EPA
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# Clean Watersheds Needs Survey 2012

## Report to Congress

EPA-830-R-15005 | January 2016

Cover photos, counter-clockwise from the top:

Solar array constructed at City of Somerton's wastewater treatment plant, Somerton, Arizona. Courtesy of Water Infrastructure Finance Authority of Arizona (WIFA).

Secondary clarifiers, Harlan, Kentucky. Courtesy of Kentucky Division of Water.

Wastewater lagoon built with CWSRF ARRA funding. Village of Eagle Nest, New Mexico. Courtesy of New Mexico Environment Department, Construction Programs Bureau.

Installing walkways on BTU at Town of Clarkdale Water Reclamation Facility, Clarkdale, Arizona. Courtesy of Town of Clarkdale.

Influent screw pumps, Barlow, Kentucky. Courtesy of Kentucky Division of Water.

Reclaimed water lines, Cave Creek, Arizona. Courtesy of Water Infrastructure Finance Authority of Arizona (WIFA).

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# Acknowledgments

The success of the *Clean Watersheds Needs Survey (CWNS) 2012 Report to Congress* is the result of the hard work and dedication of many people. Particular recognition goes to the EPA Regional and State Coordinators for their active support, perseverance, and continuing effort in the survey. Members of the CWNS 2012 National Workgroup are denoted by an asterisk (*) next to their names.

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# Introduction

The U.S. Environmental Protection Agency (EPA) has prepared this *Clean Watersheds Needs Survey (CWNS) 2012 Report to Congress*, hereinafter referred to as "this Report," in compliance with Clean Water Act (CWA) section 516(b)(1)(B). This Report—which contains results from the 16th survey since the CWA was enacted in 1972—estimates the capital investment necessary to ensure that the nation's publicly owned treatment works (POTWs) meet the water quality objectives of the CWA.[1] Sustainable wastewater infrastructure—including POTWs—is critical to providing the American public with clean, safe water and ensuring the environmental, economic, and social sustainability of the communities served.

Nationally, the total documented POTW capital investment needs required to address water quality or water quality-related public health problems, hereinafter referred to as "documented needs," totaled $271.0 billion as of January 1, 2012.[2] This figure represents the capital needs for up to a 20-year period as reflected in State and local planning documentation for publicly owned wastewater conveyance and treatment facilities, combined sewer overflow (CSO) correction, and stormwater management and is a snapshot in time.

*WV Department of Environmental Protection (original photo credit: Wood County WV Sheriff's Department)*

**Upgraded wastewater treatment plant to meet NPDES permit requirements. City of Parkersburg, West Virginia.**

[1] CWA section 212 defines "treatment works" as 'any devices and systems used in the storage, treatment, recycling, and reclamation of municipal sewage or industrial wastes of a liquid nature. It also includes sewers, pipes, and other conveyances only if they convey wastewater to a treatment plant. Privately owned treatment works, federally owned treatment works, and other treatment plants not owned by municipalities are not considered POTWs.' In addition to the definition contained in subparagraph (A) of CWA section 212, "treatment works" includes any other method or system for preventing, abating, reducing, storing, treating, separating, or disposing of municipal waste, including stormwater runoff, or industrial waste, including waste in combined stormwater and sanitary sewer systems.

[2] All needs amounts in this Report are shown in January 2012 dollars. Amounts were adjusted using the *Engineering News-Record* construction cost index.

While this Report might capture needs over a period of up to 20 years, nearly all needs it includes are for projects that will be completed within 5 years (i.e., 2012–2017). States do not generally have documentation for needs over a 20-year time frame. Forty percent of CWNS 2012 needs are documented using capital improvement plans (CIPs). CIPs include only projects that can be accomplished within the municipalities' budgets and within a specified number of years (typically 3–5 years).

Between January 1, 2008, and January 1, 2012, documented wastewater infrastructure needs decreased from $338.1 billion to $271.0 billion, a total reduction of $67.1 billion, or 20 percent. States reported a number of reasons documented needs have declined, including (1) planning documents containing lower-cost projects due to limited municipal budgets and other factors, (2) completion of major projects, (3) difficulty for some States in obtaining acceptable documentation to substantiate the costs of projects needed to address known water quality issues—particularly for small communities and for stormwater management projects, (4) a change in the CWNS methodology not to allow the use of CSO cost curves (projections) as an approved type of documentation, and (5) the decision by some States to limit their level of effort on the survey, particularly for reporting stormwater management and CSO needs.

However, not all needs categories decreased. Increases were reported in two categories as communities increasingly focus planning efforts on repairing and replacing the existing conveyance infrastructure (Category III) and reusing wastewater effluent (Category X).

*Water Infrastructure Finance Authority of Arizona (WIFA)*

**Construction of aeration basin at Prescott Airport wastewater treatment plant, Prescott, Arizona.**

*Norwich CT Department of Public Utilities*

**The Norwich Digester green infrastructure project. Waste gases from the anaerobic digester are used to power micro-turbines and provide energy to partially power the wastewater treatment plant, Norwich, Connecticut.**

Despite the overall decrease, the national needs total of $271.0 billion is extremely large, and communities are challenged to fund needed improvements. Additional significant capital investments are needed beyond the $271.0 billion documented in this Report to continue improving our nation's surface water quality. EPA will continue to work with the States and partners across the water sector to provide the knowledge and tools required to address these wastewater infrastructure needs and move us toward a more sustainable future.

### Access CWNS 2012 Online

The online companion to this Report is available at *www.epa.gov/cwns*. It provides the following:

- **CWNS 2012 Data Dashboard**, which features bar charts, pie graphs, and data tables to answer frequently asked questions. Also, it provides access to detailed state-, local-, and facility-level reports of both needs and technical information (e.g., number of facilities, flow, population served, and effluent level of treatment), facility fact sheets, and downloadable Access databases.
- **GIS Mapping Tool**, which uses geographic information systems to provide the ability to click on a map to access state-, local-, and facility-level data.
- **Electronic copy** of this Report.
- **Detailed explanation** of the scope and methods used for this Report.
- **Electronic access** to CWNS 2008, 2004, and 2000 reports and data.

*Jeanne Cargill, Wisconsin Department of Natural Resources*

**Aluminum dome covers on the two primary clarifiers at the new wastewater treatment plant (WWTP) in Rhinelander, Wisconsin.**

# Scope and Methods

This Report is a collaborative effort between the States, District of Columbia, U.S. Territories (collectively referred to as "the States" for the remainder of this Report), and EPA. From November 2009 through December 2011, the CWNS 2012 National Workgroup provided input on CWNS methods. (Workgroup members are identified in the acknowledgments section at the beginning of this Report.) The States collected and entered data on more than 27,000 wastewater facilities and water quality projects from January through December 2012.

Needs in this Report include the unfunded capital costs of treatment works projects (as defined in CWA section 212) that:

- Address a water quality or water quality-related public health problem existing as of January 1, 2012, or expected to occur within the next 20 years for POTWs; and
- Meet the CWNS documentation criteria, which include (1) the description and location of a water quality or water quality-related public health problem, (2) a site-specific solution to the problem, and (3) detailed cost information for implementing the solution.

Needs in this Report are summarized using the needs categories defined in Appendix C.

Consistent with prior surveys, costs for the following projects are not included in this Report:

A more detailed explanation of the scope and methods used for this Report is available online at ***www.epa.gov/cwns***.

- Known water quality projects that do not yet have documented solutions or cost estimates. In some communities, the source of the problem, the proposed solution, or the cost estimates for the solution are not yet sufficiently documented to meet the guidelines for inclusion in CWNS 2012.
- Projects for which unofficial cost estimates approximate needs without acceptable documentation.
- Privately owned wastewater facilities or those that serve privately owned industrial facilities, military installations, national parks, or other federal facilities.
- Operation and maintenance projects.
- Nonpoint source pollution control projects (previously reported as Category VII).
- Projects on tribal lands and in Alaskan Native Villages. The Indian Health Service (IHS) conducts a separate survey and prepares a Report to Congress annually under Public Law 86-121. The needs for capital investment in wastewater infrastructure on tribal reservations and in Alaskan Native Villages are based on the Sanitation Deficiency System within the IHS Sanitation Tracking and Reporting System (*http://wstars.ihs.gov/*).
- Projects in South Carolina, America Samoa, and the Northern Mariana Islands, because they did not participate in the 2012 CWNS.

Appendix D summarizes Decentralized Wastewater Treatment System (Category XII) needs that met CWNS documentation requirements but are not defined in CWA section 212.

*Kentucky Division of Water*

**Secondary clarifier, Otter Creek wastewater treatment plant, Richmond, Kentucky.**

# Data Quality Assurance

EPA conducted quality control and quality assurance reviews of the data for this Report to ensure their precision and accuracy. To meet this objective, EPA followed the Agency's Information Quality Guidelines and developed a Quality Assurance Project Plan (QAPP) in accordance with *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 reviewing technical and cost data. The QAPP defined processes for monitoring adherence to quality control procedures and quality assurance requirements.

A team of reviewers used the QAPP's standard operating procedures to review the data that individual States entered into the CWNS 2012 data entry system. The procedures included comparing hardcopy and electronic documentation with data entered into the system, as well as ensuring consistency of technical and cost data.

# Results: National Needs

The total documented needs as of January 1, 2012, are $271.0 billion nationwide, as shown by category in Figure 1 and Table 1. About 75 percent of the nation's needs are for wastewater infrastructure—treatment plant improvements, conveyance system repairs, new conveyance systems, and recycled water distribution; about 18 percent are for CSO correction; and about 7 percent are for stormwater management.

Figure 2 displays the geographic distribution of the total documented needs by State. New York and California each reported more than $25 billion in needs. Florida, New Jersey, Ohio, and Texas each have needs in excess of $10 billion. Almost half of the total needs reported (i.e, 44 percent) are concentrated in the six States reporting needs in excess of $10 billion. Twenty-four States each reported less than 1 percent of the total needs. Appendix A presents the total documented needs for all categories by State.

Figure 3 displays per capita needs by State. The District of Columbia ($4,472), Guam ($2,497), New Jersey ($1,975), Rhode Island ($1,829), West Virginia ($1,756), Maryland ($1,693), New York ($1,609), Missouri ($1,598), and Hawaii ($1,564) reported the largest needs per capita. The District of Columbia, Guam, Rhode Island, West Virginia, and Hawaii have high per capita needs but do not rank among the 20 States with the highest total needs shown in Figure 2 due to their relatively small population.

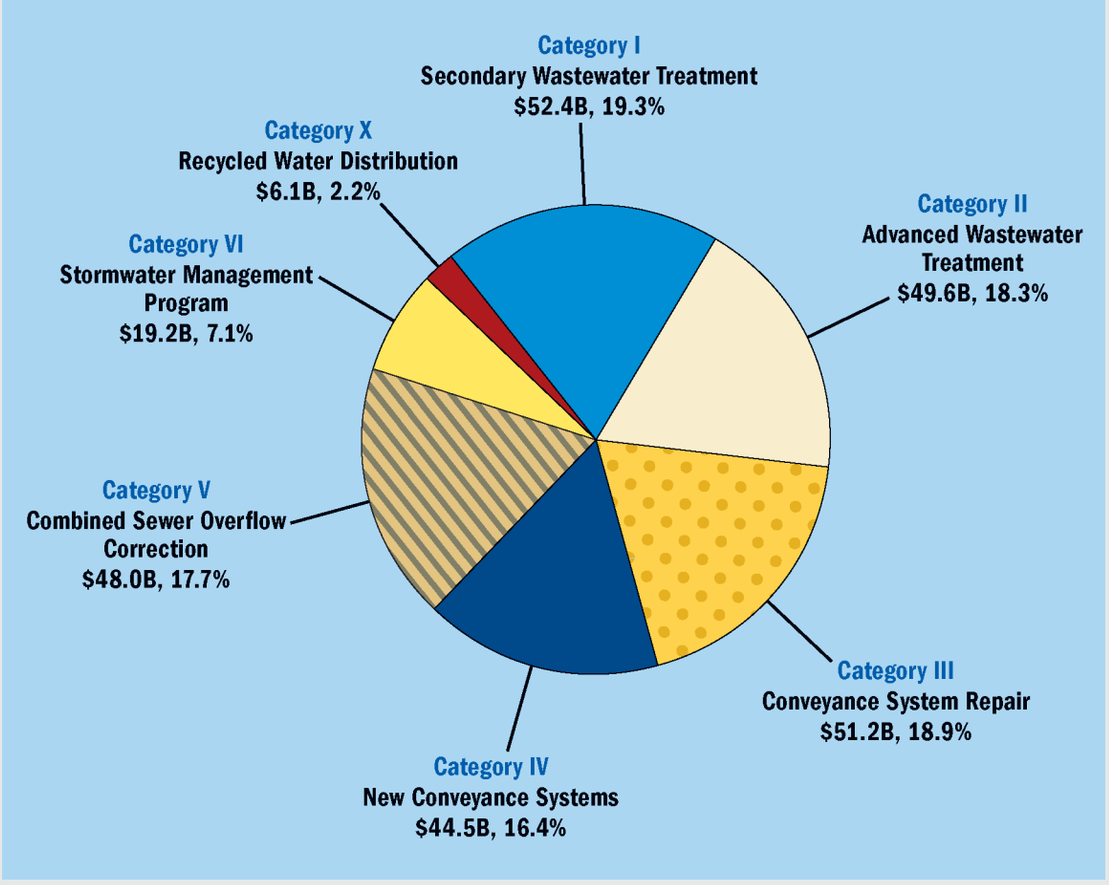


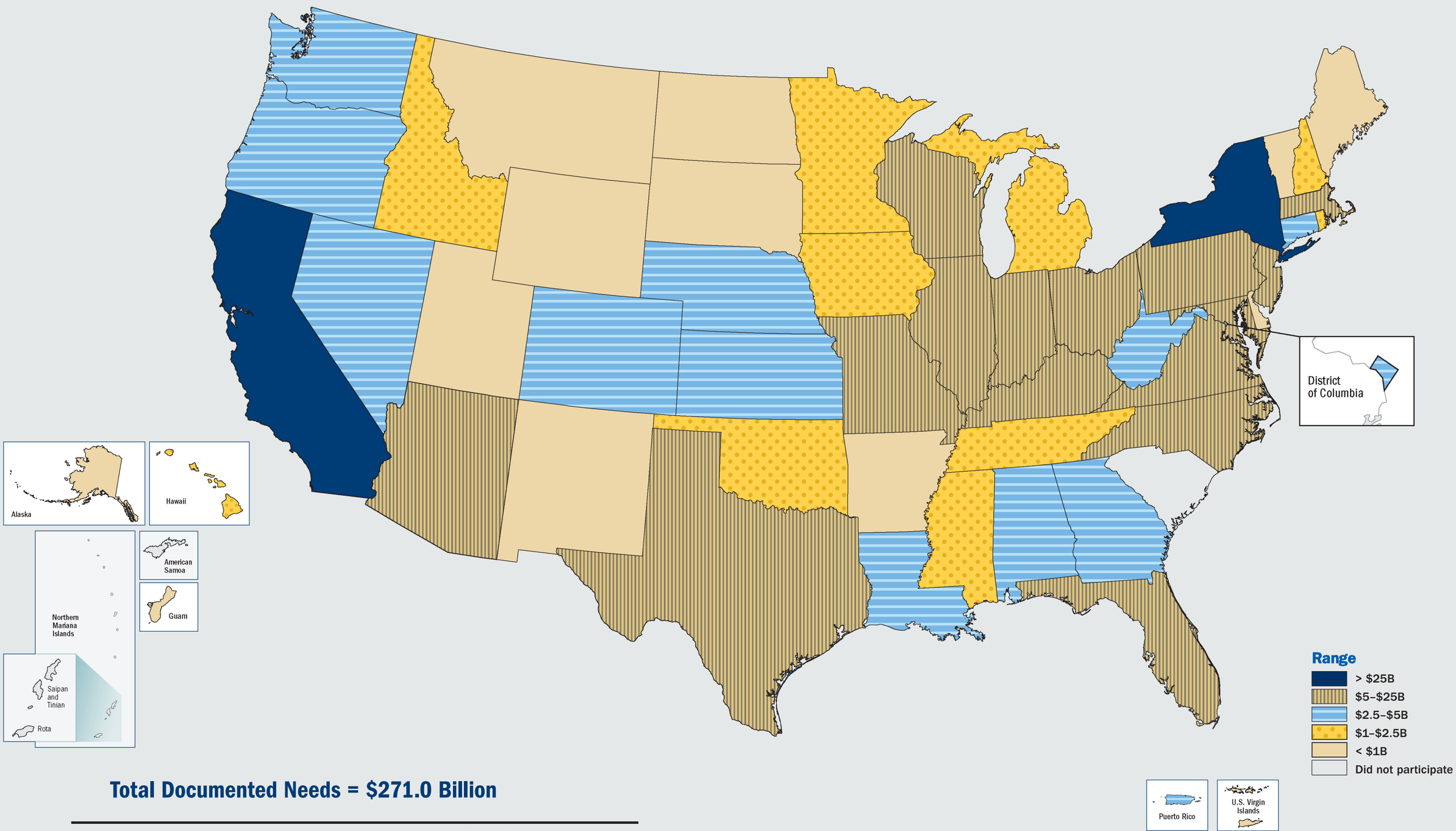

**Figure 1. CWNS 2012 Total Documented Needs (January 2012 Dollars in Billions).**

**Table 1. CWNS 2012 Total Documented Needs by Category (January 2012 Dollars in Billions)**

| Category number | Category name | National needs | |
|---|---|---|---|
| | | $B | Percent |
| I | Secondary Wastewater Treatment | 52.4 | 19.3 |
| II | Advanced Wastewater Treatment | 49.6 | 18.3 |
| III | Conveyance System Repair | 51.2 | 18.9 |
| IV | New Conveyance Systems | 44.5 | 16.4 |
| V | Combined Sewer Overflow Correction | 48.0 | 17.7 |
| VI | Stormwater Management Program | 19.2 | 7.1 |
| X | Recycled Water Distribution | 6.1 | 2.2 |
| **Total** | | **271.0** | **100.0** |

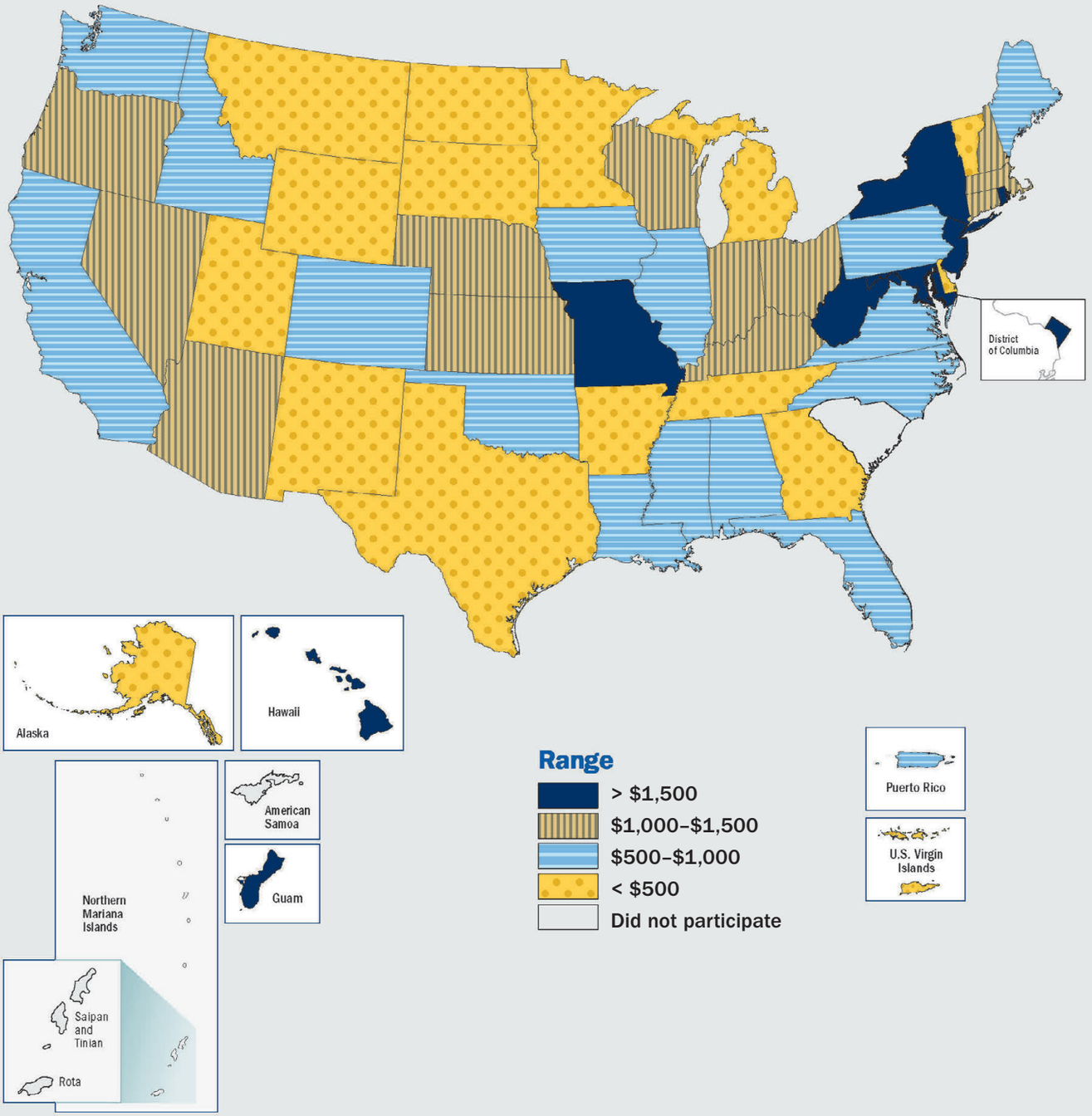
**Note: Total may not equal sum of the parts due to individual rounding**

Clean Watersheds Needs Survey (CWNS) 2012 **Report to Congress**




## Total Documented Needs = $271.0 Billion

**Figure 2. Distribution of Total Official Needs by State (January 2012 Dollars in Billions).**




## National Per Capita Need = $868

**Figure 3. Distribution of Per Capita Official Needs by State (January 2012 Dollars/Person).**

# Changes in Needs Since 2008

Between January 1, 2008, and January 1, 2012, documented wastewater infrastructure needs decreased from $338.1 billion to $271.0 billion,[3] which is a decrease of $67.1 billion, or 20 percent. Although the data indicate a decrease, the needs remain very large. The largest portions of this decrease are associated with:

- Secondary Wastewater Treatment (Category I) needs—$15.6 billion, or a 23 percent decrease—largely because of reduced budgets, projects receiving American Recovery and Reinvestment Act (ARRA) funding, and inadequate documentation.
- CSO Correction (Category V) needs —$24.1 billion, or a 33 percent decrease—due to CSO cost curve estimates no longer being an approved document type.[4]
- Stormwater Management (Category VI) needs—$28.7 billion, or a 60 percent decrease—as State participation in the survey declined and some cost estimates submitted for CWNS 2008 were not updated and resubmitted for CWNS 2012.

Other decreases include Advanced Wastewater Treatment (Category II) needs—$1.8 billion, or a 4 percent decrease—and New Conveyance Systems (Category IV)—$1.7 billion, or a 4 percent decrease.

Although Conveyance System Repair (Category III) needs increased slightly —$3.8 billion, or an 8 percent increase, Recycled Water Distribution (Category X) needs increased significantly—$1.1 billion, or a 21 percent increase—due to the recognition of the positive benefits of wastewater reuse (see Figure 4 and Table 2).

The States of Colorado, Georgia, Kentucky, and Missouri—each with an increase exceeding $2.5 billion—had the largest increases. Colorado, Georgia, Kentucky, and New Mexico each reported needs increases greater than 100 percent. Oklahoma and Missouri also reported large percentage increases in needs—64 percent and 47 percent, respectively. Illinois, New Jersey, and Pennsylvania—each with a decrease of more than $10 billion—had the largest decreases in needs since 2008. Illinois, Michigan, New Jersey, Pennsylvania, and Utah reported needs decreases greater than 50 percent compared to 2008.

[3] This figure represents CWNS 2008 total needs inflated to January 2012 dollars. The total needs cited in the 2008 CWNS Report to Congress was $298.1 billion (in January 2008 dollars). Appendix B presents total 2008 documented needs for all categories by State in January 2012 dollars.

[4] Cost curve estimates for the CSO Correction (Category V) have been decreasing as a percentage of the CSO Correction needs from 66 percent in 1996 to 42 percent in 2008. In preparation for the CWNS 2012 data collection, States indicated that there is sufficient documentation to allow for the elimination of the cost curve. For CWNS 2008, CSO Correction (category V) needs estimated with cost curve accounted for 42 percent of the reported needs, or $30.1 billion in 2012 dollars. The remaining 58 percent, or $42.0 billion, of CSO Correction (category V) needs was documented with long-term control plans or other planning documents.

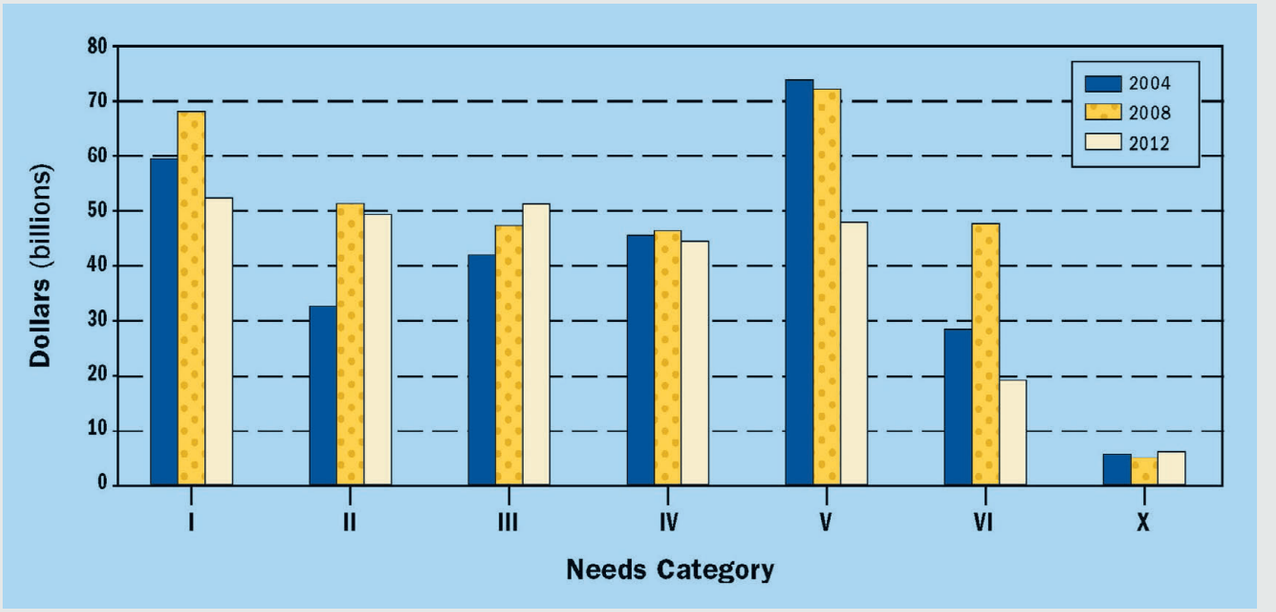



**Figure 4. Total Needs Nationwide for the 2004–2012 CWNS by Category (January 2012 Dollars in Billions).**

**Table 2. CWNS 2004–2012 Total Needs by Survey Year (January 2012 Dollars in Billions)**

| Category number | Name | | | | Change 2008 to 2012 | |
|---|---|---|---|---|---|---|
| | | 2004 | 2008 | 2012 | $B | Percent of $ |
| I | Secondary Wastewater Treatment | 59.9 | 68.0 | 52.4 | -15.6 | -23.0 |
| II | Advanced Wastewater Treatment | 32.9 | 51.4 | 49.6 | -1.8 | -3.5 |
| III | Conveyance System Repair | 42.0 | 47.5 | 51.2 | 3.8 | 8.0 |
| IV | New Conveyance Systems | 45.8 | 46.3 | 44.5 | -1.7 | -3.8 |
| V | Combined Sewer Overflow Correction | 73.7 | 72.1 | 48.0 | -24.1 | -33.4 |
| VI | Stormwater Management Program | 28.7 | 47.9 | 19.2 | -28.7 | -60.0 |
| X | Recycled Water Distribution | 5.8 | 5.0 | 6.1 | 1.1 | 21.1 |
| **Total** | **Total needs for Categories I to X** | **288.9** | **338.1** | **271.0** | **-67.1** | **-19.9** |
| I–II | Treatment Categories I and II only | 92.8 | 119.4 | 102.0 | -17.4 | -14.6 |
| III–IV | Pipe Repairs and New Pipes Categories III and IV only | 87.8 | 93.7 | 95.7 | 2.0 | 2.1 |
| I–V | Categories I to V subtotal | 254.3 | 285.2 | 245.7 | -39.5 | -13.8 |

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

# Trends and Analyses by CWNS 2012 Category

Figure 4 and Table 2 summarize the changes in needs by category[5] from 2004 to 2012.

## Secondary Wastewater Treatment (Category I)

### Highlights

**Category definition:** The capital costs for POTWs to meet secondary treatment standards.

**Total needs:** $52.4 billion

**Change in total needs from 2008:** Decrease of $15.6 billion (23 percent)

**Number of States reporting needs:** 52

**States with the highest documented needs:** New York ($11.1 billion), California ($7.9 billion), Texas ($3.3 billion), Illinois ($2.9 billion), and Missouri ($2.1 billion) documented over half (52 percent) of the needs

**States with the largest percent increases since 2008:** New Mexico (greater than 1,000 percent), Arkansas (642 percent), Colorado (258 percent), Delaware (230 percent), Hawaii (164 percent), Georgia (156 percent), Kentucky (144 percent), Indiana (127 percent), and Puerto Rico (116 percent)

**States with the largest percent decreases since 2008:** Nevada (91 percent), Connecticut (76 percent), Washington (62 percent), and Wyoming (61 percent)

**States with the largest per capita needs:** Guam ($1,041), Hawaii ($628), and New York ($571)

### Discussion

There are a variety of reasons why Secondary Wastewater Treatment (Category I) needs declined. States reported that some communities might have adjusted their wastewater infrastructure plans to match reduced budgets. For example, projects could have been scaled back, delayed, or canceled resulting in their exclusion from short-term and other submitted planning documents. Without required supporting documentation, these needs could not be included in CWNS 2012. In addition, States reported that some decreases were the result of projects receiving funding from the ARRA and others lacked adequate documentation.

Not all States reported declining needs. Some States indicated that more resources devoted to data collection and entry and more documentation of needs resulting from unfunded ARRA loan applications, enforcement actions, and State survey responses resulted in increased needs. States reported needing $4.1 billion (8 percent of the total Category I needs) to construct new secondary wastewater treatment facilities.

[5] Appendix C provides detailed descriptions of the categories.

*Kentucky Division of Water*

**Oxidation ditch, Otter Creek wastewater treatment plant, Richmond, Kentucky.**

*Jeanne Cargill, Wisconsin Department of Natural Resources*

**Empty aeration basin. New activated sludge WWTP in Rhinelander, Wisconsin, funded through the American Recovery and Reinvestment Act (ARRA).**

# Advanced Wastewater Treatment (Category II)

## Highlights

**Category definition:** The capital costs for treatment plants to attain a level of treatment that is more stringent than secondary treatment.

**Total needs:** $49.6 billion

**Change in total needs from 2008:** Decrease of $1.8 billion (4 percent)

**Number of States reporting needs:** 49

**States with the highest documented needs:** Florida ($11.3 billion), New Jersey ($5.1 billion), Arizona ($3.3 billion), California ($2.6 billion), New York ($2.2 billion), and North Carolina ($2.1 billion) documented over half (54 percent) of the needs

**States with the largest percent increases since 2008:** Georgia (greater than 1,000 percent), Oklahoma (greater than 1,000 percent), Tennessee (667 percent), New Hampshire (276 percent), Kentucky (168 percent), West Virginia (146 percent), Missouri (142 percent), and Wisconsin (111 percent)

**States with the largest percent decreases since 2008:** Wyoming (100 percent), Utah (94 percent), Michigan (90 percent), and Puerto Rico (86 percent)

**States with the largest per capita needs:** Nevada ($627), Florida ($590), New Jersey ($571), and Arizona ($505)

## Discussion

Needs for Category II decreased 4 percent compared to 2008 needs. Wastewater treatment facilities continue to be required to upgrade their level of treatment to meet the water quality requirements in National Pollutant Discharge Elimination System (NPDES) permits and Total Maximum Daily Loads. States indicated that nitrogen and phosphorus limits for wastewater discharges and enforcement actions are resulting in increased needs. Advanced treatment needs constituted a higher percentage of wastewater treatment plant needs in 2012 (49 percent) than in 2008 and 2004 (43 percent and 35 percent, respectively). In addition, needs to construct new advanced wastewater treatment facilities total $5.0 billion (10 percent of the Category II needs). At the same time, some States reported that they documented no or fewer needs, because some documented projects might have been scaled back or canceled due to limited municipal budgets.

*New Mexico Environment Department, Construction Programs Bureau*

**Membrane bioreactor wastewater treatment plant (built using Clean Water State Revolving Fund (CWSRF) ARRA funding), Ruidoso, New Mexico.**

# Conveyance System Repair (Category III)

## Highlights

**Category definition:** The capital costs to rehabilitate and replace conveyance systems.

**Total needs:** $51.2 billion

**Change in total needs from 2008:** Increase of $3.8 billion (8 percent)

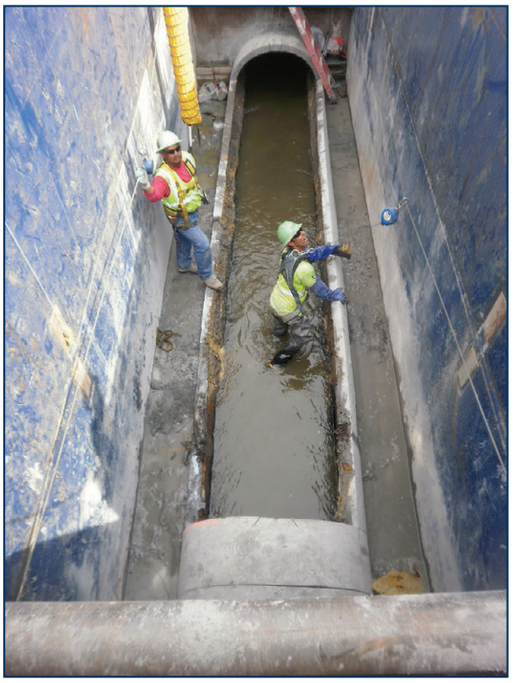
**Number of States reporting needs:** 53

**States with the highest documented needs:** California ($6.5 billion), New York ($5.2 billion), Ohio ($3.3 billion), Texas ($3.0 billion), Maryland ($2.5 billion), Virginia ($1.9 billion), Kentucky ($1.8 billion), Florida ($1.7 billion), and Wisconsin ($1.6 billion) documented over half (54 percent) of the needs

**States with the largest percent increases since 2008:** Georgia (greater than 1,000 percent), Kentucky (848 percent), Colorado (682 percent), Maryland (131 percent), and South Dakota (93 percent)

**States with the largest percent decreases since 2008:** Utah (75 percent), Montana (58 percent), and Connecticut (46 percent)

**States with the largest per capita needs:** Guam ($918), District of Columbia ($916), Hawaii ($568), Maryland ($425), and Kentucky ($412)



*Hawaii Department of Health, Wastewater Branch*

**Sliplining sewer installation as part of the Kalanianaole Sewer Rehabilitation, Big Island, Hawaii.**

## Discussion

As the nation's conveyance systems age, needs for repairing and rehabilitating them continue to increase. Conveyance System Repair (Category III) needs total $51.2 billion, which is 54 percent of the total reported conveyance system needs (Categories III and IV combined). This figure compares with 51 percent, 48 percent, and 46 percent for CWNS 2008, 2004, and 2000, respectively. The pattern of increasing Category III needs shows that communities are increasingly planning to ensure the structural integrity of the nation's existing conveyance system infrastructure, correct infiltration and inflow (I/I) problems, and correct problems related to sanitary sewer overflows (SSOs).

Needs for projects to reinforce and reconstruct structurally deteriorating sanitary or combined sewers (Category III-B) total $42.1 billion (82 percent). An additional $9.2 billion (18 percent) is needed to correct I/I problems (Category III-A), including projects to control the penetration of water into sanitary or combined sewers from the ground, drains, storm sewers, and other improper entries.

SSOs are releases of raw domestic sewage (and, in some cases, pretreated industrial wastes) from separate sewer systems before it reaches the wastewater treatment facility. Documented needs to eliminate SSOs total $32.7 billion (12 percent of total needs). The majority of the SSO needs are for capital improvements to existing conveyance systems (Category III)—$22.0 billion, or 67 percent of SSO needs. The additional $10.7 billion in needs that relate to addressing SSOs are $3.0 billion for Secondary Wastewater Treatment (Category I), $0.5 billion for Advanced Wastewater Treatment (Category II), and $7.2 billion for New Conveyance Systems (Category IV).

# New Conveyance Systems (Category IV)

## Highlights

**Category definition:** The capital costs associated with the installation of new sewer collection systems, interceptor sewers, and pumping stations.

**Total needs:** $44.5 billion

**Change in total needs from 2008:** Decrease of $1.8 billion (4 percent)

**Number of States reporting needs:** 52

**States with the highest documented needs:** New York ($5.1 billion), Massachusetts ($2.9 billion), California ($2.9 billion), Florida ($2.8 billion), Missouri ($2.3 billion), Kentucky ($2.1 billion), and Texas ($2.1 billion) documented nearly half (45 percent) of the needs

**States with the largest percent increases since 2008:** New Mexico (greater than 1,000 percent), Georgia (greater than 1,000 percent), New York (287 percent), Maryland (238 percent), and Missouri (203 percent)

**States with the largest percent decreases since 2008:** Michigan (76 percent), Tennessee (74 percent), and Delaware (72 percent)

**States with the largest per capita needs:** Rhode Island ($576), Guam ($538), Kentucky ($484), Puerto Rico ($452), and Massachusetts ($440)

## Discussion

Overall, New Conveyance Systems (Category IV) needs decreased slightly compared to 2008 (4 percent decrease). Some States reported increased needs while others reported decreased needs. States reporting increased needs cited the need to expand systems to accommodate population growth, increased documentation of needs from unfunded ARRA loan applications and better community response, and increased documentation in long-term community plans. States reporting decreases provided several reasons for the decrease in documented needs. In some cases, small communities are now planning for more affordable decentralized wastewater treatment systems instead of connecting to centralized wastewater treatment plants. In other cases, the most current project plans documented a scale-back or cancellation of a project or projects, resulting in decreased documented needs.

More than half of the needs in this category—$25.8 billion, or 58 percent—are for new collector sewers to collect and carry wastewater to an interceptor sewer (Category IV-A). The remaining $18.7 billion (42 percent) of documented needs are for constructing interceptor sewers, pumping stations, and relief sewers (Category IV-B).

Maryland Department of the Environment

**Madison-Woolford Wastewater Collection System project connecting two rural villages on failing septics to a municipal-owned treatment system, Maryland.**

# CSO Correction (Category V)

## Highlights

**Category definition:** The capital cost to prevent or control the periodic discharges of mixed stormwater and untreated wastewater that occur when the capacity of a sewer system is exceeded during a wet-weather event. This category includes traditional CSO control infrastructure (Category V-A) such as collection, storage, and treatment technologies and green infrastructure (Category V-B) such as upland runoff control techniques.

**Total needs:** $48.0 billion

**Change in total needs from 2008:** Decreased by $24.1 billion (33 percent)

**Change in documented needs from 2008:** Increased by $6.0 billion (14 percent)

**Number of States reporting needs:** 29

**Number of permitted CSO communities for which data were reported:** 768

**States with the highest documented needs:** New Jersey ($8.0 billion), Ohio ($7.5 billion), New York ($5.1 billion), Missouri ($3.4 billion), and Indiana ($3.2 billion) documented over half (57 percent) of the needs

**States with the largest percent increases since 2008:** Tennessee (381 percent), Kentucky (167 percent), and Vermont (142 percent)

**States with the largest percent increase in documented needs since 2008:** Pennsylvania (greater than 1000 percent), Kansas (697 percent), Tennessee (381 percent), Kentucky (167 percent), Vermont (142 percent), Illinois (141 percent), and Missouri (118 percent)

**States with the largest percent decreases since 2008:**[6] Alabama (100 percent), Delaware (100 percent), New Mexico (100 percent), and Wisconsin (99 percent)

**States with the largest percent decreases in documented needs since 2008:** Alabama (100 percent), Delaware (100 percent), New Mexico (100 percent), Michigan (82 percent), and Wisconsin (77 percent)

## Discussion

CSO Correction (Category V) needs have decreased by $24.1 billion (33 percent) since 2008. Consistent with other categories, the 2012 survey's CSO Correction (Category V) needs are based exclusively on needs documented in planning documents, such as long-term control plans. For all previous surveys, Category V needs were reported using a combination of needs from planning documents and cost estimates generated by a cost curve. The decrease in needs is primarily a result of this change. Comparing only documented needs (excluding cost curve estimates) from 2008, there is a 14 percent increase in needs from $42.0 billion in 2008 to $48.0 billion in 2012. Historically, the CWNS move from modeling costs with cost curves to documenting costs with planning documents when sufficient documentation is available. Cost curve estimates have been decreasing as a percentage of the CSO Correction (Category V) needs from 66 percent in 1996 to 42 percent in 2008. In preparation for CWNS 2012 data collection, States indicated that there is sufficient documentation to allow for the elimination of the cost curve estimates.

For the first time, States were able to separately report capital needs for implementing green infrastructure projects to abate CSOs, which are included in overall category totals. In 2012, States

[6] States with 100 percent decreases reported needs for this category in 2008, but did not report any needs in 2012.

reported $4.2 billion in needs for green infrastructure (Category V-B) for 23 CSO communities. Over time, greater implementation of green infrastructure practices could allow communities to downsize certain gray infrastructure components of their CSO control plans. This could provide some CSO communities with significant cost savings and will achieve additional environmental and social benefits.

# 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 nontraditional (e.g., universities, prisons, school districts) municipal separate storm sewer systems (MS4s), as well as unregulated communities.

**Total needs:** $19.2 billion

**Change in total needs from 2008:** Decreased by $28.7 billion (60 percent)

**Number of States reporting needs:** 35

**States with the highest documented needs:** California ($3.9 billion), Maryland ($3.2 billion), New York ($2.7 billion), and Texas ($2.6 billion) documented two-thirds (65 percent) of the needs

**States with the largest percent increases since 2008:** Arkansas (greater than 1,000 percent), Massachusetts (336 percent), Colorado (333 percent), South Dakota (328 percent), New Hampshire (271 percent), New York (119 percent), Idaho (115 percent), and Illinois (109 percent)

**States with the largest percent decreases since 2008:**[7] Georgia, Maine, North Carolina, Oklahoma, Pennsylvania, and Utah all reported 100 percent decreases; Minnesota (98 percent), Missouri (98 percent), and New Jersey (96 percent)

## Discussion

Stormwater Management needs (Category VI) needs decreased by $28.7 billion (60 percent) since 2008. The decrease in reported needs is due to several key factors.

First, state participation declined. Seven states reported needs for CWNS 2008 but reported no needs for CWNS 2012. Those states reported $7.2 billion in CWNS 2008 that is not included in this Report.

Also, EPA placed an increased emphasis on ensuring that the reported stormwater needs have a stated water quality benefit. As a result, projects characterized as "flood control" without a stated water quality benefit were not accepted for CWNS 2012. States indicated that this change made it more difficult to meet EPA's documentation criteria for stormwater in 2012 than in 2008.

Finally, $17.2 billion of New Jersey's needs that were included in the CWNS 2008 Report were not included in this Report. For CWNS 2008, New Jersey documented almost all (97 percent) of its stormwater needs by identifying potential projects using mapping and estimating the needs using costs of comparable bid or completed projects. However, it did not update those cost estimates for 2012 per the documentation requirements.

[7] States with 100 percent decreases reported needs for this category in 2008, but did not report any needs in 2012.

Maryland Department of the Environment

**Montpelier Mansions Low Impact Development (LID). Green infrastructure stormwater project.**

EPA continues to experience challenges in fully documenting Stormwater Management (Category VI) needs nationwide. Needs in this category remain underreported. Not all States report in this category; 35 States submitted data (compared to 38 in 2008). Within States that report needs, data are not submitted for all municipalities. Needs for 1,581 municipal stormwater management facilities and 603 unregulated facilities are included in this Report. EPA estimates that 7,450 facilities were covered by NPDES MS4 individual or general permits.[8] Therefore, data are reported for only 21 percent of MS4 facilities. States reported that this was due, in part, to planning documents lacking the explanation of water quality needs and detailed cost estimates required to meet CWNS documentation critieria.

As in CWNS 2008, needs were reported in the four Stormwater Management subcategories. Almost half—$8.7 billion, or 45 percent—is for the conveyance of stormwater via pipes, inlets, roadside ditches, and other similar mechanisms (Category VI-A). About one-third of the stormwater needs —$6.1 billion, or 32 percent—is for treating stormwater with wet ponds, dry ponds, manufactured devices, or similar means (Category VI-B). The remaining needs are $2.8 billion (15 percent) for low impact development and green infrastructure projects (Category VI-C) and $1.5 billion (8 percent) for general stormwater management activities, such as street sweepers, vacuum trucks, education program startup costs, and mapping and tracking systems (Category VI-D). A small amount of needs ($5.9 million or 0.03 percent) is not subcategorized and is reported as Stormwater Management (Category VI).

[8] A permit program established under section 402 of the CWA that controls water pollution by regulating point sources that discharge pollutants into waters of the United States (see www.epa.gov/npdes/stormwater/municipal).

This category includes both regulated and unregulated stormwater management needs. NPDES Phase I MS4s[9] account for $10.1 billion (52 percent) of the total Stormwater Management (Category VI) needs, and NPDES Phase II MS4s[10] account for $6.7 billion (35 percent) of the needs. Nontraditional NPDES MS4s[11] and nationally unregulated communities account for $0.2 billion (1 percent) and $2.2 billion (11 percent) of the needs, respectively.

# Recycled Water Distribution (Category X)

## Highlights

**Category definition:** The capital costs associated with the conveyance of wastewater reused after removal of waste contributed by humans to the reuse site (i.e., "recycled water") and additional treatment processes needed to increase the level of treatment to allow reuse.

**Total needs:** $6.1 billion

**Change in total needs from 2008:** Increase of $1.1 billion (21 percent)

**Number of States reporting needs:** 25

**States with the highest documented needs:** California ($2.2 billion) and Florida ($2.1 billion) documented over two-thirds (70 percent) of needs

**States with the largest percent increases since 2008:** New Mexico (greater than 1,000 percent), Maryland (959 percent), Oregon (668 percent), Alabama (280 percent), Colorado (249 percent), and Arizona (146 percent)

**States with the largest percent decreases since 2008:** Louisiana (93 percent), Tennessee (92 percent), and Texas (82 percent)

## Discussion

Increasingly, States and communities are finding that wastewater reuse has positive benefits, such as managing nutrients in treated wastewater, reducing energy consumption, and augmenting water supplies. As a result, the Recycled Water Distribution (Category X) needs increased significantly (21 percent) since 2008, and the number of States reporting needs increased from 20 to 25. Some States reported that wastewater reuse projects are integral to plans to prepare for drought. Other States reported that projects will support water conservation efforts and allow for the elimination of ocean discharges.

*Nevada Division of Environmental Protection*

**Agricultural reuse in Alamo, Nevada.**

[9] Phase I permits are required for medium and large MS4s (that serve populations of 100,000–249,999 and 250,000 or more, respectively) in incorporated places or counties with populations of 100,000 or more.

[10] Phase II permits are required for small MS4s (that serve populations of 99,999 or less) in urbanized areas, as defined by the U.S. Census Bureau, and small MS4s outside an urbanized area that are designated by NPDES permitting authorities.

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

# Urban and Rural Area Needs

Data from CWNS 2012 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 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 $203.2 billion (75 percent) and $67.8 billion (25 percent), respectively. Total urban needs for wastewater treatment (Categories I through V) equal $185.0 billion (75 percent). Total rural needs for these categories equal $60.7 billion (25 percent, or about one third as much).

For urban areas, the majority of the needs (61 percent) are in the following three categories: CSO Correction (Category V) at $45.6 billion, Secondary Wastewater Treatment (Category I) at $39.7 billion, and Conveyance System Repair (Category III) at $39.0 billion. For rural areas, the majority of the needs (68 percent) are in the following three categories: New Conveyance Systems (Category IV) at $17.1 billion, Advanced Wastewater Treatment (Category II) at $16.4 billion, and Secondary Wastewater Treatment (Category I) at $12.6 billion. Capital costs for secondary treatment are important nationwide because needs are significant in both urban and rural areas. Needs to address CSOs are proportionally greater in urban areas than in rural areas, but needs to install new conveyance systems represent a greater proportion of the needs in rural areas.

# Small Community Needs

This Report defines small communities as communities with populations of fewer than 10,000 people. Those communities sometimes lack the capacity to plan for needed capital improvements. As a result, EPA gives small communities additional flexibility to document needs and costs. For example, cost curves are available for States to estimate needed capital costs for wastewater treatment plants and sanitary sewer systems when other documentation for cost estimates is not available.

States estimate the small community needs total at $32.9 billion, representing 12 percent of the $271.0 billion total documented needs. Wastewater treatment needs include $7.7 billion for Secondary Treatment (Category I), $6.1 billion for Advanced Treatment (Category II), and $0.9 billion for CSO Correction (Category V). Conveyance System Repair (Category III) and New Conveyance Systems (Category IV) needs for small communities are $6.6 billion and $11.3 billion, respectively.

New York ($2.4 billion), Pennsylvania ($2.1 billion), Kentucky ($2.0 billion), Texas ($1.6 billion), and Alabama ($1.6 billion) account for approximately 30 percent of the small community needs. Seven additional States—Arizona, Florida, Illinois, Massachusetts, Ohio, West Virginia, and Wisconsin—report between $1.0 billion and $1.5 billion in small community needs. With a few exceptions, the majority of publicly owned facilities in each State serve small communities. In four States—Iowa,

Jeanne Cargill, Wisconsin Department of Natural Resources

**New activated sludge WWTP in the small community of Rhinelander, Wisconsin. Facility employs biological phosphorous removal.**

Montana, Nebraska, and North Dakota, 95 percent or more of the facilities serve small communities. In 19 additional States, small community facilities constitute 80 to 95 percent of the publicly owned facilities.

Almost 80 percent of centralized wastewater treatment and collection facilities (or 11,571 facilities) serve small communities. Those facilities serve only 7 percent (22.2 million people) of the U.S. population.

Most wastewater treatment plants projected to be constructed (614 out of 746) will serve small communities. The majority (63 percent) will serve populations of fewer than 1,000 people. These 614 new treatment plants will provide service to approximately 1.1 million people at an estimated need of $5.5 billion.

*WV Department of Environmental Protection (original photo credit: Triad Engineering, Inc.)*

**Construction of new 4.1 million gallons per day (MGD) treatment plant to meet Chesapeake Bay limit discharges and to satisfy a West Virginia Department of Environmental Protection (WVDEP) order to comply with EPA CSO Control Strategy, town of Moorefield, West Virginia.**

*Fuss & O'Neill, Inc. Manchester Connecticut*

**Directional drilling to connect lakefront homes in Bolton, Connecticut, to municipal sewers in the adjoining town of Manchester, Connecticut.**

# Trends in the Nation's Ability to Provide Wastewater Treatment

As of January 1, 2012, 14,748 publicly owned wastewater treatment plants were serving 238.2 million Americans, or 76 percent of the population. Since the passage of the CWA, the number of people provided with advanced wastewater treatment increased dramatically from 7.8 million people in 1972 to 127.7 million people in 2012 (Figure 5). Moreover, the population served by less-than-secondary treatment decreased from almost 60 million in 1972 to 4.1 million in 2012.

Table 3 presents the current status of the level of treatment based on data presented in this Report and past surveys. In comparison to 2008, an additional 11.8 million people now receive centralized collection and wastewater treatment. POTWs that provide secondary or more advanced levels of treatment have increased capacity to meet population growth. They currently serve 234.1 million people (or 75 percent of the U.S. population) compared to 222.6 million people (or 73 percent of the population) in 2008. The population served by less-than-secondary treatment increased from 3.8 million to 4.1 million. Nearly all of those people are served by facilities with CWA section 301(h) waivers.[12] There are now 2,281 nondischarging facilities serving 16.0 million people, or 5 percent of the U.S. population.[13]

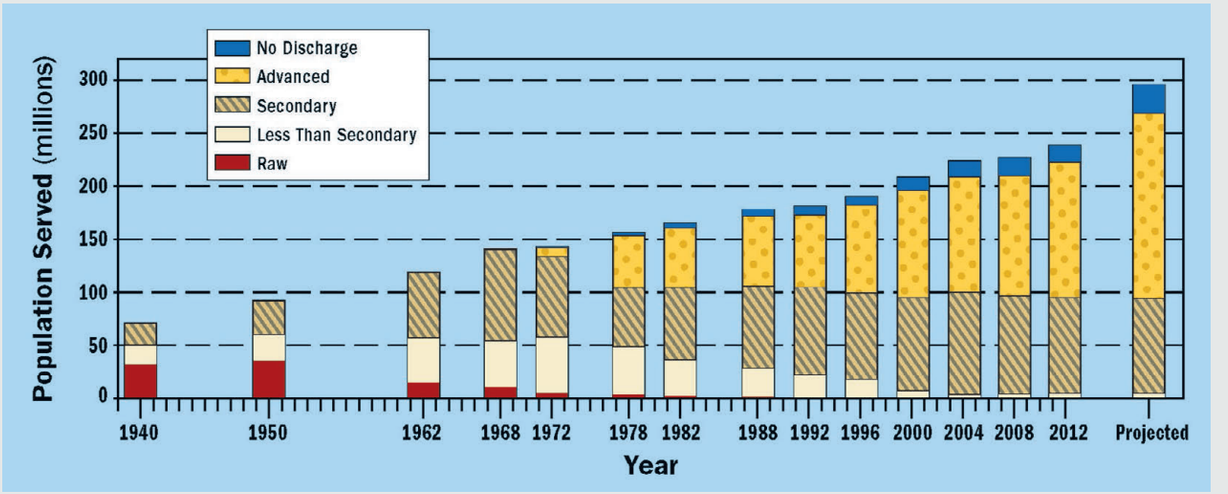
Figure 5 and Table 3 show projected improvements from 2012 through 2032 in wastewater treatment infrastructure if the wastewater treatment (Categories I and II) needs specified in this Report are met. The number of nondischarging facilities and facilities that provide secondary or more advanced treatment is projected to increase by 4 percent from 14,691 to 15,242. The population being served by those facilities is projected to increase by 24 percent (56.2 million people). The number of facilities that provide less-than-secondary treatment is projected to decline from 34 to 23 facilities, but the populations served by these facilities are projected to increase from 4.1 million to 4.5 million people. Overall, it is projected that a total of 15,280 operational facilities will serve a future population of 294.9 million people, or 79 percent of the U.S. population.


*WV Department of Environmental Protection (original photo credit: Triad Engineering, Inc.)*

**Manhole sealing to correct I/I problems and comply with a WVDEP order, town of Hartford, West Virginia.**

[12] 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 that 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.

[13] "Nondischarging" refers to facilities that do not discharge effluent to surface waters but instead reuse it for beneficial purposes (e.g., spray irrigation, ground water recharge).




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

**Figure 5. Population Served by POTWs for Select Years between 1940 and 2012 and Projected (if All Needs Are Met) by Treatment Level.**

**Table 3. Improvements in Treatment Level of the Nation's POTWs**

| Level of treatment | Population served in millions (number of facilities) | | | | Population change from 2008–2012 | Projected population change from 2012–2032 |
|---|---|---|---|---|---|---|
| | 2004[a] | 2008[a] | 2012[a] | 2032 | | |
| Less than Secondary[b] | 3.3 (40) | 3.8 (30) | 4.1 (34) | 4.5 (23) | 8.2% | 11% |
| Secondary | 96.5 (9,221) | 92.7 (7,302) | 90.4 (7,374) | 88.7 (6,670) | -2.4% | -2% |
| Greater than Secondary | 108.5 (4,916) | 113.0 (5,072) | 127.7 (5,036) | 174.9 (6,111) | 13.0% | 37% |
| No Discharge | 14.6 (2,188) | 16.9 (2,251) | 16.0 (2,281) | 26.7 (2,461) | -5.6% | 67% |
| Partial Treatment | – (218) | – (115) | – (23) | – (15) | – | – |
| **Total** | **222.8 (16,583)** | **226.4 (14,770)** | **238.2 (14,748)** | **294.9 (15,280)** | **5.2%** | **24%** |

*Note:*
These facilities provide some treatment to wastewater and discharge their effluents to other facilities for further treatment and discharge. The population associated with these facilities is omitted from this table to avoid double counting.

[a] This table contains 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 or 2008. In these circumstances, 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, 2012, waivers for 36 facilities in the CWNS 2012 database had been granted or were pending.

# Appendix A
# CWNS 2012 Documented Needs by State

**Table A-1. CWNS 2012 Documented Needs by Category and State (January 2012 Dollars in Millions)**

| State | Total | Category of need | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | I | II | III-A | III-B | IV-A | IV-B | V-A | V-B | Total VI | X | Total I-V |
| Alabama | $3,093 | $709 | $512 | $358 | $868 | $395 | $250 | $- | $- | $- | $1 | $3,092 |
| Alaska | $199 | $135 | $- | $1 | $58 | $5 | $- | $- | $- | $- | $- | $199 |
| Arizona | $6,776 | $269 | $3,290 | $0[a] | $651 | $931 | $615 | $- | $- | $42 | $978 | $5,756 |
| Arkansas | $715 | $124 | $169 | $117 | $102 | $91 | $107 | $- | $- | $6 | $- | $709 |
| California | $26,238 | $7,863 | $2,564 | $133 | $6,358 | $1,211 | $1,651 | $354 | $- | $3,924 | $2,180 | $20,133 |
| Colorado | $4,694 | $1,448 | $1,258 | $73 | $916 | $137 | $251 | $- | $- | $576 | $36 | $4,082 |
| Connecticut | $4,631 | $185 | $924 | $240 | $130 | $82 | $100 | $2,970 | $- | $- | $- | $4,631 |
| Delaware | $206 | $77 | $52 | $- | $50 | $26 | $1 | $- | $- | $- | $- | $206 |
| District of Columbia | $2,798 | $147 | $185 | $60 | $514 | $- | $9 | $1,883 | $2 | $- | $- | $2,798 |
| Florida | $18,423 | $- | $11,328 | $274 | $1,418 | $1,034 | $1,768 | $- | $- | $499 | $2,102 | $15,822 |
| Georgia | $2,719 | $91 | $1,928 | $1 | $280 | $34 | $377 | $- | $- | $- | $8 | $2,711 |
| Hawaii | $2,167 | $870 | $16 | $154 | $633 | $59 | $358 | $- | $- | $- | $77 | $2,090 |
| Idaho | $1,379 | $420 | $612 | $39 | $106 | $100 | $80 | $- | $- | $22 | $0[a] | $1,356 |
| Illinois | $6,537 | $2,886 | $223 | $230 | $890 | $255 | $332 | $1,632 | $- | $88 | $- | $6,450 |
| Indiana | $7,162 | $863 | $647 | $280 | $425 | $676 | $862 | $3,180 | $68 | $161 | $- | $7,001 |
| Iowa | $2,438 | $315 | $630 | $150 | $652 | $129 | $135 | $368 | $- | $55 | $2 | $2,381 |
| Kansas | $3,767 | $594 | $1,001 | $607 | $384 | $33 | $552 | $547 | $- | $50 | $0[a] | $3,717 |
| Kentucky | $6,245 | $878 | $417 | $396 | $1,407 | $1,578 | $540 | $565 | $380 | $84 | $- | $6,161 |
| Louisiana | $4,462 | $1,657 | $109 | $130 | $1,330 | $866 | $209 | $- | $- | $160 | $2 | $4,300 |
| Maine | $970 | $213 | $11 | $36 | $148 | $120 | $67 | $375 | $- | $- | $- | $970 |
| Maryland | $9,927 | $997 | $1,286 | $183 | $2,309 | $1,297 | $319 | $345 | $- | $3,173 | $19 | $6,735 |
| Massachusetts | $8,353 | $786 | $1,989 | $45 | $1,415 | $2,861 | $58 | $977 | $- | $201 | $22 | $8,129 |
| Michigan | $2,077 | $690 | $3 | $76 | $626 | $21 | $28 | $305 | $- | $328 | $- | $1,749 |
| Minnesota | $2,389 | $756 | $43 | $115 | $1,009 | $109 | $332 | $- | $- | $25 | $- | $2,364 |
| Mississippi | $2,035 | $303 | $431 | $59 | $435 | $451 | $355 | $- | $- | $- | $- | $2,035 |
| Missouri | $9,611 | $2,077 | $297 | $1,146 | $347 | $48 | $2,271 | $3,365 | $43 | $16 | $- | $9,594 |
| Montana | $363 | $130 | $96 | $23 | $45 | $44 | $6 | $- | $- | $18 | $- | $344 |
| Nebraska | $2,568 | $332 | $126 | $10 | $75 | $16 | $268 | $1,699 | $1 | $41 | $- | $2,527 |
| Nevada | $3,076 | $10 | $1,718 | $- | $287 | $120 | $227 | $- | $- | $657 | $57 | $2,361 |
| New Hampshire | $1,978 | $314 | $367 | $44 | $140 | $120 | $116 | $606 | $- | $272 | $- | $1,707 |
| New Jersey | $17,481 | $1,631 | $5,054 | $295 | $857 | $579 | $273 | $7,996 | $6 | $744 | $48 | $16,690 |
| New Mexico | $320 | $106 | $69 | $0[a] | $54 | $62 | $16 | $- | $- | $- | $13 | $307 |
| New York | $31,439 | $11,148 | $2,200 | $269 | $4,900 | $4,807 | $268 | $2,626 | $2,506 | $2,715 | $- | $28,724 |
| North Carolina | $5,296 | $257 | $2,134 | $263 | $483 | $691 | $1,251 | $1 | $- | $- | $216 | $5,080 |

**Table A-1. CWNS 2012 Documented Needs by Category and State (January 2012 Dollars in Millions) *(continued)***

| State | Total | Category of need | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | I | II | III-A | III-B | IV-A | IV-B | V-A | V-B | Total VI | X | Total I-V |
| North Dakota | $219 | $100 | $2 | $12 | $60 | $17 | $- | $- | $- | $26 | $3 | $190 |
| Ohio | $14,587 | $1,279 | $369 | $173 | $3,129 | $551 | $723 | $7,431 | $44 | $889 | $- | $13,698 |
| Oklahoma | $2,411 | $331 | $1,065 | $116 | $244 | $480 | $174 | $- | $- | $- | $- | $2,411 |
| Oregon | $3,888 | $1,357 | $336 | $117 | $775 | $348 | $228 | $106 | $27 | $553 | $40 | $3,296 |
| Pennsylvania | $6,950 | $1,230 | $767 | $485 | $724 | $769 | $148 | $1,759 | $1,068 | $- | $- | $6,950 |
| Rhode Island | $1,922 | $154 | $179 | $24 | $85 | $416 | $189 | $817 | $- | $58 | $- | $1,863 |
| South Carolina | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR |
| South Dakota | $166 | $31 | $40 | $7 | $44 | $0[a] | $15 | $- | $- | $29 | $- | $137 |
| Tennessee | $1,729 | $222 | $221 | $290 | $229 | $42 | $20 | $522 | $- | $182 | $1 | $1,546 |
| Texas | $11,829 | $3,255 | $867 | $499 | $2,493 | $1,030 | $1,037 | $- | $- | $2,585 | $64 | $9,180 |
| Utah | $842 | $211 | $144 | $- | $29 | $224 | $208 | $- | $- | $- | $26 | $816 |
| Vermont | $154 | $68 | $25 | $1 | $12 | $34 | $9 | $5 | $0[a] | $- | $- | $154 |
| Virginia | $6,528 | $1,024 | $1,628 | $774 | $1,124 | $663 | $513 | $695 | $- | $80 | $26 | $6,422 |
| Washington | $4,072 | $738 | $529 | $69 | $676 | $343 | $62 | $1,265 | $7 | $221 | $163 | $3,688 |
| West Virginia | $3,258 | $358 | $205 | $27 | $553 | $331 | $221 | $1,426 | $1 | $135 | $- | $3,123 |
| Wisconsin | $6,329 | $1,853 | $1,426 | $332 | $1,257 | $265 | $631 | $5 | $0[a] | $560 | $- | $5,769 |
| Wyoming | $91 | $18 | $- | $- | $50 | $1 | $12 | $- | $- | $10 | $0[a] | $81 |
| American Samoa | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR |
| Guam | $399 | $166 | $- | $9 | $138 | $82 | $4 | $- | $- | $- | $- | $399 |
| N. Mariana Islands | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR |
| Puerto Rico | $3,021 | $679 | $121 | $424 | $111 | $1,244 | $418 | $24 | $- | $- | $- | $3,021 |
| Virgin Islands | $38 | $0[a] | $- | $0[a] | $38 | $- | $- | $- | $- | $- | $- | $38 |
| **Total US** | **$270,964** | **$52,357** | **$49,608** | **$9,165** | **$42,071** | **$25,828** | **$18,663** | **$43,848** | **$4,154** | **$19,186** | **$6,085** | **$245,693** |

**Categories**

- I Secondary wastewater treatment
- II Advanced wastewater treatment
- III-A Infiltration/inflow (I/I correction)
- III-B Replacement/rehabilitation of sewers
- IV-A New collector sewers and appurtenances
- IV-B New interceptor sewers and appurtenances
- V-A Combined sewer overflow (CSO) traditional infrastructure
- V-B Combined sewer overflow (CSO) green infrastructure
- VI Stormwater management (see Table B-2 for totals by subcategory)
- X Recycled water distribution

**Notes:**

NR = not reported. South Carolina, American Samoa, and N. Marianna Islands did not participate in the CWNS 2012.

[a] Estimate is less than $0.5 million.

**Table A-2. CWNS 2012 Documented Needs for Stormwater Management by Category and State (January 2012 Dollars in Millions)**

| State | Category of need | | | | | |
|---|---|---|---|---|---|---|
| | VI | VI-A | VI-B | VI-C | VI-D | Total |
| Alabama | $- | $- | $- | $- | $- | $- |
| Alaska | $- | $- | $- | $- | $- | $- |
| Arizona | $- | $40 | $- | $- | $2 | $42 |
| Arkansas | $- | $- | $- | $5 | $1 | $6 |
| California | $- | $1,064 | $1,685 | $85 | $1,090 | $3,924 |
| Colorado | $- | $494 | $61 | $17 | $4 | $576 |
| Connecticut | $- | $- | $- | $- | $- | $- |
| Delaware | $- | $- | $- | $- | $- | $- |
| District of Columbia | $- | $- | $- | $- | $- | $- |
| Florida | $- | $210 | $249 | $- | $40 | $499 |
| Georgia | $- | $- | $- | $- | $- | $- |
| Hawaii | $- | $- | $- | $- | $- | $- |
| Idaho | $0[a] | $21 | $1 | $0[a] | $0[a] | $22 |
| Illinois | $- | $78 | $1 | $1 | $8 | $88 |
| Indiana | $- | $24 | $48 | $2 | $87 | $161 |
| Iowa | $- | $12 | $37 | $5 | $1 | $55 |
| Kansas | $- | $40 | $9 | $2 | $- | $50 |
| Kentucky | $- | $5 | $6 | $54 | $19 | $84 |
| Louisiana | $- | $138 | $22 | $- | $0[a] | $160 |
| Maine | $- | $- | $- | $- | $- | $- |
| Maryland | $- | $2 | $1,783 | $1,389 | $- | $3,173 |
| Massachusetts | $- | $9 | $193 | $- | $- | $201 |
| Michigan | $- | $- | $- | $286 | $42 | $328 |
| Minnesota | $- | $11 | $8 | $5 | $1 | $25 |
| Mississippi | $- | $- | $- | $- | $- | $- |
| Missouri | $- | $11 | $- | $- | $6 | $16 |
| Montana | $- | $13 | $5 | $- | $- | $18 |
| Nebraska | $- | $37 | $2 | $1 | $2 | $41 |
| Nevada | $- | $148 | $254 | $254 | $- | $657 |
| New Hampshire | $- | $134 | $39 | $57 | $41 | $272 |
| New Jersey | $- | $437 | $58 | $201 | $47 | $744 |
| New Mexico | $- | $- | $- | $- | $- | $- |
| New York | $0[a] | $2,534 | $104 | $40 | $37 | $2,715 |
| North Carolina | $- | $- | $- | $- | $- | $- |
| North Dakota | $- | $26 | $- | $- | $- | $26 |

**Table A-2. CWNS 2012 Documented Needs for Stormwater Management by Category and State (January 2012 Dollars in Millions) *(continued)***

| State | Category of need | | | | | |
|---|---|---|---|---|---|---|
| | VI | VI-A | VI-B | VI-C | VI-D | Total |
| Ohio | $- | $3 | $886 | $- | $0[a] | $889 |
| Oklahoma | $- | $- | $- | $- | $- | $- |
| Oregon | $- | $348 | $73 | $125 | $7 | $553 |
| Pennsylvania | $- | $- | $- | $- | $- | $- |
| Rhode Island | $5 | $3 | $23 | $20 | $7 | $58 |
| South Carolina | NR | NR | NR | NR | NR | NR |
| South Dakota | $- | $29 | $- | $- | $- | $29 |
| Tennessee | $- | $166 | $7 | $4 | $5 | $182 |
| Texas | $- | $2,509 | $72 | $- | $5 | $2,585 |
| Utah | $- | $- | $- | $- | $- | $- |
| Vermont | $- | $- | $- | $- | $- | $- |
| Virginia | $- | $- | $80 | $- | $- | $80 |
| Washington | $- | $125 | $40 | $43 | $12 | $221 |
| West Virginia | $- | $11 | $- | $124 | $- | $135 |
| Wisconsin | $- | $19 | $399 | $88 | $54 | $560 |
| Wyoming | $- | $5 | $5 | $0[a] | $- | $10 |
| American Samoa | NR | NR | NR | NR | NR | NR |
| Guam | $- | $- | $- | $- | $- | $- |
| N. Mariana Islands | NR | NR | NR | NR | NR | NR |
| Puerto Rico | $- | $- | $- | $- | $- | $- |
| Virgin Islands | $- | $- | $- | $- | $- | $- |
| **Total US** | **$6** | **$8,705** | **$6,150** | **$2,807** | **$1,518** | **$19,186** |

**Categories**

VI-A Conveyance infrastructure
VI-B Treatment systems
VI-C Green infrastructure
VI-D General stormwater management

**Notes:**

NR = not reported. South Carolina, American Samoa, and N. Marianna Islands did not participate in the CWNS 2012.
[a] Estimate is less than $0.5 million.

# Appendix B
# CWNS 2008 Documented Needs by State

**Table B-1. CWNS 2008 Documented Needs by Category and State (January 2012 Dollars in Millions)**

| State | Total | Percent Change 2008–2012 | Category of need | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | I | II | III-A | III-B | IV-A | IV-B | V | Total VI | X | Total I-V |
| Alabama | $5,019 | -38 | $759 | $980 | $325 | $1,667 | $545 | $741 | $1 | $- | $0[a] | $5,019 |
| Alaska | NR | NA | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR |
| Arizona | $5,932 | 14 | $406 | $2,196 | $8 | $511 | $768 | $1,123 | $- | $522 | $398 | $5,011 |
| Arkansas | $534 | 34 | $17 | $148 | $81 | $73 | $115 | $100 | $- | $0[a] | $- | $534 |
| California | $33,927 | -23 | $13,805 | $4,655 | $63 | $6,211 | $984 | $1,733 | $265 | $4,275 | $1,935 | $27,716 |
| Colorado | $1,671 | 181 | $404 | $802 | $4 | $123 | $135 | $59 | $- | $133 | $10 | $1,527 |
| Connecticut | $4,052 | 14 | $768 | $508 | $623 | $57 | $147 | $217 | $1,733 | $- | $- | $4,052 |
| Delaware | $252 | -18 | $23 | $62 | $1 | $41 | $87 | $9 | $29 | $- | $- | $252 |
| District of Columbia | $2,886 | -3 | $196 | $548 | $- | $- | $- | $- | $2,143 | $- | $- | $2,886 |
| Florida | $22,193 | -17 | $- | $10,623 | $153 | $1,734 | $3,417 | $2,073 | $- | $2,833 | $1,359 | $18,000 |
| Georgia | $101 | 2,599 | $36 | $42 | $- | $2 | $12 | $1 | $- | $9 | $- | $92 |
| Hawaii | $1,994 | 9 | $329 | $57 | $35 | $610 | $113 | $621 | $- | $- | $229 | $1,765 |
| Idaho | $1,563 | -12 | $497 | $659 | $35 | $121 | $136 | $104 | $- | $10 | $0[a] | $1,552 |
| Illinois | $19,852 | -67 | $4,638 | $412 | $125 | $1,562 | $432 | $305 | $12,337 | $42 | $- | $19,810 |
| Indiana | $8,076 | -11 | $380 | $542 | $24 | $407 | $574 | $257 | $5,718 | $174 | $- | $7,902 |
| Iowa | $3,889 | -37 | $265 | $1,823 | $100 | $414 | $94 | $305 | $849 | $39 | $- | $3,850 |
| Kansas | $3,683 | 2 | $864 | $719 | $428 | $285 | $40 | $650 | $592 | $104 | $- | $3,579 |
| Kentucky | $2,402 | 160 | $360 | $156 | $42 | $149 | $549 | $793 | $354 | $- | $- | $2,402 |
| Louisiana | $4,574 | -2 | $1,478 | $92 | $1,197 | $1,087 | $445 | $114 | $- | $138 | $24 | $4,412 |
| Maine | $1,170 | -17 | $341 | $28 | $56 | $132 | $193 | $42 | $348 | $30 | $- | $1,140 |
| Maryland | $9,605 | 3 | $1,212 | $2,049 | $197 | $882 | $175 | $304 | $525 | $4,259 | $2 | $5,345 |
| Massachusetts | $9,018 | -7 | $826 | $2,138 | $22 | $1,261 | $2,305 | $72 | $2,318 | $46 | $29 | $8,943 |
| Michigan | $4,212 | -51 | $983 | $27 | $48 | $836 | $60 | $142 | $1,763 | $351 | $- | $3,860 |
| Minnesota | $4,662 | -49 | $892 | $157 | $171 | $1,340 | $121 | $862 | $- | $1,120 | $- | $3,542 |
| Mississippi | $1,609 | 27 | $166 | $228 | $83 | $428 | $425 | $278 | $- | $- | $- | $1,609 |
| Missouri | $6,521 | 47 | $1,216 | $123 | $1,375 | $487 | $133 | $631 | $1,916 | $641 | $- | $5,880 |
| Montana | $665 | -46 | $308 | $55 | $25 | $135 | $66 | $50 | $- | $27 | $- | $638 |
| Nebraska | $3,654 | -30 | $755 | $457 | $14 | $70 | $22 | $761 | $1,495 | $80 | $- | $3,573 |
| Nevada | $3,303 | -7 | $115 | $1,998 | $- | $218 | $216 | $98 | $- | $584 | $73 | $2,646 |
| New Hampshire | $1,417 | 40 | $510 | $98 | $45 | $183 | $54 | $136 | $319 | $73 | $- | $1,343 |
| New Jersey | $36,872 | -53 | $2,075 | $5,070 | $356 | $1,076 | $932 | $253 | $9,274 | $17,724 | $113 | $19,036 |
| New Mexico | $117 | 174 | $5 | $76 | $- | $33 | $1 | $- | $1 | $- | $1 | $116 |
| New York | $33,704 | -7 | $17,897 | $1,410 | $174 | $4,133 | $1,045 | $266 | $7,540 | $1,238 | $- | $32,466 |
| North Carolina | $7,430 | -29 | $213 | $2,671 | $431 | $592 | $1,198 | $1,943 | $4 | $99 | $278 | $7,053 |

**Table B-1. CWNS 2008 Documented Needs by Category and State (January 2012 Dollars in Millions) *(continued)***

| State | Total | Percent Change 2008–2012 | Category of need | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | I | II | III-A | III-B | IV-A | IV-B | V | Total VI | X | Total I-V |
| North Dakota | NR | NA | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR |
| Ohio | $16,130 | -10 | $1,477 | $288 | $779 | $2,494 | $953 | $713 | $8,525 | $901 | $- | $15,229 |
| Oklahoma | $1,473 | 64 | $317 | $64 | $1 | $464 | $96 | $265 | $- | $267 | $- | $1,206 |
| Oregon | $4,285 | -9 | $1,768 | $475 | $75 | $554 | $339 | $221 | $484 | $365 | $5 | $3,915 |
| Pennsylvania | $20,348 | -66 | $1,041 | $446 | $396 | $647 | $908 | $183 | $9,921 | $6,806 | $- | $13,542 |
| Rhode Island | NR | NA | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR |
| South Carolina | $642 | NA | $149 | $305 | $5 | $29 | $54 | $68 | $- | $33 | $- | $609 |
| South Dakota | $121 | 38 | $- | $54 | $- | $26 | $19 | $14 | $- | $7 | $- | $114 |
| Tennessee | $1,548 | 12 | $503 | $29 | $219 | $227 | $140 | $94 | $109 | $217 | $10 | $1,321 |
| Texas | $13,089 | -10 | $2,921 | $1,455 | $376 | $1,470 | $948 | $2,005 | $- | $3,568 | $346 | $9,175 |
| Utah | $3,333 | -75 | $342 | $2,212 | $0[a] | $118 | $149 | $460 | $- | $0[a] | $50 | $3,282 |
| Vermont | $245 | -37 | $70 | $66 | $2 | $11 | $86 | $9 | $2 | $- | $- | $245 |
| Virginia | $7,767 | -16 | $1,726 | $2,047 | $415 | $1,619 | $832 | $431 | $698 | $- | $- | $7,767 |
| Washington | $5,970 | -32 | $1,942 | $736 | $108 | $790 | $1,050 | $149 | $663 | $374 | $159 | $5,438 |
| West Virginia | $3,419 | -5 | $385 | $84 | $41 | $439 | $403 | $271 | $1,664 | $133 | $- | $3,286 |
| Wisconsin | $7,215 | -12 | $2,066 | $677 | $283 | $2,117 | $364 | $567 | $467 | $673 | $- | $6,542 |
| Wyoming | $177 | -49 | $46 | $8 | $- | $48 | $26 | $6 | $- | $42 | $1 | $134 |
| American Samoa | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR |
| Guam | $414 | -4 | $147 | $- | $0[a] | $190 | $77 | $- | $- | $- | $- | $414 |
| N. Mariana Islands | $23 | NA | $2 | $- | $- | $17 | $5 | $- | $- | $- | $- | $23 |
| Puerto Rico | $5,391 | -44 | $314 | $872 | $345 | $56 | $2,240 | $1,537 | $26 | $- | $- | $5,391 |
| Virgin Islands | NR | NA | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR |
| **Total US** | **$338,147** | **-20** | **$67,956** | **$51,425** | **$9,285** | **$38,175** | **$24,226** | **$22,035** | **$72,084** | **$47,937** | **$5,025** | **$285,185** |

**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.

# Appendix C
# CWNS 2012 Needs Categories Definitions

**Table C-1. CWNS 2012 Needs Categories Definitions**

| 2012 Category number | Category name | Description |
|---|---|---|
| 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 CWA. Secondary treatment typically requires a treatment level that produces an effluent quality of 30 milligrams per liter (mg/l) of both 5-day biochemical oxygen demand ($BOD_5$) and total suspended solids. (Secondary treatment levels required for some lagoon systems might be less stringent.) In addition, the secondary treatment must remove 85 percent of $BOD_5$ 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 produces 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 20 mg/l, and removal of nitrogen, phosphorus, ammonia, metal, and synthetic organic compounds. |
| III-A | Conveyance System Repair: I/I Correction | This category includes needs and costs for correction of sewer system I/I 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 | Conveyance System Repair: Sewer Replacement/ Rehabilitation | This category 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 Conveyance Systems: New Collector Sewers and Appurtenances | This category includes the 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 Conveyance Systems: New Interceptor Sewers and Appurtenances | This category 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-A | CSO Correction—Traditional Infrastructure | This category includes needs and costs to prevent or control the periodic discharges of mixed stormwater and untreated wastewater that occur when the capacity of a sewer system is exceeded during a wet-weather event. This category includes traditional CSO control infrastructure such as collection, storage, and treatment technologies. This category does not include needs and costs for overflow control allocated to flood control or drainage improvement, or the treatment or control of stormwater in separate storm systems. |
| V-B | CSO Correction—Green Infrastructure | This category includes needs and costs to prevent or control the periodic discharges of mixed stormwater and untreated wastewater that occur when the capacity of a sewer system is exceeded during a wet-weather event. This category includes green infrastructure CSO control infrastructure such as upland runoff control techniques. This category does not include needs and costs for overflow control allocated to flood control or drainage improvement, or the treatment or control of stormwater in separate storm systems. |
| VI | Stormwater Management Program (pre-2008 needs only) | This category includes the 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 served by the storm sewer, (2) detecting and removing illicit discharges and improper disposal into storm sewers, (3) monitoring pollutants in runoff from industrial facilities that flow into MS4s, and (4) reducing pollutants in construction site runoff discharged to municipal separate storm sewers.<br><br>Needs and costs can be reported for Phase I, Phase II, and nontraditional (e.g., universities, prisons, school districts) MS4s. Unregulated communities also can report needs and costs in this category.<br><br>Only pre-2008 needs and costs are included in Category VI. Beginning in 2008, stormwater management program needs and costs are reported in subcategories VI-A through VI-D, described below. |

**Table C-1. CWNS 2012 Needs Categories Definitions *(continued)***

| 2012 Category number | Category name | Description |
|---|---|---|
| VI-A | Stormwater Management Program: Stormwater Conveyance Infrastructure | This category includes the needs and costs to address the stormwater management program activities associated with the planning, design, and construction of conveying stormwater via pipes, inlets, roadside ditches, and other similar mechanisms. |
| VI-B | Stormwater Management Program: Stormwater Treatment Systems | This category includes the 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 | Stormwater Management Program: Green Infrastructure | This category includes the 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, and restoration of riparian buffers and flood plains. Projects in this category can be both publicly and privately owned. |
| VI-D | Stormwater Management Program: General Stormwater Management | This category includes the 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. This category includes the needs and costs to address the activities associated with implementing a stormwater management program, such as geographic information systems and tracking systems, equipment (e.g., street sweepers, vacuum trucks), stormwater education program startup 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 | This category includes the 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 treatment facility and equipment for application of effluent on publicly owned land. 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. |
| XII | Decentralized Wastewater Treatment Systems | This category includes needs and costs associated with the rehabilitation or replacement of on-site wastewater treatment systems (OWTS) or clustered (community) systems. It also includes the treatment portion of other decentralized sewage disposal technologies. Costs related to the development and implementation of on-site management districts are included (but not the costs of ongoing operations of those districts). Costs also could include the limited collection systems associated with the decentralized system. Public ownership is not required for decentralized systems.<br><br>This category does not include the 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 as Secondary Wastewater Treatment (Category 1) and/or Advanced Wastewater Treatment (Category II) needs. Needs to install sewers to connect the service area to an existing collection system are reported as New Collector Sewers and Appurtenances (Category IV-A) and New Interceptor Sewers and Appurtenances (Category IV-B) needs. |

# Appendix D
# Decentralized Wastewater Treatment Systems (Category XII)

## Highlights

**Category definition:** Capital costs associated with the rehabilitation and replacement of OWTS (septic) and clustered (community) systems.

**Total needs:** $22.1 billion

**Change in total needs from 2008:** Decreased by $5.0 billion (19 percent)

**Number of States reporting needs:** 27

**States with the highest needs:** Florida ($5.6 billion), Virginia ($3.4 billion), Maryland ($2.4 billion), New Jersey ($2.1 billion), and Ohio ($2.0 billion) reported over two-thirds (70 percent) of the needs

**States with the largest percent increases since 2008:** Michigan (greater than 1,000 percent), Virginia (greater than 1,000 percent), Pennsylvania (greater than 1,000 percent), Wyoming (greater than 1,000 percent), New York (178 percent), and Missouri (157 percent)

**States with the largest percent decreases since 2008:** Georgia, Hawaii, Minnesota, and Vermont all reported 100 percent decreases

## Discussion

As noted before, these needs meet CWNS documentation requirements but are not defined in CWA section 516(b)(1)(B). Therefore, the $22.1 billion in needs from this category are not included in the $271.0 billion total needs.

EPA continues to experience challenges documenting decentralized wastewater system needs. Only half of the States reported needs in this category. The population served by decentralized wastewater systems reported in CWNS 2012 is 29.6 million people. This represents approximately 50 percent of the current U.S. population being served by septic tanks, cesspools, or chemical toilets.[14]

States continued to use statewide permit databases and community surveys to identify the number of decentralized systems requiring repair, replacement, and installation. In most cases, cost curves were then used to estimate costs totaling $14.0 billion, or 63 percent of total needs, to address the needs identified in 1,290 entries.[15] States also could use the cost of previous comparable projects, funding applications, or any other documentation that met the criteria to document costs. The decentralized needs in small communities total $6.0 billion (27 percent). The needs for new decentralized systems for newly constructed homes or businesses total $9.7 billion (44 percent).[16]

[14] Based on data from the 2011 American Housing Survey, U.S. Census Bureau, Housing and Household Division.

[15] Entries are for all the decentralized systems in a specified geographic area (e.g., county, town, village, unincorporated areas within a county).

[16] Needs for new decentralized systems to address population growth (newly constructed homes or businesses) are not Clean Water State Revolving Fund-eligible.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