

The Sanitation Facilities Construction Program of the Indian Health Service

Public Law 86-121

# ANNUAL REPORT FOR 2010



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





This Annual Report for Fiscal Year 2010 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:

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# The Sanitation Facilities Construction Program Annual Report for 2010

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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 the passage of 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 51 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 a more open, accurate, and efficient way; this report, prepared annually since 1993, is one means of achieving that goal.







## 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 361,000 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. 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, by the Reorganization Order of January 4, 1988 (52 FR 47053), which elevated the IHS to a Public Health Service (PHS) 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 51 years, the SFC Program continues to provide assistance to the American Indian and Alaska Native people in eliminating 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 engineering, technical, and financial assistance to Indian tribes and Alaska Native villages (tribes) for cooperative development and continued operation of safe water, wastewater, and solid waste systems and related support facilities. In partnership with the tribes, the SFC Program:

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.*



Homeowner Training, 1960's.

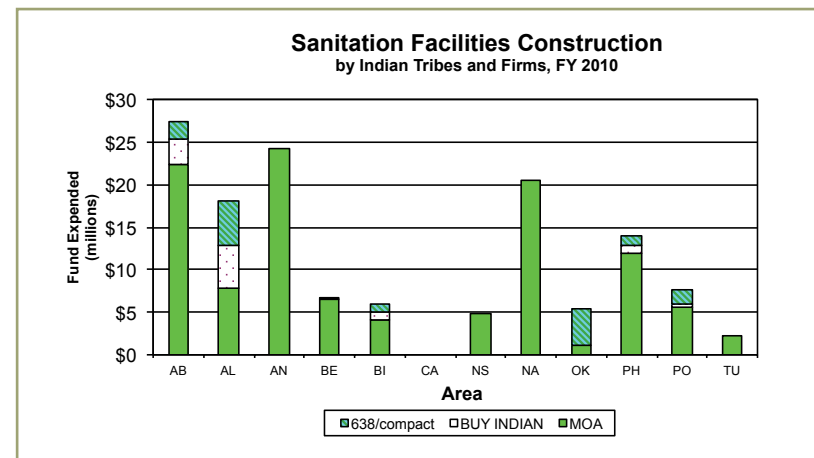


## Tribal Involvement

The SFC Program employs a cooperative approach for providing sanitation facilities to American Indian and Alaska Native communities. During fiscal year (FY) 2010, tribes, tribal organizations or Indian-owned construction firms administered approximately \$136 million in construction funds. Many tribes participated by contributing labor, materials, and administrative support to projects.

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 on the following page).

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.



Funds expended by Indian and Alaska Native tribes and Indian-owned firms in FY 2010, by IHS Area.



Lift station operations and maintenance course offered in Ferndale, Washington.



600,000 gallon pre-stressed concrete water storage, Sandia Pueblo, New Mexico.

<b>TABLE 1</b> <b>Tribes that Managed the SFC Program in FY 2010</b> <b>Under Title I or V of P.L. 93-638, as Amended</b>	
<b>IHS Area</b>	<b>Tribe</b>
Anchorage	Alaska Native Tribal Health Consortium
Billings	Confederated Tribes of Salish & Kootenai (Flathead)
	Rocky Boys (Chippewa-Cree)
California	Hoop Valley Tribe
Nashville	Chitmachia 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	

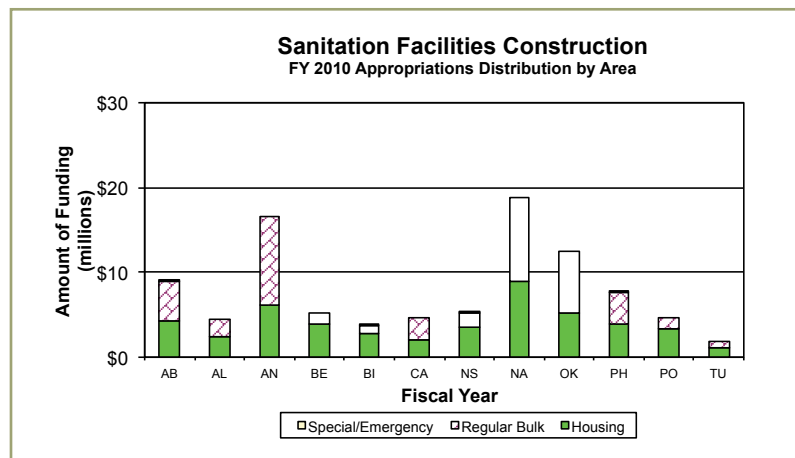




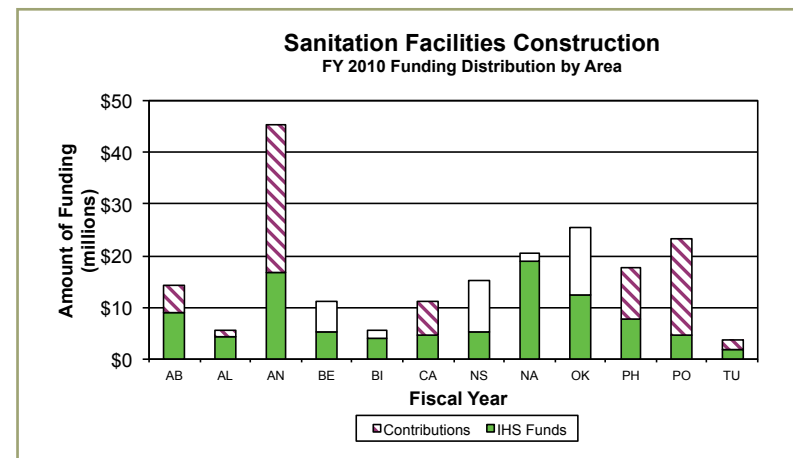
## "The Year" in Review

In FY 2010, over \$95 million was appropriated for the construction of sanitation facilities. In addition to those appropriated funds, the SFC Program received more than \$161 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 \$256 million.

Using the appropriated and contributed funds, the SFC Program initiated 427 projects to provide essential sanitation facilities to an estimated 1,933 new and like-new homes, 2,204 existing first service homes and 14,502 existing homes. The new housing units provided with sanitation facilities included 203 HUD-sponsored units (served with contributed funds), 125 Bureau of Indian Affairs-Home Improvement Program (BIA-HIP) sponsored units, and 1,605 units constructed by tribes, individuals, and other entities. In FY 2010, the SFC Program provided sanitation facilities to a total of 18,639 homes. These statistics are summarized in Table 2 on the following page.



Distribution of SFC Project appropriations, by Area, for FY 2010.



Total distribution of SFC Project funds in FY 2010, including all contributions and HUD funds.



**TABLE 2**  
**IHS Sanitation Facilities Construction Program Statistics for FY 2010**

<b><u>SFC Program Budget:</u></b>		<b><u>Homes Provided Sanitation Facilities since 1959:</u></b>	
IHS SFC Appropriation =	\$95,857,000	● Number of New and Like-New Homes	
HUD Contributions (Housing + CDBG*) =	\$2,236,553	HUD-sponsored Homes =	61,861
Other Contributions =	<u>\$161,739,791</u>	BIA-sponsored Homes =	23,337
Total Funding in FY 2007 =	\$239,711,703	Tribal and Other Homes =	<u>84,021</u>
Total IHS SFC Appropriations since 1959 =	\$2.7 billion	Subtotal	169,221
		● Number of First Service Existing Homes =	<u>123,559</u>
		Total Number of Homes Served =	276,906
<b><u>SFC Projects:</u></b>			
Number of Projects Undertaken in 2010 =	427	<b><u>Sanitation Deficiency System (SDS) Information:</u></b>	
Total Number of Projects Undertaken since 1959 =	14,855	Total Estimated Cost of Sanitation Deficiencies =	\$2.9 billion
		Total Estimated Cost of Feasible Projects =	
<b><u>Homes Provided Sanitation Facilities in FY 2010:</u></b>			
● Number of New and Like-New Homes Served		Total Number of Projects/Phases Identified =	3,439
HUD-sponsored Homes =	204	Number of Feasible Projects Identified =	2,638
BIA-sponsored Homes =	125		
Tribal and Other Homes =	<u>1,605</u>	Estimated Total Number of Existing Homes	
Subtotal	1,934	Without Potable Water =	34,187
● Number of Existing First Service Homes Served =	2,203		
● Number of Previously Served Homes		Estimated Total Number of Homes That Lack	
Provided Upgraded Sanitation Facilities =	<u>14,502</u>	Either a Safe Water Supply or Sewage Disposal	
Total Number of Homes Served in 2007 =	18,639	System, or Both (Deficiency Levels 4 and 5) =	46,392
*CDBG-HUD Community Development Block Grant program			

Twelve 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.



Steel water tank construction, Sweetwater, Arizona.



500k water tank construction, Sweetwater, Arizona.



Completed 500k water tank construction, Sweetwater, Arizona.



Existing lift station.



Renovated lift system.

## Big Bend Lift Station Crow Creek Reservation, South Dakota

The Crow Creek Reservation is located in central South Dakota in the Aberdeen Area IHS. The Big Bend community lift station had problems with the variable frequency drives and the pumps. Both pumps had failed, and the system was operating with a single temporary pump. In addition, the concrete surrounding the lift stations needed to be repaired.

Several alternatives were considered but the renovation alternative was selected. The renovation included two new pumps with new guide rails and electrical drives, new gate valves, new check valves, new concrete pad, wetwell improvements, and access hatch replacement. This project served 24 American Indian homes.



Exterior of the renovated lift station building.



## Gulkana Community Lagoon Gulkana, Alaska

The Gulkana community wastewater was being dumped directly into the Gulkana River without treatment due to cracked septic tanks and and community drainfield failure.

A geotechnical consultant was employed to research the possible failure of the community drainfield and concluded that the site was generally adequate for the siting of the drainfield.



Placement of septic tanks.

The project modified the existing design of the community system and reconstruct the system with a community lagoon and replacement of the two septic tanks. This project served 31 Alaska Native homes.



Removal of soil to complete the lagoon.



Construction to complete the lagoon.



## Laguna Mesita Water Storage Tank Pueblo of Laguna, New Mexico

The old water storage tank, serving the Village of Mesita, was not large enough to meet current storage volume design standards. Water did not circulate properly in the tank due to the location and elevation of the water tank, and it could not hydraulically feed a large part of the community.



Construction of the water distribution line.



Clearing the right of way and rock excavation for the tank.

A new storage tank was built and 5,685 feet of 8-inch PVC waterline was installed to connect the new storage tank to its water source. An altitude valve was installed at the tank inlet to control the tank's filling cycle. The dedicated waterline and separate tank inlet provides a more stable and controlled water system for the community of 210 American Indian homes.



Separate waterline and tank piping.





Soil compaction in the waterline trench.



Right of way for the waterline.

## Lac Du Flambeau Water System Improvements Lac Du Flambeau, Wisconsin

Existing homes throughout the Lac du Flambeau Band of Lake Superior Chippewa Indians needed water system improvements. To address the need 8-inch and 10-inch PE and PVC water main pipe and associated appurtenances were installed to replace a deficient existing water main, to connect dead end water mains on Little Pines Road. To connect the Fence Lake community via directional drilling and open-cut excavation was required.

Over 4,000 feet of 8-inch and 3,400 feet of 10-inch water main pipe were installed. All project funding was provided by the Environmental Protection Agency Safe Drinking Water program. This project served 147 American Indian homes.



Testing the fire hydrant.



The lagoon before the repair



Erosion at the fence of the wastewater lagoon.

## Brockton Lagoon Bank Stabilization Fort Peck Reservation, Montana

The embankment of the existing wastewater lagoon is eroding and several areas are vertical and under cut by the erosion. Wind erosion could wash out the banks during times of high water depths in the cell. In the spring the City of Brockton has to hold water at high levels to ensure that treatment has occurred before discharging in order to meet the NPDES requirements.

There are areas where the dike width has eroded to less than 10' adjacent to a drainage channel and is most susceptible to erosion due to prevailing winds. The lagoon system is adjacent to the Missouri River and may present a threat to downstream individual and community water users. Continued erosion may cause dike failure within 3 years. This project served 94 American Indian homes.



Reconstruction of the embankment.





Solar power generation equipment.



Monitoring equipment inside the pump.

## Yurok Water Monitoring Yurok Tribe of California, California

The project provided water improvements to the Wautec and Weitchpec water treatment systems. The improvements included solar panels with batteries, satellite radio transmitters, monitoring equipment, turbidimeters, pressure transducers, and data loggers. There were also improvements made to the equipment housing. This project served 44 American Indian homes.



4-20mA water level indicator.



Clearing of the right of way for the waterline project.



Construction of the waterline trench.

## Round Rock Waterline Extension Round Rock, Arizona

The Round Rock Chapter of the Navajo Nation requested assistance for waterline extensions to homes in the Round Rock area. This project constructed over 32,000 feet of 4-inch PVC waterline pipe while another IHS project installed 20,000 feet of 2-inch pipe and septic tank/ drainfield systems. This project served 38 American Indian homes.



Installation of a septic tank drainfield system. 1



## Yellowhill Leaking Water Storage Tank Yellowhill Community, North Carolina

The water storage tank located in the Yellowhill community of the Eastern Band of Cherokee Reservations has been leaking since 2005. Several attempts at repairing the leak had failed. It was determined that the only way to fix the leak was to dismantle the water storage tank, remove the foundation, build a new foundation, and re-erect the water storage tank. This project served 1,825 American Indian homes.



Erection of the water storage tank.



Leaking at the water storage tank.



The reconstructed tank and foundation.



## Vance Springs Water Treatment Plant Grandview, Oklahoma

The old Vance Springs water treatment plant was not in compliance with EPA surface water regulations. This was a joint project with the Rural Water District who contributed funds to supplement the ARRA funding.

A new 350,000 gallon per day water treatment system, new backwash lagoons and renovated the spring house were completed using locally hired workers. This project served 154 American Indian homes.



Completed water treatment plant.



Chemical processing tanks inside the water treatment plant.



Compressors inside the water treatment building.



## Whiteriver Surface Water Treatment Plant Fort Apache Indian Reservation, Arizona

This project provided additional EPA funding toward the construction of a surface water treatment plant, including a diversion dam, raw water booster station, raw water transmission main, raw water pre-settling pond, treatment building, two 1 mgd treatment tanks, backwash pumping station, backwash waste lift station, backwash ponds, and a finished water storage tank which also serves as a chlorine contact tank. This project served 1,667 American Indian homes.



Million gallon per day treatment tanks



Diversion dam.



Overall of the completed water treatment plant.



## Lower Elwha Valley Water Storage Lower Elwha Indian Reservation, Washington

The Washington State design standards mandated that a community of the size served by this water system should have a minimum of 132,000 gallons of storage capacity, which is 32% larger than current capacity.



Completed and existing water storage tank.

The IHS provided construction plans, specifications, contract oversight and advisory construction inspection for the new water storage tank. The Tribe constructed the facilities through tribal procurement. The IHS assisted the Tribe to construct a 119,000 gallon water storage tank and appurtenances. This project served 31 American Indian homes.



Concrete pour for the water storage tank.



Construction of the concrete tank.





Existing sewage lift station.



Electrical installation for the sewage lift station.

## Sells Community Sewage Lift Station Tohono O'odham Nation, Arizona

The existing sewage lift station was constructed over 30 years ago and lift station was failing. The metal shell of the lift station was deteriorating and the frequent pump failures resulted in several instances of overflowing sewage.

This project replaced two manholes, a small section of sewer main and rehabilitated one manhole. One of the new manholes will be upstream of the lift station and the other new manhole will serve as the new force main discharge manhole. This project served 66 American Indian homes.



Completed sewage lift station.



## Sanitation Facilities and Health

Protecting the health of and preventing disease among the AI/AN 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.



Cemetery Road pump house on the Fort Hall Indian Reservation, Idaho.



Septic tank and drainfield installation, Chinle, Arizona.

A Report to Congress by the Comptroller General ( "Progress and Problems in Providing Health Services to Indians" 095970, by the Comptroller General, USA, March 11, 1974) , noted that AI/AN families living in homes with satisfactory environmental conditions placed fewer demands on IHS' primary health care delivery 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 the prevention of waterborne and 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 do not have access to safe drinking water.

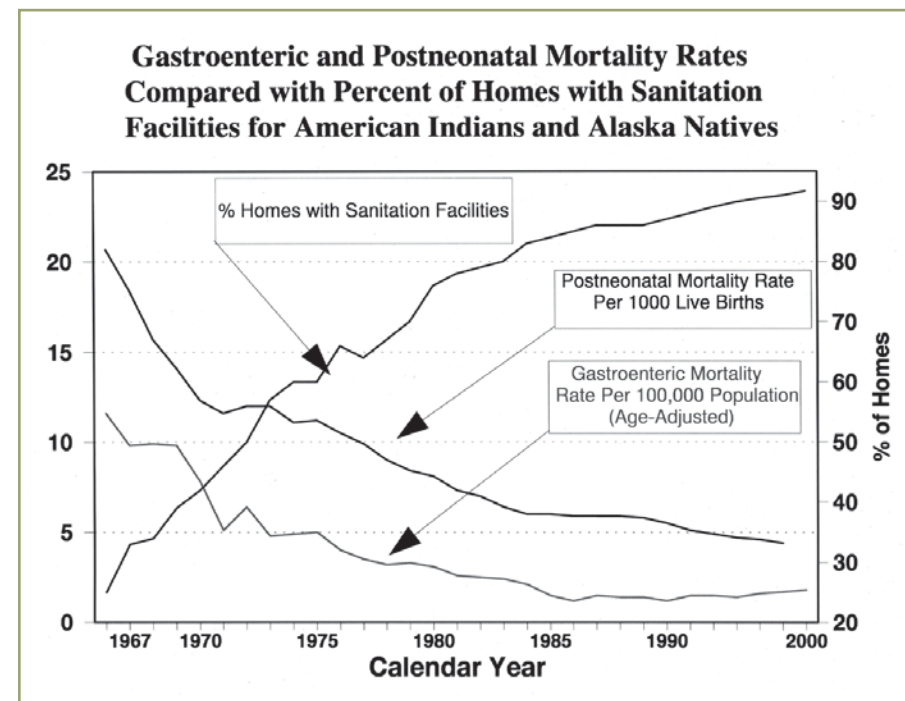




The availability of adequate sanitation facilities has value beyond disease intervention. Safe drinking water supplies and adequate waste disposal facilities are essential preconditions for most health promotion and disease prevention efforts. Consistently and optimally fluoridated drinking water, which 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 elderly people. Home health care nursing services are much more effective when safe water and adequate wastewater disposal systems are in place.

Several diseases are readily transmitted by contaminated water supplies, and those of greatest concern are hepatitis A; 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 2003, by contrast, the age-adjusted gastrointestinal disease death rate had decreased significantly to 0.8 per 100,000. A major factor in this significant gastrointestinal disease rate reduction is the SFC Program's efforts to construct safe water supply and waste disposal facilities. The 2003 rate is now 38 percent lower 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.



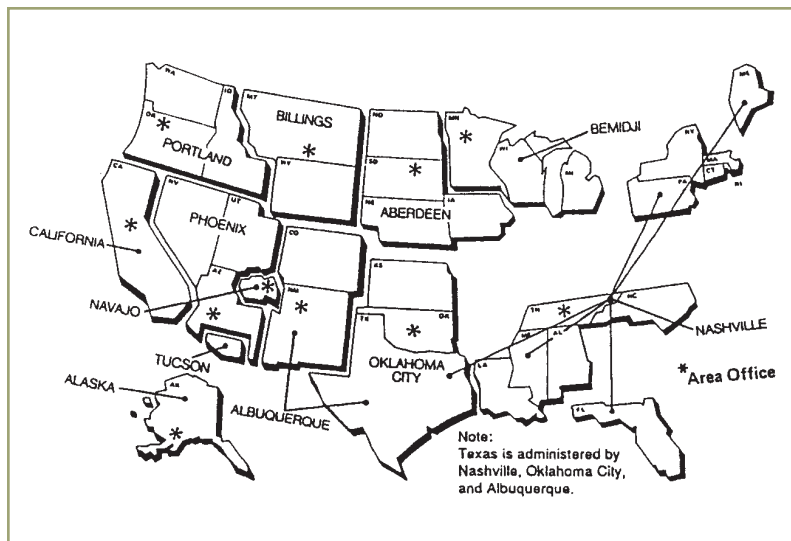
Graph of gastroenteric and postneonatal death rates versus the percent of Indian homes with potable water.



## 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.



Location of Indian Health Service Area Offices.



Altitude valve with flow control installed in the Oljato Chapter, Utah.

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 achieve its sanitation facilities construction objectives. An example of this cooperation is the funds that are transferred from 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.



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.

The SFC Program's efforts to provide sanitation facilities for AI/AN homes and communities benefits to 565 Federally recognized tribes and tribal organizations located in 33 States.



Community water system for the Leech Lake Band of Ojibwe, Minnesota.

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 are not authorized for funding under P.L. 86-121.

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.



14" water distribution line construction in Sweetwater and Red Mesa, Arizona.





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



Construction of a septic tank and drainfield system, Santa Ynez Reservation, California.



Directional road boring for waterline in Rock Point, Arizona.

**Regular Projects** provide sanitation facilities for existing AI/AN homes and communities. The SFC Program has established the 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.

**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 Director, DSFC IHS Headquarters. The average project funding level is \$10,000 to \$50,000. The mean and most frequent project funding over the last five years is about \$40,000 and \$10,000 respectively.



In addition to providing direct services for the construction of sanitation facilities, resources permitting, 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 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 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.



Precast booster pump station, Burnt Corn, Arizona.

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 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 AI/AN tribes and individual homeowners.



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 identify barriers that make 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.



### **American Recovery and Reinvestment Act of 2009**

The Sanitation Facilities Construction (SFC) Program received \$68 million from the American Recovery and Reinvestment Act of 2009 (ARRA) to provide essential sanitation facilities to the backlog of existing AI/AN homes. The IHS also received ARRA funds through the Environmental Protection Agency (EPA) (\$30 million in Safe Drinking Water Act (SDWA) and \$60 million in Clean Water Act (CWA) ) to provide essential sanitation facilities to the backlog of existing AI/AN homes. These funds will provide essential water and sewer facilities to about 16,000 AI/AN homes with IHS appropriated funding and estimated 30,000 homes overall.

The ARRA funds will be used to construct essential sanitation facilities including water supply, sewage, and solid waste disposal facilities to American Indian and Alaska Native (AI/AN) homes and communities. Funds

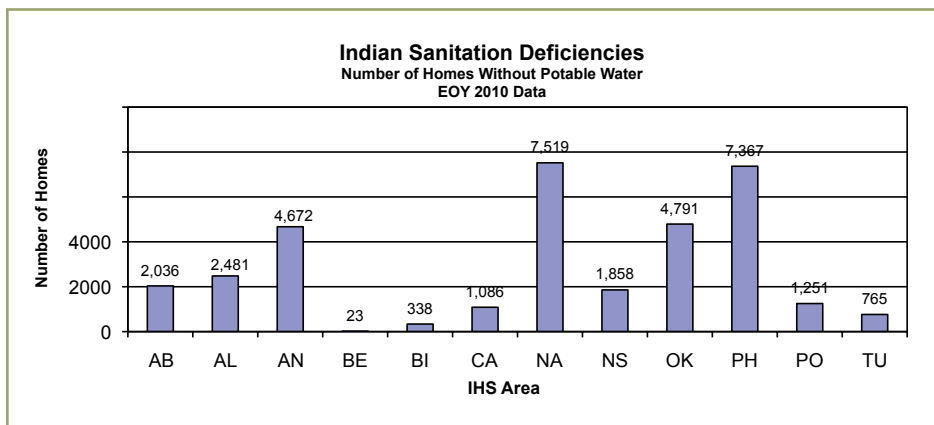
were distributed to the 12 IHS Areas based on relative need considering both the dollar amount of sanitation need and the sanitation need measured in the number of homes lacking facilities. The projects within each Area are prioritized to serve existing homes, based on an established formula that considers, among other factors, health impact, cost effectiveness, and ability to expeditiously complete the projects. Projects were executed using a combination of Public Law (P.L.) 86-121 Memorandum of Agreement (MOA) utilizing federal construction contracts, tribal procurement or tribal construction and Indian self-determination (P.L. 93-638) construction project agreements. Sanitation Facilities Construction (SFC) projects can be managed by the IHS directly (Direct Service) or they can be managed by Tribes that elect to use Title I or Title V authorization under P.L. 93-638, the Indian Self-Determination and Education Assistance Act. The overall SFC goals, eligibility criteria, and project funding priorities remain the same, regardless of the delivery methods chosen by a Tribe.



Some of the field staff at the Chinle/Many Farms, Arizona office.



## Sanitation Deficiencies



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 AI/AN 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 AI/AN homes and communities.

Sanitation deficiencies are reported as proposed projects or project phases. The current inventory of sanitation deficiencies identified more than 3,400 sanitation facilities construction projects or project phases at an estimated cost of \$2.97 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, 2,638 of the identified projects are considered to be economically feasible with an estimated cost of \$1.45 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 deficiency being resolved by the project. 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 2010 data, it is estimated that approximately 9% 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 accounted for most of this increase because approximately 65 communities with nearly 13,000 homes were classified as deficiency level 4, because they lacked 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.



24" Road bore under I-25 for the Sandia Pueblo, New Mexico.

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	987	3,885	13,430	4,452	318	23,072
AL	494	3,987	5,177	6,002	264	15,924
AN	822	479	11,051	987	4,059	17,398
BE	20,837	7,005	6,484	259	2	34,587
BI	1,725	7,622	4,508	566	3	14,424
CA	4,508	2,658	3,445	2,094	394	13,099
NA	11,350	3,714	36,418	1,781	6,249	59,512
NS	6,902	5,493	7,268	1,920	11	21,594
OK	98,967	2,494	28,171	6,101	628	136,361
PH	4,056	7,636	6,204	6,757	915	25,568
PO	1,103	6,498	5,671	1,308	522	15,102
TU	69	1,063	3,119	633	167	5,051
TOTAL	151,820	52,534	130,946	32,860	13,532	381,692



**Table 4**  
**Number of Homes Requiring Assistance**  
**by Type of Facility**

AREA	WATER	SEWER	SOLID WASTE	ELIGIBLE HOMES
AB	17,153	15,789	20,202	53,144
AL	14,831	11,764	8,519	35,114
AN	14,331	13,157	12,496	39,984
BE	6,562	6,304	9,896	22,762
BI	9,666	5,925	7,898	23,489
CA	6,730	6,855	4,729	18,314
NA	27,973	14,006	37,594	79,573
NS	12,635	12,009	10,059	34,703
OK	19,181	7,747	18,805	45,733
PH	18,599	13,928	15,403	47,930
PO	7,604	6,960	10,357	24,921
TU	3,809	1,783	4,421	10,013
TOTAL	159,074	116,227	160,379	435,680



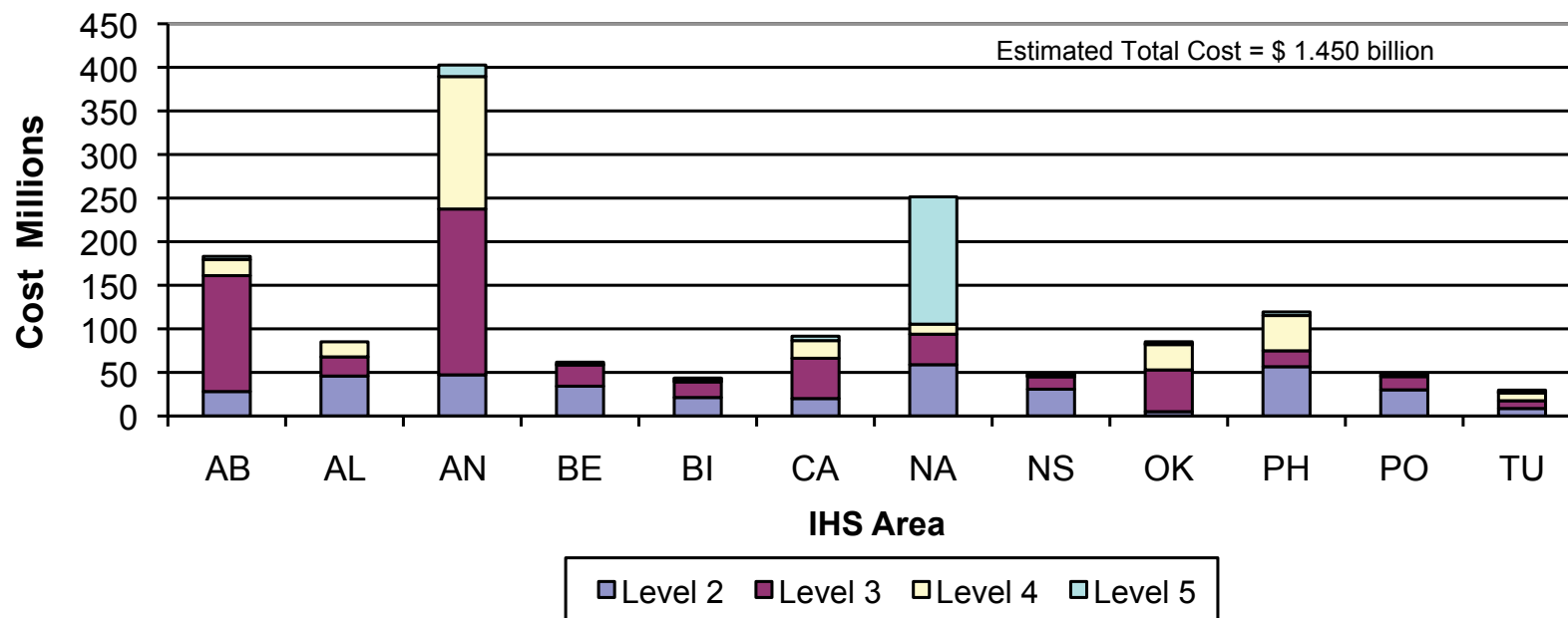
**Table 5**  
**Project Cost by Deficiency Level**  
**Feasible Projects**

AREA	LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	TOTAL
AB	\$0	\$28,092,764	\$132,955,082	\$18,318,920	\$3,782,000	\$183,148,766
AL	\$0	\$45,861,071	\$21,951,725	\$17,312,000	\$0	\$85,124,796
AN	\$0	\$47,227,716	\$190,248,369	\$151,967,141	\$13,226,317	\$402,669,543
BE	\$0	\$34,208,806	\$25,364,340	\$2,183,400	\$0	\$61,756,546
BI	\$0	\$21,244,207	\$17,871,610	\$4,290,818	\$42,274	\$43,448,909
CA	\$0	\$20,046,038	\$46,199,683	\$20,255,898	\$5,064,000	\$91,565,619
NA	\$0	\$58,861,852	\$35,009,929	\$11,507,857	\$146,063,731	\$251,443,369
NS	\$0	\$30,767,877	\$15,950,010	\$1,596,500	\$278,000	\$48,592,387
OK	\$0	\$5,008,801	\$47,861,914	\$30,431,651	\$1,887,000	\$85,189,366
PH	\$0	\$56,561,260	\$18,266,175	\$40,435,927	\$4,135,629	\$119,398,991
PO	\$0	\$30,030,417	\$16,421,622	\$1,948,982	\$0	\$48,401,021
TU	\$0	\$8,637,100	\$8,878,000	\$10,748,000	\$1,432,300	\$29,695,400
<b>TOTAL</b>	<b>\$0</b>	<b>\$386,547,909</b>	<b>\$576,978,459</b>	<b>\$310,997,094</b>	<b>\$175,911,251</b>	<b>\$1,450,434,713</b>



## Indian Sanitation Deficiencies

Cost Estimate for Feasible Projects  
EOY 2010 Data



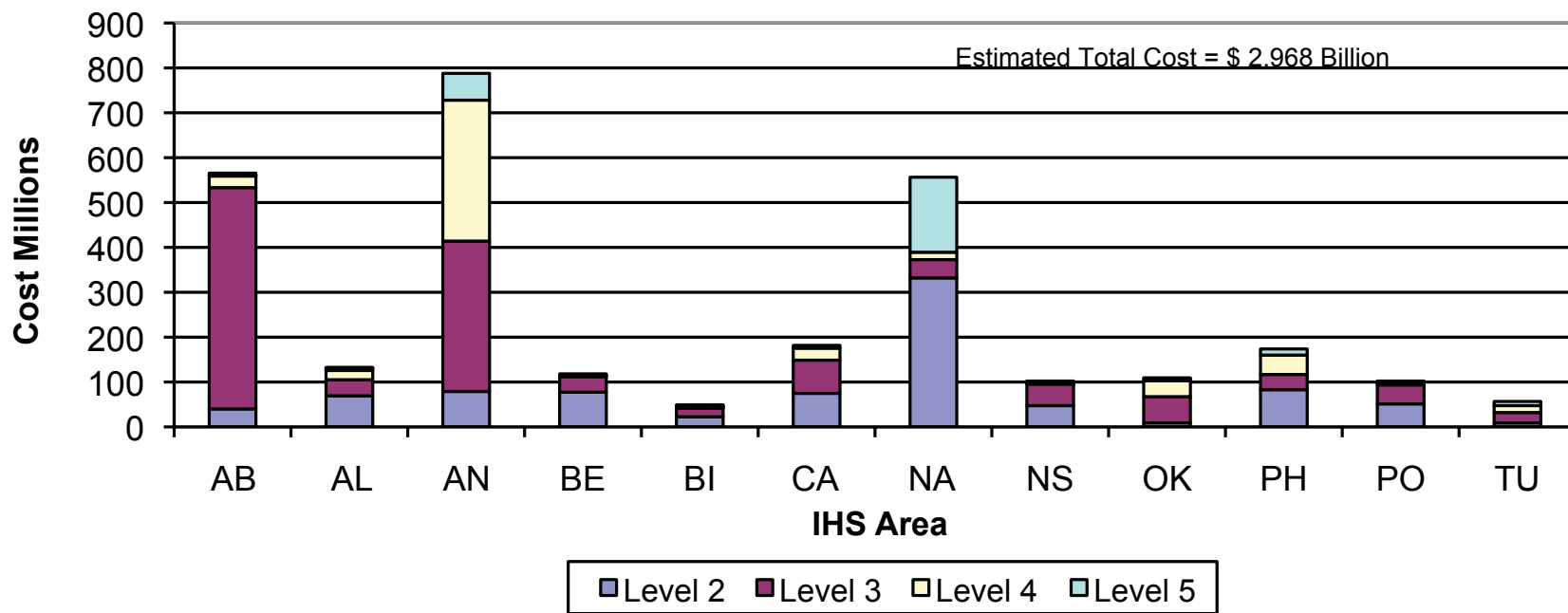


**Table 6**  
**Project Cost by Deficiency Level**  
**Total Database**

AREA	LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	TOTAL
AB	\$1,995,000	\$40,138,764	\$493,123,612	\$28,227,920	\$3,992,000	\$567,477,296
AL	\$3,020,000	\$69,334,071	\$35,908,203	\$26,946,000	\$227,000	\$135,435,274
AN	\$12,613,133	\$79,013,610	\$335,128,535	\$313,967,289	\$59,784,926	\$800,507,493
BE	\$551,000	\$77,382,371	\$38,689,040	\$2,183,400	\$0	\$118,805,811
BI	\$894,500	\$22,587,554	\$19,992,187	\$6,114,969	\$42,274	\$49,631,484
CA	\$495,000	\$74,808,397	\$73,999,249	\$27,873,177	\$5,064,000	\$182,239,823
NA	\$5,713,915	\$331,998,393	\$40,842,363	\$16,405,857	\$167,187,237	\$562,147,765
NS	\$27,000	\$47,396,877	\$52,935,084	\$1,596,500	\$278,000	\$102,233,461
OK	\$115,400	\$9,032,801	\$58,378,914	\$39,185,481	\$2,787,700	\$109,500,296
PH	\$6,402,864	\$82,967,636	\$33,890,175	\$43,207,517	\$13,651,178	\$180,119,370
PO	\$640,000	\$51,292,917	\$42,318,456	\$8,422,053	\$185,900	\$102,859,326
TU	\$0	\$8,977,100	\$23,125,400	\$15,306,000	\$9,363,600	\$56,772,100
<b>TOTAL</b>	<b>\$32,467,812</b>	<b>\$894,930,491</b>	<b>\$1,248,331,218</b>	<b>\$529,436,163</b>	<b>\$262,563,815</b>	<b>\$2,967,729,499</b>

## Indian Sanitation Deficiencies

Total Database - EOY 2010 Data

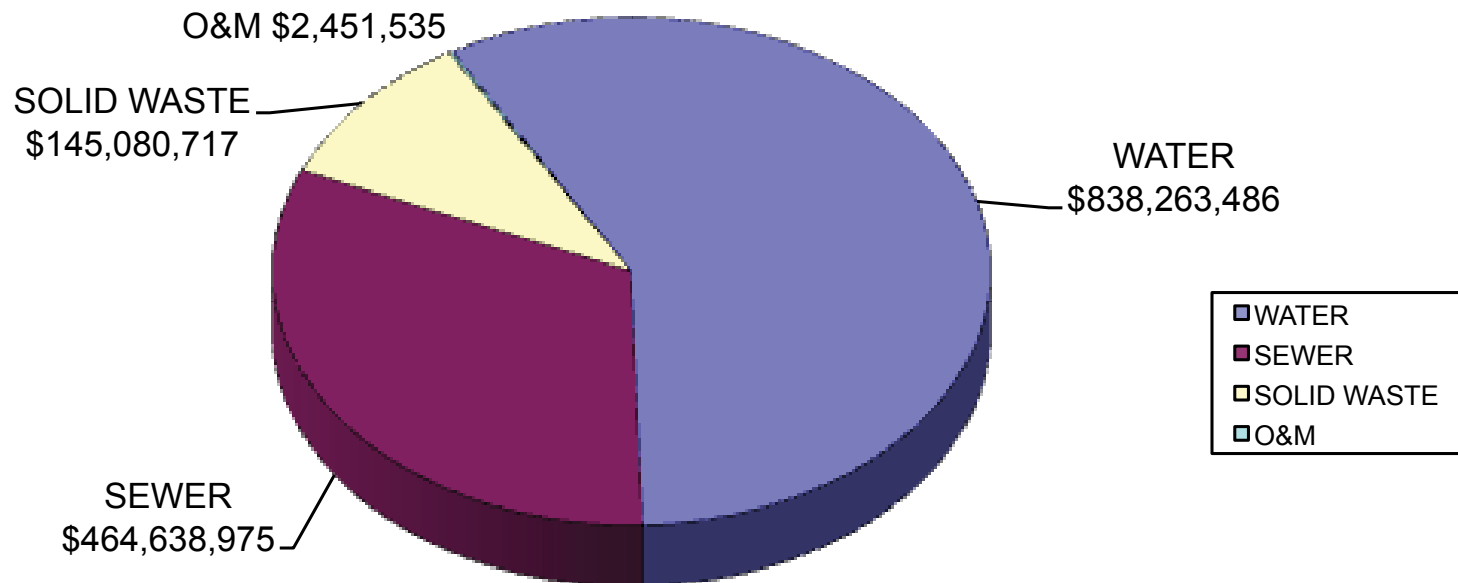




**Table 7**  
**Cost Estimates by Type of Needed Facility by IHS Area**  
**Feasible Projects**

AREA	WATER	SEWER	SOLID WASTE	O&M	TOTALS
AN	\$135,629,301	\$30,126,301	\$17,268,164	\$125,000	\$183,148,766
BE	\$46,195,866	\$34,026,930	\$4,902,000	\$0	\$85,124,796
BI	\$208,033,200	\$138,816,745	\$55,086,098	\$733,500	\$402,669,543
CA	\$29,658,710	\$25,372,839	\$6,724,997	\$0	\$61,756,546
NA	\$21,859,707	\$18,666,117	\$2,917,085	\$6,000	\$43,448,909
NS	\$37,406,931	\$46,861,722	\$6,976,366	\$320,600	\$91,565,619
OK	\$143,999,821	\$89,043,831	\$18,399,717	\$0	\$251,443,369
PH	\$31,852,334	\$13,641,448	\$3,056,305	\$42,300	\$48,592,387
PO	\$55,933,945	\$23,566,748	\$5,552,273	\$136,400	\$85,189,366
TU	\$77,692,149	\$29,624,656	\$11,532,751	\$549,435	\$119,398,991
AB	\$23,295,122	\$13,470,638	\$11,494,261	\$141,000	\$48,401,021
AL	\$26,706,400	\$1,421,000	\$1,170,700	\$397,300	\$29,695,400
TOTAL	\$838,263,486	\$464,638,975	\$145,080,717	\$2,451,535	\$1,450,434,713

## Current 10 - Year Funding Plan to Address Indian Sanitation Deficiencies Cost Estimates by Type of Facilities EOY 2010 Data - Economically Feasible Projects



Estimated Total Cost = \$ 1.450 billion

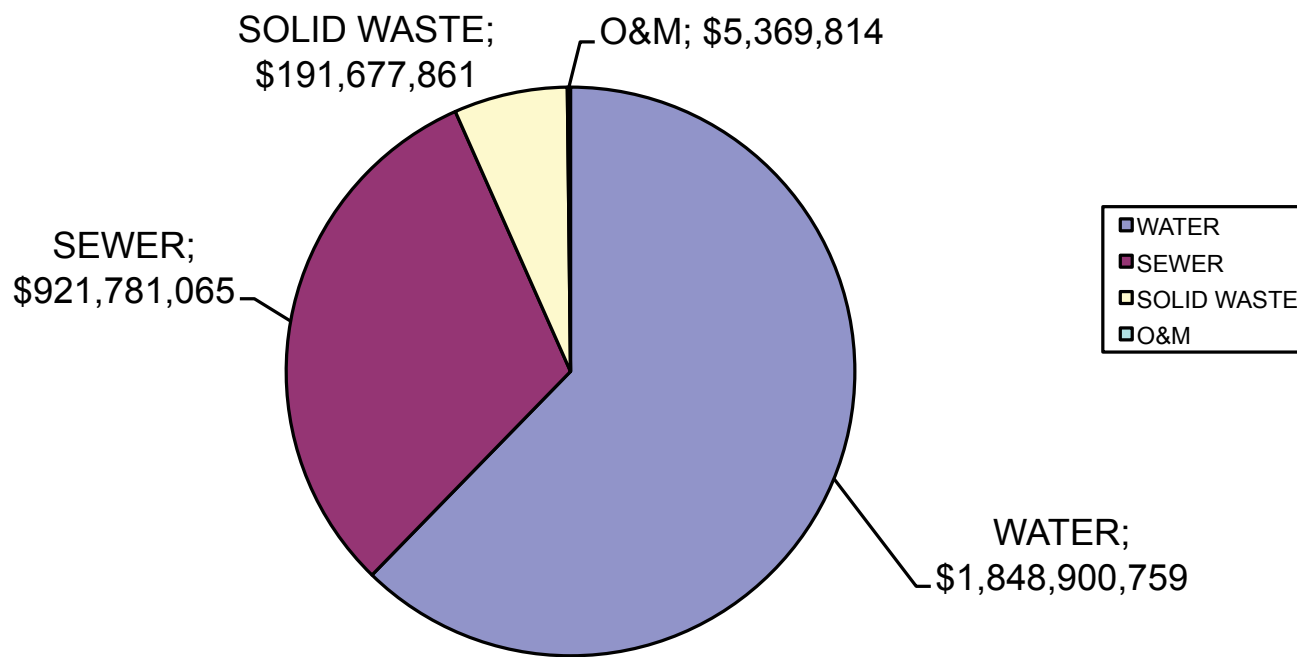




**Table 8**  
**Cost Estimates by Type of Needed Facility by IHS Area**  
**Total Database**

AREA	WATER	SEWER	SOLID WASTE	O&M	TOTALS
AB	\$498,039,631	\$50,433,501	\$18,879,164	\$125,000	\$567,477,296
AL	\$61,095,344	\$67,517,930	\$6,822,000	\$0	\$135,435,274
AN	\$410,316,156	\$300,081,070	\$87,774,888	\$2,335,379	\$800,507,493
BE	\$47,161,535	\$64,875,779	\$6,724,997	\$43,500	\$118,805,811
BI	\$26,979,205	\$19,207,194	\$3,439,085	\$6,000	\$49,631,484
CA	\$68,942,551	\$103,136,852	\$8,974,820	\$1,185,600	\$182,239,823
NA	\$421,393,967	\$122,354,081	\$18,399,717	\$0	\$562,147,765
NS	\$42,545,608	\$54,719,748	\$4,885,805	\$82,300	\$102,233,461
OK	\$69,874,775	\$33,912,848	\$5,552,273	\$160,400	\$109,500,296
PH	\$110,594,094	\$57,043,090	\$11,642,751	\$839,435	\$180,119,370
PO	\$51,090,193	\$35,104,872	\$16,494,261	\$170,000	\$102,859,326
TU	\$40,867,700	\$13,394,100	\$2,088,100	\$422,200	\$56,772,100
<b>TOTAL</b>	<b>\$1,848,900,759</b>	<b>\$921,781,065</b>	<b>\$191,677,861</b>	<b>\$5,369,814</b>	<b>\$2,967,729,499</b>

### Cost Estimates by Type of Facilities EOY 2010 Data - Total Database



Estimated Total Cost = \$ 2.968 Billion



## 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 AI/AN communities over 51 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.



Alaska native youth in Pitkas Point, Alaska  
- the future generation.



## IHS Area SFC Program Directory

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Anchorage, AK 99508-5928  
Ph. (907) 729-3711

Albuquerque Area/DSFC  
5300 Homestead Rd., N.E.  
Albuquerque, NM 87110  
Ph. (505) 248-4600

Bemidji Area/DSFC  
522 Minnesota Ave. NW  
Bemidji, MN 56601  
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Billings Area/DSFC  
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Billings, MT 59107  
Ph. (406) 247-7096

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Ph. (916) 930-3945

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