The Sanitation Facilities Construction Program of the Indian Health Service

Public Law 86-121 Annual Report for 2001

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

This Annual Report for Fiscal Year (FY) 2001 was produced by the Indian Health Service (IHS) Sanitation Facilities Construction (SFC) Program to make available, in a concise format, frequently requested information about the Program. Additional information can be obtained by writing to the following address:

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We wish to acknowledge the IHS Aberdeen, Billings, Nashville, Phoenix, and Tucson Area offices for their contribution to this report.

Website: www.dsfc.ihs.gov

The Sanitation Facilities Construction Program Annual Report for 2001

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Preface

The Indian Health Service (IHS) Sanitation Facilities Construction (SFC) Program continuously endeavors to identify and report the eligible sanitation needs of American Indians and Alaska Natives and in cooperation with tribal governments, to carry out a program to meet those needs. Those needs are summarized in this report as well as some of the accomplishments of the Program in fiscal year (FY) 2001. 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 Alaskan villages to Florida and from Maine to California. The five projects highlighted in this report illustrate the typical SFC Program efforts in addressing these specific challenges.

Since the passage of Public Law 86-121 in 1959, the SFC Program works in partnership with tribal governments to construct essential sanitation facilities. As a result of more than four decades of cooperative efforts, many tribes developed the administrative and technical capability to construct their own sanitation facilities with engineering support from IHS. In FY 2001, approximately 65 percent of all the SFC Program's construction work, $87 million in construction funds, was accomplished by either tribes, tribal organizations or Indian-owned construction firms. As in previous years, a number of tribes continue to assume responsibility for their respective SFC programs, while IHS SFC Program managers continue to work with tribes and others to support the tribal Self-Governance/Self-Determination decision making process under the expanded authorities of Public Law 93-638, 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.

The Sanitation Facilities Construction Program

Introduction

On July 31, 1959, Public Law (P.L.) 86-121 was signed by President Eisenhower. The passage of P.L. 86-121 was a milestone in Indian health legislation and lead to the creation of the Sanitation Facilities Construction (SFC) Program within the Indian Health Service (IHS).

P.L. 86-121 authorizes the SFC Program to provide essential water supply and sewage and solid waste disposal facilities for American Indian and Alaska Native homes and communities. From 1959 through 2001, approximately $1.8 billion were appropriated for the construction of essential sanitation facilities for American Indians and Alaska Natives. Those appropriations, plus over $529 million in contributions from other Federal and State agencies and tribal governments, funded 10,583 sanitation facilities construction projects that provided water, sewer and/or solid waste disposal facilities for over 249,000 American Indian and Alaska Native homes.

In the year 2001, 456 sanitation facilities construction projects provided first-time services to 5,197 homes and sanitation facilities upgrades for another 12,805 homes.

The SFC Program is unique among Federal programs because P.L. 86-121 mandated consultation with tribal governments and encouraged tribal participation in carrying out its activities. Today, IHS employees work cooperatively with tribal personnel 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 will result 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 the past 40 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 this mission, the IHS provides comprehensive primary and preventive health services. The SFC Program is the IHS' environmental engineering component. It provides 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:

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 the Congress.

2.Provides environmental engineering assistance with utility master planning and sanitary surveys.

3.Develops multi-agency funded sanitation projects; accomplishes interagency coordination, assistance with grant applications, and leveraging of 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) 2001, tribes, tribal organizations or Indian-owned construction firms administered and/or expended approximately $87 million in SFC Program construction funds (approximately 65 percent of all SFC construction expenditures). Also, many tribes participate by contributing labor, materials, and administrative support to projects.

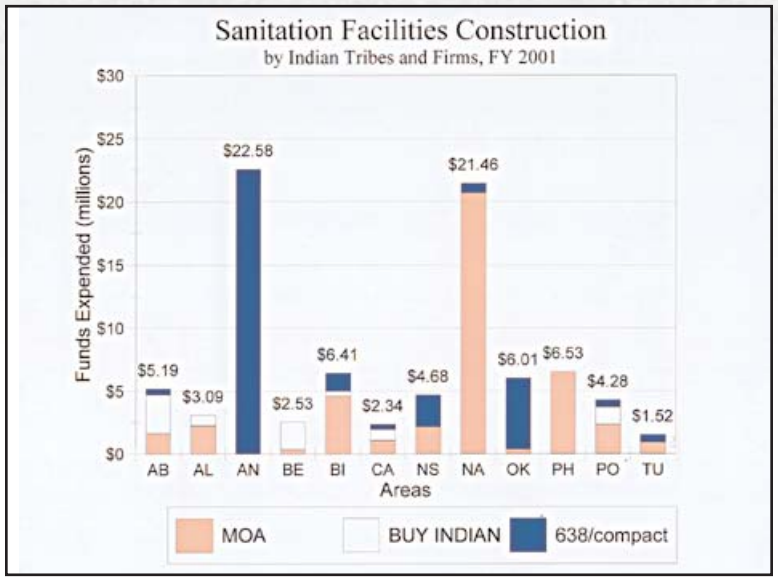


Figure 2: Funds Expended by Indian and Alaska Native tribes and Indian-owned firms in the fiscal year 2001, by IHS Area

Figure 3: Dana Baer, Tribal Utility Consultant, gives homeowner training to Narragansett Indian Tribal members in Rhode Island

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, sixteen tribes from the Anchorage, Billings, California, Nashville, Oklahoma City and Phoenix Areas managed their own SFC Program through 638 Self-Determination contracts and Self-Governance compacts in 2001. A list of these tribes is shown in Table 1.

The IHS SFC Programs seek the advice and recommendations of the national Facilities Appropriation Advisory Board and Area-specific Tribal Advisory Committees. These groups review program

Figure 4: Sewer collection in community of Kykotsmovi, Hopi Reservation.

policies and guidelines and provide input on the future direction of the SFC program.

TABLE 1
Tribes that Managed the SFC Program in FY 2001 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	Hoopa Valley Tribe
Nashville	Penobscot Tribe of Maine
Mississippi	Band of Choctaw Indians
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
	* Ak Chin Indian Community of Papago Indians (In Gila River Contract)

*** Title I**

2001 in Review

In FY 2001, over $93.6 million was appropriated for the construction of sanitation facilities. In addition to those appropriated funds, the SFC Program received more than $4 million from the Department of Housing and Urban Development (HUD) and $40 million in contributions from other Federal agencies including the Environmental

Figure 5: Distribution of SFC Project appropriations, by Area, for fiscal year 2001.

Protection Agency (EPA) and from non-Federal sources such as tribes and State agencies. With these contributions, the SFC Program's construction budget for FY 2001 totaled more than $137 million.

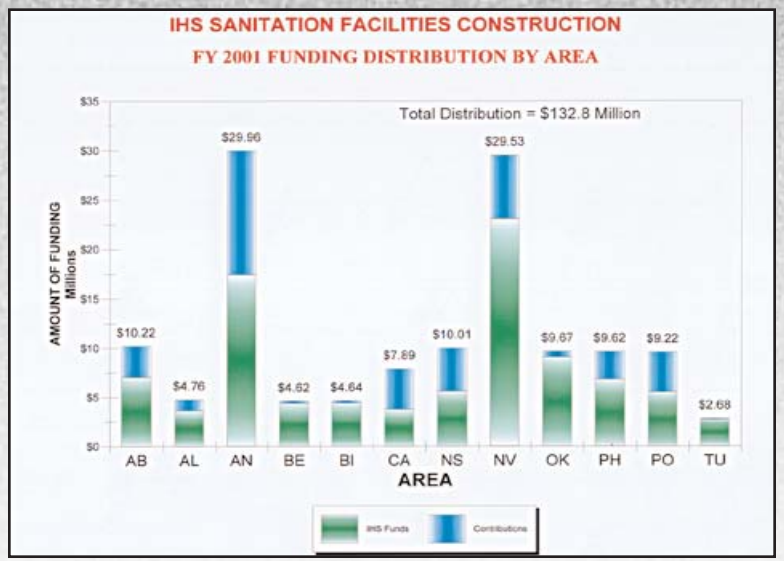


Figure 6: Total distribution of SFC Project funds in FY 2001, including all contributions and HUD funds.

Using the appropriated and contributed funds, the SFC Program initiated 456 projects to provide essential sanitation facilities to an estimated 3,551 new and like- new homes and to 1,646 first service existing homes. Included among the new housing units receiving facilities were 483 HUD-sponsored units, 227 Bureau of Indian Affairs-Home Improvement Program (BIA-HIP) sponsored units, and 2,841 units constructed by tribes, individuals, and other entities. In conjunction with providing sanitation facilities for the first time to new and existing homes, water and sewer systems serving 12,085 previously served homes were upgraded. These statistics are summarized in Table 2 on the following page.

TABLE 2

IHS Sanitation Facilities Construction Program Statistics for FY 2001

SFC Program Budget:

IHS SFC Appropriation =	$	93,616,589
HUD Contributions (Housing + CDBG) =	$	4,078,319
Other Contributions =	$	
		40,802,796
Total Funding in FY 2001 =	$	138,497,704
Total IHS SFC Appropriations since 1959 =	$	1.81 billion

SFC Projects:

Number of Projects Undertaken in 2001 =	456
Total Number of Projects Undertaken since 1959 =	10,583

Homes Provided Sanitation Facilities in FY 2001:

• Number of New and Like-New Homes Served	
HUD-sponsored Homes =	483
BIA-sponsored Homes =	227
Tribal and Other Homes =	2,841
Sub-Total	3,551
• Number of Existing Homes Served =	1,646
• Number of Previously Served Homes Provided Upgraded Sanitation Facilities =	
Total Number of Homes Served in 2001 =	12,805
	18,002

Homes Provided Sanitation Facilities since 1959:

• Number of New and Like-New Homes	
HUD-sponsored Homes =	60,979
BIA-sponsored Homes =	22,152
Tribal and Other Homes =	64,678
Sub-Total	147,809
• Number of Existing Homes =	101,155
Total Number of Homes Served =	248,964

Sanitation Deficiency System (SDS) Information:

Total Estimated Cost of Sanitation Deficiencies =	$1.605 billion
Total Estimated Cost of Feasible Projects =	$876million
Total Number of Projects/Phases Identified =	2,850
Number of Feasible Projects Identified =	2,192
Estimated Total Number of Existing Homes Without Potable Water =	21,269
Estimated Total Number of Homes That Lack Either a Safe Water Supply or Sewage Disposal System, or Both (Deficiency Levels 4 & 5) =	31,460

Five 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 7: River Crossing across the Penobscot river from Old Town to Indian Island, Penobscot Nation.

Figure 8: River Crossing, Penobscot Nation.

Sewer Expansion and Lagoon Upgrade
Tohono O'odham Reservation, Arizona

The community of Pisinimo is part of the eleven district, 22,000 member, Tohono O'odham Nation. The area lies in a flat basin of the Sonoran Desert of south central Arizona. Prior to this project only 60 percent of the residents had bathrooms that connected to either failing septic systems or the existing sewer system. The remaining residents had little or no sanitation facilities and used pit-privies.

IHS funds were combined with HUD CDBG and EPA Clean Water Act Indian Set Aside funds to provide an expanded community sewage collection system and total retention sewage lagoon. HUD CDBG funds were utilized by the Nation to provide bathroom additions with interior plumbing for thirty homes that lacked these basic necessities. The sewer system expansion required mains to be deeper than those of the existing system in order to allow for service connections on the fringes of the community. The new system could not be entirely gravity-based since initial analysis revealed that a lagoon floor elevation over 50' below natural grade was required. Safety concerns, the prohibitive cost of excavation, soil disposal, and reduced airflow across the lagoon cells made this an unfeasible option. The design focused on a centrally located sewage lift station to collect the inflows and pumping into an adjacent gravity system manhole. Negligible discharge head due to the short force main and the high flow requirements severely restricted the choices for an efficient lift station pumping system. The final product consisted of an above ground monitoring/control station with a wet well and two stainless steel low head/high flow submersible pumps with self-sealing guide shoes on slide rails.

Figure 9: Construction of lagoon expansion cell.

Figure 10: Preparing lagoon floor for liner expansion.

The design and construction of this project was complicated by the potentially dangerous excavations for the sewer main and service connections. In addition, a booming statewide economy resulted in a small pool of relatively high bids. Without the ability to award a contract to any of the bidders, IHS design engineers met with Tohono O'odham Utility Authority (TOUA) managers to discuss design modifications, including a safe and cost effective way of eliminating the sludge handling issues that was a driving factor in the high bids. This, in combination with TOUA's ability to actively negotiate some of the unit prices, allowed this project to be awarded in December 2000 for $1.06 million.

The existing lagoon system was expanded by constructing two lagoon cells adjacent to the existing ponds. The expansion of this system doubled the treatment capacity for this community, and the new cells were lined with a High Density Polyethylene (HDPE) lining system with a geotextile underliner. One of the two existing ponds was graded and connected to the system as an unlined tertiary treatment pond which would follow primary and secondary treatment in the lined serial ponds. The use of this unlined pond is not anticipated for many years and would only be needed if the community were to experience rapid growth. The second existing pond was used for sludge disposal only and was taken "off-line". All work at the lagoon site was completed without disruption in service. After 9 months and 4 project superintendents, 6,000' of new sewer main, 10,000' of sewer service line, 3,000' of water service line, and a 7 acre, 3-cell lagoon were completed in September 2001. This was accomplished without disrupting service to a single customer on the existing sewer system.

Figure 11: Project engineer Steve McGovern inspects 20 feet deep sewage lift station wet well.

Figure 12: Sewer system expansion manhole construction.

Cedar Creek Emergency Water Source
Fort Apache Reservation, Arizona

Cedar Creek is a small community of 89 homes surrounded by a palette of red sandstone colored hills dotted with contrasting green cedars. It is located 14 miles west of the White Mountain Apache tribal seat of Whiteriver on the Fort Apache Indian Reservation. In the year 2000, the community lost its water source, and the Phoenix Area Whiteriver field office rapidly responded by engineering

Figure 13: IHS emergency project helped fund a new water source for the community of Cedar Creek.

and constructing a new water supply for the residents of Cedar Creek.

The Cedar Creek water source consisted of two community wells located in the alluvial deposits adjacent to Cedar Creek and another well that served the John F. Kennedy School. The community wells dried up in early 2000 and the entire community became dependent upon the production of the school's well. This BIA-operated school well eventually suffered the same fate as the two community wells in the summer of 2000, and residents were reduced

Figure 14: Over 12 miles of water transmission line was installed from Canyon Day to Cedar Creek.

to hauling water for potable use. In 2000, the BIA attempted drilling a deep well but found the water to be non-potable and treatment of the water was determined to be too expensive.

Following a review of possible alternatives to provide Cedar Creek residents with a new water source, IHS engineers determined that a pipeline extension constructed

from Canyon Day on the Whiteriver Regional Water System to Cedar Creek would be the most cost effective solution. The extension involved constructing over 12 miles of pipeline across two mountain passes in the rugged White Mountains.

In order to fund a project of this magnitude, the Tribe and the IHS worked with several agencies, which required the creation of six different projects. Funds were provided by the EPA, an IHS emergency project, an IHS housing support and BIA project, a HUD CDBG Imminent Threat project, a U.S. Department of Agriculture Rural Development (RD) project, and a HUD housing project. A total of $1.85 million was contributed by the various agencies. Full cooperation and expedited funding allocation was required of all the Federal partners involved in order to ensure that the project could be completed in as timely a manner as possible. Construction on the project began in January 2001 to provide the Cedar Creek community with a new water source. Construction included the installation of 12 miles of 8-inch polyethylene (PE) water transmission line; a booster station located in the community of Canyon Day to provide the necessary water flow to Cedar Creek;

Figure 15: Transmission line installed in the White Mountains.

Figure 16: An invasive weed specie, Kochia scoparia, was identified along the water route and mitigation measures were taken.

a 100,000 gallon water storage tank located at an elevation above Cedar Creek to provide beneficial water pressure and fire flow protection to the existing homes as well as to 20 new homes being constructed under the White Mountain Apache Housing Authority's renowned Apache Dawn Housing Project; and a new water well drilled in the Whiteriver Regional Water System's well field at Miner Flat. The first phase of the project involved the construction of the water main and booster station. This phase was completed in July 2001. The intent of the initial phase was to provide a constant flow of water to the Cedar Creek

community using temporary low-flow pumps in the booster station to remedy the emergency situation and meet system demand as quickly as possible. The second phase of the project involved the construction of a water storage tank, control valves, larger booster pumps, and telemetry controls that would provide long-term water storage and fire flow protection. This second phase is currently under construction and will be completed by April 2002. The third and final phase of the project, involving the drilling of a new well at Miner Flat and installing associated con-

Figure 17: Archaeological sites identified and protected during construction.

trols to supplement the additional demand created by the water system extension to Cedar Creek, will be completed by May 2002.

Several challenges presented themselves during the planning and construction of the water main and booster station. Many aspects of planning which typically take place prior to the bidding for construction had to take place concurrently with the bidding process in order to expedite the project. Two archaeological sites were identified by the Tribal Historical Preservation Office and plans were made to protect the sites during construction. Also, an invasive weed species, *Kochia scoparia*, was identified along a portion of the proposed water main alignment, and as a result, mitigation measures needed to be taken to ensure that the invasive species would not be transported to other locales. During the construction, a rare sacred medicinal plant was discovered and protected from damage from construction activities. From design to funding to procurement to construction, this portion of the project was completed in 10 months. The residents of Cedar Creek now have a potable water supply of high quality and quantity because of the desire of the Tribe to ensure that tribal members have reliable and safe sanitation facilities and the cooperation of the various federal agencies in resolving an emergency situation.

Figure 18: White Mountain Apache Tribal members made up majority of construction workers connecting the Cedar Creek system to the Whiteriver system.

East Glacier Regional Water System
Browning and East Glacier, Montana

The Blackfeet Tribe dealt with the water dilemmas of the communities of Browning and East Glacier for many years. In December 1999, the idea of a regional water system to meet the needs of both communities was set in motion. This project is designed to meet current and future needs of both communities.

Figure 19: 22 inch HDPE pipe and 4 inch air line floating on the lake waiting to be pulledthrough the bore hole in the deep spot of the lake.

The Town of Browning's water supply system is not able to meet the demands of a growing community for many years. Water shortages occurred several times over the last few years due to inadequate water supplies and infrastructure problems. Those water shortages are well documented. Browning currently utilizes ground water, which is of poor quality and quantity, to supply the community with drinking water. There was an extensive amount of research and exploratory drilling over the years to locate an adequate ground water source near Browning; however, all attempts failed. The ground water sources were exhausted and other means of supplying the residents of Browning needed to be developed.

Figure 20: 22 inch HDPE pipe fused together for installation at the bottom of the lake.

East Glacier is another community on the Blackfeet Indian Reservation that has water problems. The community currently utilizes Midvale Creek for its drinking water. This is a surface water source with no filtration. The only method of treatment is chlorination prior to supplying water to the community. East Glacier's water system is in direct violation of EPA's Surface Water Treatment Rule of

the Safe Drinking Water Act (SDWA). A Notice of Violation was sent to the East Glacier Water and Sewer District on August 9, 1993, placing East Glacier on a Boil Water Order. There are substantial health risks to the residents of East Glacier without an adequate water treatment facility.

The proposed project is to construct a water treatment plant to serve both Browning and East Glacier. The treatment plant would utilize water from the Lower Two Medicine Reservoir. The goal of the treatment plant is to comply with the present and future SDWA regulations. The water treatment plant and water distribution mains will be owned and operated by the Blackfeet Tribe. The Town of Browning would then purchase water from the Tribe. Tentative plans are currently being discussed to have the Blackfeet Tribe take over the operation and maintenance of East Glacier's water and sewer systems. In addition to taking over the water and sewer system, the Blackfeet Tribe will also be assuming an existing debt the East Glacier Water and Sewer District has with the Rural Development program.

The project is divided into two phases. Phase 1 consists of the construction of the intake structure, water treatment plant, water main to East Glacier and a 200,000-gallon water tank. Phase 2 consists of the construction of a 500,000- gallon water tank and the 20" water main to Browning. The construction of Phase 1 should begin in July 2002.

Figure 21: Drill rig boring the first pass with the 8 inch drill bit. Passes with a 24 and 26 inch drill bit will be required to install the 22 inch water main.

Figure 22: 22 inch line fuses together and 4 inch air valve fused together.

Big Cove Sewer System
Cherokee, North Carolina

The Big Cove community is located in the heart of the Smoky Mountains of North Carolina. It is one of several communities that make up the Qualla Boundary which is the traditional reservation land of the Eastern Band of Cherokee Indians. The reservation is bordered by the Great Smoky Mountains National Park and provides the main access to the park from the east. Typically, over six million visitors access the park through the Oconoluftee entrance annually. Given the number of visitors to the

Figure 23: Cleared right of way with erosion control. Silt protection for nearby trout streams is essential.

park, it's obvious that tourism and maintaining a pristine mountain setting are of the utmost importance to the Tribe.In 1997, the IHS staff in Cherokee, North Carolina, in cooperation with local tribal staff evaluated the watershed that feeds the reservation and in particular, the surface water treatment plant in Cherokee. Given that the major portion of the watershed is within the wilderness portion of the Smokey Mountains National Park, efforts were concentrated on the reservation areas which were impacted by residential and commercial development in the past years. This area is known as the Big Cove community. It is immediately upstream from the water treatment plant on the Ravens Fork River and is considered to have major impacts on the water supply.

Figure 24: Rock outcroppings are not uncommon in the mountainous terrain.

The study found over 380 homes, six campgrounds, two trout hatcheries, several churches and a variety of community and commercial buildings that could be sources of pollution to the watershed. Failing residential drainfields

and inoperable package waste treatment plants at the campgrounds were identified as the primary potential impacts to the water supply. Water analysis verified the unacceptable levels of microbiological contaminants in the river. In addition, a number of non-point sources of pollution (such as paved roads and parking lots, gravel parking areas with direct hydrologic ties to the river, and unprotected embankments) were identified and recorded in the report. The report concluded that there was a potential for discharges to the river which could have extremely negative impacts on the residential and commercial well- being of the tribal members. It recommended the construction of a community sewer system which would collect sewage from all residential and commercial sources and transport it to the town of Cherokee for proper treatment and disposal at the 3 million gallon per day (mgd) tribal wastewater treatment plant.

Figure 25: Sewer caution tape above Big Cover sewer line.

Armed with the report and the genuine concerns for the environment, Tribal leaders went to Washington to seek

Figure 26: Mountainside installation, clearing the right-of-way.

assistance in correcting the problems. As a result of their lobbying efforts, they received a line item appropriation of $5.5 million in FY 1999 for construction of the sewer system through the EPA Region IV office. Both the IHS and the tribe added commitments of $1.5 million to bring the project total to $8.5 million.

The IHS took the lead role to design this inter-agency cooperative project and continues to be on-site as construction inspectors and on-site engineers. As the major funding source, the EPA was the lead agency for environmental reviews. The U.S. Army Corps of Engineers was contracted to assist in preparing environmental assessments and monitoring environmental concerns during construction.

Figure 27: Big Cove Loop Road-8" PVC sewer lateral.

Figure 28: Straight Fork Bridge ductile iron sewer main.

The tribal utilities and planning staff acted as construction managers of the general contractor. When completed, the Big Cove Sewer Project (NS 99-837), will consist of almost 16 miles of sewer main. After two years of preparation and design, the project began construction in the spring of 2001 and is scheduled for completion in the fall of 2002. In addition to the 16 miles of sewer main, the project includes about 380 residential sewer service connections, 6 commercial campground connections, 11 inverted syphon river crossings, and the connection of numerous community and commercial buildings.

Figure 29: Pipe on piers under Straight Fork Bridge.

A special thanks is due the local IHS and tribal staff for the hours of effort put forth in seeing this project from conception to reality.

Pine Ridge Solid Waste
Pine Ridge, South Dakota

The Pine Ridge Solid Waste Projects were developed in response to the Maddie Blue Legs case, a citizen lawsuit brought against the Tribe, BIA and IHS under the provisions of RCRA (Resouce Conservation and Recovery Act). A series of 5 projects were developed encompassing solid waste collection and landfilling, dump closure and monitoring, and solid waste transfer stations for a total cost of approximately $2.5 million. Funding is being provided by IHS, $904,000, Department of Agriculture (USDA) Rural Development Program, $929,000, and BIA, $636,000. Additional funding for the purchase of equipment is being managed directly by the Tribe.

Figure 30: Construction of 10-acre landfill.

The year 2001 was a year of construction for the Pine Ridge Solid Waste Projects team. Starting in May, work began on the baler building. This portion of the work had previously been bid with prices coming in high. A spring re-bid resulted in excellent bids and an award for $649,570. Work on the baler building was divided into two phases that were essentially onsite and offsite facilities. The second phase was bid and awarded in the fall. Construction completion of both phases is estimated to be early spring 2002.

Figure 31: Completed 10-acre landfill cell with leachate collection system

The landfill with leachate collection system was built for $310,386. Because of the deep tight soils, the EPA's Hydrologic Evaluation of Landfill Performance (HELP) model demonstrated that a double liner type system would not be required which resulted in some significant savings

to the project. This initial cell is expected to last approximately 15 years before the next cell is needed. Currently, an equipment building is under construction at the landfill site. The Tribe expects the landfill to be ready to receive

Figure 32: Skeleton of Pine Ridge Baler Building taking shape.

solid waste bales early this spring when the baling facility in Pine Ridge is completed.

The final phases of this project are to build several transfer/collection stations and perform final closure on the various dumpsites scattered throughout the reservation. Design of the transfer/collection stations is underway. When the baler facility and landfill are in operation then final closure of the last 2 remaining active dumpsites can commence. All but the 2 dumpsites were closed prior to the EPA deadline of October 9, 1997. These are relatively small areas and will require final cover and monitoring.

Figure 33: Steel siding going up on the Pine Ridge Baler Building.

The coming year should see the completion of the Pine Ridge Solid Waste Projects.

Figure 34: Completed Pine Ridge Baler Building

Sanitation Facilities and Health

Protecting the health of and preventing disease among American Indian and Alaska Native populations are primary IHS objectives. In the Indian Health Care Improvement Act (P.L. 93-437, as amended), the Congress declared 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 35: Sewer infiltrator sections installed in Alaska.

A Report to Congress by the Comptroller General, dated March 11, 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; i.e., those with satisfactory environmental conditions in their homes required approxi-

Figure 36: Septic tank installation in Alaska.

mately 25 percent of the medical services required by those with unsatisfactory environmental conditions.

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 ill-

nesses as salmonellosis, typhoid fever, cholera and giardiosis. 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.

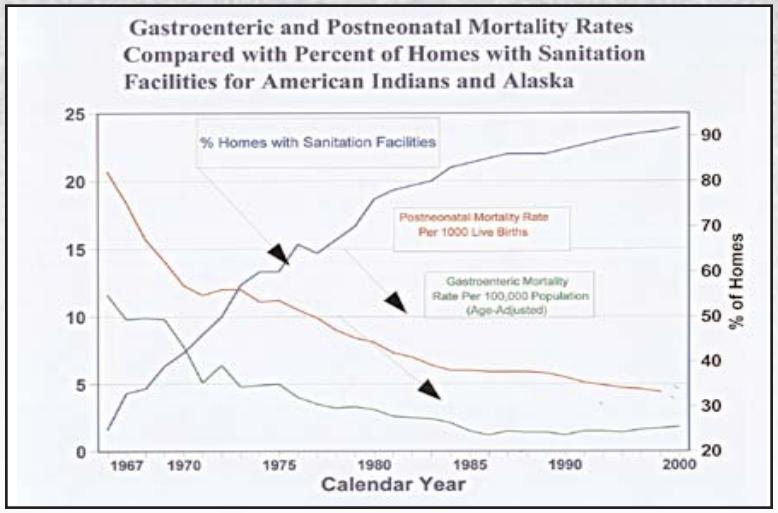


Figure 37: Graph of gastroenteric and postneonatal death rates versus the number of Indian homes with sanitation facilities.

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. 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 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 1995 by contrast, the age-adjusted gastrointestinal disease death rate had decreased significantly to 1.4 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 1995 rate is still 42 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.

Program Operations

The SFC Program is part of the Office of Environmental Health and Engineering. The SFC Program's activities are supported by engineers, sanitarians, full- and part-time 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 interfacing with other Federal agencies.

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 (formally Farmers Home) toward achieving its sanitation facilities construction objectives. An example is the funding for sanitation facilities construction in support of new and renovated HUD homes typically made available to the SFC Program by HUD through tribes 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.

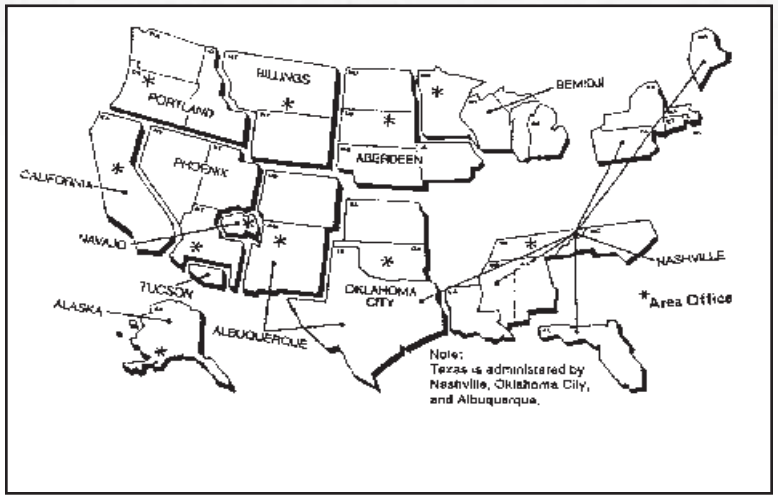


Figure 38: Location of Indian Health Service Area Offices.

Figure 39: Waterline construction in Monument Valley, Arizona.

Similar agreements among the tribes, IHS, and the EPA Indian Set-Aside Grants (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, provide relatively little assistance 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 American Indian and Alaska Native homes and communities benefits more than 560 Federally recognized tribes and tribal organizations located in the 33 Reservation States. Sanitation facilities are provided, at the request of tribes, bands, or groups, for homes owned and occupied by American Indians and Alaska Natives who are eligible for assistance. Provision of water, wastewater, and solid waste facilities for commercial and industrial purposes is not authorized under P.L. 86-121; therefore, such needs are not addressed by the SFC Program.

Figure 40: Concrete pour for a clarifier base on the Shiprock wastewater treatment plant.

Figure 41: Port Lions surface water impoundment, Alaska.

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

Figure 42: Vacuum sewer lines leading to a water treatment /vacuum sewer/washeteria building in Selawik, Alaska.

Housing Support Projects provide sanitation facilities for new homes and homes in like new condition for 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 non-profit 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 Indian Health Care Improvement Act requirements. 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 SFC Program Headquarters Office. The average project funding level is $20,000 to $50,000.

Figure 43: "Moon over Port Lions". Building erected on the Port Lions job site for project workers, Alaska.

In addition to providing direct services for the construction of sanitation facilities, the SFC Program provides techni-

cal 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 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.

Figure 44: Chief Engineer of the Public Health Service, RADM Williams, on a site visit in Anchorage, Alaska.

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 new facilities owners 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. This 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.

Sanitation Deficiencies

The Indian Health Care Improvement Act (IHCIA) requires the IHS, starting in FY 1990, to develop and begin implementation of a 10-year 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 Indian and Alaska Native homes and communities. Sanitation deficiencies are reported as proposed projects or project phases. The 2001 inventory of sanitation deficiencies identified more than 2,850 sanitation facilities construction projects or project phases at an estimated cost of $1.6 billion. These projects represent the universe of need eligible for IHS funding. However, some projects are prohibitively expensive to construct and/or operate and are considered to be economically infeasible. Currently, 2,192 of the identified projects are considered to be economically feasible with an estimated cost of $876 million.

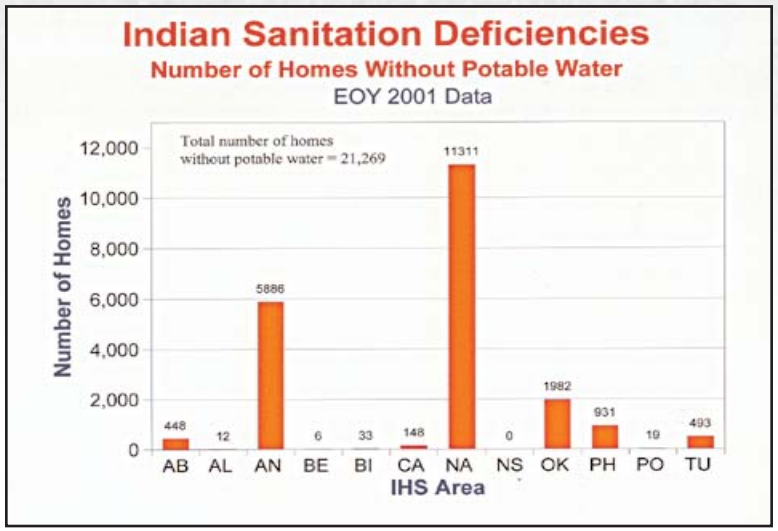


Figure 45: Number of Indian homes without potable water, by Area.

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 facility.

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 1 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 will bring all facilities to deficiency level I or better.

These deficiencies represent an enormous challenge, especially because the resources to meet them are finite.

Figure 46: High density Polyethylene (HDPE) liner placement in expanded lagoon, Arizona.

Existing sanitation facilities require upgrading while efforts continue towards providing services to many yet unserved and mostly isolated homes.

In January 1997, the EPA published the results of its first nationwide survey of drinking water system's infrastructure needs (DWINS) and the associated costs to meet these needs over the next 20 years. The report estimated the nationwide needs and the American Indian and Alaska Native communities needs for complying with current and future federal regulations, replacing aging infrastructure to protect public health, and consolidation with or acquiring neighboring water systems without safe supplies of drinking water.

Figure 47: Wastewater flow into completed lagoon, Arizona.

The EPA's estimated cost for the American Indian and Alaska Native drinking water systems was $1.3 billion over the next 20 years. That estimate was substantially higher than the SFC Program estimate of $945 million for water deficiencies for the same period. The difference between the DWINS cost and the SFC Program's cost results from differences in the way needs were considered; for example, the EPA survey includes capital infrastructure needs to serve commercial and tribal enterprises. Water and wastewater facility needs for commercial and industrial enterprises on reservations are not included in the SFC Program list of deficiencies, because those facilities do not meet the eligibility requirements for IHS assistance. The IHS also limits the needs reported for Indian homes located in non- Indian communities and does not consider proposed community development projects designed to improve the convenience of services if safe and adequate sanitation facilities already exist.

The DWINS report published in February 2001 estimated American Indian and Alaska Native drinking water needs at $2.2 billion compared to the SFC Program sanitation deficiency system estimate of $977 million for the same period. Cost-effective and practical approaches to meet these IHS eligible needs are being developed by the SFC Program staff in conjunction with those being served. Tribes and communities are encouraged to consider water conservation measures and to further improve their operation and maintenance activities.

Tables 3 thru 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
ABERDEEN	917	4,423	12,161	327	433	18,261
ALBUQUERQUE	2,636	6,474	4,418	177	10	13,715
ANCHORAGE	242	1,475	10,592	589	3,944	16,842
BEMIDJI	4,625	4,639	4,375	438	120	14,197
BILLINGS	2,909	3,192	6,949	466	18	13,534
CALIFORNIA	61	613	4,435	5,413	384	10,906
NAVAJO	11,375	10,258	32,600	713	10,699	65,645
NASHVILLE	1,335	2,484	5,436	971	52	10,278
OKLAHOMA CITY	55,653	1,102	21,569	2,392	420	81,136
PHOENIX	4,453	7,525	7,983	1,164	871	21,996
PORTLAND	0	4,918	5,568	441	8	10,935
TUCSON	687	523	2,854	201	1,209	5,474
TOTAL	84,893	47,626	118,940	13,292	18,168	282,919

Table 4
Number of Homes Requiring Assistance
By Type of Facility

AREA	WATER	SEWER	SOLID WASTE	Eligible Homes
ABERDEEN	12,198	7,032	7,070	18,261
ALBUQUERQUE	10,914	7,542	1,900	13,715
ANCHORAGE	13,243	12,163	15,508	16,842
BEMIDJI	7,086	4,604	2,221	14,197
BILLINGS	7,375	3,036	7,275	13,534
CALIFORNIA	9,153	9,136	9,517	10,906
NAVAJO	33,567	17,334	39,924	65,645
NASHVILLE	8,529	8,304	7,185	10,278
OKLAHOMA CITY	5,108	2,547	21,122	81,136
PHOENIX	15,128	9,904	6,038	21,996
PORTLAND	5,421	4,834	8,573	10,935
TUCSON	4,741	1,810	4,764	5,474
TOTAL	132,463	88,246	131,097	282,919

Table 5

Project Cost Estimate by Deficiency Level

Feasible Projects

AREA	LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	TOTAL
ABERDEEN	$0	$33,285,000	$30,718,500	$4,435,000	$5,944,000	$74,382,500
ALBUQUERQUE	$0	$32,501,300	$18,983,100	$1,031,000	$0	$52,515,400
ANCHORAGE	$0	$28,964,970	$108,788,739	$149,435,385	$344,000	$287,533,093
BEMIDJI	$0	$8,508,360	$5,931,729	$1,584,845	$0	$16,024,934
BILLINGS	$0	$10,116,700	$6,792,000	$1,328,900	$0	$18,237,600
CALIFORNIA	$0	$3,412,000	$11,842,000	$3,421,400	$245,000	$18,920,400
NAVAJO	$0	$21,074,800	$12,694,750	$8,304,580	$184,071,587	$226,145,717
NASHVILLE	$0	$14,166,000	$13,932,950	$6,704,550	$0	$34,803,500
OKLAHOMA CITY	$0	$1,594,000	$7,853,900	$14,453,850	$814,000	$24,715,750
PHOENIX	$0	$41,701,050	$18,107,500	$2,333,000	$12,523,000	$74,664,550
PORTLAND	$0	$16,588,580	$6,359,200	$1,665,750	$0	$24,613,530
TUCSON	$0	$4,998,075	$4,602,238	$8,208,212	$5,305,024	$23,113,549
TOTAL	$0	$216,910,835	$246,606,606	$202,906,472	$209,246,611	$875,670,523

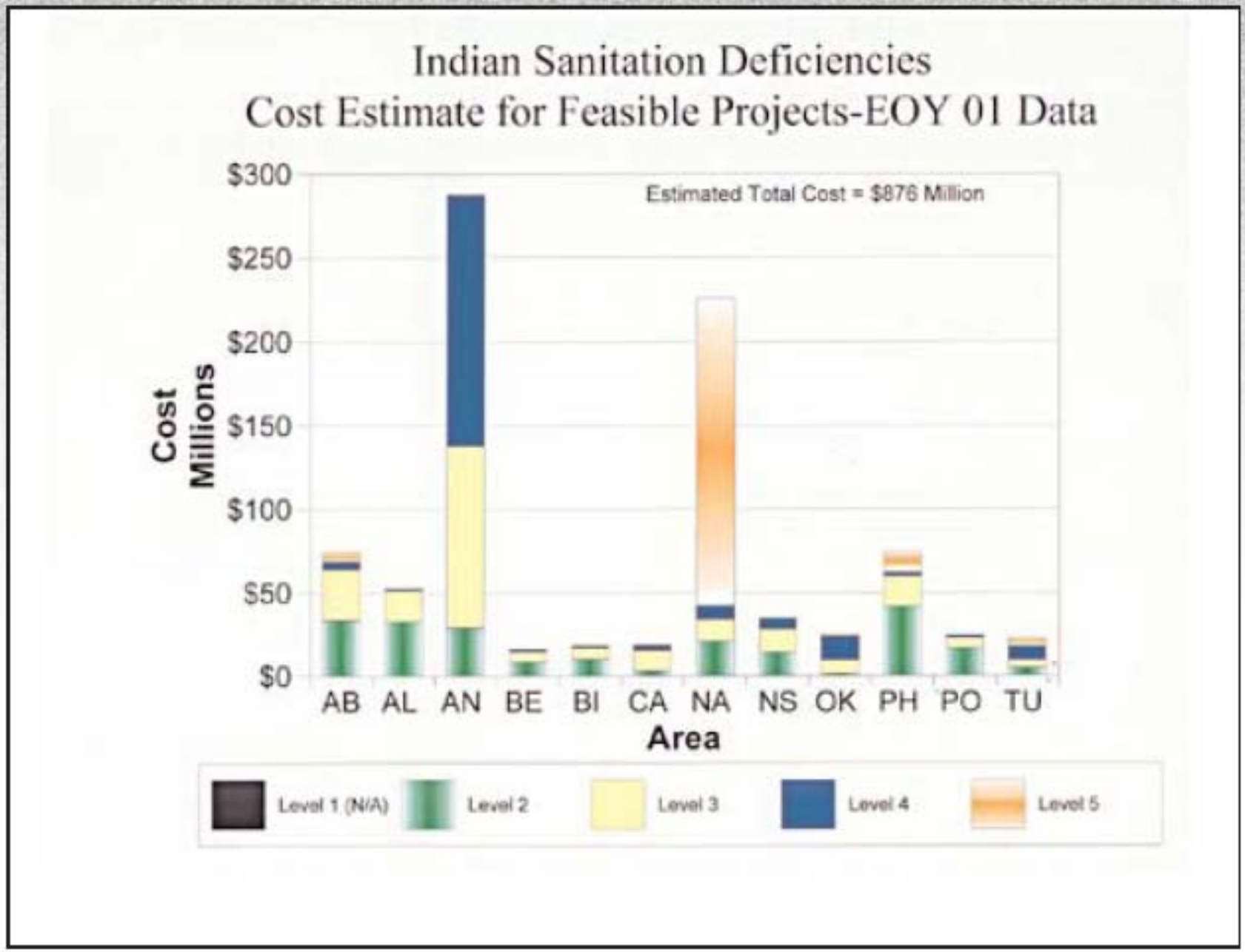

Indian Sanitation Deficiencies
Cost Estimate for Feasible Projects-EOY 01 Data
Estimated Total Cost = $876 Million
$300
$250
$200
$150
$100
$50
$0
Cost
Millions
AB AL AN BE BI CA NA NS OK PH PO TU
Area
Level 1 (N/A)
Level 2
Level 3
Level 4
Level 5

Table 6

Project Cost Estimate by Deficiency Level

Total Data Base

AREA	LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	TOTAL
ABERDEEN	$1,090,000	$45,625,000	$47,747,500	$5,793,000	$6,235,000	$106,490,500
ALBUQUERQUE	$5,395,715	$47,536,280	$22,115,600	$2,762,000	$50,000	$77,859,595
ANCHORAGE	$9,485,752	$77,573,250	$273,632,070	$287,692,877	$1,784,000	$650,167,950
BEMIDJI	$14,494,800	$19,941,435	$7,705,729	$1,746,445	$0	$43,888,409
BILLINGS	$253,000	$11,831,700	$7,449,000	$1,328,900	$0	$20,862,600
CALIFORNIA	$0	$5,022,000	$21,649,000	$6,931,400	$245,000	$33,847,400
NAVAJO	$2,455,000	$155,907,168	$13,161,750	$14,704,580	$196,331,497	$382,559,995
NASHVILLE	$990,500	$19,451,700	$20,495,900	$11,389,550	$0	$52,327,650
OKLAHOMA CITY	$0	$1,873,000	$8,621,900	$15,559,850	$862,000	$26,916,750
PHOENIX	$401,000	$61,424,050	$32,331,500	$5,014,000	$22,823,000	$121,993,550
PORTLAND	$0	$19,940,330	$28,358,500	$3,013,150	$0	$51,311,980
TUCSON	$0	$7,890,075	$7,440,038	$10,937,212	$10,035,824	$36,303,149
TOTAL	$34,565,767	$474,015,988	$490,708,487	$366,872,964	$238,366,321	$1,604,529,528

Indian Sanitation Deficiencies

Total Data Base - EOY 2001 Data

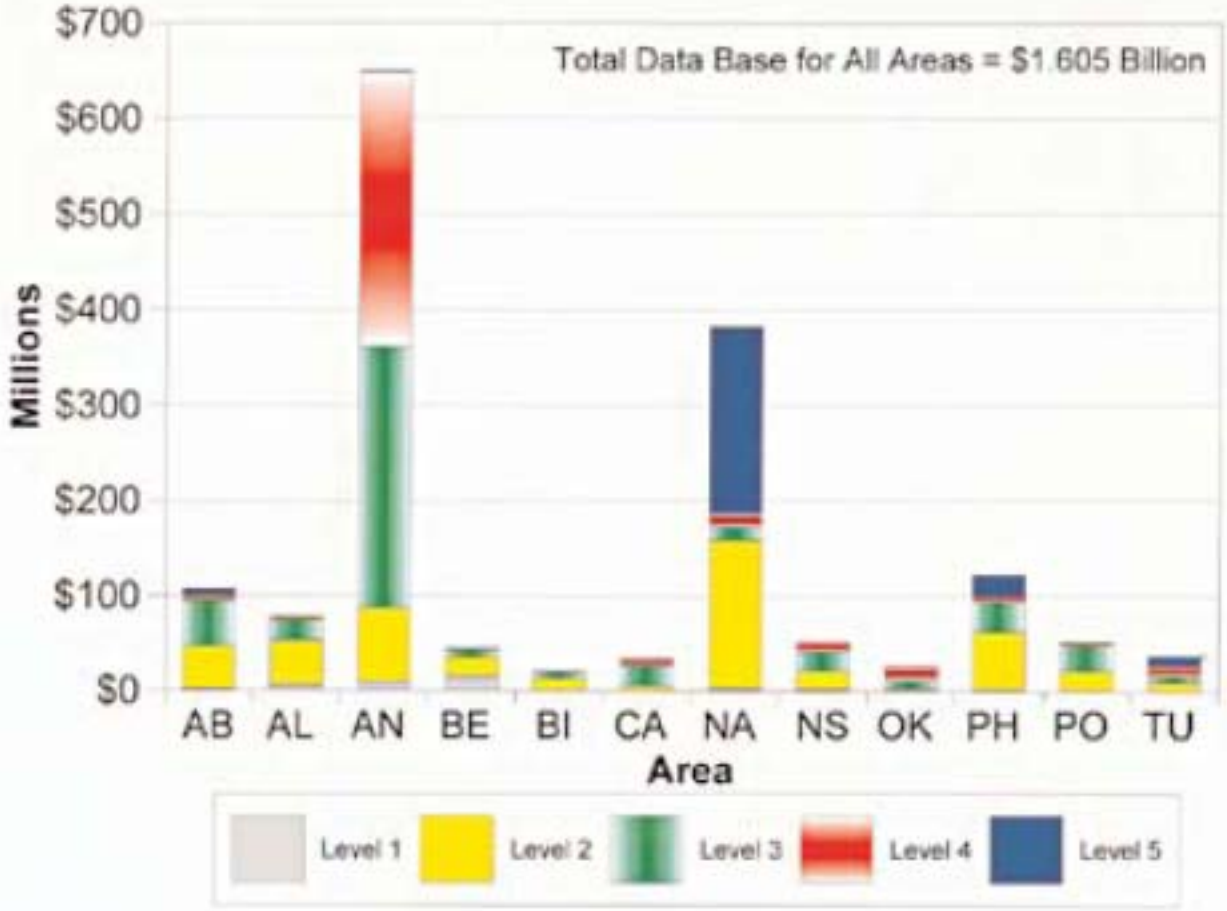


Table 7

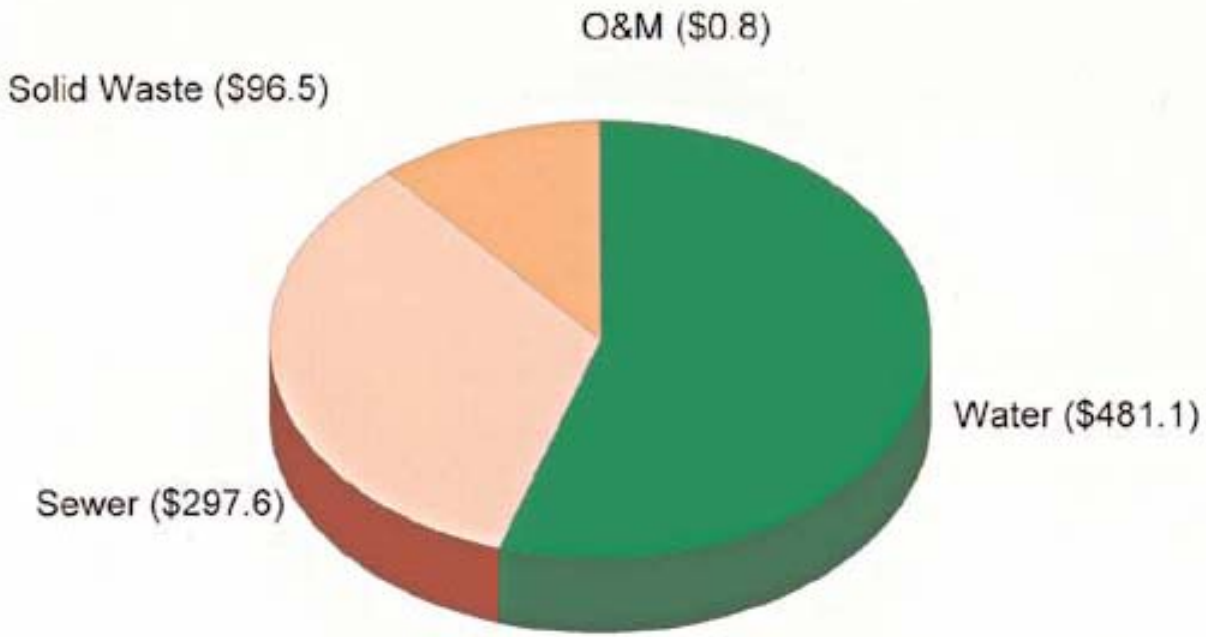
Cost Estimates by Type of Needed Facility by IHS Area

Feasible Projects

AREA	WATER	SEWER	SOLID WASTE	O&M	TOTALS
ABERDEEN	$42,325,000	$21,000,000	$11,007,500	$50,000	$74,382,500
ALBUQUERQUE	$28,503,950	$20,511,950	$3,441,000	$58,500	$52,515,400
ANCHORAGE	$140,767,488	$103,523,551	$43,242,054	$0	$287,533,093
BEMIDJI	$11,027,507	$3,544,127	$1,453,300	$0	$16,024,934
BILLINGS	$10,035,900	$4,801,700	$3,400,000	$0	$18,237,600
CALIFORNIA	$7,344,400	$8,182,000	$3,214,000	$180,000	$18,920,400
NAVAJO	$146,277,059	$71,351,158	$8,517,500	$0	$226,145,717
NASHVILLE	$15,265,500	$15,819,700	$3,590,560	$127,740	$34,803,500
OKLAHOMA CITY	$16,492,700	$5,167,150	$3,055,900	$0	$24,715,750
PHOENIX	$39,915,550	$27,018,000	$7,635,000	$96,000	$74,664,550
PORTLAND	$11,853,630	$8,010,400	$4,748,000	$1,500	$24,613,530
TUCSON	$11,373,032	$8,294,473	$3,184,689	$261,355	$23,113,549
TOTAL	$481,181,716	$297,224,209	$96,489,503	$775,095	$875,670,523

Current 10-Year Funding Plan to Address Indian Sanitation Deficiencies

Cost Estimate by Type of Facilities
EOY 2001 Data - Economically Feasible Projects



Total IHS Estimate = $ 876 Million

(Costs Shown in Millions of Dollars)

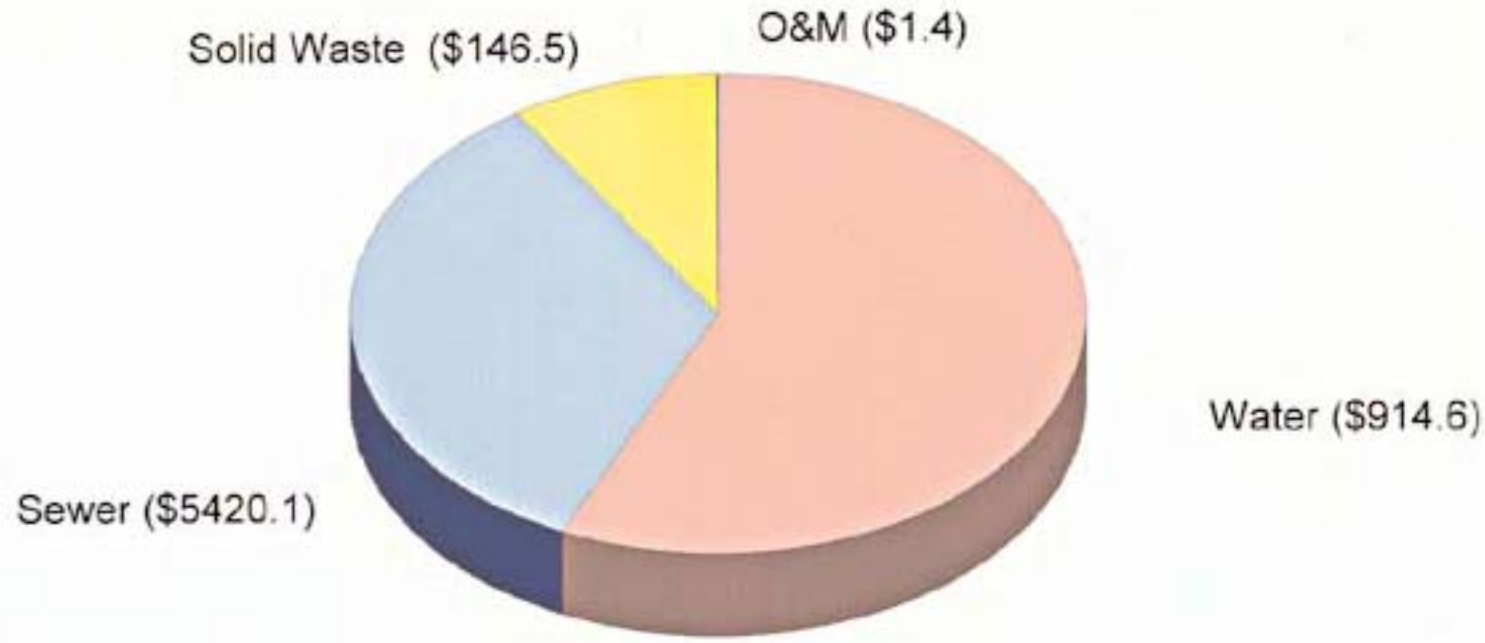
Table 8

Cost Estimates by Type of Needed Facility by IHS Area

Total Data Base

AREA	WATER	SEWER	SOLID WASTE	O&M	TOTALS
ABERDEEN	$71,770,000	$23,508,000	$11,007,500	$205,000	$106,490,500
ALBUQUERQUE	$40,286,550	$33,983,545	$3,531,000	$58,500	$77,859,595
ANCHORAGE	$306,344,273	$254,650,756	$89,172,920	$0	$650,167,950
BEMIDJI	$21,889,362	$20,307,947	$1,651,100	$40,000	$43,888,409
BILLINGS	$11,858,900	$5,603,700	$3,400,000	$0	$20,862,600
CALIFORNIA	$12,854,400	$17,454,000	$3,354,000	$185,000	$33,847,400
NAVAJO	$293,732,397	$78,310,098	$10,517,500	$0	$382,559,995
NASHVILLE	$24,624,400	$23,807,450	$3,768,060	$127,740	$52,327,650
OKLAHOMA CITY	$18,438,200	$5,422,650	$3,055,900	$0	$26,916,750
PHOENIX	$57,249,550	$57,001,000	$7,635,000	$108,000	$121,993,550
PORTLAND	$33,545,380	$12,900,100	$4,845,000	$21,500	$51,311,980
TUCSON	$21,986,032	$9,103,473	$4,590,689	$622,955	$36,303,149
TOTAL	$914,579,444	$542,052,719	$146,528,669	$1,368,695	$1,604,529,528

Cost Estimate by Type of Facilities
EOY 2001 Data- Total Data Base



Total IHS Estimate = 1.605 Billion

(Costs Shown in Millions of Dollars)

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 40 years ago. This factor becomes increasingly critical as the reliability decreases 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.

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 Tribes, Congress and IHS is needed if we are to meet these challenges successfully.

Figure 48: Cedar Creek residents celebrated the completion of the water transmission line that went from design to construction completion in 10 months.

IHS Area SFC Program Directory

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Ph. (605) 226-7451

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

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

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

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

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

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

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

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

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

Portland Area/DSFC
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Portland, OR 97204-2892
Ph. (503) 326-2001

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