

The Sanitation Facilities Construction Program  
of the Indian Health Service

Public Law 86-121

# ANNUAL REPORT FOR 2006



U.S. Public Health Service  
Department of Health and Human Services





This Annual Report for Fiscal Year 2006 was produced by the Indian Health Service Sanitation Facilities Construction Program to make available frequently requested information about the Program. Additional information can be obtained by writing to the following address:

Indian Health Service  
Sanitation Facilities Construction Program  
12300 Twinbrook Parkway  
Room 610, Twinbrook Metro Plaza  
Rockville, MD 20852

Website: [www.dsfc.ihs.gov](http://www.dsfc.ihs.gov)

Editor: Carol L. Rogers, P.E.

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# The Sanitation Facilities Construction Program Annual Report for 2006

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## Preface

The Indian Health Service (IHS) Sanitation Facilities Construction (SFC) Program continues to identify and report the sanitation needs of American Indians and Alaska Natives while carrying out a Program to meet those needs in cooperation with tribal governments. Those needs are summarized in this report as well as some of the accomplishments of the Program during the reported fiscal year. The Program's continuing challenges include improving community water supplies, waste water treatment systems, and solid waste disposal facilities in culturally diverse and often times remote areas--from Alaska to Florida and from Maine to California. The projects highlighted in this report illustrate typical SFC Program efforts in addressing these specific challenges.

Since it was created by Public Law 86-121 in 1959, the SFC Program has worked in partnership with tribal governments to construct essential sanitation facilities. As a result of over 47 years of cooperative efforts, many tribes have developed the administrative and technical capability to construct their own sanitation facilities with engineering support from IHS. The majority of all the SFC Program's construction work is accomplished by either tribes, tribal organizations or Indian-owned construction firms. A number of tribes continue to assume responsibility for their respective SFC programs, while the SFC Program continues to work with tribes and others to support the tribal Self-Governance/Self-Determination decision making process under the authority of the Indian Self-Determination and Education Assistance Act. One goal of the SFC Program is to make available program information in an open, accurate, and efficient way; this report, prepared annually since 1993, is one means of achieving that goal.





## The Sanitation Facilities Construction Program

### Introduction

On July 31, 1959, President Dwight D. Eisenhower signed Public Law (P.L.) 86-121. Under this Act, the Surgeon General is authorized to construct essential sanitation facilities for American Indian and Alaska Native homes and communities. Since 1959, over 294,000 homes have been provided sanitation facilities and this achievement has had a significant impact on the health of Native Americans. The gastroenteric and post-neonatal death rates among the Indian people have been reduced significantly, primarily because of the increased prevalence of safe drinking water supplies and sanitary waste disposal systems.

The authority vested in the Surgeon General by P.L. 86-121 was transferred to the Secretary, Health, Education, and Welfare (HEW), by Reorganization Plan No. 3 of 1966 (31 FR 8855). The Secretary of HEW was re-designated Secretary of Health and Human Services by Section 509(b) of P.L. 96-88 in 1979. The authority was delegated to the Director, Indian Health Service (IHS), by the Reorganization Order of January 4, 1988 (52 FR 47053), which elevated the IHS to a Public Health Service Agency.

The Sanitation Facilities Construction (SFC) Program is unusual among Federal programs because IHS personnel work cooperatively, as close partners, with tribes in providing essential sanitation facilities to Indian communities and Alaska villages. Enhancing tribal capabilities and building partnerships based on mutual respect are the major keys to the success of the SFC Program.

Protecting the health of and preventing disease among American Indian and Alaska Native populations are primary IHS objectives. In the clinical environment, physicians, dentists, nurses, and other medical care providers work to restore the health of ill patients. However, preventing illness is clearly the most effective way to improve health status. Improving the environment in which people live and assisting them to interact positively with that environment results in significantly healthier populations. Providing sanitation facilities and better quality housing are environmental improvements that have proven track records in that regard.



## The SFC Program Mission

Today, as it has for over 47 years, the SFC Program continues to work with the American Indian and Alaska Native (AI/AN) people to eliminate sanitation facilities deficiencies in Indian homes and communities.

The IHS mission is to raise the health status of American Indian and Alaska Native people to the highest possible level. To carry out its mission, the IHS provides comprehensive primary and preventive health services. The SFC Program supports the IHS's mission by providing sanitation facilities construction projects, in consultation with AI/AN tribes, for cooperative development and continued operation of safe water, wastewater, and solid waste systems and related support facilities. In partnership with tribes, the SFC Program provides the following:



Figure 1: Construction of a septic system, 1960's.

1. *Develops and maintains an inventory of sanitation deficiencies in Indian and Alaska Native communities for use by IHS and to inform Congress.*
2. *Provides environmental engineering assistance with utility master planning and sanitary surveys.*
3. *Develops multi-agency funded sanitation projects; accomplishes interagency coordination; assist with grant applications; and leverages IHS funds.*
4. *Provides funding for water supply and waste disposal facilities.*
5. *Provides professional engineering design and/or construction services for water supply and waste disposal facilities.*
6. *Provides technical consultation and training to improve the operation and maintenance of tribally owned water supply and waste disposal systems.*
7. *Advocates for tribes during the development of policies, regulations, and programs.*
8. *Assists tribes with sanitation facility emergencies.*

## Tribal Involvement

The SFC Program employs a cooperative approach for providing sanitation facilities to American Indian and Alaska Native communities. During fiscal year (FY) 2006, tribes, tribal organizations or Indian-owned construction firms administered approximately \$104 million in construction funds. Many tribes participated by contributing labor, materials, and administrative support to projects.

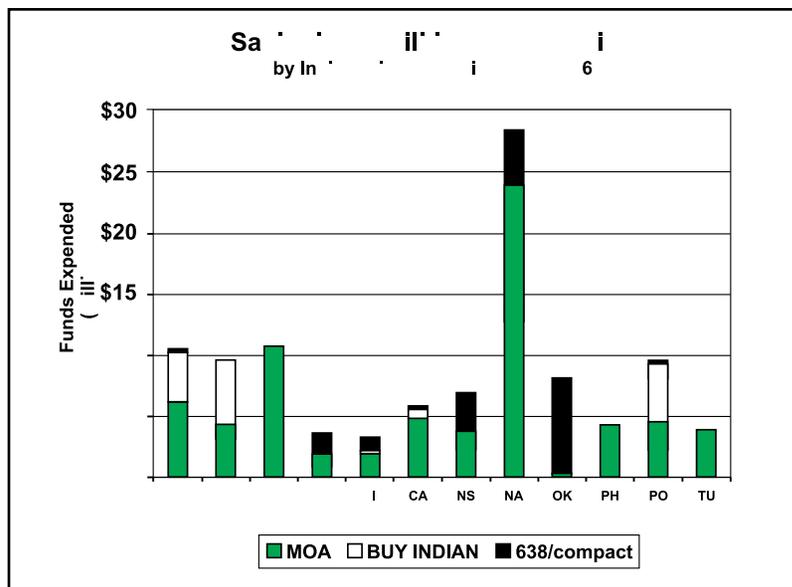


Figure 2: Funds expended by Indian and Alaska Native tribes and Indian-owned firms in FY 2006, by IHS Area.



Figure 3: IHS engineer leads final inspection on the Fort Apache Indian Reservation.

Each sanitation facilities construction project is initiated at the request of a tribe or tribal organization. Consultation with the tribal government is maintained throughout every phase of the construction process, from preliminary design to project completion. Operation and maintenance of these facilities by the American Indian and Alaska Native people, with ongoing technical assistance from IHS, ensures the long-term health benefits associated with improved sanitation conditions. In addition to construction work, a number of tribes assumed responsibility for the administration of their own SFC Program under Titles I and V of P.L. 93-638, the Indian Self-Determination and Education Assistance Act, as amended. Tribes from the





Anchorage, Billings, California, Nashville, Oklahoma City and Phoenix Areas are managing their own SFC Program through Self-Governance compacts. (Table 1).

The IHS, SFC Program seeks the advice and recommendations of the national Facilities Appropriation Advisory Board and Area-specific Tribal Advisory Committees. These groups review program policies and guidelines and provide input on the future direction of the SFC program.



**Figure 4:** COSTEP Stephen Irwin and IHS inspectors Manual Quesada and Ron Burnette discuss maximum allowable pipe deflection on Fort Apache Indian Reservation, Hon Dah, Arizona.

**TABLE 1**  
**Tribes That Managed the SFC Program in FY 2006**  
**Under Title I or V of P.L. 93-638, as Amended**

IHS Area	Tribe
Anchorage	Alaska Native Tribal Health Consortium
Billings	Confederated Tribes of Salish & Kootenai (Flathead) Rocky Boys (Chippewa-Cree)
California	Hoop Valley Tribe
Nashville	Chitmacha Tribe of Louisiana Mississippi Band of Choctaw Indians St. Regis Mohawk Eastern Band of Cherokee
Navajo	*Navajo Nation
Oklahoma City	Cherokee Nation of Oklahoma Absentee Shawnee Tribe of Oklahoma Choctaw Nation of Oklahoma Chickasaw Nation of Oklahoma Wyandotte Tribe of Oklahoma *Modoc Tribe of Oklahoma The Seminole Nation of Oklahoma (in Chickasaw Compact)
Phoenix	Ely Shoshone Tribe Gila River Pima-Maricopa Indian Community Yerington
	* Title I

## “The Year” in Review

In FY 2006, over \$92.1 million was appropriated for the construction of sanitation facilities. In addition to those appropriated funds, the SFC Program received more than \$33 million in contributions from other Federal agencies including the Environmental Protection Agency (EPA) and from non-Federal sources such as tribes and State agencies. With these contributions, the SFC Program’s construction budget for the fiscal year totaled more than \$125 million.

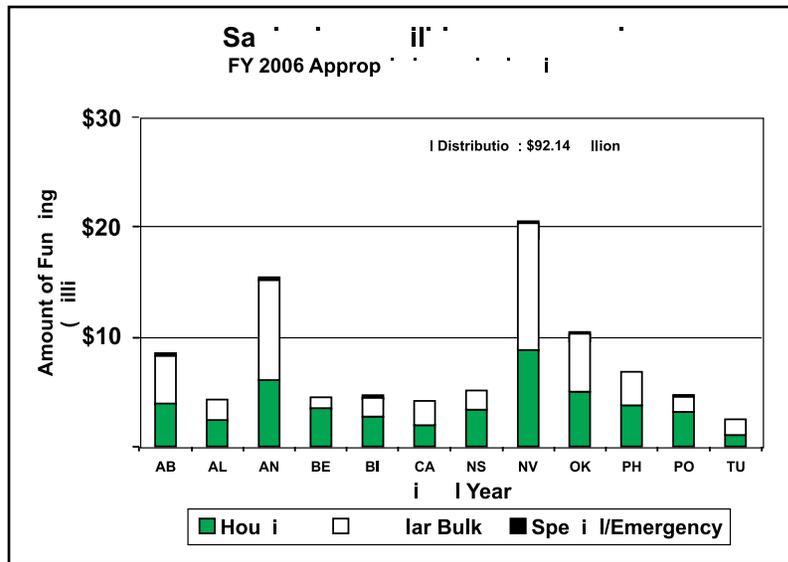


Figure 5: Distribution of SFC Project appropriations, by Area, for FY 2006.

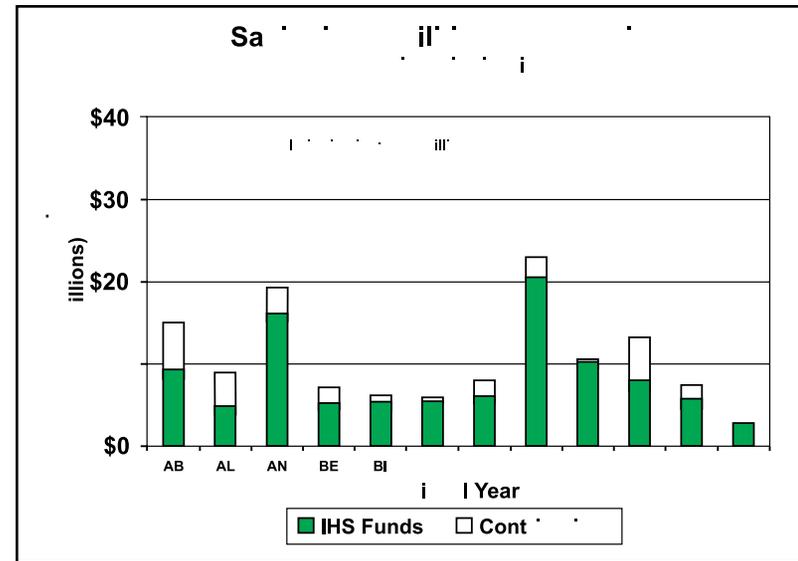


Figure 6: Total distribution of SFC Project funds in FY 2006, including all contributions and HUD funds.

Using the appropriated and contributed funds, the SFC Program initiated 436 projects to provide essential sanitation facilities to an estimated 1,411 new and like-new homes, 1,766 existing first service homes and 20,913 existing homes. The new housing units provided with sanitation facilities included 79 HUD-sponsored units (served with contributed funds), 30 Bureau of Indian Affairs-Home Improvement Program (BIA-HIP) sponsored units, and 1,302 units constructed by tribes, individuals, and other entities. In FY 2006, the SFC Program provided sanitation facilities to a total of 24,090 homes. These statistics are summarized in Table 2 on the following page.



**TABLE 2**  
**IHS Sanitation Facilities Construction Program Statistics for FY 2006**

<b><u>SFC Program Budget:</u></b>		<b><u>Homes Provided Sanitation Facilities since 1959:</u></b>	
IHS SFC Appropriation =	\$ 92,143,000	● Number of New and Like-New Homes	
HUD Contributions (Housing + CDBG*) =	\$ 585,402	HUD-sponsored Homes =	61,491
Other Contributions =	\$ <u>32,581,149</u>	BIA-sponsored Homes =	22,852
Total Funding in FY 2006 =	\$ 125,309,551	Tribal and Other Homes =	<u>77,670</u>
Total IHS SFC Appropriations since 1959 =	\$ 2 billion	Subtotal	162,013
		● Number of First Service Existing Homes =	<u>111,194</u>
		Total Number of Homes Served =	273,207
<b><u>SFC Projects:</u></b>		<b><u>Sanitation Deficiency System (SDS) Information:</u></b>	
Number of Projects Undertaken in 2006 =	436	Total Estimated Cost of Sanitation Deficiencies =	\$2.26 billion
Total Number of Projects Undertaken since 1959 =	12,850	Total Estimated Cost of Feasible Projects =	\$1.054 billion
<b><u>Homes Provided Sanitation Facilities in FY 2006:</u></b>			
● Number of New and Like-New Homes Served		Total Number of Projects/Phases Identified =	3,131
HUD-sponsored Homes =	79	Number of Feasible Projects Identified =	2,300
BIA-sponsored Homes =	30	Estimated Total Number of Existing Homes	
Tribal and Other Homes =	<u>1,302</u>	Without Potable Water =	38,737
Subtotal	1,411	Estimated Total Number of Homes That Lack	
● Number of Existing First Service Homes Served =	1,766	Either a Safe Water Supply or Sewage Disposal	
● Number of Previously Served Homes		System, or Both (Deficiency Levels 4 and 5) =	43,032
Provided Upgraded Sanitation Facilities =	<u>20,913</u>		
Total Number of Homes Served in 2006 =	24,090		
*CDBG-HUD Community Development Block Grant program			



**Figure 7:** Governor of Santo Domingo Tribe turning on the well pump to send water to the Santo Domingo community for the “first” time.

Six sanitation facilities construction projects are highlighted on the following pages. These projects represent a small fraction of the total construction workload undertaken by the SFC Program. They were selected to illustrate typical cooperative efforts undertaken by IHS, the tribes, and other Federal and state agencies to provide safe water supply, sanitary sewage disposal, and solid waste facilities for American Indian and Alaska Native homes and communities.



**Figure 8:** Water storage tank final inspection in Pojoaque Pueblo, NM.



## Blackfeet Solid Waste Browning, Montana

The Blackfeet Tribe has operated a solid waste disposal facility since the 1970's, when the Tribe took over operation of the Browning landfill from the Town of Browning. The implementation of new rules and regulations since that time has changed the scope of how the Tribe deals with solid waste issues. It was determined that the landfill could not be operated in compliance with the requirements of the Resource Conservation Recovery Act (RCRA), and a decision was made to close the landfill, construct a transfer site for solid waste collection, and dispose of solid waste at RCRA compliant landfills off the reservation.

An IHS project provided the Tribe with a transfer station in 2002. In the Fall of 2005, the Blackfeet Tribe began utilizing the transfer site and hauling the Reservation's solid waste to a RCRA compliant landfill. The IHS, the Bureau of Indian Affairs (BIA), and the Environmental Protection Agency (EPA) have funded several solid waste projects to address the needs of the tribe.



**Figure 9:** Truck purchased by IHS along with trailer to haul compaction containers to RCRA compliant landfill.



**Figure 10:** Lumber mill building was remodeled to become the solid waste transfer site.

Closure of the Browning landfill is underway with the BIA funding phase I, and the IHS initiated a project for phase II. The EPA had previously funded the engineering for the closure. The BIA has provided funding for equipment and IHS constructed the solid waste transfer site and purchased equipment. The Billings Area Tribal Utilities Consultant worked with the Blackfeet Environmental Office to develop an operations plan. USDA also provided funding for the needed equipment through the Integrated Solid Waste Management Interagency Workgroup.

## New Harmony Wastewater Treatment Plant Choctaw, Mississippi

This project started several years ago (1998) with the impetus being replacement of an overloaded wastewater lagoon with a new community wastewater treatment facility. The Mississippi Band of Choctaw Indians (MBCI) is under an administrative order from EPA to replace several of their older wastewater lagoons because they could not meet National Pollutant Discharge Elimination System (NPDES) requirements. The IHS initiated a \$250,000 project and the MBCI committed another \$300,000. An additional \$1,000,000 grant from the United States Department of Agriculture (USDA), State of Mississippi Rural Development (RD) Office was secured for the project several years ago.



Figure 11: Dedication ceremony.

The project execution was delayed due to funding constraints, high open market contractor bid prices and inability to construct the project with tribal construction forces. The IHS negotiated and entered into a Memorandum of Understanding with the USDA State of Mississippi RD in June 2005. A combination of tribal force account and open market procurement utilizing IHS administrative procedures resulted in a cost effective and successful construction of the project in 2006. The final installed facilities included a 125,000 gallon per day package wastewater treatment facility, two 100 gallon per minute wastewater pump stations, and 3,400 liner feet of wastewater force main. The new wastewater treatment facility will provide 425 homes with improved wastewater treatment services and result in improved surface water quality throughout the Pearl River watershed. The IHS Director, Rear Admiral Charles W. Grim, DDS, attended and participated in the dedication ceremony in October 2006. This was the first project dedication ceremony for an SFC project that RADM Grim had attended during his tenure.



Figure 12: Ribbon cutting ceremony including MBCI, USDA, IHS.



## Scattered Water and Wastewater Improvements Muscogee (Creek) Nation, Oklahoma

The Muscogee (Creek) Nation encompasses eight counties in east central Oklahoma. Many tribal members live in scattered rural locations throughout those counties and do not have adequate water supply and wastewater disposal facilities. The SFC staff at the Okmulgee Field Office and the Creek Nation identified 107 homes with inadequate sanitation facilities.

In fiscal year 2005, a project was funded for \$849,000 to serve the 107 homes within the Creek Nation area. Construction permits obtained from the Oklahoma Department of Environmental Quality were required for each onsite wastewater facility and waterline main extension. Construction of the project started in April 2005 and currently is over 65% completed. Much of the work was completed by the Okmulgee Field Office construction personnel. Local state licensed contractors were also utilized. The Okmulgee construction crew is certified by the State of Oklahoma for installation of onsite wastewater systems.

Approximately 70 homes have been provided water and wastewater facilities. A variety of water and wastewater systems were installed depending on the conditions at each site. For wastewater disposal, 30 septic tank and drainfield systems, 6 septic tank and lagoon systems, 25 individual aerobic treatment with sprinkler irrigation systems and 5 connections to community systems were completed.



Figure 13: Okmulgee crew sloping an individual wastewater lagoon.

The water supply facilities installed included 8 new water wells, 7 renovated well systems with pumping and pressure equipment, 21 connections to various community water supplies, and community water main extensions to serve 2 homes. In addition, a cistern system was provided for one home that was too remote from any community water supply and where well drilling failed to produce potable water. Sixteen of the homes that were provided with water and wastewater facilities had substandard interior plumbing. Significant interior plumbing replacement was completed at these homes to allow for use of interior water and sewer facilities. It is anticipated that the project construction will be completed during the spring of 2007.

As the work at each home site is completed, the homeowner is trained in the operation and maintenance of the installed facilities and presented with a manual describing the facilities installed and operation and maintenance.



**Figure 14:** Contractor adjusting sprinkler heads for an individual aerobic wastewater treatment disposal system.



**Figure 15:** Contractor installing sprinkler system for aerobic wastewater system.

The completed facilities are transferred to and owned by the individual homeowners who are responsible for ongoing operation and upkeep. A one year warranty is provided for most of the facilities constructed. A two year warranty, as required by State of Oklahoma regulations, is provided for the individual aerobic treatment and sprinkler irrigation systems.



**Figure 16:** Okmulgee crew member installing a new well house.



## Community Water & Wastewater Improvements Round Valley Indian Tribes, California

The Round Valley Reservation is located in Northern California just north of the small unincorporated town of Covelo in Mendocino County. Approximately, 1,500 Tribal members reside on the Reservation. The Round Valley Indian Tribes (Tribes) and California Area IHS, Division of Sanitation Facilities Construction (SFC) developed several phased community water and wastewater projects funded by the Department of Housing and Urban Development, Indian Community Development Block Grants, the Indian Health Service (IHS), the Tribes, and the Round Valley Indian Housing Authority. Cost for all phases of the water and wastewater work was approximately \$3.2 million.



**Figure 17:** Members of the Round Valley Tribal Force Account during construction of the water system.

The Round Valley Tribes are among a small cadre of California tribes constructing community SFC projects by Tribal Force Account (TFA). For tribes to qualify for the TFA program, they must demonstrate financial, managerial and technical capacity within the tribal government structure. This TFA construction program was created by the Round Valley Tribes and California Area IHS in 2004, and today remains a centerpiece for TFAs in California.



**Figure 18:** Round Valley's Tribal Force Account crews fill in a trench after installing pipe.

The first project undertaken by the TFA crew was to improve water service for the Piner Subdivision – the Tribes' largest public drinking water system serving 80 existing homes with 50 new homes currently under construction.

Water system improvements consisted of drilling a new community well, erecting a new 230,000 gallon water storage tank, renovating a pumphouse, extending 10 and 12-inch water mains, and installation of 103 water meters. To the TFA's credit and as testament to their efficiency, the \$190,000 project was completed on schedule and \$40,000 under budget.

Next, the TFA showed its versatility by undertaking a series of sewer system improvements. The IHS project provided over \$800,000 of sanitation facilities that were complex in scope and included installation of 8,700 feet of sewer force main, a lift station and 2,600 feet of gravity sewer main. The installation of the force and sewer mains were within the Mendocino County Department of Transportation right of way. County officials stated that the TFA construction crew provided a high quality sewer main installation along county roads.

The sewer system improvements improved water quality and increased sewer service reliability for tribal homes. This project replaced an on-site, community wastewater mound disposal system that had failed. Homes that previously relied on on-site wastewater treatment and disposal systems in an area of seasonally high groundwater, no longer experience frequent on-site system failures. The Round Valley Indian Health Clinic also benefitted from the project because it was connected to the community wastewater collection system.

In addition to serving Tribal homes and helping develop the TFA program, the project was a successful collaboration between the IHS SFC and the IHS Division of Facilities Management (DFM) Program. With the addition of DFM funds, a newly constructed Tribal health care facility – the Yuki Trails Transitional Living Center – was connected to the community water source.



**Figure 19:** Round Valley's Tribal Force Account crews work diligently to improve water and wastewater services to the reservation.



## Rincon Water Main Replacement Rincon Band of Luiseno Mission Indians, California

The Rincon Indian Reservation, located in Southern California, is approximately 40 miles north of the city of San Diego in San Diego County. The Band received a \$1.9 million grant from the EPA Border Infrastructure Program to undertake a major renovation of its two community water systems. Prior to this project, the Reservation experienced periodic water shortages, fluctuating system pressures, and insufficient fire suppression capability. The 2003 Cedar Wildfire spread through part of the reservation and underscored the need for fire suppression capacity.



**Figure 20:** Contractors bore beneath a state highway to install 10" waterline.

The project included a well, a pumphouse, water main replacement, and recoating of existing water storage tanks.

The water main replacement was constructed from January to December 2006 and completed for just over \$1 million. Over three miles of water main, primarily 8-inch and 10-inch diameter C900 PVC, were installed.



**Figure 21:** IHS engineer explains an air vacuum release valve to tribal representatives during a final inspection.

This water main replacement involved a successful collaboration between the California Area IHS and an A&E firm. The A&E firm conducted the survey and prepared the construction plans and specifications. IHS primarily performed planning activities, project management, and construction inspection. This project showcases a model for successful partnership between many different entities (EPA, IHS, Rincon Band, A/E firm, contractor). Now that the water main replacement is complete, the Reservation's water systems provide sufficient fire suppression capability and improved water pressure for the community of 300 homes.

## Santa Ysabel Water Storage Tank Santa Ysabel Band of Diegueno Indians, California

The Santa Ysabel Indian Reservation is located in Southern California, about 9 miles south of Warner Springs in northern San Diego County. The IHS initiated a sanitation facilities project and the EPA Border Infrastructure Program contributed to the project. The \$235,000 project was to construct a 115,000-gallon bolted steel water storage tank for its Main Water System.



**Figure 22:** Setting formwork and rebar to pour ringwall foundation for water storage tank.

Prior to the construction of this tank, the Santa Ysabel Reservation depended on three deteriorating water storage tanks with a combined capacity of 140,000 gallons. The existing tanks were significantly rusted and were not constructed to meet seismic codes.

After the new tank is online, the three tanks will be taken offline and abandoned or given alternate use as emergency fire reserve. The new tank will be completed in May 2007.



**Figure 23:** The water storage steel tank.

When the project is complete, the community of 65 existing homes with a population of about 250 people will have improved water storage reliability. Another project funded by the EPA Border Infrastructure Program provided a new well, a treatment plant for removal of iron and manganese, and replacement of nearly all of the Main Water System's water mains. As a result of the successful completion of this project, the community has improved water quality, quantity, pressure, and fire suppression capacity.



## Sanitation Facilities and Health

Protecting the health of and preventing disease among the American Indian and Alaska Native people are primary IHS objectives. The Congress declared in the Indian Health Care Improvement Act (P.L. 94-437, as amended), that "...it is in the interest of the United States that all Indian communities and Indian homes, new and existing, be provided with safe and adequate water supply systems and sanitary sewage waste disposal systems as soon as possible." Citing this policy, the Congress reaffirmed the primary responsibility and authority of the IHS "...to provide the necessary sanitation facilities..." as authorized under P.L. 86-121.



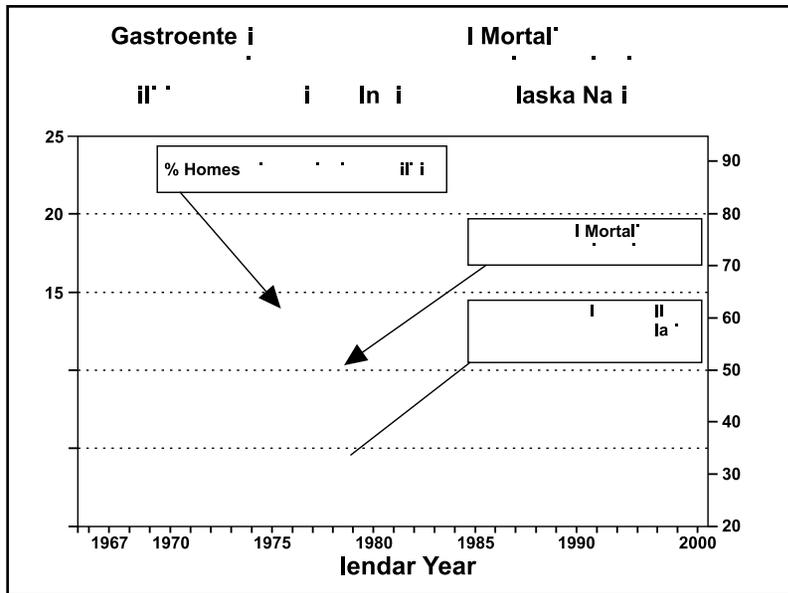
Figure 24: Smoke testing sewer mains at Chitimacha Reservation.

A Report to Congress by the Comptroller General in 1974, noted that American Indian and Alaska Native families living in homes with satisfactory environmental conditions placed fewer demands on IHS' primary health care delivery system.



Figure 25: IHS engineer inspecting the smoke testing which identifies infiltration into the wastewater collection system.

The IHS considers the provision of sanitation facilities to be a logical extension of its primary health care delivery efforts. The availability of essential sanitation facilities is critical to breaking the chain of waterborne communicable disease episodes. Properly designed and operated facilities can reduce the incidence of disease by eliminating waterborne bacteria, viruses, and parasites which cause such illnesses as salmonellosis, typhoid fever, cholera and giardiasis. In addition, many other communicable diseases, including hepatitis A, shigella, and impetigo are associated with the limited hand washing and bathing practices often found in households lacking adequate water supplies. This is particularly true for families that haul water.



**Figure 26:** Graph of gastroenteric and postneonatal death rates versus the percent of Indian homes with potable water.

Several diseases are readily transmitted by contaminated water supplies, and those of greatest importance are infectious hepatitis; typhoid, cholera, and paratyphoid fevers; and dysenteries. In 1955, more than 80 percent of American Indians and Alaska Natives were living in homes without essential sanitation facilities. The age-adjusted gastrointestinal disease death rate for American Indians and Alaska Natives was 15.4 per 100,000 population. This rate was 4.3 times higher than that for all other races in the United States. In 1997, by contrast, the age-adjusted gastrointestinal disease death rate had decreased significantly to 1.8 per 100,000. A major factor in this significant gastrointestinal disease rate reduction is the SFC Program's efforts to construct water supply and waste disposal facilities. The 1997 rate is still 40 percent higher than the rate for all races in the U.S.

The SFC Program is a significant contributor to the improved health status of American Indians and Alaska Natives as clearly indicated by the decrease in the gastrointestinal disease death rate and concurrent increase in life expectancy.

The availability of adequate sanitation facilities has value beyond disease intervention. Safe drinking water supplies and adequate waste disposal facilities are essential preconditions for most health promotion and disease prevention efforts. Consistently and optimally fluoridated drinking water, which can virtually eliminate tooth decay among children, is an example of this public health principle. Efforts by other public health specialists, such as nutritionists and alcoholism counselors, are enhanced if safe drinking water is readily available. Lack of indoor plumbing (sanitation facilities) is a significant risk factor for falls, which are a leading cause of injury related deaths for elders. Home health care nursing services are much more effective when safe water and adequate wastewater disposal systems are in place.



## Program Operations

The SFC Program is part of the IHS Office of Environmental Health and Engineering. The SFC Program's activities are supported by engineers, sanitarians, engineering technicians, clerical staff, and skilled construction workers.

There is an SFC Program in each of the 12 IHS Area Offices. The Program's Headquarters component, located in Rockville, Maryland, assists the Area Offices by establishing policies, providing guidance to ensure consistent and equitable program implementation nationwide, and collaborating with other Federal agencies.

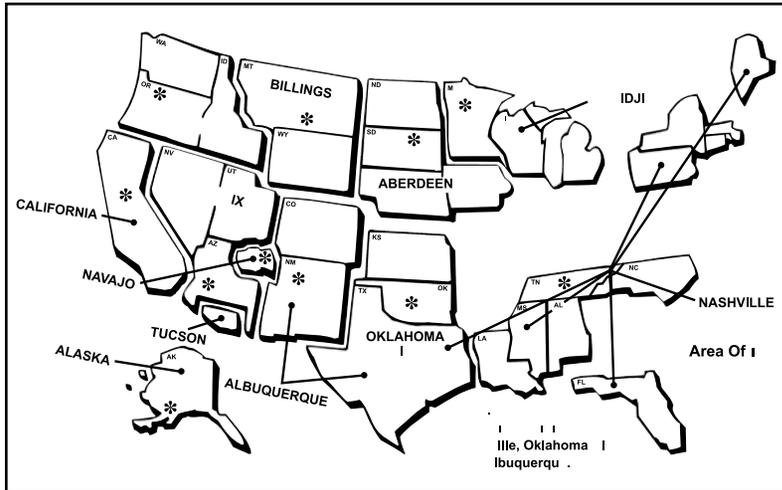


Figure 27: Location of Indian Health Service Area Offices.

The SFC Program works cooperatively with tribes and tribal organizations, tribal housing authorities, and with many governmental agencies, such as HUD, BIA, EPA, and USDA Rural Utility Service toward achieving its sanitation

facilities construction objectives. An example are funds that are transferred by HUD to the IHS for sanitation facilities construction in support of new and renovated HUD homes, typically made available to the SFC Program through tribal entities and Indian housing authorities. Agreements among the tribes, Indian housing authorities, IHS, and HUD enable the transfer of HUD funds to the SFC Program for construction of necessary water and sewer facilities. Congress authorized IHS to accept the HUD contributions.



Figure 28: Construction of individual wells for homes transferred from the US Air Force to the Aroostock Band of Micmac Indians.

Similar agreements among the tribes, IHS, and the EPA Indian Set-Aside (ISA) Program enable the EPA to contribute the ISA wastewater funds to the SFC Program. States do not have jurisdiction on trust lands and, except for Alaska, historically have provided relatively little support to Indian tribes and reservations for the construction of sanitation facilities. The State of Alaska, through its Village Safe Water program, participates in many jointly funded IHS construction projects in Alaska Native communities.



**Figure 29:** Construction of sewage lagoon expansion for Passamaquoddy Tribe.

Sanitation facilities are provided, at the request of federally recognized tribes, bands, or groups, for eligible homes owned and occupied by American Indians and Alaska Natives. Provision of water, wastewater, and solid waste facilities for commercial and industrial purposes is not authorized under P.L. 86-121 and are not addressed by the

SFC Program.

Eligible sanitation facilities projects that are approved for implementation are classified under one of the following categories: 1) projects for essential sanitation facilities for new (non HUD funded) and like-new Indian housing (Housing Support Projects); 2) projects to serve existing homes and communities (Regular Projects); and 3) special/emergency projects.



**Figure 30:** Completed 13 million gallon sewage lagoon for Passamaquoddy Tribe.

**Housing Support Projects** provide sanitation facilities for new homes and homes in like new condition owned by eligible Indian and Alaska Native families. These projects typically serve Indian homes being constructed or rehabilitated by the BIA-HIP, tribes, individual homeowners, or other nonprofit organizations.



**Regular Projects** provide sanitation facilities for existing Indian homes and communities. The SFC Program has established a Sanitation Deficiency System (SDS) for identifying and prioritizing projects to serve homes and communities with unmet water, sewer, and solid waste needs. This system is updated annually, and the information and funding requirements are submitted each year to the Congress in accordance with the requirements of the Indian Health Care Improvement Act. A summary of the inventory of sanitation deficiencies is presented in the following pages.



**Figure 31:** Construction of sewer outfall line for Village of Shungopavi, Hopi Reservation.

**Special/Emergency Projects** provide sanitation facilities for special studies and emergency situations. Emergency projects typically involve community sanitation facilities which have undergone, or are expected to experience, sudden wide-spread failure that will directly affect the public health. Funding for special/emergency projects is very limited and all projects must be approved by the SFC

Program Headquarters Office. The average project funding level is \$20,000 to \$50,000.principle.



**Figure 32:** Completed wastewater lagoon upgrade, Village of Shungopavi.

In addition to providing direct services for the construction of sanitation facilities, the SFC Program provides technical assistance on many issues related to construction and operation and maintenance of sanitation facilities.

Technical assistance, such as reviews of engineering plans and specifications for on-site sanitation facilities for new home construction, is routinely provided to tribes and Indian housing authorities. Technical reviews of feasibility studies and grant proposals are also routinely provided to tribes by the SFC Program for a wide range of civil and sanitation facilities engineering projects related to Indian Housing. The amount or degree of technical assistance provided depends on available resources.

Upon project completion, the facilities constructed under the SFC Program are owned and operated by the tribe, individual homeowner, or other responsible non-Federal entity. The IHS provides technical assistance to the owners of the new sanitation facilities and provides training on proper operation and maintenance of the new facilities. Homeowners who receive individual sanitation facilities are instructed on the proper operation and maintenance of their newly installed wells and/or septic systems, and



**Figure 33: AD-26 media being loaded into Adedge vessels, Chippewa Ranch, where AD-26 media is a manganese dioxide mineral used for oxidation and filtration of iron and manganese.**

tribal operators are instructed on the correct operation and maintenance of community water and sewer facilities. The latter may include training in proper operation and maintenance of chlorination and fluoridation equipment, pumps and motor control systems for community water supply facilities, and proper operation and maintenance of sewage collection systems, lift stations, and wastewater treatment facilities.

The SFC Program also provides technical assistance to tribes in the development of tribal utility organizations for operation, maintenance, and management of community water and sewer facilities. The technical assistance may include development of rate structures to determine appropriate customer water and sewer fees.

As additional and more stringent environmental regulations regarding safe drinking water, sewage treatment and disposal, and solid waste disposal are issued, the IHS will continue providing technical support and consultation on environmentally-related public health issues to American Indian and Alaska Native tribes and individual homeowners.

In cooperation with the Office of Management and Budget (OMB), a Common Measure was developed during 2001 with the Rural Utility Service (RUS), the Bureau of Reclamation (BOR), the Environmental Protection Agency (EPA), and the IHS to allow direct comparisons between rural water programs within the federal government. The Common Measures agreed upon were the number of connections and the population served per million dollars of total project cost. It was recognized that BOR and IHS are direct service programs to a specific population, and EPA and RUS are grant/loan programs that can leverage funding with both of these programs mostly providing strictly upgraded services. The data is reported as east and west, excluding Alaska. The IHS compared favorably having provided 174 and 212 (east and west) services per million dollars compared with the BOR which provided 24 services per million dollars.

In 2002, the Office of Management and Budget conducted an SFC Program review using the Program Assessment Rating Tool (PART). One recommendation was that the Program conduct an independent external evaluation. As a result, the



Program contracted with Federal Occupational Health to conduct the evaluation and the initial report was completed in 2005 and the final Independent Evaluation Report with specific recommendations was published on July 15, 2006. One of those recommendations was that the SFC Program develop and implement a strategic plan.

Beginning in 2005 and continuing through the present, the SFC Program began development of a strategic plan. The SFC Directors from all 12 IHS Areas met three times during 2005 to identify strategic directions for the Program and to define contradictions making moving in those directions difficult. As a result of this high level planning, 10 vision elements were clearly stated. Implementation of those elements is shared between the SFC Directors, the mid-level managers, the operations and maintenance coordinators, and the data system managers.

#### The SFC Vision Elements

1. Relationships with other Federal agencies and states are coordinated to benefit tribal programs.
2. Tribal self-determination decisions are supported and respected.
3. SFC programs are optimally and effectively managed.
4. Formal career development occurs for all SFC staff.
5. SFC staff is customer-service oriented to meet the needs of tribes and participants.
6. Tribal O&M is fully self-sustaining.
7. Technical engineering support is readily available to the SFC Program.
8. SFC construction-oriented procurement is readily available.

9. Formal project management is part of the SFC culture.
10. Technical and administrative data systems are accurate, updated, and readily available.

Implementation workshops were conducted throughout 2006 and as a result 18 vision element teams comprised of 82 people from all IHS Areas, one tribe, and two EPA Regions are currently working on specific vision elements or sub-elements. Three of those teams are scheduled to complete identified milestones by March 2007, seven teams scheduled to complete by December 2007, and two teams scheduled to complete later than December 2007. We anticipate additional planning efforts to follow these initial teams.



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## Sanitation Deficiencies

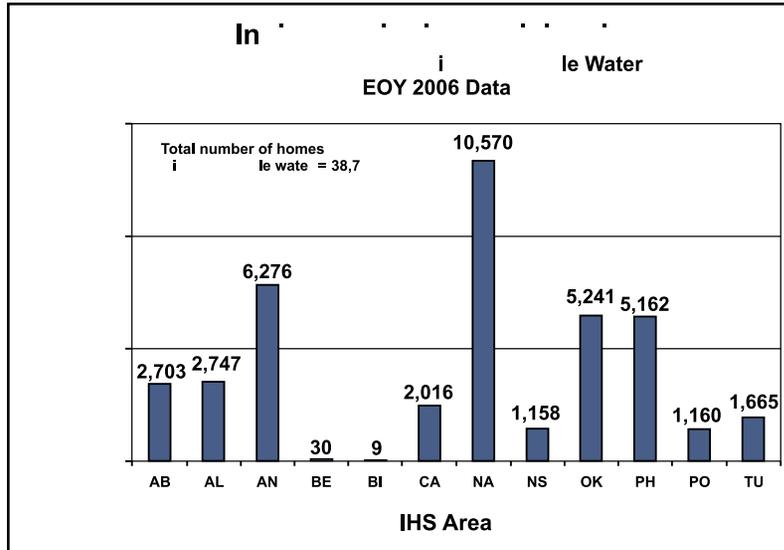


Figure 34: Number of Indian homes without potable water, by Area.

The Indian Health Care Improvement Act (IHCIA) requires the IHS to have a funding plan to provide safe water supply and sewage and solid waste disposal facilities to existing American Indian and Alaska Native homes and communities, and to new and renovated homes. In accordance with those requirements, the SFC Program annually estimates the total need to provide safe and adequate sanitation facilities for American Indian and Alaska Native homes and communities.

Sanitation deficiencies are reported as proposed projects or project phases. The current inventory of sanitation deficiencies identified more than 3,131 sanitation facilities construction projects or project phases at an estimated cost

of \$2.2 billion. These projects represent all unmet needs eligible for IHS funding. However, some projects are prohibitively expensive to construct and/or operate and are considered to be economically infeasible. Currently, 2,300 of the identified projects are considered to be economically feasible with an estimated cost of \$1 billion.

In an effort to reflect the relative impact on health of various water supply, sewage disposal, and solid waste deficiencies to be addressed, sanitation deficiency levels are determined for each project or project phase. The IHCIA defines the following deficiency levels:

**Level I:** The deficiency level describing an Indian tribe or community with a sanitation system that complies with all applicable water supply and pollution control laws, and in which the deficiencies relate to routine replacement, repair, or maintenance needs.

**Level II:** The deficiency level that describes an Indian tribe or community with a sanitation system that complies with all applicable water supply and pollution control laws, and in which the deficiencies relate to capital improvements that are necessary to improve the facilities in order to meet the needs of such tribe or community for domestic sanitation facilities.

**Level III:** The deficiency level that describes an Indian tribe or community with a sanitation system that has an inadequate or partial water supply and a sewage disposal facility that does not comply with applicable water supply and pollution control laws, or has no solid waste disposal.

**Level IV:** The deficiency level that describes an Indian tribe or community with a sanitation system which lacks either a safe water supply system or a sewage disposal system.

**Level V:** The deficiency level that describes an Indian tribe or community that lacks a safe water supply and a sewage disposal system.

The deficiency level assigned to a project is determined by the deficiencies of existing facilities. Projects are divided into phases, as appropriate, to provide logically independent and functional projects that can be funded in one year and which generally address one level of deficiency. Each proposed project or project phase will not necessarily bring the facilities for a community or tribe to level I deficiency or better. However, the combination of all projects reported for each community will bring all facilities to deficiency level I or better.

For several years IHS stated that 7.5% of AI/AN homes were without potable (safe and reliable) water. Based on end of year 2005 data, it is estimated that approximately 12% of AI/AN homes are without a safe and reliable water supply. This increase in the number of AI/AN homes lacking safe water is due to population growth, the age and condition of the existing infrastructure, high numbers of new and like new housing, and new environmental regulations including the arsenic and surface water treatment rules promulgated by the Environmental Protection Agency. The arsenic rule accounts for most of this increase because approximately 65 communities with nearly 13,000 homes are now classified as deficiency level 4, because they lack a safe water supply. In order to meet the IHS strategic goal of raising the percent of AI/AN homes with safe water to 94% by 2015 a significant increase in sanitation project and staff resources are required.

These deficiencies represent an enormous challenge, especially because the resources to meet them are finite. Existing sanitation facilities require upgrading while efforts continue towards providing services to many yet unserved and mostly isolated homes.



**Figure 35:** Boring under the San Poil River using horizontal directional drilling equipment for Keller community waster system improvements, Colville Reservation.

Tables 3 through 8 and corresponding charts illustrate the type, geographic location and associated costs of the sanitation deficiencies.



**TABLE 3**  
**Number of Homes at Each Deficiency Level**  
**by Area**

AREA	LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	TOTAL
AB	1,747	5,025	12,913	2,618	437	22,740
AL	1,065	4,333	6,218	2,923	31	14,570
AN	7,504	2,830	4,700	897	5,934	21,865
BE	11,909	6,968	4,667	130	3	23,677
BI	2,984	5,775	5,507	49	0	14,315
CA	4,290	2,543	2,335	1,931	626	11,725
NA	9,473	5,575	30,495	3,520	7,485	56,548
NS	6,655	3,261	6,579	1,455	60	18,010
OK	64,763	2,625	22,499	5,460	1,083	96,430
PH	5,379	5,742	8,799	4,527	714	25,161
PO	991	6,169	4,937	1,413	10	13,520
TU	0	1,178	2,056	940	786	4,960
<b>TOTAL</b>	<b>116,760</b>	<b>52,024</b>	<b>111,705</b>	<b>25,863</b>	<b>17,169</b>	<b>323,521</b>



<b>TABLE 4</b>			
<b>Number of Homes Requiring Assistance</b>			
<b>by Type of Facility</b>			
<b>AREA</b>	<b>WATER</b>	<b>SEWER</b>	<b>SOLID WASTE</b>
AB	17,004	12,441	14,150
AL	13,139	10,437	4,142
AN	12,278	11,735	5,466
BE	5,930	4,483	7,009
BI	9,596	5,134	5,866
CA	5,468	5,439	4,306
NA	26,934	15,082	36,599
NS	9,580	9,292	8,300
OK	12,684	5,081	20,942
PH	18,359	10,194	13,154
PO	6,232	4,997	8,870
TU	4,955	3,009	4,216
<b>TOTAL</b>	<b>142,159</b>	<b>97,324</b>	<b>133,020</b>



**TABLE 5**  
**Project Cost by Deficiency Level**  
**Feasible Projects**

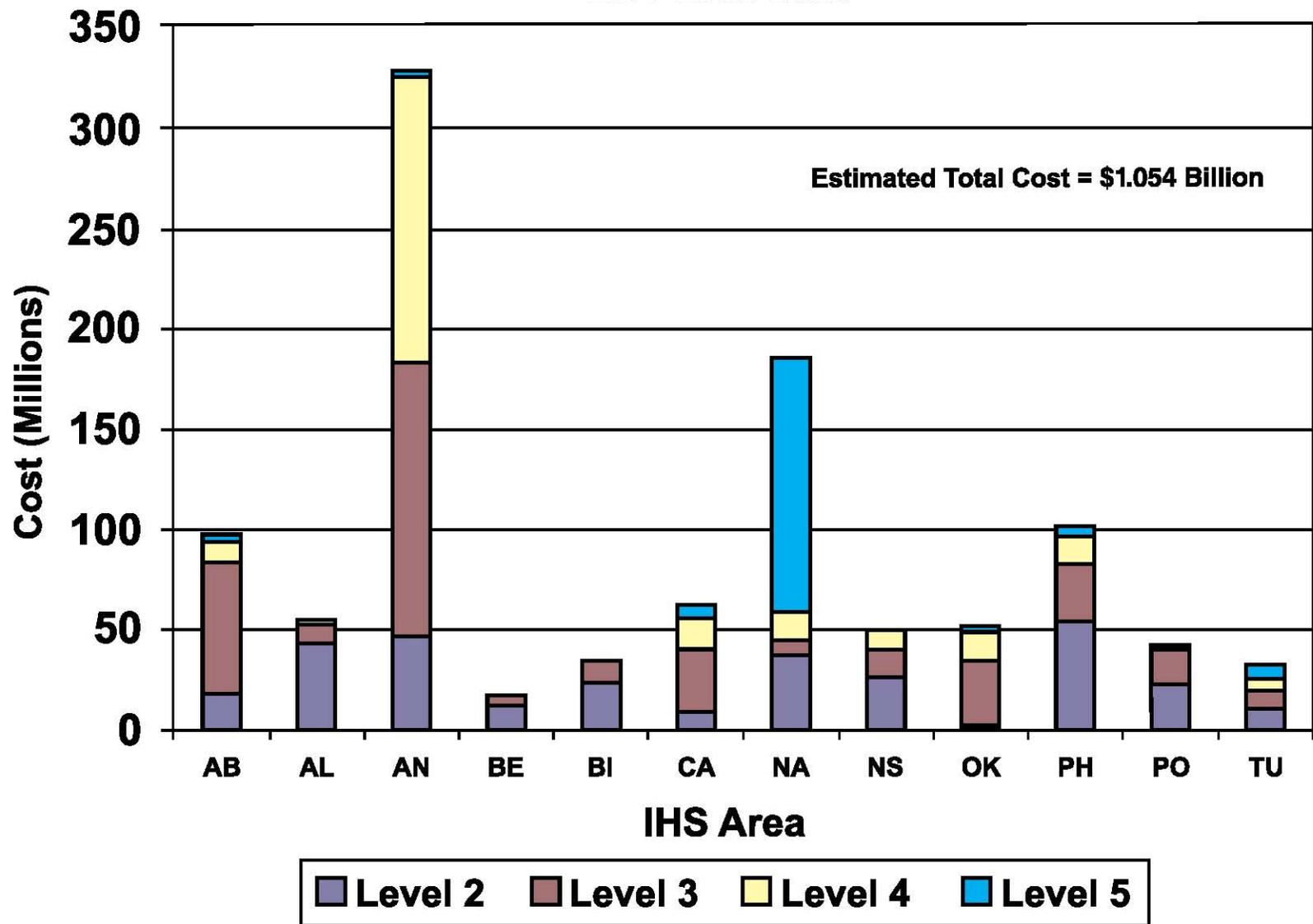
AREA	LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	TOTAL
AB	\$0	\$18,717,646	\$57,569,272	\$16,221,660	\$4,638,500	\$97,147,078
AL	\$0	\$42,354,969	\$9,471,056	\$2,133,800	\$0	\$53,959,825
AN	\$0	\$45,000,127	\$135,788,548	\$139,361,898	\$2,384,422	\$322,534,995
BE	\$0	\$12,069,373	\$6,945,380	\$683,400	\$0	\$19,698,153
BI	\$0	\$19,732,722	\$12,910,380	\$383,050	\$0	\$33,026,152
CA	\$0	\$8,046,380	\$29,848,474	\$17,582,274	\$9,587,500	\$65,064,628
NA	\$0	\$33,099,937	\$10,718,645	\$14,654,679	\$124,948,521	\$183,421,782
NS	\$0	\$22,749,727	\$18,214,428	\$8,029,902	\$0	\$48,994,057
OK	\$0	\$2,239,892	\$30,450,694	\$17,208,822	\$1,625,000	\$51,524,408
PH	\$0	\$53,959,476	\$27,349,351	\$13,632,018	\$6,136,431	\$101,077,276
PO	\$0	\$21,646,660	\$19,767,065	\$1,756,750	\$0	\$43,170,475
TU	\$0	\$7,074,275	\$11,516,200	\$6,877,000	\$9,369,200	\$34,836,675
<b>TOTAL</b>	<b>\$0</b>	<b>\$286,691,184</b>	<b>\$370,549,493</b>	<b>\$238,525,253</b>	<b>\$158,689,574</b>	<b>\$1,054,455,504</b>



# Indian Sanitation Deficiencies

## Cost Estimate for Feasible Projects

### EOY 2006 Data





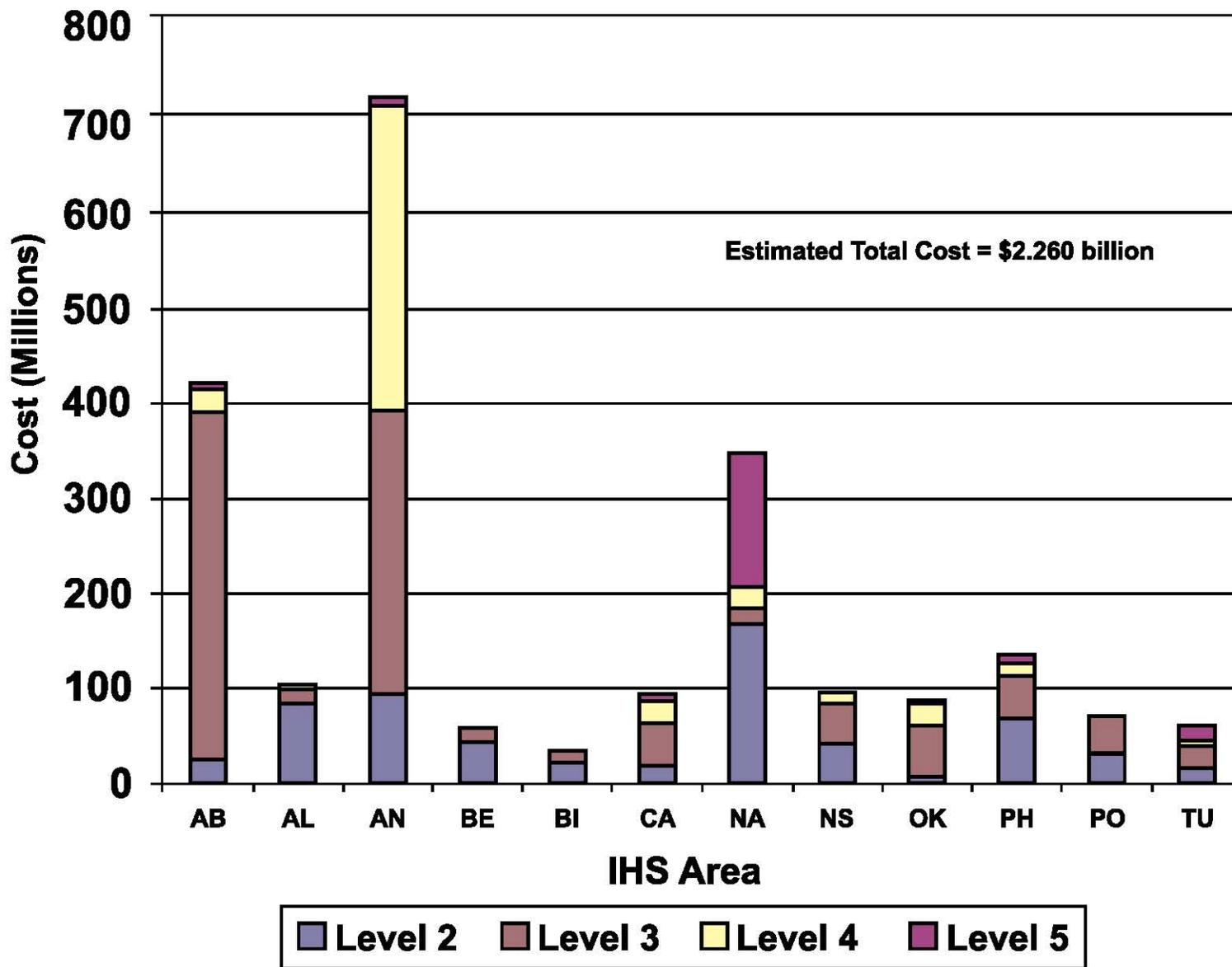
**TABLE 6**  
**Project Cost by Deficiency Level**  
**Total Database**

AREA	LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	TOTAL
AB	\$372,000	\$34,088,646	\$351,550,604	\$31,891,160	\$5,069,500	\$422,971,910
AL	\$3,562,000	\$76,803,269	\$19,542,059	\$5,240,115	\$0	\$105,147,443
AN	\$22,824,504	\$87,878,269	\$295,538,949	\$330,332,240	\$10,159,802	\$746,733,764
BE	\$234,375	\$43,998,193	\$15,819,780	\$2,025,400	\$0	\$62,077,748
BI	\$364,100	\$20,468,222	\$16,994,380	\$383,050	\$0	\$38,209,752
CA	\$100,000	\$14,863,114	\$37,338,124	\$26,383,764	\$9,587,500	\$88,272,502
NA	\$3,829,580	\$168,066,750	\$14,416,645	\$24,056,962	\$138,996,064	\$349,366,001
NS	\$82,000	\$33,970,282	\$44,866,288	\$16,523,756	\$0	\$95,442,326
OK	\$0	\$5,368,892	\$47,422,694	\$23,932,245	\$2,614,000	\$79,337,831
PH	\$15,032,000	\$77,039,629	\$31,714,026	\$15,754,018	\$12,215,480	\$141,755,153
PO	\$0	\$29,544,660	\$39,672,465	\$4,073,950	\$0	\$73,291,075
TU	\$0	\$11,237,275	\$21,163,400	\$7,734,000	\$17,532,200	\$57,666,875
<b>TOTAL</b>	<b>\$36,400,559</b>	<b>\$603,327,201</b>	<b>\$936,039,414</b>	<b>\$488,330,660</b>	<b>\$196,174,546</b>	<b>\$2,260,272,380</b>



# Indian Sanitation Deficiencies

Total Database - EOY 2006 Data





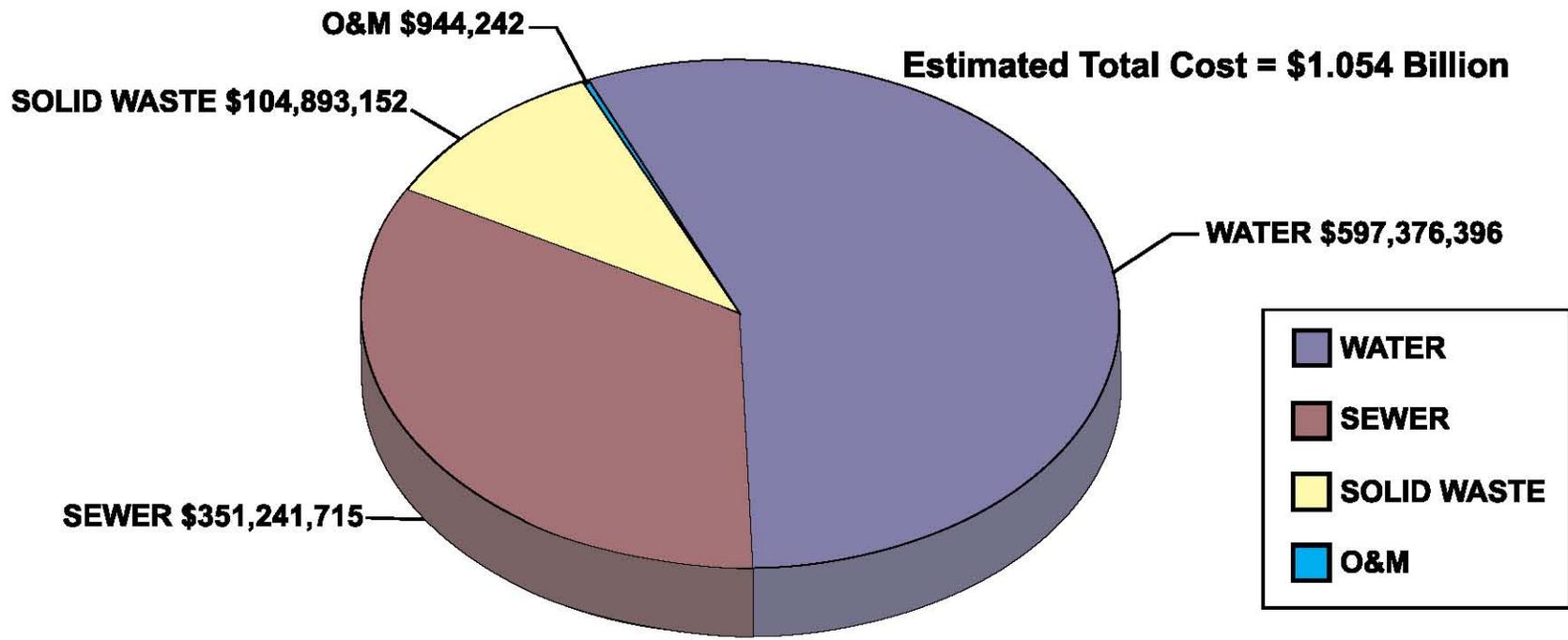
**TABLE 7**  
**Cost Estimates by Type of Needed Facility by IHS Area**  
**Feasible Projects**

AREA	WATER	SEWER	SOLID WASTE	O&M	TOTALS
AN	\$66,057,987	\$15,789,539	\$15,018,672	\$280,880	\$97,147,078
BE	\$34,384,160	\$16,655,765	\$2,854,600	\$65,300	\$53,959,825
BI	\$149,571,189	\$129,145,355	\$43,713,995	\$104,456	\$322,534,995
CA	\$11,073,122	\$6,563,765	\$2,061,266	\$0	\$19,698,153
NA	\$19,375,153	\$10,947,930	\$2,703,069	\$0	\$33,026,152
NS	\$18,957,525	\$41,053,873	\$4,969,230	\$84,000	\$65,064,628
OK	\$115,572,601	\$60,025,120	\$7,824,061	\$0	\$183,421,782
PH	\$28,870,231	\$16,235,186	\$3,868,340	\$20,300	\$48,994,057
PO	\$39,294,260	\$8,873,848	\$3,356,300	\$0	\$51,524,408
TU	\$65,143,777	\$26,362,099	\$9,394,944	\$176,456	\$101,077,276
AB	\$25,687,541	\$10,068,734	\$7,387,200	\$27,000	\$43,170,475
AL	\$23,388,850	\$9,520,500	\$1,741,475	\$185,850	\$34,836,675
<b>TOTAL</b>	<b>\$597,376,396</b>	<b>\$351,241,714</b>	<b>\$104,893,152</b>	<b>\$944,242</b>	<b>\$1,054,455,504</b>



# Current 10-Year Funding Plan to Address Indian Sanitation Deficiencies

## Cost Estimates by Type of Facilities EOY 2006 Data - Economically Feasible Projects



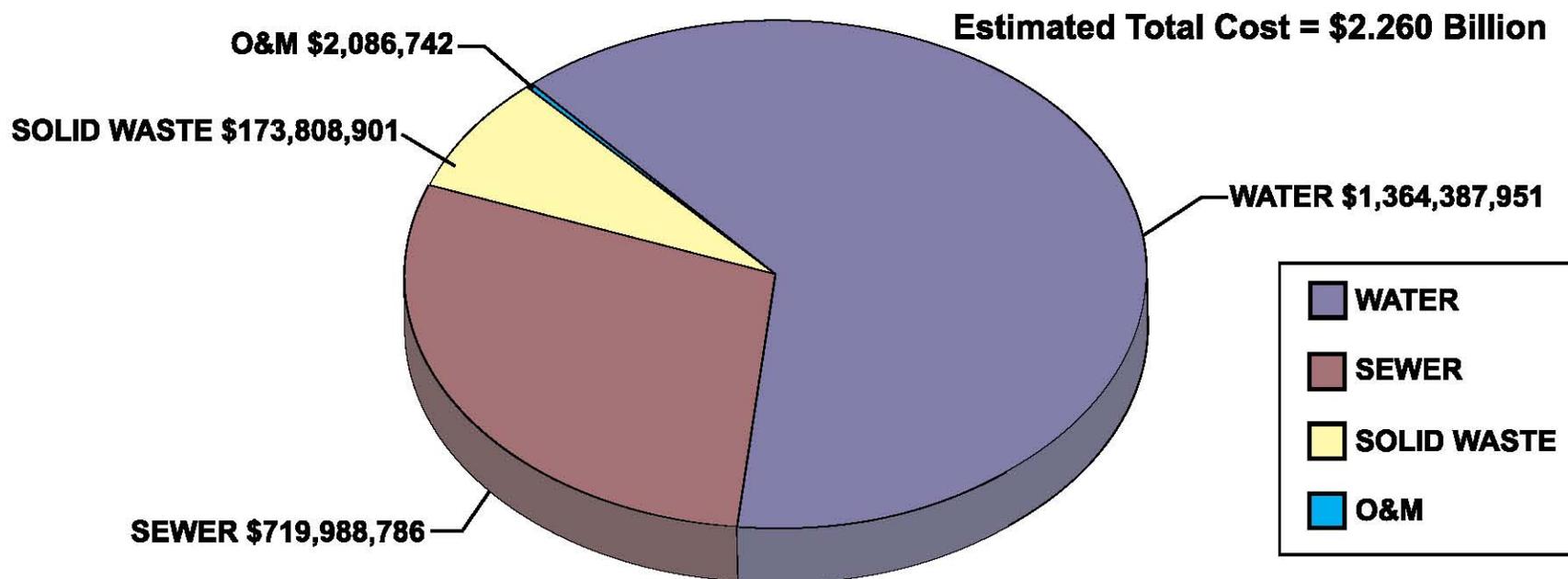


**TABLE 8**  
**Cost Estimates by Type of Needed Facility by IHS Area**  
**Total Database**

AREA	WATER	SEWER	SOLID WASTE	O&M	TOTALS
AB	\$363,471,187	\$39,951,171	\$19,268,672	\$280,880	\$422,971,910
AL	\$59,314,563	\$42,101,980	\$3,665,600	\$65,300	\$105,147,443
AN	\$344,151,007	\$308,348,041	\$94,080,260	\$154,456	\$746,733,764
BE	\$25,994,822	\$32,673,460	\$3,409,466	\$0	\$62,077,748
BI	\$20,833,753	\$14,572,930	\$2,803,069	\$0	\$38,209,752
CA	\$30,663,889	\$48,722,474	\$8,617,139	\$269,000	\$88,272,502
NA	\$264,848,986	\$74,632,954	\$9,884,061	\$0	\$349,366,001
NS	\$41,204,785	\$48,463,401	\$5,697,840	\$76,300	\$95,442,326
OK	\$57,306,208	\$18,607,323	\$3,424,300	\$0	\$79,337,831
PH	\$79,284,460	\$51,564,618	\$10,006,619	\$899,456	\$141,755,153
PO	\$42,618,141	\$21,109,734	\$9,507,200	\$56,000	\$73,291,075
TU	\$34,696,150	\$19,240,700	\$3,444,675	\$285,350	\$57,666,875
<b>TOTAL</b>	<b>\$1,364,387,951</b>	<b>\$719,988,786</b>	<b>\$173,808,901</b>	<b>\$2,086,742</b>	<b>\$2,260,272,380</b>



## Cost Estimates by Type of Facilities EOY 2006 Data - Total Database





## The Challenge Ahead

The ultimate goal of the SFC Program is to provide adequate water and sewer facilities for all existing Indian homes. However, despite current funding levels, there are numerous factors that will continue to create additional sanitation facility needs in the future. These factors include population growth and the corresponding additional need for homes. The number of Indian families is increasing faster than new homes are being constructed, making it especially difficult to meet critical sanitation needs in many Indian communities.

Another factor is the need to upgrade or replace existing sanitation facilities when their useful design life is reached; the IHS began providing water and sewer systems to American Indian and Alaska Native communities over 45 years ago. This factor becomes increasingly critical as existing sanitation facilities become less reliable and the cost of operating and maintaining older sanitation facilities increase. Despite an IHS emphasis on designing systems that are simple and economical to operate and maintain, the reliability of most community water and sewer systems in Indian country needs to be improved. The aging national water and infrastructure needs are documented by the EPA, the Government Accountability Office, and the American Water Works Association.

More stringent environmental standards and more difficult site conditions will challenge the SFC Program as it endeavors to provide needed sanitation facilities in years to come. Standards for public water supply systems, solid waste disposal facilities, and sewage treatment facilities are continually being modified by legislation and regulation.

The impact of these changes is generally most severe on small utility systems such as those serving American Indians and Alaska Natives. As a result of more stringent regulations, small systems will cost more to build and operate.

In the future, the technical and managerial skills of IHS and tribal staff to design, construct, and operate needed sanitation facilities in an environment with more fiscal and regulatory challenges will be tested. A true partnership among the Tribes, the U.S. Congress and the IHS is needed if we are to meet these challenges successfully.



**Figure 36:** IHS employees taking water samples at the Lower Two Medicine reservoir, Blackfeet Reservation, Montana.



## IHS Area SFC Program Directory

Aberdeen Area/DSFC  
115 4th Avenue, Southeast 1  
Aberdeen, SD 57401 1  
Ph. (605) 226-7451 1

Anchorage Area/DSFC 1  
4141 Ambassador Drive 1  
Anchorage, AK 99508-5928 1  
Ph. (907) 729-3540 1

Albuquerque Area/DSFC 1  
5300 Homestead Rd., N.E. 1  
Albuquerque, NM 87110 1  
Ph. (505) 248-4595 1

Bemidji Area/DSFC 1  
104 Minnesota Ave. NW 1  
Bemidji, MN 56601 1  
Ph. (218) 444-0504 1

Billings Area/DSFC 1  
2900 4th Ave. N 1  
Billings, MT 59101 1  
Ph. (406) 247-7096 1

California Area/DSFC 1  
650 Capitol Mall, Suite 7100 1  
Sacramento, CA 95814 1  
Ph. (916) 930-3945 1

Nashville Area/DSFC 1  
711 Stewarts Ferry Pike 1  
Nashville, TN 37214-2634 1  
Ph. (615) 467-1586 1

Navajo Area/DSFC  
P.O. Box 9020 1  
Window Rock, AZ 86515 1  
Ph. (928) 871-5851 1

Oklahoma City Area/DSFC 1  
3625 NW 56th Street, Five Corporate Plaza 1  
Oklahoma City, OK 73112 1  
Ph. (405) 951-3882 1

Phoenix Area/DSFC 1  
Two Renaissance Square 1  
40 North Central Ave., Suite 600 1  
Phoenix, AZ 85004 1  
Ph. (602) 364-5068 1

Portland Area/DSFC  
1220 SW 3rd Avenue, Room 476 1  
Portland, OR 97204-2892 1  
Ph. (503) 326-2001 1

Tucson Area Indian Health Service 1  
7900 South J Stock Road 1  
Tucson, AZ 85746-2508 1  
Ph. (520) 295-2580 1













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