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November 1991

1990 Needs Survey Report To Congress

Assessment Of Needed
Publicly Owned Wastewater
Treatment Facilities In The
United States—
Including Federally Recognized
Indian Tribes And
Alaska Native Villages



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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

NOV 27 1991

THE ADMINISTRATOR

Honorable Dan Quayle
President of the Senate
Washington, D.C. 20510

Dear Mr. President:

Enclosed is the Environmental Protection Agency's (EPA) 1990 Needs Survey report on the "Assessment of Needed Publicly Owned Wastewater Treatment Facilities in the United States - Including Federally Recognized Indian Tribes and Alaska Native Villages." This report is required by Sections 205(a) and 516 (b)(1) of the Clean Water Act (CWA).

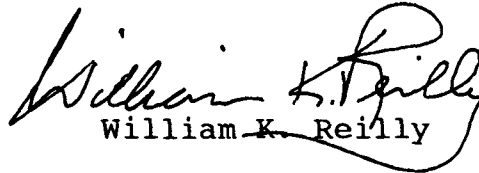
The 1990 Needs Survey, a joint effort by the States and EPA, summarizes the capital investment required to build or improve needed municipal wastewater treatment facilities. These estimates address needs both for facilities eligible for State Revolving Funds (SRF) under Title VI of the CWA, as well as needs for the traditional eligibilities for construction grant funds under Title II.

The 1990 estimates reported for the traditional eligibilities are based on estimates documented in our 1988 Needs Survey with adjustments made for inflation and any needs met by Federal grants or loans since 1988. Supplemental estimates of eligible needs were provided by States and address costs for revised planning and growth, new enforceable requirements, and new eligibilities under the SRF program.

This report also highlights the results of an assessment of the wastewater treatment and collection needs of all Federally recognized Indian Tribes and Alaska Native Villages. This assessment, which updates EPA's first assessment of Indian needs submitted to Congress in January 1989, is based on a survey done by the Indian Health Service as well as separate estimates supplied by several Indian Tribes.

I would be pleased to further discuss the results of this survey at your convenience.

Sincerely yours,


William K. Reilly

Enclosure



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

NOV 27 1991

THE ADMINISTRATOR

Honorable Thomas P. Foley
Speaker of the House
of Representatives
Washington, D.C. 20515

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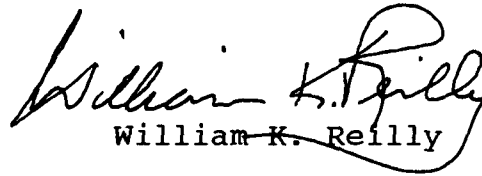
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William K. Reilly

Enclosure

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Facilities in the United States -
Including Federally Recognized Indian Tribes
and Alaska Native Villages**

November 1991

**U.S. Environmental Protection Agency
Office of Water
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Prepared Under Contract Number 68-03-3476

Acknowledgements

Many dedicated individuals have been involved in the 1990 Needs Survey. Though it is impossible to acknowledge the hard work of everyone, we would like to thank the EPA Regional and State Needs Survey Coordinators and the EPA Regional Indian Needs Assessment contacts for their active support and continuing interest in the Needs Survey. Thanks are also extended to Dr. Richard Barror of the Indian Health Service and the IHS Area Offices.

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Executive Summary

This report provides the Environmental Protection Agency's (EPA) detailed estimate of the capital investment needed to build publicly owned wastewater treatment facilities to comply with the requirements of Sections 205(a) and 516(b)(1) of the Clean Water Act (CWA). In addition, the report provides an update of EPA's 1988 assessment of the wastewater treatment and collection needs for Federally recognized Indian Tribes and Alaska Native Villages (hereinafter referred to as Indians or Tribes).

1990 Needs Survey

The 1990 Needs Survey presents cost estimates for needs eligible under the Construction Grant and State Revolving Fund (SRF) programs.

The scope of the 1990 Needs Survey was scaled down from previous efforts. EPA adjusted the 1988 cost estimates for Federal grants and loans awarded and inflated the results to 1990 dollars. In addition, adjustments were made for any needs that were reported to EPA which were met through non-Federal funding. As a result, the cost estimates reported in this report for the

traditional eligibilities are not directly comparable to those in previous surveys due to the revised methodology. The States provided supplemental estimates of needs for Categories I through V eligible under the grant and SRF programs.

In past Surveys, States did not submit documentation for their separate State estimates. For the 1990 Survey, documentation guidelines were established to assist States in reporting supplemental needs. These needs are reported as Supplemental State Estimates, which EPA did not review or approve. They are in addition to the EPA-adjusted needs. Although updating of the needs by States was optional, a total of 40 States and Territories submitted supplemental estimates to EPA.

The capital investment necessary to satisfy all categories of need for the traditional eligibilities and supplemental State estimates is presented in Table 1. The total 20-year design needs for each group are:

- \$80.4 billion to satisfy needs for the traditional eligibilities.
- \$30.2 billion to satisfy the States' supplemental estimates of SRF eligible needs.

If these estimates were to be added, the total need would be \$110.6 billion.

As indicated in Table 1, the total need for the current (existing) population is \$65 billion. Of this amount, approximately \$12 billion is needed to meet the construction

needs of facilities in significant noncompliance with CWA requirements, as reported in the SRF Final Report to Congress.

Of the \$80.4 billion in design year needs for traditional eligibilities, the needs are largest for secondary treatment at \$24.9 billion. Needs for controlling combined sewer overflows (CSO) are the second largest at \$16.5 billion, representing 310 facilities with documented needs.

After inflation, the needs for the traditional eligibilities decreased by \$6.4 billion (7 percent) from 1988 to 1990. This reduction was due to the adjustments for needs that were met.

Of the \$30.2 billion in supplemental estimates, the largest increment is also for secondary treatment, at \$12.4 billion, and the smallest increment is for sewer replacement/rehabilitation at \$0.7 billion.

States also reported \$3.2 billion in supplemental needs for controlling CSOs. This estimate, when combined with the \$16.5 billion, represents a total cost of \$19.7 billion for 464 combined sewer systems.

EPA recognizes that the CSO needs estimates presented in this report may not accurately present the true needs since some States have not yet priced out the costs of fully implementing the 1989 National CSO Strategy. The strategy was issued in August 1989 and applies to approximately 1,100 combined sewer systems nationwide.

TABLE 1
NEEDS FOR PUBLICLY OWNED
WASTEWATER TREATMENT FACILITIES
(January 1990 Dollars in Billions)

NEEDS CATEGORY	NEEDS FOR TRADITIONAL ELIGIBILITIES		SUPPLEMENTAL STATE
	CURRENT	DESIGN YEAR	ESTIMATES
I Secondary Treatment	18.5	24.9	12.4
II Advanced Treatment	3.6	4.7	6.6
IIIA Infiltration/Inflow Correction	2.8	2.8	0.8
IIIB Replacement/Rehabilitation	3.6	3.6	0.7
IVA New Collector Sewers	10.9	13.8	3.2
IVB New Interceptor Sewers	9.1	14.1	3.3
V Combined Sewer Overflows	16.5	16.5	3.2
CATEGORIES I - V	65.0*	80.4	30.2

* Current needs to meet construction needs of facilities in significant noncompliance is approximately \$12.0 billion, as reported in the SRF Final Report to Congress.

The supplemental estimates reflect new needs identified by the States, revised cost estimates due to changed plans, the addition of reserve capacity, and the satisfaction of previously identified needs through State and local financing that did not involve Federal assistance.

The 1987 Amendments to the CWA allow SRFs to fund activities related to new enforceable requirements and certain new eligibilities. The new enforceable requirements address control of sludge use and disposal, toxics, and stormwater. Estimates of needs for control of toxics and sludge are included in the supplemental State estimates. The new SRF eligibilities address control of nonpoint sources of pollution and ground-water, estuarine, and certain wetlands

protection activities. Only a few States submitted needs for these new eligibilities as part of their supplemental estimates. Several States indicated that because of the newness of these eligibilities, needs estimates were still being developed. In addition, some States indicated they were developing strategies to address these SRF eligibilities. To avoid any misrepresentation of these needs, EPA did not include any cost estimates in this report for the new SRF eligibilities. Similarly, estimates for stormwater control are not included.

In general, while the Needs Survey focuses primarily on the capital costs required to meet the needs of the Nation's wastewater infrastructure, municipalities can sometimes dramatically reduce total project costs by implementing

various water use efficiency practices. Included are short and long-term water use reduction, water recycling, and wastewater reclamation and reuse. For example, these practices may result in the deferral of expanding existing facilities or the downsizing of new facilities. Municipalities should consider comparing the cost of increasing municipal water use efficiency with the cost of building new treatment capacity before implementing new projects.

Indian Needs Assessment

In January 1989, EPA submitted a report to Congress on the wastewater treatment and collection needs of all Federally recognized Indian Tribes and Alaska Native Villages. The assessment was required by Section 518(b) of the CWA and was conducted in cooperation with the Indian Health Service (IHS). Indian Tribes expressed concern that not all of their needs were included. They requested that the assessment be updated to be more inclusive and that the results be transmitted to Congress in the 1990 report. A major objective of this assessment was to ensure that all needs are reported for all Tribes and Villages.

At the time this assessment was conducted, EPA used the most recent (1989) IHS estimates available as the foundation for this assessment and supplemented the data with estimates of needs from Tribes and other sources.

The estimates of the capital investment required to address the current Indian needs are:

- \$633 million to satisfy the IHS documented needs.
- \$89 million to satisfy the Indians' estimates of supplemental needs.

Subsequent to the EPA survey, IHS has performed a more recent assessment based on 1990 data, which shows documented needs have dropped from \$633 million in 1989 to \$578 million in 1990.

The IHS-reported needs represent estimates documented using established IHS criteria. The supplemental needs were provided to EPA directly by Indian Tribes and other sources. EPA did not establish documentation criteria for the supplemental needs and relied on the sources of the data for accuracy of the estimates provided.

The largest portion of the IHS reported needs is concentrated in Alaska, at approximately \$468 million, or 74 percent. The large needs in Alaska represent construction of entirely new facilities due to inadequate wastewater treatment and collection in many Villages. Many of these needs were not previously reported due to the high cost of constructing wastewater facilities in Alaska, where project feasibility is affected by the remote location of many Villages and the difficulties in constructing these facilities in arctic conditions. Supplemental needs are also highest in Alaska, at \$26.8 million, or about one-third of the total.

The needs represent the cost to provide wastewater treatment and collection for approximately 1,800 projects for 452,000 Indians and Alaska Natives.

The net increase in documented Indian needs is \$363 million from 1988 to 1989. The major increase is attributable to a change in the IHS estimating procedures, which no longer contain a cost-effectiveness component. In this assessment, IHS estimated the costs of providing piped indoor wastewater treatment and collection facilities for most homes and communities. Some of these project costs would not be eligible under the rules which apply to State participation in the Title II or VI grant programs. Previously, IHS sought to estimate the cost only of projects that were economically and technically feasible to fund and construct.

Overall, this assessment identified 212 projects, or approximately \$242 million in needs, for Tribes with no previously reported needs. The majority of these needs, \$219 million, were for 92 projects in Alaska.

1990 Needs Survey

Introduction

What Is the Needs Survey?

This report summarizes the EPA's biennial assessment of the cost of constructing all publicly owned wastewater treatment works necessary to meet the goals of the CWA. This report is required by Sections 205(a) and 516(b)(1) of the Act. The 1990 Needs Survey, a joint effort of the States and EPA, is the tenth Survey since enactment of the Federal Water Pollution Control Act Amendments of 1972.

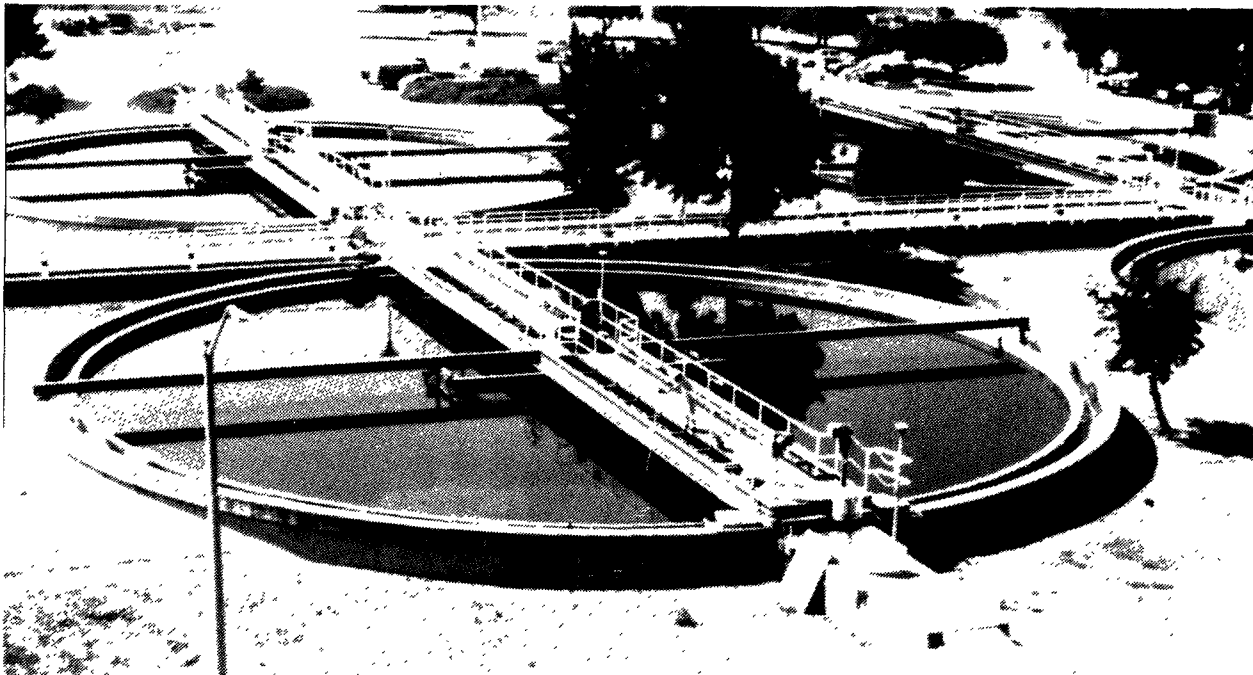
Previous Surveys were based on Construction Grant program eligibilities under Title II of the CWA. Cost estimates presented in prior Surveys served as a basis for congressional allotment of funds to address the provisions of the CWA.

The 1987 Amendments to the CWA established the SRF program under Title VI. As funding under the Construction Grant program phases out, SRF loans become the principal funding source for construction of wastewater treatment and collection projects. The 1987 Amendments also established new enforceable requirements and other categories of needs eligible for funding under the SRF program. The new enforceable requirements address control of sludge use and disposal, toxics, and stormwater. The new SRF eligibilities address control of

nonpoint sources of pollution and ground-water, estuarine, and wetlands protection. The 1990 Needs Survey addresses SRF eligible needs as well as updates to the needs for the traditional eligibilities.

The Needs Survey database contains cost and technical information on approximately 27,300 wastewater treatment and collection facilities nationwide, including facilities with unmet needs and those for which needs have already been met.

The Needs Survey is used extensively to assist the Federal government and the States in program planning, policy evaluation, and program management. Private firms, public interest groups, and trade associations use Needs Survey information in marketing, cost estimating, and policy formulation.



A clarifier at the San Jose/Santa Clara Water Pollution Control Plant in San Jose, California.

What Were the Major Objectives?

The major objectives of the 1990 Needs Survey were to update the 1988 documented needs for the traditional eligibilities, and to collect cost estimates for needs now eligible under the SRF program.

In previous Surveys, States were encouraged to update technical data on wastewater facilities, such as flow, treatment levels, and pollutant characteristics. This report does not include summaries of technical data as in the past. Technical data collection was not required, and many States opted not to update these data due to resource constraints and the first-time effort to identify needs for SRF funding.

What Is the Scope?

In the 1986 and 1988 Surveys, States provided cost and technical data, along with supporting documentation, for projects eligible for construction grants under Title II of the CWA. EPA reviewed the cost estimates and documentation for accuracy, national consistency, and conformance with acceptable criteria and either approved or rejected the States' estimates.

The scope of the 1990 Needs Survey was scaled down from previous efforts. The 1990 Survey approach was changed in three ways. First, States were not asked to update their 1988 cost estimates for the traditional eligibilities. Rather, EPA adjusted the 1988

needs estimates for Federal grants and loans awarded and inflated the results to 1990 dollars. In addition, adjustments were made for needs estimates reported to EPA that were met through non-Federal funding. Second, States were asked to submit, on an optional basis, supplemental estimates of needs for SRF funding, including needs for Categories I through V, new enforceable requirements, and other SRF eligibilities.

Third, in an effort to ensure some level of consistency among the State estimates, the 1990 Needs Survey workgroup, with EPA involvement, developed a list of suggested documentation guidelines for State use in documenting estimates (see Appendix A). In recognition of this effort to ensure consistency and reliability, the previous usage of "Separate State Estimates" has been modified to "Supplemental State Estimates." EPA did not require the States to submit documentation for these supplemental estimates.

Needs for the Traditional Eligibilities

adjusted for grants and loans awarded and inflated to 1990 dollars. They represent the 1990 needs for the traditional eligibilities for facilities used in the conveyance, storage, treatment, recycling, and reclamation of municipal wastewater. These estimates include constructing entirely new facilities and enlarging, upgrading, abandoning, and replacing existing facilities.

The estimates are for the following categories of needs:

- Category I --
Secondary Treatment
- Category II --
Advanced Treatment
- Category IIIA --
Infiltration/Inflow Correction
- Category IIIB --
Replacement/Rehabilitation of Sewers
- Category IVA --
New Collector Sewers
- Category IVB --
New Interceptor Sewers
- Category V --
Combined Sewer Overflows

Detailed explanations of each category are provided in the Glossary.

Needs for the traditional eligibilities do not include needs that are newly eligible under Title VI (i.e., needs for stormwater management, nonpoint source pollution control, etc.). They do not include costs that are ineligible for Federal assistance under Titles II or VI, such as house connections to sewers and the acquisition of land if not part of a treatment process. Additionally, the estimates do not include costs for operation and maintenance.

Funding eligibility for Categories IIIB (replacement/rehabilitation of sewers), IVA (new collector sewers), and V (combined sewer overflows) is restricted. However, in the 1988 Survey, costs for these categories were included, because the CWA provided a governor with discretionary funding authority to use up to 20 percent of a State's construction grant allotment for these project categories. Because these needs were eligible for funding under this authority, the entire need was reported in the Survey.

In the previous two Surveys, EPA reviewed State-submitted documentation for each facility and for each category of need to ensure that it had an existing problem and was eligible for funding. Only facilities with documented water quality and/or public health problems were included in these Surveys. The list of acceptable documentation types used in the 1988 Survey is presented in Appendix A and explained in detail in the 1988 Needs Survey Report to Congress.

The cost estimates for the traditional eligibilities address needs for two time periods:

1. Current Needs - needs for documented facilities to satisfy the current or existing population.
2. Design Year Needs - needs for documented facilities to satisfy an approximate 20-year design life for facilities.

It should be noted that these needs are based on the population data from the 1988 Needs Survey.

What Is a Need?

A "need" for the traditional eligibilities is a cost estimate for building a publicly owned wastewater treatment facility that is eligible for Federal financial assistance under Title II of the CWA. The 1988 cost estimates for Categories I through V were

What Are the Needs for the Traditional Eligibilities?

EPA's cost estimate of the capital investment necessary to address the Nation's municipal wastewater treatment needs is presented in Table 2. An estimated \$80.4 billion is required to satisfy the design year needs of facilities documented in the 1988 Needs Survey. Of this amount, \$65.0 billion is needed to satisfy the needs of the current population. The \$15.4 billion difference represents the cost to serve population growth within these service areas over the 20-year life of the project. A State-by-State listing of the 1990 needs for the traditional eligibilities is presented in Appendix B.

If only treatment needs (Categories I and II) are considered, the design year needs are \$29.6 billion, and the corresponding needs for the current population are \$22.1 billion.

There are approximately 1,100 wastewater treatment facilities that have combined sewer systems nationwide. Of these, 310 facilities have documented needs totaling \$16.5 billion. This reflects a reduction of 18 facilities from the 1988 survey, where 328 facilities had documented CSO needs. Additional estimates which supplement these needs are discussed in the "What Are the Supplemental State Estimates?" section of the report.

TABLE 2
NEEDS FOR THE TRADITIONAL ELIGIBILITIES
FOR PUBLICLY OWNED WASTEWATER TREATMENT FACILITIES
(January 1990 Dollars in Billions)

<u>NEEDS CATEGORY</u>	<u>DESIGN YEAR</u>	<u>CURRENT</u>
I Secondary Treatment	24.9	18.5
II Advanced Treatment	4.7	3.6
IIIA Infiltration/Inflow Correction	2.8	2.8
IIIB Replacement/Rehabilitation*	3.6	3.6
IVA New Collector Sewers*	13.8	10.9
IVB New Interceptor Sewers	14.1	9.1
V Combined Sewer Overflows*	16.5	16.5
 CATEGORIES I - V	 80.4	 65.0
TREATMENT CATEGORIES I - II	29.6	22.1
SIGNIFICANT NONCOMPLIANCE	—	12.0**

* For these categories under Title II of the Clean Water Act, a governor may use up to 20 percent of a State's allotment in any fiscal year; however, combined sewer overflow projects funded under Section 201(n)(1) may exceed this amount.

** Estimate reported in SRF Final Report to Congress.

The relationship of design year needs to current needs is shown in Figure 1.

What Are the Needs to Correct Significant Noncompliance?

A subset of the current year needs of \$65 billion is the estimated investment needed to meet the cost of construction necessary to bring significant noncompliers back into compliance. As shown in Table 2, EPA estimated this cost at \$12 billion in its SRF Final Report to Congress. This estimate was based on a compilation of data from several sources.

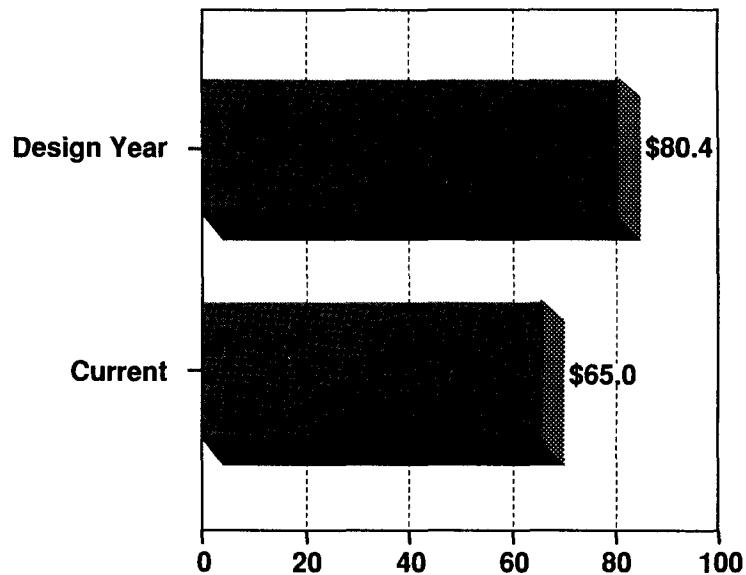
EPA used, as a starting point, the "significant noncompliance" list (SNC). Facilities on the SNC list generally have flows greater than 1 million gallons per day (mgd) and have enforceable violations of the CWA. The list was then refined by determining, from EPA's Permit Compliance System (PCS), which facilities had outstanding construction needs necessary to achieve or return to compliance as of June 30, 1990. (For example, needs for facilities in violation of reporting requirements or needing corrective action in operation and maintenance were not included.) Added to this list was a second list of facilities which had been classified as SNC but, for enforcement purposes, were no

longer in SNC because they were on enforcement schedules for construction. These facilities still need construction to attain physical compliance. Finally, to capture the construction needs for facilities with flows of less than 1 mgd, EPA expanded the definition of SNC to include Category I and II needs from the 1988 Needs Survey for this group. The \$12 billion estimate is the cost of construction to bring these three groups of facilities into compliance.

The SNC-related needs discussed above only represent a "snapshot" of needs at a given point in time. While it is not possible to quantify future SNC-related needs, it is predictable that there will be additional significant violations that will require construction to correct. The reasons for potential violations include: 1) population growth, which will generate flows and/or pollutant loadings in excess of design capacity; 2) obsolescence and deterioration of existing wastewater treatment infrastructure; and 3) additional requirements in the areas of toxics control, storm water management, and sludge disposal as regulations are put into place and implemented.

**FIGURE 1
CURRENT AND DESIGN YEAR NEEDS
FOR THE TRADITIONAL ELIGIBILITIES**

(January 1990 Dollars in Billions)



How Have the Needs for the Traditional Eligibilities Changed?

After accounting for inflation, the design year estimate for the traditional eligibilities decreased by \$6.4 billion, approximately 7 percent, from 1988 to 1990. Estimates from the 1988 Survey are summarized by State in Appendix C.

This decrease in needs since the 1988 Survey is due to the award of Federal grants and loans as well as some needs being met through State and local financing. A comparison of the design year needs for the last three Surveys is presented in Table 3. It should be noted that the methodology used by EPA to derive the 1990 needs for the traditional eligibilities differs from that used in the 1986 and 1988 surveys. As a result, 1990 estimates presented in the table may not be directly comparable with those in previous surveys.

TABLE 3
DESIGN YEAR NEEDS FOR THE TRADITIONAL ELIGIBILITIES
1986 THROUGH 1990 NEEDS SURVEYS*
(January 1990 Dollars in Billions Except as Noted)

NEEDS CATEGORY	1986 SURVEY	1988 SURVEY	1990 SURVEY
I Secondary Treatment	27.3	27.9	24.9
II Advanced Treatment	5.0	5.2	4.7
IIIA Infiltration/Inflow Correction	2.7	3.0	2.8
IIIB Replacement/Rehabilitation	3.2	3.8	3.6
IVA New Collector Sewers	13.7	14.4	13.8
IVB New Interceptor Sewers	15.5	15.5	14.1
V Combined Sewer Overflows	16.3	17.0	16.5
CATEGORIES I - V	83.7	86.8	80.4
TREATMENT CATEGORIES I & II	32.3	33.1	29.6
CATEGORIES I, II, IIIA, & IVB	50.5	51.6	46.5
CATEGORIES I - V (Nominal Dollars)	77.6	83.5	80.4

* Note that the 1990 estimates were derived using a different methodology than that used in previous surveys.

Supplemental State Estimates

What Is a Supplemental State Estimate?

Historically, States have had the opportunity to submit a separate State estimate for needs which they believed were valid, but could not be documented using the EPA-accepted documentation. These needs were not reviewed nor approved by EPA and have been reported separately from the EPA documented cost estimates.

For the 1990 Needs Survey, the concept of the separate State estimates needed to be revised, since States would now be reporting needs under new guidelines to address SRF eligibilities. The States reported needs for SRF eligibilities which supplement the traditional eligibilities. The supplemental estimates include needs for Categories I through V, as well as needs for the new SRF eligibilities.

In past Surveys, States were not required to submit documentation for their separate State estimates. However, to maintain a level of national consistency for the 1990 Survey, States agreed to follow suggested documentation guidelines (see Appendix A) in the reporting of supplemental needs. The 1988 documentation was used as the base and modified to include additional documentation

types for the new SRF eligibilities. The actual documentation for the various estimates was not reviewed by EPA.

These supplemental needs represent an increase or decrease to the needs for the traditional eligibilities. They also represent the best available estimate of changes in needs due to the 1987 Amendments to the CWA.

All supplemental State estimates are presented for the design year; current estimates are not reported since many States maintain that SRF eligibilities do not have the same restrictions as those of the Construction Grants program.

Reporting of the Supplemental State estimates was optional. A total of 40 States and Territories (or approximately two-thirds of the U.S.) participated in this Survey effort.

In EPA's guidance to the States, two types of supplemental estimates were identified for the reporting of needs. They were incremental needs for the traditional eligibilities (I through V) and needs for the new SRF eligibilities. Each type is described below.

Incremental Needs for the Traditional Eligibilities - These needs include increases or decreases to the adjusted needs for the traditional eligibilities. They reflect needs for new or revised planning, reserve capacity, and reductions to needs due to State and local financing of construction without Federal assistance.

Needs for New SRF Eligibilities - The 1987 Amendments to the CWA allow SRFs to fund activities related to the new enforceable requirements and certain types of activities that are now eligible for SRF funding. States were invited to provide supplemental estimates for the following needs: (See Glossary for a definition of each category.)

- New Enforceable Requirements

- Stormwater control
- Toxics control
- Control of sludge use and disposal

- New SRF Eligibilities

- Nonpoint source pollution control
- Ground-water protection
- Estuarine protection
- Certain wetlands protection activities

While States identified their needs for stormwater control separately, needs purely for control of toxics and sludge use and disposal were included in Categories I and II.

What Are the Supplemental State Estimates?

The supplemental State estimate of needs for Categories I through V is \$30.2 billion, as shown in Table 4. If this estimate is added to the needs for the traditional eligibilities, the total need would be \$110.6 billion, as presented in Appendix B. As previously mentioned, the supplemental State estimates are costs that reflect either an increase or decrease to EPA's estimate of needs for the traditional eligibilities. Included in these estimates are increases that result from new or revised planning. Also included are decreases due to State and local financing of construction (without Federal assistance) and revisions in the planning and/or design of facilities. Some States have met the requirements of the National Municipal Policy (NMP) and excluded those satisfied needs from their estimates. The NMP required municipal compliance by July 1, 1988, whether or not a municipality received Federal funding for sewage treatment plant construction.

Figure 2 shows the distribution of these estimates by type of need. Of the estimated \$30.2 billion, the largest need increments are for secondary treatment (Category I) and advanced treatment (Category II) at \$12.4 billion and \$6.6 billion, respectively. Needs identified to date for control of toxics and sludge use and disposal are included in these categories.

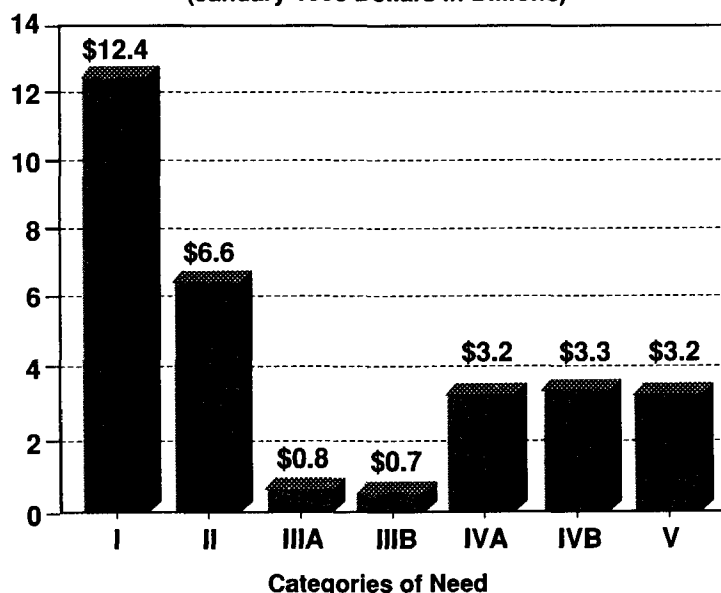
The \$30.2 billion in supplemental needs includes \$3.2 billion to address needs for controlling CSOs. This estimate, when

TABLE 4
SUPPLEMENTAL STATE ESTIMATES
FOR PUBLICLY OWNED WASTEWATER TREATMENT FACILITIES
(January 1990 Dollars in Billions)

NEEDS CATEGORY	DESIGN YEAR NEEDS
I Secondary Treatment	12.4
II Advanced Treatment	6.6
IIIA Infiltration/Inflow Correction	0.8
IIIB Replacement/Rehabilitation	0.7
IVA New Collector Sewers	3.2
IVB New Interceptor Sewers	3.3
V Combined Sewer Overflows	3.2
TOTAL SUPPLEMENTAL STATE ESTIMATES (Categories I - V)	30.2

FIGURE 2
DESIGN YEAR SUPPLEMENTAL STATE ESTIMATES

(January 1990 Dollars in Billions)



Note: Total Supplemental State Estimates = \$30.2 Billion

combined with the \$16.5 billion reported on Table 2, may not accurately present the true needs.

Some States have not yet priced out the costs of fully implementing the 1989 National CSO Strategy,

which was issued in August 1989. The strategy applies to approximately 1,100 combined sewer systems nationwide. The \$3.2 billion represents newly identified needs for 154 facilities. This estimate also includes additional needs due to revised planning for 60 of the 310 facilities discussed in the traditional eligibilities section.

A detailed listing of the supplemental State estimates is also presented in Appendix B.

Although the 1990 Survey invited the optional reporting of new types of eligible needs (e.g., nonpoint source pollution control and ground-water, estuarine, and wetlands protection), only a few States submitted cost estimates for these eligibilities. Many States indicated that because of the newness of these eligibilities, needs estimates were still being developed. In addition, some States indicated that they were developing strategies to address the requirements of these programs before identifying needs. To avoid any misrepresentation of these needs, EPA did not include any cost estimates in this report for these eligibilities. Similarly, estimates for stormwater control are not included.

Indian Needs Assessment

Introduction

What Is the Indian Needs Assessment?

This section of the report presents EPA's 1990 assessment of the capital costs required to address the wastewater treatment and collection needs for Federally recognized Indian Tribes and Alaska Native Villages (hereinafter referred to as Indians or Tribes).

In 1988, EPA conducted its first assessment of wastewater treatment needs for all Tribes, as required by Section 518(b) of the Clean Water Act (CWA), as amended by the Water Quality Act of 1987. The 1988 assessment was prepared in cooperation with the Indian Health Service (IHS) and reported in the Report to Congress: Indian Wastewater Treatment Needs Assessment and Assistance in January 1989.

Indian Tribes expressed concern that not all of their needs were included in EPA's 1988 assessment. They requested that the assessment be updated to be more inclusive and the results presented in the 1990 Needs Survey Report to Congress.

For the 1990 assessment, EPA used the most recent IHS estimates of needs as the foundation and requested review of the data from EPA Regions, States, Indian Tribes and other sources to identify any additional needs. At the time EPA conducted this assessment, the IHS 1989 estimates were the most recent estimates available. EPA also sought the participation of all Tribes to the greatest extent possible.

To address the wastewater treatment and collection needs of Indian Tribes and Alaska Native Villages, the 1987 Amendments established the Indian Set-Aside Grant Program. Section 518(c) authorized program funding through a one-half percent set-aside from the Construction Grant program appropriations, which ended in fiscal year 1990. Overall, 39 projects have been identified to receive funding through this program, accounting for the \$27 million appropriated. No further funding is authorized. However, other sources of funding, such as the IHS, the Department of Housing and Urban Development (HUD), and the Farmers Home Administration (FmHA) may be available to Indians for wastewater treatment and collection facilities. In addition, Indian Tribes and Alaska Native Villages are eligible to receive State Revolving Fund

loans under Title VI of the CWA if they are able to satisfy the loan conditions.

What Were the Major Objectives?

The major objectives of this Indian Needs Assessment were to:

- Update EPA's 1988 cost estimates of Indian wastewater treatment and collection needs.
- Obtain cost estimates for Indian Tribes and Alaska Native Villages with needs not identified in the first assessment.

The needs obtained consist of IHS's 1989 documented estimates and supplemental estimates submitted by the Indian Tribes.

What Is the Scope?

This assessment estimates the wastewater treatment and collection needs of all Indian Tribes as defined by the CWA. Section 518(h)(2) of the Act defines an Indian Tribe as "any Indian tribe, band, group or community recognized by the Secretary of the Interior and exercising governmental authority over a Federal Indian Reservation." In November 1988, Congress expanded the eligibility of the Indian Set-Aside Grant Program (P.L. 100-581) to include Tribes that currently reside on former reservation lands in

Oklahoma and Alaska Native Villages.

EPA placed special emphasis on contacting all Tribes, particularly those in Alaska and California, where estimates were thought to be incomplete in the first assessment.

The IHS focused on the residential needs of Tribes. Needs of the current population are presented, rather than of the future population, because of the limited availability of accurate population projections and planning data on a nationwide basis. The supplemental estimates obtained from Tribes may not be consistent with the needs reported by IHS since they were estimated by other sources.

Cost information, and a limited amount of technical information, is available on the wastewater treatment and collection needs for approximately 220 Indian Tribes and 180 Alaska Native Villages. Needs were identified for approximately 1,800 projects.

Indian Needs

What is an Indian Need?

An Indian need is defined as an estimate of the capital investment necessary to provide wastewater treatment and collection for all Indian and Alaska Native homes and communities. Estimates are included for the construction of entirely new facilities and enlarging, upgrading, and replacing existing facilities regardless of cost effectiveness.

The definition of a "need" as applied in this assessment is more inclusive than that used in the Survey of State needs discussed in the previous section of this report. Therefore, the two assessments cannot be directly compared. Needs for Indians may include costs for house connections or other costs not included in the State Survey, and which would be ineligible for funding under the CWA for municipalities. They are included in the Indian assessment due to their eligibility for funding under the Indian Set-Aside Grant Program or other Federal programs, such as those administered by IHS and HUD.

The IHS estimates are based on needs which are documented using established criteria. The estimates were derived mainly through field visits and consultation with Tribes, while sanitary surveys and feasibility studies were also used. These needs are based on the costs to provide piped indoor facilities for most homes. An exception is made for homes in extremely remote areas, particularly in Alaska. This differs from the 1988 assessment which

was based on needs for facilities that were economically and technically feasible to fund and construct. This did not always involve piped facilities, particularly in Alaska, where an alternative system, i.e., a honey bucket haul system, is less expensive and more feasible to construct. This change in IHS's cost estimating criteria resulted from the Indian Health Care Amendments of 1988 (P.L. 100-713).

The supplemental Indian needs were developed by disseminating IHS's 1989 data to the Tribes for review to identify additional needs. As a result, some Tribes may have reported needs that IHS considered, but did not include in its assessment. IHS does not report needs if they do not follow IHS criteria. For example, needs identified by Tribes for replacing on-site septic systems with a sewer system may not be reported if IHS determines there is not a public health justification. EPA did not establish documentation criteria or review these supplemental estimates, but relied on the various sources for the accuracy of the estimates.

What Are the Indian Needs?

Table 5 presents estimates of the capital investment necessary to address the current wastewater treatment and collection needs for Indian Tribes and Alaska Native Villages by IHS Area. It consists of estimates developed by IHS and supplemental estimates provided by other sources.

IHS-Documented Needs

Based on needs identified by IHS in 1989, IHS estimated that approximately \$633 million is required to address current Indian needs for wastewater treatment and collection facilities. These estimates were documented using established criteria and are in 1989 dollars.

The largest portion of the needs reported by IHS is concentrated in Alaska at approximately \$468

million, or 74 percent. Needs are lowest in the Billings and California Areas, at \$2.3 million and \$5.2 million, respectively.

A large portion of the needs for Alaska is concentrated in 10 projects, totalling \$257 million. The increase in needs is due to two major factors. Needs for some Villages were not included in the 1988 assessment if IHS determined that the proposed project was not economically and technically feasible to fund and construct. Project feasibility was affected by the remote location of many Villages and the difficulties in constructing wastewater treatment and collection facilities in arctic conditions.

In addition, most of the needs for Alaska represent major new construction of piped indoor

IHS AREA	IHS DOCUMENTED NEEDS (1989)*	SUPPLEMENTAL NEEDS
Aberdeen	11.2	1.5
Alaska	468.3	26.8
Albuquerque	7.9	16.9
Bemidji	8.9	12.4
Billings	2.3	3.6
California	5.2	5.7
Nashville (East Coast)	24.6	3.3
Navajo	30.4	2.1
Oklahoma City	30.1	1.7
Phoenix	22.4	1.8
Portland	7.8	12.8
Tucson	13.9	0.0
TOTALS	633.0	88.6

* IHS 1990 assessment shows need of \$578.0 million.

facilities, regardless of their construction cost. Most of the systems currently in use are pit privies and honey bucket haul systems. However, in some cases, where the costs for a piped system would be very high, the IHS estimates are still based on alternative systems, such as honey bucket haul systems.

It should be noted that IHS has just completed and submitted its report to Congress containing its 1990 estimates which show a need of \$578 million (as compared to \$633 million in 1989). A major portion of the decrease in this estimate can be attributed to needs which have been funded by IHS and by EPA through its Indian Grant Set-Aside Program during 1989/90. EPA's report continues to present the IHS 1989 estimates, since the \$89 million gathered in supplemental needs were developed based upon those estimates.

Supplemental Indian Needs

EPA identified \$89 million in supplemental wastewater treatment and collection needs for Indian Tribes, as shown in Table 5. These needs reflect increases and/or decreases to the IHS reported needs as well as newly identified needs. The supplemental needs were derived by subtracting the needs documented by the IHS from those supplied by other sources.

Of the \$89 million, the largest increment is in Alaska at \$26.8 million. The smallest increments are found in the Aberdeen, Oklahoma City, and Phoenix Areas, with less than \$2 million each. No supplemental needs were identified for the Tucson Area.

The dollar base for these supplemental estimates could not be readily determined and is not reported.



A honey bucket disposal point at a tundra pond in an Alaskan village.

How Are the Indian Needs Distributed?

Figure 3 presents a geographical distribution of the documented IHS reported needs by IHS Area. The major portion, 74 percent, of the needs is concentrated in Alaska, while needs in the Navajo and Oklahoma City Areas are the next highest at 5 percent each.

Figure 4 shows the geographical distribution of the \$89 million in supplemental Indian needs. Again, approximately half of these additional needs are for projects in the Alaska and Albuquerque Areas. Supplemental needs are lowest in the Aberdeen, Oklahoma City, and Phoenix Areas, at less than 2 percent each, while needs in the Tucson Area did not change.

FIGURE 3
DISTRIBUTION OF 1989 IHS
INDIAN NEEDS BY IHS AREA
(1989 Dollars in Millions)

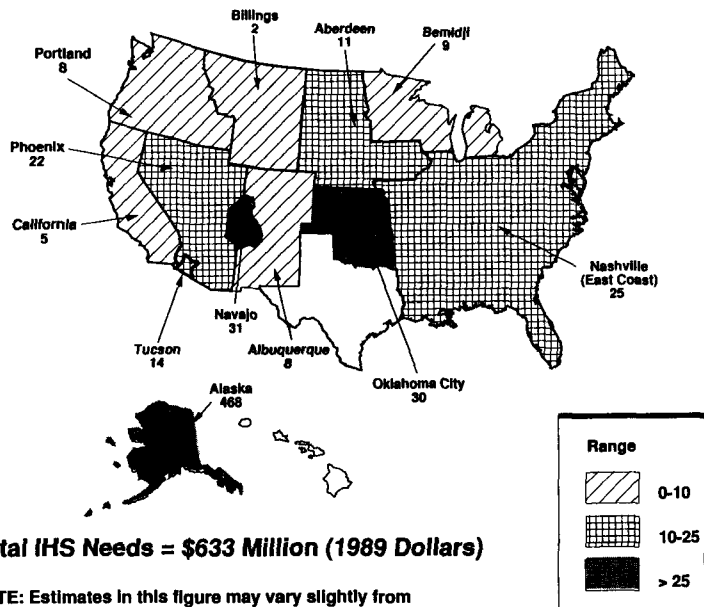
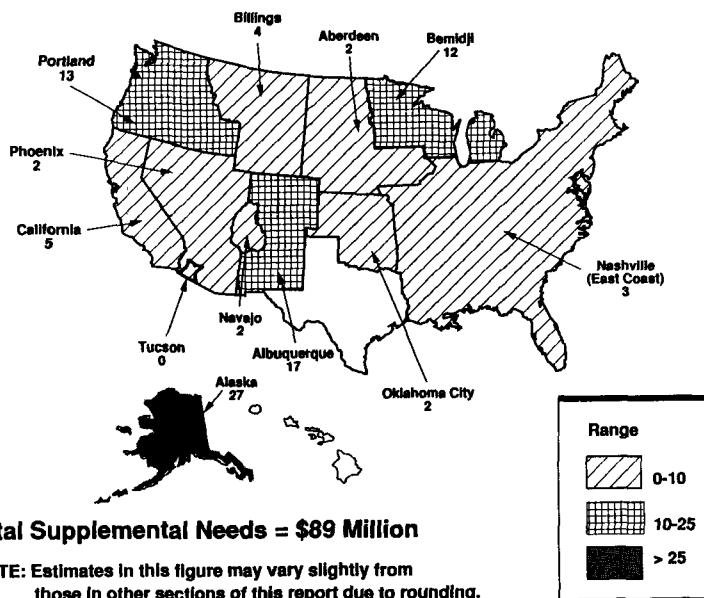


FIGURE 4
DISTRIBUTION OF SUPPLEMENTAL
INDIAN NEEDS BY IHS AREA
(Dollars in Millions)



How Have the Indian Needs Changed?

Table 6 shows a comparison of how the documented Indian needs changed from the 1988 assessment. The documented needs in this assessment more than double those reported in 1988, with an increase of approximately \$363 million. The majority of the change is due to a six-fold increase in the needs reported for Alaska. All other IHS Areas remained constant or had relatively modest increases in needs. The largest decrease in needs is in the Oklahoma City Area, with a decrease of more than 50 percent because of revised planning or needs that were met.

The \$363 million increase in needs is due mainly to a change in the criteria used by IHS to report needs, as explained previously. This change in criteria had the most significant impact in Alaska, where needs reported by IHS increased from \$69 million to \$468 million. The increase is also due to major new construction in Alaska, as most of the systems currently in use are pit privies and honey bucket haul systems. In estimating these needs IHS assumed that most of these systems would be replaced with indoor plumbing and centralized wastewater treatment, but did not evaluate the practicality, economic feasibility, or public health improvement of the proposed projects.

TABLE 6
COMPARISON OF 1988 AND 1989 DOCUMENTED INDIAN NEEDS
(Nominal Dollars in Millions)

<u>IHS AREA</u>	<u>1988 EPA ASSESSMENT</u>	<u>1989 IHS ASSESSMENT*</u>
Aberdeen	10	11
Alaska	69	468
Albuquerque	18	8
Bemidji	9	9
Billings	3	2
California	5	5
Nashville (East Coast)	29	25
Navajo	33	31
Oklahoma City	61	30
Phoenix	16	22
Portland	13	8
Tucson	4	14
Total	270	633

* IHS 1990 assessment shows a need of \$578.0 million.

Indian Needs Assessment Methodology

What Is the Methodology?

A major objective of this assessment was to obtain needs estimates for all Tribes, particularly those not identified in the 1988 assessment. EPA used IHS's 1989 needs estimates as the foundation for this assessment. Indian Tribes and Alaska Native Villages were contacted and provided an opportunity to review IHS's data to identify supplemental needs. In addition, a special effort was made to contact all Tribes, particularly in Alaska and California, where data were thought to be incomplete.

However, EPA did not require documentation for these supplemental estimates.

As part of the effort to identify supplemental needs, a number of other sources were consulted to assist EPA in identifying all Indian Tribes with needs. These sources included the EPA Regional offices, IHS Area offices, the Bureau of Indian Affairs, the California Department of Housing and Community Development, and the Alaska Department of Environmental Conservation.

What Are the Data Sources?

EPA relied on data provided by two major sources. First, EPA used the information contained in the IHS 1989 Sanitation Deficiencies System (SDS) as the foundation for the 1990 Indian Needs Assessment. The IHS estimates were derived mainly through field visits and consultation with Tribes, while sanitary surveys and feasibility studies were also used. The needs are based on projects that are considered eligible for funding by IHS.

Second, EPA relied on estimates of supplemental needs submitted directly by the Tribes. Needs provided directly by the Tribes were included in the assessment, and follow-up phone calls were made to some Tribes to obtain cost estimates, where necessary.

Glossary

NOTE:

Definitions are provided to help the reader understand the terms used, but are not necessarily to be used for legal purposes.

Glossary

Advanced Treatment

See Categories of Needs, Category II.

Categories of Needs

Needs estimates address the following categories:

- 1) **Secondary Treatment (Category I)**
The minimum level of treatment that must be maintained by all treatment facilities, except those facilities granted ocean discharge waivers under Section 301(h) of the Clean Water Act. Treatment levels are specified in terms of the concentration of conventional pollutants in the wastewater discharged from a facility. Secondary treatment requires an 85-percent reduction in conventional pollutant concentrations in the wastewater treated by a facility. Needs reported in this category are necessary to attain secondary treatment. Needs to attain incremental reductions in conventional pollutant concentrations beyond secondary treatment requirements are included in Category II.
- 2) **Advanced Treatment (Category II)**
A level of treatment more stringent than secondary treatment. Advanced treatment requires greater than 85-percent reduction in conventional pollutants, or a significant reduction in nonconventional pollutants present in the wastewater treated by a facility. Needs reported in this category are necessary to attain incremental reductions in pollutant concentrations beyond basic secondary treatment.
- 3) **Infiltration/Inflow Correction (Category IIIA)**
Control of the problem of penetration into a sewer system of water other than wastewater from the ground through such means as defective pipes or manholes (infiltration) or from sources such as drains, storm sewers, and other improper entries into the system (inflow). Included in this category are costs for correction of sewer system infiltration/inflow problems. Costs also are reported for preliminary sewer system analysis and for detailed sewer system evaluation surveys.
- 4) **Replacement/Rehabilitation of Sewers (Category IIIB)**
Reinforcement or reconstruction of structurally deteriorating sewers. This category includes cost estimates for rehabilitation of existing sewer systems beyond those for normal maintenance. Costs are reported if the corrective actions are necessary to maintain the structural integrity of the system.
- 5) **Collector Sewers (Category IVA)**
Pipes used to collect and carry wastewater from an individual source to an interceptor sewer that will convey the wastewater to a treatment facility. This category includes the costs of constructing new collector sewer systems and appurtenances.
- 6) **Interceptor Sewers (Category IVB)**
Major sewer lines receiving wastewater flows from collector sewers. The interceptor sewer carries wastewater directly to the treatment plant or to another interceptor. This category includes

Glossary

costs for constructing new interceptor sewers and pumping stations necessary for conveying wastewater from collector sewer systems to treatment facilities or to another interceptor.

7) **Combined Sewer Overflows (CSO) (Category V)**

A discharge of a mixture of stormwater and domestic wastes that occurs when the flow capacity of a sewer system is exceeded during a rainstorm. Costs reported are for facilities to prevent or control periodic bypassing of untreated wastes from sewers that convey a combination of wastewater and stormwater to achieve water quality objectives. This category does not include costs for overflow control allocable to flood control or drainage improvement, or for treatment or control of stormwater in separate storm and drainage systems.

Collector Sewers

See Categories of Needs, Category IVA.

Combined Sewer Overflows (CSO)

See Categories of Needs, Category V.

Conveyance Needs

The cost estimate to construct, expand, or upgrade sewer systems for *transporting* wastewater to treatment plants.

Current Needs

The cost estimate for building publicly owned wastewater treatment facilities to serve the existing population eligible for Federal financial assistance under the Clean Water Act.

Design Year Needs

The cost estimate for building publicly owned wastewater treatment facilities to serve the design year population eligible for Federal financial assistance under the Clean Water Act. The design year represents an approximate 20-year projection of the design life for facilities in the Needs Survey. Design year needs include current needs as a subset.

Facilities Plans

Plans and studies that directly relate to the construction of treatment works necessary to comply with the Clean Water Act. A facilities plan investigates needs and provides information on the cost effectiveness of alternatives. A recommended plan and an environmental assessment of the recommendations are also presented in a facilities plan.

A facilities plan includes a description of the treatment works for which construction drawings and specifications are to be prepared. The description includes preliminary engineering data, cost estimates for design and construction of the treatment works, and a schedule for completion of design and construction.

Honey Bucket Haul System

Any one of a variety of basic "sewer systems" widely used in Alaska Native Villages where a bucket serves as a toilet in a house without plumbing. Plastic garbage bags are used as a liner for the bucket. Disposal methods

Glossary

for contents of the bags may include: hand carrying filled bags to a bunker, tundra pond, lagoon, or landfill site for disposal; or transporting wastes by vehicle from centrally located honey bucket collection containers to a tundra pond or lagoon.

Indian Needs

The cost estimate for constructing wastewater treatment, collection, and disposal facilities for Indian Tribes and Alaska Native Villages.

Indian Tribe

Any Indian tribe, band, group, or community recognized by the Secretary of the Interior and exercising governmental authority over a Federal Indian reservation, as defined by section 518(h) (2) of the Clean Water Act. This includes Tribes that currently reside on former reservation lands in Oklahoma and Alaska Native Villages, as amended by the Indian Reorganization Act (P.L. 100-581) in November 1988.

Infiltration/Inflow Correction

See Categories of Needs, Category IIIA.

Interceptor Sewers

See Categories of Needs, Category IVB.

Lagoon

A pond in which algae, sunlight, and oxygen interact to restore wastewater to a quality that is often equal to the effluent from the secondary treatment stage. Lagoons are widely used by small communities to provide wastewater treatment.

Need

The cost estimate for constructing publicly owned wastewater treatment facilities that are potentially eligible for Federal financial assistance under the Clean Water Act.

Needs for the Traditional Eligibilities

Documented cost estimates for the seven categories of needs for publicly owned wastewater treatment facilities. These needs were derived by adjusting the 1988 documented needs estimates for grants and loans awarded between 1988 and 1990 and inflating the costs to January 1990 dollars. These needs are limited to the costs eligible for Federal financial assistance under Title II of the Clean Water Act.

New State Revolving Fund Eligibilities

The 1987 Amendments to the Clean Water Act allow State Revolving Funds (SRF) to fund certain activities that were ineligible under the Construction Grants program. These new eligibilities include certain nonpoint source pollution control, ground-water protection, estuarine protection, and wetlands protection activities.

1) Estuarine Protection

Activities necessary to develop and implement Comprehensive Conservation and Management Plans for protecting estuaries under the National Estuary Program and eligible for SRF

Glossary

funding. Estuarine protection activities focus on restoring and maintaining the chemical, physical, and biological integrity of the estuary, and controlling nonpoint sources of pollution.

- 2) **Ground-Water Protection**
Activities addressed in a State's ground-water protection strategy which must be a part of the nonpoint source management program under Section 319(i) of the Clean Water Act to build State institutional capabilities to protect ground-water resources from nonpoint sources of contamination. Activities include research, planning, ground-water assessments, demonstrations, enforcement, technical assistance, education, and training. Wellhead protection and underground injection control for Class V wells, as well as water conservation programs, may be included.
- 3) **Nonpoint Source Pollution Control**
Activities to develop and implement an EPA-approved State nonpoint source management program. Nonpoint source pollution does not result from a discharge at a specific, single location (such as a single pipe) but normally results from land runoff, precipitation, atmospheric deposition or percolation. This may include needs for stormwater runoff, but not if ultimately discharged via a separate storm sewer. Also, needs for nonpoint source pollution control do not include costs that have been distributed in the categories for ground-water, estuaries, and wetlands.
- 4) **Stormwater Control**
Activities to plan and implement municipal stormwater management programs pursuant to National Pollutant Discharge Elimination System (NPDES) permits for discharges from municipal separate storm sewer systems. This includes structural and non-structural measures that: 1) reduce pollutants from runoff from commercial and residential areas that are discharged from the storm sewer, 2) detect and remove illicit discharges and improper disposal into storm sewers, 3) monitor pollutants in runoff from industrial facilities that discharge to municipal separate storm sewers, and 4) reduce pollutants in construction site runoff that discharge to municipal separate storm sewers. This includes the control of stormwater pollution from diffuse or nonpoint sources that are ultimately discharged via a storm sewer.
- 5) **Wetlands Protection**
Activities to protect and restore wetlands that are an integral part of a nonpoint source management program or part of implementation or development of comprehensive estuary conservation and management plans.

Primary Treatment

The first stage of wastewater treatment, including removal of floating debris and solids by screening and sedimentation.

Glossary

Replacement/Rehabilitation of Sewers
See Categories of Needs, Category IIIB.

Reserve Capacity
Extra treatment capacity built into treatment plants and interceptor sewers to accommodate flow increases due to future population growth.

Secondary Treatment
See Categories of Needs, Category I.

Separate State Estimates
Needs that were not included in the 1988 EPA estimates because these needs were justified with documents outside the EPA-established documentation criteria or had no written documentation.

State Revolving Fund
Revolving funds are financial institutions that make loans for specific water pollution control purposes and use loan repayments, including interest, to make new loans for additional water pollution control activities. Under the State Revolving Fund (SRF) program, States and municipalities will be primarily responsible for financing, constructing, and managing wastewater treatment facilities. The SRF program is based on the 1987 Amendments to the Clean Water Act which called for a phase-out of the Construction Grants program and the initiation of the SRF program.

Supplemental State Estimates
Cost estimates that supplement the EPA's estimate of needs for the traditional eligibilities. These estimates include costs that are now eligible for funding under the State Revolving Fund program under Title VI of the Clean Water Act such as costs for reserve capacity, revised planning and/or design, and new needs.

Treatment Facility
A structure constructed to treat wastewater prior to discharging to the environment. Treatment is accomplished by subjecting the wastewater to a combination of physical, chemical, and/or biological processes that reduce the concentration of contaminants in the wastewater.

Wastewater
Dissolved or suspended waterborne waste material. Sanitary or domestic wastewater refers to liquid material collected from residences, offices, and institutions. Municipal wastewater is a general term applied to any liquid treated in a municipal treatment facility. Industrial wastes refer to wastewater from manufacturing facilities.

Wastewater Infrastructure
The plan or network for the collection, treatment, and disposal of sewage in a community. The level of treatment will depend upon the size of the community, the type of discharge, and/or the designated use of the receiving water.

Appendices

These Appendices contain lists of documentation types and State and national summaries of various cost data. Appendix A contains a summary of the types of documentation used for the 1988 and 1990 Needs Surveys. Appendix B presents cost data from the 1990 Needs Survey, including summaries by State of Current and Design Year Needs for the Traditional Eligibilities, Supplemental State Estimates, and the combined totals. Appendix C contains a summary of the 1988 needs estimates by State.

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Appendix A: Summary of 1988 and 1990 Needs Survey Documentation

Table A-1

**1990 Needs Survey
Documentation Types for Supplemental State Estimates**

Table A-1 lists the 27 suggested documentation types for reporting a need as a Supplemental State Estimate in the 1990 Needs Survey. The suggested documentation types expand upon documentation used in the 1988 Survey, and address needs eligible under the State Revolving Fund program.

Table A-1

**1990 Needs Survey
Documentation Types for Supplemental State Estimates**

<u>Documentation Type</u>	
1.	Capital Improvement Plan
2.	Infiltration/Inflow (I/I) Analysis
3.	Sewer System Evaluation Survey
4.	Final Engineer Estimate
5.	Cost of Previous Comparable Construction
6.	Facilities Plan
7.	Plan of Study
8.*	State Priority List/Intended Use Plan
9.	State-Approved Area-Wide or Regional Basin Plan with Project-Specific Information (Examples: Plans Required by Sections 208 or 303 of the CWA)
10.*	Grant or Loan Application Form
11.	Municipal Compliance Plan
12.	Diagnostic Evaluation Results of Municipal Wastewater Treatment Plants Demonstrating Need for Construction
13.	Administrative Order/Court Order/Consent Decree Demonstrating Need to Construct
14.	Sanitary Survey (documenting high failure rates)
15.	State-Approved Local/County Comprehensive Water and Sewer Plan with Project-Specific Information
16.	State Certification of Excessive Flow (Preliminary I/I Study)
17.	State-Approved Municipal Wasteload Allocation Plan with Project-Specific Information
18.	For EPA Use Only
19.	Full Grant Award
20.	Partial Grant Award
21.*	NPDES or State Permit Requiring Corrective Action (with schedule)
22.*	Municipal Stormwater Management Plan
23.*	Nonpoint Source Management Plan/Assessment Report
24.*	Ground-Water Protection Strategy/NPS Report
25.*	Wellhead Protection Program and Plan
26.*	Delegated Underground Injection Control Program and Plan
27.*	Estuary Comprehensive Conservation and Management Plan

* Indicates minimal documentation for SRF eligibilities as recommended by 1990 Needs Survey workgroup.

Table A-2

**1988 Needs Survey
Documentation Types**

Table A-2 lists the 17 acceptable criteria for documenting a problem or a cost estimate in the 1988 Needs Survey. These same documentation types were used for the 1986 Survey.

Table A-2
1988 Needs Survey
Documentation Types

<u>Documentation Type</u>	
1.	Capital Improvement Plan
2.	Infiltration/Inflow (I/I) Analysis
3.	Sewer System Evaluation Survey
4.	Final Engineer Estimate
5.	Cost of Previous Comparable Construction
6.	Facilities Plan
7.	Plan of Study
8.	State Priority List
9.	State-Approved Area-Wide or Regional Basin Plan with Project-Specific Information (Examples: Plans Required by Sections 208 and 303 of the CWA)
10.	Grant Application Form (Step 3 or 4)
11.	Municipal Compliance Plan
12.	Diagnostic Evaluation Results of Municipal Wastewater Treatment Plants Demonstrating Need for Construction
13.	Administrative Order/Court Order/Consent Decree
14.	Sanitary Survey (documenting high failure rates)
15.	State-Approved Local/County Comprehensive Water and Sewer Plan with Project-Specific Information
16.	State Certification of Excessive Flow (Preliminary I/I Study)
17.	State-Approved Municipal Wasteload Allocation Plan with Project-Specific Information
18.	For EPA Use Only
19.	Full Grant Award
20.	Partial Grant Award

Appendix B: Summary of 1990 Needs Survey Estimates

Table B-1

1990 Needs Survey
Total for the Traditional Eligibilities and the Supplemental State Estimates

Table B-1 summarizes the cost estimates for the traditional eligibilities and the supplemental estimates presented by the States. The estimates reflect the sum of Tables B-3 and B-4.

Table B-1
1990 Needs Survey
Total for the Traditional Eligibilities and the Supplemental State Estimates
(January 1990 Dollars in Millions)

State	Category of Design Year Need							Total
	I	II	IIIA	IIIB	IVA	IVB	V	
Alabama	280	146	96	24	248	227	0	1021
Alaska	71	0	5	0	20	104	0	200
Arizona	601	85	2	3	52	232	0	975
Arkansas	289	90	138	102	152	136	2	909
California	7798	127	526	826	514	794	1676	12261
Colorado	60	43	2	7	3	40	0	155
Connecticut	556	1291	26	17	346	201	402	2839
Delaware	18	2	0	0	37	24	1	82
Dist. of Columbia	103	186	0	0	0*	0	73	362
Florida	2384	820	44	25	2742	1504	2	7521
Georgia	303	368	45	42	97	404	204	1463
Hawaii	995	4	0	0	167	180	0	1346
Idaho	75	9	12	3	62	75	1	237
Illinois	571	344	87	60	142	345	1541	3090
Indiana	262	150	58	30	256	154	999	1909
Iowa	172	500	49	1	43	195	5	965
Kansas	195	101	70	53	46	341	15	821
Kentucky	269	88	78	12	779	523	32	1781
Louisiana	473	33	61	35	330	257	0	1189
Maine	119	1	26	7	76	38	814	1081
Maryland	224	917	124	3	214	296	15	1793
Massachusetts	2590	22	42	19	738	716	1783	5910
Michigan	832	9	74	40	530	649	1408	3542
Minnesota	601	34	35	40	115	84	171	1080
Mississippi	202	76	63	2	88	117	0	548
Missouri	404	24	10	283	128	452	169	1470
Montana	52	2	0	1	39	20	0	114
Nebraska	69	2	2	16	4	16	21	130
Nevada	442	137	2	4	22	70	0	677
New Hampshire	137	25	23	12	294	207	273	971
New Jersey	2056	202	245	336	428	275	1149	4691
New Mexico	41	0*	1	16	32	28	0	118
New York	3703	1988	198	1514	2518	1433	6367	17721
North Carolina	417	1014	110	76	545	895	1	3058
North Dakota	7	0	0	4	0	5	0	16
Ohio	863	418	320	102	837	1122	676	4338
Oklahoma	172	103	13	12	31	133	0	464
Oregon	479	150	108	196	398	184	115	1630
Pennsylvania	606	115	17	6	610	151	118	1623
Rhode Island	70	29	15	14	110	77	230	545
South Carolina	368	86	26	0	95	199	0	774
South Dakota	46	3	5	6	15	10	2	87
Tennessee	880	108	194	23	311	406	230	2152
Texas	2204	715	246	110	472	1848	0	5595
Utah	401	67	40	4	23	46	0	581
Vermont	88	54	1	4	36	18	61	262
Virginia	779	306	96	38	273	282	469	2243
Washington	1045	24	136	83	311	594	582	2775
West Virginia	572	52	29	28	884	465	21	2051
Wisconsin	531	199	47	1	229	336	73	1416
Wyoming	16	0	1	2	1	1	0	21
American Samoa	4	0	0	0	11	3	0	18
Guam	31	0	0*	0	8	4	0	43
Marshall Islands	25	0	0	0	2	7	0	34
Micronesia	59	0	0	0*	15	5	0	79
Northern Marianas	21	0	0	0*	5	15	0	41
Puerto Rico	636	5	38	15	480	489	19	1682
Republic of Palau	15	0	0	0	0	1	0	16
Virgin Islands	10	0	0*	0	8	9	0	27
TOTAL	37292	11274	3586	4257	16972	17442	19720	110543

* Estimate is less than \$0.5 million.

Table B-2

1990 Needs Survey Current Needs for the Traditional Eligibilities

Table B-2 summarizes the EPA 1990 cost estimates of needs for the traditional eligibilities (Categories I through V) by State for the current population. All values are given in millions of January 1990 dollars.

The current needs represent the capital investment necessary to build all needed publicly owned wastewater treatment facilities to serve the current population and meet the requirements of the Clean Water Act. These needs include all planning, design, and construction activities eligible for Federal financial assistance under Title II of the Clean Water Act. These needs are derived from the current needs documented in the 1988 Needs Survey and do not contain an allowance for future population growth and migration.

Needs estimates presented in Table B-2 may vary slightly from those presented in Table 1 and 2 due to rounding.

Table B-2
1990 Needs Survey
Current Needs for the Traditional Eligibilities
(January 1990 Dollars in Millions)

State	Category of Design Year Need						TOTAL
	I	II	IIIA	IIIB	IVA	IVB	
Alabama	137	57	89	19	112	75	489
Alaska	33	0	5	0	20	38	96
Arizona	284	85	2	3	45	113	532
Arkansas	87	16	55	1	28	23	210
California	2526	26	297	678	320	376	5305
Colorado	42	39	2	7	3	28	121
Connecticut	261	96	26	17	299	170	1271
Delaware	13	2	0	0*	24	11	51
Dist. of Columbia	99	186	0	0	0	0	285
Florida	839	234	42	25	2226	607	3973
Georgia	152	82	45	25	54	154	595
Hawaii	66	3	0	0	90	45	204
Idaho	14	3	5	2	12	8	45
Illinois	342	273	82	41	95	246	2532
Indiana	118	74	46	10	162	100	1492
Iowa	135	20	49	1	37	107	354
Kansas	124	2	70	53	42	170	476
Kentucky	134	47	81	12	562	273	1133
Louisiana	330	23	61	35	249	178	876
Maine	96	1	26	7	50	30	231
Maryland	138	348	32	0*	32	59	618
Massachusetts	2510	15	42	19	576	555	5500
Michigan	746	5	68	25	392	563	2965
Minnesota	222	28	17	1	25	30	445
Mississippi	150	52	60	2	62	70	396
Missouri	214	0	7	72	40	228	706
Montana	11	2	0	1	15	2	31
Nebraska	45	2	1	8	8	10	95
Nevada	54	17	2	3	12	8	96
New Hampshire	72	7	9	5	217	124	675
New Jersey	1296	67	244	330	295	135	3190
New Mexico	40	0*	1	16	8	15	80
New York	1805	181	171	1640	1227	868	11854
North Carolina	254	144	91	46	308	322	1166
North Dakota	7	0	0	4	0	4	15
Ohio	491	315	284	63	556	736	3034
Oklahoma	59	69	13	12	31	84	268
Oregon	200	127	42	153	307	57	988
Pennsylvania	542	98	17	6	507	130	1418
Rhode Island	17	4	0*	0	79	64	361
South Carolina	100	20	22	0	53	79	274
South Dakota	29	3	2	1	8	12	57
Tennessee	266	74	161	10	193	91	805
Texas	1268	425	229	81	283	1050	3336
Utah	170	33	40	4	17	18	282
Vermont	65	29	1	4	16	17	209
Virginia	194	44	30	10	118	118	728
Washington	785	19	135	83	213	299	2113
West Virginia	263	21	23	16	311	163	811
Wisconsin	169	136	51	0	120	101	798
Wyoming	4	0	1	1	0*	0	6
American Samoa	2	0	0	0	5	2	9
Guam	16	0	0*	0	3	2	21
Marshall Islands	18	0	0	0	2	4	24
Micronesia	54	0	0	0*	10	3	67
Northern Marianas	11	0	0	0*	3	8	22
Puerto Rico	346	5	39	15	370	343	1140
Republic of Palau	10	0	0	0	0	0	10
Virgin Islands	7	0	0*	0	8	3	18
TOTAL	18482	3559	2818	3567	10860	9129	64902

* Estimate is less than \$0.5 million.

Table B-3

**1990 Needs Survey
Design Year Needs for the Traditional Eligibilities**

Table B-3 summarizes the EPA 1990 cost estimates of needs for the traditional eligibilities (Categories I through V) by State for the design year population. All values are given in millions of January 1990 dollars.

The 1990 design year needs represent the capital investment necessary to build all publicly owned wastewater treatment facilities to serve the design year population and meet the requirements of the Clean Water Act. These needs include all planning, design, and construction activities eligible for funding under Title II of the Clean Water Act. The design year needs are derived from those documented during the 1988 Needs Survey.

Needs estimates presented in Table B-3 may vary slightly from those presented in Tables 1, 2, and 3 due to rounding.

Table B-3
1990 Needs Survey
Design Year Needs for the Traditional Eligibilities
(January 1990 Dollars in Millions)

State	Category of Need							TOTAL
	I	II	IIIA	IIIB	IVA	IVB	V	
Alabama	186	77	89	19	147	177	0	695
Alaska	71	0	5	0	20	104	0	200
Arizona	601	85	2	3	52	232	0	975
Arkansas	135	21	55	1	38	34	0	284
California	3386	81	297	678	376	728	1082	6628
Colorado	60	43	2	7	3	40	0	155
Connecticut	275	119	26	17	346	201	402	1386
Delaware	18	2	0	0*	37	24	1	82
Dist. of Columbia	103	186	0	0	0	0	0	289
Florida	1915	450	42	25	2481	1317	0	6230
Georgia	278	119	45	25	80	346	83	976
Hawaii	119	4	0	0	137	105	0	365
Idaho	36	9	5	2	17	18	1	88
Illinois	459	295	82	41	112	292	1453	2734
Indiana	152	84	46	10	229	120	982	1623
Iowa	160	23	49	1	41	195	5	474
Kansas	194	3	70	53	46	341	15	722
Kentucky	181	57	81	12	693	437	24	1485
Louisiana	473	33	61	35	330	257	0	1189
Maine	119	1	26	7	76	34	21	284
Maryland	152	360	32	0*	35	77	9	665
Massachusetts	2570	22	42	19	738	716	1783	5890
Michigan	787	6	68	25	464	635	1166	3151
Minnesota	360	32	17	1	26	46	122	604
Mississippi	199	63	60	2	82	115	0	521
Missouri	291	0	7	72	47	391	145	953
Montana	13	4	0	1	18	3	0	39
Nebraska	60	2	1	8	9	12	21	113
Nevada	83	38	2	3	18	20	0	164
New Hampshire	94	10	9	5	270	188	241	817
New Jersey	1522	80	244	330	376	168	823	3543
New Mexico	41	0*	1	16	32	28	0	118
New York	1884	206	171	1640	2021	1050	5962	12934
North Carolina	402	184	91	46	442	603	1	1769
North Dakota	7	0	0	4	0	5	0	16
Ohio	627	350	284	63	664	878	589	3455
Oklahoma	172	103	13	12	31	133	0	464
Oregon	376	136	42	153	343	133	102	1285
Pennsylvania	606	115	17	6	610	151	118	1623
Rhode Island	37	4	0	0	94	72	197	404
South Carolina	140	28	22	0	65	144	0	399
South Dakota	31	3	2	1	9	14	2	62
Tennessee	366	108	161	10	261	384	10	1300
Texas	2112	691	229	81	362	1588	0	5063
Utah	401	67	40	4	23	46	0	581
Vermont	66	30	1	4	19	17	77	214
Virginia	278	83	30	10	141	164	214	920
Washington	977	24	135	83	308	563	579	2669
West Virginia	300	23	23	16	357	192	14	925
Wisconsin	223	193	51	0	158	114	221	960
Wyoming	4	0	1	1	0	0	0	6
American Samoa	4	0	0	0	11	3	0	18
Guam	31	0	0*	0	8	4	0	43
Marshall Islands	25	0	0	0	2	7	0	34
Micronesia	59	0	0	0*	15	5	0	79
Northern Marianas	21	0	0	0*	5	15	0	41
Puerto Rico	603	5	39	15	469	447	22	1600
Republic of Palau	15	0	0	0	0	1	0	16
Virgin Islands	10	0	0*	0	8	9	0	27
TOTAL	24870	4662	2818	3567	13802	14143	16487	80349

* Estimate is less than \$0.5 million.

Table B-4
1990 Needs Survey
Design Year Supplemental State Estimates

Table B-4 summarizes the States' supplemental estimates of incremental needs for the traditional eligibilities (Categories I through V) for the design year population. All values are given in millions of January 1990 dollars.

The supplemental State estimates represent needs which are in addition to the needs for the traditional eligibilities. These estimates include planning, design, and construction activities eligible for Federal financial assistance under Title II (Construction grants) and Title VI (the State Revolving Fund) of the Clean Water Act. These design year estimates address funds necessary to provide wastewater treatment facilities for the current population, plus population growth and migration for the next 20 years.

Needs presented in Table B-4 may vary slightly from those presented in Tables 1 and 4 due to rounding.

Table B-4
1990 Needs Survey
Design Year Supplemental State Estimates
(January 1990 Dollars in Millions)

State	Category of Need						TOTAL
	I	II	IIIA	IIIB	IVA	IVB	
Alabama	94	69	7	5	101	50	326
Alaska	0	0	0	0	0	0	0
Arizona	0	0	0	0	0	0	0
Arkansas	154	69	83	101	114	101	625
California	4412	46	229	148	138	66	5633
Colorado	0	0	0	0	0	0	0
Connecticut	281	1172	0	0	0	0	1453
Delaware	0	0	0	0	0	0	0
Dist. of Columbia	0	0	0	0	0	73	73
Florida	469	370	2	0	261	187	1291
Georgia	25	249	0*	17	17	58	487
Hawaii	876	0	0	0	30	75	981
Idaho	39	0	7	1	45	57	149
Illinois	112	49	5	19	30	53	356
Indiana	110	66	12	20	27	34	286
Iowa	12	477	0	0	2	0*	491
Kansas	1	98	0*	0	0	0	99
Kentucky	88	31	(3)	0	86	86	296
Louisiana	0	0	0	0	0	0	0
Maine	0*	0	0	0	0*	4	793
Maryland	72	557	92	3	179	219	1128
Massachusetts	20	0	0	0	0	0	20
Michigan	45	3	6	15	66	14	391
Minnesota	241	2	18	39	89	38	476
Mississippi	3	13	3	0	6	2	27
Missouri	113	24	3	211	81	61	517
Montana	39	(2)	0	0*	21	17	75
Nebraska	9	0	1	8	(5)	4	17
Nevada	359	99	0*	1	4	50	513
New Hampshire	43	15	14	7	24	19	154
New Jersey	534	122	1	6	52	107	1148
New Mexico	0	0	0	0	0	0	0
New York	1819	1782	27	(126)	497	383	4787
North Carolina	15	830	19	30	103	292	1289
North Dakota	0	0	0	0	0	0	0
Ohio	236	68	36	39	173	244	883
Oklahoma	0	0	0	0	0	0	0
Oregon	103	14	66	43	55	51	345
Pennsylvania	0	0	0	0	0	0	0
Rhode Island	33	25	15	14	16	5	141
South Carolina	228	58	4	0	30	55	375
South Dakota	15	0	3	5	6	(4)	25
Tennessee	514	0*	33	13	50	22	852
Texas	92	24	17	29	110	260	532
Utah	0	0	0	0	0	0	0
Vermont	22	24	0*	0	17	1	48
Virginia	501	223	66	28	132	118	1323
Washington	68	0*	1	0*	3	31	106
West Virginia	272	29	6	12	527	273	1126
Wisconsin	308	6	(4)	1	71	222	456
Wyoming	12	0	0	1	1	1	15
American Samoa	0	0	0	0	0	0	0
Guam	0	0	0	0	0	0	0
Marshall Islands	0	0	0	0	0	0	0
Micronesia	0	0	0	0	0	0	0
Northern Marianas	0	0	0	0	0	0	0
Puerto Rico	33	0	(1)	0	11	42	82
Republic of Palau	0	0	0	0	0	0	0
Virgin Islands	0	0	0	0	0	0	0
TOTAL	12422	6612	768	690	3170	3299	30194

* Estimate is less than \$0.5 million.

Appendix C: Summary of 1988 Needs Survey Estimates

Table C-1**1988 Needs Survey
Current Needs for the Traditional Eligibilities**

Table C-1 summarizes the results of EPA's 1988 Needs Survey for the current population. All values are given in millions of January 1990 dollars. This table is provided as a convenience to those who wish to compare the 1988 and 1990 Survey results. Table C-1 may be compared with Table B-2.

Table C-1
1988 Needs Survey
Current Needs for the Traditional Eligibilities
(January 1990 Dollars in Millions)

State	Category of Need							Total
	I	II	IIIA	IIIB	IVA	IVB	V	
Alabama	175	69	96	19	121	89	0	569
Alaska	48	0	5	0	20	39	0	112
Arizona	309	85	2	3	49	117	0	565
Arkansas	123	21	58	4	32	30	0	268
California	2571	27	373	679	354	382	1082	5468
Colorado	58	69	2	7	4	29	0	169
Connecticut	280	106	26	17	299	182	407	1317
Delaware	41	2	0	0*	27	14	1	85
Dist. of Columbia	99	186	0	0	0	0	0	285
Florida	943	262	44	25	2236	631	2	4143
Georgia	176	93	46	27	59	157	83	641
Hawaii	100	3	0	0	96	46	0	245
Idaho	29	3	5	3	16	10	1	67
Illinois	376	273	84	41	95	247	1758	2874
Indiana	191	106	50	10	198	108	982	1645
Iowa	230	53	52	2	40	149	5	531
Kansas	127	2	86	58	44	171	15	503
Kentucky	143	52	81	12	566	274	24	1152
Louisiana	334	23	62	35	255	180	0	889
Maine	131	1	26	11	60	49	21	299
Maryland	174	411	41	0*	51	213	9	899
Massachusetts	2565	15	42	19	597	642	1783	5663
Michigan	825	29	71	27	400	724	1174	3250
Minnesota	334	53	20	173	27	103	227	937
Mississippi	162	53	66	2	64	78	0	425
Missouri	442	1	11	73	56	262	149	994
Montana	18	2	0*	10	20	10	0*	60
Nebraska	52	2	1	8	8	11	21	103
Nevada	57	23	2	3	12	8	0	105
New Hampshire	108	7	9	5	218	149	241	737
New Jersey	1435	174	249	332	313	159	823	3485
New Mexico	56	0*	1	16	8	15	0	96
New York	1906	181	171	1647	1232	1023	5992	12152
North Carolina	275	191	91	47	313	342	1	1260
North Dakota	16	0	0	11	0	7	0	34
Ohio	600	330	289	63	587	789	608	3266
Oklahoma	80	76	13	12	31	84	0	296
Oregon	219	128	46	153	308	60	106	1020
Pennsylvania	593	101	17	9	520	133	124	1497
Rhode Island	17	4	0	0*	79	64	215	379
South Carolina	175	24	22	0	79	159	0	459
South Dakota	52	3	3	2	10	12	2	84
Tennessee	353	76	162	19	221	96	10	937
Texas	1324	432	255	83	290	1056	0	3440
Utah	180	33	40	4	25	21	0	303
Vermont	65	29	1	4	17	17	77	210
Virginia	235	47	31	10	125	123	214	785
Washington	900	19	135	83	215	299	579	2230
West Virginia	287	22	23	18	347	175	14	886
Wisconsin	533	147	58	3	137	145	231	1254
Wyoming	8	0	1	2	1	5	0	17
American Samoa	4	0	0	0	5	2	0	11
Guam	16	0	0*	0	3	2	2	21
Marshall Islands	18	0	0	0	2	4	0	24
Micronesia	55	0	0	0*	10	4	0	69
Northern Marianas	11	0	0	0*	4	11	0	26
Puerto Rico	353	5	39	15	395	362	22	1191
Republic of Palau	10	0	0	0	0	1	0	11
Virgin Islands	7	0	0*	0	8	3	0	18
TOTAL	21004	4054	3008	3806	11309	10277	17005	70463

* Estimate is less than \$0.5 million.

Table C-2

1988 Needs Survey Design Year Needs for the Traditional Eligibilities

Table C-2 summarizes the results of EPA's 1988 Needs Survey for the design year population. All values are given in millions of January 1990 dollars. This table is provided as a convenience to those who wish to compare the 1988 and 1990 Survey results. Table C-2 may be compared with Table B-3.

Needs presented in Table C-2 may vary slightly from those presented in Table 3 due to rounding.

Table C-2
1988 Needs Survey
Design Year Needs for the Traditional Eligibilities
(January 1990 Dollars in Millions)

State	Category of Need							Total
	I	II	IIIA	IIIB	IVA	IVB	V	
Alabama	242	96	96	19	158	202	0	813
Alaska	98	0	5	0	20	108	0	231
Arizona	635	85	2	3	57	237	0	1019
Arkansas	197	27	58	4	48	52	0	386
California	3438	82	373	679	413	734	1082	6801
Colorado	78	72	2	7	4	41	0	204
Connecticut	305	133	26	17	346	214	407	1448
Delaware	50	2	0	0	45	34	1	132
Dist. of Columbia	103	186	0	0	0	0	0	289
Florida	2039	485	44	25	2493	1346	2	6434
Georgia	319	134	46	27	85	352	83	1046
Hawaii	177	4	0	0	143	106	0	430
Idaho	67	9	5	3	23	21	1	129
Illinois	494	295	84	41	112	292	1758	3076
Indiana	233	118	50	10	269	128	982	1790
Iowa	267	57	52	2	44	245	5	672
Kansas	198	3	86	58	48	341	15	749
Kentucky	193	62	81	12	697	445	24	1514
Louisiana	493	33	62	35	336	279	0	1238
Maine	155	1	26	11	87	54	21	355
Maryland	190	424	41	0	58	232	9	954
Massachusetts	2627	35	42	19	760	803	1783	6069
Michigan	878	32	71	27	474	797	1174	3453
Minnesota	506	67	20	173	29	128	227	1150
Mississippi	226	67	66	2	84	124	0	569
Missouri	535	1	11	73	70	434	149	1273
Montana	22	5	0	10	24	13	0*	74
Nebraska	67	2	1	8	9	12	21	120
Nevada	87	43	2	3	18	20	0	173
New Hampshire	135	10	9	5	271	218	241	889
New Jersey	1697	207	249	332	400	195	823	3903
New Mexico	57	0*	1	16	32	28	0	134
New York	1985	206	171	1647	2026	1206	5992	13233
North Carolina	424	232	91	47	449	627	1	1871
North Dakota	18	0	0	11	0	7	0	36
Ohio	754	374	289	63	699	936	608	3723
Oklahoma	195	109	13	12	31	134	0	494
Oregon	401	137	46	153	345	136	106	1324
Pennsylvania	664	117	17	9	623	155	124	1709
Rhode Island	38	4	0*	0	94	72	215	423
South Carolina	271	34	22	0	103	283	0	713
South Dakota	56	3	3	2	10	14	2	90
Tennessee	498	109	162	19	291	438	10	1527
Texas	2173	699	255	83	371	1594	0	5175
Utah	413	67	40	4	32	49	0	605
Vermont	67	30	1	4	20	17	77	216
Virginia	328	87	31	10	152	172	214	994
Washington	1096	24	135	83	311	564	579	2792
West Virginia	327	24	23	18	402	207	14	1015
Wisconsin	605	206	58	3	187	166	231	1456
Wyoming	9	0	1	2	2	5	0	19
American Samoa	6	0	0	0	11	3	0	20
Guam	31	0	0*	0	8	4	0	43
Marshall Islands	25	0	0	0	2	7	0	34
Micronesia	60	0	0	0*	15	6	0	81
Northern Marianas	21	0	0	0*	6	25	0	52
Puerto Rico	610	5	39	15	495	470	22	1656
Republic of Palau	15	0	0	0	0	1	0	16
Virgin Islands	10	0	0*	0	8	9	0	27
TOTAL	27908	5244	3008	3806	14350	15542	17003	86861

* Estimate is less than \$0.5 million.