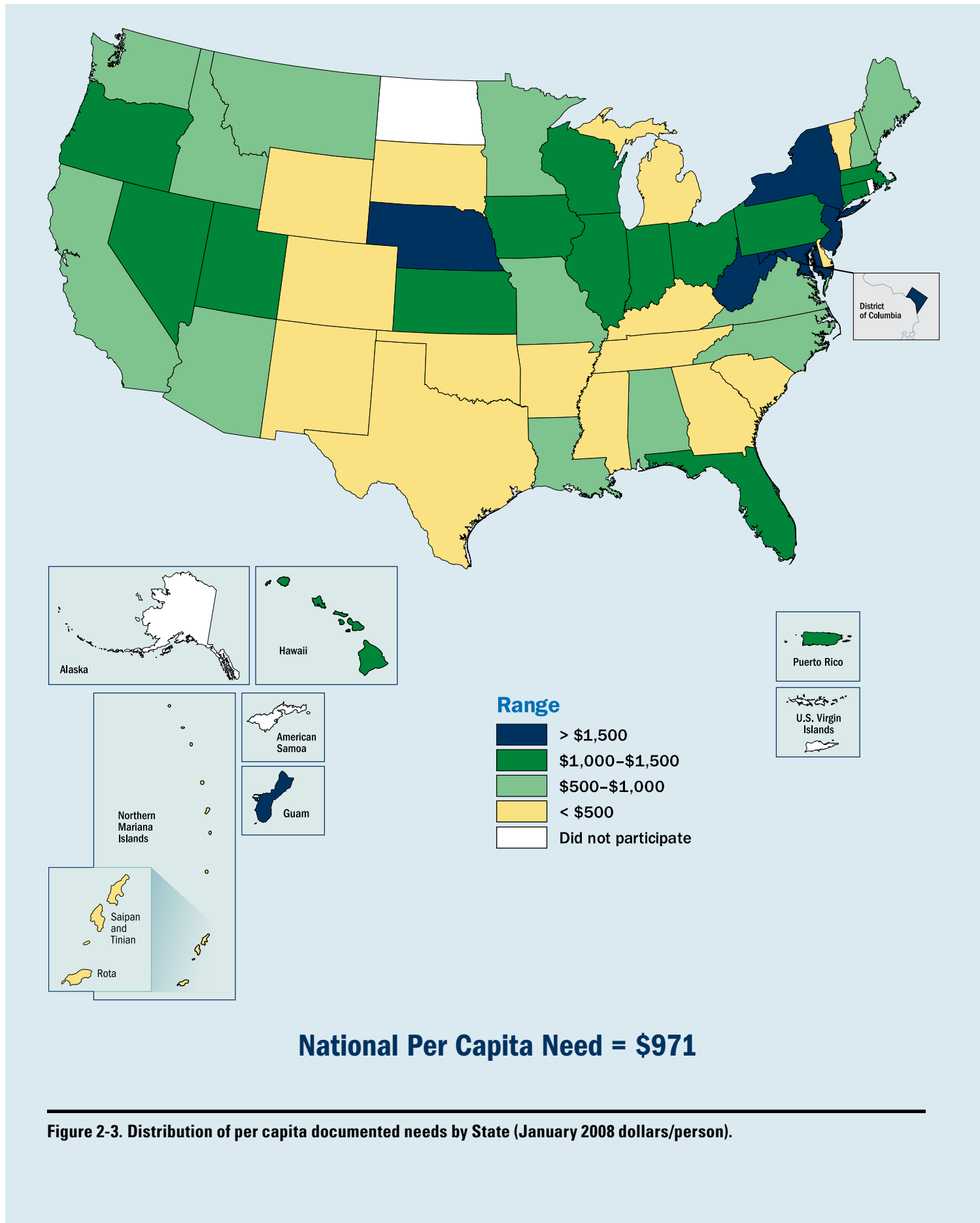


Figure 2-3. Distribution of per capita documented needs by State (January 2008 dollars/person).

Trends and Analyses by CWNS 2008 Category¹⁰

Figure 2-4 and Table 2-2 summarize the changes in needs by category from 2000 to 2008.

Wastewater Treatment, Pipe Repair, and New Pipes (Categories I through IV)

— Highlights

Total needs: \$187.9 billion

Change in needs from 2004: Increased by \$28.6 billion (18 percent)

Number of States reporting needs: 52

Categories with the largest increases since 2004: Advanced Wastewater Treatment (Category II) (\$16.3 billion; 56 percent); Secondary Wastewater Treatment (Category I) (\$7.0 billion; 13 percent); and Pipe Repairs (Category III) (\$4.5 billion; 12 percent)

Tables & Maps: Figure 2-5 shows the distribution of Wastewater Treatment, Pipe Repair, and New Pipes (Categories I through IV) needs by State

— Discussion

Increases in Advanced Wastewater Treatment (Category II), Pipe Repair (Category III), and Secondary Wastewater Treatment (Category I) needs were from a variety of reasons. These include improvements to rehabilitate aging infrastructure, meet more protective water quality standards, and respond to and prepare for population growth.

Needs increases of \$100 million or more in only 100 facilities account for total increases of \$34.7 billion in Category I through IV needs. The total Category I through IV needs at these facilities are \$56.6 billion (30 percent of the national needs in these categories). The 100 facilities serve approximately 43 million people (14 percent of the U.S. population). For an additional 55 facilities, needs decreased by at least \$100 million each.

The needs for facilities projected to be constructed account for \$6.1 billion (10 percent) of the Secondary Wastewater Treatment (Category I) needs, \$6.0 billion (13 percent) of the Advanced Wastewater Treatment (Category II) needs, and \$10.8 billion (26 percent) of the New Pipe (Category IV) needs. By definition, Pipe Repair (Category III) needs could be entered for existing facilities only.

¹⁰ Detailed descriptions of the CWNS 2008 needs categories are provided in Appendix J.

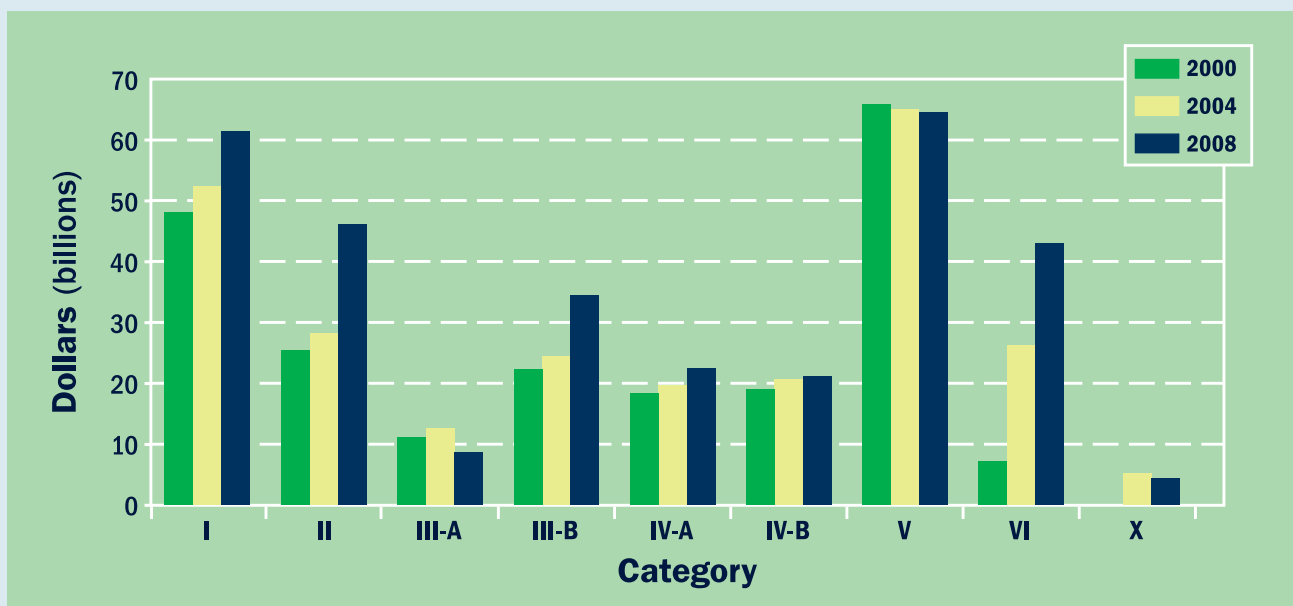


Figure 2-4. Total needs nationwide for the 2000–2008 CWNS organized by category (January 2008 dollars in billions).

Table 2-2. CWNS 2000–2008 total needs by survey year (January 2008 dollars in billions)

Category number	Name				Change 2004 to 2008	
		2000	2004	2008	\$B	Percent
I	Secondary Treatment	48.6	52.9	59.9	7.0	13.2
II	Advanced Treatment	26.9	29.0	45.3	16.3	56.2
III-A	Infiltration/Inflow Correction	10.8	12.2	8.2	-4.0	-32.8
III-B	Sewer Replacement/Rehabilitation	22.2	24.9	33.7	8.8	35.3
IV-A	New Collector Sewers	18.8	19.9	21.4	1.5	7.5
IV-B	New Interceptor Sewers	19.6	20.4	19.4	-1.0	-4.9
V	Combined Sewer Overflow	66.7	65.0	63.6	-1.4	-2.2
VI	Stormwater Management	7.3	25.4	42.3	16.9	66.5
X	Recycled Water Distribution		5.1	4.4	-0.7	-13.7
Total needs for Categories I to X		220.9	254.8	298.1	43.3	17.0
Treatment Categories I and II only		75.5	81.9	105.2	23.3	28.4
Pipe Repairs and New Pipes Categories III and IV only		71.4	77.4	82.7	5.3	6.8
Category I to V subtotal		213.6	224.3	251.5	27.2	12.1

Note: Total may not equal sum of the parts due to individual rounding

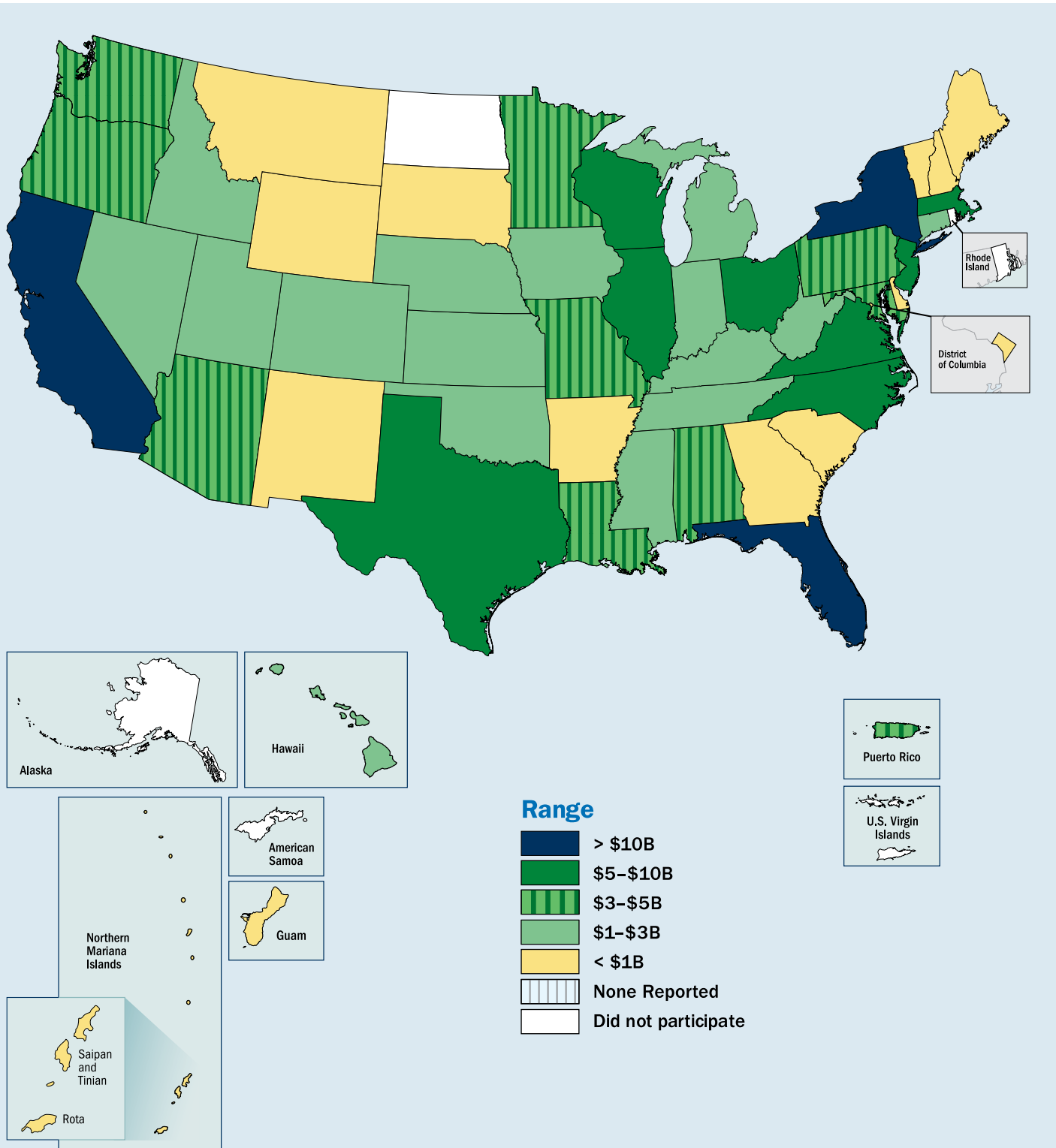


Figure 2-5. Distribution of wastewater treatment, pipe repair, and new pipes (Categories I through IV) needs by State (January 2008 dollars in billions).



Village of Algonquin, Illinois. Aeration basin and secondary clarifier. Courtesy of EPA Region 5.

Wastewater Treatment (Categories I and II)

— Highlights

Category Definition: The capital costs for treatment plants to meet Secondary Treatment (Category I) and Advanced Treatment (Category II) standards

Total needs: \$105.2 billion

Change in total needs from 2004: Increase of \$23.3 billion (28 percent)

Number of States reporting needs: 51

States with highest reported needs: New York (\$17.0 billion), California (\$16.3 billion), Florida (\$9.4 billion), and New Jersey (\$6.3 billion) reported almost half (47 percent) of the needs.

States with the largest percent increases since 2004: Nevada (greater than 1,000 percent), Utah (699 percent), Iowa (426 percent), Nebraska (283 percent), Massachusetts (215 percent), Indiana (224 percent), Idaho (204 percent), Illinois (196 percent), and New Hampshire (168 percent)

States with the largest percent decreases since 2004: Georgia (68 percent), Wyoming (63 percent), and Hawaii (59 percent)

States with largest per capita needs: District of Columbia (\$1,112), New York (\$875), Utah (\$833), Guam (\$741), New Jersey (\$727), and Nevada (\$723)

Tables & Maps: Figure 2-6 shows the distribution of Wastewater Treatment (Categories I and II) needs by State

— Discussion

States reported that the significant increase in needs in these categories was due to a variety of factors. There was an increase in needs to accommodate growth and to repair or replace aging infrastructure. In addition, States increased their level of effort to document needs in the categories. For Advanced Treatment (Category II) needs, States reported that the actual needs increased to meet more protective water quality standards and that more documentation was available.

Increases in Advanced Treatment (Category II) needs account for \$16.3 billion (70 percent) of the \$23.3 billion increase in Wastewater Treatment needs. Total Advanced Treatment (Category II) needs (\$45.3 billion) constitute a significantly higher percentage of Wastewater Treatment needs in 2008 (43 percent) than in 2004 (35 percent). This increase is because of increased implementation of National Pollutant Discharge Elimination System (NPDES) discharge permits with advanced treatment requirements for protecting and restoring water quality. The Advanced Treatment (Category II) needs associated with achieving effluent BOD of 20 milligrams per liter (mg/L) or less range from \$14.9 billion to \$35.0 billion. The Advanced Treatment (Category II) needs associated with achieving permit limits for nitrogen range from \$2.3 billion to \$17.8 billion, for phosphorus range from \$0.4 billion to \$17.2 billion, and for ammonia range from \$0.5 billion to \$12.8 billion.

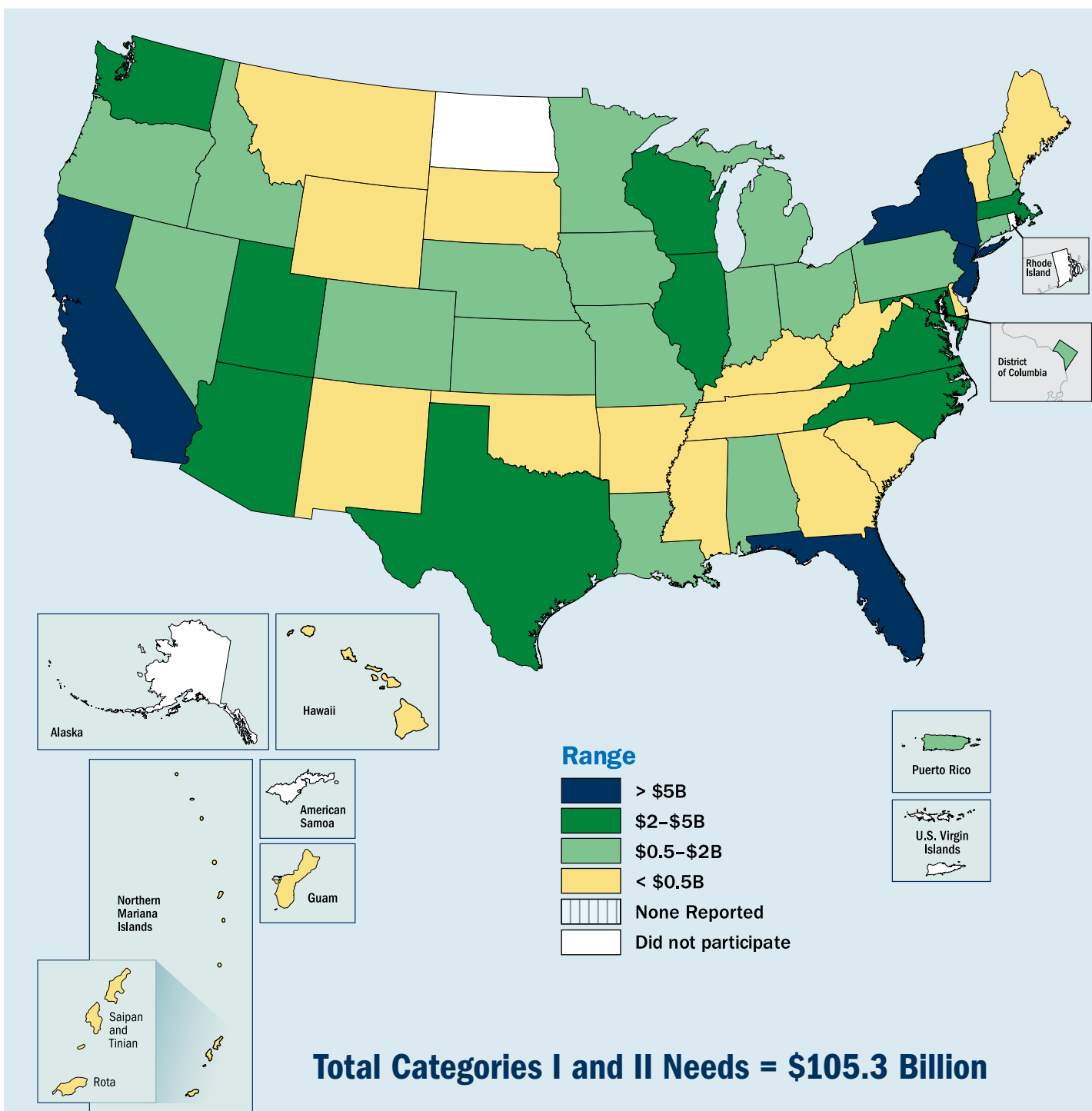


Figure 2-6. Distribution of wastewater treatment (Categories I and II) needs by State (January 2008 dollars in billions).

Advanced Treatment Needed to Meet More Protective Water Quality Goals

Increasingly, wastewater treatment facilities need to increase their level of treatment to meet water quality goals in NPDES permits and Total Maximum Daily Loads (TMDLs). As a result, Advanced Treatment needs account for 70 percent of the increase in wastewater treatment needs.

Iowa reported the highest Advanced Treatment needs for removing nitrogen at \$1.1 billion. New water quality standards passed in 2006 require more stringent ammonia and nitrogen limits. Also, all streams in the State that previously had no or minimal limits are now designated as streams needing protection. Iowa communities are reporting needs to meet those changes and anticipated future nutrient standards.

Washington and Nevada reported large Advanced Treatment needs associated with nutrients (nitrogen and phosphorus). In Washington, this is a result of one or more of the following: TMDL requirements; permit limits designed to protect impaired waterbodies that have not yet completed TMDLs; the State’s Puget Sound initiative; and State ground water standards that require nitrogen removal for discharge. In Nevada, TMDLs for nitrogen and phosphorus require advanced treatment for large discharge, while state ground water discharge permits may also require denitrification depending on the ground water basin, depth to ground water, and impacts of discharge.

Missouri identified NPDES permit compliance schedules that now require facilities to be upgraded to address ammonia. By reviewing past projects, Missouri developed a range of costs to estimate needs for treatment plants serving different community sizes.

Pipe Repairs and New Pipes (Categories III and IV)

— Highlights

Category Definition: The capital costs to rehabilitate and replace pipes, (Category III) and to install new sewer pipes, interceptor sewers, and pumping stations (Category IV)

Total needs: \$82.7 billion

Change in total needs from 2004: Increase of \$5.3 billion (7 percent)

Number of States reporting needs: 51

States with highest reported needs: California (\$7.9 billion), Florida (\$6.5 billion), New York (\$5.0 billion), Ohio (\$4.4 billion), Texas (\$4.2 billion), Puerto Rico (\$3.7 billion), North Carolina (\$3.7 billion), and Massachusetts (\$3.2 billion) reported nearly half (47 percent) of the needs.

States with the largest percent increases since 2004: Massachusetts (317 percent), Indiana (233 percent), Nebraska (345 percent), Nevada (224 percent), Iowa (194 percent), New Hampshire (121 percent), and Delaware (103 percent)

States with the largest percent decreases since 2004: District of Columbia (100 percent), Georgia (99 percent), and New Mexico (71 percent)

States with largest per capita needs: Guam (\$1,348), Hawaii (\$948), Puerto Rico (\$933), Alabama (\$622), Louisiana (\$571), West Virginia (\$561), and Wisconsin (\$523)

Tables & Maps: Figure 2-7 shows the distribution of Pipe Repairs and New Pipes (Categories III and IV) needs by State

— Discussion

Pipe Repair and New Pipe (Categories III and IV) needs increased, in part, because States improved their effort to document needs, and more documents were available for this purpose. Pipe Repair (Category III) needs are greater primarily because of actual needs increases to rehabilitate aging infrastructure. New Pipe (Category IV) needs increases are both to replace aging infrastructure and accommodate new growth.

Pipe Repair and New Pipe (Categories III and IV) needs are for infrastructure improvement or capital renewal or both. Infrastructure improvements include activities such as increasing the pipe capacity to keep up with population growth and constructing new pipes to provide service to new areas. Capital renewal projects sustain the current level of performance of the plant by rehabilitating, refurbishing, or replacing capital assets to their original condition and function. Pipe Repair (Category III) needs generally represent capital renewal needs. New Pipe (Category IV) needs usually represent infrastructure improvement needs. However, New Interceptor Sewers and Appurtenances (Category IV-B) include some projects (e.g., new relief sewers, sewer separation) that are traditionally thought of as capital renewal projects.

Of the \$82.5 billion in Pipe Repair and New Pipe (Categories III and IV) needs, 51 percent of the needs are associated with Pipe Repair (Category III). This compares with 48 and 46 percent for the CWNS 2004 and CWNS 2000, respectively. This pattern of increasing Pipe Repair (Category III) needs shows that communities are continuing to plan for the correction of problems related to Sanitary Sewer Overflows (SSOs) and ensuring the reliability of the nation's existing collection system infrastructure. States reported \$18.3 billion (44 percent) in Pipe Repair (Category III) needs related to addressing SSO problems. Additionally, \$3.1 billion (5 percent) of the Secondary Treatment (Category I) needs, \$0.5 billion (1 percent) of the Advanced Treatment (Category II) needs, and \$4.8 billion (12 percent) of the New Pipe (Category IV) needs reported are related to addressing SSOs.

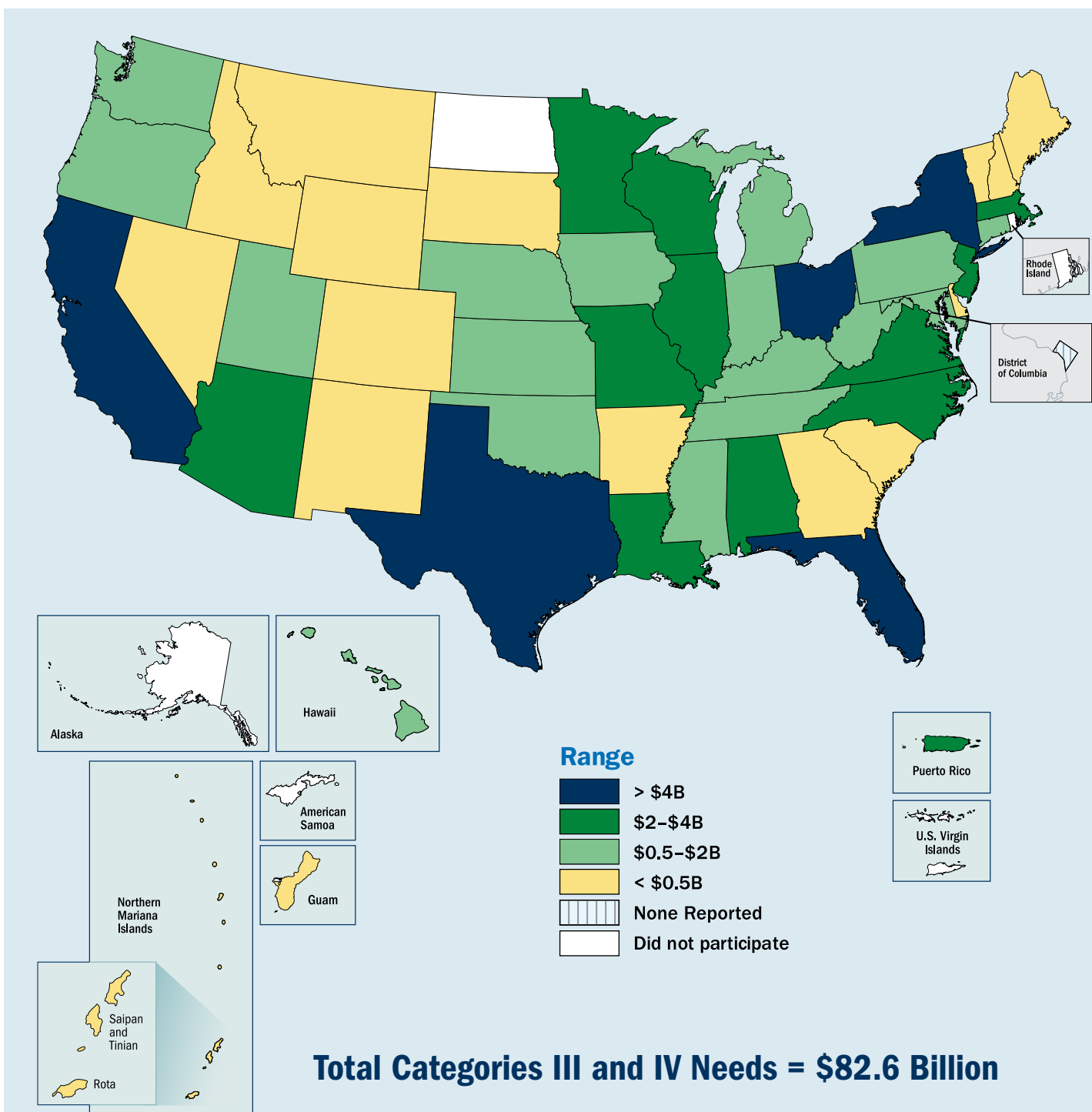


Figure 2-7. Distribution of pipe repairs and new pipes (Categories III and IV) needs by State (January 2008 dollars in billions).

Asset Management Helps Address the Nation's Aging Pipes

A large portion of the nation's wastewater pipe network was installed in the 1950s through the 1970s. As the nation's pipe network ages, needs for repairing and rehabilitating pipes are increasing. Over the past several years, many communities and States have responded to such increasing needs by initiating Asset Management programs and similar efforts that optimize how resources are allocated to maintain pipe networks and other infrastructure.

As part of a Governor's Task Force on Sustainable Infrastructure, Pennsylvania made site visits to many small communities, guiding those communities through an asset inventory and estimating repair and replacement needs. For small communities, Pennsylvania reported the largest Pipe Repair needs (\$347 million) and the largest New Pipe needs (\$858 million).

New York City performed comprehensive asset management assessments for 12 wastewater facilities. The assessments, which prioritized capital investments needed to meet regulatory requirements, were used to document \$2.3 billion in Pipe Repair needs, \$9.0 billion in Wastewater Treatment needs, and \$1.4 billion in CSO needs.

Recycled Water Distribution (Category X)

— Highlights

Category Definition: The capital costs associated with the conveyance of the recycled water (wastewater reused after removal of waste contributed by humans) and any associated rehabilitation or replacement needs; it includes, for example, the costs of the pipes used to convey treated water from a wastewater facility to a ground water recharge location

Total needs: \$4.4 billion

Change in total needs from 2004: Decrease of \$0.7 billion (14 percent)

Number of States reporting needs: 20

States with highest reported needs: California (\$1.7 billion) and Florida (\$1.2 billion) accounted for 66 percent of needs

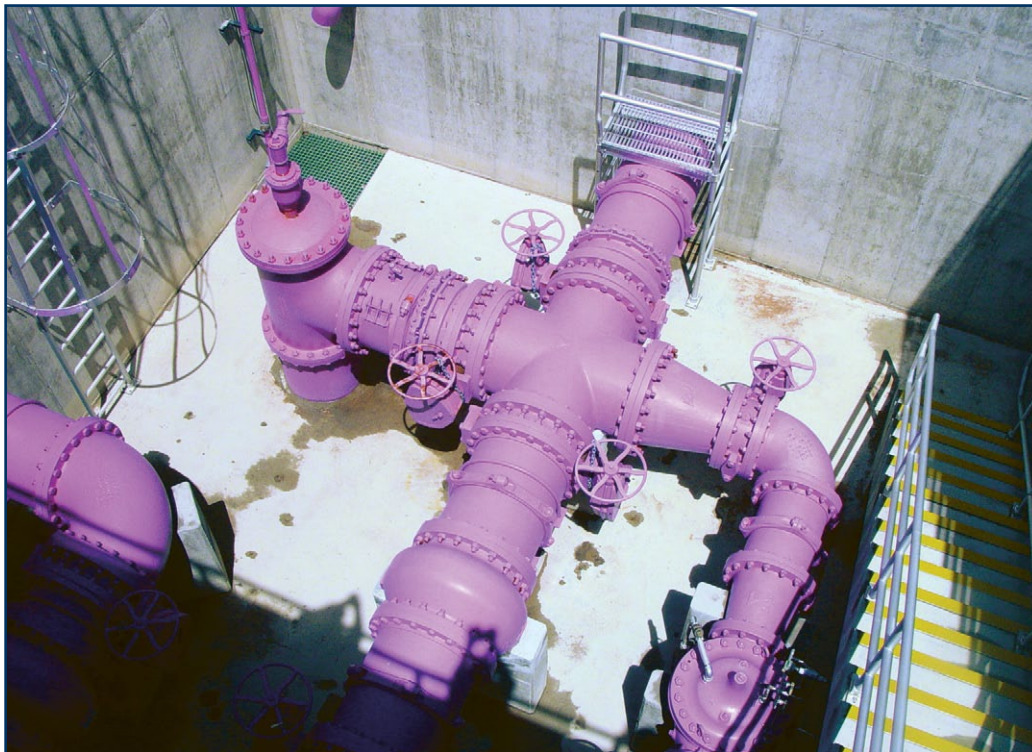
States with the largest percent increases since 2004: Texas (greater than 1,000 percent), Washington (900 percent), North Carolina (345 percent), Utah (114 percent), and Hawaii (51 percent)

States with the largest percent decreases since 2004: West Virginia (100 percent), Colorado (45 percent), Florida (40 percent), Oregon (26 percent), and California (26 percent)

Tables & Maps: Figure 2-8 shows the distribution of Recycled Water Distribution (Category X) needs by State

— Discussion

The overall decrease in needs were due to a variety of factors, such as limitations of resources to enter needs, limited document availability, and difficulty with cross-program coordination with State drinking water programs that support and fund many of these projects. State increases in needs were a result of an increased recognition that recycled wastewater can be beneficial in meeting water quality standards, accommodating population growth, and saving money.



Jon Bernreuter

Town of Oro Valley, Arizona. Reclaimed water pump station. Courtesy of Water Infrastructure Finance Authority (WIFA) of Arizona.

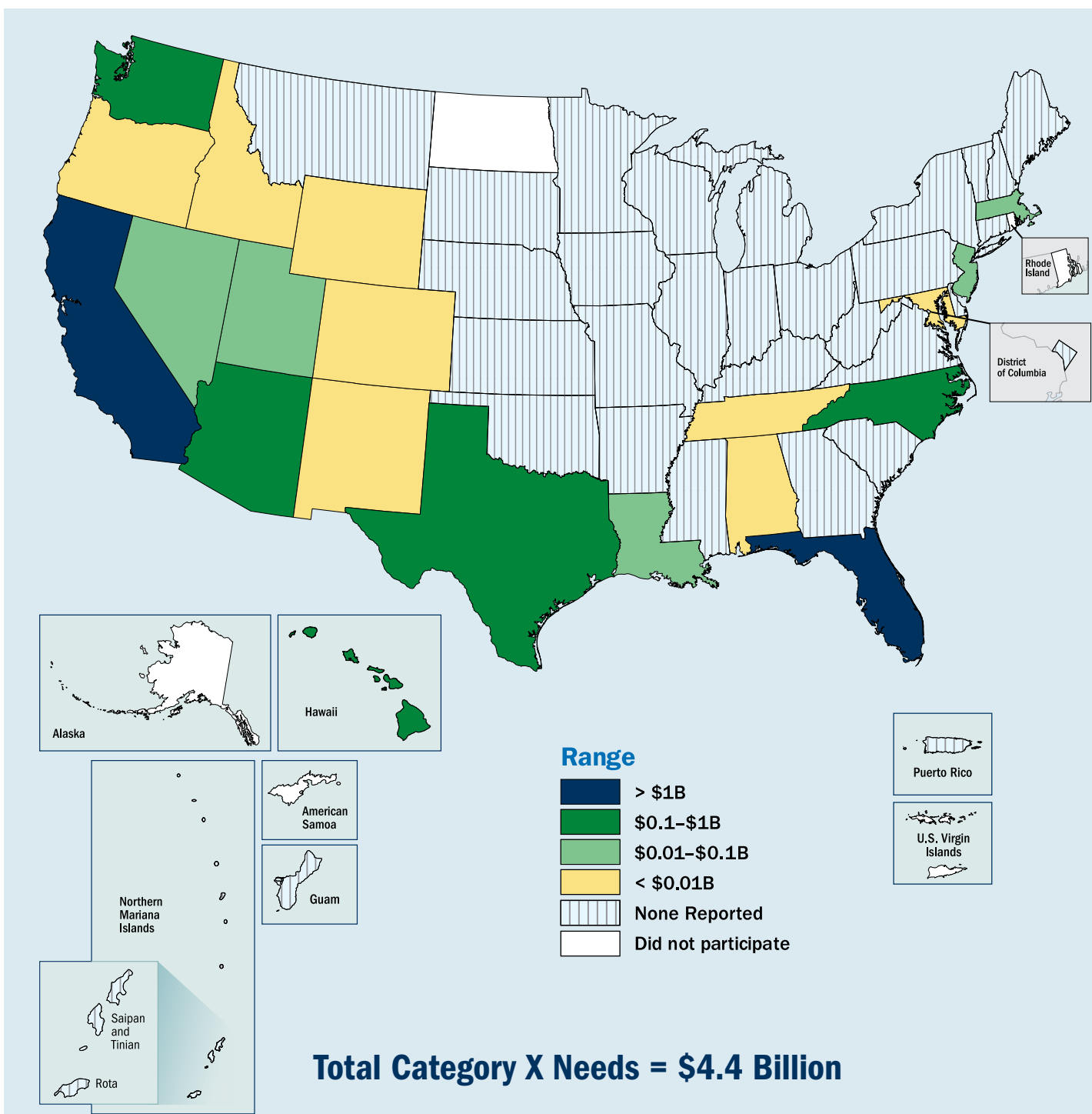


Figure 2-8. Distribution of recycled water distribution (Category X) needs by State (January 2008 dollars in billions).

Recycling Wastewater to Meet Increasing Water Demands

Many States realize that wastewater reuse is beneficial, because it reduces the demands on available surface and ground waters.

In Florida, the legislature recognized that large areas do not have sufficient traditional water resources to meet the future needs of the State’s growing population, the environment, agriculture, and industry. A 2005 law created the *Water Protection and Sustainability Trust Fund (WPSTF)*, which encourages cooperation in developing alternative water supplies, including wastewater reuse.

In North Carolina, a number of factors drove the large increase in Recycled Water Distribution needs: TMDLs requiring surface discharges reductions; regional droughts causing water shortages; local government rate structures encouraging use of reclaimed water where available; and the State awarding priority points for reclaimed water projects in its grant programs. As a result, municipalities, including Raleigh, are embracing recycled water distribution projects.

In Texas, cities are realizing that discharging wastewater to a stream or creek is wasting a valuable resource. Because of population growth, available drinking water shortages are increasing. Recycled wastewater can be used for irrigating crops or golf courses instead of using precious drinking water, or it can be sold to nearby cities to supplement their water supply.

Combined Sewer Overflow (CSO) Correction (Category V)

— Highlights

Category Definition: The capital cost to prevent or control the periodic discharges of mixed stormwater and untreated wastewater (combined sewer overflows) that occur when the capacity of a sewer system is exceeded during a wet weather event

Total needs: \$63.6 billion

Change in needs total from 2004: Decrease of \$1.4 billion (2 percent)

Number of States reporting needs: 31

States with highest reported needs: Illinois (\$10.9 billion), New Jersey (\$9.3 billion), Pennsylvania (\$8.7 billion), Ohio (\$7.5 billion), New York (\$6.6 billion), and Indiana (\$5.0 billion) reported 74 percent of the needs. They also account for 565 of the 767 facilities with CSO Correction (Category V) needs

States with the largest percent increases since 2004: New Jersey (83 percent), West Virginia (61 percent), Pennsylvania (59 percent), and Connecticut (54 percent)

States with the largest percent decreases since 2004: Georgia (100 percent), Minnesota (100 percent), Vermont (94 percent), Tennessee (72 percent), Michigan (70 percent), and Oregon (57 percent)

Tables & Maps: Figure 2-9 shows the distribution of CSO Correction (Category V) needs by State. Appendix I, Table I-5, presents the number of facilities with CSO Correction (Category V) needs by State and the total CSO Correction (Category V) needs reported for the CWNS 2004 and 2008

— Discussion

Overall needs in this category remained nearly equal. Some States reported significant decreases while others reported significant increases. The States that reported increases indicated the greater needs were from an increase in the availability of appropriate documents, primarily completed Long-Term Control Plans (LTCPs). Decreases in needs were from a variety of factors, including insufficient and outdated documentation and newly developed LTCPs showing less costs than were previously estimated with cost curves. In addition, Oregon reported that its decrease was a result of significant funding for CSO projects since 2004.

As with other needs categories, States were requested to enter documented needs when available. During the CWNS 2008, States increased their use of LTCPs to enter cost estimates. Nineteen States documented CSO Correction (Category V) needs using LTCPs for 219 facilities, up from 144 facilities in the CWNS 2004 and 34 facilities in CWNS 2000. Needs documented in LTCPs account for 32 percent (up from 13 percent in 2004) of the CSO Correction (Category V) needs reported in this survey. LTCPs provide the most reliable estimates for CSO control based on the 1994 CSO Policy.

When LTCPs or other engineering and planning documents were not available, States used cost curves¹¹ to estimate CSO Correction (Category V) needs. For the CWNS 1996, 66 percent of the CSO needs were documented by using cost curves. This percentage decreased to 53 percent for the CWNS 2004 and 42 percent for CWNS 2008.

¹¹ The cost curve methodology for the CWNS 2008 was the same as that used for the CWNS 1996, CWNS 2000, and CWNS 2004. The cost curve is based primarily on the *Presumption Approach* in the 1994 CSO Policy.

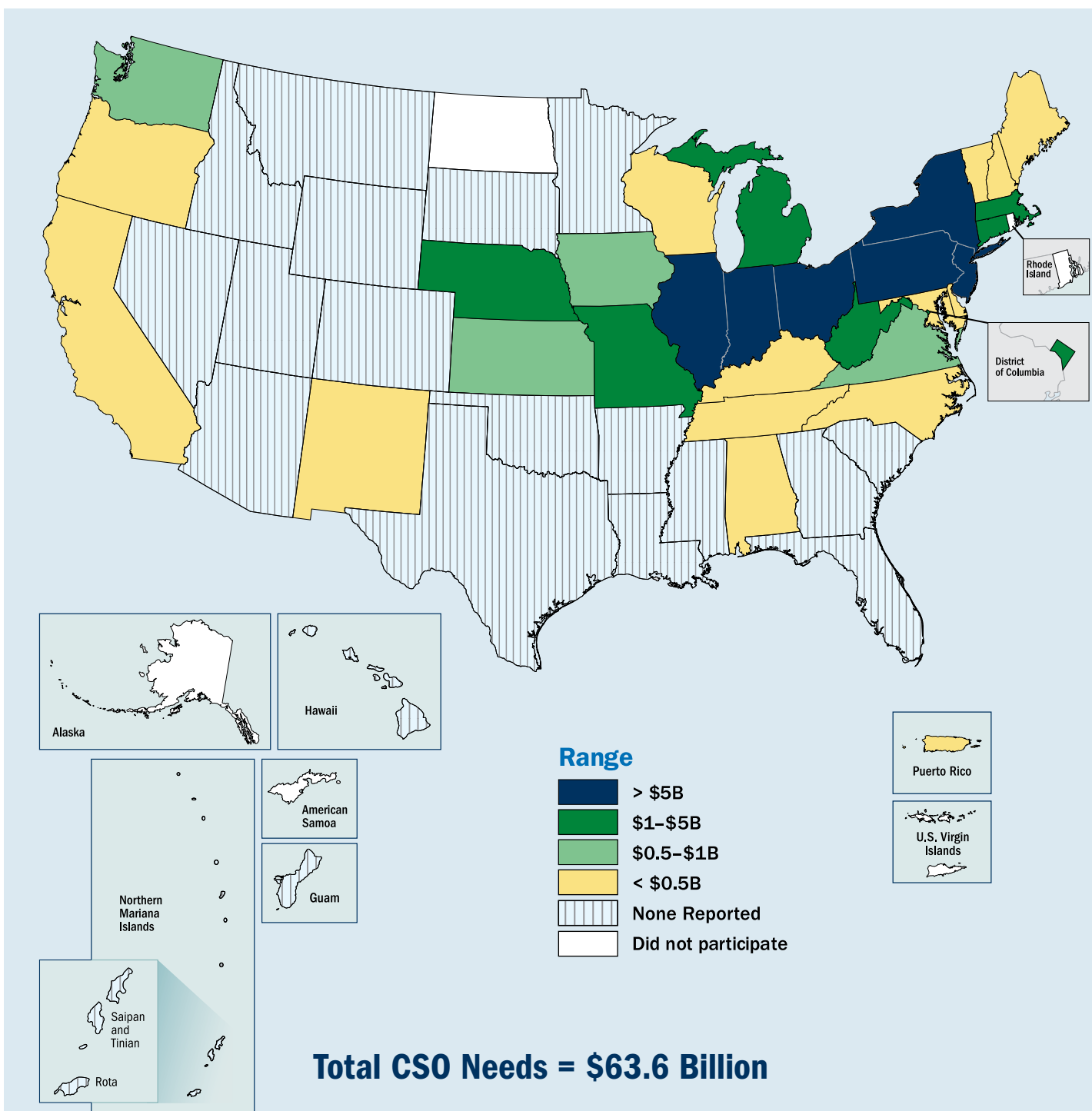


Figure 2-9. Distribution of combined sewer overflow correction (Category V) needs by State (January 2008 dollars in billions).

Chicago and Washington, DC among 772 Cities Addressing CSOs

CSOs contain stormwater, untreated human and industrial waste, toxic materials, and debris. They are a major water pollution concern for the approximately 772 cities in the United States that have combined sewer systems. Most communities with CSOs are in the Northeast, the Great Lakes region, and the Pacific Northwest. Some of the nation’s largest cities, including Chicago and Washington, DC, are working to correct CSOs.

Illinois reported the highest amount of CSO needs (\$10.9 billion). Much of that need (68 percent; \$7.4 billion) is for Chicago and its older suburbs. The Metropolitan Water Reclamation District of Greater Chicago (MWRDGC) initiated the Tunnel and Reservoir Plan (TARP) Project to alleviate the polluting and local flooding effects of CSOs by providing holding capacity for 18 billion gallons of combined sewage in tunnels and reservoirs until it can be pumped to the plant for full treatment.

Washington, DC, reported \$1.9 billion in needs to reduce CSOs by a projected 96 percent over the next 20 years. The plan includes a variety of improvements throughout the city, including constructing three tunnels: an 8-mile tunnel system to control Anacostia River overflows, a 3-mile tunnel system to control Potomac River overflows, and a mile-long tunnel system to control Piney Branch and Rock Creek overflows. The tunnels will contain the combined sewage until it can be treated.

Stormwater Management (Category VI)

— Highlights

Category Definition: Capital costs to plan and implement structural and nonstructural measures to control the runoff water resulting from precipitation (stormwater) in NPDES Phase I, Phase II, and non-traditional (e.g., universities, prisons, school districts) municipal separate storm sewer systems (MS4), as well as unregulated communities (reported in CWNS 2004 as VII-D: NPS-Urban)

Total needs: \$42.3 billion

Change in total needs from 2004: Increase of \$16.9 billion (67 percent)

Number of States reporting needs: 38

States with highest reported needs: New Jersey (\$15.6 billion), Pennsylvania (\$6.0 billion), California (\$3.8 billion), Maryland (\$3.8 billion), Texas (\$3.1 billion), Florida (\$2.5 billion), and New York (\$1.1 billion) reported 85 percent of the needs

States with the largest percent increases since 2004:¹² Louisiana, New Jersey, Nevada, Wyoming, and Iowa all reported greater than 1,000 percent increases

States with the largest percent decreases since 2004: Connecticut (100 percent), District of Columbia (100 percent), Kentucky (100 percent), Idaho (76 percent), Arizona (69 percent), Florida (66 percent), Wisconsin (61 percent), Montana (56 percent), Colorado (56 percent), and Utah (53 percent)

Tables & Maps: Figure 2-10 presents the distribution of stormwater management needs by State. Appendix B, Table B-1, presents the stormwater management needs by State, and Table B-2, presents the stormwater management needs for each subcategory by State. Appendix I, Table I-6, presents stormwater management needs by State for Phase I, Phase II, and Nontraditional MS4s, as well as Unregulated Communities

— Discussion

The increases in Stormwater Management (Category VI) needs are mostly because of improved EPA and State communication across programs; States' increased effort and ability to document stormwater management needs; and emerging efforts to use green infrastructure as a supplement to traditional stormwater conveyance and treatment systems. Even though the amount of Stormwater Management (Category VI) needs reported increased significantly in this Report from CWNS 2004, the needs in this category remain underreported. Thirty-eight States submitted data for 1,560 municipal stormwater management facilities and 688 unregulated facilities in this Report. As of September 30, 2008, EPA estimates that 7,080 facilities were covered by an NPDES MS4 individual or general permits. Therefore, only 22 percent of MS4 facilities submitted data. Lack of resources, both time and money, to document stormwater management needs and the inability of States to obtain the required documentation were the main reasons for the States not including their Stormwater Management needs.

Beginning in CWNS 2008, needs were reported in the following four subcategories: Stormwater Conveyance Infrastructure (Category VI-A) (\$7.6 billion; 18 percent); Stormwater Treatment Systems (Category VI-B) (\$7.4 billion; 18 percent); Green Infrastructure (Category VI-C) (\$17.4 billion; 41 percent); General Stormwater Management (Category VI-D) (\$2.9 billion; 7 percent). In prior surveys, all needs were reported as Stormwater Management (Category VI) needs. Many of these needs (\$7.0 billion; 17 percent) are still valid for the Report.

Also beginning in CWNS 2008, needs in this category include both regulatory and non-regulatory stormwater management needs. NPDES Phase I MS4s account for 26 percent, or \$11.2 billion, of the total Stormwater Management (Category VI) needs, and NPDES Phase II MS4s account for 51 percent, or \$21.6 billion in needs. Nontraditional NPDES MS4s and Unregulated Communities account for \$0.2 billion (less than 1 percent) and \$9.3 billion (22 percent) in needs respectively.

¹² Because of changes in needs categories between CWNS 2004 and CWNS 2008, the total needs from CWNS 2004 Categories VI and VII-D were compared with Category VI needs for CWNS 2008.

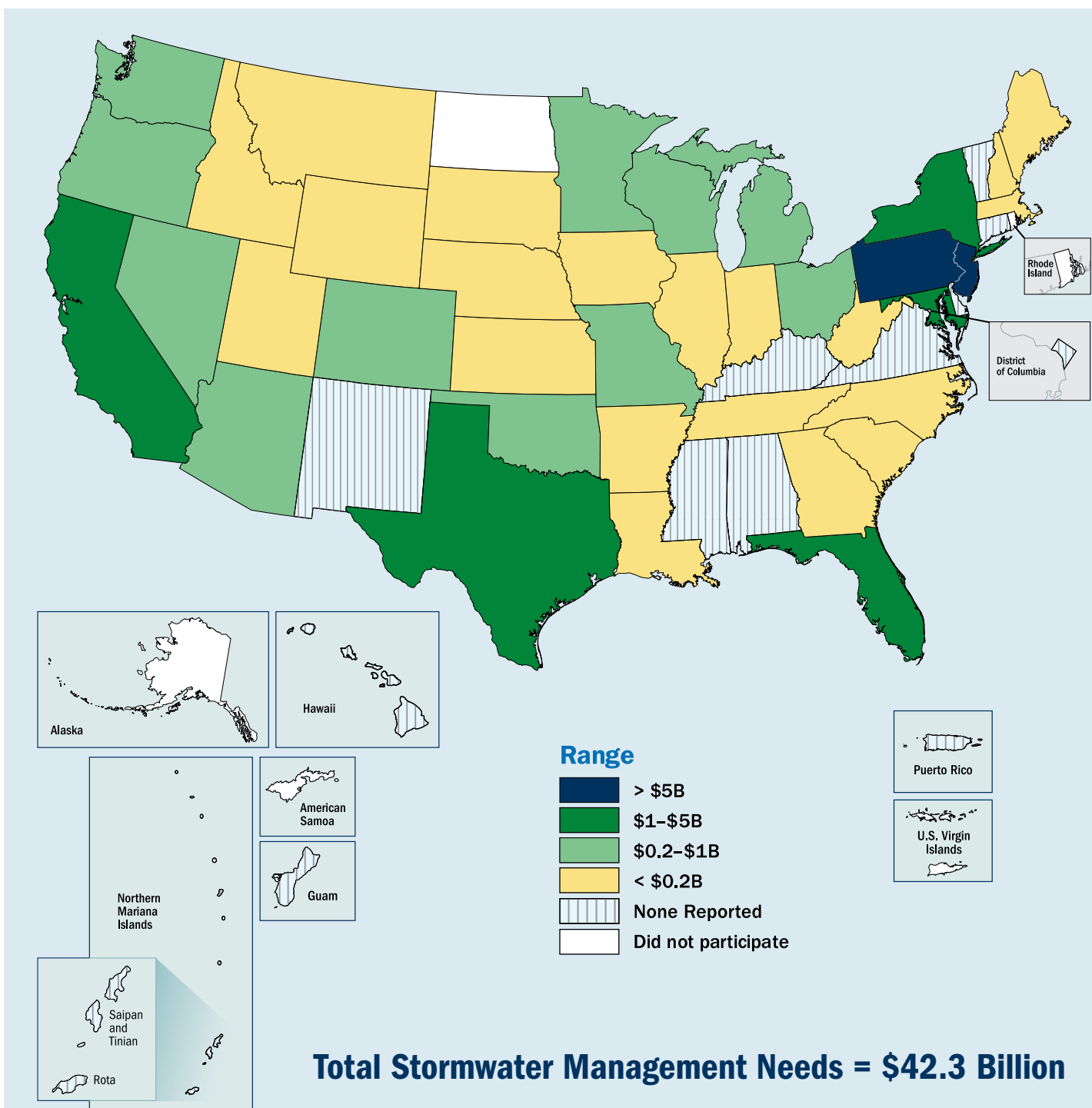


Figure 2-10. Distribution of stormwater management (Category VI) needs by State (January 2008 dollars in billions).

Green Infrastructure Increasingly Needed for Stormwater Management

Many States are planning to implement green infrastructure management approaches and technologies as part of their comprehensive plan to capture and reuse stormwater. Some of the benefits of green infrastructure are reduced and delayed stormwater runoff volumes, enhanced ground water recharge, stormwater pollutant reductions, and reduced sewer overflow events. Green infrastructure approaches include: preservation and restoration of natural landscape features (such as floodplains and wetlands), rain gardens, porous pavements, green roofs, infiltration planters, trees and tree boxes, and rainwater harvesting (e.g., cisterns, rain barrels).

Maryland’s Tributary Strategy Statewide Implementation Plan and the ten Tributary Strategies were developed to meet the nutrient reduction goals for the Chesapeake Bay watershed. These comprehensive plans include stormwater management practices and, in particular, promote green infrastructure. Mentioned in the plan are urban tree canopies; green infrastructure practices in local parks; living roof, bioretention facility, and permeable paver demonstration projects; and riparian buffer and tree plantings on private, non-agricultural lands. The Tributary Strategies document over \$1.2 billion in Green Infrastructure (Category VI-C) needs.

Urban and Rural Communities Needs

Data from the CWNS 2008 and information on urbanized areas from the U.S. Census Bureau were used to determine the breakdown of needs in urban and rural areas in the continental United States. The U.S. Census Bureau defines an urbanized area as a large central place and adjacent densely settled census blocks (1,000 people per square mile for geographic core of block groups or blocks, or 500 for adjacent block groups and blocks) that together have a total population of at least 2,500 for urban clusters or at least 50,000 for urbanized areas.

The breakdown of urban and rural total documented needs is \$189.0 billion (63 percent) and \$109.1 billion (37 percent), respectively. The total urban needs for Wastewater Treatment (Categories I through V) are \$172.2 billion; the total rural needs for these categories are less than half as much, \$79.3 billion.

For urban areas, 67 percent of the needs are in the following categories: CSO Correction (Category V) (\$54.3 billion), Secondary Treatment (Category I) (\$43.5 billion), and Pipe Repair (Category III) (\$29.0 billion). For rural areas, 85 percent of the needs are in Stormwater Management (Category VI) (\$26.9 billion), Advanced Treatment (Category II) (\$22.0 billion), and New Pipes (Category IV) (\$18.7 billion). The numbers convey the greater relative needs for addressing CSOs and repairing pipes in urban areas versus installing new pipes in rural areas.



The city of Huntsville, Alabama.

Small Community Needs

For this Report, small communities are defined as communities with populations of fewer than 10,000 people. Such communities sometimes lack the technical, financial, and managerial capacity to optimally construct, operate, manage, and maintain wastewater treatment facilities or systems.

Small communities' estimated needs total approximately \$22.7 billion, representing about 8 percent of the \$298.1 billion total official needs. Pipe Repair and New Pipe (Categories III and IV) needs, Wastewater Treatment (Categories I & II) needs, and CSO Correction (Category V) needs for small communities are \$11.4 billion, \$8.5 billion, and \$2.7 billion, respectively. State-by-State presentations of various aspects of small community needs are provided in Appendix C, Tables C-1, C-2, C-3, C-4, and C-5 and Appendix D, Tables D-1, D-2, D-3, and D-4.

Figure 2-11 shows the distribution of small community needs by State. Pennsylvania (\$2.9 billion), New York (\$1.5 billion), Iowa (\$1.5 billion), Utah (\$1.4 billion), Illinois (\$1.2 billion), West Virginia (\$1.0 billion), and Ohio (\$1.0 billion) accounted for approximately 50 percent of the small community needs. Eight additional States reported between \$0.5 billion and \$1.0 billion in small community needs. With few exceptions, small community facilities are a large majority of the total number of publicly owned facilities in each State. In three States (Nebraska, Kansas, and Iowa), 90 percent or more of the facilities serve small communities. In nine additional States, small community facilities constituted 80 to 90 percent of the publicly owned facilities.

Figure 2-12 shows a comparison of the number of facilities' population served and needs for small and large communities in the nation. Figure 2-13 shows this information for three ranges of small community populations served.

About 69 percent (14,963 facilities) of centralized wastewater treatment and collection facilities serve small communities; those facilities serve only 10 percent (28.9 million people) of the population receiving centralized collection.

Of new wastewater treatment facilities projected to be constructed, 817 facilities will serve small communities. The majority (62 percent) of those treatment plants will serve populations of fewer than 1,000 people. The 817 facilities will provide service to approximately 1.0 million people and account for \$3.2 billion in needs.

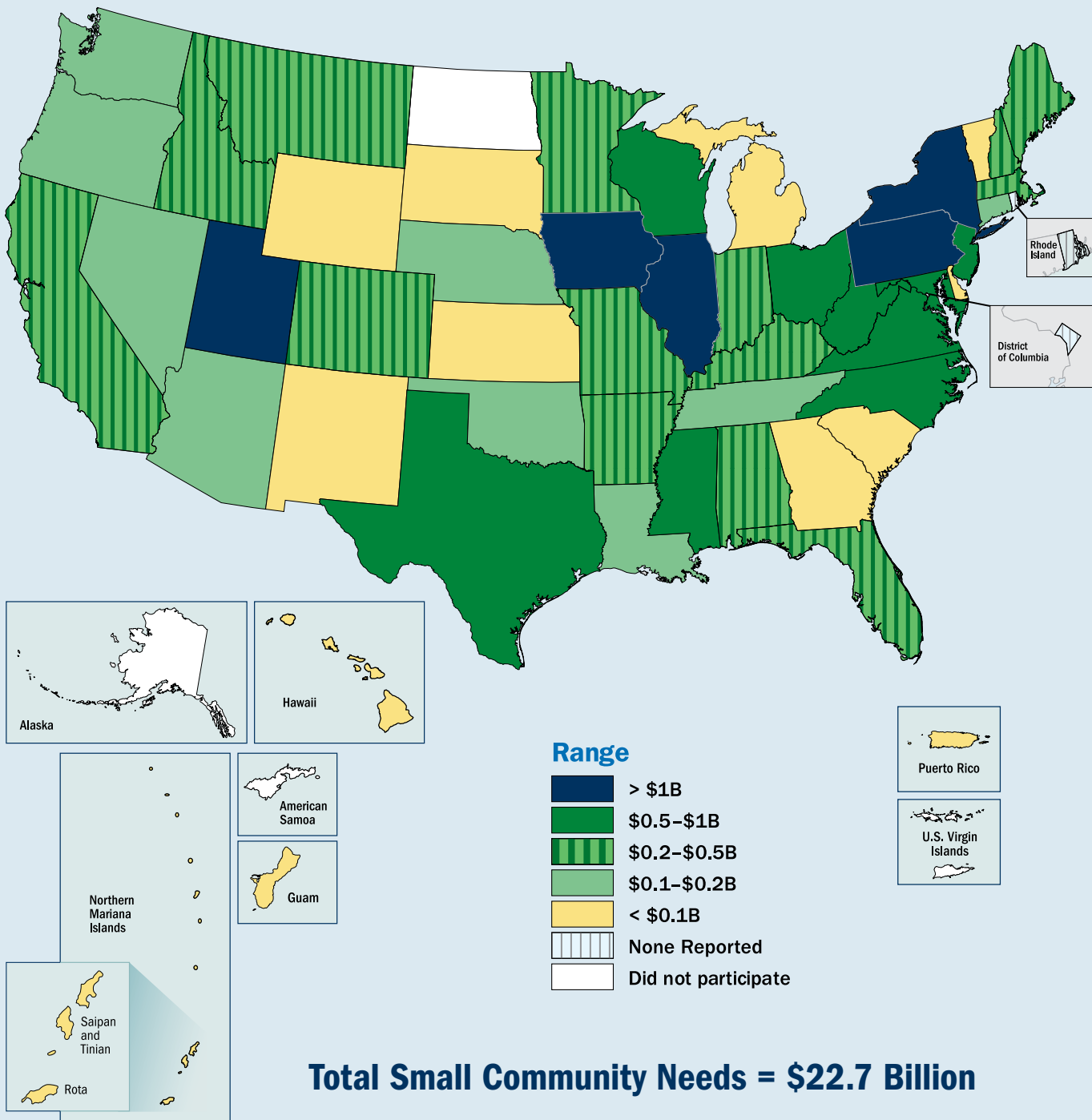


Figure 2-11. Geographic distribution of small community needs (January 2008 dollars in billions).

Small Community Form Assists Communities to Report Needs

Many small communities do not have the resources available to provide the more formal, detailed documentation that is required by CWNS. Small communities often have extremely small staffs, such as an operator and city clerk that may work part-time. If formal CWNS approved documentation was not available, small communities (population fewer than 10,000) could use a Small Community Form to document needs and costs.

EPA worked with States to enhance the Small Community Form for CWNS 2008. The CWNS DEP generated a Small Community Form, populated with CWNS 2004 data, for each small community. States could send the Small Community Needs Form to the small community for updates and signatures. The small community could then fax the survey back to a central number, and an electronic copy of the survey was provided to the State via the CWNS DEP. More than 3,000 Small Community Needs Forms were submitted in this manner. Iowa and North Carolina used this document type to report \$1.3 billion and \$0.4 billion in needs, respectively.

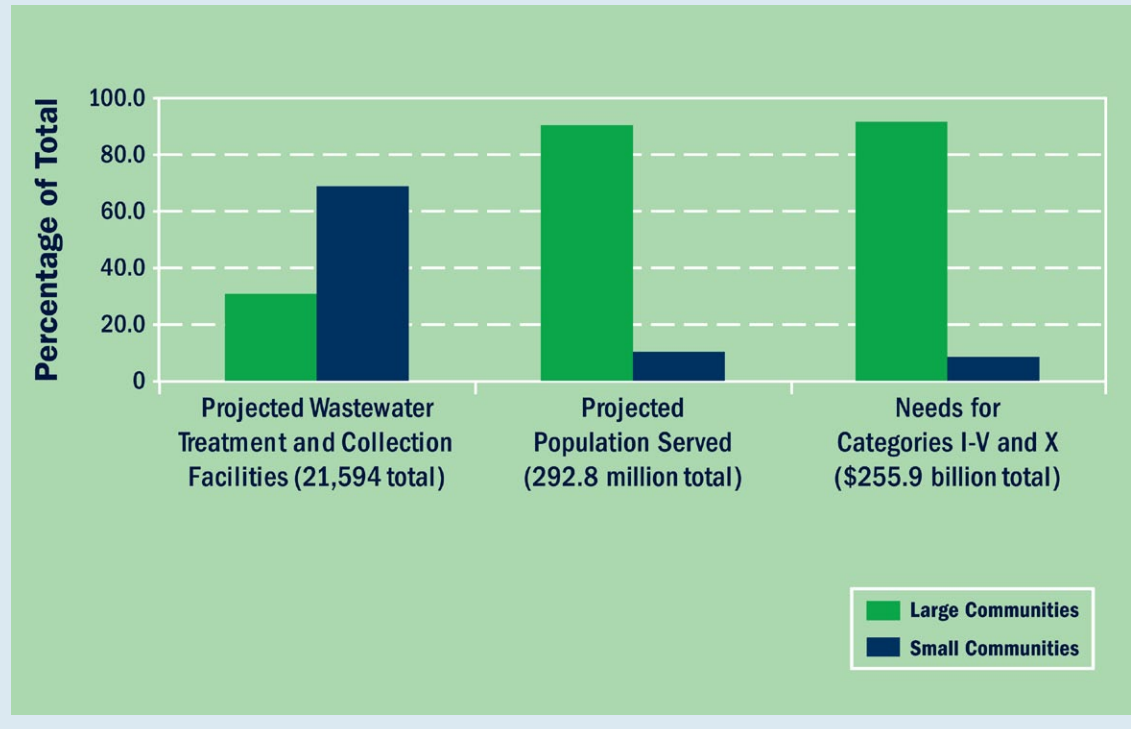


Figure 2-12. Comparison of small versus large community needs and technical information from existing and projected facilities.

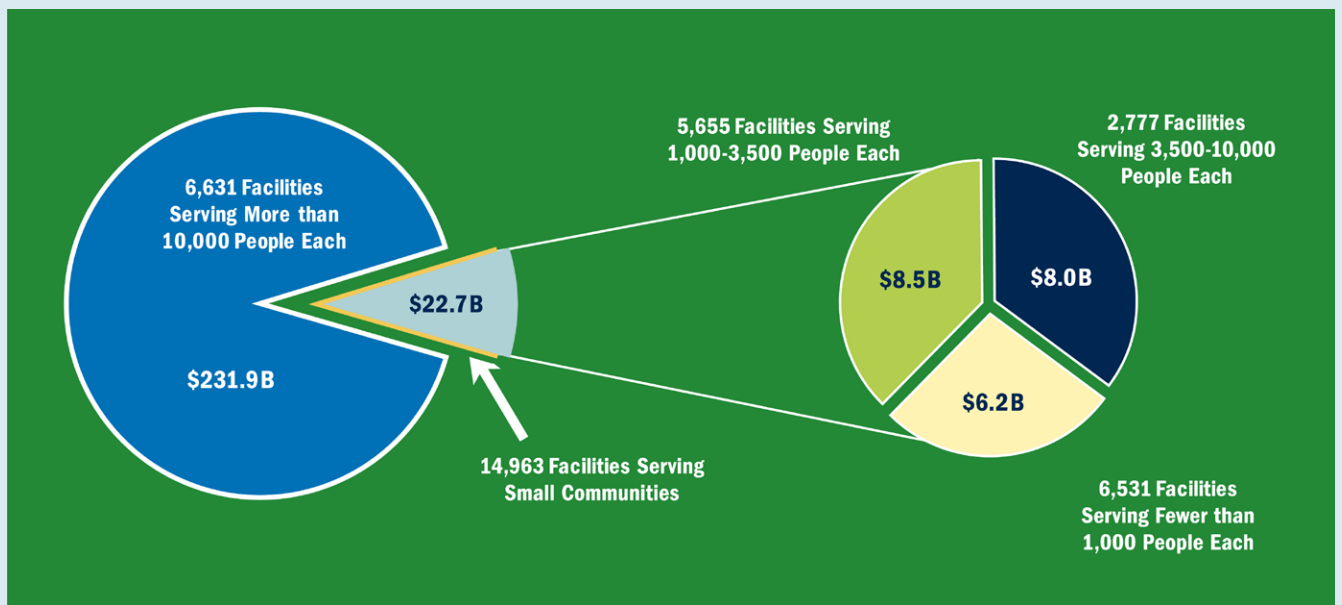


Figure 2-13. Number of projected centralized wastewater treatment and collection facilities by ranges of population served with needs if all documented needs are met.

Other Documented Needs

Appendix A and Appendix B, Table B-3 summarize \$22.8 billion in NPS Pollution Control (Category VII) and \$23.9 billion in Decentralized Wastewater Treatment (Category XII) needs that met CWNS documentation requirements but are not defined under CWA section 516(b)(1)(B). These needs are associated with implementing NPS management programs under section 319 of the CWA and Comprehensive Conservation and Management Plans (CCMPs) for estuaries under section 320 of the CWA.

Unofficial Cost Estimates

Forty-seven States reported Unofficial Cost Estimates totaling \$36.8 billion. Those cost estimates do not meet this Report's definition of needs. States entered the cost estimates for purposes other than this Report, such as for State-level planning and communication with State legislatures and other groups involved with addressing and preventing water quality problems. Appendix E presents the total Unofficial Cost Estimates for each category by State.

Tribal Needs

EPA did not request needs data from tribes for CWNS 2008. Indian Health Service (IHS) conducts a separate survey and provides a report to Congress annually under Public Law (P.L.) 86-121. P.L. 86-121, signed on July 31, 1959, authorizes IHS, Sanitation Facilities Construction (SFC) Program, to construct essential sanitation facilities for American Indian and Alaska Native (AI/AN) homes and communities. The mission of the SFC Program works with the AI/AN people to eliminate sanitation facility deficiencies in Indian homes and communities. One way that SFC Program accomplishes this goal is to work in partnership with the tribes to develop and maintain an inventory of sanitation deficiencies in AI/AN communities for use by IHS and to inform Congress.

In 2007 tribal wastewater needs totaled \$719.2 million. The largest needs were reported in Alaska (\$282 million), Arizona (\$110 million), New Mexico (\$78 million), and California (\$59 million). The results of the 2007 Sanitation Deficiency Survey are summarized in Appendix F.

States' Needs Documentation Efforts

This section highlights how some States recently collected and analyzed information beyond that tracked in CWNS for their own internal management purposes. Such State-specific efforts also provide EPA and States opportunities to evaluate survey methods for their potential to improve future CWNS efforts.

Minnesota Future Wastewater Treatment Needs and Capital Costs

In 2008 the Minnesota Pollution Control Agency, in response to a State statute, prepared a report that estimates

- Future infrastructure needs and capital costs
- Cost increases to residential users resulting from currently planned wastewater infrastructure projects
- The affordability of residential costs, as defined by Minnesota
- How the EPA's Impaired Waters—TMDL program will affect wastewater treatment facilities expansions and effluent limits

The report is at <http://www.pca.state.mn.us>.

New York Wastewater Infrastructure Needs Report

In 2008 New York's Department of Environmental Conservation and Environmental Facilities Corporation reviewed the CWNS 2004 along with other existing data that focused on O&M costs, restoring water quality, and other projected infrastructure needs. The result of this effort was a report that concluded:

- Federal, State, and local governments will need to establish stronger partnerships toward a long-term solution.
- Components for a sustainable funding program could include: the CWSRF; low-interest loan programs; federal grants; State grants; hardship community grants; and adequate local rates sufficient to address current and projected funding requirements.
- Considerations for developing the program should include asset management, innovative technology, fairness, future infrastructure challenges, the relationship of infrastructure to smart growth and economic development, and local government efficiency.

The report concluded with the Department of Environmental Conservation's intent to work with the State legislature on developing a sustainable wastewater infrastructure funding program. The report is at <http://www.dec.ny.gov>.

Oregon Inventory of Infrastructure Needs

In 2008 the Oregon Economic and Community Development Department used a Web-based system to collect infrastructure capital needs information from regional investment boards, cities, counties, ports, special districts, tribes, and other organizations. The department used this data to develop a report that estimates

- Total infrastructure capital needs
- Drinking water and wastewater infrastructure capital needs
- Priority levels for each infrastructure project

The department used the priority rankings to allot Oregon legislature funding to projects. The report is at <http://econ.oregon.gov/ECDD>.

Pennsylvania Governor's Sustainable Infrastructure Task Force Report

As part of the Task Force Report, Pennsylvania implemented the nation's first State-specific clean water and drinking water infrastructure gap analysis in 2008. Pennsylvania performed detailed data collection through site visits to approximately 175 drinking water and wastewater facilities. The gap analysis estimated the entire 20-year cost to operate, maintain, and replace all the drinking water and wastewater systems in the State. It compared that cost to the revenues available to utilities (as well as available governmental subsidies) that could be expected to pay for the costs. Revenues were calculated as-is and at increasing percentages of median household income (0.5–2.5 percent). The Task Force Report estimates

- Total needs to upgrade, operate, and maintain existing drinking water and wastewater infrastructure
- Existing user rates and current State and federal subsidies would generate \$69.8 billion and \$2.1 billion respectively if projected over the next 20 years
- The funding gap between total drinking water and wastewater needs and projected funding over the next 20 years

The report recommends the following for Pennsylvania to address the projected funding gap

- Increase locally generated revenues so that they are sufficient to meet utility customers' needs
- Reduce costs by pursuing effective system management, asset management, efficient operation, regionalization and rightsizing of systems, and maximizing innovative and nonstructural solutions

Pennsylvania is continuing to collect detailed gap analysis data from drinking water and wastewater facilities to help inform a variety of State environmental program decisions. The report is at <http://www.depweb.state.pa.us>.

Chapter 3

CONCLUDING REMARKS

Changes in Needs Since 2004

Between January 1, 2004, and January 1, 2008, reported water quality needs increased from \$254.7 billion to \$298.1 billion, a total increase of \$43.4 billion or 17 percent. The largest portions of this increase are associated with Wastewater Treatment (Category I and II) needs (\$23.4 billion increase), and Stormwater Management (Category VI) needs (\$16.9 billion increase).



Wastewater Treatment Plant, Jacksonville, North Carolina.

The increases in Wastewater Treatment needs are due to a variety of factors. The factors include rehabilitation of aging infrastructure, facility improvements to meet more protective water quality standards, and expanding capacity to accommodate population growth.

The increases in Stormwater Management needs are mostly due to emerging needs to provide green infrastructure for stormwater management. Improved EPA and State communication across programs and States' increased abilities to document stormwater management needs were also important factors.

Trends in the Nation's Ability to Provide Wastewater Treatment

While this and earlier Reports show significant increases in needs, the nation is still making significant progress in providing wastewater treatment. Figure 3-1 shows that the number of people provided with advanced wastewater treatment increased dramatically (from 7.8 million people in 1972 to 113.0 million people in 2008). Moreover, the population served by less-than-secondary treatment decreased from more than 50 million in 1972 to 3.8 million in 2008.

Table 3-1 presents the current status of the level of treatment based on data presented in this Report and past surveys.¹³ In comparison to 2004, an additional 3.6 million people now receive centralized collection and wastewater treatment, for a total of 226.4 million people (or 74 percent of the U.S. population). Municipal wastewater treatment plants that provide secondary or more advanced levels of treatment serve 222.5 million people (or 73 percent of the U.S. population) up slightly from 219.6 million people in 2004 (down from the 74 percent of the population in 2004). The population served by less-than-secondary treatment increased from 3.3 million people to 3.8 million people. Nearly all these people are served by facilities with CWA section 301(h) waivers.¹⁴ There are now 2,251 non-discharging¹⁵ facilities, an increase of 3 percent since 2004. These non-discharging facilities serve 16.9 million people, or 5.5 percent of the U.S. population.

Figure 3-1 and Table 3-1 show the projected improvements in wastewater treatment infrastructure if the Wastewater Treatment needs (Categories I and II) specified in this Report are met. The number of non-discharging facilities and facilities that provide secondary or more advanced treatment is projected to increase by 6 percent from 14,625 to 15,451. The population being served by such facilities is projected to increase by 26 percent. The number of facilities that provide less-than-secondary treatment is projected to decline from 30 to 19 facilities, but the populations served by these facilities are projected to increase from 3.75 million to 3.88 million people. Overall, it is projected that a total of 15,618 operational facilities will serve a future population of 284.2 million people, or 79 percent of the U.S. population.

¹³ Other related technical data discussed in this section are provided in Appendix I, Table I-3.

¹⁴ CWA section 301(h) provides an opportunity for a facility that discharges to marine waters to obtain a waiver from the act's secondary treatment requirements provided the facility can show compliance with a number of stringent criteria intended to ensure that the less-than-secondary discharge will not adversely affect the marine environment.

¹⁵ *Non-discharging* refers to facilities that do not discharge effluent to surface waters but instead reuse effluent for beneficial purposes (e.g., spray irrigation, ground water recharge).

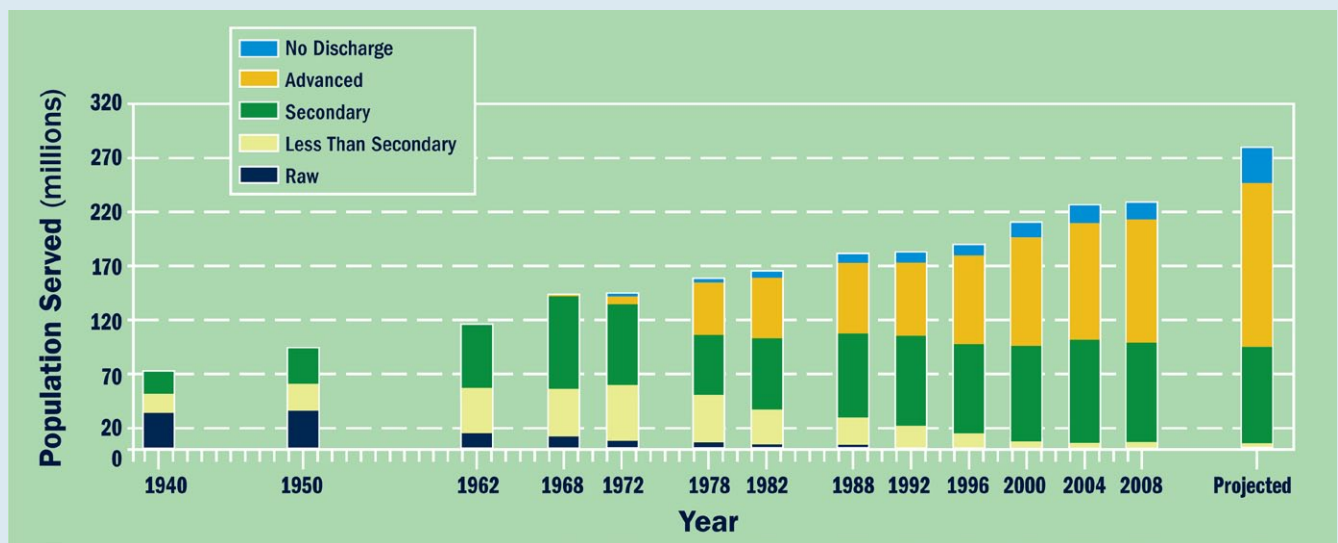


Figure 3-1. Population served by POTWs nationwide for select years between 1940 and 2008 and projected (if all needs are met), organized by wastewater treatment type.

Source: U.S. Public Health Service and *EPA Clean Watersheds Needs Surveys*

Table 3-1. Improvements in treatment level of the nation's municipal wastewater treatment facilities

Level of treatment	Population served in millions (number of facilities)					Population change from 2004-2008	Projected population change from 2008-2028
	1972	2000 ^a	2004 ^a	2008 ^a	2028		
Less than Secondary ^b	40.3 (2,451)	6.4 (47)	3.3 (40)	3.8 (30)	3.9 (19)	13.5%	3.4%
Secondary	32.5 (2,838)	88.2 (9,156)	96.5 (9,221)	92.7 (7,302)	89.1 (7,015)	-4.0%	-3.8%
Greater than Secondary	45.7 (2,719)	100.9 (4,892)	108.5 (4,916)	113.0 (5,072)	161.2 (5,909)	4.1%	42.7%
No Discharge	0 (0)	12.3 (1,938)	14.6 (2,188)	16.9 (2,251)	30.0 (2,526)	16.4%	76.8%
Partial Treatment ^c	- ()	- (222)	- (218)	- (115)	- (140)	-	-
Total	118.5 (8,008)	207.8 (16,255)	222.8 (16,583)	226.4 (14,770)	284.2 (15,609)	1.6%	25.5%

^a For States that did not completely update data for or did not participate in CWNS 2000 or 2004, information for this table was taken from previous surveys.

^b Includes facilities granted section 301(h) waivers from secondary treatment for discharges to marine waters. As of January 1, 2008, waivers for 34 facilities in the CWNS 2008 database had been granted or were pending.

^c Partial treatment facilities are included in the less than secondary facilities in 1972.

Funding of Needs

Although local ratepayers ultimately fund most wastewater treatment needs, other funding assistance is available. The Clean Water State Revolving Fund (CWSRF) is one of many supplementary federal, State and local grant and loan programs described in EPA's *Catalogue of Federal Funding Sources for Watershed Protection* (<http://cfpub.epa.gov/fedfund/>).

From July 1, 2004, through June 30, 2008, EPA provided an annual average of \$1.1 billion in grants to State CWSRF programs to assist with point source and NPS pollution control needs. States combined these CWSRF funds with State matching funds, bond proceeds, and loan repayments to provide assistance to local communities, mostly in the form of loans. In the same period, the assistance amounted to approximately \$5.5 billion per year. The Figure 3-2 pie charts show the relative distributions of SRF funding assistance and CWNS documented needs by category.

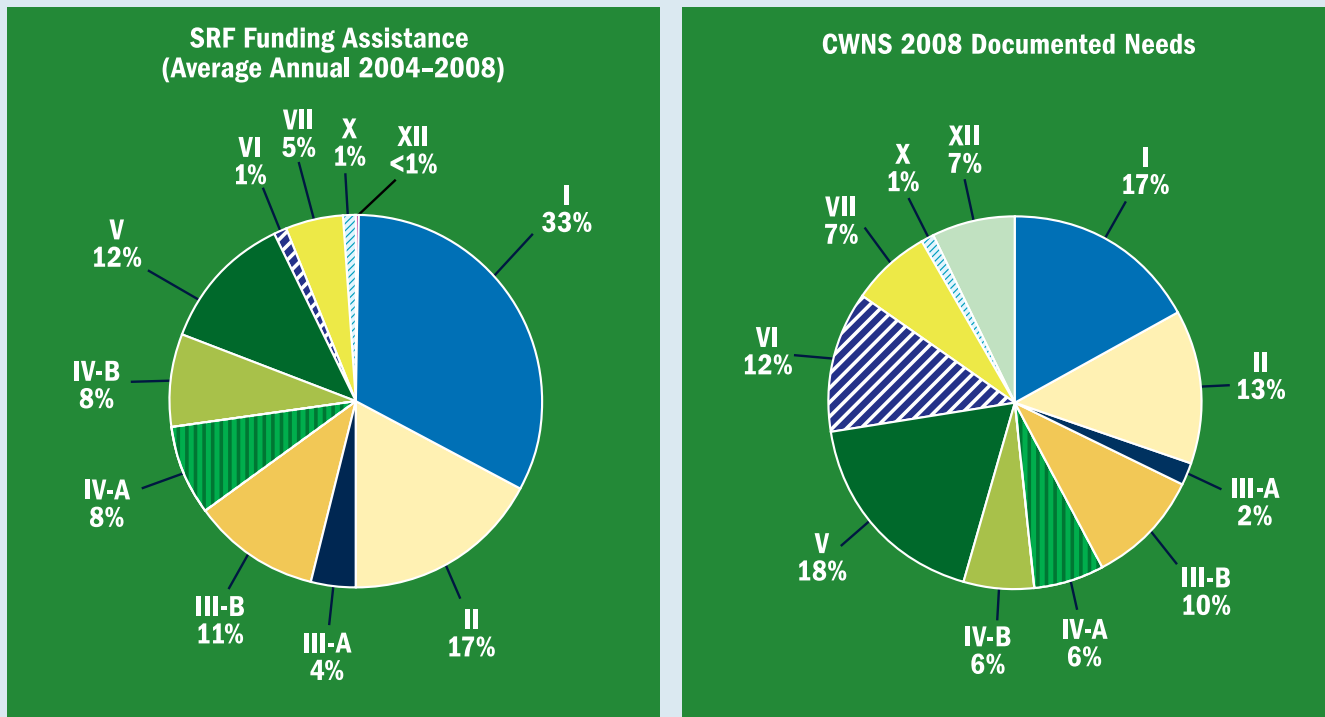


Figure 3-2. Relative distributions of SRF funding assistance and CWNS documented needs by category.

According to U.S. Census Bureau estimates¹⁶ for the most recent 4-year period available (2002–2006), local governments expended approximately \$15 billion per year to address capital wastewater needs and approximately \$2 billion per year to address capital stormwater needs. Figure 3-3 shows the 20-year history and 20-year extrapolations of local government capital and O&M expenditures, in constant 2008 dollars. Over the past 20 years, the O&M portion of total local wastewater expenditures grew from 50 percent to 60 percent. This is an indication of the increasing O&M needs related to aging wastewater infrastructure and to increasing material and energy costs. While local capital expenditures have remained flat over the the past 20 years, they have increased over the past 10 years. In general, capital renewal projects have not kept pace with the increasing need to rehabilitate or replace aging infrastructure. For example, Pipe Repair capital needs have increased by 31 percent since 2000 (Table 2-2).

The America Recovery and Reinvestment Act of 2009 allocated \$4.0 billion in grants to State CWSRF programs. This funding, as well as all other federal, State, and local funding subsequent to January 1, 2008, will be reflected in needs reported in the CWNS 2012 Report to Congress.

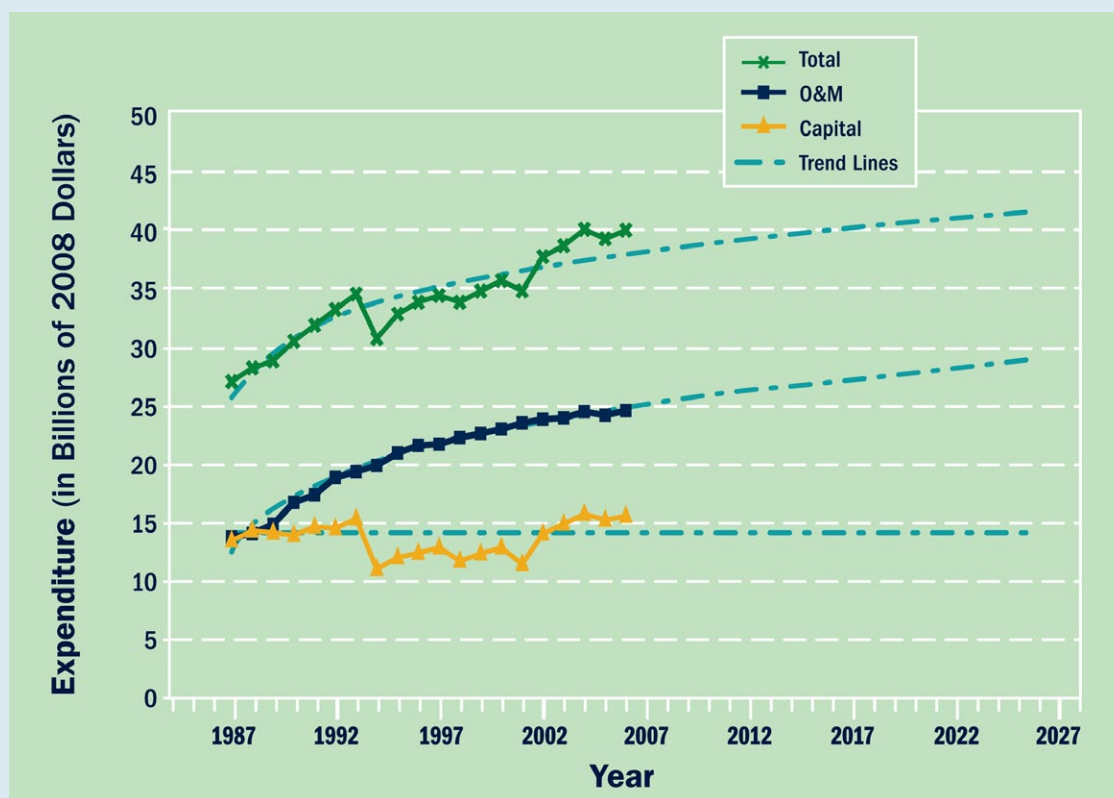


Figure 3-3. Local government wastewater expenditures.

¹⁶ Based on data from the U.S. Census Bureau, Governments Division's State and Local Government Finances Survey (<http://www.census.gov/govs/www/estimate.html>).

Sustainable Infrastructure Program

In comparing the flat trend in local government wastewater capital expenditures in Figure 3-3 with the increasing trend in wastewater capital needs in Figure 2-4 and Table 2-2, it is clear that the nation is experiencing a wastewater capital funding gap. The nation's aging wastewater infrastructure increasingly requires renewal and replacement. EPA's 2002 *Clean Water and Drinking Water Infrastructure Gap Analysis*¹⁷ first documented this long-term challenge and was the springboard for EPA's Sustainable Infrastructure Program (www.epa.gov/waterinfrastructure). The program emphasizes the need for individual utilities to close their infrastructure gap by finding efficiencies that reduce their overall infrastructure costs, while adopting pricing structures that will produce the revenues to meet their needs.

Management Strategies

Many utilities are adopting Asset Management plans and strategies, which reduce costs by optimizing the timing and approach to infrastructure renewal and replacement. Replacing infrastructure too early or too late raises costs. Asset Management also provides the means to make long-term plans on the basis of an inventory and condition assessment of all the assets that make up a wastewater system. An Environmental Management System (EMS) is a related approach that a utility can put in place to continually improve its performance while lowering costs and overall environmental footprint.



Jon Bernreuter

City of Williams, Arizona. Construction of Clarifier. Courtesy of Water Infrastructure Finance Authority (WIFA) of Arizona.

¹⁷ *The Clean Water and Drinking Water Infrastructure Gap Analysis*, EPA-816-R-02-020. Information available at <http://www.epa.gov/waterinfrastructure/infrastructuregap.html>.

Water and Energy Efficiency

Significant cost reductions can also be realized through programs targeting water and energy efficiency. Using less water reduces a community's wastewater treatment needs and its energy needs. Energy management programs can directly reduce operations costs and also reduce a utility's carbon footprint. Some utilities have even been able to generate enough of their own energy so that they are close to having eliminated the need to purchase energy from the grid.

Efficiency through Collaboration

Collaboration between utilities in an area or watershed can produce efficiencies that reduce costs. The level of collaboration can range from discounts on bulk chemical purchases, to sharing the cost of a staff engineer, to consolidating utility management. While all utilities can achieve efficiencies through collaboration, it can be especially beneficial in smaller or disadvantaged communities where the rate base might not support the high expenses associated with infrastructure renewal.

Sustainable Pricing

The U.S. Conference of Mayors' Water Council has estimated that 95 percent of funding for water and wastewater infrastructure has been, and will continue to be, local.¹⁸ Sustainable pricing structures take into account the long-term infrastructure needs of a system and are structured to raise revenues to support the needs of the community. Slow, steady increases in water and sewer rates are needed to keep pace with inflation. Utilities that have deferred increases might need to compensate with larger increases. Pricing structures can also be made sensitive to low- or fixed-income households by establishing lifeline rates or local subsidies for those in need.

Closing the Wastewater Infrastructure Funding Gap

The closing of the wastewater infrastructure funding gap at both the local and national levels will require an all-available-methods approach, and the mix of solutions will vary across different communities and parts of the country. While the federal government will continue to play a role in subsidizing investments through the State Revolving Loan programs, long-term infrastructure sustainability can best be achieved through institutionalizing the approaches and attitudes that will close the gap in each community.

Potential Influences on Future Surveys

Over the next two years, the EPA and State CWNS 2012 Workgroup will plan how to evolve CWNS to meet emerging needs and to enhance public data access. Potential changes to the CWNS 2012 include tracking wastewater treatment plant energy efficiency projects and climate change-related needs. The EPA and State CWNS 2012 Workgroup will continue efforts to address underreporting of needs such as conducting additional outreach and program coordination as well as implementing more efficient data collection systems and processes.

¹⁸ Who Pays for the Water Pipes, Pumps and Treatment Works? – Local Government Expenditures on Sewer and Water – 1991 to 2005. United States Conference of Mayors, Mayors Water Council (2007). (<http://usmayors.org/urbanwater/07expenditures.pdf>).

Glossary

NOTE: Definitions are provided to help the reader understand the terms used throughout the Report. Many of these terms are defined in the Clean Water Act or EPA's implementing regulations, which contain legally binding requirements. The definitions provided here are not intended to substitute for those legally binding definitions in the Clean Water Act or implementing regulations.

301(h) Waiver from Secondary Treatment for Marine Discharges

A modification of secondary treatment requirements for publicly owned wastewater treatment plants that discharge to marine waters as authorized under section 301(h) of the Clean Water Act. The 301(h) waiver requires monitoring and reporting to ensure that balanced, indigenous populations of biological communities are maintained in proximity to the discharge and to allow for recreational activities in and on the water.

advanced treatment

A level of treatment that is more stringent than secondary treatment or that produces a significant reduction in nonconventional or toxic pollutants present in the wastewater treated by a facility. See Appendix J, Table J-1, Category II.

ammonia

A water pollutant that dissolved water is toxic to fish and can be converted to nitrates, which are dangerous to humans.

asset management

A set of procedures and management practices designed to help wastewater treatment facilities optimize how resources are allocated to maintain infrastructure.

best management practice (BMP)

A practice or combination of practices determined to be an effective and practicable (including technological, economic, and institutional considerations) means of controlling point and nonpoint source pollutants at levels compatible with environmental quality goals.

brownfields

Land that might be contaminated by a hazardous substance or pollutant, which could complicate its expansion, redevelopment, or reuse. See Appendix J, Table J-1, Category VII-H.

capital investment

Money used to purchase fixed assets, such as land, machinery, or buildings, rather than used to cover a business's day-to-day operating expenses.

capital renewal

Practices that sustain a current level of performance of the plant by implementing rehabilitation, refurbishing, or replacing capital assets to restore an asset, facility, or system to its original condition and function. Capital renewal does not include costs for routine operation and maintenance at wastewater treatment plants.

Clean Water State Revolving Fund (CWSRF)

A federally funded, State-managed revolving fund that provides low-cost financing for a wide variety of water quality projects including all types of nonpoint source, watershed protection or restoration, and estuary management projects, as well as more traditional municipal wastewater treatment projects.

clustered (community) system

A type of decentralized wastewater treatment system that is a combination of unit processes under some form of common ownership designed to collect wastewater from two or more dwellings or buildings and convey it to a treatment and dispersal system on a suitable site near the dwellings or buildings.

combined sewer overflow (CSO)

The discharge of a mixture of stormwater and untreated wastewater that occurs when the capacity of a combined sewer system is exceeded during a rainstorm. See Appendix J, Table J-1, Category V.

combined sewer system

A sewer system designed to convey both domestic sanitary wastewater and stormwater.

Data Entry Portal (DEP)

The Internet-based data entry system used by States to submit needs and costs information to EPA for CWNS 2008.

decentralized wastewater treatment system

Onsite or clustered wastewater treatment systems used to treat and dispose of relatively small volumes of wastewater, usually from dwellings and businesses that are relatively close together. See Appendix J, Table J-1, Category XII.

disinfection

A wastewater treatment unit process or set of processes using chemicals (commonly chlorine, chloramine, or ozone) or a physical process (e.g., ultraviolet light) to kill microorganisms such as bacteria, viruses, and protozoa.

environmental management systems (EMS)

A set of processes and practices that enable an organization to reduce its environmental impacts and increase its operating efficiency.

facility

An entry into the CWNS DEP that identifies wastewater treatment, stormwater management, or decentralized wastewater treatment system needs and costs. Each facility includes a description of needs, costs, location, and other relevant technical information.

green infrastructure

An array of products, technologies, and practices that use natural systems—or engineered systems that mimic natural processes—to enhance overall environmental quality and provide utility services. Such techniques use soils and vegetation to recycle stormwater runoff and promote its infiltration and evapotranspiration.. Examples include green roofs, porous pavement, rain gardens, and vegetated swales. See Appendix J, Table J-1, Category VI-C.

hydromodification

Alteration of the hydrologic characteristics of coastal and noncoastal waters, which in turn could cause degradation of water resources. In the case of streams, it is the process whereby a stream channel or bank is eroded by flowing water. Hydromodification includes channelization and channel modification, dams, and stream bank/shoreline erosion, which typically result in the suspension of sediments in the watercourse. See Appendix J, Table J-1, Category VII-K.

infiltration/inflow correction

Control of the problem of penetration into a sewer system of water other than wastewater from the ground through such means as defective pipes or manholes (infiltration) or from sources such as drains, storm sewers and other improper entries into the system (inflow). See Appendix J, Table J-1, Category III-A.

interceptor sewer

A major sewer line that receives wastewater flows from collector sewers. It carries wastewater directly to the treatment facility or to another interceptor. See Appendix J, Table J-1, Category IV-B.

municipal separate storm sewer system (MS4)

Any pipe, ditch, or gully—or a system of them—that is owned or operated by a governmental entity and used exclusively for collecting and conveying stormwater. Domestic, industrial, and commercial sanitary sewage is collected and conveyed in separate systems.

National Estuary Program

An EPA program established by Congress under section 320 of the Clean Water Act in 1987 to improve the quality of estuaries of national importance. For selected estuaries, EPA is directed to develop plans for attaining or maintaining water quality. This includes protection of public water supplies and the protection and propagation of a balanced, indigenous population of shellfish, fish, and wildlife, and allows recreational activities, in and on water, requires that control of point and nonpoint sources of pollution to supplement existing controls of pollution.

National Pollutant Discharge Elimination System (NPDES)

A permit program established under section 402 of the Clean Water Act that controls water pollution by regulating point sources that discharge pollutants into waters of the United States.

need

The unfunded capital costs of projects that address a water quality or water quality-related public health problem existing as of January 1, 2008, or expected to occur within the next 20 years.

new pipe needs

The cost estimate to construct, expand, or upgrade sewer collection systems for transporting wastewater to treatment facilities. See Appendix J, Table J-1, Categories IV-A and IV-B.

nitrogen

A nutrient that is found in fertilizer, animal waste, discharges from wastewater treatment plants, and overflow from septic systems and that, in high levels, causes harmful algal blooms and eutrophication in waterbodies.

non-discharging facility

A facility that does not discharge effluent to surface water but, instead, reuses effluent for beneficial purposes (e.g., spray irrigation, ground water recharge).

nontraditional Municipal Separate Storm Sewer System (MS4)

An MS4 regulated under the NPDES permit program and owned by nonmunicipal, public entities (e.g., universities, departments of transportation, prisons, school districts).

nonpoint source (NPS) pollution

Nonpoint source pollution, unlike pollution from, for example, industrial and sewage treatment plants, comes from many diffuse sources. NPS pollution is caused by rainfall or snowmelt moving over and through the ground. As the runoff moves, it picks up and carries away natural and human-made pollutants, finally depositing them into lakes, rivers, wetlands, coastal waters, and even our underground sources of drinking water. See Appendix J, Table J-1, Category VII.

official need

The unfunded capital costs of projects as of January 1, 2008 that (1) address a water quality or water quality-related public health problem existing as of January 1, 2008 or expected to occur within the next 20 years and (2) meet the CWNS documentation requirements outlined in Chapter 1 of this Report. Official Needs can only be reported in Categories I, II, III, IV, V, VI, and X.

onsite wastewater treatment system

A type of decentralized wastewater treatment system that is a combination of natural and mechanical processes designed to collect, treat, and disperse or reclaim wastewater from a single dwelling or building. Septic tanks and holding tanks are examples.

operation and maintenance (O&M)

The day-to-day activities and expenses necessary for an infrastructure system (e.g., pipes, equipment) to perform its intended function.

other documented needs

Needs that met CWNS documentation requirements but are not defined in CWA section 516(b)(1)(B).

Phase I Municipal Separate Storm Sewer System (MS4)

An MS4 regulated under the NPDES Phase I permit program. Phase I permits are required for medium (population 100,000–249,999) and large (population 250,000 or more) MS4s in incorporated places or counties with populations of 100,000 or more.

Phase II Municipal Separate Storm Sewer System (MS4)

An MS4 regulated under the NPDES Phase II permit program. Phase II permits are required for small MS4s (population 99,999 or less) in urbanized areas (UAs), as defined by the Bureau of the Census, and small MS4s outside a UA that are designated by NPDES permitting authorities.

phosphorus

A nutrient that is found in fertilizer, animal waste, discharges from wastewater treatment plants, and overflow from septic systems and that, in high levels, causes harmful algal blooms and eutrophication in waterbodies.

pipe repair

Reinforcement or reconstruction of structurally deteriorating sewers (beyond normal maintenance). See Appendix J, Table J-1, Category III-B.

point source pollution

Pollution that has a single point of origin or is introduced into a receiving stream through a specific outlet. Wastewater treatment plant outfalls and combined sewer overflow points of discharge are typical point sources of pollution.

project

An entry into the CWNS DEP that identifies NPS pollution control needs and costs. Each facility includes a description of needs, costs, location, and other relevant technical information.

recycled water distribution

Costs associated with conveyance of the recycled water (wastewater reused after removal of waste contributed by humans) and any associated rehabilitation or replacement needs. See Appendix J, Table J-1, Category X.

sanitary sewer

A municipal sewer designed to carry only domestic sanitary sewage and industrial wastes to a wastewater treatment plant.

sanitary sewer overflow (SSO)

A release from a separate sewer system of raw domestic sewage (and in some cases, pretreated industrial wastes) before it reaches the wastewater treatment facility.

secondary wastewater treatment

The minimum level of treatment that must be achieved for discharges from all municipal wastewater treatment facilities, except those facilities granted ocean discharge waivers under section 301(h) of the Clean Water Act. Secondary treatment typically requires a treatment level that will produce an effluent quality of 30 milligrams per liter of both 5-day biochemical oxygen demand (BOD₅) and total suspended solids, although secondary treatment levels required for some lagoon systems might be less stringent. In addition, the secondary treatment must remove 85 percent of BOD₅ and total suspended solids from the influent wastewater, although adjustments allowing lower percentage removals are authorized in some circumstances. See Appendix J, Table J-1, Category I.

separate sewer system/sanitary sewer system

A sewer system designed to exclude stormwater and convey only domestic, industrial, and commercial sanitary wastewater (and in some cases, pretreated industrial wastes).

silviculture

Care and cultivation of forest trees (e.g., forestry). See Appendix J, Table J-1, Category VII-C.

small community

A community with a population of fewer than 10,000 people.

storm sewer

A sewer that carries only runoff from storm events.

stormwater

Precipitation from rain and snowmelt events that flows over land or impervious surfaces and accumulates debris, chemicals, sediment or other pollutants that could adversely affect water quality if it is discharged untreated. See Appendix J, Table J-1, Category VI.

unofficial cost estimates

Costs that are not included in EPA's needs for the CWNS 2008 because they do not meet CWNS documentation criteria. Such estimates are entered for States' purposes other than this Report, such as for State-level planning and communication with State legislatures and other groups involved with addressing and preventing water quality problems.

urbanized area (UA)

An urbanized area is a land area comprising one or more places—central place(s)—and the adjacent densely settled surrounding area—urban fringe—that together have a residential population of at least 50,000 and an overall population density of at least 1,000 people per square mile.

watershed

A geographic area in which water, sediments, and dissolved materials drain to a common outlet, typically a point on a larger stream, a lake, an underlying aquifer, an estuary, or an ocean. A watershed is sometimes referred to as the *drainage basin* of the receiving waterbody.

APPENDICES

Appendix A

OTHER DOCUMENTED NEEDS: DECENTRALIZED WASTEWATER TREATMENT SYSTEMS AND NONPOINT SOURCE (NPS) POLLUTION CONTROL

Other Documented Needs

Needs that met CWNS documentation requirements but are not defined in CWA section 516(b)(1)(B) are summarized below and in Appendix B, Table B-3. They include Nonpoint Source (NPS) Pollution Control (Category VII) needs and Decentralized Wastewater Treatment (Category XII) needs that are associated with implementing NPS management programs under section 319 of the CWA and Comprehensive Conservation and Management Plans (CCMPs) for estuaries under section 320 of the CWA.

Nonpoint Source Pollution (NPS) Control Needs (Category VII)

— Highlights

Category Definition: The capital costs to address pollutants that do not have a single point of origin or are not introduced into a receiving stream from a specific outlet; NPS pollution sources are diffuse and can be a result of runoff, precipitation, atmospheric deposition, drainage, seepage, or hydrological modification

Total needs: \$22.8 billion

Change in total needs from 2004:¹ Decrease of \$4.3 billion (16 percent)

Number of States reporting needs: 38

States with highest reported needs: New York (\$5.6 billion), Michigan (\$3.3 billion), Florida (\$2.1 billion), New Jersey (\$1.8 billion), Mississippi (\$1.8 billion), Nebraska (\$1.4 billion), and Oregon (\$1.1 billion) reported 75 percent of the needs

States with the largest percent increases: Nevada (greater than 1,000 percent), Massachusetts (662 percent), North Carolina (271 percent), Michigan (222 percent), New York (105 percent), Wyoming (104 percent), and Indiana (91 percent)

States with the largest percent decreases since 2004: South Carolina (100 percent), Washington (100 percent), Colorado (99 percent), District of Columbia (99 percent), Ohio (98 percent), New Hampshire (93 percent), and California (91 percent)

Tables & Maps: Figure A-1 shows the distribution of NPS Pollution Control (Category VII) needs by State. Table A-1 summarizes the national NPS Pollution Control (Category VII) needs by subcategory. Appendix B, Table B-3, presents the total NPS pollution other documented needs by State and the NPS Pollution Control (Category VII) needs for each subcategory by State



Tim McCabe, USDA Natural Resources Conservation Service

Conservation stripcropping in northeast Iowa.

¹ Because of changes in needs categories between CWNS 2004 and CWNS 2008, the total needs from CWNS 2004 Categories VII-A to VII-C, VII-E to VII-K, and XI were compared with Category VII needs for CWNS 2008. CWNS 2004 Category VII-L is reported in Category XII and CWNS 2004 Category VII-D is reported in Category VI.

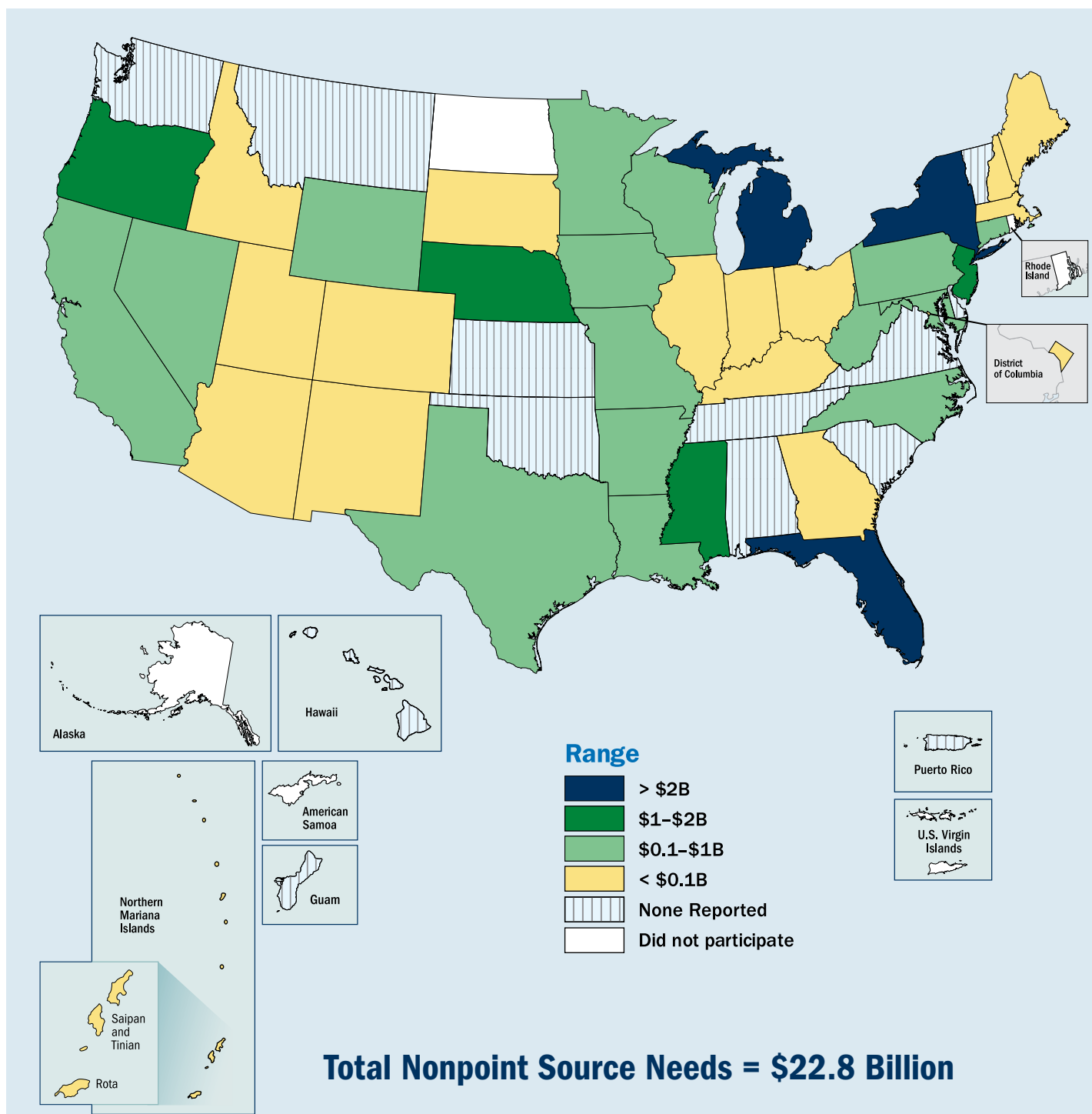


Figure A-1. Distribution of nonpoint source pollution control (Category VII) needs by State (January 2008 dollars in billions).

Innovative Approaches Document More NPS Pollution Control Needs

Several States used innovative methods to document NPS Pollution Control Needs. For example

Michigan used a comprehensive list of sites contaminated from underground storage tanks releasing petroleum and hazardous materials provided by the Leaking Underground Storage Tank (LUST) program to document NPS—Storage Tank (Category VII-I) needs statewide. Using the costs of previously funded cleanups to estimate future costs, Michigan reported \$3.0 billion in needs to remediate 9,252 sites.

Oregon used geographic information system (GIS) analysis to identify the acres of riparian vegetation restoration needed to meet water quality standards set for the temperature and bacteria TMDL in the Willamette Basin. On the basis of past similar projects, average per acre costs were estimated for urban and rural areas. In total, Oregon reported \$1.0 billion in NPS—Hydromodification (Category VII-K) needs to meet the water quality impairments in the basin.

— Discussion

Because of the large variety of sources for NPS pollution, NPS needs are reported in 11 subcategories, listed in Table A-1. It is important to note that the subcategories have changed from CWNS 2004 to CWNS 2008. The needs reported in the category NPS Control—Urban (Subcategory VII-D) in 2004 are included in the Stormwater Program Management (Category VI) needs of this Report. The needs reported in the category NPS Control—Individual/Decentralized Sewage Treatment (Subcategory VII-L) in 2004 are reported as Decentralized Wastewater Treatment (Category XII) needs in this Report. Needs reported as Estuary Management (Category XI) in 2004 are now reported as NPS Control-Other Estuary Management Activities (Subcategory VII-M). In comparing this Report’s NPS subcategories with their corresponding categories and subcategories in the CWNS 2004 Report, there is a \$4.3 billion decrease in NPS needs since 2004.

Hydromodification (Subcategory VII-K) (\$9.3 billion), Ground Water Protection (Subcategory VII-E) (\$3.8 billion), and Storage Tanks (Subcategory VII-I) (\$3.0 billion) account for 71 percent of the total documented NPS needs. The greatest increases in NPS Pollution Control (Category VII) needs are in Resource Extraction (Subcategory VII-G) (147 percent), Storage Tanks (Subcategory VII-I) (70 percent), and Silviculture (Subcategory VII-C) (20 percent). Table A-2 shows a comparison of CWNS 2000 and CWNS 2004 NPS Pollution Control documented needs with CWNS 2008 documented needs.

Table A-1. CWNS 2008 total NPS needs by category (January 2008 dollars in billions)

Category number	Category name	\$B	Percent
VII-A	NPS-Agriculture (cropland)	1.6	7.0
VII-B	NPS-Agriculture (animals)	1.0	4.4
VII-C	NPS-Silviculture	0.3	1.3
VII-E	NPS-Ground Water - Unknown Source	3.8	16.7
VII-F	NPS-Marinas	<0.1	<0.1
VII-G	NPS-Resource Extraction	0.5	2.2
VII-H	NPS-Brownfields	2.0	8.8
VII-I	NPS-Storage Tanks	3.0	13.2
VII-J	NPS-Sanitary Landfills	1.2	5.3
VII-K	NPS-Hydromodification	9.3	40.8
VII-M	Other Estuary Management Activities	0.1	0.4
Total NPS Needs		22.8	100.0

Table A-2. CWNS 2008 total NPS needs by category and survey year (January 2008 dollars in billions)^a

Category number	Name	2000	2004	2008	Change 2004 to 2008	
					\$B	Percent
VII-A	NPS-Agriculture (cropland)	0.6	2.0	1.6	-0.4	-20.6
VII-B	NPS-Agriculture (animals)	0.8	1.8	1.0	-0.8	-42.7
VII-C	NPS-Silviculture	0.1	0.2	0.3	<0.1	16.9
VII-E	NPS-Ground Water—Unknown Source	1.2	5.7	3.8	-1.9	-33.3
VII-F	NPS-Marinas	<0.1	<0.1	<0.1	<0.1	-41.7
VII-G	NPS-Resource Extraction	<0.1	0.2	0.5	0.2	98.7
VII-H	NPS-Brownfields	0.5	2.0	2.0	<0.1	0.0
VII-I	NPS-Storage Tanks	1.3	1.8	3.0	1.2	69.2
VII-J	NPS-Sanitary Landfills	2.4	2.5	1.2	-1.3	-51.3
VII-K	NPS-Hydromodification	5.3	11.0	9.3	-1.8	-15.9
VII-M	Other Estuary Management Activities ^b			0.1	0.1	0.0
VII	Total NPS Needs	12.2	27.3	22.8	-4.5	-16.6

^a Because of changes in needs categories between CWNS 2004 and CWNS 2008, the total needs from CWNS 2004 categories VII-A to VII-C, VII-E to VII-K, and XI were compared with Category VII needs for CWNS 2008.

^b This amount was reported as Category XI: Estuary Management in CWNS 2004.

The large increases are a result of a few States greatly increasing their needs in a particular subcategory, rather than increased reporting from all States. Increases in needs were also from greater effort to document needs, increase availability of documentation, and use of innovative methods (see examples in box). The decrease in needs reported for CWNS 2008 and continued underreporting of NPS control needs is a result of limits on time to collect data and a lack of appropriate documentation. In addition, States reported that lack of participation from State NPS program staff limited their ability to report needs.



Acid mine drainage flows into Possum Hollow, a Morris Creek tributary, West Virginia.

Decentralized Wastewater Treatment Systems (Category XII)

— Highlights

Category Definition: Capital costs associated with the rehabilitation and replacement of onsite (septic) wastewater treatment systems (OWTS) and clustered (community) systems

Total needs: \$23.9 billion

Change in total needs from 2004:² \$20.3 billion (564 percent), the largest increase of any needs category reported

Number of States reporting needs: 26

States with highest reported needs: Florida (\$10.3 billion), Maryland (\$5.0 billion), New Jersey (\$2.2 billion), Maine (\$1.3 billion), Minnesota (\$1.3 billion), and Ohio (\$1.3 billion) accounted for 89 percent of the needs

States with the largest percent increases since 2004: Maryland, Florida, Missouri, Maine, West Virginia, and New Jersey all reported greater than 1,000 percent increases

States with the largest percent decreases since 2004: Arizona, California, Colorado, Idaho, Illinois, Nebraska, New Hampshire, Oregon, South Dakota, Texas, Washington, and Wisconsin all reported 100 percent decreases

Tables & Maps: Figure A-2 shows the distribution of Decentralized Wastewater Treatment Systems (Category XII) needs by State

— Discussion

Before and during CWNS 2008, EPA and States increased communication with State agencies responsible for overseeing decentralized wastewater treatment. As a result, significant progress was made in reporting decentralized wastewater treatment needs. However, there is still underreporting of needs in this category. Only half of States reported needs in the category. The population served by decentralized wastewater systems reported in the CWNS is 27.9 million³ people. This represents approximately 50 percent of the current U.S. population being served by decentralized wastewater systems.⁴ In addition to likely underreporting decentralized system needs by local communities, States had difficulty obtaining documents that met the CWNS 2008 documentation criteria and coordinating needs reporting with other State agencies.

State needs increases in this category were because of States' increased level of effort to collect and report needs, increased access to data to document needs, and increased use of innovative documentation methods. For example, States increased their use of data from statewide permit databases and community surveys to identify the number of decentralized wastewater systems that need to be repaired, replaced, and newly installed by municipality. In addition, cost curves to estimate the costs of repairing, replacing, and installing new systems were added for CWNS 2008. These cost curves were used to document needs totaling \$14.4 billion (60 percent of the total needs) in 896 facilities. Also, some States successfully coordinated the collection and entry of data with the State agency responsible for the decentralized program, usually the departments of health (see examples in the box). Finally, the cost of installing new decentralized systems to address growth was newly eligible for CWNS 2008. New growth accounted for \$11.2 billion (47 percent) of the reported needs.

² Because of changes in needs categories between CWNS 2004 and CWNS 2008, the needs from CWNS 2004 Category VII-L were compared with Category XII needs for CWNS 2008.

³ Almost all (99.7 percent) of the reported decentralized system population is served by OWTS.

⁴ Based on data from the 2007 American Housing Survey, U.S. Census Bureau, Housing and Household Division.

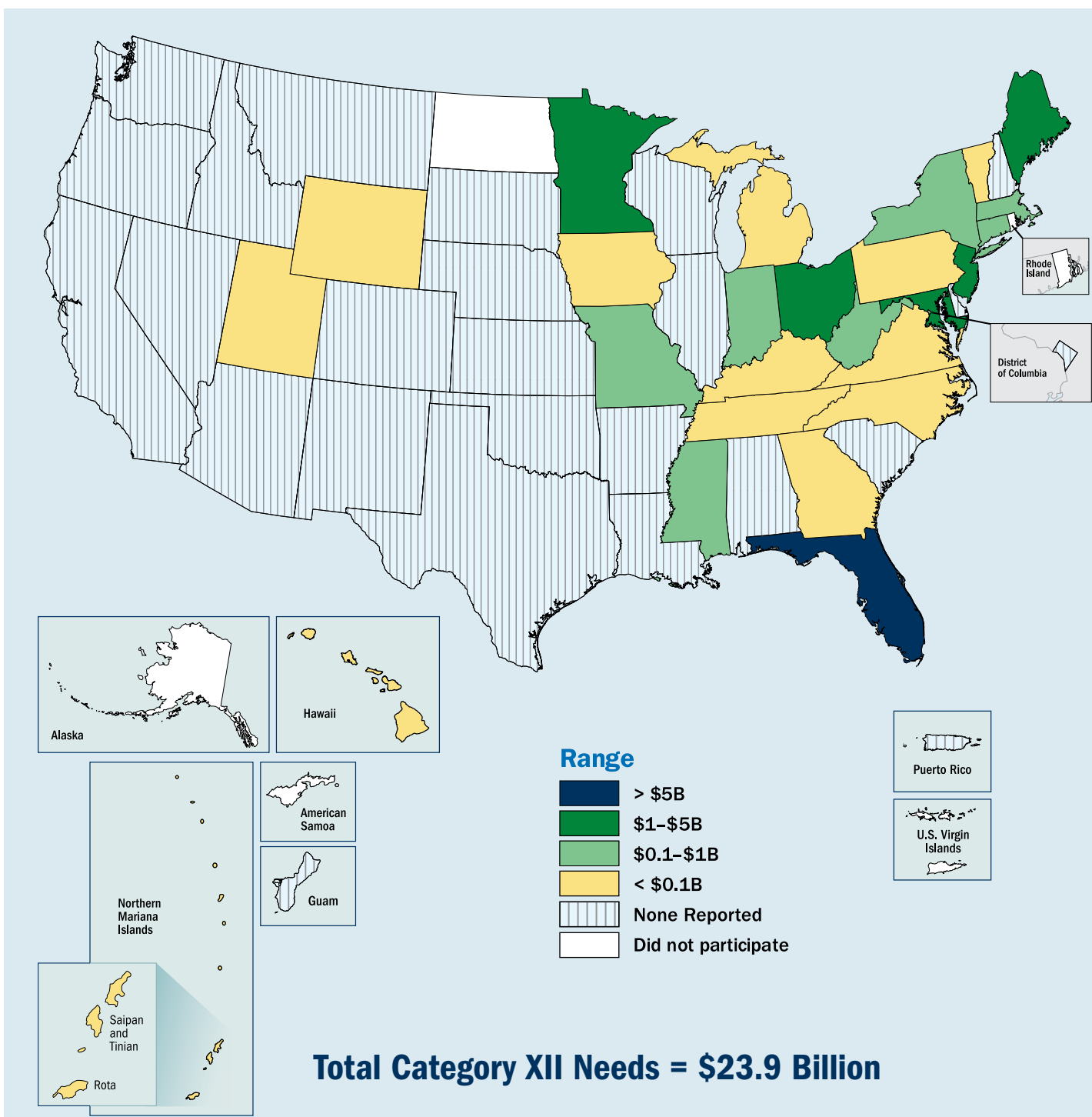


Figure A-2. Distribution of decentralized wastewater treatment systems (Category XII) needs by State (January 2008 dollars in billions).

Interagency Cooperation Results in Greater Needs Reporting

One of the biggest challenges to accurately documenting these needs is that generally different State agencies manage the Decentralized Wastewater Treatment Systems program and the CWNS data collection effort. Two States exemplify how working cooperatively across State agencies can improve needs reporting.

The Ohio Environmental Protection Agency (OEPA) and the Ohio Department of Health (ODH) conducted a joint survey of municipal boards of health to collect data regarding Onsite Wastewater Treatment System (OWTS) operations, failure rates, and solutions for addressing failing OWTS. In addition, OEPA and ODH conducted joint outreach to answer questions about and help complete the survey. As a result, Ohio reported \$1.3 billion in Decentralized Wastewater Treatment System needs, a 267 percent increase from 2004.

The Missouri Department of Health and Senior Services worked with the Missouri Department of Natural Resources to directly enter the State's OWTS needs into the CWNS Data Entry Portal (DEP). Using needs data collected from a survey of county health departments and costs estimated using CWNS cost curves, Missouri's Decentralized Wastewater Treatment System needs increased from approximately \$0.9 million in 2004 to \$260 million in 2008.



Massachusetts Department of Environmental Protection

Installation of an onsite (septic) wastewater treatment system.

Small communities (population fewer than 10,000 people) reported \$4.8 billion (20 percent) of the \$23.9 billion total Decentralized Wastewater Treatment Systems (Category XII) needs. Sixty new clustered systems are planned for small communities where abandonment of individual onsite systems is expected. Those 60 facilities will serve approximately 23,000 people.

Communities are finding that decentralized wastewater systems sometimes prove to be the least expensive, permanent solution to protect water quality and public health. Alternatively, communities are also implementing hybrid solutions, which consist of a conventional system for the most concentrated developed areas and decentralized systems for the less densely developed areas. EPA recognizes that decentralized systems are a key component of the nation's wastewater infrastructure. EPA's *Decentralized Wastewater Treatment Systems Program Strategy*⁵ provides goals and planned actions to improve the performance of such systems by promoting the concept of continuous management and facilitating upgraded professional standards of practice.

⁵ EPA's *Decentralized Wastewater Treatment Systems Program Strategy* is at <http://www.epa.gov/owm/septic>.

Appendix B

CWNS 2008

DOCUMENTED NEEDS BY STATE

**Table B-1. CWNS 2008 total documented needs by category and State for the CWNS 2008 period (up to 20 years)
(January 2008 dollars in millions)**

State	Total	Category of need									
		I	II	III-A	III-B	IV-A	IV-B	V	Total VI	X	Total I-V
Alabama	4,425	669	864	287	1,470	481	653	1	0	0 ^a	4,425
Alaska	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Arizona	5,229	358	1,936	7	450	677	990	0	460	351	4,418
Arkansas	470	15	130	72	64	101	88	0	0 ^a	0	470
California	29,910	12,171	4,105	55	5,476	867	1,528	233	3,769	1,706	24,435
Colorado	1,472	356	708	3	108	119	52	0	117	9	1,346
Connecticut	3,572	677	448	549	50	129	191	1,528	0	0	3,572
Delaware	222	21	54	1	36	77	8	25	0	0	222
District of Columbia	2,545	173	483	0	0	0	0	1,889	0	0	2,545
Florida	19,567	0	9,366	135	1,529	3,013	1,828	0	2,498	1,198	15,871
Georgia	89	31	37	0	2	10	1	0	8	0	81
Hawaii	1,757	290	50	31	538	99	547	0	0	202	1,555
Idaho	1,377	438	581	30	107	120	92	0	9	0 ^a	1,368
Illinois	17,503	4,089	363	110	1,377	381	269	10,877	37	0	17,466
Indiana	7,120	335	478	21	359	506	227	5,041	153	0	6,967
Iowa	3,429	233	1,608	89	365	83	269	748	34	0	3,395
Kansas	3,246	761	634	377	252	35	573	522	92	0	3,154
Kentucky	2,117	317	137	37	131	484	699	312	0	0	2,117
Louisiana	4,032	1,303	81	1,055	958	392	100	0	122	21	3,889
Maine	1,031	300	24	50	117	170	37	307	26	0	1,005
Maryland	8,470	1,069	1,807	174	778	154	268	463	3,755	2	4,713
Massachusetts	7,951	728	1,885	19	1,111	2,033	64	2,044	41	26	7,884
Michigan	3,715	867	24	43	737	53	126	1,555	310	0	3,405
Minnesota	4,110	787	138	151	1,181	106	760	0	987	0	3,123
Mississippi	1,417	146	201	73	377	375	245	0	0	0	1,417
Missouri	5,750	1,072	108	1,212	429	118	557	1,689	565	0	5,185
Montana	587	272	48	22	119	58	44	0	24	0	563
Nebraska	3,222	665	403	13	62	19	671	1,318	71	0	3,151
Nevada	2,913	101	1,762	0	193	191	86	0	515	65	2,333
New Hampshire	1,249	450	86	39	161	47	120	281	65	0	1,184
New Jersey	32,508	1,829	4,470	314	949	822	223	8,176	15,626	99	16,783
New Mexico	103	4	67	0	29	1	0	1	0	1	102
New York	29,715	15,779	1,243	153	3,644	922	235	6,648	1,091	0	28,624
North Carolina	6,551	188	2,355	380	522	1,057	1,713	4	87	245	6,219
North Dakota	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Ohio	14,221	1,302	254	687	2,199	840	629	7,516	794	0	13,427
Oklahoma	1,298	280	56	1	409	84	233	0	235	0	1,063
Oregon	3,778	1,559	418	66	488	299	195	427	321	5	3,452

Table B-1. CWNS 2008 total documented needs by category and State for the CWNS 2008 period (up to 20 years) (January 2008 dollars in millions) (continued)

State	Total	Category of need									
		I	II	III-A	III-B	IV-A	IV-B	V	Total VI	X	Total I-V
Pennsylvania	17,939	918	393	349	570	800	161	8,747	6,001	0	11,938
Rhode Island	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
South Carolina	566	132	269	4	25	47	60	0	29	0	537
South Dakota	106	0	48	0	23	17	12	0	6	0	100
Tennessee	1,364	443	25	193	201	123	83	96	191	9	1,164
Texas	11,539	2,575	1,283	331	1,296	836	1,768	0	3,145	305	8,089
Utah	2,939	302	1,950	0 ^a	104	132	406	0	0 ^a	45	2,894
Vermont	218	62	58	2	10	76	8	2	0	0	218
Virginia	6,848	1,522	1,804	366	1,427	733	380	616	0	0	6,848
Washington	5,262	1,712	649	95	696	926	131	584	329	140	4,793
West Virginia	3,014	339	74	36	387	355	239	1,467	117	0	2,897
Wisconsin	6,361	1,821	597	250	1,867	321	500	412	593	0	5,768
Wyoming	156	41	7	0	42	23	5	0	37	1	118
American Samoa	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Guam	364	129	0	0 ^a	168	67	0	0	0	0	364
N. Mariana Islands	21	2	0	0	15	4	0	0	0	0	21
Puerto Rico	4,753	277	769	304	50	1,975	1,355	23	0	0	4,753
Virgin Islands	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Total	298,121	59,910	45,338	8,186	33,658	21,358	19,429	63,552	42,260	4,430	251,432

Categories

I Secondary wastewater treatment
 II Advanced wastewater treatment
 III-A Infiltration/inflow correction
 III-B Sewer replacement/rehabilitation

IV-A New collector sewers and appurtenances
 IV-B New interceptor sewers and appurtenances
 V Combined sewer overflow correction

VI Stormwater management
 (see Table B-2 for totals by subcategory)
 X Recycled water distribution

Notes:

NR = not reported. Alaska, North Dakota, Rhode Island, American Samoa, and the Virgin Islands did not participate in the CWNS 2008.

^aEstimate is less than \$0.5 million.

Table B-1 summarizes by State the CWNS 2008 assessment of total needs for wastewater treatment, pipe repair, new pipes, stormwater management, and recycled water distribution. The needs represent the capital investment necessary to plan, design, build, replace or rehabilitate publicly owned wastewater treatment facilities and associated pipes (Categories I through V) and establish and implement stormwater management best practices (Category VI). Recycled water distribution (Category X) includes all costs associated with the conveyance of recycled water (wastewater reuse after removal of waste contributed by humans) and any associated rehabilitation/replacement costs. Table B-1 might vary slightly from those presented in the main body of the report because of independent rounding.

Table B-2. CWNS 2008 total documented needs for stormwater management by category and State for the CWNS 2008 period (up to 20 years) (January 2008 dollars in millions)

State	Category of need					Total
	VI	VI-A	VI-B	VI-C	VI-D	
Alabama	0	0	0	0	0	0
Alaska	NR	NR	NR	NR	NR	NR
Arizona	25	384	3	0	48	460
Arkansas	0 ^a	0	0	0	0 ^a	0 ^a
California	0	733	1,762	284	990	3,769
Colorado	32	77	0	0	8	117
Connecticut	0	0	0	0	0	0
Delaware	0	0	0	0	0	0
District of Columbia	0	0	0	0	0	0
Florida	5	713	1,702	1	77	2,498
Georgia	0	0	0	7	0 ^a	8
Hawaii	0	0	0	0	0	0
Idaho	3	1	2	2	1	9
Illinois	0	31	3	1	2	37
Indiana	0	29	16	2	107	153
Iowa	0	11	4	4	16	34
Kansas	0	84	6	2	1	92
Kentucky	0	0	0	0	0	0
Louisiana	0	121	0	0	0 ^a	122
Maine	0	0	0	4	22	26
Maryland	1	10	1,293	1,270	1,181	3,755
Massachusetts	0	22	17	0 ^a	1	41
Michigan	3	2	202	31	72	310
Minnesota	11	565	390	16	5	987
Mississippi	0	0	0	0	0	0
Missouri	565	0	0	0	0	565
Montana	5	19	0	0	0	24
Nebraska	2	32	4	15	19	71
Nevada	0	66	224	224	0	515
New Hampshire	0	51	10	2	2	65
New Jersey	0 ^a	483	107	14,928	108	15,626
New Mexico	0	0	0	0	0	0
New York	46	600	40	331	74	1,091
North Carolina	22	27	13	8	17	87
North Dakota	NR	NR	NR	NR	NR	NR
Ohio	0	12	782	0	1	794
Oklahoma	235	0	0	0	0	235
Oregon	0	263	45	10	4	321

Table B-2. CWNS 2008 total documented needs for stormwater management by category and State for the CWNS 2008 period (up to 20 years) (January 2008 dollars in millions) (continued)

State	Category of need					Total
	VI	VI-A	VI-B	VI-C	VI-D	
Pennsylvania	5,997	1	0	2	0	6,001
Rhode Island	NR	NR	NR	NR	NR	NR
South Carolina	12	18	0	0	0	29
South Dakota	0	5	1	0	0	6
Tennessee	0	146	10	20	15	191
Texas	16	2,774	266	61	28	3,145
Utah	0	0 ^a	0	0	0	0 ^a
Vermont	0	0	0	0	0	0
Virginia	0	0	0	0	0	0
Washington	0	225	47	35	23	329
West Virginia	0	10	0	108	0	117
Wisconsin	0 ^a	9	473	60	51	593
Wyoming	0	33	4	0	0	37
American Samoa	NR	NR	NR	NR	NR	NR
Guam	0	0	0	0	0	0
N. Mariana Islands	0	0	0	0	0	0
Puerto Rico	0	0	0	0	0	0
Virgin Islands	NR	NR	NR	NR	NR	NR
Total	6,980	7,557	7,426	17,428	2,873	42,260

Categories

- VI-A Conveyance Infrastructure
- VI-B Treatment Systems
- VI-C Green Infrastructure
- VI-D General Stormwater Management

Notes:

NR = not reported. Alaska, North Dakota, Rhode Island, American Samoa, and the Virgin Islands did not participate in the CWNS 2008.

^a Estimate is less than \$0.5 million.

Table B-2 summarizes the CWNS 2008 assessment of documented needs for stormwater management projects by State. These needs include the costs to plan and implement structural and nonstructural measures to control the runoff water resulting from precipitation (stormwater) in National Pollutant Discharge Elimination System (NPDES) Phase I, Phase II, and non-traditional (e.g., universities, prisons, school districts) municipal separate storm sewer systems (MS4), as well as unregulated communities (reported in CWNS 2004 as VII-D: NPS-Urban).

Table B-3. CWNS 2008 total other documented needs for NPS pollution control projects and decentralized wastewater treatment systems by category and State for the CWNS 2008 period (up to 20 years) (January 2008 dollars in millions)

State	Category of need											Total VII	XII	Total VII & XII	
	VII-A	VII-B	VII-C	VII-E	VII-F	VII-G	VII-H	VII-I	VII-J	VII-K	VII-M				
Alabama	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Alaska	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Arizona	0 ^a	1	0	0 ^a	0	3	6	8	9	0	0	27	0	27	
Arkansas	17	367	5	0	0	8	0	0	0	0 ^a	0	396	0	396	
California	0	0	80	0	0	0	0	0	0	27	0	106	0	106	
Colorado	0	0	0	0	0	0 ^a	0	0	0	0 ^a	0	0 ^a	0	0	
Connecticut	0	0	0	85	0 ^a	0	356	0	0	2	0	443	288	731	
Delaware	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
District of Columbia	0	0	0	0	0	0	0	0 ^a	0	0	0	0 ^a	0	0 ^a	
Florida	985	0	0	15	2	40	15	0	0 ^a	1,013	8	2,079	10,283	12,362	
Georgia	7	10	0	0	0 ^a	0	0	0	0	15	0	32	2	34	
Hawaii	0	0	0	0	0	0	0	0	0	0	0	0	2	2	
Idaho	30	37	2	0 ^a	0 ^a	1	0	0	0	18	0	88	0	88	
Illinois	51	1	2	0	0	1	0	0	0	18	0	73	0	73	
Indiana	9	2	0 ^a	0 ^a	0	0 ^a	0	0	0	5	0	15	561	576	
Iowa	26	0	0	0	0	0	0	0	66	197	0	288	3	291	
Kansas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Kentucky	0	0	0	0	1	0	0	0	0	0	0	1	5	6	
Louisiana	1	0	1	0	0	0	0	1	0	887	0	891	0	891	
Maine	1	20	0 ^a	0	0	0	0	0	0	0	0	21	1,323	1,344	
Maryland	65	161	0	0	0 ^a	2	0	0	19	218	0	465	4,971	5,436	
Massachusetts	0	0	0	0	0	0	1	0	7	72	19	99	767	866	
Michigan	90	21	1	0 ^a	0	2	0	2,974	15	216	0	3,319	1	3,320	
Minnesota	30	16	0	0	0	0	593	4	0	123	0	766	1,294	2,060	
Mississippi	72	251	16	0	0	0	0	0	0	1,420	0	1,759	154	1,913	
Missouri	43	29	1	0	0	1	0	0	0	457	0	530	260	790	
Montana	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Nebraska	0	0	0	1,340	0	0	0	0	13	0	0	1,354	0	1,354	
Nevada	0	0	40	0	0	0	0	0	0	162	0	202	0	202	
New Hampshire	0	0	0	0	0	0	0	0	1	0	0	1	0	1	
New Jersey	76	4	0	547	0 ^a	0 ^a	828	3	276	82	4	1,821	2,232	4,053	
New Mexico	1	0	0	0	0	0	0	0	0	0	0	1	0	1	
New York	36	43	130	1,779	2	0	198	4	646	2,718	9	5,565	165	5,730	
North Carolina	0 ^a	1	0	0	1	0	0 ^a	0	3	229	0	234	6	240	
North Dakota	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	
Ohio	2	1	0 ^a	0	0	4	0	0	0	8	0	15	1,262	1,277	
Oklahoma	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Oregon	16	0 ^a	0	5	0	0	0	0	0	1,080	0 ^a	1,102	0	1102	

Table B-3. CWNS 2008 total other documented needs for NPS pollution control projects and decentralized wastewater treatment systems by category and State for the CWNS 2008 period (up to 20 years) (January 2008 dollars in millions) (continued)

State	Category of need											Total VII	XII	Total VII & XII
	VII-A	VII-B	VII-C	VII-E	VII-F	VII-G	VII-H	VII-I	VII-J	VII-K	VII-M			
Pennsylvania	33	14	0	0	0	203	3	0	0	51	0	304	0 ^a	304
Rhode Island	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
South Carolina	0	0	0	0	0	0	0	0	0	0	0	0	0	0
South Dakota	0 ^a	7	0	0	0	0	0	0	0	8	0	16	0	16
Tennessee	0	0	0	0	0	0	0	0	0	0	0	0	5	5
Texas	1	0	0	4	0	84	0	1	28	31	42	191	0	191
Utah	0	2	0	0	0	0	0	0	0	0	0	2	2	4
Vermont	0	0	0	0	0	0	0	0	0	0	0	0	0 ^a	0 ^a
Virginia	0	0	0	0	0	0	0	0	0	0	0	0	4	4
Washington	0	0	0	0	0	0	0	0	0	0	0	0	0	0
West Virginia	3	17	0	0	0	121	0	0	0	2	0	143	331	474
Wisconsin	0 ^a	16	0	0 ^a	0	0	15	0	2	208	0	241	0	241
Wyoming	5	0	0	15	0	0	0	13	126	0	0	160	0 ^a	160
American Samoa	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Guam	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N. Mariana Islands	0	0	0	0	0	0	0	0	0	4	0	4	0 ^a	4
Puerto Rico	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Virgin Islands	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Total	1,600	1,021	278	3,790	6	470	2,015	3,008	1,211	9,271	82	22,754	23,921	46,675

Categories

VII-A Agriculture (cropland)	VII-F Marinas	VII-J Sanitary landfills
VII-B Agriculture (animals)	VII-G Resource extraction	VII-K Hydromodification
VII-C Silviculture	VII-H Brownfields	VII-M Other estuary management activities
VII-E Ground water protection (unknown source)	VII-I Storage tanks	XII Decentralized wastewater treatment systems

Notes:

NR = not reported. Alaska, North Dakota, Rhode Island, American Samoa, and the Virgin Islands did not participate in the CWNS 2008.

^a Estimate is less than \$0.5 million.

Table B-3 summarizes the CWNS 2008 assessment of total documented needs for NPS pollution control projects and decentralized wastewater treatment systems by State. These needs met CWNS documentation requirements but are not defined under CWA section 517(b)(1)(B). They include the capital investment necessary to implement NPS management plans under section 319 and Comprehensive Conservation and Management Plans (CCMPs) under section 320 of the Clean Water Act. The NPS pollution control Category (VII) includes costs for agriculture, silviculture, ground water protection, marinas, resource extraction, brownfields, storage tanks, sanitary landfills, hydromodification, and estuary management. Decentralized wastewater treatment systems (Category XII) includes costs associated with the rehabilitation or replacement of onsite (septic) wastewater treatment systems (OWTS) or clustered (community) systems.

Appendix C

**CWNS 2008 TOTAL SMALL
COMMUNITY DOCUMENTED NEEDS**

Table C-1. CWNS 2008 total small community needs (January 2008 dollars in millions)

State	Total needs	Percent of total needs	Category of need								Total I-V
			I	II	III-A	III-B	IV-A	IV-B	V	X	
Alabama	423	10	71	56	48	117	100	31	0	0 ^a	423
Alaska	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Arizona	146	3	35	27	0 ^a	4	60	18	0	0	146
Arkansas	279	59	12	75	24	8	87	73	0	0	279
California	426	1	139	32	17	232	0	6	0	0 ^a	426
Colorado	517	35	184	221	1	53	43	12	0	3	514
Connecticut	182	5	25	27	6	1	62	61	0	0	182
Delaware	88	40	0	0	0	5	75	8	0	0	88
District of Columbia	0	0	0	0	0	0	0	0	0	0	0
Florida	435	2	0	145	16	37	208	17	0	12	423
Georgia	8	9	7	0	0	0	0	1	0	0	8
Hawaii	46	3	19	15	0	0	11	0	0	0	46
Idaho	262	19	80	39	20	29	70	23	0	0	262
Illinois	1,183	7	278	56	36	67	220	37	489	0	1,183
Indiana	437	6	48	24	13	15	44	5	287	0	437
Iowa	1,455	42	107	1,142	30	97	43	15	21	0	1,455
Kansas	197	6	64	13	24	6	7	83	0	0	197
Kentucky	407	19	73	20	24	26	202	60	3	0	407
Louisiana	173	4	31	11	3	41	86	1	0	0	173
Maine	290	28	100	10	30	23	68	17	41	0	290
Maryland	613	7	141	164	30	133	25	99	21	0	613
Massachusetts	441	6	56	12	0	31	342	0	0	0	441
Michigan	102	3	32	0 ^a	17	12	17	3	22	0	102
Minnesota	416	10	191	19	39	89	45	34	0	0	416
Mississippi	640	45	101	24	35	83	285	113	0	0	640
Missouri	312	5	114	48	3	22	94	31	0	0	312
Montana	228	39	120	7	12	42	33	14	0	0	228
Nebraska	148	5	57	38	4	20	15	14	0	0	148
Nevada	153	5	24	16	0	11	91	0	0	11	142
New Hampshire	256	21	119	4	15	37	15	66	0	0	256
New Jersey	602	2	62	99	61	197	129	31	15	7	595
New Mexico	20	19	3	0	0	17	0	0	0	0	20
New York	1,537	5	398	54	52	127	638	97	171	0	1,537
North Carolina	682	10	49	56	64	50	307	147	0	7	675
North Dakota	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Ohio	976	7	122	43	37	23	392	184	174	0	976
Oklahoma	124	10	47	27	1	39	9	0	0	0	124
Oregon	112	3	68	13	5	13	11	2	0	1	111
Pennsylvania	2,859	16	279	79	24	323	746	112	1,295	0	2,859
Rhode Island	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR

Table C-1. CWNS 2008 total small community needs (January 2008 dollars in millions) (continued)

State	Total needs	Percent of total needs	Category of need								Total I-V
			I	II	III-A	III-B	IV-A	IV-B	V	X	
South Carolina	76	13	4	17	0	0 ^a	27	28	0	0	76
South Dakota	38	36	0	19	0	8	11	0	0	0	38
Tennessee	132	10	44	6	34	4	37	7	0	0	132
Texas	858	7	208	70	34	91	189	254	0	12	846
Utah	1,362	46	15	1,256	0	18	35	38	0	0	1,362
Vermont	114	52	7	22	1	3	74	6	0	0	114
Virginia	815	12	96	141	20	58	413	87	0	0	815
Washington	173	3	75	9	3	35	24	9	20	0	173
West Virginia	981	33	124	17	16	201	283	189	150	0	981
Wisconsin	791	12	283	126	60	171	112	39	0	0	791
Wyoming	70	45	28	4	0	17	19	3	0	0	70
American Samoa	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Guam	35	10	25	0	0	11	0	0	0	0	35
N. Mariana Islands	4	19	0	0	0	0	4	0	0	0	4
Puerto Rico	94	2	24	29	0	0 ^a	30	10	0	0	94
Virgin Islands	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Total	22,718	8	4,189	4,332	859	2,647	5,838	2,085	2,709	53	22,665

Categories

I Secondary wastewater treatment
 II Advanced wastewater treatment
 III-A Infiltration/inflow correction

III-B Sewer replacement/rehabilitation
 IV-A New collector sewers and appurtenances
 IV-B New interceptor sewers and appurtenances

V Combined sewer overflow correction
 X Recycled water distribution

Notes:

NR = not reported. Alaska, North Dakota, Rhode Island, American Samoa, and the Virgin Islands did not participate in the CWNS 2008.

^a Estimate is less than \$0.5 million.

Table C-1 summarizes the CWNS 2008 assessment of total needs for small communities by State for wastewater treatment facilities and pipes (Categories I through V) and recycled water distribution (Category X). Small communities are defined as communities with populations of fewer than 10,000 people. Tables C-2, C-3, and C-4 provide further breakdown of small community information based on different population ranges.

These small community design year needs have met the established documentation criteria and represent the capital investment necessary to plan, design, build, replace, or rehabilitate publicly owned wastewater treatment facilities needed to serve the projected estimated design year population of small communities.

These are the estimates for adequate wastewater treatment systems in compliance with the Clean Water Act for those small communities that could document their needs.

**Table C-2. CWNS 2008 total small community needs: facilities serving populations of 3,500 to 10,000 people
(January 2008 dollars in millions)**

State	Total	Category of need								Total I-V
		I	II	III-A	III-B	IV-A	IV-B	V	X	
Alabama	70	15	9	4	20	19	3	0	0	70
Alaska	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Arizona	71	26	20	0	0	16	9	0	0	71
Arkansas	80	2	43	12	4	10	9	0	0	80
California	96	67	0	17	12	0	0	0	0	96
Colorado	150	29	93	0	15	11	2	0	1	150
Connecticut	99	14	12	2	0	34	36	0	0	99
Delaware	30	0	0	0	5	19	6	0	0	30
District of Columbia	0	0	0	0	0	0	0	0	0	0
Florida	275	0	91	7	15	146	10	0	6	269
Georgia	0	0	0	0	0	0	0	0	0	0
Hawaii	19	15	3	0	0	0	0	0	0	19
Idaho	50	21	19	0	4	7	0	0	0	50
Illinois	587	112	26	19	32	24	14	361	0	587
Indiana	185	30	9	1	4	31	4	107	0	185
Iowa	87	34	19	8	17	5	5	0	0	87
Kansas	100	23	7	10	0 ^a	3	57	0	0	100
Kentucky	186	33	8	7	14	91	33	2	0	186
Louisiana	39	7	2	0 ^a	23	7	0	0	0	39
Maine	46	26	1	0 ^a	7	2	2	8	0	46
Maryland	385	47	105	12	115	1	88	17	0	385
Massachusetts	397	49	0	0	31	318	0	0	0	397
Michigan	34	12	0	10	8	2	0	2	0	34
Minnesota	152	46	11	9	46	20	20	0	0	152
Mississippi	137	7	7	13	38	53	19	0	0	137
Missouri	76	32	12	2	8	12	9	0	0	76
Montana	72	38	2	1	11	14	6	0	0	72
Nebraska	27	9	13	0	4	0 ^a	0 ^a	0	0	27
Nevada	72	0	0	0	0	69	0	0	3	69
New Hampshire	104	45	0	3	23	11	23	0	0	104
New Jersey	372	29	39	39	143	93	22	0	7	365
New Mexico	9	1	0	0	8	0	0	0	0	9
New York	605	149	3	10	33	262	35	112	0	605
North Carolina	213	10	8	20	16	105	52	0	2	211
North Dakota	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Ohio	241	24	7	21	9	77	33	71	0	241

Table C-2. CWNS 2008 total small community needs: facilities serving populations of 3,500 to 10,000 people (January 2008 dollars in millions) (continued)

State	Total	Category of need								Total I-V
		I	II	III-A	III-B	IV-A	IV-B	V	X	
Oklahoma	40	19	4	0	17	0	0	0	0	40
Oregon	33	12	11	2	8	0 ^a	0	0	0	33
Pennsylvania	1,256	101	36	15	167	151	40	746	0	1,256
Rhode Island	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
South Carolina	37	4	14	0	0 ^a	6	12	0	0	37
South Dakota	9	0	9	0	0	0	0	0	0	9
Tennessee	58	18	0	18	1	15	7	0	0	58
Texas	314	65	32	14	37	50	117	0	0	314
Utah	58	6	21	0	6	8	17	0	0	58
Vermont	78	5	6	1	0 ^a	65	0	0	0	78
Virginia	286	53	80	3	46	89	14	0	0	286
Washington	63	17	0	0	26	0	0	20	0	63
West Virginia	354	33	3	6	57	126	86	43	0	354
Wisconsin	211	63	34	18	56	20	20	0	0	211
Wyoming	26	16	4	0	2	3	2	0	0	26
American Samoa	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Guam	35	25	0	0	11	0	0	0	0	35
N. Mariana Islands	0	0	0	0	0	0	0	0	0	0
Puerto Rico	92	24	29	0	0 ^a	30	9	0	0	92
Virgin Islands	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Total	8,016	1,413	852	304	1,099	2,025	821	1,489	19	7,998

Categories

I Secondary wastewater treatment

II Advanced wastewater treatment

III-A Infiltration/inflow correction

III-B Sewer replacement/rehabilitation

IV-A New collector sewers and appurtenances

IV-B New interceptor sewers and appurtenances

V Combined sewer overflow correction

X Recycled water distribution

Notes:

NR = not reported. Alaska, North Dakota, Rhode Island, American Samoa, and the Virgin Islands did not participate in the CWNS 2008.

^a Estimate is less than \$0.5 million.

Table C-2 provides the subset of Table C-1 data for the needs for small community facilities estimated to be serving populations in the range of 3,500 to 10,000 people.

Table C-3. CWNS 2008 total small community needs: facilities serving populations of 1,000 to 3,500 people

State	Total	Category of need								Total I-V
		I	II	III-A	III-B	IV-A	IV-B	V	X	
Alabama	281	44	40	41	85	55	16	0	0 ^a	281
Alaska	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Arizona	60	7	7	0 ^a	4	38	5	0	0	60
Arkansas	123	4	24	11	3	45	36	0	0	123
California	99	66	31	0 ^a	1	0	0	0	0	99
Colorado	241	90	108	0 ^a	25	6	10	0	2	239
Connecticut	64	7	12	2	0	22	21	0	0	64
Delaware	48	0	0	0	0 ^a	48	0	0	0	48
District of Columbia	0	0	0	0	0	0	0	0	0	0
Florida	143	0	51	8	20	51	7	0	6	137
Georgia	7	7	0	0	0	0	0	0	0	7
Hawaii	21	4	12	0	0	5	0	0	0	21
Idaho	160	38	20	20	21	47	15	0	0	160
Illinois	459	133	27	16	33	113	17	121	0	459
Indiana	214	12	12	10	10	3	0	167	0	214
Iowa	196	33	54	17	59	8	5	21	0	196
Kansas	58	32	5	13	4	0	4	0	0	58
Kentucky	175	29	8	16	9	92	19	1	0	175
Louisiana	54	15	6	1	12	19	0	0	0	54
Maine	175	50	10	25	14	40	12	24	0	175
Maryland	131	55	38	7	14	8	6	4	0	131
Massachusetts	39	3	12	0	0	25	0	0	0	39
Michigan	49	14	0 ^a	6	1	7	1	20	0	49
Minnesota	183	110	8	13	22	18	11	0	0	183
Mississippi	275	50	14	15	29	119	48	0	0	275
Missouri	115	46	29	1	9	24	8	0	0	115
Montana	98	51	3	5	18	14	7	0	0	98
Nebraska	59	13	18	3	6	9	11	0	0	59
Nevada	78	21	16	0	10	22	0	0	9	70
New Hampshire	126	69	4	12	12	0 ^a	29	0	0	126
New Jersey	201	25	50	23	52	29	7	15	0	201
New Mexico	1	1	0	0	0	0	0	0	0	1
New York	689	194	47	39	35	292	44	38	0	689
North Carolina	231	15	41	28	18	89	35	0	5	226
North Dakota	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Ohio	373	62	24	12	13	113	51	97	0	373

Table C-3. CWNS 2008 total small community needs: facilities serving populations of 1,000 to 3,500 people (continued)

State	Total	Category of need								Total I-V
		I	II	III-A	III-B	IV-A	IV-B	V	X	
Oklahoma	49	9	20	1	17	2	0	0	0	49
Oregon	67	51	0	3	4	6	2	0	1	66
Pennsylvania	1,161	128	37	7	107	320	47	515	0	1,161
Rhode Island	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
South Carolina	25	0 ^a	3	0	0	6	15	0	0	25
South Dakota	10	0	5	0	3	1	0	0	0	10
Tennessee	59	18	6	15	3	17	0 ^a	0	0	59
Texas	506	129	38	19	48	127	134	0	11	494
Utah	24	4	0	0	4	7	9	0	0	24
Vermont	35	1	16	0	3	9	6	0	0	35
Virginia	339	36	52	15	7	180	49	0	0	339
Washington	81	37	9	3	7	17	9	0	0	81
West Virginia	522	72	11	7	125	120	78	108	0	522
Wisconsin	401	163	54	29	78	63	13	0	0	401
Wyoming	28	8	0 ^a	0	8	11	1	0	0	28
American Samoa	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Guam	0	0	0	0	0	0	0	0	0	0
N. Mariana Islands	4	0	0	0	0	4	0	0	0	4
Puerto Rico	1	0	0	0	0	0	1	0	0	1
Virgin Islands	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Total	8,538	1,956	982	443	953	2,251	789	1,131	34	8,504

Categories

I Secondary wastewater treatment

II Advanced wastewater treatment

III-A Infiltration/inflow correction

III-B Sewer replacement/rehabilitation

IV-A New collector sewers and appurtenances

IV-B New interceptor sewers and appurtenances

V Combined sewer overflow correction

X Recycled water distribution

Notes:

NR = not reported. Alaska, North Dakota, Rhode Island, American Samoa, and the Virgin Islands did not participate in the CWNS 2008.

^a Estimate is less than \$0.5 million.

Table C-3 provides the subset of Table C-1 data for the needs for small community facilities estimated to be serving populations in the range of 1,000 to 3,500 people.

**Table C-4. CWNS 2008 total small community needs: facility serving population of fewer than 1,000 people
(January 2008 dollars in millions)**

State	Total	Category of need								Total I-V
		I	II	III-A	III-B	IV-A	IV-B	V	X	
Alabama	72	12	8	4	12	25	11	0	0	72
Alaska	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Arizona	14	3	0 ^a	0	0 ^a	7	4	0	0	14
Arkansas	76	6	8	1	1	32	28	0	0	76
California	231	6	1	0	218	0	6	0	0 ^a	231
Colorado	125	65	20	1	13	25	1	0	1	125
Connecticut	19	3	3	2	1	6	4	0	0	19
Delaware	10	0	0	0	0	9	1	0	0	10
District of Columbia	0	0	0	0	0	0	0	0	0	0
Florida	17	0	3	0 ^a	2	11	0 ^a	0	0	17
Georgia	1	0	0	0	0	0	1	0	0	1
Hawaii	6	0	0	0	0	6	0	0	0	6
Idaho	51	21	0	1	5	16	9	0	0	51
Illinois	137	33	4	1	3	83	6	7	0	137
Indiana	38	7	3	3	1	11	1	12	0	38
Iowa	1,171	40	1,069	5	21	30	5	0	0	1,171
Kansas	39	9	1	0 ^a	2	5	22	0	0	39
Kentucky	46	11	4	0	4	19	9	0	0	46
Louisiana	80	10	3	1	7	60	1	0	0	80
Maine	70	24	0	5	3	26	3	9	0	70
Maryland	97	39	21	11	4	17	6	0	0	97
Massachusetts	5	5	0	0	0	0	0	0	0	5
Michigan	18	6	0	0 ^a	3	8	1	0	0	18
Minnesota	81	35	0	17	20	7	2	0	0	81
Mississippi	229	45	3	7	15	113	46	0	0	229
Missouri	121	36	7	1	6	58	14	0	0	121
Montana	58	31	2	7	12	5	1	0	0	58
Nebraska	61	35	8	1	9	6	3	0	0	61
Nevada	4	2	0	0	1	0	0	0	0	4
New Hampshire	26	5	0	0 ^a	2	4	14	0	0	26
New Jersey	29	8	9	0 ^a	2	7	2	0	0	29
New Mexico	9	0	0	0	9	0	0	0	0	9
New York	243	54	4	3	59	83	18	21	0	243
North Carolina	238	24	7	17	16	113	60	0	0 ^a	237
North Dakota	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Ohio	362	37	12	4	1	202	100	6	0	362

Table C-4. CWNS 2008 total small community needs: facility serving population of fewer than 1,000 people (January 2008 dollars in millions) (continued)

State	Total	Category of need								Total I-V
		I	II	III-A	III-B	IV-A	IV-B	V	X	
Oklahoma	35	20	3	0	5	8	0	0	0	35
Oregon	13	5	2	0	1	4	0	0	0	13
Pennsylvania	442	51	6	2	49	275	25	34	0	442
Rhode Island	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
South Carolina	15	0	0	0	0	15	0	0	0	15
South Dakota	19	0	4	0	5	10	0	0	0	19
Tennessee	15	8	0	1	1	6	0	0	0	15
Texas	39	14	1	2	6	12	3	0	0 ^a	38
Utah	1,281	5	1,235	0	8	20	13	0	0	1,281
Vermont	0	0	0	0	0	0	0	0	0	0
Virginia	191	6	9	2	5	144	24	0	0	191
Washington	29	20	0	0 ^a	2	7	0	0	0	29
West Virginia	105	18	3	3	19	37	25	0	0	105
Wisconsin	179	57	38	13	37	28	5	0	0	179
Wyoming	16	4	0	0	6	5	0 ^a	0	0	16
American Samoa	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Guam	0	0	0	0	0	0	0	0	0	0
N. Mariana Islands	0	0	0	0	0	0	0	0	0	0
Puerto Rico	0	0	0	0	0	0	0	0	0	0
Virgin Islands	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Total	6,163	820	2,501	115	596	1,565	474	89	1	6,161

Categories

I Secondary wastewater treatment

II Advanced wastewater treatment

III-A Infiltration/inflow correction

III-B Sewer replacement/rehabilitation

IV-A New collector sewers and appurtenances

IV-B New interceptor sewers and appurtenances

V Combined sewer overflow correction

X Recycled water distribution

Notes:

NR = not reported. Alaska, North Dakota, Rhode Island, American Samoa, and the Virgin Islands did not participate in the CWNS 2008.

^a Estimate is less than \$0.5 million.

Table C-4 provides the subset of Table C-1 data for the needs for small community facilities estimated to be serving populations of fewer than 1,000 people.

Table C-5. CWNS 2008 total small community other documented needs (January 2008 dollars in millions)

State	Other documented needs			
	Total Small Community <10,000	3,500 to 10,000 people	1,000 to 3,500 people	<1,000 people
Alabama	0	0	0	0
Alaska	NR	NR	NR	NR
Arizona	0	0	0	0
Arkansas	0	0	0	0
California	0	0	0	0
Colorado	0	0	0	0
Connecticut	193	116	69	7
Delaware	0	0	0	0
District of Columbia	0	0	0	0
Florida	0	0	0	0
Georgia	2	0 ^a	0 ^a	1
Hawaii	2	0	0	2
Idaho	0	0	0	0
Illinois	0	0	0	0
Indiana	561	557	4	0
Iowa	3	0	0	3
Kansas	0	0	0	0
Kentucky	5	0	0	5
Louisiana	0	0	0	0
Maine	143	103	26	14
Maryland	0 ^a	0	0	0 ^a
Massachusetts	375	269	103	3
Michigan	0	0	0	0
Minnesota	1,224	1,199	25	1
Mississippi	145	18	37	91
Missouri	1	0	0	1
Montana	0	0	0	0
Nebraska	0	0	0	0
Nevada	0	0	0	0
New Hampshire	0	0	0	0
New Jersey	1,953	257	324	1,372
New Mexico	0	0	0	0
New York	19	3	4	12
North Carolina	6	0	0 ^a	5
North Dakota	NR	NR	NR	NR
Ohio	30	7	11	12
Oklahoma	0	0	0	0
Oregon	0	0	0	0

Table C-5. CWNS 2008 total small community other documented needs (January 2008 dollars in millions) (continued)

State	Other documented needs			
	Total Small Community <10,000	3,500 to 10,000 people	1,000 to 3,500 people	<1,000 people
Pennsylvania	0 ^a	0	0	0 ^a
Rhode Island	NR	NR	NR	NR
South Carolina	0	0	0	0
South Dakota	0	0	0	0
Tennessee	2	1	2	0 ^a
Texas	0	0	0	0
Utah	2	0	0	2
Vermont	0 ^a	0 ^a	0	0
Virginia	4	0	2	3
Washington	0	0	0	0
West Virginia	122	80	30	12
Wisconsin	0	0	0	0
Wyoming	0 ^a	0	0	0 ^a
American Samoa	NR	NR	NR	NR
Guam	0	0	0	0
N. Mariana Islands	0 ^a	0	0 ^a	0
Puerto Rico	0	0	0	0
Virgin Islands	NR	NR	NR	NR
Total	4,792	2,610	637	1,546

Notes:

NR = not reported. Alaska, North Dakota, Rhode Island, American Samoa, and the Virgin Islands did not participate in the CWNS 2008.

^aEstimate is less than \$0.5 million.

Table C-5 summarizes the CWNS 2004 assessment of total other documented needs for small communities by State for Decentralized Wastewater Treatment Systems (Category XII), and provides further breakdown of small community information on the basis of different population ranges.

Appendix D

**CWNS 2008 COMPARISON OF
SMALL COMMUNITY FACILITIES'
NEEDS AND TOTAL NEEDS**

**Appendix D: CWNS 2008 Comparison
of Small Community Facilities' Needs and Total Needs**

Table D-1. CWNS 2008 comparison of small community facilities' needs and total needs (January 2008 dollars in millions)

State	All projected small community facilities		Projected small community facilities with documented needs		Projected small community population		Documented needs for small communities	
	Number	Percent of all facilities	Number	Percent of all small community facilities	Number	Percent of total state population	January 2008 dollars in millions	Percent of total CWNS needs
Alabama	153	51	129	48	319,782	9	423	10
Alaska	NR	NR	NR	NR	NR	NR	NR	NR
Arizona	58	27	27	22	156,855	2	146	3
Arkansas	470	85	145	84	739,848	24	279	59
California	477	51	23	12	1,039,550	2	426	2
Colorado	220	81	209	82	326,466	16	517	38
Connecticut	118	53	29	28	446,169	13	182	5
Delaware	24	62	12	50	68,102	8	88	40
District of Columbia	0	0	0	0	0	0	0	0
Florida	129	30	70	21	401,100	2	435	3
Georgia	225	64	3	27	515,495	13	8	10
Hawaii	11	44	5	29	32,311	3	46	3
Idaho	191	76	46	59	215,141	11	262	19
Illinois	692	65	242	47	1,399,594	10	1,183	7
Indiana	432	77	79	48	1,544,746	27	437	6
Iowa	892	90	245	79	809,580	27	1,455	43
Kansas	796	91	83	54	851,037	29	197	6
Kentucky	219	68	70	55	458,561	13	407	19
Louisiana	151	70	107	65	281,646	8	173	4
Maine	171	73	73	60	256,139	27	290	29
Maryland	165	64	116	63	299,792	6	613	13
Massachusetts	164	44	16	15	582,839	9	441	6
Michigan	535	69	26	35	1,235,674	16	102	3
Minnesota	239	69	109	59	1,419,861	31	416	13
Mississippi	642	85	300	80	836,167	28	640	47
Missouri	878	84	273	77	888,664	17	312	6
Montana	107	80	97	80	162,171	20	228	40
Nebraska	526	95	198	92	422,259	24	148	5
Nevada	44	55	17	38	92,044	2	153	7
New Hampshire	92	72	48	59	167,976	20	256	22
New Jersey	456	60	165	40	1,595,740	16	602	4
New Mexico	8	24	4	17	26,447	3	20	19
New York	1,094	76	293	58	2,871,892	15	1,537	5
North Carolina	433	65	176	52	757,583	11	682	11
North Dakota	NR	NR	NR	NR	NR	NR	NR	NR
Ohio	917	75	391	67	1,255,963	12	976	7
Oklahoma	434	86	90	83	602,036	20	124	12
Oregon	203	70	30	35	376,695	8	112	3
Pennsylvania	1,577	80	437	73	3,387,280	27	2,859	24
Rhode Island	NR	NR	NR	NR	NR	NR	NR	NR

Table D-1. CWNS 2008 comparison of small community facilities' needs and total needs (January 2008 dollars in millions) (continued)

State	All projected small community facilities		Projected small community facilities with documented needs		Projected small community population		Documented needs for small communities	
	Number	Percent of all facilities	Number	Percent of all small community facilities	Number	Percent of total state population	January 2008 dollars in millions	Percent of total CWNS needs
South Carolina	94	49	27	45	289,449	7	76	14
South Dakota	20	77	20	77	28,483	8	38	38
Tennessee	227	65	84	50	552,928	11	132	11
Texas	1,454	71	260	52	3,417,821	12	858	10
Utah	155	49	34	30	213,791	6	1,362	46
Vermont	68	73	19	59	183,543	39	114	53
Virginia	300	71	144	63	600,714	7	815	12
Washington	77	42	30	27	176,408	3	173	4
West Virginia	348	78	212	78	708,606	41	981	34
Wisconsin	858	85	425	75	1,160,476	23	791	14
Wyoming	106	85	60	79	109,289	21	70	59
American Samoa	NR	NR	NR	NR	NR	NR	NR	NR
Guam	3	50	3	50	12,156	6	35	10
N. Mariana Islands	9	64	1	33	19,250	17	4	25
Puerto Rico	25	35	4	9	26,468	1	94	2
Virgin Islands	NR	NR	NR	NR	NR	NR	NR	NR
Total	17,687	72	5,706	59	34,342,587	11	22,718	9

Notes:

NR = not reported. Alaska, North Dakota, Rhode Island, American Samoa, and the Virgin Islands did not participate in the CWNS 2008.

Table D-1 provides a summary of all publicly owned small community wastewater treatment facilities and pipes identified in the CWNS 2008 by State. For the purpose of this table, wastewater treatment facilities and pipes refer to centralized wastewater treatment plants, centralized wastewater collection systems, and facilities that treat and convey wastewater that do not fit in one of the previous classifications. Small communities are defined as communities with populations of fewer than 10,000 people. Tables D-2, D-3 and D-4 provide further breakdown of small community information based on different population ranges. Needs estimates presented in Table D-1 vary slightly from those presented in Figure 2-11 and summed totals from Tables D-2, D-3 and D-4 due to independent rounding.

The first column of this table includes information on the projected number of small community wastewater treatment facilities and pipes and the small community percentage of the total number of wastewater treatment facilities and pipes for each State. The number of facilities includes those with documented needs and those that did not report any needs. This percentage represents the small community facilities compared to the total wastewater treatment facilities and pipes the State. For example, 51 percent of Alabama's projected wastewater treatment facilities and pipes are for small communities. Column 2 depicts only the small community facilities with documented wastewater treatment and pipe needs and reflects a portion of all small community facilities with and without needs presented in Column 1.

Column 3 shows the projected small community population receiving centralized collection and the percentage of the total state population. The last column shows the projected small community wastewater treatment and collection system documented needs as of January 1, 2008, and the respective percentage of the total CWNS 2008 wastewater treatment facilities and pipe documented needs.

Appendix D: CWNS 2008 Comparison
of Small Community Facilities' Needs and Total Needs

Table D-2. CWNS 2008 comparison of small community facilities' needs and total needs:
facility serving population of 3,500 to 10,000 people (January 2008 dollars in millions)

State	All projected small community facilities		Projected small community facilities with documented needs		Projected small community population		Documented needs for small communities	
	Number ^a	Percent of all facilities	Number ^a	Percent of all small community facilities	Number ^a	Percent of total state population	January 2008 dollars in millions	Percent of total CWNS needs
Alabama	21	7	18	7	107,177	3	70	2
Alaska	NR	NR	NR	NR	NR	NR	NR	NR
Arizona	13	6	8	7	80,089	1	71	1
Arkansas	77	14	34	20	400,205	13	80	17
California	102	11	6	3	589,705	1	96	<1
Colorado	28	10	27	11	143,368	7	150	11
Connecticut	56	25	14	14	345,431	10	99	3
Delaware	8	21	6	25	44,683	5	30	14
District of Columbia	0	0	0	0	0	0	0	0
Florida	51	12	27	8	276,113	1	275	2
Georgia	52	15	0	0	265,664	7	0	0
Hawaii	3	12	1	6	17,100	1	19	1
Idaho	15	6	6	8	68,706	4	50	4
Illinois	135	13	66	13	743,057	6	587	3
Indiana	95	17	19	12	1,105,300	19	185	3
Iowa	36	4	19	6	181,246	6	87	3
Kansas	55	6	17	11	283,002	10	100	3
Kentucky	48	15	19	15	236,841	7	186	9
Louisiana	28	13	22	13	145,522	4	39	1
Maine	18	8	11	9	88,267	9	46	5
Maryland	31	12	27	15	172,000	3	385	8
Massachusetts	70	19	9	9	441,481	7	397	5
Michigan	118	15	7	9	650,231	8	34	1
Minnesota	109	31	34	18	1,224,905	27	152	5
Mississippi	70	9	38	10	390,892	13	137	10
Missouri	64	6	25	7	324,580	6	76	1
Montana	13	10	12	10	66,230	8	72	13
Nebraska	20	4	12	6	115,157	7	27	1
Nevada	9	11	3	7	52,398	1	72	3
New Hampshire	16	13	14	17	83,463	10	104	9
New Jersey	204	27	100	24	1,263,478	13	372	2
New Mexico	4	12	2	8	21,025	3	9	9
New York	301	21	81	16	1,679,278	9	605	2
North Carolina	68	10	35	10	350,745	5	213	3
North Dakota	NR	NR	NR	NR	NR	NR	NR	NR

**Table D-2. CWNS 2008 comparison of small community facilities' needs and total needs:
facility serving population of 3,500 to 10,000 people (January 2008 dollars in millions) (continued)**

State	All projected small community facilities		Projected small community facilities with documented needs		Projected small community population		Documented needs for small communities	
	Number ^a	Percent of all facilities	Number ^a	Percent of all small community facilities	Number ^a	Percent of total state population	January 2008 dollars in millions	Percent of total CWNS needs
Ohio	103	8	47	8	540,470	5	241	2
Oklahoma	45	9	14	13	242,481	8	40	4
Oregon	33	11	7	8	181,002	4	33	1
Pennsylvania	356	18	134	22	1,884,113	15	1,256	11
Rhode Island	NR	NR	NR	NR	NR	NR	NR	NR
South Carolina	37	19	10	17	210,857	5	37	7
South Dakota	2	8	2	8	9,017	2	9	9
Tennessee	52	15	27	16	306,592	6	58	5
Texas	355	17	67	13	1,909,925	7	314	4
Utah	18	6	12	10	109,944	3	58	2
Vermont	19	20	7	22	100,385	21	78	36
Virginia	58	14	32	14	305,294	4	286	4
Washington	21	11	10	9	116,584	2	63	1
West Virginia	65	15	33	12	349,304	20	354	12
Wisconsin	92	9	74	13	490,978	10	211	4
Wyoming	7	6	6	8	31,630	6	26	22
American Samoa	NR	NR	NR	NR	NR	NR	NR	NR
Guam	3	50	3	50	12,156	6	35	10
N. Mariana Islands	2	14	0	0	9,750	9	0	0
Puerto Rico	3	4	3	7	20,331	<1	92	2
Virgin Islands	NR	NR	NR	NR	NR	NR	NR	NR
Total	3,209	13	1,207	12	18,788,152	6	8,016	3

Notes:

NR = not reported. Alaska, North Dakota, Rhode Island, American Samoa, and the Virgin Islands did not participate in the CWNS 2008.

^a Decentralized wastewater treatment systems might be reported at the county level and therefore a single facility might represent one or more communities that are considered small communities for the purposes of the CWNS. As a result, it is likely that the number of small communities in these states are under-reported. County level facilities serving more than 10,000 people are included in this table.

Table D-2 provides the subset of Table D-1 data for the needs for small community facilities estimated to be serving populations in the range of 3,500 to 10,000 people if all documented needs are met.

**Appendix D: CWNS 2008 Comparison
of Small Community Facilities' Needs and Total Needs**

**Table D-3. CWNS 2008 comparison of small community facilities' needs and total needs:
facility serving population of 1,000 to 3,500 people (January 2008 dollars in millions)**

State	All projected small community facilities		Projected small community facilities with documented needs		Projected small community population		Documented needs for small communities	
	Number ^a	Percent of all facilities	Number ^a	Percent of all small community facilities	Number ^a	Percent of total state population	January 2008 dollars in millions	Percent of total CWNS needs
Alabama	97	32	82	31	190,004	6	281	6
Alaska	NR	NR	NR	NR	NR	NR	NR	NR
Arizona	30	14	14	12	67,442	1	60	1
Arkansas	142	26	56	33	238,117	8	123	26
California	188	20	9	5	365,242	1	99	<1
Colorado	72	27	68	27	133,844	7	241	18
Connecticut	42	19	10	10	89,759	3	64	2
Delaware	9	23	4	17	20,410	2	48	22
District of Columbia	0	0	0	0	0	0	0	0
Florida	57	13	29	9	112,981	1	143	1
Georgia	106	30	2	18	210,234	5	7	9
Hawaii	7	28	3	18	14,300	1	21	1
Idaho	60	24	22	28	101,413	5	160	12
Illinois	267	25	116	22	493,499	4	459	3
Indiana	183	32	42	25	345,884	6	214	3
Iowa	213	21	90	29	377,616	13	196	6
Kansas	210	24	32	21	391,815	13	58	2
Kentucky	95	30	36	28	183,097	5	175	8
Louisiana	59	27	44	27	106,961	3	54	1
Maine	72	31	36	30	137,463	14	175	17
Maryland	51	20	37	20	95,530	2	131	3
Massachusetts	56	15	6	6	120,631	2	39	0
Michigan	256	33	12	16	496,031	6	49	1
Minnesota	75	22	39	21	163,895	4	183	6
Mississippi	160	21	100	27	290,281	10	275	20
Missouri	182	17	64	18	345,543	7	115	2
Montana	40	30	38	31	74,746	9	98	17
Nebraska	105	19	59	27	175,714	10	59	2
Nevada	16	20	9	20	31,846	1	78	3
New Hampshire	36	28	22	27	70,288	8	126	11
New Jersey	139	18	55	13	288,577	3	201	1
New Mexico	2	6	1	4	4,094	1	1	1
New York	531	37	142	28	1,057,160	5	689	2
North Carolina	167	25	78	23	310,745	4	231	4
North Dakota	NR	NR	NR	NR	NR	NR	NR	NR

**Table D-3. CWNS 2008 comparison of small community facilities' needs and total needs:
facility serving population of 1,000 to 3,500 people (January 2008 dollars in millions) (continued)**

State	All projected small community facilities		Projected small community facilities with documented needs		Projected small community population		Documented needs for small communities	
	Number ^a	Percent of all facilities	Number ^a	Percent of all small community facilities	Number ^a	Percent of total state population	January 2008 dollars in millions	Percent of total CWNS needs
Ohio	283	23	130	22	521,434	5	373	3
Oklahoma	139	27	30	28	250,791	8	49	5
Oregon	83	29	13	15	154,974	3	67	2
Pennsylvania	638	33	152	25	1,221,694	10	1,161	10
Rhode Island	NR	NR	NR	NR	NR	NR	NR	NR
South Carolina	34	18	4	7	71,613	2	25	5
South Dakota	7	27	7	27	14,363	4	10	10
Tennessee	105	30	41	24	204,652	4	59	5
Texas	652	32	136	27	1,271,782	5	506	6
Utah	38	12	12	10	67,910	2	24	1
Vermont	41	44	12	38	78,313	17	35	16
Virginia	125	30	57	25	237,321	3	339	5
Washington	23	13	10	9	42,831	1	81	2
West Virginia	162	36	117	43	307,761	18	522	18
Wisconsin	262	26	170	30	463,051	9	401	7
Wyoming	27	22	23	30	50,239	10	28	24
American Samoa	NR	NR	NR	NR	NR	NR	NR	NR
Guam	0	0	0	0	0	0	0	0
N. Mariana Islands	5	36	1	33	8,400	8	4	25
Puerto Rico	2	3	1	2	3,527	<1	1	<1
Virgin Islands	NR	NR	NR	NR	NR	NR	NR	NR
Total	6,351	26	2,273	23	12,075,818	4	8,538	3

Notes:

NR = not reported. Alaska, North Dakota, Rhode Island, American Samoa, and the Virgin Islands did not participate in the CWNS 2008.

^aDecentralized wastewater treatment systems might be reported at the county level and therefore a single facility might represent one or more communities that are considered small communities for the purposes of the CWNS. As a result, it is likely that the number of small communities in these states are under-reported. County level facilities serving more than 10,000 people are included in this table.

Table D-3 provides the subset of Table D-1 data for the needs for small community facilities estimated to be serving populations in the range of 1,000 to 3,500 people if all documented needs are met.

**Appendix D: CWNS 2008 Comparison
of Small Community Facilities' Needs and Total Needs**

**Table D-4. CWNS 2008 comparison of small community facilities' needs and total needs:
facility serving population of fewer than 1,000 people (January 2008 dollars in millions)**

State	All projected small community facilities		Projected small community facilities with documented needs		Projected small community population		Documented needs for small communities	
	Number ^a	Percent of all facilities	Number ^a	Percent of all small community facilities	Number ^a	Percent of total state population	January 2008 dollars in millions	Percent of total CWNS needs
Alabama	35	12	29	11	22,601	1	72	2
Alaska	NR	NR	NR	NR	NR	NR	NR	NR
Arizona	15	7	5	4	9,324	<1	14	<1
Arkansas	251	45	55	32	101,526	3	76	16
California	187	20	8	4	84,603	<1	231	1
Colorado	120	44	114	45	49,254	2	125	9
Connecticut	20	9	5	5	10,979	<1	19	1
Delaware	7	18	2	8	3,009	<1	10	5
District of Columbia	0	0	0	0	0	0	0	0
Florida	21	5	14	4	12,006	<1	17	<1
Georgia	67	19	1	9	39,597	1	1	1
Hawaii	1	4	1	6	911	<1	6	<1
Idaho	116	46	18	23	45,022	2	51	4
Illinois	290	27	60	12	163,038	1	137	1
Indiana	154	27	18	11	93,562	2	38	1
Iowa	643	65	136	44	250,718	8	1,171	35
Kansas	531	61	34	22	176,220	6	39	1
Kentucky	76	24	15	12	38,623	1	46	2
Louisiana	64	30	41	25	29,163	1	80	2
Maine	81	34	26	21	30,409	3	70	7
Maryland	83	32	52	28	32,262	1	97	2
Massachusetts	38	10	1	1	20,727	<1	5	<1
Michigan	161	21	7	9	89,412	1	18	1
Minnesota	55	16	36	20	31,061	1	81	3
Mississippi	412	55	162	43	154,994	5	229	17
Missouri	632	61	184	52	218,541	4	121	2
Montana	54	41	47	39	21,195	3	58	10
Nebraska	401	72	127	59	131,388	8	61	2
Nevada	19	24	5	11	7,800	<1	4	<1
New Hampshire	40	31	12	15	14,225	2	26	2
New Jersey	113	15	10	2	43,685	<1	29	<1
New Mexico	2	6	1	4	1,328	<1	9	9
New York	262	18	70	14	135,454	1	243	1
North Carolina	198	30	63	18	96,093	1	238	4
North Dakota	NR	NR	NR	NR	NR	NR	NR	NR

**Table D-4. CWNS 2008 comparison of small community facilities' needs and total needs:
facility serving population of fewer than 1,000 people (January 2008 dollars in millions) (continued)**

State	All projected small community facilities		Projected small community facilities with documented needs		Projected small community population		Documented needs for small communities	
	Number ^a	Percent of all facilities	Number ^a	Percent of all small community facilities	Number ^a	Percent of total state population	January 2008 dollars in millions	Percent of total CWNS needs
Ohio	531	44	214	37	194,059	2	362	3
Oklahoma	250	49	46	43	108,764	4	35	3
Oregon	87	30	10	12	40,719	1	13	<1
Pennsylvania	583	30	151	25	281,473	2	442	4
Rhode Island	NR	NR	NR	NR	NR	NR	NR	NR
South Carolina	23	12	13	22	6,979	<1	15	3
South Dakota	11	42	11	42	5,103	1	19	19
Tennessee	70	20	16	9	41,684	1	15	1
Texas	447	22	57	11	236,114	1	39	<1
Utah	99	31	10	9	35,937	1	1,281	44
Vermont	8	9	0	0	4,845	1	0	0
Virginia	117	28	55	24	58,099	1	191	3
Washington	33	18	10	9	16,993	<1	29	1
West Virginia	121	27	62	23	51,541	3	105	4
Wisconsin	504	50	181	32	206,447	4	179	3
Wyoming	72	58	31	41	27,420	5	16	13
American Samoa	NR	NR	NR	NR	NR	NR	NR	NR
Guam	0	0	0	0	0	0	0	0
N. Mariana Islands	2	14	0	0	1,100	1	0	0
Puerto Rico	20	28	0	0	2,610	<1	0	0
Virgin Islands	NR	NR	NR	NR	NR	NR	NR	NR
Total	8,127	33	2,226	23	3,478,617	1	6,163	2

Notes:

NR = not reported. Alaska, North Dakota, Rhode Island, American Samoa, and the Virgin Islands did not participate in the CWNS 2008.

^aDecentralized wastewater treatment systems might be reported at the county level and therefore a single facility might represent one or more communities that are considered small communities for the purposes of the CWNS. As a result, it is likely that the number of small communities in these states are under-reported. County level facilities serving more than 10,000 people are included in this table.

Table D-4 provides the subset of Table D-1 data for the needs for small community facilities estimated to be serving populations of fewer than 1,000 people if all documented needs are met.

**Appendix D: CWNS 2008 Comparison
of Small Community Facilities' Needs and Total Needs**

Appendix E

**CWNS 2008 UNOFFICIAL
COST ESTIMATES BY STATE**

Table E-1. CWNS 2008 unofficial cost estimates (January 2008 dollars in millions)

State	Total	Category of unofficial need														Total I-V	
		I	II	III-A	III-B	IV-A	IV-B	V	Total VI	Total VII	Total VIII	IX	X	XII	XIII		
Alabama	68	10	23	6	19	6	4	0	0	0	0	0	0	0	0	0	68
Alaska	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Arizona	696	68	126	0	65	148	220	0	51	9	0	0	9	0	0	0	627
Arkansas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
California	106	49	54	0	3	0	0	0	0	0	0	0	0	0	0	0	106
Colorado	49	2	16	0	11	2	0	0	2	2	0	0	0	0	0	14	31
Connecticut	125	12	13	13	2	7	11	0	30	37	0	0	0	0	0	0	58
Delaware	22	7	0	0 ^a	8	7	0	0	0	0	0	0	0	0	0	0	22
District of Columbia	17	0	0	0	0	0	0	0	17	0	0	0	0	0	0	0	0
Florida	119	0	0	0	33	4	0	0	76	0	0	0	0	0	0	6	37
Georgia	318	27	259	8	4	10	10	0	0	0	0	0	0	0	0	0	318
Hawaii	44	12	0	0	15	17	0	0	0	0	0	0	0	0	0	0	44
Idaho	0 ^a	0	0	0	0	0	0	0	0	0 ^a	0	0	0	0	0	0	0
Illinois	9	0	0	0	9	0	0	0	0	0	0	0	0	0	0	0	9
Indiana	20	9	0	0 ^a	0	0	0	0	0	10	0	0	0	0	0	1	9
Iowa	111	22	18	10	41	9	5	0	6	0	0	0	0	0	0	0	105
Kansas	4,572	81	53	13	7	42	46	0	47	3,692	0	0	0	591	0	0	242
Kentucky	477	96	5	16	31	172	77	79	1	0	0	0	0	0	0	0	476
Louisiana	4	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	4
Maine	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Maryland	196	49	40	8	20	20	9	2	28	20	0	0	0	0 ^a	0	0	148
Massachusetts	1,096	122	57	13	113	261	14	202	22	55	0	0	3	233	1	782	
Michigan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minnesota	5,683	287	57	19	62	48	110	0	257	4,722	0	0	0	121	0	583	
Mississippi	146	25	2	0 ^a	59	39	16	0	0	0	0	0	0	5	0	141	
Missouri	3	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	3
Montana	0 ^a	0 ^a	0	0	0 ^a	0	0	0	0	0	0	0	0	0	0	0	0 ^a
Nebraska	1	0 ^a	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Nevada	27	7	8	0	8	0	4	0	0	0	0	0	0	0	0	0	27
New Hampshire	9	0	0	0	0	0	0	0	0	9	0	0	0	0	0	0	0
New Jersey	5,542	257	144	33	82	66	75	1,136	130	3,506	92	0	6	15	0	1,793	
New Mexico	73	24	36	0	3	5	0	0 ^a	0	0	0	0	0 ^a	5	0	68	
New York	2,090	797	0	9	2	3	2	0	2	1,255	18	0	0	0 ^a	2	813	
North Carolina	1,528	148	217	21	129	690	237	0	20	57	0	0	6	2	1	1,442	
North Dakota	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Ohio	65	0	0	0	0	0	0	65	0 ^a	0	0	0	0	0	0	0	65

Table E-1. CWNS 2008 unofficial cost estimates (January 2008 dollars in millions) (continued)

State	Total	Category of unofficial need														Total I-V	
		I	II	III-A	III-B	IV-A	IV-B	V	Total VI	Total VII	Total VIII	IX	X	XII	XIII		
Oklahoma	151	0	31	0	0	0	0	0	0	0	0	0	0	0	0	120	31
Oregon	930	123	0	0 ^a	537	90	0	0	180	0	0	0	0	0	0	0 ^a	750
Pennsylvania	234	60	2	0	9	13	8	0	40	102	0	0	0	0	0 ^a	92	
Rhode Island	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
South Carolina	37	1	21	0	8	3	4	0	0	0	0	0	0	0	0	0	37
South Dakota	24	0	7	0	6	4	0	0	2	5	0	0	0	0	0	0	17
Tennessee	12	10	1	1	0	0	0	0	0	0	0	0	0	0	0	0	12
Texas	2,604	527	284	87	473	270	799	0	94	64	0	0	6	0	0	2,440	
Utah	84	6	6	0	12	15	44	0	0	0	0	0	0	1	0	83	
Vermont	32	9	9	1	3	4	3	3	0	0	0	0	0	0 ^a	0	32	
Virginia	6,870	0	0	0	0	0	0	0	6,870	0	0	0	0	0	0	0	
Washington	25	12	3	5	5	0	0 ^a	0	0	0	0	0	0	0	0	25	
West Virginia	13	3	1	0 ^a	0 ^a	3	2	4	0	0	0	0	0	0	0	13	
Wisconsin	1,422	20	0	0 ^a	0 ^a	125	41	0	709	504	0	0	0	23	0	186	
Wyoming	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
American Samoa	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	
Guam	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
N. Mariana Islands	138	25	0	0	14	53	43	0	0	0	0	0	0	3	0	135	
Puerto Rico	942	2	66	0	0	1	0	0	214	277	2	0	0	312	68	69	
Virgin Islands	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	
Total	36,734	2,911	1,562	263	1,795	2,138	1,784	1,491	8,798	14,326	112	0	30	1,311	213	11,944	

Categories

I Secondary wastewater treatment

II Advanced wastewater treatment

III-A Infiltration/inflow correction

III-B Sewer replacement/rehabilitation

IV-A New collector sewers and appurtenances

IV-B New interceptor sewers and appurtenances

V Combined sewer overflow correction

VI Stormwater management (see Table E-2 for totals by subcategory)

VII NPS pollution control

X Recycled water distribution

XII Decentralized wastewater treatment systems

Notes:

NR = not reported. Alaska, North Dakota, Rhode Island, American Samoa, and the Virgin Islands did not participate in the CWNS 2008.

^aEstimate is less than \$0.5 million.

Table E-1 summarizes the total Unofficial Cost Estimates, which are needs entered by the State that did not meet this Report's Chapter 1 definition of needs. Unofficial Cost Estimates are optional and are in addition to the documented needs.

**Table E-2. CWNS 2008 total unofficial cost estimates for stormwater management
(January 2008 dollars in millions)**

State	Category of unofficial need					Total
	VI	VI-A	VI-B	VI-C	VI-D	
Alabama	0	0	0	0	0	0
Alaska	NR	NR	NR	NR	NR	NR
Arizona	0 ^a	22	2	0	27	51
Arkansas	0	0	0	0	0	0
California	0	0	0	0	0	0
Colorado	2	0	0	0	0	2
Connecticut	0	30	0	0	0	30
Delaware	0	0	0	0	0	0
District of Columbia	0	7	0	0	10	17
Florida	0	0	75	0	1	76
Georgia	0	0	0	0	0	0
Hawaii	0	0	0	0	0	0
Idaho	0	0	0	0	0	0
Illinois	0	0	0	0	0	0
Indiana	0	0	0	0	0	0
Iowa	0	1	1	1	3	6
Kansas	42	3	2	0 ^a	0	47
Kentucky	0	1	0	0	0	1
Louisiana	0	0	0	0	0	0
Maine	0	0	0	0	0	0
Maryland	0	0	18	10	0 ^a	28
Massachusetts	0	7	14	0 ^a	1	22
Michigan	0	0	0	0	0	0
Minnesota	0	149	103	4	1	257
Mississippi	0	0	0	0	0	0
Missouri	0	0	0	0	0	0
Montana	0	0	0	0	0	0
Nebraska	0	0	0	0	0	0
Nevada	0	0	0	0	0	0
New Hampshire	0	0	0	0	0	0
New Jersey	36	74	7	3	10	130
New Mexico	0	0	0	0	0	0
New York	0 ^a	1	1	0	0 ^a	2
North Carolina	0	7	4	3	6	20
North Dakota	NR	NR	NR	NR	NR	NR
Ohio	0	0 ^a	0	0	0 ^a	0 ^a

Table E-2. CWNS 2008 total unofficial cost estimates for stormwater management
(January 2008 dollars in millions) (continued)

State	Category of unofficial need					Total
	VI	VI-A	VI-B	VI-C	VI-D	
Oklahoma	0	0	0	0	0	0
Oregon	0	180	0	0	0 ^a	180
Pennsylvania	40	0	0	0	0	40
Rhode Island	NR	NR	NR	NR	NR	NR
South Carolina	0	0	0	0	0	0
South Dakota	0	2	0	0	0	2
Tennessee	0	0	0	0	0	0
Texas	0	88	6	0 ^a	0	94
Utah	0	0	0	0	0	0
Vermont	0	0	0	0	0	0
Virginia	6,870	0	0	0	0	6,870
Washington	0	0	0	0	0	0
West Virginia	0	0	0	0	0	0
Wisconsin	709	0	0	0	0	709
Wyoming	0	0	0	0	0	0
American Samoa	NR	NR	NR	NR	NR	NR
Guam	0	0	0	0	0	0
N. Mariana Islands	0	0	0	0	0	0
Puerto Rico	0	168	3	22	21	214
Virgin Islands	NR	NR	NR	NR	NR	NR
Total	7,699	740	236	43	80	8,798

Categories

- VI-A Conveyance Infrastructure
- VI-B Treatment Systems
- VI-C Green Infrastructure
- VI-D General Stormwater Management

Notes:

NR = not reported. Alaska, North Dakota, Rhode Island, American Samoa, and the Virgin Islands did not participate in the CWNS 2008.

^a Estimate is less than \$0.5 million.

Table E-2 summarizes CWNS 2008 Unofficial Cost Estimates for Stormwater Management projects related activities. The subcategory totals provided here are summarized in the Category VI column of Table E-1.

Table E-3. CWNS 2008 total unofficial cost estimates for nonpoint point source pollution control projects (January 2008 dollars in millions)

State	Category of unofficial need											Total
	A	B	C	E	F	G	H	I	J	K	M	
Alabama	0	0	0	0	0	0	0	0	0	0	0	0
Alaska	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Arizona	0 ^a	0 ^a	0	0 ^a	0	1	2	3	3	0	0	9
Arkansas	0	0	0	0	0	0	0	0	0	0	0	0
California	0	0	0	0	0	0	0	0	0	0	0	0
Colorado	0	0	0	2	0	0	0	0	0	0	0	2
Connecticut	0	0	0	0	0 ^a	0	0	0	37	0	0	37
Delaware	0	0	0	0	0	0	0	0	0	0	0	0
District of Columbia	0	0	0	0	0	0	0	0	0	0	0	0
Florida	0	0	0	0	0	0	0	0	0	0	0	0
Georgia	0	0	0	0	0	0	0	0	0	0	0	0
Hawaii	0	0	0	0	0	0	0	0	0	0	0	0
Idaho	0	0 ^a	0	0	0	0	0	0	0	0	0	0 ^a
Illinois	0	0	0	0	0	0	0	0	0	0	0	0
Indiana	10	0	0	0	0	0	0	0	0	0	0	10
Iowa	0	0	0	0	0	0	0	0	0	0	0	0
Kansas	2,265	985	0	0	0	0	0	0	0	442	0	3,692
Kentucky	0	0	0	0	0	0	0	0	0	0	0	0
Louisiana	0	0	0	0	0	0	0	0	0	0	0	0
Maine	0	0	0	0	0	0	0	0	0	0	0	0
Maryland	0	0	0	0	0 ^a	0	0	0	6	14	0	20
Massachusetts	0	0	0	0	0	0	0 ^a	0	54	1	0	55
Michigan	0	0	0	0	0	0	0	0	0	0	0	0
Minnesota	1	3	0	0	0	0	4,714	0 ^a	0	4	0	4,722
Mississippi	0	0	0	0	0	0	0	0	0	0	0	0
Missouri	0	0	0	0	0	0	0	0	0	0	0	0
Montana	0	0	0	0	0	0	0	0	0	0	0	0
Nebraska	0	0	0	0	0	0	0	0	0	0	0	0
Nevada	0	0	0	0	0	0	0	0	0	0	0	0
New Hampshire	0	0	0	0	0	0	0	0	9	0	0	9
New Jersey	990	59	105	2,050	0	0	217	59	21	5	0	3,506
New Mexico	0	0	0	0	0	0	0	0	0	0	0	0
New York	14	3	0	68	0	0	0	1	12	1,157	0	1,255
North Carolina	0 ^a	0	0	0	0	0	0 ^a	0	0	57	0	57
North Dakota	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Ohio	0	0	0	0	0	0	0	0	0	0	0	0

Table E-3. CWNS 2008 total unofficial cost estimates for nonpoint point source pollution control projects (January 2008 dollars in millions) (continued)

State	Category of unofficial need											Total
	A	B	C	E	F	G	H	I	J	K	M	
Oklahoma	0	0	0	0	0	0	0	0	0	0	0	0
Oregon	0	0	0	0	0	0	0	0	0	0	0	0
Pennsylvania	11	11	0	0	0	56	0	0	0	24	0	102
Rhode Island	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
South Carolina	0	0	0	0	0	0	0	0	0	0	0	0
South Dakota	0 ^a	2	0	0	0	0	0	0	0	3	0	5
Tennessee	0	0	0	0	0	0	0	0	0	0	0	0
Texas	0	0	0	0	0	64	0	0	0	0	0	64
Utah	0	0	0	0	0	0	0	0	0	0	0	0
Vermont	0	0	0	0	0	0	0	0	0	0	0	0
Virginia	0	0	0	0	0	0	0	0	0	0	0	0
Washington	0	0	0	0	0	0	0	0	0	0	0	0
West Virginia	0	0	0	0	0	0	0	0	0	0	0	0
Wisconsin	92	148	0	14	0	0	0	0	0	250	0	504
Wyoming	0	0	0	0	0	0	0	0	0	0	0	0
American Samoa	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Guam	0	0	0	0	0	0	0	0	0	0	0	0
N. Mariana Islands	0	0	0	0	0	0	0	0	0	0	0	0
Puerto Rico	0	0	0	9	0	0	3	0 ^a	107	157	1	277
Virgin Islands	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Total	3,383	1,211	105	2,143	0^a	121	4,936	63	249	2,114	1	14,326

Categories

A Agriculture (cropland)	F Marinas	J Sanitary landfills
B Agriculture (animals)	G Resource extraction	K Hydromodification
C Silviculture	H Brownfields	M Other estuary management activities
E Ground water protection (unknown source)	I Storage tanks	

Notes:

NR = not reported. Alaska, North Dakota, Rhode Island, American Samoa, and the Virgin Islands did not participate in the CWNS 2008.

^a Estimate is less than \$0.5 million.

Table E-3 summarizes CWNS 2004 Unofficial Cost Estimates for NPS-related activities. The subcategory totals provided here are summarized in the Category VII column of Table E-1.

**Table E-4. CWNS 2008 total unofficial cost estimates for small community facilities
(January 2008 dollars in millions)**

State	Total needs	Percent of total needs	Category of unofficial need										Total I-V
			I	II	III-A	III-B	IV-A	IV-B	V	X	XII	XIII	
Alabama	29	43	5	2	4	11	4	3	0	0	0	0	29
Alaska	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Arizona	90	13	7	51	0	2	27	3	0	0	0	0	90
Arkansas	0	0	0	0	0	0	0	0	0	0	0	0	0
California	54	51	0	54	0	0	0	0	0	0	0	0	54
Colorado	8	16	2	0	0	4	2	0	0	0	0	0	8
Connecticut	17	14	3	5	2	0 ^a	2	5	0	0	0	0	17
Delaware	9	41	0	0	0	2	7	0	0	0	0	0	9
District of Columbia	0	0	0	0	0	0	0	0	0	0	0	0	0
Florida	0 ^a	<1	0	0	0	0 ^a	0	0	0	0	0	0	0 ^a
Georgia	20	6	3	3	2	2	6	4	0	0	0	0	20
Hawaii	20	45	8	0	0	0	12	0	0	0	0	0	20
Idaho	0	0	0	0	0	0	0	0	0	0	0	0	0
Illinois	0	0	0	0	0	0	0	0	0	0	0	0	0
Indiana	0 ^a	<1	0	0	0 ^a	0	0	0	0	0	0	0	0 ^a
Iowa	72	65	17	14	7	25	6	3	0	0	0	0	72
Kansas	680	15	15	3	8	2	33	28	0	0	591	0	89
Kentucky	149	31	32	5	10	6	75	21	0	0	0	0	149
Louisiana	4	100	2	0	0	2	0	0	0	0	0	0	4
Maine	0	0	0	0	0	0	0	0	0	0	0	0	0
Maryland	99	51	30	27	8	10	16	7	1	0	0	0	99
Massachusetts	113	10	4	0	0	4	50	0	0	0	55	0	58
Michigan	0	0	0	0	0	0	0	0	0	0	0	0	0
Minnesota	255	4	59	6	9	26	15	23	0	0	117	0	138
Mississippi	74	51	9	0	0 ^a	13	31	16	0	0	5	0	69
Missouri	3	100	0	3	0	0	0	0	0	0	0	0	3
Montana	0	0	0	0	0	0	0	0	0	0	0	0	0
Nebraska	1	100	0 ^a	0	0	0	1	0	0	0	0	0	1
Nevada	19	70	7	5	0	5	0	2	0	0	0	0	19
New Hampshire	0	0	0	0	0	0	0	0	0	0	0	0	0
New Jersey	54	1	14	16	4	17	2	0	0	1	0 ^a	0	53
New Mexico	0 ^a	<1	0 ^a	0	0	0	0	0	0	0	0	0	0 ^a
New York	12	1	6	0	3	0	3	0	0	0	0 ^a	0	12

Table E-4. CWNS 2008 total unofficial cost estimates for small community facilities
(January 2008 dollars in millions) (continued)

State	Total needs	Percent of total needs	Category of unofficial need										Total I-V
			I	II	III-A	III-B	IV-A	IV-B	V	X	XII	XIII	
North Carolina	156	10	20	5	9	6	87	27	0	0 ^a	2	0	154
North Dakota	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Ohio	0	0	0	0	0	0	0	0	0	0	0	0	0
Oklahoma	0	0	0	0	0	0	0	0	0	0	0	0	0
Oregon	0 ^a	<1	0 ^a	0	0 ^a	0 ^a	0 ^a	0	0	0	0	0	0 ^a
Pennsylvania	41	18	13	2	0	5	13	8	0	0	0	0	41
Rhode Island	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
South Carolina	8	22	0	0	0	4	0	4	0	0	0	0	8
South Dakota	13	54	0	6	0	3	4	0	0	0	0	0	13
Tennessee	0 ^a	<1	0 ^a	0	0 ^a	0	0	0	0	0	0	0	0 ^a
Texas	143	5	25	8	0 ^a	43	47	19	0	1	0	0	142
Utah	12	14	1	0 ^a	0	4	2	4	0	0	1	0	11
Vermont	15	47	2	7	0 ^a	1	3	2	0	0	0 ^a	0	15
Virginia	0	0	0	0	0	0	0	0	0	0	0	0	0
Washington	18	72	10	3	0	5	0	0	0	0	0	0	18
West Virginia	5	38	1	0 ^a	0 ^a	0 ^a	2	2	0 ^a	0	0	0	5
Wisconsin	208	15	19	0	0	0	125	41	0	0	23	0	185
Wyoming	0	0	0	0	0	0	0	0	0	0	0	0	0
American Samoa	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Guam	0	0	0	0	0	0	0	0	0	0	0	0	0
N. Mariana Islands	65	47	4	0	0	13	26	19	0	0	3	0	62
Puerto Rico	16	2	2	0	0	0	0	0	0	0	14	0	2
Virgin Islands	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Total	2,482	7	320	225	66	215	601	241	1	2	811	0	1,669

Categories

I Secondary wastewater treatment	IV-A New collector sewers and appurtenances	X Recycled water distribution
II Advanced wastewater treatment	IV-B New interceptor sewers and appurtenances	XII Decentralized wastewater treatment systems
III-A Infiltration/inflow correction	V Combined sewer overflow correction	XIII
III-B Sewer replacement/rehabilitation	VII NPS pollution control	

Notes:

NR = not reported. Alaska, North Dakota, Rhode Island, American Samoa, and the Virgin Islands did not participate in the CWNS 2008.

^a Estimate is less than \$0.5 million.

Table E-4 summarizes the Unofficial Cost Estimates for small communities. These needs are shown by category of need in each State. The Unofficial Needs are optional and are in addition to the documented needs.

Appendix F

TOTAL INDIAN HEALTH SERVICE WASTEWATER NEEDS

Table F-1. Total Indian Health Service wastewater needs (November 2007 dollars)

State	Total
Alabama	2,430,505
Alaska	281,960,038
Arizona	109,615,791
California	58,807,121
Colorado	1,535,500
Florida	5,140,754
Idaho	3,539,787
Iowa	100,000
Kansas	364,623
Louisiana	2,643,520
Maine	1,240,740
Massachusetts	152,000
Michigan	1,299,150
Minnesota	19,203,210
Mississippi	8,082,000
Montana	12,420,080

State	Total
Nebraska	872,000
Nevada	519,000
New Mexico	78,395,068
New York	7,193,000
North Carolina	20,502,200
North Dakota	13,868,000
Oklahoma	16,758,341
Oregon	5,200,700
South Carolina	190,000
South Dakota	25,647,422
Texas	1,833,000
Utah	3,811,315
Washington	17,426,479
Wisconsin	17,224,490
Wyoming	1,252,000
Total	719,227,834

Appendix G

**STATE REVOLVING FUND
ELIGIBLE NEEDS**

Table G-1. CWNS 2008 total State Revolving Fund eligible needs (January 2008 dollars in millions)

State	Total	SRF audit results*	Category of SRF eligible need											
			I	II	III-A	III-B	IV-A	IV-B	V	Total VI	Total VII	X	XII	Total I-V
Alabama	4,425	100.00%	669	864	287	1,470	481	653	1	0	0	0 ^a	0	4,425
Alaska	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Arizona	5,256	99.72%	358	1,936	7	450	677	990	0	460	27	351	0	4,418
Arkansas	860	99.99%	14	129	69	64	100	88	0	0 ^a	396	0	0	464
California	30,012	100.00%	12,171	4,105	55	5,476	867	1,528	233	3,765	106	1,706	0	24,435
Colorado	1,470	100.00%	356	706	3	108	119	52	0	117	0 ^a	9	0	1,344
Connecticut	4,303	100.00%	677	448	549	50	129	191	1,528	0	443	0	288	3,572
Delaware	222	100.00%	21	54	1	36	77	8	25	0	0	0	0	222
District of Columbia	2,545	100.00%	173	483	0	0	0	0	1,889	0	0 ^a	0	0	2,545
Florida	23,787	99.97%	0	9,356	135	1,529	3,013	1,828	0	2,498	2,079	1,198	2,151	15,861
Georgia	122	100.00%	31	37	0	2	10	1	0	8	31	0	2	81
Hawaii	1,759	100.00%	290	50	31	538	99	547	0	0	0	202	2	1,555
Idaho	1,465	100.00%	438	581	30	107	120	92	0	9	88	0 ^a	0	1,368
Illinois	17,571	100.00%	4,088	363	110	1,377	381	269	10,876	36	71	0	0	17,464
Indiana	7,693	99.52%	335	478	21	359	506	226	5,041	151	15	0	561	6,966
Iowa	3,720	100.00%	233	1,608	89	365	83	269	748	34	288	0	3	3,395
Kansas	3,246	100.00%	761	634	377	252	35	573	522	92	0	0	0	3,154
Kentucky	2,123	100.00%	317	137	37	131	484	699	312	0	1	0	5	2,117
Louisiana	4,923	99.98%	1,303	81	1,055	958	392	100	0	122	891	21	0	3,889
Maine	2,368	99.90%	300	24	50	117	170	30	307	26	21	0	1,323	998
Maryland	13,906	100.00%	1,069	1,807	174	778	154	268	463	3,755	465	2	4,971	4,713
Massachusetts	8,817	100.00%	728	1,885	19	1,111	2,033	64	2,044	41	99	26	767	7,884
Michigan	7,035	100.00%	867	24	43	737	53	126	1,555	310	3,319	0	1	3,405
Minnesota	6,169	100.00%	786	138	151	1,181	106	760	0	987	766	0	1,294	3,122
Mississippi	3,325	100.00%	146	199	73	376	375	243	0	0	1,759	0	154	1,412
Missouri	6,341	100.00%	1,071	108	1,212	429	117	555	1,689	565	530	0	65	5,181
Montana	578	100.00%	263	48	22	119	58	44	0	24	0	0	0	554
Nebraska	4,576	100.00%	665	403	13	62	19	671	1,318	71	1,354	0	0	3,151
Nevada	3,115	100.00%	101	1,762	0	193	191	86	0	515	202	65	0	2,333
New Hampshire	1,208	100.00%	449	85	39	160	42	116	253	63	1	0	0	1,144
New Jersey	34,906	100.00%	1,829	4,470	314	948	822	223	8,176	15,626	1,742	99	657	16,782
New Mexico	85	100.00%	2	60	0	21	0 ^a	0	1	0	0 ^a	1	0	84
New York	35,445	100.00%	15,779	1,243	153	3,644	922	235	6,648	1,091	5,565	0	165	28,624
North Carolina	6,791	100.00%	188	2,355	380	522	1,057	1,713	4	87	234	245	6	6,219
North Dakota	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Ohio	15,451	100.00%	1,301	254	685	2,195	837	605	7,509	788	15	0	1,262	13,386

Table G-1. CWNS 2008 total State Revolving Fund eligible needs (January 2008 dollars in millions)(continued)

State	Total	SRF audit results*	Category of SRF eligible need											
			I	II	III-A	III-B	IV-A	IV-B	V	Total VI	Total VII	X	XII	Total I-V
Oklahoma	1,298	100.00%	280	56	1	409	84	233	0	235	0	0	0	1,063
Oregon	4,880	100.00%	1,559	418	66	488	299	195	427	321	1,102	5	0	3,452
Pennsylvania	18,243	100.00%	918	393	349	570	800	161	8,747	6,001	304	0	0 ^a	11,938
Rhode Island	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
South Carolina	566	100.00%	132	269	4	25	47	60	0	29	0	0	0	537
South Dakota	121	100.00%	0	48	0	23	17	12	0	6	15	0	0	100
Tennessee	1,369	100.00%	443	25	193	201	123	83	96	191	0	9	5	1,164
Texas	11,713	100.00%	2,575	1,283	331	1,296	836	1,768	0	3,145	174	305	0	8,089
Utah	2,943	99.74%	302	1,950	0 ^a	104	132	406	0	0 ^a	2	45	2	2,894
Vermont	203	100.00%	59	55	2	9	69	7	2	0	0	0	0 ^a	203
Virginia	6,781	100.00%	1,522	1,801	366	1,427	710	335	616	0	0	0	4	6,777
Washington	5,249	100.00%	1,706	642	95	696	926	131	584	329	0	140	0	4,780
West Virginia	3,488	100.00%	339	74	36	387	355	239	1,467	117	143	0	331	2,897
Wisconsin	6,602	100.00%	1,821	597	250	1,867	321	500	412	593	241	0	0	5,768
Wyoming	316	100.00%	41	7	0	42	23	5	0	37	160	1	0 ^a	118
American Samoa	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Guam	364	100.00%	129	0	0 ^a	168	67	0	0	0	0	0	0	364
N. Mariana Islands	25	100.00%	2	0	0	15	4	0	0	0	4	0	0 ^a	21
Puerto Rico	4,751	100.00%	277	768	304	49	1,975	1,355	23	0	0	0	0	4,751
Virgin Islands	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Total	334,530	99.99%	59,884	45,301	8,181	33,641	21,317	19,343	63,516	42,245	22,653	4,430	14,019	251,184

Categories

I Secondary wastewater treatment
 II Advanced wastewater treatment
 III-A Infiltration/inflow correction
 III-B Sewer replacement/rehabilitation

IV-A New collector sewers and appurtenances
 IV-B New interceptor sewers and appurtenances
 V Combined sewer overflow correction
 VI Stormwater management

VII NPS pollution control
 X Recycled water distribution
 XII Decentralized wastewater treatment systems

Notes:

NR = not reported. Alaska, North Dakota, Rhode Island, American Samoa, and the Virgin Islands did not participate in the CWNS 2008.

^a Estimate is less than \$0.5 million.

Table G-1 summarizes by State the CWNS 2008 assessment of Clean Water State Revolving Fund (CWSRF) eligible needs for wastewater treatment, pipe repairs, new pipes, stormwater management, NPS pollution control, recycled water distribution, and decentralized wastewater treatment systems. These needs include all planning, design, and construction activities eligible for funding under the CWSRF in accordance with Title VI of the Clean Water Act. Table G-1 is a sub-set of the official needs presented in Table B-1 and other documented needs presented in Table B-3.

Appendix H

CWNS 2004

DOCUMENTED NEEDS BY STATE

Table H-1. CWNS 2004 total needs (January 2008 dollars in millions)

State	Total	Percent change 2004-2008	Category of need									Total I-V
			I	II	III-A	III-B	IV-A	IV-B	V	VI	X	
Alabama	4,164	6	134	1,238	192	1,927	533	140	0 ^a	0 ^a	0 ^a	4,164
Alaska	NR	NA	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Arizona	7,318	-29	1,490	1,341	81	465	1,030	1,008	0 ^a	1,470	433	5,415
Arkansas	483	-3	38	145	78	2	84	136	0 ^a	0 ^a	0 ^a	483
California	24,359	23	8,945	4,733	113	4,121	848	2,479	302	518	2,300	21,541
Colorado	2,804	-48	386	1,714	11	186	110	113	0 ^a	267	17	2,520
Connecticut	3,660	-2	482	952	115	56	229	251	995	580	0 ^a	3,080
Delaware	159	40	41	32	5	13	37	6	25	0 ^a	0 ^a	159
District of Columbia	2,412	6	100	538	0 ^a	209	0 ^a	0 ^a	1,549	16	0 ^a	2,396
Florida	19,954	-2	40	5,448	369	1,138	2,077	1,650	0 ^a	7,250	1,982	10,722
Georgia	2,786	-97	81	130	1,312	27	4	21	1,211	0 ^a	0 ^a	2,786
Hawaii	2,471	-29	776	45	622	582	120	192	0 ^a	0 ^a	134	2,337
Idaho	565	144	241	95	7	44	55	85	0 ^a	38	0 ^a	527
Illinois	15,889	10	1,328	175	58	1,914	206	236	11,972	0 ^a	0 ^a	15,889
Indiana	6,956	2	102	149	25	213	63	33	6,355	16	0 ^a	6,940
Iowa	1,132	203	236	114	25	101	31	117	506	2	0 ^a	1,130
Kansas	2,444	33	843	190	269	30	70	492	550	0 ^a	0 ^a	2,444
Kentucky	3,368	-37	712	65	229	269	930	916	215	32	0 ^a	3,336
Louisiana	3,946	2	737	152	1,725	486	385	459	0 ^a	2	0 ^a	3,944
Maine	1,034	<1	280	14	23	59	152	38	443	25	0 ^a	1,009
Maryland	6,966	22	1,016	2,559	196	1,029	570	569	510	516	1	6,449
Massachusetts	3,744	112	798	32	37	85	356	296	2,140	0 ^a	0 ^a	3,744
Michigan	7,257	-49	1,060	39	116	376	352	50	5,137	127	0 ^a	7,130
Minnesota	4,313	-5	1,322	33	145	509	105	1,108	11	1,080	0 ^a	3,233
Mississippi	1,177	20	102	196	79	339	252	209	0 ^a	0 ^a	0 ^a	1,177
Missouri	6,543	-12	1,197	15	1,476	491	213	615	1,729	807	0 ^a	5,736
Montana	695	-16	264	43	25	95	122	91	0 ^a	55	0 ^a	640
Nebraska	1,593	102	161	117	13	28	33	97	1,100	44	0 ^a	1,549
Nevada	361	707	8	139	0 ^a	12	31	102	0 ^a	13	56	292
New Hampshire	675	85	161	39	9	70	24	63	309	0 ^a	0 ^a	675
New Jersey	11,257	189	3,440	511	403	895	730	394	4,471	326	87	10,844
New Mexico	190	-46	83	6	0 ^a	46	32	23	0 ^a	0 ^a	0 ^a	190
New York	26,279	13	13,314	830	81	2,863	825	172	7,779	415	0 ^a	25,864
North Carolina	6,066	8	369	1,957	333	333	1,312	1,682	4	21	55	5,990
North Dakota	60	NA	5	0 ^a	0 ^a	11	0 ^a	44	0 ^a	0 ^a	0 ^a	60
Ohio	14,093	1	1,782	485	2,311	248	1,015	647	7,449	156	0 ^a	13,937
Oklahoma	1,242	5	288	66	0 ^a	330	88	234	0 ^a	236	0 ^a	1,006
Oregon	3,496	8	1,093	634	20	655	23	4	989	72	6	3,418

Table H-1. CWNS 2004 total needs (January 2008 dollars in millions) (continued)

State	Total	Percent change 2004-2008	Category of need									Total I-V
			I	II	III-A	III-B	IV-A	IV-B	V	VI	X	
Pennsylvania	14,555	23	926	348	413	179	974	170	5,499	6,046	0 ^a	8,509
Rhode Island	1,385	NA	98	103	19	75	266	62	754	8	0 ^a	1,377
South Carolina	859	-34	236	437	5	23	75	52	0 ^a	31	0 ^a	828
South Dakota	80	33	20	14	0 ^a	4	41	0 ^a	0 ^a	1	0 ^a	79
Tennessee	1,230	11	239	31	261	153	95	113	338	0 ^a	0 ^a	1,230
Texas	10,060	15	1,878	689	386	1,205	1,076	1,447	0 ^a	3,365	14	6,681
Utah	688	327	206	76	2	78	134	171	0 ^a	0 ^a	21	667
Vermont	197	11	51	46	1	9	50	8	32	0 ^a	0 ^a	197
Virginia	5,583	23	797	2,013	147	814	578	627	607	0 ^a	0 ^a	5,583
Washington	4,681	12	2,232	41	158	332	202	868	610	224	14	4,443
West Virginia	3,013	<1	413	13	180	45	861	571	909	17	4	2,992
Wisconsin	5,878	8	1,124	109	105	1,675	473	376	481	1,535	0 ^a	4,343
Wyoming	223	-30	117	9	30	1	59	6	0 ^a	1	0 ^a	222
American Samoa	NR	NA	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Guam	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
N. Mariana Islands	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Puerto Rico	4,332	10	1,028	115	1	0 ^a	1,997	1,191	0 ^a	0 ^a	0 ^a	4,332
Virgin Islands	NR	NA	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Total	254,675	17	52,820	29,015	12,211	24,850	19,928	20,434	64,981	25,312	5,124	224,239

Categories

I Secondary wastewater treatment
 II Advanced wastewater treatment
 III-A Infiltration/inflow correction

III-B Sewer replacement/rehabilitation
 IV-A New collector sewers and appurtenances
 IV-B New interceptor sewers and appurtenances

V Combined sewer overflow correction
 VI Stormwater management
 X Recycled water distribution

Notes:

NR = not reported. Alaska, American Samoa, Guam, the Northern Mariana Islands, and the Virgin Islands did not participate in the CWNS 2004.
 NA = not available in 2008. Alaska, North Dakota, Rhode Island, American Samoa, and the Virgin Islands did not participate in the CWNS 2008.
^a Estimate is less than \$0.5 million.

Table H-1 summarizes the results of the CWNS 2004 of documented needs by State. All values from the CWNS 2004 have been adjusted to millions of January 2008 dollars. These design year needs were derived from those documented during the CWNS 2004. This table is provided for use in comparing the results of the CWNS 2004 and 2008.

In general, Table H-1 is comparable to Table B-1. Category VI has been expanded to include additional costs in areas not regulated by NPDES stormwater permits.

Table H-2. CWNS 2004 other documented needs (January 2008 dollars in millions)

State	Total	Percent change 2004-2008	Category of need										
			VII-A	VII-B	VII-C	VII-E	VII-F	VII-G	VII-H	VII-I	VII-J	VII-K	VII-L
Alabama	0	0	0	0	0	0	0	0	0	0	0	0	0
Alaska	NR	NA	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Arizona	148	-82	8	0 ^a	0	6	0	9	47	38	33	3	4
Arkansas	557	-29	89	456	5	0	0	8	0	0	0	0 ^a	0
California	1,220	-91	47	22	0	425	0	0	0	0	0	719	6
Colorado	61	-100	0	0	0	0	0	58	0	0	0	2	2
Connecticut	649	13	9	7	0	0	0	0	7	0	0	356	270
Delaware	0	0	0	0	0	0	0	0	0	0	0	0	0
District of Columbia	8	-99	0	0	0	0	0	0	0	5	0	3	0
Florida	6,344	95	11	2	0	3,123	0	0	14	0	0	3,171	22
Georgia	0	0	0	0	0	0	0	0	0	0	0	0	0
Hawaii	0	0	0	0	0	0	0	0	0	0	0	0	0
Idaho	176	-50	80	33	9	0	0 ^a	2	0	0	0	52	0 ^a
Illinois	63	16	42	0	0	0	0	0	0	0	0	21	0 ^a
Indiana	920	-37	4	3	0 ^a	0	0	0 ^a	0	0	0	0 ^a	912
Iowa	62	369	0	0	0	0	0	0	0	0	0	0	62
Kansas	0	0	0	0	0	0	0	0	0	0	0	0	0
Kentucky	1	500	0	0	0	0	1	0	0	0	0	0	0
Louisiana	983	-9	0	0	0	0	0	0	0	0	0	983	0
Maine	177	659	0	29	52	0	0	0	0	68	0	7	22
Maryland	286	1,801	0	0 ^a	0	0	0	0	0	10	177	90	10
Massachusetts	13	6,562	0	0	0	0	0	0	0	0	7	6	0
Michigan	1,036	220	43	10	13	0	0	0 ^a	0	663	0	305	3
Minnesota	3,387	-39	325	166	0	0	0	0	1,179	15	124	372	1,205
Mississippi	1,854	3	72	251	16	0	0	0	0	0	0	1,420	94
Missouri	1,210	-35	45	37	1	0	0	7	0	630	30	461	1
Montana	0	0	0	0	0	0	0	0	0	0	0	0	0
Nebraska	958	41	0	0	0	649	0	0	0	266	15	0	28
Nevada	3	6,633	0	0	0	0	0	0	0	0	0	3	0
New Hampshire	11	-91	0	0	0	0	0	0	0	0	9	0	2
New Jersey	4,201	-4	2	5	0	595	1	0 ^a	562	3	1,216	1,737	79
New Mexico	10	-90	1	0	0	3	0	0	7	0	0	0	0
New York	2,736	109	63	114	132	836	9	0	188	15	739	615	26
North Carolina	63	281	0	1	0	0	1	0	0	0	3	58	1
North Dakota	0	NA	0	0	0	0	0	0	0	0	0	0	0
Ohio	1,244	3	699	36	2	0	0	28	0	0	0	136	343
Oklahoma	0	0	0	0	0	0	0	0	0	0	0	0	0
Oregon	1	110,100	0	0	0	0	0	0	0	0	0	0	1

Table H-2. CWNS 2004 other documented needs (January 2008 dollars in millions) (continued)

State	Total	Percent change 2004–2008	Category of need										
			VII-A	VII-B	VII-C	VII-E	VII-F	VII-G	VII-H	VII-I	VII-J	VII-K	VII-L
Pennsylvania	913	-67	319	382	0	0	0	77	3	0	0	131	0 ^a
Rhode Island	223	NA	0	0	0	0	0	0	1	0	141	64	17
South Carolina	2	-100	0	0	0	0	0	0	0	0	0	2	0
South Dakota	21	-24	5	12	3	0	0	0	0	0	0	0	0 ^a
Tennessee	0 ^a	925	0	0	0	0	0	0	0	0	0	0	0 ^a
Texas	508	-62	4	0	0	0	0	0	0	0	0	111	392
Utah	7	-43	1	5	0	0	0	0 ^a	0	0	0	1	0
Vermont	5	-93	0	0	0	0	0	0	0	0	0	0	5
Virginia	0	-100	0	0	0	0	0	0	0	0	0	0	0
Washington	35	-100	2	7	0	0 ^a	0	0	0	16	0	8	3
West Virginia	6	7,800	0	0	0	0	0	0	0	0	0	0	6
Wisconsin	523	-54	93	156	0	14	0	0	32	0	6	200	22
Wyoming	81	93	4	0	0	0	0	0	0	43	31	0	3
American Samoa	NR	NA	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Guam	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
N. Mariana Islands	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Puerto Rico	0	0	0	0	0	0	0	0	0	0	0	0	0
Virgin Islands	NR	NA	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Total	30,707	52	1,969	1,733	233	5,651	12	190	2,041	1,771	2,533	11,034	3,541

Categories

VII-A Agriculture (cropland)

VII-B Agriculture (animals)

VII-C Silviculture

VII-E Ground water protection (unknown source)

VII-F Marinas

VII-G Resource extraction

VII-H Brownfields

VII-I Storage tanks

VII-J Sanitary landfills

VII-K Hydromodification

VII-L Individual/Decentralized Sewage Treatment

Notes:

NR = not reported. Alaska, American Samoa, Guam, the Northern Mariana Islands, and the Virgin Islands did not participate in the CWNS 2004.

NA = not available in 2008. Alaska, North Dakota, Rhode Island, American Samoa, and the Virgin Islands did not participate in the CWNS 2008.

^a Estimate is less than \$0.5 million.

Table H-2 summarizes the results of the CWNS 2004 of other documented needs by State. All values from the CWNS 2004 have been adjusted to millions of January 2008 dollars. These design year needs were derived from those documented during the CWNS 2004. This table is provided for use in comparing the results of the CWNS 2004 and 2008.

In general, Table H-2 is comparable to Table B-3.

Appendix I

**SUMMARY OF CWNS 2008
TECHNICAL INFORMATION**

Table I-1. CWNS 2008 number of operational treatment facilities and pipe systems in 2008 and number of operational treatment facilities and pipe systems if all documented needs are met

State	Operational in 2008		Operational if all documented needs are met	
	Treatment facilities	Pipe systems	Treatment facilities	Pipe systems
Alabama	286	291	293	301
Alaska	NR	NR	NR	NR
Arizona	121	134	181	195
Arkansas	362	408	383	443
California	570	801	623	858
Colorado	235	250	255	270
Connecticut	91	139	93	154
Delaware	18	34	17	38
District of Columbia	1	1	1	1
Florida	359	409	379	430
Georgia	306	337	306	338
Hawaii	22	22	24	25
Idaho	168	204	172	211
Illinois	675	959	743	1,040
Indiana	418	495	422	499
Iowa	763	800	779	820
Kansas	628	679	660	722
Kentucky	243	279	244	300
Louisiana	166	194	166	212
Maine	136	174	139	180
Maryland	167	225	173	244
Massachusetts	124	235	132	242
Michigan	391	700	393	702
Minnesota	139	274	142	280
Mississippi	315	377	413	533
Missouri	746	844	742	893
Montana	114	121	124	133
Nebraska	468	478	479	492
Nevada	48	68	54	75
New Hampshire	88	119	86	119
New Jersey	156	554	164	572
New Mexico	27	33	27	34
New York	582	942	645	1,037
North Carolina	330	493	353	560
North Dakota	NR	NR	NR	NR
Ohio	723	989	769	1,187

Table I-1. CWNS 2008 number of operational treatment facilities and pipe systems in 2008 and number of operational treatment facilities and pipe systems if all documented needs are met *(continued)*

State	Operational in 2008		Operational if all documented needs are met	
	Treatment facilities	Pipe systems	Treatment facilities	Pipe systems
Oklahoma	490	498	495	502
Oregon	215	262	215	268
Pennsylvania	830	1,605	913	1,779
Rhode Island	NR	NR	NR	NR
South Carolina	165	183	154	192
South Dakota	25	25	26	26
Tennessee	244	289	251	301
Texas	1,326	1,691	1,411	1,805
Utah	106	176	121	197
Vermont	73	82	73	85
Virginia	228	316	240	393
Washington	92	179	98	184
West Virginia	257	337	273	377
Wisconsin	591	861	613	968
Wyoming	97	116	101	122
American Samoa	NR	NR	NR	NR
Guam	6	6	6	6
N. Mariana Islands	2	4	4	15
Puerto Rico	47	47	47	48
Virgin Islands	NR	NR	NR	NR
Total	14,780	19,739	15,617	21,408

Notes:

NR = not reported. Alaska, North Dakota, Rhode Island, American Samoa, and the Virgin Islands did not participate in the CWNS 2008.

Table I-1 summarizes the number of wastewater treatment facilities and pipe systems in operation in 2008 in each State and the number of wastewater treatment facilities and pipe systems projected to be in operation in each State if all documented needs are met.

This table contains technical data only for facilities that were accepted by EPA. This table does not include data from facilities that were not updated by States in the CWNS 2008, either because the state did not participate in this survey or because the State did not have resources to update the facilities. Because of these analysis methods, numbers in this figure cannot be directly compared to other tables in Appendix I.

Table I-2. CWNS 2008 number of treatment facilities by flow range

Treatment facilities in operation in 2008 ^a			
Existing flow range (mgd)	Number of facilities	Total existing flow (mgd)	Present design capacity (mgd)
0.000 to 0.100	5,703	257	490
0.101 to 1.000	5,863	2,150	3,685
1.001 to 10.000	2,690	8,538	13,082
10.001 to 100.000	480	12,847	17,267
100.001 and greater	38	8,553	10,344
Other ^b	6	-	-
Total	14,780	32,345	44,868

Treatment facilities in operation if all documented needs are met ^a		
Existing flow range (mgd)	Number of facilities	Total future design flow capacity (mgd)
0.000 to 0.100	4,738	238
0.101 to 1.000	6,519	2,590
1.001 to 10.000	3,524	12,417
10.001 to 100.000	758	19,291
100.001 and greater	70	15,765
Other ^b	8	-
Total	15,617	50,302

Notes:

^a Alaska, North Dakota, Rhode Island, American Samoa, and the Virgin Islands did not participate in the CWNS 2008.

^b Flow data for these facilities were unavailable.

Table I-2 shows, for five flow ranges, the number of treatment facilities in operation in 2008 and the number projected to be in operation if all documented needs are met. The number of facilities and their cumulative flow (in millions of gallons per day) are shown for each of the flow ranges.

There is a slight reduction in the flows presented on this table when compared to its equivalent table in the CWNS 2004 Report (Table C-2). This is the result of some states removing facilities from the database that are no longer in operation. Comparing only those facilities reported in 2004 and 2008 shows a 0.8 percent increase in the total existing flow, a 1.3 percent increase in the present design capacity, and a 0.6 percent increase in the total future design flow capacity.

Table I-3. CWNS 2008 number of treatment facilities by level of treatment

Treatment facilities in operation in 2008 ^a					
Level of treatment	Number of facilities	Existing flow (mgd)	Present design capacity (mgd)	Number of people served	Percent of U.S. population
Less than Secondary ^b	30	422	546	3,751,787	1.2
Secondary	7,302	13,142	17,765	92,650,605	30.2
Greater than Secondary	5,071	16,776	23,710	112,947,134	36.8
No Discharge ^c	2,251	1,815	2,557	16,946,528	5.5
Partial Treatment ^d	115	190	287	-	-
N/A ^e	11	-	1	6,159	-
Total	14,780	32,345	44,866	226,302,213	73.7

Treatment facilities in operation if all documented needs are met ^a				
Level of treatment	Number of facilities	Future design capacity (mgd)	Number of people served	Percent of U.S. population
Less than Secondary ^b	19	497	3,880,548	1.1
Secondary	7,015	16,334	89,100,487	24.7
Greater than Secondary	5,909	29,032	161,163,736	44.6
No Discharge ^c	2,526	3,576	29,956,126	8.3
Partial Treatment ^d	140	863	-	-
N/A ^e	8	-	1,606	-
Total	15,617	50,302	284,102,503	78.7

Notes:

^aAlaska, North Dakota, Rhode Island, American Samoa, and the Virgin Islands did not participate in the CWNS 2008.

^bLess-than-secondary facilities include facilities granted or pending section 301(h) waivers from secondary treatment for discharges to marine waters.

^cNo-discharge facilities do not discharge treated wastewater to the Nation's waterways. These facilities dispose of wastewater via methods such as industrial reuse, irrigation or evaporation.

^dThese facilities provide some treatment to wastewater and discharge their effluents to other wastewater facilities for further treatment and discharge. The population associated with these facilities is omitted from this table to avoid double accounting.

^eTotals include best available information from States and Territories that did not have the resources to complete the updating of the data or did not participate in the CWNS 2004 to maintain continuity with previous Reports to Congress. Forty operational and 43 projected treatment plants were excluded from this table because the data related to population, flow and effluent levels were not complete.

Table I-3 shows, by level of treatment, the number of treatment facilities in operation in 2008 and the number projected to be in operation if all documented needs are met. The number of facilities, their cumulative capacities (in millions of gallons per day), and the population served are shown for each level of treatment. The population served number is then presented as a percentage of the total 2008 and 2028 U.S. population, respectively.

Table I-4. CWNS 2008 number of treatment facilities and population served per State by level of treatment if all documented needs are met

State	Number of facilities providing listed effluent level				Population served by listed effluent level			
	Less than secondary ^a	Secondary	Greater than secondary	No discharge ^b	Less than secondary ^a	Secondary	Greater than secondary	No discharge ^b
Alabama	0	123	154	11	0	776,833	2,327,224	19,846
Alaska	NR	NR	NR	NR	NR	NR	NR	NR
Arizona	0	6	27	146	0	116,148	4,523,080	5,049,934
Arkansas	0	105	264	13	0	1,232,511	1,773,514	30,850
California	3	135	106	372	2,168,408	17,235,421	17,411,929	5,712,832
Colorado	0	119	54	77	0	722,059	813,629	494,377
Connecticut	0	8	80	5	0	101,645	2,376,563	3,595
Delaware	0	3	10	4	0	16,196	809,790	41,212
District of Columbia ^c	0	0	1	0	0	0	1,680,411	0
Florida	0	0	107	266	0	0	6,551,506	13,299,994
Georgia	0	168	95	41	0	1,205,179	2,381,213	160,905
Hawaii	1	6	1	16	420,000	561,300	17,258	239,179
Idaho	0	87	27	56	0	543,194	1,296,946	89,303
Illinois	0	401	322	14	0	901,891	12,363,709	35,131
Indiana	0	136	282	2	0	544,176	4,345,355	469
Iowa	0	689	77	1	0	2,313,945	655,424	192
Kansas	0	331	118	206	0	421,643	2,065,536	117,024
Kentucky	0	115	126	1	0	1,572,426	1,840,860	435
Louisiana	1	62	100	1	300	2,385,035	788,534	205,388
Maine	10	110	9	10	7,082	566,599	58,502	18,087
Maryland	0	43	105	21	0	63,461	3,466,387	29,208
Massachusetts	1	63	41	20	67,918	3,873,684	1,119,738	156,931
Michigan	0	179	155	59	0	520,160	6,676,330	116,657
Minnesota	0	64	49	29	0	565,067	2,928,204	82,305
Mississippi	0	317	89	3	0	1,073,992	1,626,819	3,191
Missouri	0	575	136	28	0	4,123,603	966,069	7,550
Montana	0	72	12	37	0	510,832	236,523	61,657
Nebraska	0	207	55	216	0	811,600	769,065	102,144
Nevada	0	4	6	39	0	65,600	3,875,560	663,589
New Hampshire	0	62	11	13	0	664,473	104,871	11,452
New Jersey	0	60	92	8	0	2,205,397	6,680,145	72,719
New Mexico	0	5	13	9	0	143,442	287,475	196,650
New York	0	391	211	39	0	11,526,268	4,757,857	138,899
North Carolina	0	126	165	56	0	942,900	5,481,088	294,005
North Dakota	NR	NR	NR	NR	NR	NR	NR	NR
Ohio	0	150	615	3	0	1,235,944	8,737,253	1,354

Table I-4. CWNS 2008 number of treatment facilities and population served per State by level of treatment if all documented needs are met (continued)

State	Number of facilities providing listed effluent level				Population served by listed effluent level			
	Less than secondary ^a	Secondary	Greater than secondary	No discharge ^b	Less than secondary ^a	Secondary	Greater than secondary	No discharge ^b
Oklahoma	0	193	85	215	0	1,147,377	1,638,235	180,439
Oregon	0	128	36	51	0	2,417,912	1,714,003	227,134
Pennsylvania	0	364	537	4	0	6,324,933	5,299,897	9,517
Rhode Island	NR	NR	NR	NR	NR	NR	NR	NR
South Carolina	0	71	70	12	0	1,782,956	2,008,293	149,031
South Dakota	0	13	6	7	0	309,473	56,842	7,678
Tennessee	0	203	32	13	0	3,260,733	1,602,574	43,785
Texas	0	472	733	189	0	3,093,643	22,982,852	1,244,632
Utah	0	27	23	62	0	828,403	2,083,356	242,319
Vermont	0	29	38	6	0	76,934	297,394	3,992
Virginia	0	129	105	4	0	2,179,640	5,582,063	6,378
Washington	0	78	4	12	0	5,343,594	287,225	132,671
West Virginia	0	182	91	0	0	660,246	608,028	0
Wisconsin	0	101	405	107	0	122,991	4,702,456	112,138
Wyoming	0	73	11	17	0	376,795	129,283	16,613
American Samoa	NR	NR	NR	NR	NR	NR	NR	NR
Guam	0	3	0	3	0	203,362	0	12,156
N. Mariana Islands	0	3	0	0	0	108,533	0	0
Puerto Rico	3	24	18	2	1,216,840	1,320,338	376,868	110,579
Virgin Islands	NR	NR	NR	NR	NR	NR	NR	NR
Total	19	7,015	5,909	2,526	3,880,548	89,100,487	161,163,736	29,956,126

Notes:

NR = not reported. Alaska, North Dakota, Rhode Island, American Samoa, and the Virgin Islands did not participate in the CWNS 2008.

^a Less-than-secondary facilities include facilities granted or pending section 301(h) waivers from secondary treatment for discharges to marine waters.

^b No-discharge facilities do not discharge treated wastewater to the Nation's waterways. These facilities dispose of wastewater via methods such as industrial reuse, irrigation or evaporation.

^c The reported population served for the District of Columbia includes populations from Maryland and Virginia that receive wastewater treatment at the Blue Plains facility in the District of Columbia.

Table I-4 shows, by treatment level, the number of facilities that will be in operation if all documented needs are met and the population served at State level. The number of facilities and population served are shown for each level of treatment and for each State.

Table I-5. CWNS 2008 number of facilities with CSO correction needs and total CSO correction needs: 2004 and 2008 (January 2008 dollars in millions)

State	Number of facilities with CSO needs in 2004	Number of facilities with CSO needs in 2008	2004 CSO needs (\$ millions)	2008 CSO needs (\$ millions)
Alabama	0	1	0 ^a	1
Alaska	NR	NR	NR	NR
Arizona	0	0	0 ^a	0
Arkansas	0	0	0 ^a	0
California	3	1	302	233
Colorado	0	0	0 ^a	0
Connecticut	5	8	995	1,528
Delaware	1	1	25	25
District of Columbia	1	1	1,549	1,889
Florida	0	0	0 ^a	0
Georgia	2	0	1,211	0
Hawaii	0	0	0 ^a	0
Idaho	0	0	0 ^a	0
Illinois	111	112	11,972	10,877
Indiana	107	100	6,355	5,041
Iowa	7	11	506	748
Kansas	3	3	550	522
Kentucky	8	4	215	312
Louisiana	0	0	0 ^a	0
Maine	42	33	443	307
Maryland	10	8	510	463
Massachusetts	19	14	2,140	2,044
Michigan	18	16	5,137	1,555
Minnesota	1	0	11	0
Mississippi	0	0	0 ^a	0
Missouri	8	8	1,729	1,689
Montana	0	0	0 ^a	0
Nebraska	2	3	1,100	1,318
Nevada	0	0	0 ^a	0
New Hampshire	4	4	309	281
New Jersey	37	33	4,471	8,176
New Mexico	0	3	0 ^a	1
New York	75	71	7,779	6,648
North Carolina	1	1	4	4
North Dakota	0	NR	0 ^a	NR
Ohio	105	93	7,449	7,516

Table I-5. CWNS 2008 number of facilities with CSO correction needs and total CSO correction needs: 2004 and 2008 (January 2008 dollars in millions) (continued)

State	Number of facilities with CSO needs in 2004	Number of facilities with CSO needs in 2008	2004 CSO needs (\$ millions)	2008 CSO needs (\$ millions)
Oklahoma	0	0	0 ^a	0
Oregon	2	2	989	427
Pennsylvania	97	156	5,499	8,747
Rhode Island	3	NR	754	NR
South Carolina	0	0	0 ^a	0
South Dakota	0	0	0 ^a	0
Tennessee	2	5	338	96
Texas	0	0	0 ^a	0
Utah	0	0	0 ^a	0
Vermont	2	1	32	2
Virginia	3	4	607	616
Washington	27	24	610	584
West Virginia	38	40	909	1,467
Wisconsin	3	5	481	412
Wyoming	0	0	0 ^a	0
American Samoa	NR	NR	NR	NR
Guam	NR	0	NR	0
N. Mariana Islands	NR	0	NR	0
Puerto Rico	0	1	0 ^a	23
Virgin Islands	NR	NR	NR	NR
Total	747	767	64,981	63,552

Notes:

NR = not reported. Alaska, North Dakota, Rhode Island, American Samoa, and the Virgin Islands did not participate in the CWNS 2008.

^a Estimate is less than \$0.5 million.

Table I-5 presents the number of CSO facilities with documented needs identified during the CWNS 2004 and CWNS 2008.

Table I-6. CWNS 2008 number of facilities with stormwater management needs and total stormwater management needs (January 2008 dollars in millions)

State	Unregulated MS4 facilities		Phase I MS4 facilities		Phase II MS4 facilities		Nontraditional MS4 facilities	
	Number of facilities ^a	Needs (\$ millions)	Number of facilities ^a	Needs (\$ millions)	Number of facilities ^a	Needs (\$ millions)	Number of facilities ^a	Needs (\$ millions)
Alabama	0	0	0	0	0	0	0	0
Alaska	NR	NR	NR	NR	NR	NR	NR	NR
Arizona	0	0	8	361	8	99	0	0
Arkansas	0	0	0	0	2	0 ^b	0	0
California	0	0	8	2,747	7	1,022	0	0
Colorado	54	106	2	11	2	1	0	0
Connecticut	0	0	0	0	0	0	0	0
Delaware	0	0	0	0	0	0	0	0
District of Columbia	0	0	0	0	0	0	0	0
Florida	15	20	73	1,666	50	806	2	6
Georgia	17	8	0	0	0	0	0	0
Hawaii	0	0	0	0	0	0	0	0
Idaho	27	9	0	0	0	0	2	1
Illinois	1	1	5	14	4	20	1	3
Indiana	3	7	1	43	112	102	12	1
Iowa	0	0	0	0	23	34	0	0
Kansas	2	10	1	76	1	5	0	0
Kentucky	0	0	0	0	0	0	0	0
Louisiana	2	1	0	0	0	0	1	121
Maine	21	26	0	0	0	0	0	0
Maryland	15	1,358	11	2,261	4	135	0	0
Massachusetts	51	40	0	0	1	1	0	0
Michigan	45	310	0	0	0	0	0	0
Minnesota	0	0	2	5	187	982	0	0
Mississippi	0	0	0	0	0	0	0	0
Missouri	17	565	0	0	0	0	0	0
Montana	9	24	0	0	0	0	0	0
Nebraska	38	27	2	43	2	1	0	0
Nevada	1	449	1	66	0	0	0	0
New Hampshire	22	28	0	0	20	33	1	4
New Jersey	0	0	31	130	568	15,467	1	30
New Mexico	0	0	0	0	0	0	0	0
New York	158	134	7	877	47	80	0	0
North Carolina	25	45	4	26	2	16	0	0
North Dakota	NR	NR	NR	NR	NR	NR	NR	NR
Ohio	0	0	0	0	9	794	0	0

Table I-6. CWNS 2008 number of facilities with stormwater management needs and total stormwater management needs (January 2008 dollars in millions) (continued)

State	Unregulated MS4 facilities		Phase I MS4 facilities		Phase II MS4 facilities		Nontraditional MS4 facilities	
	Number of facilities ^a	Needs (\$ millions)	Number of facilities ^a	Needs (\$ millions)	Number of facilities ^a	Needs (\$ millions)	Number of facilities ^a	Needs (\$ millions)
Oklahoma	0	0	2	235	0	0	0	0
Oregon	3	2	3	93	2	226	0	0
Pennsylvania	91	5,988	0	0	7	13	0	0
Rhode Island	NR	NR	NR	NR	NR	NR	NR	NR
South Carolina	2	12	0	0	1	18	0	0
South Dakota	5	4	1	2	0	0	0	0
Tennessee	0	0	2	191	0	0	0	0
Texas	1	16	19	2,050	3	1,079	0	0
Utah	1	0 ^b	0	0	0	0	0	0
Vermont	0	0	0	0	0	0	0	0
Virginia	0	0	0	0	0	0	0	0
Washington	0	0	3	164	12	166	0	0
West Virginia	8	108	0	0	1	10	0	0
Wisconsin	41	52	16	115	100	427	0	0
Wyoming	12	20	0	0	4	17	0	0
American Samoa	NR	NR	NR	NR	NR	NR	NR	NR
Guam	0	0	0	0	0	0	0	0
N. Mariana Islands	0	0	0	0	0	0	0	0
Puerto Rico	0	0	0	0	0	0	0	0
Virgin Islands	NR	NR	NR	NR	NR	NR	NR	NR
Total	687	9,370	202	11,176	1,179	21,554	20	166

Notes:

NR = not reported. Alaska, North Dakota, Rhode Island, American Samoa, and the Virgin Islands did not participate in the CWNS 2008.

^aThe number of facilities on this table does not reflect the number of MS4s in a particular state. The number of facilities reflects how many records were entered into the CWNS 2008 database, and one facility can cover multiple MS4s or multiple facilities can cover one MS4.

^bEstimate is less than \$0.5 million.

Table I-6 presents the number of stormwater facilities with needs identified in the CWNS 2008 by the type of the MS4.

Table I-7. CWNS 2008 number of treatment facilities and population served per State by level of treatment for year of 2008

State	Number of facilities providing listed effluent level				Population served by listed effluent level								
	Less than secondary ^a	Secondary	Greater than secondary	No discharge ^b	Less than secondary ^a		Secondary		Greater than secondary		No Discharge ^b		Percent total
					Population served	Percent of total population	Population served	Percent of total population	Population served	Percent of total population	Population served	Percent of total population	
Alabama	3	152	117	9	830	<0.1	882,574	19.0	1,669,438	35.9	8,507	0.2	55.2
Alaska	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Arizona	0	17	17	86	0	0.0	2,124,469	33.1	831,411	12.9	2,457,705	38.2	84.2
Arkansas	0	104	247	11	0	0.0	668,179	23.5	987,307	34.7	13,690	0.5	58.7
California	4	139	89	332	1,942,489	5.3	18,691,625	51.1	10,555,037	28.9	4,059,128	11.1	96.4
Colorado	0	121	38	72	0	0.0	631,283	12.9	668,971	13.7	477,984	9.8	36.4
Connecticut	0	32	53	6	0	0.0	611,279	17.5	1,454,238	41.6	3,515	0.1	59.2
Delaware	0	5	9	4	0	0.0	19,220	2.2	684,934	79.0	25,444	2.9	84.1
District of Columbia ^c	0	0	1	0	0	0.0	0	0.0	1,624,543	275.4	0	0.0	275.4
Florida	0	2	107	246	0	0.0	2,047,000	11.2	4,058,535	22.2	6,871,354	37.6	71.1
Georgia	0	176	86	41	0	0.0	986,379	10.3	1,621,233	16.9	106,666	1.1	28.3
Hawaii	1	6	1	14	344,706	26.9	344,011	26.8	279	<0.1	128,860	10.0	63.8
Idaho	0	98	13	55	0	0.0	530,059	35.1	496,573	32.9	58,754	3.9	71.9
Illinois	0	384	285	4	0	0.0	726,682	5.6	10,656,756	82.8	11,257	0.1	88.6
Indiana	0	140	274	1	0	0.0	497,308	7.8	3,920,273	61.7	175	<0.1	69.5
Iowa	0	703	47	1	0	0.0	2,176,587	72.7	393,971	13.2	209	<0.1	85.9
Kansas	0	325	101	199	0	0.0	418,335	15.0	1,696,951	60.8	102,278	3.7	79.5
Kentucky	0	117	120	1	0	0.0	1,184,448	27.9	1,206,985	28.4	435	<0.1	56.2
Louisiana	1	68	97	0	275	<0.1	2,097,638	47.8	587,976	13.4	0	0.0	61.2
Maine	12	113	3	7	11,043	0.8	582,591	44.3	23,848	1.8	3,172	0.2	47.2
Maryland	0	62	88	12	0	0.0	175,038	3.1	2,868,111	51.0	16,913	0.3	54.4
Massachusetts	1	77	27	13	50,326	0.8	3,765,115	58.1	721,994	11.1	48,827	0.8	70.7
Michigan	0	178	155	58	0	0.0	485,747	4.8	6,620,924	66.0	99,241	1.0	71.9
Minnesota	0	80	32	26	0	0.0	630,849	12.1	2,472,032	47.5	37,768	0.7	60.4
Mississippi	0	229	75	3	0	0.0	1,190,133	40.6	617,868	21.1	1,272	<0.1	61.8
Missouri	0	635	86	23	0	0.0	3,796,209	64.4	471,691	8.0	4,112	0.1	72.5
Montana	0	73	8	31	0	0.0	364,646	37.9	103,505	10.8	37,527	3.9	52.6
Nebraska	0	220	40	207	0	0.0	756,521	42.6	475,099	26.7	88,063	5.0	74.3
Nevada	0	5	6	36	0	0.0	419,317	16.3	2,357,472	91.5	247,311	9.6	117.3
New Hampshire	1	69	3	13	20,617	1.6	619,585	47.2	11,782	0.9	9,159	0.7	50.3
New Jersey	0	84	65	4	0	0.0	6,277,784	72.4	1,501,915	17.3	61,990	0.7	90.5
New Mexico	0	10	8	9	0	0.0	188,334	9.5	158,338	8.0	180,737	9.2	26.7
New York	0	370	179	30	0	0.0	11,574,292	59.5	4,178,653	21.5	109,616	0.6	81.5
North Carolina	0	140	146	39	0	0.0	894,515	9.8	3,292,015	36.0	109,606	1.2	47.0
North Dakota	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR

Table I-7. CWNS 2008 number of treatment facilities and population served per State by level of treatment for year of 2008 (continued)

State	Number of facilities providing listed effluent level				Population served by listed effluent level								
	Less than secondary ^a	Secondary	Greater than secondary	No discharge ^b	Less than secondary ^a		Secondary		Greater than secondary		No Discharge ^b		Percent total
					Population served	Percent of total population	Population served	Percent of total population	Population served	Percent of total population	Population served	Percent of total population	
Ohio	0	146	575	2	0	0.0	1,076,291	9.4	7,696,860	67.0	956	<0.1	76.4
Oklahoma	0	205	73	211	0	0.0	1,073,626	29.6	1,394,725	38.5	157,180	4.3	72.4
Oregon	1	132	33	49	47,630	1.3	2,103,148	55.9	1,279,516	34.0	140,854	3.7	94.9
Pennsylvania	0	333	488	3	0	0.0	6,587,453	53.0	4,656,801	37.5	5,757	<0.1	90.5
Rhode Island	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
South Carolina	0	77	65	12	0	0.0	1,553,799	35.0	1,173,434	26.4	96,537	2.2	63.6
South Dakota	0	14	4	7	0	0.0	211,643	26.5	20,042	2.5	7,457	0.9	29.9
Tennessee	0	203	31	10	0	0.0	2,546,455	41.2	1,310,711	21.2	19,935	0.3	62.7
Texas	0	461	672	184	0	0.0	2,182,005	9.1	16,230,356	67.4	823,811	3.4	79.9
Utah	0	35	17	52	0	0.0	758,167	28.1	1,529,731	56.6	180,655	6.7	91.3
Vermont	0	35	33	5	0	0.0	80,327	12.9	202,520	32.6	2,530	0.4	46.0
Virginia	0	152	72	1	0	0.0	1,759,181	22.7	3,633,462	47.0	1,867	<0.1	69.8
Washington	0	76	3	9	0	0.0	3,978,425	61.2	291,741	4.5	11,847	0.2	65.9
West Virginia	0	190	65	2	0	0.0	594,642	32.8	460,477	25.4	55	<0.1	58.2
Wisconsin	0	193	308	90	0	0.0	194,688	3.5	3,973,557	70.8	88,416	1.6	75.8
Wyoming	0	72	8	17	0	0.0	339,376	64.3	75,356	14.3	15,993	3.0	81.6
American Samoa	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Guam	2	1	0	3	145,036	83.0	13,156	7.5	0	0.0	10,876	6.2	96.7
N. Mariana Islands	0	2	0	0	0	0.0	70,000	81.8	0	0.0	0	0.0	81.8
Puerto Rico	4	41	1	1	1,188,835	30.1	1,170,471	29.6	27,187	0.7	527	<0.1	60.4
Virgin Islands	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Total	30	7,302	5,071	2,251	3,751,787	1.2	92,650,605	30.2	112,947,134	36.8	16,946,528	5.5	73.7

Notes:

NR = not reported. Alaska, North Dakota, Rhode Island, American Samoa, and the Virgin Islands did not participate in the CWNS 2008.

^a Less-than-secondary facilities include facilities granted or pending section 301(h) waivers from secondary treatment for discharges to marine waters.

^b No-discharge facilities do not discharge treated wastewater to the Nation's waterways. These facilities dispose of wastewater via methods such as industrial reuse, irrigation or evaporation.

^c The reported population served for the District of Columbia includes populations from Maryland and Virginia that receive wastewater treatment at the Blue Plains facility in the District of Columbia.

Table I-7 shows, by treatment level, the number of facilities in operation in 2008 and the population served at the State level. The number of facilities and population served are shown for each level of treatment and for each State.

Table I-8. Technical data and costs for facilities with less-than-secondary effluent levels that do not have 301(h) waivers

State	Facility name	Present effluent	Future effluent	Present design flow (mgd)	Future design flow (mgd)	Present population receiving treatment	Future population receiving treatment	Documented Category I Needs (January 2008 \$ millions)
AL	Hollywood Lagoon	Primary (45mg/l< BOD)	Secondary	0.125	0.125	280	950	0.2
AL	Priceville WWTP	Primary (45 mg/L < BOD)	Secondary	0.25	0.25	230	1670	1.0
AL	Garden City WWTP	Advanced Primary	Secondary	0.15	0.15	320	762	1.2
LA	Village of Tickfaw	Advanced Primary	Advanced Primary	0.1	0.1	275	300	0.0
NH	Portsmouth WWTF	Advanced Primary	Secondary	4.5	4.5	20617	24075	59.6
OR	Albany STP	Advanced Primary	Secondary	8.7	11.0	47630	68810	21.5
PR	Mayaguez Regional WWTP	Primary (45mg/l< BOD)	Advanced Treatment	28.0	28.0	114939	134341	0.0

Table I-8 presents the treatment facilities represented in the CWNS 2008 as having less-than-secondary effluent discharges and no 301(h) waivers from secondary treatment for discharges to marine waters. The present and future effluent levels, design flow and population receiving treatment are shown for each facility, in addition to the Secondary Treatment (Category I) needs for the facility. Technical data are of January 1, 2008.

Appendix J

CWNS 2008 NEEDS CATEGORIES

Table J-1. CWNS 2008 needs categories

2008 Category number	Category name	Description
Official Needs⁶		
I	Secondary Wastewater Treatment	This category includes needs and costs necessary to meet the minimum level of treatment that must be maintained by all treatment facilities, except those facilities granted waivers of secondary treatment for marine discharges under section 301(h) of the Clean Water Act (CWA). Secondary treatment typically requires a treatment level that produces an effluent quality of 30 mg/L of both 5-day biochemical oxygen demand (BOD5) and total suspended solids (secondary treatment levels required for some lagoon systems may be less stringent). In addition, the secondary treatment must remove 85 percent of BOD5 and total suspended solids from the influent wastewater.
II	Advanced Wastewater Treatment	This category includes needs and costs necessary to attain a level of treatment that is more stringent than secondary treatment or produce a significant reduction in nonconventional or toxic pollutants present in the wastewater treated by a facility. A facility is considered to have Advanced Wastewater Treatment if its permit includes one or more of the following: biochemical oxygen demand (BOD) less than 20mg/L; nitrogen removal; phosphorus removal; ammonia removal; metal removal; synthetic organic removal.
III-A	Infiltration/ Inflow (I/I) Correction	This subcategory includes needs and costs for correction of sewer system infiltration/inflow problems. Infiltration includes controlling the penetration of water into a sanitary or combined sewer system from the ground through defective pipes or manholes. Inflow includes controlling the penetration of water into the system from drains, storm sewers, and other improper entries. It also includes costs for preliminary sewer system analysis and detailed sewer system evaluation surveys.
III-B	Sewer Replacement/ Rehabilitation	This subcategory includes needs and costs for the maintenance, reinforcement, or reconstruction of structurally deteriorating sanitary or combined sewers. The corrective actions must be necessary to maintain the structural integrity of the system.
IV-A	New Collector Sewers and Appurtenances	This subcategory includes needs and costs of new pipes used to collect and carry wastewater from a sanitary or industrial wastewater source to an interceptor sewer that will convey the wastewater to a treatment facility.
IV-B	New Interceptor Sewers and Appurtenances	This subcategory includes needs and costs for constructing new interceptor sewers and pumping stations to convey wastewater from collection sewer systems to a treatment facility or to another interceptor sewer. Needs and costs for relief sewers are included in this category.
V	Combined Sewer Overflow (CSO) Correction	This category includes needs and costs to prevent or control the periodic discharges of mixed stormwater and untreated wastewater (combined sewer overflows) that occur when the capacity of a sewer system is exceeded during a wet-weather event. This category does not include needs and costs for overflow control allocated to flood control, drainage improvement, or the treatment or control of stormwater in separate storm systems.
VI	Stormwater Management Program (pre-2008 needs only)	<p>This category includes needs and costs to plan and implement structural and nonstructural measures to control the runoff water resulting from precipitation (stormwater). It includes controlling stormwater pollution from diffuse sources by (1) reducing pollutants from runoff from commercial and residential areas that are served by the storm sewers, (2) detecting and removing illicit discharges and improper disposal into storm sewers, (3) monitoring pollutants in runoff from industrial facilities that flow into municipal separate storm sewer systems (MS4s), and (4) reducing pollutants in construction site runoff discharged to MS4s.</p> <p>Needs and costs were reported for Phase I, Phase II, and nontraditional (e.g., universities, prisons, school districts) MS4s. Unregulated communities needs and costs could also be reported in this category (formerly reported in VII-D: NPS-Urban).</p> <p>Only pre-2008 needs and costs are in Category VI. For 2008 and future surveys, Stormwater Management Program needs and costs were reported in subcategories A-D described below.</p>

⁶ The unfunded capital costs of projects as of January 1, 2008 that (1) address a water quality or water quality-related public health problem existing as of January 1, 2008 or expected to occur within the next 20 years and (2) meet the CWNS documentation requirements outlined in Chapter 1 of this Report. Official Needs can only be reported in Categories I, II, III, IV, V, VI, and X.

Table J-1. CWNS 2008 needs categories (continued)

2008 Category number	Category name	Description
VI-A	Stormwater Conveyance Infrastructure	This subcategory includes needs and costs to address the Stormwater Management Program activities associated with the planning, design, and construction of conveying stormwater via pipes, inlets, road side ditches, and other similar mechanisms.
VI-B	Stormwater Treatment Systems	This subcategory includes needs and costs to address the Stormwater Management Program activities associated with the planning, design, and construction of treating stormwater with wet ponds, dry ponds, manufactured devices, and other similar means.
VI-C	Green Infrastructure	This subcategory includes needs and costs to address the Stormwater Management Program activities associated with the planning, design, and construction of low impact development and green infrastructure, such as bioretention, constructed wetlands, permeable pavement, rain gardens, green roofs, cisterns, rain barrels, vegetated swales, restoration of riparian buffers and flood plains, and such. Projects in this category can be both publicly owned and privately owned.
VI-D	General Stormwater Management	This subcategory includes needs and costs to address the Stormwater Management Program activities associated with implementing a stormwater management program, such as geographic information systems (GIS) and tracking systems, equipment (e.g., street sweepers, vacuum trucks), stormwater education program start-up costs (e.g., setting up a stormwater public education center, building a traveling stormwater education display), and stormwater management plan development.
X	Recycled Water Distribution	<p>This category includes needs and costs associated with conveyance of treated wastewater that is being reused (recycled water), including associated rehabilitation/replacement needs. Examples are pipes to convey treated water from the wastewater facility to the drinking water distribution system or the drinking water treatment facility and equipment for application of effluent on publicly owned land.</p> <p>The needs and costs associated with additional unit processes to increase the level of treatment to potable or less than potable but greater than that normally associated with surface discharge needs are reported in Category II.</p>
Other Documented Needs⁷		
VII	Nonpoint Source (NPS) Pollution Control	This category includes need and costs to implement Best Management Practices (BMPs) to address Nonpoint Source Pollution (NPS). NPS pollution is pollution that is not introduced into a receiving stream at a specific point. NPS pollution sources are diffuse and may be a result of runoff, precipitation, atmospheric deposition, drainage, seepage, or hydrological modification.
VII-A	NPS Control: Agriculture (Cropland)	This category includes needs and costs to address NPS pollution control activities associated with agricultural activities related to croplands, such as plowing, pesticide spraying, irrigation, fertilizing, planting and harvesting. Some examples of BMPs used to address these needs are conservation tillage, nutrient management, and irrigation water management.
VII-B	NPS Control: Agriculture (Animals)	<p>This category includes needs and costs that address NPS pollution control activities associated with agricultural activities related to animal production, such as confined animal facilities and grazing. Some typical BMPs used to address agriculture (animal) needs are animal waste storage facilities, animal waste nutrient management, composting facilities, and planned grazing.</p> <p>If the facility has a National Pollutant Discharge Elimination System (NPDES) permit, such needs are classified as Category VIII, Confined Animals (Point Source).</p>
VII-C	NPS Control: Silviculture	This category includes needs and costs that address NPS pollution control activities associated with forestry activities, such as removing streamside vegetation, road construction and use, timber harvesting, and mechanical preparation for planting trees. Some typical BMPs used to address silviculture needs are pre-harvest planning, streamside buffers, road management, revegetation of disturbed areas and structural practices, and equipment (e.g., sediment control structures, timber harvesting equipment).

⁷ Needs that met CWNS documentation requirements but are not defined in CWA section 516(b)(1)(B). Other Documented Needs can only be reported in Categories VII and XII.

Table J-1. CWNS 2008 needs categories (continued)

2008 Category number	Category name	Description
VII-E	NPS Control: Ground Water Protection (Unknown Source)	This category includes needs and costs that address ground water protection NPS pollution control activities, such as wellhead and recharge area protection activities. Any need that can be attributed to a specific cause of ground water pollution, such as leaking storage tanks, soil contamination in a Brownfield, or leachate from a sanitary landfill, is reported in that more specific category.
VII-F	NPS Control: Marinas	This category includes needs and costs that address NPS pollution control activities associated with boating and marinas, such as poorly flushed waterways; boat maintenance activities; discharge of sewage from boats; and the physical alteration of shoreline, wetlands, and aquatic habitat during the construction and operation of marinas. Some typical BMPs used to address needs at marinas are bulk heading, pump out systems, and oil containment booms.
VII-G	NPS Control: Resource Extraction	This category includes needs and costs that address NPS pollution control activities associated with mining and quarrying activities. Some typical BMPs used to address resource extraction needs are detention berms, adit (mine entrance) closures, and seeding or revegetation. Any costs associated with facilities or measures that address point source discharges from mining and quarrying activities that have an identified owner should be included in Category IX, Mining (Point Source).
VII-H	NPS Control: Brownfields	This category includes needs and costs that address NPS pollution control activities associated with abandoned industrial sites that might have residual contamination (Brownfields). All costs, regardless of the activity, for work at Brownfield sites should be included in this category. Some typical BMPs used to address needs at Brownfield sites are ground water monitoring wells, in situ treatment of contaminated soils and ground water, and capping to prevent stormwater infiltration.
VII-I	NPS Control: Storage Tanks	This category includes needs and costs that address NPS pollution control activities associated with tanks designed to hold gasoline, other petroleum products, or chemicals. The tanks can be above or below ground level. Some typical BMPs used to address storage tank needs are spill containment systems; in situ treatment of contaminated soils and ground water; and upgrade, rehabilitation or removal of petroleum/chemical storage tanks. If such facilities or measures are part of addressing NPS needs at Brownfields, the costs go in Category VII-H, Brownfields.
VII-J	NPS Control: Sanitary Landfills	This category includes needs and costs that address NPS pollution control activities associated with sanitary landfills. Some typical BMPs used to address needs at landfills are leachate collection, on-site treatment, gas collection and control, capping and closure.
VII-K	NPS Control: Hydromodification	This category includes needs and costs to address the degradation of water resources as a result of altering the hydrological characteristics of coastal and noncoastal waters. For a stream channel, hydromodification is the process of the stream bank being eroded by flowing water, and typically results in the suspension of sediments in the watercourse. Examples of such activities include channelization and channel modification, dams, and stream bank and shoreline erosion. Some typical BMPs used to address hydromodification needs are conservation easements, swales, filter strips, shore erosion control, wetland development or restoration, and bank or channel (grade) stabilization. Any work involving wetland or riparian area protection or restoration is included in this category.

Table J-1. CWNS 2008 needs categories *(continued)*

2008 Category number	Category name	Description
VII-M	NPS Control: Other Estuary Management Activities	<p>This category is used only for management activities in the study areas of the 28 National Estuary Programs (NEPs) designated under CWA section 320. It includes needs and costs associated with a limited number of estuary management activities that may not be appropriately included in other needs categories. Some typical estuary BMPs are habitat protection for aquatic species; fisheries, oyster bed, and shellfish restocking and restoration; fish ladders; rejuvenation of submerged aquatic vegetation; artificial reef establishment; control of invasive vegetative and aquatic species; and water control structures for flow regime and salinity.</p> <p>Most activities included in the NEP's Comprehensive Conservation and Management Plans are wastewater, stormwater, decentralized wastewater treatment, or NPS pollution control activities and are therefore tracked in those more specific categories rather than this miscellaneous other activity subcategory.</p>
XII	Decentralized Wastewater Treatment Systems	<p>This category includes needs and costs associated with the rehabilitation or replacement of onsite wastewater treatment systems (OWTS) or clustered (community) systems. It also includes the treatment portion of other decentralized sewage disposal technologies. Costs related to developing and implementing onsite management districts are included (but not the costs of ongoing operations of such districts). Costs could also include the limited collection systems associated with the decentralized system. Public ownership is not required for decentralized systems.</p> <p>This category does not include needs and costs to change a service area from decentralized wastewater treatment to a publicly owned centralized treatment system. Needs to construct a publicly owned centralized collection and treatment system should be reported in Category I, Secondary Wastewater Treatment or Category II, Advanced Wastewater Treatment. Needs to install sewers to connect the service area to an existing collection system are reported in Category IV-A, New Collector Sewers and Appurtenances and Category IV-B, New Interceptor Sewers and Appurtenances.</p>
Unofficial Cost Estimates⁸		
VIII	Confined Animals (Point Source)	This category includes needs and costs to address point source pollution from animal production activities that are subject to the concentrated animal feeding operations (CAFO) regulations and have a NPDES permit. Needs and costs reported in this category are unofficial.
IX	Mining (Point Source)	This category includes needs and costs to address point source pollution from mining and quarrying activities that have an identified owner. Needs and costs reported in this category are unofficial.
XIII	Planning	This category includes needs and costs for developing plans to address water quality and water quality-related public health problems. Examples include Watershed-Based Plans (including 319 Watershed-Based Plans) and Total Maximum Daily Load Implementation Plans. Needs and costs reported in this category are unofficial.

⁸ Costs that are not included in EPA's needs for the CWNS 2008 because they do not meet CWNS documentation criteria. Such estimates are entered for States' purposes other than this Report, such as for State-level planning and communication with State legislatures and other groups involved with addressing and preventing water quality problems. Costs in categories VIII, IX, and XIII are always considered Unofficial Cost Estimates. In addition, costs in all other categories may be Unofficial Cost Estimates.

Appendix K

**LIST OF ACCEPTABLE
DOCUMENT TYPES**

Table K-1 lists the document types that were acceptable for justifying needs or costs for the CWNS 2008. It also provides the percentage of total needs that were documented with each document type.

Table K-1. Acceptable document types

Documentation type	Allowable for justification of...		Percent of total documented needs in Table B-1
	Need	Cost	
<p>01. Intended Use Plan The Intended Use Plan (IUP), which is prepared annually, uses State-assigned criteria to rank projects for which federal funding assistance is being sought during the current federal fiscal year. The primary purpose of the IUP is to identify proposed annual intended uses of the Clean Water State Revolving Fund (CWSRF) money. To be eligible for CWSRF funding, a Clean Water Act (CWA) section 212 project listed in the IUP must be on the State Priority List.</p>	Yes	Yes	6.4
<p>02. State and Federal Loan and Grant Applications Federal or equivalent State grant applications may be used to document needs and costs for the categories for which the grant or loan money is requested. Applications should contain a clearly written narrative that defines the specific project and the water quality or public health problem. The application's supporting documentation were required be submitted. Examples are the U.S. Environmental Protection Agency's (EPA's) 319 Nonpoint Source Grants, Housing and Urban Development's Community Development Block Grant, and Rural Utilities Service funding.</p>	Yes	Yes	1.9
<p>03. CWSRF Loan Applications CWSRF applications were allowed to be used to document needs and costs for the categories for which the loan money is requested. Applications needed to contain a clearly written narrative that defines the specific project and the water quality or public health problem.</p>	Yes	Yes	1.7
<p>04. Nongovernmental Grant Applications (04) Grant applications written for nongovernmental organizations may be used to document needs and costs for the categories for which the grant money is requested. The applicant could be either a local government or a nongovernmental organization. Applications needed to contain a clearly written narrative that defines the specific project and the water quality or public health problem. All supporting documentation to the grant application were required to be submitted. Some examples are applications to foundations and other non-governmental funders at the local, state (e.g., Maryland's Chesapeake Bay Trust), regional (e.g., Charles Stewart Mott Foundation), and national level (e.g., National Fish and Wildlife Foundation).</p>	Yes	No	0.0
<p>05. Cost of Previous Comparable Construction This estimate of cost needed to be based on at least three projects that were bid or completed within the past 2 years; were similar in size, scope, and geographic area; and had detailed construction cost data available.</p>	No	Yes	0.1
<p>06. State-Approved Area-wide or Regional Basin Plan CWA section 208 and 303(e) Regional Basin Plans are broad-based water quality management plans written primarily to identify future planning for areas within a State. Such reports study large areas such as basins or counties and usually recommend general solutions to current or anticipated wastewater needs within the planning area. Only section 208 and 303(e) documents that contain site-specific information and a description of a need were accepted as documentation of need. Documentation of cost was assessed on a case-by-case basis depending on the amount of detail reported and the source of the information.</p>	Yes	Yes	2.6
<p>07. State-Approved Local Comprehensive Water and Sewer Plan (07) These plans are similar to State-Approved Area-wide Basin Plans (06). Such local plans also cover fairly large areas and might not contain project-specific information. The plans must clearly identify a water quality or health-related problem and needed to be project-specific to be acceptable as documentation.</p>	Yes	Yes	0.9

Table K-1. Acceptable document types (continued)

Documentation type	Allowable for justification of...		Percent of total documented needs in Table B-1
	Need	Cost	
<p>08. Total Maximum Daily Load (08) A Total Maximum Daily Load (TMDL) is an estimation of the maximum amount of a pollutant that an impaired waterbody (listed on a State's 303(d) list) can receive and still meet water quality standards. It includes an allocation of the allowable pollutant discharge amount from different sources. Project-specific needs should be identified.</p> <p>TMDL Reports or TMDL Implementation Plans containing cost data were reviewed on a case-by-case basis. Costs reported in TMDL implementation plans are usually estimated by (1) identifying/quantifying the corrective actions that are needed; (2) researching the unit costs; and (3) multiplying the unit cost by the number of units required.</p>	Yes	No ^a	0.4
<p>09. National Estuary Program Comprehensive Conservation and Management Plan A Comprehensive Conservation and Management Plan (CCMP) is a management plan developed for an estuary that has been nominated for the CWA section 320 National Estuary Program (NEP). The CCMP summarizes findings, determines environmental quality goals and objectives, identifies and establishes priorities for addressing problems, identifies action plans and compliance schedules for pollution control and resource management, and ensures that designated uses of the estuary are protected.</p>	Yes	No ^a	<0.1
<p>10. Nutrient Criteria Studies CWA section 304(a) directs EPA to develop scientific information on pollutants and to publish <i>criteria guidance</i>. The criteria guidance, often expressed as pollutant concentration levels, will result in attainment of a State's designated use for the waterbody (e.g. fishing, swimming). The concentration levels generally are the same for all types of waterbodies nationwide. States consider such EPA criteria guidance when they adopt water quality standards for waterbodies. A water quality standard commonly includes a designated use for a waterbody and criteria (i.e., concentration levels) for a range of pollutants that will ensure that the waterbody will support the designated use.</p>	Yes	No	0.0
<p>11. Impaired Waters or TMDL Listing EPA maintains a database of impaired waters and impaired waters with TMDLs. Facilities/projects discharging into impaired waters can justify their needs if the projects specifically address the pollutant causing the impairment.</p>	Yes	No	0.0
<p>12. State Needs Surveys & Other State Forms States needed to send State-specific forms (document type 12) to the EPA Regional Clean Watersheds Needs Survey (CWNS) Coordinator and EPA headquarters for approval before the States may use such forms for data collection.</p> <p>For communities with populations of fewer than 10,000 persons, State Need Surveys were acceptable for documenting cost if a cost estimate that has been prepared and signed by an engineer or engineer circuit rider is attached and other acceptable documentation types are not available. The cost estimate did not need to be as detailed as that found in a facility plan, but it needed to include the engineer's rationale for the estimate.</p> <p>For specific communities with populations of 3,500 or fewer and under extraordinary circumstances, States could apply to EPA headquarters for pre-approval on ability for a State-registered engineer (PE) or circuit rider to sign the cost or need justification for document type 12.</p>	Yes	No ^a	0.4
<p>20. Capital Improvement Plan (CIP) A Capital Improvement Plan (CIP), sometimes referred to as a Master Plan, is a fiscal planning document used by local governments (e.g., authorities, cities, counties, districts) designed to anticipate capital improvement projects and schedule them over a period of time. The planning period of CIPs can span from 1 to 20 years. Most CIPs contain project- and cost-specific information. A CIP was an acceptable form of documentation to justify a need and the appropriate project-specific costs. However, a CIP could only be used to justify a need only if it addresses why the project is needed.</p>	Yes	Yes	36.1
<p>21. Facility Plan The Facility Plan contains project-specific information. Typically, several alternatives are presented, including one recommended alternative. Only information covering the recommended alternative could be used to document a need and a cost estimate.</p>	Yes	Yes	14.3

Table K-1. Acceptable document types (continued)

Documentation type	Allowable for justification of...		Percent of total documented needs in Table B-1
	Need	Cost	
<p>22. Preliminary Engineer's Estimate A Preliminary Engineer's Estimate is a preliminary engineering study to assess the scope and feasibility of the project before more detailed planning occurs. This documentation type encompasses documents ranging from a memo to a formal Engineer's Preliminary Estimate or Engineer's Preliminary Study. As long as the need is project-specific and the document identifies a current problem, the document was acceptable. The Preliminary Engineer's Estimate document needed to be an official project description that precedes a facility plan or a Final Engineer's Estimate.</p>	Yes	Yes	4.8
<p>23. Final Engineer's Estimate A Final Engineer's Estimate contains a specific description of the project scope and a list of work to be done, along with detailed itemized costs. Note that this document is not the same as a Preliminary Engineer's Estimate. A Final Engineer's Estimate is an excellent source of accurate cost information and is typically submitted as a result of detailed facility design. Lowest responsive, responsible bids are equivalent to Final Engineer's Estimates.</p>	Yes	Yes	2.1
<p>24. Sewer System Evaluation Documents Sewer System Evaluation Documents include Infiltration/Inflow (I/I) Analysis and Sewer System Evaluation Survey (SSES). An I/I Analysis is a document that identifies excessive flow problems due to I/I into the sewerage. An SSES is a document that contains the results of a sewer system survey, manhole inspection, smoke testing, and flow monitoring. It is used to evaluate the physical condition of a sewer system (e.g., identifies areas of combined sewers, downspout connections, and locations where the sewer system is at capacity) and recommend solutions (e.g., replacing areas with larger-diameter pipe, grouting joints, and separating sewers in areas of combined sewers).</p>	Yes	Yes	1.0
<p>25. Diagnostic Evaluation A diagnostic evaluation is usually performed when a facility cannot achieve effluent discharge permit limits or when it experiences design, operational, analytical, or financial problems that limit the facility's performance. This type of evaluation could be used to document a need if the results indicate that construction is necessary to achieve compliance.</p>	Yes	No	<0.1
<p>26. Sanitary Survey A sanitary survey is a logical, investigative approach to gather information to evaluate the condition of existing Onsite Wastewater Treatment Systems (OWTS). These surveys are performed to document the condition of existing OWTS for facility planning purposes and to locate sources of water pollution and public health problems. The sanitary survey needed to document high, areawide failure rates that are considered serious enough to be a health hazard (such as ground water contamination caused by malfunctioning OWTS) to document a need. The documentation needed to clearly state that OWTS failures are contributing to a water pollution or health-related problem. The fact that an area has soils unsuitable for OWTS was not sufficient to document the need for sewers or a treatment plant. Communities with populations of fewer than 10,000 were able to use a letter from a registered State or county Sanitarian or Professional Engineer with documentation or other evidence from a site visit that supports the determination of need. EPA will review such documentation on a case-by-case basis.</p>	Yes	No	0.1
<p>27. State-Approved Municipal Wasteload Allocation Plan A Municipal Wasteload Allocation Plan is a water quality analysis done to determine the level of treatment required by a specific project, which is ultimately translated into an effluent limits or best management practice (BMP) in the National Pollutant Discharge Elimination System (NPDES) permit. This plan could be used to justify the need for a treatment plant enlargement or upgrade as long as the study identifies a specific wastewater treatment point source and appropriate design flows and treatment levels. This plan could be used to document a need and may be used to update costs if the project descriptions identify specific costs.</p>	Yes	Yes	<0.1
<p>28. New Municipal, State, or Federal Regulation (28) This documentation was only for new municipal, State, or federal regulations. This documentation needed to include a copy of the regulation and a signed, written statement from a qualified municipal or State employee indicating which facilities are affected. States needed only to reference federal regulations and did not need to submit them.</p>	Yes	No	<0.1

Table K-1. Acceptable document types (continued)

Documentation type	Allowable for justification of...		Percent of total documented needs in Table B-1
	Need	Cost	
29. Future or Proposed Municipal, State, or Federal Regulation (29) This documentation was for future or proposed municipal, State, or federal regulations that are in the process of being enacted. This documentation needed to include a copy of the regulation and a signed, written statement from a qualified municipal or State employee indicating which facilities are affected. This document type is only for Unofficial needs.	Unofficial Only	No	0.0
30. Administrative Orders, Court Orders, or Consent Decrees These official documents are usually issued as the result of continued violation of an NPDES permit or other pollution control requirements. The order or decree needed to state a need for construction to correct the violation in order to document the need.	Yes	No	0.1
31. NPDES or State Permit Requirement (with Schedule) The National Pollutant Discharge Elimination System (NPDES) is a permitting program implemented under authority of the CWA that is designed to control point source discharges of pollution. All point sources discharging to waters of the United States are required to have an NPDES permit establishing effluent limitations (and other permit conditions) designed to protect the designated uses of the receiving waterbody. Municipal and industrial stormwater point sources are included in this permitting system, as well as ocean dischargers. Facilities may submit this documentation type if they (1) are not meeting effluent limitations and are on compliance schedules or (2) are required to plan because they are at or near plant capacity.	Yes	No	0.1
32. Combined Sewer Overflow Long-Term Control Plan (LTCP) EPA requires communities with combined sewer systems to comply with the Combined Sewer Overflows (CSO) Control Policy. To achieve this, most communities are required to develop and implement Long-Term Control Plans (LTCPs) that will ultimately provide for full compliance with the CWA, including attainment of water quality standards. LTCPs may be used to justify needs and costs for Category V (Combined Sewer Overflow (CSO) Correction) needs only. Communities needed to submit documentation to EPA. Only LTCPs not yet approved by the State or EPA were considered as this document type; plans approved by either EPA or the State are document type 33.	Yes	Yes	6.7
33. Approved Combined Sewer Overflow Long-Term Control Plan (LTCP) EPA requires communities with combined sewer systems to comply with the CSO Control Policy. To achieve this, most communities are required to develop and implement LTCPs that will ultimately provide for full compliance with the CWA, including attainment of water quality standards. Approved LTCPs could be used to justify needs and costs for Category V (Combined Sewer Overflow (CSO) Correction) needs only.	Yes	Yes	1.6
40. Watershed-Based Plans Watershed-Based Plans that have not received CWA section 319 grant funding or that EPA has not reviewed could be used to document needs and costs if they meet the seven CWNS documentation criteria.	Yes	Yes	0.5
41. Section 319 Funded or EPA Reviewed Watershed-Based Plans A 319 Watershed-Based Plan is a plan that meets all nine minimum elements prescribed in EPA's <i>Supplemental Guidelines for the Award of Section 319 Nonpoint Source Grants to States and Territories in FY 2003</i> which is at: www.epa.gov/owow/nps/Section319/319guide03.html .	Yes	Yes	0.1
42. Approved State Annual 319 Work Plans These are NPS Management Program Work Plans and project implementation plans approved for section 319(h) funding. State Annual 319(h) Workplans are essentially the 319(h) grant applications that states need to develop and have approved to obtain money from EPA.	Yes	No ^a	<0.1
43. Approved State 319 Project Implementation Plans These are NPS Management Program Work Plans and project implementation plans approved for section 319(h) funding. 319(h) Project Implementation Plans are specific plans for each NPS project on which the state has proposed to spend money.	Yes	Yes	<0.1

Table K-1. Acceptable document types (continued)

Documentation type	Allowable for justification of...		Percent of total documented needs in Table B-1
	Need	Cost	
<p>44. Nonpoint Source Management Program/Assessment Report An NPS Management Program is a 4-year plan developed by a State to address NPS pollution problems. Elements in the program include identifying the BMPs and measures to reduce pollutant loading, programs to achieve implementation, a schedule with annual milestones, costs and identification of specific projects, certification that the laws of the state will provide adequate authority to implement the plan, and sources of funding and assistance. An NPS Assessment Report assesses the extent of pollution due to diffuse or NPS pollution in a State. The report identifies navigable waters that require NPS controls to achieve CWA water quality standards, sources and amounts of such pollution, and State and local control programs. It also describes the process that will be used to identify BMPs.</p>	Yes	No ^a	<0.1
<p>45. Nonpoint Source Management Program/Ground Water Protection Strategy Report States could use a Comprehensive Ground Water Protection Strategy report to document NPS pollution needs if the strategy is part of an NPS Management Program. The goals of this major federal initiative addressing ground water protection are to strengthen State ground water programs; deal with significant, poorly addressed ground water problems; create a policy framework within EPA for guiding ground water policy; and strengthen the ground water organization within EPA. Included in such a strategy are programs established under the Safe Drinking Water Act (SDWA) such as regulation of the injection of wastes into deep wells, the Wellhead Protection Program, and the Sole Source Aquifer program. Provisions in the Resource Conservation and Recovery Act (RCRA) for leaking underground storage tanks, goals in the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) for contaminated ground water sites, and State grant programs in the CWA for ground water protection activities are covered by this strategy</p>	Yes	No ^a	0.0
<p>46. Nonpoint Source Management Program/Wellhead Protection Program and Plan A Wellhead Protection Plan may be used to document NPS needs if it is part of an NPS Management Program. As part of a state's overall ground water protection strategy, a State must delineate wellhead protection areas for wells or well fields used for public water supply. Contaminant sources in the wellhead protection area must be identified and a management plan developed to protect the water supply in that area from contamination. Contingency plans for each public water supply system must be developed to ensure an appropriate response if contamination occurs, and standards must be established for locating new wells so as to minimize the potential for contamination of the water supply.</p>	Yes	No ^a	0.0
<p>47. Nonpoint Source Management Program/Delegated Underground Injection Control Program Plan A State may document needs to address NPS pollution aspects of a Delegated Underground Injection Control Program Plan, if the plan is part of the State's NPS Management Program. As part of the SDWA, EPA and State Underground Injection Control Programs were established to protect potential underground sources of drinking water from contamination by injection wells.</p>	Yes	No ^a	0.0
<p>48. Source Water Assessment/Source Water Protection Plans Under the SDWA, States are required to develop comprehensive Source Water Assessment Programs (SWAP) that identify the areas that supply public tap water; inventory contaminants and assess water system susceptibility to contamination; and inform the public of the results. Source Water Assessments identify the major potential sources of contamination to drinking water supplies. This information is used to determine how susceptible the water system is to contamination and could be helpful in justifying CWNS needs. States must use the system- or town-specific assessment, not the statewide summary, to justify the needs.</p>	Yes	No	0.0
<p>49. NRCS Conservation Plans and Farm Plans Natural Resources Conservation Service (NRCS) Farm Plans and Conservation Plans are documents developed by NRCS (or Conservation Districts) and farmers or landowners. They are a series of actions developed to meet a farmer's goals while protecting water quality and the natural resources. Some of the things considered in a plan are farm size, soils type, slope of the land, proximity to streams or waterbodies, type of livestock or crops, the farmer's goals, resources such as machinery or buildings and finances available. Farm Plans and Conservation Plans recommend practices to improve farm productivity, reduce the effect on the natural resources, and address potential water quality concerns.</p>	Yes	No ^a	0.0

Table K-1. Acceptable document types (continued)

Documentation type	Allowable for justification of...		Percent of total documented needs in Table B-1
	Need	Cost	
<p>50. Electronic Field Office Technical Guide (eFOTOG) Electronic Field Office Technical Guide (eFOTOG) is the primary scientific references for NRCS. It contain technical information about the conservation of soil, water, air, and related plant and animal resources. eFOTOGs are localized so that they apply specifically to the geographic area for which they are prepared. Section I of the eFOTOG contains conservation practice costs, which might include the unit cost of some agricultural BMPs. See www.nrcs.usda.gov/technical/efotg/.</p>	No (with exceptions)	Yes	0.0
<p>51. State/Federal Agricultural Cost-Share Program Cost Tables To address agriculture's contribution to the NPS water pollution problem, some State and federal programs provide financial incentives to farmers to install BMPs on their property. The Agriculture Cost Share Program is one of the most common financial incentives used. Participating farmers receive a percentage of predetermined average costs of installed BMPs with the remaining fraction paid by farmers directly or through in-kind contributions. Each program has cost tables of the predetermined average costs for BMPs or summaries of projects implemented by county.</p>	No	Yes	0.0
<p>52. Professional Appraisals The purchase of land or easements—usage rights—are increasingly being used to protect water quality or human health by preserving a determined level of ecosystem functions. Appraisals of the land or easements to be purchased could be used to justify costs, provided that the need is justified by additional document(s).</p>	No	Yes	0.0
<p>60. Municipal Stormwater Management Plan A Municipal Storm Water Management Plan is a plan submitted as part of a municipality's NPDES stormwater permit application. It includes a description of the structural and source control measures to be implemented to (1) reduce pollutants in runoff from commercial and residential areas that are discharged from the storm sewer, (2) detect and remove illicit discharges and improper disposal into storm sewers, (3) monitor pollutants in runoff from industrial facilities that discharge to municipal separate storm sewers, (4) reduce pollutants in construction site runoff that is discharged to municipal separate storm sewers, and (5) enhance municipal maintenance, public education, and public involvement.</p>	Yes	No ^a	0.3
<p>71. Small Community Needs Form For communities with populations of fewer than 10,000, using a standard survey form developed by EPA was acceptable for documenting need (and cost) as long as signatures are included. If costs are not included, cost curves could be used. For specific communities with populations of 3,500 or fewer and under extraordinary circumstances, States could apply to EPA headquarters for preapproval if a State-registered engineer (PE) or circuit rider signs the cost or need justification for document type 71.</p>	Yes	Yes	1.1
<p>72. Information from an Assistance Provider For communities with populations of fewer than 10,000, a statement of need from a technical assistance provider (e.g., state training center, health department, circuit rider), along with a soils/geologic report and health department report, could document need. Local official and service provider signatures needed to be included. Cost curves can be used to document costs.</p>	Yes	No	<0.1
<p>98. CSO Cost Curve Needs (98) States could use cost curves only when no other documents justifying needs in Category V, Combined Sewer Overflow (CSO) Correction, were available. CSO cost curves are in the Data Entry Portal. Although cost curves are not actually documents, they are an approximation of costs to control CSOs.</p>	NA	Yes	8.9
<p>99. EPA-headquarters Approved Unique documents required special EPA headquarters approval. If a document met all criteria but was not listed as a Preapproved Document, States needed to send at least two examples to their EPA Regional CWNS Coordinator for review before data entry. If the EPA Regional CWNS Coordinator believed that the documents might be acceptable, he or she will forwarded them to EPA headquarters for final determination.</p>	Yes	Yes	7.5

NA = not applicable.

^a. Documentation might have information that may be used to justify cost. Cost must be project-specific and distributable among categories.



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