

Clean Watersheds Needs Survey – 2004 Report to Congress & 2008 Survey Advancements

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ABSTRACT

The Clean Watersheds Needs Survey (CWNS) 2004 Report to Congress (RtC) documents the nation's needs for improving and protecting wastewater quality and wastewater-related public health.

This paper presents the major qualitative findings of the CWNS 2004 RtC, including: (1) a comparison of needs distribution by category between the CWNS 2000 RtC and the CWNS 2004 RtC; (2) the levels of CWNS 2004 needs reporting by category; and (3) highlights of CWNS 2004 needs in small communities and various geographic regions of the country.

This paper also summarizes main goals for advancing CWNS for the 2008 survey: (1) maximizing efficiency and quality of data collection efforts by providing an automated, web-based option (in addition to the current paper-based process) for states to collect data from local communities; (2) minimizing state and local data collection and submission efforts by sharing data between other EPA data systems and the CWNS data entry system; and (3) improving data utility by updating the CWNS data suite and enhancing internet methods for accessing and using CWNS data.

KEYWORDS

Clean, water, watersheds, wastewater, nonpoint source, treatment, technology, pollution, needs, survey, report, congress, water quality, data, facility, project, system, plant.

INTRODUCTION

The Clean Watersheds Needs Survey (CWNS) 2004 Report to Congress documents needs for wastewater treatment and nonpoint source (NPS) pollution control projects to meet the nation's water quality and wastewater-related public health goals.

In addition to providing Congress and state legislatures with information to assist budgeting efforts, objectives for the CWNS 2004 included collecting and presenting CWNS data (including facilities' populations served, flows, and treatment technologies) on the internet to optimize data utility for environmental professionals, private industry, and the public. Data uses include support for water discharge permit writing, waste load allocation efforts, measurement of environmental progress, academic research, and delivery of information to the public.

Methodology

The CWNS - a collaborative effort between states, the District of Columbia, Puerto Rico (collectively referred to as “States” for the remainder of this paper) and EPA – is required by section 516 of the Clean Water Act (CWA). EPA and the States define a need as a project, with associated costs, that addresses a water quality or wastewater-related public health problem. To be included in the CWNS 2004 as a documented need, a need must have existed as of January 1, 2004 and must have met documentation criteria. These criteria include specifying locations and descriptions of water quality or wastewater-related public health problems as well as specifying site-specific pollution abatement measures with detailed cost information.

As of the June 8, 2006 deadline for submission of manuscripts for WEFTEC 2006, the CWNS 2004 Report had not been approved by the U.S. Office of Management and Budget and delivered to Congress. Therefore, CWNS 2004 financial figures are not included in the Findings section. Instead, financial figures from CWNS 2000 are presented along with percentage distribution of needs across categories for CWNS 2004. Qualitative descriptions of other significant CWNS 2004 findings are also presented.

If, as expected, the Report is delivered to Congress prior to WEFTEC 2006, financial figures from CWNS 2004 will be included in session presentation materials.

Findings

The total wastewater treatment and nonpoint source pollution prevention needs for the Nation as of January 1, 2000, were \$201.7 billion (in January 2004 dollars, Figure 1). The needs for wastewater treatment (Categories I and II) include the capital costs of replacement, rehabilitation, expansion, upgrade or process improvement of existing treatment plants as well as construction of new treatment plants. Needs for wastewater collection and conveyance (Categories III and IV) include capital costs for replacement, rehabilitation or expansion of existing collection systems as well as construction of new collection systems. The change, between 2000 and 2004, in distribution of needs across needs categories can be seen by comparing Figure 1 and Figure 2.

For CWNS 2004, seven States in the upper midwest and northeast reported 72 percent of the documented needs for combined sewer overflows (CSOs, Category V). Twenty-nine States reported storm water management program needs (Category VI). These needs include the capital costs for developing and implementing municipal storm water management programs to meet the requirements of Phases I and II of the National Pollutant Discharge Elimination System (NPDES) municipal separate storm sewer system (MS4) regulations.

Figure 1. CWNS 2000 Total Reported Needs (January 2004 dollars)

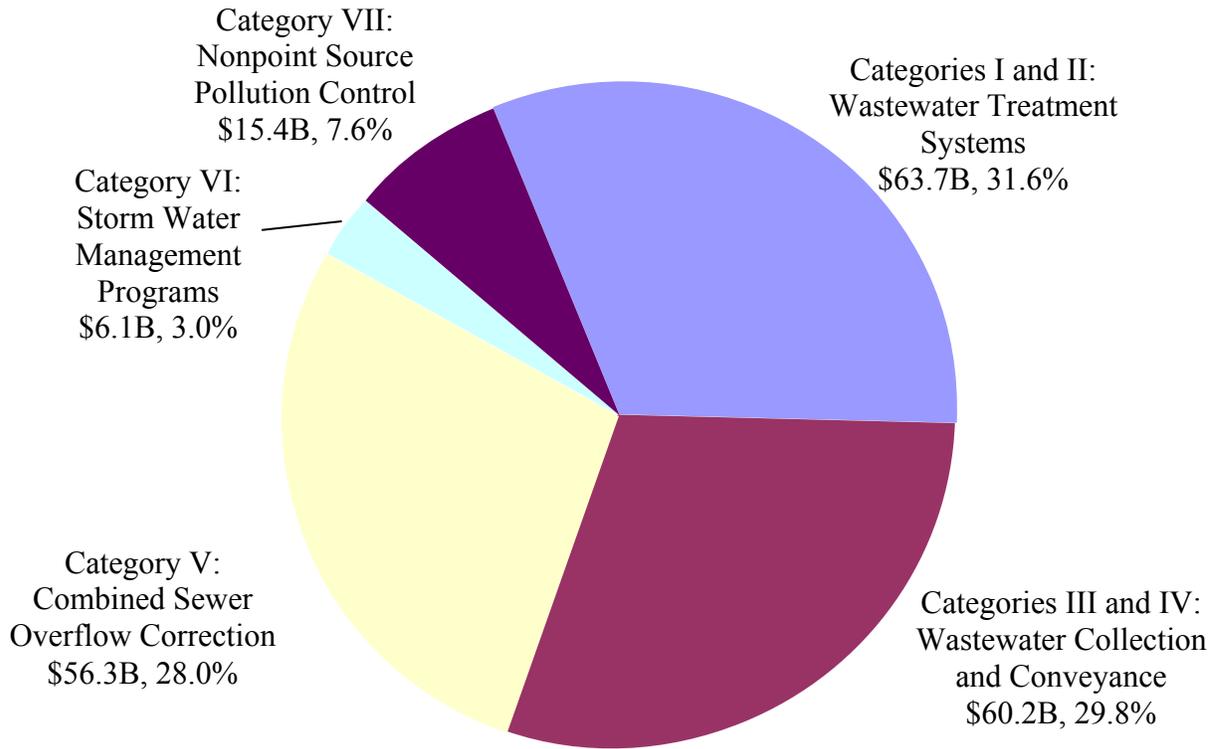
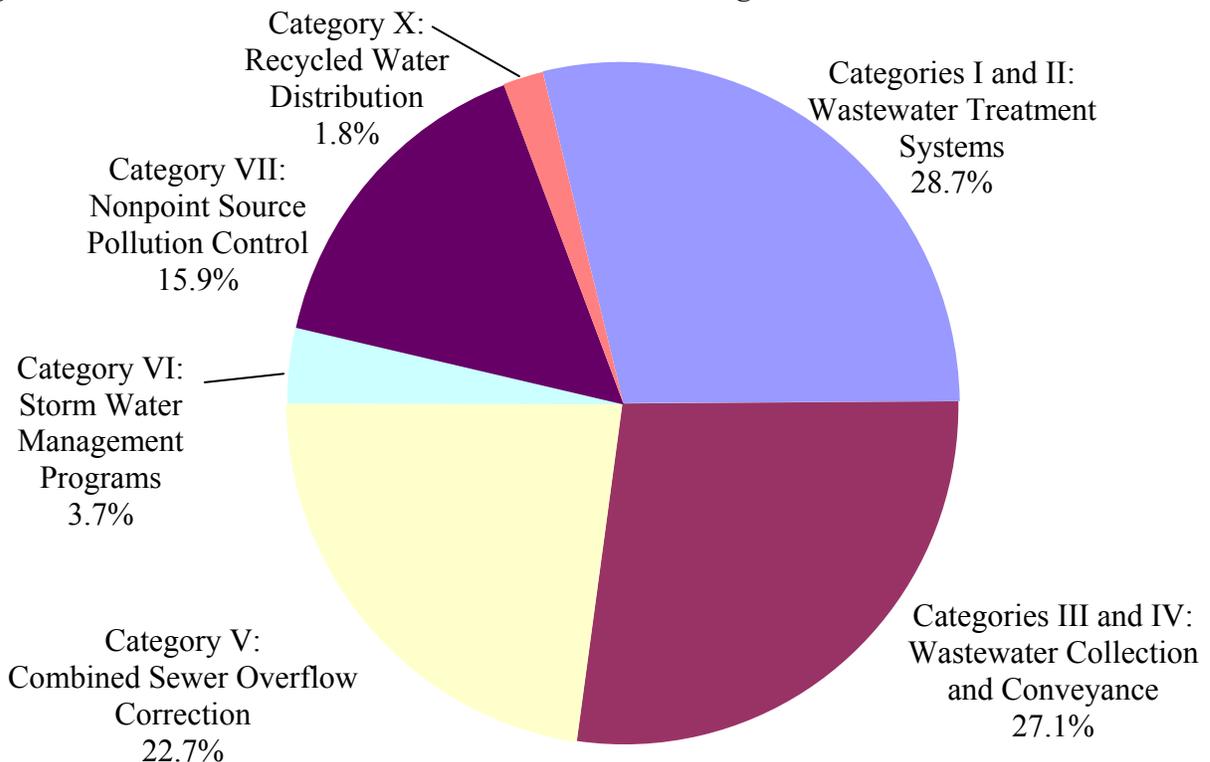


Figure 2. CWNS 2004 Distribution of Needs Across Categories



Forty-two States documented nonpoint source (NPS) pollution control (Category VII) needs. These needs are associated with implementing NPS management programs under section 319 of the CWA as well as developing and implementing Comprehensive Conservation and Management Plans (CCMPs) for estuaries under section 320 of the CWA. Thirty-two states reported septic and decentralized system needs, a distinct NPS sub-category for the first time in 2004. Fifteen States reported recycled wastewater distribution needs (Category X), a new category for CWNS in 2004.

Approximately 10% of the nation's wastewater treatment and collection needs, and about two-thirds of the nation's septic and decentralized onsite treatment needs, are in small communities (communities with populations of fewer than 10,000 people and with an average daily wastewater flow of less than 1 million gallons). More than half of the projects entered in CWNS for the first time in 2004 are for small community treatment plants that are replacing septic and decentralized treatment systems that serve populations of less than 1,000 people.

Within the continental United States, 90 percent of the Nation's needs are in 35 percent of the watersheds. Forty-nine percent of the needs are in coastal watersheds. Twenty-seven percent of the Nation's needs are in designated National Estuary watersheds. Thirty-five percent of the Nation's needs are related to land surrounding rivers that ultimately drain to the Gulf of Mexico. Needs related to areas that drain to the Chesapeake Bay and to the Great Lakes each represent 8.4 percent of the Nation's needs.

For each summary analysis in this Findings section, the CWNS 2004 RtC contains numerous maps, charts, and tables. Upon delivery of the Report to Congress, the Report will be available at <http://www.epa.gov/owm/mtb/cwns/index.htm>.

Significance

The largest increases in national needs from 2000 to 2004 are associated with Category VII NPS pollution control needs, Category I and II wastewater treatment needs, Category III-A and III-B sewer repair needs, and Category VI storm water management program needs.

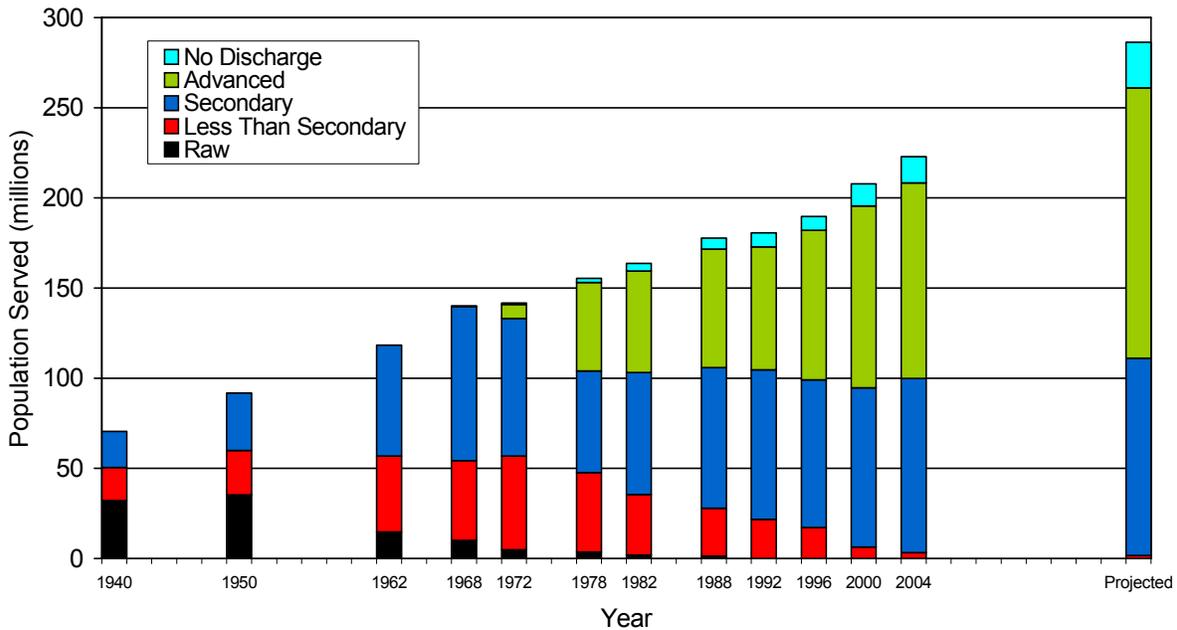
The increases in wastewater treatment needs and in sewer repair needs are due to a variety of factors. These include rehabilitation of aging infrastructure, facility improvements to meet more protective water quality standards, and in some cases, providing additional treatment capacity for handling wet-weather flows. Most (94 percent) of this increase can be attributed to needs increases of more than \$100 million each in only 92 of the 10,152 facilities with reported needs. An additional 78 facilities had needs that decreased by at least \$100 million each.

The increases in NPS pollution control and storm water management program needs are due to greater availability of planning documents, as well as increased intrastate coordination between various agencies in reporting these needs. Reporting on these needs is expected to increase significantly again for the CWNS 2008 with utilization of the new web-based data entry system and with the continued increase in documentation.

Although the CWNS 2004 presents increasing needs, the Nation’s secondary and advanced wastewater treatment capacity has improved dramatically since the Clean Water Act was enacted in 1972. The population receiving secondary or advanced treatment from publicly owned treatment works (POTWs) increased from 84.1 million to 205.0 million, while the population receiving primary or no treatment from POTWs decreased from 51.9 million to 3.3 million.

The increasing ability to provide secondary and advanced wastewater treatment is projected to continue if needs in the CWNS 2004 are met. Approximately 285 million people are projected to receive secondary or advanced treatment by 2024 (Figure 3).

Figure 3. Population served by various level of wastewater treatment



Status

The CWNS 2004 is expected to be published in second half of 2006. Data will be available to the public using a variety of tools and formats, at <http://www.epa.gov/owm/mtb/cwns/index.htm>.

Ask WATERS – Simple Query (Figure 4) provides a list of commonly asked questions and the ability to define data reports by specifying geographic areas of interest as well as by specifying facility characteristics such as flow ranges and populations served.

Figure 4. Ask WATERS – Simple Query

U.S. Environmental Protection Agency

Clean Watersheds Needs Survey (CWNS)

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[EPA Home](#) > [Water](#) > [Wastewater](#) > [Clean Watersheds Needs Survey](#) > [Query Tool](#)

ASK WATERS **Enter Report Selection Criteria for:**
How many CWNS facilities overlap with 303(d) impaired waters and what are their documented needs?

[Return to Ask WATERS Question List](#)

Geographic Location Criteria

EPA Region:

State:
 AK - Alaska
 AL - Alabama
 AR - Arkansas
 AS - American Samoa

Watershed (Hydrologic Unit Code) - Click [Map](#) or [List](#) to Select Code
 (Display only)

Ask WATERS – Expert Query provides the additional ability to define precisely which data elements are included in data reports and prescribe how they are ordered in rows and columns. Ask WATERS report formats include pie charts (Figure 5), bar graphs (Figure 6), and data tables.

Data can be downloaded from Ask WATERS reports into Excel or CSV formats, or can be integrated with any user’s desktop or internet data and tools via web services. Users can also link from Ask WATERS reports to CWNS Fact Sheets (Figure 7) and to EnviroMapper for Water.

EnviroMapper for Water (Figure 8) provides users the ability to show a variety of different environmental datasets, political and geographic boundaries, and community information such as roads, hospitals, and schools. To find CWNS or other information of interest, users can click on the map or can enter zip codes, city names, or other geographic information and EnviroMapper for Water will produce an interactive map for the local area of interest. Users can click on the map to obtain CWNS facility specific fact sheets and other detailed environmental reports.

Figure 5. Sample Pie Chart from Ask WATERS
Watershed Report for GUNPOWDER-PATAPSCO

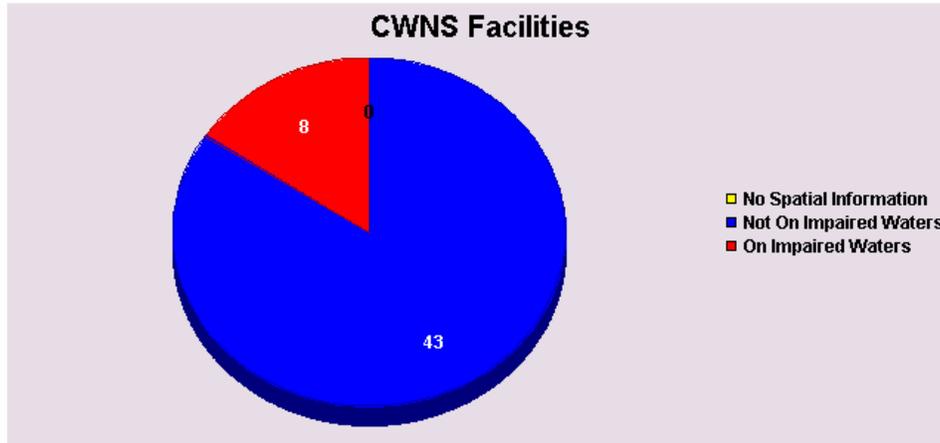


Figure 6. Sample Bar Graph from Ask WATERS

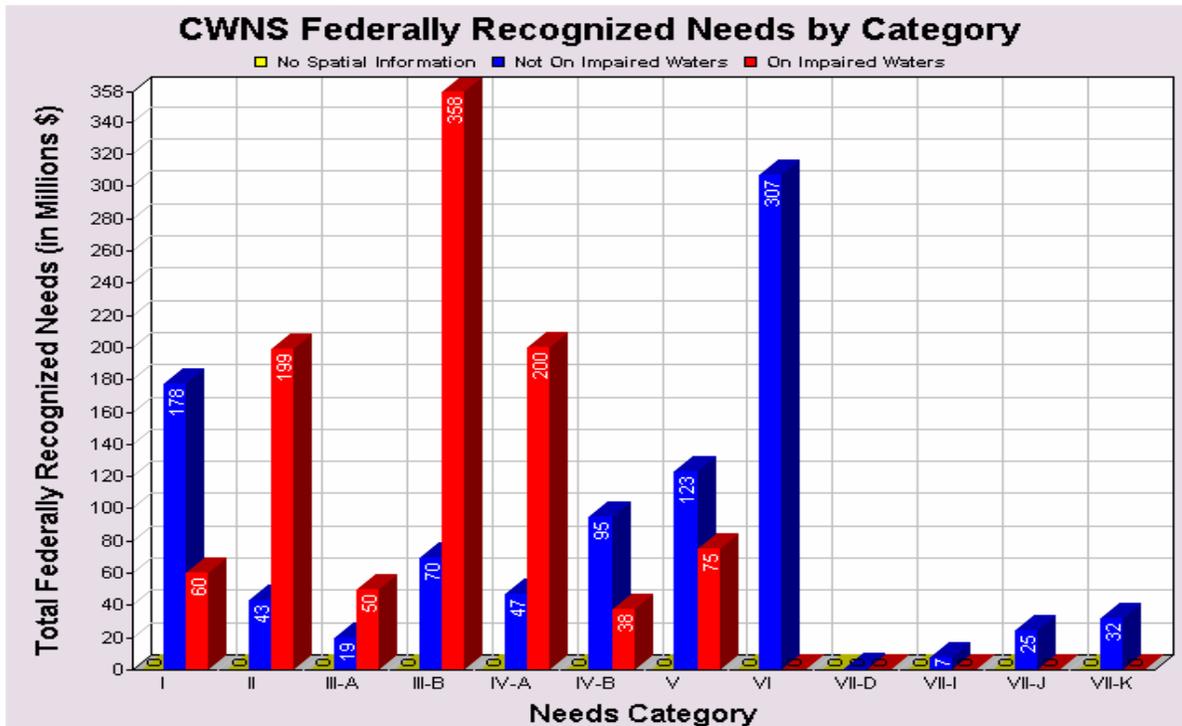


Figure 7. Sample CWNS Facility Fact Sheet

CWNS#: 24000003001	Facility: COX CREEK WWTP	Review Status: HA	10/16/01
	NPDES: MD0021661	Federal Needs (\$000):	\$46,377

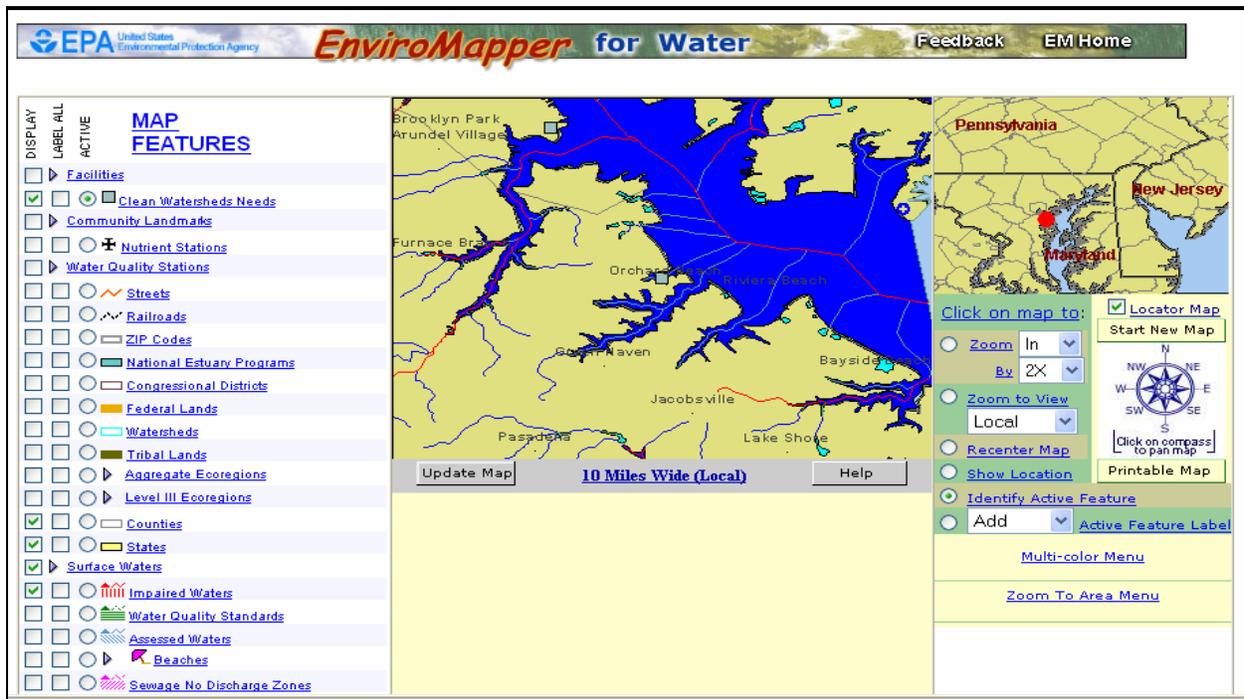
System Name:	Point of Contact	Tribe: No
Location (Point of Record)	Name:	
County, State: Anne Arundel MD	Authority: ANNE ARUNDEL COUNTY DPW	
Congressional District: 2401	Address:	
Within Tribe Territory: No	Phone:	Fax:
Latitude/Longitude: 39.1739 N / 76.5347 W	Email:	
Watershed: Gunpowder-Patapsco.		
NHD Index:		

Facility Description			
Nature	<u>Present</u>	<u>Projected</u>	<u>Change(s)</u>
Collection: Separate Sewers	Y	Y	Expansion
Collection: Separate Sewers	Y	Y	Rehabilitation
Collection: Separate Sewers	Y	Y	Replacement
Treatment Plant	Y	Y	Increase Level Of Treatment
Treatment Plant	Y	Y	Process Improvement

Permit(s)	<u>Number</u>	<u>Type</u>
indicates NPDES Permit	MD0021661	Discharge

1 of 3

Figure 8. Sample View from EnviroMapper for Water



Conclusion – Next Steps

Preparation for CWNS 2008 was initiated with states and local communities in 2005. Advancements for the CWNS 2008 are designed towards furthering data quality and access improvements in the CWNS 2004. EPA, states, and local community representatives are working on the following improvements:

Goal 1 – Make it easier for states & local communities to submit information for CWNS 2008

Objective 1-1 – Move the CWNS data entry system to the Internet to:

- a) Enable easier system access, by any authorized State user
- b) Extend data entry capabilities to facilities and other local parties

Objective 1-2 – Reduce data entry by integrating the CWNS data entry system with the:

- a) Permit Compliance System (PCS) / Integrated Compliance Information System (ICIS)
- b) Clean Water State Revolving Fund (CWSRF) Benefits Reporting internet form
- c) EPA's water location data mapping tool (WebRIT)

Objective 1-3 – Integrate CWNS document management with EPA's developing Electronic Content Management System (ECMS) for ability to

- a) Electronically submit documents, linked to CWNS data records
- b) Access documents in ECMS related to other EPA programs

Goal 2 – Update CWNS methods and procedures to improve survey accuracy and utility

Objective 2-1 – Increase support for Sustainable Infrastructure efforts

(<http://www.epa.gov/water/infrastructure/index.htm>), by evolving CWNS to

- a) Estimate 20-Years Needs, similar to the Drinking Water Infrastructure Needs Survey
- b) Contain more current and complete treatment technology data
- c) Help assess progress in facilities implementing utility management programs

Objective 2-2 – Maximize participation by local communities and states in submitting information to CWNS 2008

Goal 3 – Improve CWNS data access

Objective 3-1 – Make all CWNS data accessible in Ask WATERS

Objective 3-2 – Maximize 'real time' availability of CWNS data on the internet, rather than waiting every four years for the delivery of Report to Congress

Objective 3-3 – Integrate CWNS data into modeling, project prioritization, and other environmental decision support tools

Objective 3-4 – Design and distribute local and state fact sheets that summarize CWNS data in easy to understand formats

In moving forward on these improvements between now and 2008, EPA, states, and local communities are minimizing costs to conduct the Survey, while maximizing beneficial uses of data and documents collected for the Report to Congress. The savings achieved through information technology advances enable EPA to take marginal extra steps to allow the CWNS data to be easily used for a variety of environmentally beneficial purposes beyond just delivering the Report to Congress, making good on the President's Management Agenda goal of efficiently providing services to citizens.